CROSS-REFERENCE FOR LOCATING STAFF DOSE CALCULATION FILES

Type of Dose Calculation	Location in Appendix H of NUREG-1811, FEIS[a]	Corresponding LADTAP II or GASPAR II File(s)
Liquid pathway – dose to maximally exposed individual (MEI) (proposed units)	Table H-3	*north anna_popul_Sept06.lnp* *north anna_popul_other_Sept06.lnp*
Liquid pathway – dose to population (proposed units)	Table H-3, Table H-8	*north anna_popul_Sept06.lnp* *north anna_popul_other_Sept06.lnp*
Liquid pathway – dose to biota (proposed units)	Table H-11	*north anna_biota_Sept06.lnp* *north anna_biota_other_Sept06.lnp*
Liquid pathway – dose from existing tritium concentration in Lake Anna	Table H-10	Attachment 1
Gaseous pathway (ESP reactor units) – dose to maximally exposed individual (MEI)	Table H-6, Table H-7	*north anna_mei_primary_Sept06.gnp* *north anna_mei_other_Sept06.gnp* *north anna_noble gases_Sept06.gnp*
Gaseous pathway (ESP reactor units) – dose to population	Table H-8	*gas_out_na-popul_primary_Sept06.dat* *gas_out_na_other_Sept06.dat*
Gaseous pathway (Unit 3 wet cooling towers) - dose to maximally exposed individual (MEI)	Table H-9	*North anna_mei_tritium_Sept06.gnp*
Gaseous pathway (Unit 3 wet cooling towers) - dose to population	Section H.3.4	*gas_out_na-popul_primary_Sept06.dat*[b]
Gaseous pathway – dose to biota	Table H-12	*north anna_mei_primary_Sept06.gnp* *north anna_mei_other_Sept06.gnp*

(a) NUREG-1811 – Environmental Impact Statement for an Early Site Permit (ESP) at the North Anna ESP Site

(b) The population dose from tritium released from Unit 3 cooling towers (216 Ci/yr) was calculated by scaling to the population dose of 9.2 person-rem for 3500 Ci/yr. This results in an estimated 0.57 person-rem/yr from Unit 3 cooling tower releases.

ATTACHMENT 1

Dose Estimates from Tritium Concentrations in Lake Anna

Dose estimates from existing tritium concentrations in Lake Anna are present below. Per Section H.3.3 of the FEIS, the average tritium concentration in Lake Anna over the past six years is 3049 pCi/L. Using bioaccumulation factors, usage factors, and dose factors from LADTAP II (Strenge et al 1986), the following dose was estimated to the child (most limiting age group):

Pathway[a]	**Tritium Concentration (pCi/L)**	**Bioaccumulation Factor (pCi/kg per pCi/L)**	**Usage Factor (L/yr or kg/yr)**	**Dose Factor for Total Body[b] (mrem/pCi)**	**Dose (mrem/yr)**
Drinking Water	3049	-	510	1.16×10^{-7}	1.80×10^{-1}(c)
Fish	3049	0.9	6.9	1.16×10^{-7}	2.20×10^{-3}(d)
Invertebrate	3049	0.9	1.7	1.16×10^{-7}	5.41×10^{-4}(d)
TOTAL					1.83×10^{-1}

(a) Tritium does not contribute to external dose; therefore, there is no dose for the shoreline, swimming, and boating pathways.
(b) Same dose factor for liver, thyroid, kidney, lung, and GI-LLI.
(c) Product of (tritium concentration) (usage factor) (dose factor)
(d) Product of (tritium concentration) (bioaccumulation factor) (usage factor) (dose factor)

The total body dose from existing tritium concentration in Lake Anna from all pathways for the child is 0.18 mrem/yr. The dose from tritium added to Lake Anna for the proposed ESP units is conservatively estimated in *north anna_popul_Sept06.lnp*.

References

Strenge, D.L., R. A. Peloquin, and G. Whelan. 1986. *LADTAP II – Technical Reference and User Guide*. NUREG/CR-4013, Pacific Northwest Laboratory, Richland, Washington.

1
1

North anna_ popul_ Sept 06. Inp
(revised ^3H - 850 Ci/yr)

```
*****************************************************************************
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*            L      AAA   DDDD   TTTTT   AAA   PPPP     IIIII IIIII         *
*            L     A   A  D   D    T    A   A  P   P      I     I           *
*            L     A   A  D   D    T    A   A  P   P      I     I           *
*            L     AAAAA  D   D    T    AAAAA  PPPP       I     I           *
*            L     A   A  D   D    T    A   A  P          I     I           *
*            LLLLL A   A  DDDD     T    A   A  P        IIIII IIIII         *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*          EVALUATION OF RADIATION DOSES FROM RELEASES OF RADIACTIVITY      *
*                                                                           *
*                    IN NUCLEAR POWER PLANTS LIQUID EFFLUENTS               *
*                                                                           *
*                     REVISION DATE:  JSB PC - February 1996                *
*                                                                           *
*                                                                           *
*      North Anna - Liquid Effluent - MEI                                   *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                        RADIOLOGICAL ASSESSMENT BRANCH                     *
*                                                                           *
*                        DIVISION OF SYSTEMS INTEGRATION                    *
*                                                                           *
*                        U. S. NUCLEAR REGULATORY COMMISSION                *
*                                                                           *
*                        WASHINGTON, D. C.                                  *
*                                                                           *
*                        DATE OF RUN:    13-Nov-2006                        *
*                                                                           *
*****************************************************************************
1
 North Anna - Liquid Effluent - MEI
0  DISCHARGE=2.20E+01 CFS          SOURCE TERM MULTIPLIER=1.00E+00
0  50-MILE POPULATION=2.78E+06     FRACTION ---  ADULT= .71
                                                 TEENAGER= .11
                                                 CHILD= .18
0  FRESHWATER SITE
1
 Table 5.4-6 of ER
 NO INTERNAL RECONCENTRATION MODEL EMPLOYED
0                              *  *  *  ADULT DOSE FACTORS  *  *  *
```

0

NUCLIDE	CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
1H 3	8.50E+02	0.00E+00	5.99E-08	5.99E-08	5.99E-08	5.99E-08	5.99E-08	5.99E-08	0.00E+00	0.00E+00	1.00E+00
11NA 24	3.50E-03	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	2.90E-08	2.50E-08	1.00E+00
24CR 51	2.10E-02	0.00E+00	0.00E+00	2.66E-09	1.59E-09	5.86E-10	3.53E-09	6.69E-07	2.60E-10	2.20E-10	1.00E+00
25MN 54	2.80E-03	0.00E+00	4.57E-06	8.72E-07	0.00E+00	1.36E-06	0.00E+00	1.40E-05	6.80E-09	5.80E-09	1.00E+00
25MN 56	4.20E-03	0.00E+00	1.15E-07	2.04E-08	0.00E+00	1.46E-07	0.00E+00	3.67E-06	1.30E-08	1.10E-08	1.00E+00
26FE 55	6.40E-03	2.75E-06	1.90E-06	4.43E-07	0.00E+00	0.00E+00	1.06E-06	1.09E-06	0.00E+00	0.00E+00	1.00E+00
26FE 59	2.00E-04	4.34E-06	1.02E-05	3.91E-06	0.00E+00	0.00E+00	2.85E-06	3.40E-05	9.40E-09	8.00E-09	1.00E+00
27CO 57	7.90E-05	0.00E+00	1.75E-07	2.91E-07	0.00E+00	0.00E+00	0.00E+00	4.44E-06	1.00E-09	9.10E-10	1.00E+00
27CO 58	3.40E-03	0.00E+00	7.45E-07	1.67E-06	0.00E+00	0.00E+00	0.00E+00	1.51E-05	8.20E-09	7.00E-09	1.00E+00
27CO 60	1.00E-02	0.00E+00	2.14E-06	4.72E-06	0.00E+00	0.00E+00	0.00E+00	4.02E-05	2.00E-08	1.70E-08	1.00E+00
30ZN 65	7.50E-04	4.84E-06	1.54E-05	6.96E-06	0.00E+00	1.03E-05	0.00E+00	9.70E-06	4.60E-09	4.00E-09	1.00E+00
37RB 88	2.70E-04	0.00E+00	6.05E-08	3.21E-08	0.00E+00	0.00E+00	0.00E+00	8.36E-19	4.00E-09	3.50E-09	1.00E+00
38SR 89	3.60E-04	3.08E-04	0.00E+00	8.84E-06	0.00E+00	0.00E+00	0.00E+00	4.94E-05	6.50E-13	5.60E-13	1.00E+00
38SR 90	3.80E-05	8.71E-03	0.00E+00	1.75E-04	0.00E+00	0.00E+00	0.00E+00	2.19E-04	0.00E+00	0.00E+00	1.00E+00
41NB 95	1.90E-03	6.22E-09	3.46E-09	1.86E-09	0.00E+00	3.42E-09	0.00E+00	2.10E-05	6.00E-09	5.10E-09	1.00E+00
42MO 99	3.90E-03	0.00E+00	4.31E-06	8.20E-07	0.00E+00	9.76E-06	0.00E+00	9.99E-06	2.20E-09	1.90E-09	1.00E+00
43TC 99M	5.10E-03	2.47E-10	6.98E-10	8.89E-09	0.00E+00	1.06E-08	3.42E-10	4.13E-07	1.10E-09	9.60E-10	1.00E+00
44RU 103	4.90E-03	1.85E-07	0.00E+00	7.97E-08	0.00E+00	7.06E-07	0.00E+00	2.16E-05	4.20E-09	3.60E-09	1.00E+00
44RU 106	7.40E-02	2.75E-06	0.00E+00	3.48E-07	0.00E+00	5.31E-06	0.00E+00	1.78E-04	1.80E-09	1.50E-09	1.00E+00
47AG 110M	1.10E-03	1.60E-07	1.48E-07	8.79E-08	0.00E+00	2.91E-07	0.00E+00	6.04E-05	2.10E-08	1.80E-08	1.00E+00
51SB 124	6.80E-04	2.80E-06	5.29E-08	1.11E-06	6.79E-09	0.00E+00	2.18E-06	7.95E-05	1.50E-08	1.30E-08	1.00E+00
53I 131	1.40E-02	4.16E-06	5.95E-06	3.41E-06	1.95E-03	1.02E-05	0.00E+00	1.57E-06	3.40E-09	2.80E-09	1.00E+00
53I 132	2.80E-03	2.03E-07	5.43E-07	1.90E-07	1.90E-05	8.65E-07	0.00E+00	1.02E-07	2.00E-08	1.70E-08	1.00E+00
53I 133	2.40E-02	1.42E-06	2.47E-06	7.53E-07	3.63E-04	4.31E-06	0.00E+00	2.22E-06	4.50E-09	3.70E-09	1.00E+00
53I 134	1.90E-03	1.06E-07	2.88E-07	1.03E-07	4.99E-06	4.58E-07	0.00E+00	2.51E-10	1.90E-08	1.60E-08	1.00E+00
53I 135	8.20E-03	4.43E-07	1.16E-06	4.28E-07	7.65E-05	1.86E-06	0.00E+00	1.31E-06	1.40E-08	1.20E-08	1.00E+00
55CS 134	9.90E-03	6.22E-05	1.48E-04	1.21E-04	0.00E+00	4.79E-05	1.59E-05	2.59E-06	1.40E-08	1.20E-08	1.00E+00
55CS 136	1.20E-03	6.51E-06	2.57E-05	1.85E-05	0.00E+00	1.43E-05	1.96E-06	2.92E-06	1.70E-08	1.50E-08	1.00E+00
55CS 137	1.30E-02	7.97E-05	1.09E-04	7.14E-05	0.00E+00	3.70E-05	1.23E-05	2.11E-06	4.90E-09	4.20E-09	1.00E+00
55CS 138	2.10E-04	5.52E-08	1.09E-07	5.40E-08	0.00E+00	8.01E-08	7.91E-09	4.65E-13	2.40E-08	2.10E-08	1.00E+00
56BA 140	5.50E-03	2.03E-05	2.55E-08	1.33E-06	0.00E+00	8.67E-09	1.46E-08	4.18E-05	2.40E-09	2.10E-09	1.00E+00
57LA 140	7.40E-03	2.50E-09	1.26E-09	3.33E-10	0.00E+00	0.00E+00	0.00E+00	9.25E-05	1.70E-08	1.50E-08	1.00E+00
58CE 141	1.30E-04	9.36E-09	6.33E-09	7.18E-10	0.00E+00	2.94E-09	0.00E+00	2.42E-05	6.20E-10	5.50E-10	1.00E+00
58CE 144	3.20E-03	4.88E-07	2.04E-07	2.62E-08	0.00E+00	1.21E-07	0.00E+00	1.65E-04	3.70E-10	3.20E-10	1.00E+00

0 * * * TEENAGER DOSE FACTORS * * *

0

NUCLIDE	CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
1H 3	8.50E+02	0.00E+00	6.04E-08	6.04E-08	6.04E-08	6.04E-08	6.04E-08	6.04E-08			
11NA 24	3.50E-03	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06			
24CR 51	2.10E-02	0.00E+00	0.00E+00	3.60E-09	2.00E-09	7.89E-10	5.14E-09	6.05E-07			
25MN 54	2.80E-03	0.00E+00	5.90E-06	1.17E-06	0.00E+00	1.76E-06	0.00E+00	1.21E-05			
25MN 56	4.20E-03	0.00E+00	1.58E-07	2.81E-08	0.00E+00	2.00E-07	0.00E+00	1.04E-05			
26FE 55	6.40E-03	3.78E-06	2.68E-06	6.25E-07	0.00E+00	0.00E+00	1.70E-06	1.16E-06			
26FE 59	2.00E-04	5.87E-06	1.37E-05	5.29E-06	0.00E+00	0.00E+00	4.32E-06	3.24E-05			
27CO 57	7.90E-05	0.00E+00	2.38E-07	3.99E-07	0.00E+00	0.00E+00	0.00E+00	4.44E-06			
27CO 58	3.40E-03	0.00E+00	9.72E-07	2.24E-06	0.00E+00	0.00E+00	0.00E+00	1.34E-05			
27CO 60	1.00E-02	0.00E+00	2.81E-06	6.33E-06	0.00E+00	0.00E+00	0.00E+00	3.66E-05			
30ZN 65	7.50E-04	5.76E-06	2.00E-05	9.33E-06	0.00E+00	1.28E-05	0.00E+00	8.47E-06			
37RB 88	2.70E-04	0.00E+00	8.52E-08	4.54E-08	0.00E+00	0.00E+00	0.00E+00	7.30E-15			
38SR 89	3.60E-04	4.40E-04	0.00E+00	1.26E-05	0.00E+00	0.00E+00	0.00E+00	5.24E-05			
38SR 90	3.80E-05	1.02E-02	0.00E+00	2.04E-04	0.00E+00	0.00E+00	0.00E+00	2.33E-04			
41NB 95	1.90E-03	8.22E-09	4.56E-09	2.51E-09	0.00E+00	4.42E-09	0.00E+00	1.95E-05			
42MO 99	3.90E-03	0.00E+00	6.03E-06	1.15E-06	0.00E+00	1.38E-05	0.00E+00	1.08E-05			
43TC 99M	5.10E-03	3.32E-10	9.26E-10	1.20E-08	0.00E+00	1.38E-08	5.14E-10	6.08E-07			
44RU 103	4.90E-03	2.55E-07	0.00E+00	1.09E-07	0.00E+00	8.99E-07	0.00E+00	2.13E-05			
44RU 106	7.40E-02	3.92E-06	0.00E+00	4.94E-07	0.00E+00	7.56E-06	0.00E+00	1.88E-04			
47AG 110M	1.10E-03	2.05E-07	1.94E-07	1.18E-07	0.00E+00	3.70E-07	0.00E+00	5.45E-05			
51SB 124	6.80E-04	3.87E-06	7.13E-08	1.51E-06	8.78E-09	0.00E+00	3.38E-06	7.80E-05			
53I 131	1.40E-02	5.85E-06	8.19E-06	4.40E-06	2.39E-03	1.41E-05	0.00E+00	1.62E-06			

53I	132	2.80E-03	2.79E-07	7.30E-07	2.62E-07	2.46E-05	1.15E-06	0.00E+00	3.18E-07
53I	133	2.40E-02	2.01E-06	3.41E-06	1.04E-06	4.76E-04	5.98E-06	0.00E+00	2.58E-06
53I	134	1.90E-03	1.46E-07	3.87E-07	1.39E-07	6.45E-06	6.10E-07	0.00E+00	5.10E-09
53I	135	8.20E-03	6.10E-07	1.57E-06	5.82E-07	1.01E-04	2.48E-06	0.00E+00	1.74E-06
55CS	134	9.90E-03	8.37E-05	1.97E-04	9.14E-05	0.00E+00	6.26E-05	2.39E-05	2.45E-06
55CS	136	1.20E-03	8.59E-06	3.38E-05	2.27E-05	0.00E+00	1.84E-05	2.90E-06	2.72E-06
55CS	137	1.30E-02	1.12E-04	1.49E-04	5.19E-05	0.00E+00	5.07E-05	1.97E-05	2.12E-06
55CS	138	2.10E-04	7.76E-08	1.49E-07	7.45E-08	0.00E+00	1.10E-07	1.28E-08	6.76E-11
56BA	140	5.50E-03	2.84E-05	3.48E-08	1.83E-06	0.00E+00	1.18E-08	2.34E-08	4.38E-05
57LA	140	7.40E-03	3.48E-09	1.71E-09	4.55E-10	0.00E+00	0.00E+00	0.00E+00	9.82E-05
58CE	141	1.30E-04	1.33E-08	8.88E-09	1.02E-09	0.00E+00	4.18E-09	0.00E+00	2.54E-05
58CE	144	3.20E-03	6.96E-07	2.88E-07	3.74E-08	0.00E+00	1.72E-07	0.00E+00	1.75E-04

0 * * * CHILD DOSE FACTORS * * *

0

			INGESTION DOSE FACTORS (MREM/PCI INTAKE)							SHORELINE (MREM/HR)/(PCI/M**2)		
NUCLIDE		CURIE/YEAR	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN	TOTAL BODY	RECON
1H	3	8.50E+02	0.00E+00	1.16E-07	1.16E-07	1.16E-07	1.16E-07	1.16E-07	1.16E-07			
11NA	24	3.50E-03	5.80E-06	5.80E-06	5.80E-06	5.80E-06	5.80E-06	5.80E-06	5.80E-06			
24CR	51	2.10E-02	0.00E+00	0.00E+00	8.90E-09	4.94E-09	1.35E-09	9.02E-09	4.72E-07			
25MN	54	2.80E-03	0.00E+00	1.07E-05	2.85E-06	0.00E+00	3.00E-06	0.00E+00	8.98E-06			
25MN	56	4.20E-03	0.00E+00	3.34E-07	7.54E-08	0.00E+00	4.04E-07	0.00E+00	4.84E-05			
26FE	55	6.40E-03	1.15E-05	6.10E-06	1.89E-06	0.00E+00	0.00E+00	3.45E-06	1.13E-06			
26FE	59	2.00E-04	1.65E-05	2.67E-05	1.33E-05	0.00E+00	0.00E+00	7.74E-06	2.78E-05			
27CO	57	7.90E-05	0.00E+00	4.93E-07	9.98E-07	0.00E+00	0.00E+00	0.00E+00	4.04E-06			
27CO	58	3.40E-03	0.00E+00	1.80E-06	5.51E-06	0.00E+00	0.00E+00	0.00E+00	1.05E-05			
27CO	60	1.00E-02	0.00E+00	5.29E-06	1.56E-05	0.00E+00	0.00E+00	0.00E+00	2.93E-05			
30ZN	65	7.50E-04	1.37E-05	3.65E-05	2.27E-05	0.00E+00	2.30E-05	0.00E+00	6.41E-06			
37RB	88	2.70E-04	0.00E+00	1.90E-07	1.32E-07	0.00E+00	0.00E+00	0.00E+00	9.32E-09			
38SR	89	3.60E-04	1.32E-03	0.00E+00	3.77E-05	0.00E+00	0.00E+00	0.00E+00	5.11E-05			
38SR	90	3.80E-05	2.56E-02	0.00E+00	5.15E-04	0.00E+00	0.00E+00	0.00E+00	2.29E-04			
41NB	95	1.90E-03	2.25E-08	8.76E-09	6.26E-09	0.00E+00	8.23E-09	0.00E+00	1.62E-05			
42MO	99	3.90E-03	0.00E+00	1.33E-05	3.29E-06	0.00E+00	2.84E-05	0.00E+00	1.10E-05			
43TC	99M	5.10E-03	9.23E-10	1.81E-09	3.00E-08	0.00E+00	2.63E-08	9.19E-10	1.03E-06			
44RU	103	4.90E-03	7.31E-07	0.00E+00	2.81E-07	0.00E+00	1.84E-06	0.00E+00	1.89E-05			
44RU	106	7.40E-02	1.17E-05	0.00E+00	1.46E-06	0.00E+00	1.58E-05	0.00E+00	1.82E-04			
47AG	110M	1.10E-03	5.39E-07	3.64E-07	2.91E-07	0.00E+00	6.78E-07	0.00E+00	4.33E-05			
51SB	124	6.80E-04	1.11E-05	1.44E-07	3.89E-06	2.45E-08	0.00E+00	6.16E-06	6.94E-05			
53I	131	1.40E-02	1.72E-05	1.73E-05	9.83E-06	5.72E-03	2.84E-05	0.00E+00	1.54E-06			
53I	132	2.80E-03	8.00E-07	1.47E-06	6.76E-07	6.82E-05	2.25E-06	0.00E+00	1.73E-06			
53I	133	2.40E-02	5.92E-06	7.32E-06	2.77E-06	1.36E-03	1.22E-05	0.00E+00	2.95E-06			
53I	134	1.90E-03	4.19E-07	7.78E-07	3.58E-07	1.79E-05	1.19E-06	0.00E+00	5.16E-07			
53I	135	8.20E-03	1.75E-06	3.15E-06	1.49E-06	2.79E-04	4.83E-06	0.00E+00	2.40E-06			
55CS	134	9.90E-03	2.34E-04	3.84E-04	8.10E-05	0.00E+00	1.19E-04	4.27E-05	2.07E-06			
55CS	136	1.20E-03	2.35E-05	6.46E-05	4.18E-05	0.00E+00	3.44E-05	5.13E-06	2.27E-06			
55CS	137	1.30E-02	3.27E-04	3.13E-04	4.62E-05	0.00E+00	1.02E-04	3.67E-05	1.96E-06			
55CS	138	2.10E-04	2.28E-07	3.17E-07	2.01E-07	0.00E+00	2.23E-07	2.40E-08	1.46E-07			
56BA	140	5.50E-03	8.31E-05	7.28E-08	4.85E-06	0.00E+00	2.37E-08	4.34E-08	4.21E-05			
57LA	140	7.40E-03	1.01E-08	3.53E-09	1.19E-09	0.00E+00	0.00E+00	0.00E+00	9.84E-05			
58CE	141	1.30E-04	3.97E-08	1.98E-08	2.94E-09	0.00E+00	8.68E-09	0.00E+00	2.47E-05			
58CE	144	3.20E-03	2.08E-06	6.52E-07	1.11E-07	0.00E+00	3.61E-07	0.00E+00	1.70E-04			

0 * * * INFANT DOSE FACTORS * * *

0

			INGESTION DOSE FACTORS (MREM/PCI INTAKE)							SHORELINE (MREM/HR)/(PCI/M**2)		
NUCLIDE		CURIE/YEAR	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN	TOTAL BODY	RECON
1H	3	8.50E+02	0.00E+00	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07			
11NA	24	3.50E-03	1.01E-05	1.01E-05	1.01E-05	1.01E-05	1.01E-05	1.01E-05	1.01E-05			
24CR	51	2.10E-02	0.00E+00	0.00E+00	1.41E-08	9.20E-09	2.01E-09	1.79E-08	4.11E-07			
25MN	54	2.80E-03	0.00E+00	1.99E-05	4.51E-06	0.00E+00	4.41E-06	0.00E+00	7.31E-06			
25MN	56	4.20E-03	0.00E+00	8.18E-07	1.41E-07	0.00E+00	7.03E-07	0.00E+00	7.43E-05			
26FE	55	6.40E-03	1.39E-05	8.98E-06	2.40E-06	0.00E+00	0.00E+00	4.39E-06	1.14E-06			
26FE	59	2.00E-04	3.08E-05	5.38E-05	2.12E-05	0.00E+00	0.00E+00	1.59E-05	2.57E-05			
27CO	57	7.90E-05	0.00E+00	1.15E-06	1.87E-06	0.00E+00	0.00E+00	0.00E+00	3.92E-06			
27CO	58	3.40E-03	0.00E+00	3.60E-06	8.98E-06	0.00E+00	0.00E+00	0.00E+00	8.97E-06			

27CO	60	1.00E-02	0.00E+00	1.08E-05	2.55E-05	0.00E+00	0.00E+00	0.00E+00	2.57E-05
30ZN	65	7.50E-04	1.84E-05	6.31E-05	2.91E-05	0.00E+00	3.06E-05	0.00E+00	5.33E-05
37RB	88	2.70E-04	0.00E+00	4.98E-07	2.73E-07	0.00E+00	0.00E+00	0.00E+00	4.85E-07
38SR	89	3.60E-04	2.51E-03	0.00E+00	7.20E-05	0.00E+00	0.00E+00	0.00E+00	5.16E-05
38SR	90	3.80E-05	2.83E-02	0.00E+00	5.74E-04	0.00E+00	0.00E+00	0.00E+00	2.31E-04
41NB	95	1.90E-03	4.20E-08	1.73E-08	1.00E-08	0.00E+00	1.24E-08	0.00E+00	1.46E-05
42MO	99	3.90E-03	0.00E+00	3.40E-05	6.63E-06	0.00E+00	5.08E-05	0.00E+00	1.12E-05
43TC	99M	5.10E-03	1.92E-09	3.96E-09	5.10E-08	0.00E+00	4.26E-08	2.07E-09	1.15E-06
44RU	103	4.90E-03	1.48E-06	0.00E+00	4.95E-07	0.00E+00	3.08E-06	0.00E+00	1.80E-05
44RU	106	7.40E-02	2.41E-05	0.00E+00	3.01E-06	0.00E+00	2.85E-05	0.00E+00	1.83E-04
47AG	110M	1.10E-03	9.96E-07	7.27E-07	4.81E-07	0.00E+00	1.04E-06	0.00E+00	3.77E-05
51SB	124	6.80E-04	2.14E-05	3.15E-07	6.63E-06	5.68E-08	0.00E+00	1.34E-05	6.60E-05
53I	131	1.40E-02	3.59E-05	4.23E-05	1.86E-05	1.39E-02	4.94E-05	0.00E+00	1.51E-06
53I	132	2.80E-03	1.66E-06	3.37E-06	1.20E-06	1.58E-04	3.76E-06	0.00E+00	2.73E-06
53I	133	2.40E-02	1.25E-05	1.82E-05	5.33E-06	3.31E-03	2.14E-05	0.00E+00	3.08E-06
53I	134	1.90E-03	8.69E-07	1.78E-06	6.33E-07	4.15E-05	1.99E-06	0.00E+00	1.84E-06
53I	135	8.20E-03	3.64E-06	7.24E-06	2.64E-06	6.49E-04	8.07E-06	0.00E+00	2.62E-06
55CS	134	9.90E-03	3.77E-04	7.03E-04	7.10E-05	0.00E+00	1.81E-04	7.42E-05	1.91E-06
55CS	136	1.20E-03	4.59E-05	1.35E-04	5.04E-05	0.00E+00	5.38E-05	1.10E-05	2.05E-06
55CS	137	1.30E-02	5.22E-04	6.11E-04	4.33E-05	0.00E+00	1.64E-04	6.64E-05	1.91E-06
55CS	138	2.10E-04	4.81E-07	7.82E-07	3.79E-07	0.00E+00	3.90E-07	6.09E-08	1.25E-06
56BA	140	5.50E-03	1.71E-04	1.71E-07	8.81E-06	0.00E+00	4.06E-08	1.05E-07	4.20E-05
57LA	140	7.40E-03	2.11E-08	8.32E-09	2.14E-09	0.00E+00	0.00E+00	0.00E+00	9.77E-05
58CE	141	1.30E-04	7.87E-08	4.80E-08	5.65E-09	0.00E+00	1.48E-08	0.00E+00	2.48E-05
58CE	144	3.20E-03	2.98E-06	1.22E-06	1.67E-07	0.00E+00	4.93E-07	0.00E+00	1.71E-04

0TOTAL NUMBER IN SOURCE TERM IS 34 TOTAL RELEASE IS 8.5024E+02

1 * * * AS LOW AS REASONABLY ACHIEVABLE * * *

0 A D U L T D O S E S

0 DOSE__(MREM PER YEAR INTAKE)

0PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		3.57E-01	6.30E-01	4.65E-01	5.14E-02	2.15E-01	7.32E-02	1.64E-01
INVERTEBRATE		4.79E-02	1.09E-01	6.35E-02	4.87E-03	3.96E-02	9.90E-03	2.27E-01
DRINKING		9.36E-03	2.01E-01	1.98E-01	3.08E-01	1.95E-01	1.90E-01	2.46E-01
SHORELINE	3.60E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02
SWIMMING		3.13E-04	3.13E-04	3.13E-04	3.13E-04	3.13E-04	3.13E-04	3.13E-04
BOATING		3.92E-04	3.92E-04	3.92E-04	3.92E-04	3.92E-04	3.92E-04	3.92E-04
TOTAL	3.60E-02	4.46E-01	9.71E-01	7.58E-01	3.96E-01	4.81E-01	3.05E-01	6.69E-01

0	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)	SHOREWIDTH FACTOR= .3
FISH	21.0	10.0	24.00	
INVERTEBRATE	5.0	10.0	24.00	
DRINKING	730.0	10.0	12.00	
SHORELINE	300.0	10.0	.00	
SWIMMING	200.0	10.0	.00	
BOATING	500.0	10.0	.00	

0 T E E N A G E R D O S E S

0 DOSE__(MREM PER YEAR INTAKE)

0PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		3.76E-01	6.46E-01	2.67E-01	4.76E-02	2.18E-01	8.46E-02	1.18E-01
INVERTEBRATE		5.01E-02	1.10E-01	3.98E-02	4.37E-03	3.97E-02	1.12E-02	1.68E-01
DRINKING		8.91E-03	1.44E-01	1.38E-01	2.37E-01	1.39E-01	1.35E-01	1.75E-01
SHORELINE	3.60E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02
SWIMMING		3.13E-04	3.13E-04	3.13E-04	3.13E-04	3.13E-04	3.13E-04	3.13E-04
BOATING		3.92E-04	3.92E-04	3.92E-04	3.92E-04	3.92E-04	3.92E-04	3.92E-04
TOTAL	3.60E-02	4.66E-01	9.31E-01	4.76E-01	3.20E-01	4.28E-01	2.62E-01	4.93E-01

0	USAGE (KG/YR,HR/YR)	DILUTION	TIME(HR)	SHOREWIDTH FACTOR= .3
FISH	16.0	10.0	24.00	
INVERTEBRATE	3.8	10.0	24.00	
DRINKING	510.0	10.0	12.00	
SHORELINE	300.0	10.0	.00	
SWIMMING	200.0	10.0	.00	
BOATING	500.0	10.0	.00	

0 C H I L D D O S E S

0 DOSE__(MREM PER YEAR INTAKE)

```
0PATHWAY              SKIN          BONE          LIVER       TOTAL BODY      THYROID         KIDNEY          LUNG          GI-LLI
 FISH                              4.66E-01      5.63E-01      1.07E-01       4.96E-02       1.84E-01       6.68E-02       4.50E-02
 INVERTEBRATE                      6.43E-02      9.64E-02      2.21E-02       4.60E-03       3.39E-02       9.26E-03       6.72E-02
 DRINKING                          2.54E-02      2.78E-01      2.61E-01       5.13E-01       2.67E-01       2.58E-01       2.96E-01
 SHORELINE          3.60E-02       3.07E-02      3.07E-02      3.07E-02       3.07E-02       3.07E-02       3.07E-02       3.07E-02
 SWIMMING                          3.13E-04      3.13E-04      3.13E-04       3.13E-04       3.13E-04       3.13E-04       3.13E-04
 BOATING                           3.92E-04      3.92E-04      3.92E-04       3.92E-04       3.92E-04       3.92E-04       3.92E-04
 TOTAL              3.60E-02       5.87E-01      9.69E-01      4.21E-01       5.99E-01       5.16E-01       3.66E-01       4.40E-01
0          USAGE (KG/YR,HR/YR)          DILUTION      TIME(HR)          SHOREWIDTH FACTOR= .3
 FISH                  6.9                10.0         24.00
 INVERTEBRATE          1.7                10.0         24.00
 DRINKING            510.0                10.0         12.00
 SHORELINE           300.0                10.0           .00
 SWIMMING            200.0                10.0           .00
 BOATING             500.0                10.0           .00
0                 I N F A N T    D O S E S
0                                                  DOSE__(MREM PER YEAR INTAKE)
0PATHWAY              SKIN          BONE          LIVER       TOTAL BODY      THYROID         KIDNEY          LUNG          GI-LLI
 FISH                              0.00E+00      0.00E+00      0.00E+00       0.00E+00       0.00E+00       0.00E+00       0.00E+00
 DRINKING                          2.70E-02      2.79E-01      2.55E-01       6.56E-01       2.63E-01       2.54E-01       2.77E-01
 SHORELINE          3.60E-02       3.07E-02      3.07E-02      3.07E-02       3.07E-02       3.07E-02       3.07E-02       3.07E-02
 SWIMMING                          3.13E-04      3.13E-04      3.13E-04       3.13E-04       3.13E-04       3.13E-04       3.13E-04
 BOATING                           3.92E-04      3.92E-04      3.92E-04       3.92E-04       3.92E-04       3.92E-04       3.92E-04
 TOTAL              3.60E-02       5.84E-02      3.10E-01      2.86E-01       6.87E-01       2.95E-01       2.85E-01       3.09E-01
0          USAGE (KG/YR,HR/YR)          DILUTION      TIME(HR)          SHOREWIDTH FACTOR= .3
 FISH                   .                 10.0         24.00
 DRINKING            330.0                10.0         12.00
 SHORELINE           300.0                10.0           .00
 SWIMMING            200.0                10.0           .00
 BOATING             500.0                10.0           .00
1                              *  *  *  FISH CONSUMPTION POPULATION DOSES  *  *  *
                                                PERSON-REM
0__________SPORT HARVEST__________
0                                  ----------------------------DOSE (PERSON-REM)-------------------------
0PATHWAY     AGE GROUP       USAGE      BONE      LIVER    TOTAL BODY  THYROID    KIDNEY      LUNG      GI-LLI
 FISH        ADULT         2.25E+05  3.82E+00  6.72E+00  4.96E+00  3.10E-01  2.29E+00  7.82E-01  1.59E+00
 FISH        TEENAGER      2.63E+04  6.16E-01  1.06E+00  4.35E-01  4.30E-02  3.55E-01  1.38E-01  1.76E-01
 FISH        CHILD         1.82E+04  1.23E+00  1.48E+00  2.78E-01  6.93E-02  4.81E-01  1.75E-01  1.08E-01
 FISH        TOTAL         2.70E+05  5.66E+00  9.26E+00  5.68E+00  4.22E-01  3.12E+00  1.10E+00  1.88E+00
0    LOCATION          DILUTION   CATCH    TIME(HR)-INCLUDES FOOD PROCESSING TIME OF 1.68E+02 HR     POPULATION=4.60E+04
 Lake Anna            1.00E+01  2.70E+05  1.68E+02
0AVERAGE INDIVIDUAL CONSUMPTION (KG/YR)    ADULT=6.90E+00     TEEN=5.20E+00     CHILD=2.20E+00
1                              *  *  *  POPULATION WATER CONSUMPTION DOSES  *  *  *
0_____________________________________________________________________________________________________
0SUPPLIER-Lake Anna
0                                  ----------------------------DOSE (PERSON-REM)-------------------------
0PATHWAY     AGE GROUP       USAGE      BONE      LIVER    TOTAL BODY  THYROID    KIDNEY      LUNG      GI-LLI
 DRINKING    ADULT         5.81E+06  7.40E-02  1.59E+00  1.57E+00  2.36E+00  1.55E+00  1.51E+00  1.95E+00
 DRINKING    TEENAGER      6.32E+05  1.10E-02  1.78E-01  1.71E-01  2.80E-01  1.72E-01  1.67E-01  2.17E-01
 DRINKING    CHILD         1.03E+06  5.12E-02  5.63E-01  5.29E-01  9.83E-01  5.41E-01  5.24E-01  6.00E-01
 DRINKING    TOTAL         7.47E+06  1.36E-01  2.34E+00  2.27E+00  3.62E+00  2.26E+00  2.20E+00  2.77E+00
0POPULATION=2.21E+04     DILUTION=1.00E+01     TRANSIT TIME=2.40E+01 HR (INCLUDING 24 HR FOR TREATMENT FACILITY)
0AVERAGE INDIVIDUAL CONSUMPTION (L/YR)     ADULT=3.70E+02     TEEN=2.60E+02     CHILD=2.60E+02
0-----CUMULATIVE TOTAL-----
0PATHWAY     AGE GROUP       USAGE      BONE      LIVER    TOTAL BODY  THYROID    KIDNEY      LUNG      GI-LLI
 DRINKING    CUMUL TOTAL   7.47E+06  1.36E-01  2.34E+00  2.27E+00  3.62E+00  2.26E+00  2.20E+00  2.77E+00
0_____________________________________________________________________________________________________
0__________HYDROSPHERE TRITIUM DOSE__________
0AVERAGE INDIVIDUAL WATER CONSUMPTION = 3.0 L/DAY
0PATHWAY     AGE GROUP       USAGE      BONE      LIVER    TOTAL BODY  THYROID    KIDNEY      LUNG      GI-LLI
 WATER       TOTAL         2.86E+11  0.00E+00  6.48E-03  6.48E-03  6.48E-03  6.48E-03  6.48E-03  6.48E-03
1                              *   *   *   RECREATION POPULATION DOSES   *   *   *
0_____________________________________________________________________________________________________
```

0LOCATION- Lake Anna
0DILUTION= 1.00E+01 TRANSIT TIME= 0.00E+00 HR SWF= .3
0

0PATHWAY	AGE GROUP	USAGE	DOSE (PERSON-REM) SKIN	TOTAL BODY	THYROID
SHORELINE	TOTAL POPUL	1.31E+06	1.57E-01	1.34E-01	1.34E-01

0

0LOCATION- Lake Anna
0DILUTION= 1.00E+01 TRANSIT TIME= 0.00E+00 HR
0

0PATHWAY	AGE GROUP	USAGE	DOSE (PERSON-REM) SKIN	TOTAL BODY	THYROID
SWIMMING	TOTAL POPUL	8.76E+05		1.37E-03	1.37E-03

0

0LOCATION- Lake Anna
0DILUTION= 1.00E+01 TRANSIT TIME= 0.00E+00 HR
0

0PATHWAY	AGE GROUP	USAGE	DOSE (PERSON-REM) SKIN	TOTAL BODY	THYROID
BOATING	TOTAL POPUL	2.19E+06		1.71E-03	1.71E-03

1 * * * COST-BENEFIT ANALYSIS * * *

0 NUCLIDE	RELEASE CI/YR	PERSON-REM DOSE TOTAL BODY	PERSON-REM DOSE THYROID	PERSON-REM PER CURIE TOTAL BODY	PERSON-REM PER CURIE THYROID
1H 3	8.50E+02	2.25E+00	2.25E+00	2.65E-03	2.65E-03
11NA 24	3.50E-03	3.87E-04	3.87E-04	1.11E-01	1.11E-01
24CR 51	2.10E-02	5.47E-05	4.71E-05	2.60E-03	2.24E-03
25MN 54	2.80E-03	2.75E-03	1.06E-03	9.81E-01	3.77E-01
25MN 56	4.20E-03	1.36E-04	1.36E-04	3.23E-02	3.23E-02
26FE 55	6.40E-03	6.48E-04	4.11E-09	1.01E-01	6.42E-07
26FE 59	2.00E-04	1.74E-04	1.87E-05	8.69E-01	9.33E-02
27CO 57	7.90E-05	7.12E-06	4.07E-06	9.01E-02	5.15E-02
27CO 58	3.40E-03	1.12E-03	3.99E-04	3.29E-01	1.17E-01
27CO 60	1.00E-02	6.73E-02	6.10E-02	6.73E+00	6.10E+00
30ZN 65	7.50E-04	1.71E-02	1.54E-04	2.28E+01	2.06E-01
37RB 88	2.70E-04	3.25E-06	3.25E-06	1.20E-02	1.20E-02
38SR 89	3.60E-04	3.28E-04	1.86E-08	9.11E-01	5.18E-05
38SR 90	3.80E-05	6.38E-04	2.06E-10	1.68E+01	5.41E-06
41NB 95	1.90E-03	2.46E-04	9.48E-05	1.30E-01	4.99E-02
42MO 99	3.90E-03	1.69E-04	2.24E-05	4.33E-02	5.76E-03
43TC 99M	5.10E-03	1.27E-05	1.25E-05	2.48E-03	2.45E-03
44RU 103	4.90E-03	2.08E-04	1.82E-04	4.25E-02	3.72E-02
44RU 106	7.40E-02	1.03E-02	8.45E-03	1.40E-01	1.14E-01
47AG 110M	1.10E-03	1.05E-03	1.05E-03	9.56E-01	9.51E-01
51SB 124	6.80E-04	1.71E-04	1.31E-04	2.52E-01	1.93E-01
53I 131	1.40E-02	2.93E-03	1.58E+00	2.09E-01	1.13E+02
53I 132	2.80E-03	1.24E-04	1.26E-04	4.44E-02	4.52E-02
53I 133	2.40E-02	6.81E-04	2.10E-01	2.84E-02	8.77E+00
53I 134	1.90E-03	8.02E-05	8.02E-05	4.22E-02	4.22E-02
53I 135	8.20E-03	2.91E-04	2.94E-03	3.55E-02	3.59E-01
55CS 134	9.90E-03	3.18E+00	1.81E-02	3.21E+02	1.83E+00
55CS 136	1.20E-03	4.77E-02	9.65E-05	3.97E+01	8.04E-02
55CS 137	1.30E-02	2.50E+00	4.44E-02	1.92E+02	3.41E+00
55CS 138	2.10E-04	8.44E-06	8.44E-06	4.02E-02	4.02E-02
56BA 140	5.50E-03	4.58E-04	5.66E-05	8.33E-02	1.03E-02
57LA 140	7.40E-03	3.41E-04	3.41E-04	4.61E-02	4.61E-02
58CE 141	1.30E-04	6.39E-07	6.34E-07	4.91E-03	4.87E-03
58CE 144	3.20E-03	6.58E-05	6.10E-05	2.06E-02	1.91E-02
0 TOTAL		8.08E+00	4.18E+00		

1

1
1

northanna_popul_other_Sept06.inp
(no change as no ^3H in sourceterm)

```
*****************************************************************************
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*            L      AAA   DDDD   TTTTT   AAA   PPPP     IIIII IIIII         *
*            L     A   A  D   D    T    A   A  P   P      I     I           *
*            L     A   A  D   D    T    A   A  P   P      I     I           *
*            L     AAAAA  D   D    T    AAAAA  PPPP       I     I           *
*            L     A   A  D   D    T    A   A  P          I     I           *
*            LLLLL A   A  DDDD     T    A   A  P        IIIII IIIII         *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*          EVALUATION OF RADIATION DOSES FROM RELEASES OF RADIACTIVITY      *
*                                                                           *
*                    IN NUCLEAR POWER PLANTS LIQUID EFFLUENTS               *
*                                                                           *
*                     REVISION DATE:  JSB PC - February 1996                *
*                                                                           *
*                                                                           *
*      North Anna - Liquid Effluent - MEI (other radionuclides)             *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                        RADIOLOGICAL ASSESSMENT BRANCH                     *
*                                                                           *
*                        DIVISION OF SYSTEMS INTEGRATION                    *
*                                                                           *
*                        U. S. NUCLEAR REGULATORY COMMISSION                *
*                                                                           *
*                        WASHINGTON, D. C.                                  *
*                                                                           *
*                        DATE OF RUN:    13-Nov-2006                        *
*                                                                           *
*****************************************************************************
1
 North Anna - Liquid Effluent - MEI (other radionuclides)
0  DISCHARGE=2.20E+01 CFS          SOURCE TERM MULTIPLIER=1.00E+00
0  50-MILE POPULATION=2.78E+06     FRACTION ---  ADULT= .71
                                                 TEENAGER= .11
                                                 CHILD= .18
0  FRESHWATER SITE
1
 Table 5.4-6 of ER
 NO INTERNAL RECONCENTRATION MODEL EMPLOYED
0                              *  *  *  ADULT DOSE FACTORS  *  *  *
```

0

NUCLIDE	CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
6C 14	4.40E-04	2.84E-06	5.68E-07	5.68E-07	5.68E-07	5.68E-07	5.68E-07	5.68E-07	0.00E+00	0.00E+00	1.00E+00
15P 32	6.60E-04	1.93E-04	1.20E-05	7.46E-06	0.00E+00	0.00E+00	0.00E+00	2.17E-05	0.00E+00	0.00E+00	1.00E+00
28NI 63	1.50E-04	1.30E-04	9.01E-06	4.36E-06	0.00E+00	0.00E+00	0.00E+00	1.88E-06	0.00E+00	0.00E+00	1.00E+00
29CU 64	8.20E-03	0.00E+00	8.33E-08	3.91E-08	0.00E+00	2.10E-07	0.00E+00	7.10E-06	1.70E-09	1.50E-09	1.00E+00
35BR 84	2.00E-05	0.00E+00	0.00E+00	5.21E-08	0.00E+00	0.00E+00	0.00E+00	4.09E-13	1.40E-08	1.20E-08	1.00E+00
37RB 89	4.80E-05	0.00E+00	4.01E-08	2.82E-08	0.00E+00	0.00E+00	0.00E+00	2.33E-21	1.80E-08	1.50E-08	1.00E+00
38SR 91	9.80E-04	5.67E-06	0.00E+00	2.29E-07	0.00E+00	0.00E+00	0.00E+00	2.70E-05	8.30E-09	7.10E-09	1.00E+00
38SR 92	8.80E-04	2.15E-06	0.00E+00	9.30E-08	0.00E+00	0.00E+00	0.00E+00	4.26E-05	1.00E-08	9.00E-09	1.00E+00
39Y 90	3.40E-06	9.62E-09	0.00E+00	2.58E-10	0.00E+00	0.00E+00	0.00E+00	1.02E-04	2.60E-12	2.20E-12	1.00E+00
39Y 91M	1.00E-05	9.09E-11	0.00E+00	3.52E-12	0.00E+00	0.00E+00	0.00E+00	2.67E-10	4.40E-09	3.80E-09	1.00E+00
39Y 91	2.40E-04	1.41E-07	0.00E+00	3.77E-09	0.00E+00	0.00E+00	0.00E+00	7.76E-05	2.70E-11	2.40E-11	1.00E+00
39Y 92	6.60E-04	8.45E-10	0.00E+00	2.47E-11	0.00E+00	0.00E+00	0.00E+00	1.48E-05	1.90E-09	1.60E-09	1.00E+00
39Y 93	9.80E-04	2.68E-09	0.00E+00	7.40E-11	0.00E+00	0.00E+00	0.00E+00	8.50E-05	7.80E-10	5.70E-10	1.00E+00
40ZR 95	1.00E-03	3.04E-08	9.75E-09	6.60E-09	0.00E+00	1.53E-08	0.00E+00	3.09E-05	5.80E-09	5.00E-09	1.00E+00
52TE 129M	1.40E-04	1.15E-05	4.29E-06	1.82E-06	3.95E-06	4.80E-05	0.00E+00	5.79E-05	9.00E-10	7.70E-10	1.00E+00
52TE 129	1.50E-04	3.14E-08	1.18E-08	7.65E-09	2.41E-08	1.32E-07	0.00E+00	2.37E-08	8.40E-10	7.10E-10	1.00E+00
52TE 131M	1.00E-04	1.73E-06	8.46E-07	7.05E-07	1.34E-06	8.57E-06	0.00E+00	8.40E-05	9.90E-09	8.40E-09	1.00E+00
52TE 131	3.00E-05	1.97E-08	8.23E-09	6.22E-09	1.62E-08	8.63E-08	0.00E+00	2.79E-09	2.60E-06	2.20E-09	1.00E+00
52TE 132	2.40E-04	2.52E-06	1.63E-06	1.53E-06	1.80E-06	1.57E-05	0.00E+00	7.71E-05	2.00E-09	1.70E-09	1.00E+00
58CE 143	1.90E-04	1.65E-09	1.22E-06	1.35E-10	0.00E+00	5.37E-10	0.00E+00	4.56E-05	2.50E-09	2.20E-09	1.00E+00
59PR 143	1.40E-04	9.20E-09	3.69E-09	4.56E-10	0.00E+00	2.13E-09	0.00E+00	4.03E-05	0.00E+00	0.00E+00	1.00E+00
59PR 144	3.20E-03	3.01E-11	1.25E-11	1.53E-12	0.00E+00	7.05E-12	0.00E+00	4.33E-18	2.30E-10	2.00E-10	1.00E+00
74W 187	2.10E-04	1.03E-07	8.61E-08	3.01E-08	0.00E+00	0.00E+00	0.00E+00	2.82E-05	3.60E-09	3.10E-09	1.00E+00
93NP 239	1.40E-02	1.19E-09	1.17E-10	6.45E-11	0.00E+00	3.65E-10	0.00E+00	2.40E-05	1.10E-09	9.50E-10	1.00E+00
35BR 83	7.50E-05	0.00E+00	0.00E+00	4.02E-08	0.00E+00	0.00E+00	0.00E+00	5.79E-08	9.30E-11	6.40E-11	1.00E+00
44RU 105	1.00E-04	1.54E-08	0.00E+00	6.08E-09	0.00E+00	1.99E-07	0.00E+00	9.42E-06	5.10E-09	4.50E-09	1.00E+00
56BA 139	2.50E-05	9.70E-08	6.91E-11	2.84E-09	0.00E+00	6.46E-11	3.92E-11	1.72E-07	2.70E-09	2.40E-09	1.00E+00
57LA 142	2.50E-05	1.28E-10	5.82E-11	1.45E-11	0.00E+00	0.00E+00	0.00E+00	4.25E-07	1.80E-08	1.50E-08	1.00E+00

0 * * * TEENAGER DOSE FACTORS * * *

0

NUCLIDE	CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
6C 14	4.40E-04	4.06E-06	8.12E-07	8.12E-07	8.12E-07	8.12E-07	8.12E-07	8.12E-07			
15P 32	6.60E-04	2.76E-04	1.71E-05	1.07E-05	0.00E+00	0.00E+00	0.00E+00	2.32E-05			
28NI 63	1.50E-04	1.77E-04	1.25E-05	6.00E-06	0.00E+00	0.00E+00	0.00E+00	1.99E-06			
29CU 64	8.20E-03	0.00E+00	1.15E-07	5.41E-08	0.00E+00	2.91E-07	0.00E+00	8.92E-06			
35BR 84	2.00E-05	0.00E+00	0.00E+00	7.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
37RB 89	4.80E-05	0.00E+00	5.50E-08	3.89E-08	0.00E+00	0.00E+00	0.00E+00	8.43E-17			
38SR 91	9.80E-04	8.07E-06	0.00E+00	3.21E-07	0.00E+00	0.00E+00	0.00E+00	3.66E-05			
38SR 92	8.80E-04	3.05E-06	0.00E+00	1.30E-07	0.00E+00	0.00E+00	0.00E+00	7.77E-05			
39Y 90	3.40E-06	1.37E-08	0.00E+00	3.69E-10	0.00E+00	0.00E+00	0.00E+00	1.13E-04			
39Y 91M	1.00E-05	1.29E-10	0.00E+00	4.93E-12	0.00E+00	0.00E+00	0.00E+00	6.09E-09			
39Y 91	2.40E-04	2.01E-07	0.00E+00	5.39E-09	0.00E+00	0.00E+00	0.00E+00	8.24E-05			
39Y 92	6.60E-04	1.21E-09	0.00E+00	3.50E-11	0.00E+00	0.00E+00	0.00E+00	3.32E-05			
39Y 93	9.80E-04	3.83E-09	0.00E+00	1.05E-10	0.00E+00	0.00E+00	0.00E+00	1.17E-04			
40ZR 95	1.00E-03	4.12E-08	1.30E-08	8.94E-09	0.00E+00	1.91E-08	0.00E+00	3.00E-05			
52TE 129M	1.40E-04	1.63E-05	6.05E-06	2.58E-06	5.26E-06	6.82E-05	0.00E+00	6.12E-05			
52TE 129	1.50E-04	4.48E-08	1.67E-08	1.09E-08	3.20E-08	1.88E-07	0.00E+00	2.45E-07			
52TE 131M	1.00E-04	2.44E-06	1.17E-06	9.76E-07	1.76E-06	1.22E-05	0.00E+00	9.39E-05			
52TE 131	3.00E-05	2.79E-08	1.15E-08	8.72E-09	2.15E-08	1.22E-07	0.00E+00	2.29E-09			
52TE 132	2.40E-04	3.49E-06	2.21E-06	2.08E-06	2.33E-06	2.12E-05	0.00E+00	7.00E-05			
58CE 143	1.90E-04	2.35E-09	1.71E-06	1.91E-10	0.00E+00	7.67E-10	0.00E+00	5.14E-05			
59PR 143	1.40E-04	1.31E-08	5.23E-09	6.52E-10	0.00E+00	3.04E-09	0.00E+00	4.31E-05			
59PR 144	3.20E-03	4.30E-11	1.76E-11	2.18E-12	0.00E+00	1.01E-11	0.00E+00	4.74E-14			
74W 187	2.10E-04	1.46E-07	1.19E-07	4.17E-08	0.00E+00	0.00E+00	0.00E+00	3.22E-05			
93NP 239	1.40E-02	1.76E-09	1.66E-10	9.22E-11	0.00E+00	5.21E-10	0.00E+00	2.67E-05			
35BR 83	7.50E-05	0.00E+00	0.00E+00	5.74E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
44RU 105	1.00E-04	2.18E-08	0.00E+00	8.46E-09	0.00E+00	2.75E-07	0.00E+00	1.76E-05			
56BA 139	2.50E-05	1.39E-07	9.78E-11	4.05E-09	0.00E+00	9.22E-11	6.74E-11	1.24E-06			
57LA 142	2.50E-05	1.79E-10	7.95E-11	1.98E-11	0.00E+00	0.00E+00	0.00E+00	2.42E-06			

0 * * * CHILD DOSE FACTORS * * *

0 INGESTION DOSE FACTORS (MREM/PCI INTAKE) | SHORELINE (MREM/HR)/(PCI/M**2)

NUCLIDE	CURIE/YEAR	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN	TOTAL BODY	RECON
6C 14	4.40E-04	1.21E-05	2.42E-06	2.42E-06	2.42E-06	2.42E-06	2.42E-06	2.42E-06			
15P 32	6.60E-04	8.25E-04	3.86E-05	3.18E-05	0.00E+00	0.00E+00	0.00E+00	2.28E-05			
28NI 63	1.50E-04	5.38E-04	2.88E-05	1.83E-05	0.00E+00	0.00E+00	0.00E+00	1.94E-06			
29CU 64	8.20E-03	0.00E+00	2.45E-07	1.48E-07	0.00E+00	5.92E-07	0.00E+00	1.15E-05			
35BR 84	2.00E-05	0.00E+00	0.00E+00	1.98E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
37RB 89	4.80E-05	0.00E+00	1.17E-07	1.04E-07	0.00E+00	0.00E+00	0.00E+00	1.02E-09			
38SR 91	9.80E-04	2.40E-05	0.00E+00	9.06E-07	0.00E+00	0.00E+00	0.00E+00	5.30E-05			
38SR 92	8.80E-04	9.03E-06	0.00E+00	3.62E-07	0.00E+00	0.00E+00	0.00E+00	1.71E-04			
39Y 90	3.40E-06	4.11E-08	0.00E+00	1.10E-09	0.00E+00	0.00E+00	0.00E+00	1.17E-04			
39Y 91M	1.00E-05	3.82E-10	0.00E+00	1.39E-11	0.00E+00	0.00E+00	0.00E+00	7.48E-07			
39Y 91	2.40E-04	6.02E-07	0.00E+00	1.61E-08	0.00E+00	0.00E+00	0.00E+00	8.02E-05			
39Y 92	6.60E-04	3.60E-09	0.00E+00	1.03E-10	0.00E+00	0.00E+00	0.00E+00	1.04E-04			
39Y 93	9.80E-04	1.14E-08	0.00E+00	3.13E-10	0.00E+00	0.00E+00	0.00E+00	1.70E-04			
40ZR 95	1.00E-03	1.16E-07	2.55E-08	2.27E-08	0.00E+00	3.65E-08	0.00E+00	2.66E-05			
52TE 129M	1.40E-04	4.87E-05	1.36E-05	7.56E-06	1.57E-05	1.43E-04	0.00E+00	5.94E-05			
52TE 129	1.50E-04	1.34E-07	3.74E-08	3.18E-08	9.56E-08	3.92E-07	0.00E+00	8.34E-06			
52TE 131M	1.00E-04	7.20E-06	2.49E-06	2.65E-06	5.12E-06	2.41E-05	0.00E+00	1.01E-04			
52TE 131	3.00E-05	8.30E-08	2.53E-08	2.47E-08	6.35E-08	2.51E-07	0.00E+00	4.36E-07			
52TE 132	2.40E-04	1.01E-05	4.47E-06	5.40E-06	6.51E-06	4.15E-05	0.00E+00	4.50E-05			
58CE 143	1.90E-04	6.99E-09	3.79E-06	5.49E-10	0.00E+00	1.59E-09	0.00E+00	5.55E-05			
59PR 143	1.40E-04	3.93E-08	1.18E-08	1.95E-09	0.00E+00	6.39E-09	0.00E+00	4.24E-05			
59PR 144	3.20E-03	1.29E-10	3.99E-11	6.49E-12	0.00E+00	2.11E-11	0.00E+00	8.59E-08			
74W 187	2.10E-04	4.29E-07	2.54E-07	1.14E-07	0.00E+00	0.00E+00	0.00E+00	3.57E-05			
93NP 239	1.40E-02	5.25E-09	3.77E-10	2.65E-10	0.00E+00	1.09E-09	0.00E+00	2.79E-05			
35BR 83	7.50E-05	0.00E+00	0.00E+00	1.71E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
44RU 105	1.00E-04	6.45E-08	0.00E+00	2.34E-08	0.00E+00	5.67E-07	0.00E+00	4.21E-05			
56BA 139	2.50E-05	4.14E-07	2.21E-10	1.20E-08	0.00E+00	1.93E-10	1.30E-10	2.39E-05			
57LA 142	2.50E-05	5.24E-10	1.67E-10	5.23E-11	0.00E+00	0.00E+00	0.00E+00	3.31E-05			

0 * * * INFANT DOSE FACTORS * * *

0 INGESTION DOSE FACTORS (MREM/PCI INTAKE) | SHORELINE (MREM/HR)/(PCI/M**2)

NUCLIDE	CURIE/YEAR	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN	TOTAL BODY	RECON
6C 14	4.40E-04	2.37E-05	5.06E-06	5.06E-06	5.06E-06	5.06E-06	5.06E-06	5.06E-06			
15P 32	6.60E-04	1.70E-03	1.00E-04	6.59E-05	0.00E+00	0.00E+00	0.00E+00	2.30E-05			
28NI 63	1.50E-04	6.34E-04	3.92E-05	2.20E-05	0.00E+00	0.00E+00	0.00E+00	1.95E-06			
29CU 64	8.20E-03	0.00E+00	6.09E-07	2.82E-07	0.00E+00	1.03E-06	0.00E+00	1.25E-05			
35BR 84	2.00E-05	0.00E+00	0.00E+00	3.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
37RB 89	4.80E-05	0.00E+00	2.86E-07	1.97E-07	0.00E+00	0.00E+00	0.00E+00	9.74E-08			
38SR 91	9.80E-04	5.00E-05	0.00E+00	1.81E-06	0.00E+00	0.00E+00	0.00E+00	5.92E-05			
38SR 92	8.80E-04	1.92E-05	0.00E+00	7.13E-07	0.00E+00	0.00E+00	0.00E+00	2.07E-04			
39Y 90	3.40E-06	8.69E-08	0.00E+00	2.33E-09	0.00E+00	0.00E+00	0.00E+00	1.20E-04			
39Y 91M	1.00E-05	8.10E-10	0.00E+00	2.76E-11	0.00E+00	0.00E+00	0.00E+00	2.70E-06			
39Y 91	2.40E-04	1.13E-06	0.00E+00	3.01E-08	0.00E+00	0.00E+00	0.00E+00	8.10E-05			
39Y 92	6.60E-04	7.65E-09	0.00E+00	2.15E-10	0.00E+00	0.00E+00	0.00E+00	1.46E-04			
39Y 93	9.80E-04	2.43E-08	0.00E+00	6.62E-10	0.00E+00	0.00E+00	0.00E+00	1.92E-04			
40ZR 95	1.00E-03	2.06E-07	5.02E-08	3.56E-08	0.00E+00	5.41E-08	0.00E+00	2.50E-05			
52TE 129M	1.40E-04	1.00E-04	3.43E-05	1.54E-05	3.84E-05	2.50E-04	0.00E+00	5.97E-05			
52TE 129	1.50E-04	2.84E-07	9.79E-08	6.63E-08	2.38E-07	7.07E-07	0.00E+00	2.27E-05			
52TE 131M	1.00E-04	1.52E-05	6.12E-06	5.05E-06	1.24E-05	4.21E-05	0.00E+00	1.03E-04			
52TE 131	3.00E-05	1.76E-07	6.50E-08	4.94E-08	1.57E-07	4.50E-07	0.00E+00	7.11E-06			
52TE 132	2.40E-04	2.08E-05	1.03E-05	9.61E-06	1.52E-05	6.44E-05	0.00E+00	3.81E-05			
58CE 143	1.90E-04	1.48E-08	9.82E-06	1.12E-09	0.00E+00	2.86E-09	0.00E+00	5.73E-05			
59PR 143	1.40E-04	8.13E-08	3.04E-08	4.03E-09	0.00E+00	1.13E-08	0.00E+00	4.29E-05			
59PR 144	3.20E-03	2.74E-10	1.06E-10	1.38E-11	0.00E+00	3.84E-11	0.00E+00	4.93E-06			
74W 187	2.10E-04	9.03E-07	6.28E-07	2.17E-07	0.00E+00	0.00E+00	0.00E+00	3.69E-05			
93NP 239	1.40E-02	1.11E-08	9.93E-10	5.61E-10	0.00E+00	1.98E-09	0.00E+00	2.87E-05			
35BR 83	7.50E-05	0.00E+00	0.00E+00	3.63E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
44RU 105	1.00E-04	1.36E-07	0.00E+00	4.58E-08	0.00E+00	1.00E-06	0.00E+00	5.41E-05			
56BA 139	2.50E-05	8.81E-07	5.84E-10	2.55E-08	0.00E+00	3.51E-10	3.54E-10	5.58E-05			

57LA 142 2.50E-05 1.10E-09 4.04E-10 9.67E-11 0.00E+00 0.00E+00 0.00E+00 6.86E-05

0TOTAL NUMBER IN SOURCE TERM IS 28 TOTAL RELEASE IS 3.2896E-02

1 * * * AS LOW AS REASONABLY ACHIEVABLE * * *

0 A D U L T D O S E S

0 DOSE__(MREM PER YEAR INTAKE)

0PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		1.30E+00	8.08E-02	5.03E-02	1.64E-04	5.58E-04	1.23E-04	1.48E-01
INVERTEBRATE		6.24E-02	4.05E-03	2.54E-03	2.08E-04	1.63E-03	5.78E-05	1.52E-02
DRINKING		5.56E-04	4.05E-05	2.46E-05	4.78E-06	4.40E-05	9.28E-07	1.79E-03
SHORELINE	1.97E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05
SWIMMING		1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05
BOATING		1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05
TOTAL	1.97E-05	1.36E+00	8.49E-02	5.29E-02	4.26E-04	2.28E-03	2.30E-04	1.65E-01

0 USAGE (KG/YR,HR/YR) DILUTION TIME(HR) SHOREWIDTH FACTOR= .3

FISH	21.0	10.0	24.00
INVERTEBRATE	5.0	10.0	24.00
DRINKING	730.0	10.0	12.00
SHORELINE	300.0	10.0	.00
SWIMMING	200.0	10.0	.00
BOATING	500.0	10.0	.00

0 T E E N A G E R D O S E S

0 DOSE__(MREM PER YEAR INTAKE)

0PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		1.41E+00	8.77E-02	5.49E-02	1.75E-04	5.98E-04	1.34E-04	1.21E-01
INVERTEBRATE		6.78E-02	4.38E-03	2.76E-03	2.13E-04	1.74E-03	6.28E-05	1.23E-02
DRINKING		5.52E-04	4.00E-05	2.44E-05	4.47E-06	4.30E-05	9.27E-07	1.42E-03
SHORELINE	1.97E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05
SWIMMING		1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05
BOATING		1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05
TOTAL	1.97E-05	1.48E+00	9.22E-02	5.78E-02	4.42E-04	2.43E-03	2.46E-04	1.34E-01

0 USAGE (KG/YR,HR/YR) DILUTION TIME(HR) SHOREWIDTH FACTOR= .3

FISH	16.0	10.0	24.00
INVERTEBRATE	3.8	10.0	24.00
DRINKING	510.0	10.0	12.00
SHORELINE	300.0	10.0	.00
SWIMMING	200.0	10.0	.00
BOATING	500.0	10.0	.00

0 C H I L D D O S E S

0 DOSE__(MREM PER YEAR INTAKE)

0PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		1.82E+00	8.54E-02	7.04E-02	2.24E-04	5.82E-04	1.72E-04	5.12E-02
INVERTEBRATE		9.07E-02	4.44E-03	3.66E-03	2.79E-04	1.62E-03	8.38E-05	5.42E-03
DRINKING		1.65E-03	9.07E-05	7.20E-05	1.31E-05	8.88E-05	2.76E-06	1.56E-03
SHORELINE	1.97E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05
SWIMMING		1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05
BOATING		1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05
TOTAL	1.97E-05	1.91E+00	9.00E-02	7.42E-02	5.65E-04	2.34E-03	3.07E-04	5.82E-02

0 USAGE (KG/YR,HR/YR) DILUTION TIME(HR) SHOREWIDTH FACTOR= .3

FISH	6.9	10.0	24.00
INVERTEBRATE	1.7	10.0	24.00
DRINKING	510.0	10.0	12.00
SHORELINE	300.0	10.0	.00
SWIMMING	200.0	10.0	.00
BOATING	500.0	10.0	.00

0 I N F A N T D O S E S

0 DOSE__(MREM PER YEAR INTAKE)

0PATHWAY	SKIN	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
FISH		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
DRINKING		2.08E-03	1.41E-04	9.17E-05	1.98E-05	9.81E-05	3.74E-06	1.06E-03
SHORELINE	1.97E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05	1.70E-05
SWIMMING		1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05	1.42E-05
BOATING		1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05	1.77E-05
TOTAL	1.97E-05	2.13E-03	1.90E-04	1.41E-04	6.86E-05	1.47E-04	5.26E-05	1.11E-03

```
0            USAGE (KG/YR,HR/YR)          DILUTION      TIME(HR)          SHOREWIDTH FACTOR= .3
 FISH                      .0                 10.0        24.00
 DRINKING               330.0                 10.0        12.00
 SHORELINE              300.0                 10.0          .00
 SWIMMING               200.0                 10.0          .00
 BOATING                500.0                 10.0          .00
1                                   *  *  *  FISH CONSUMPTION POPULATION DOSES  *  *  *
                                                    PERSON-REM
0__________SPORT HARVEST__________
0                                  ---------------------------DOSE (PERSON-REM)------------------------
0PATHWAY     AGE GROUP       USAGE     BONE     LIVER   TOTAL BODY  THYROID   KIDNEY     LUNG     GI-LLI
 FISH        ADULT         2.25E+05  1.04E+01  6.49E-01  4.04E-01  1.58E-03  4.38E-03  1.32E-03  1.18E+00
 FISH        TEENAGER      2.63E+04  1.74E+00  1.08E-01  6.76E-02  2.61E-04  7.25E-04  2.20E-04  1.47E-01
 FISH        CHILD         1.82E+04  3.60E+00  1.69E-01  1.39E-01  5.38E-04  1.18E-03  4.54E-04  1.00E-01
 FISH        TOTAL         2.70E+05  1.58E+01  9.25E-01  6.10E-01  2.38E-03  6.29E-03  1.99E-03  1.42E+00
0    LOCATION          DILUTION   CATCH    TIME(HR)-INCLUDES FOOD PROCESSING TIME OF 1.68E+02 HR     POPULATION=4.60E+04
 Lake Anna             1.00E+01  2.70E+05  1.68E+02
0AVERAGE INDIVIDUAL CONSUMPTION (KG/YR)    ADULT=6.90E+00     TEEN=5.20E+00     CHILD=2.20E+00
1                                   *  *  *  POPULATION WATER CONSUMPTION DOSES  *  *  *
0_____________________________________________________________________________________________
0SUPPLIER-Lake Anna
0                                  ---------------------------DOSE (PERSON-REM)------------------------
0PATHWAY     AGE GROUP       USAGE     BONE     LIVER   TOTAL BODY  THYROID   KIDNEY     LUNG     GI-LLI
 DRINKING    ADULT         5.81E+06  4.29E-03  3.08E-04  1.87E-04  3.60E-05  3.21E-04  7.38E-06  1.16E-02
 DRINKING    TEENAGER      6.32E+05  6.64E-04  4.75E-05  2.89E-05  5.25E-06  4.88E-05  1.15E-06  1.40E-03
 DRINKING    CHILD         1.03E+06  3.25E-03  1.77E-04  1.40E-04  2.51E-05  1.66E-04  5.60E-06  2.41E-03
 DRINKING    TOTAL         7.47E+06  8.21E-03  5.33E-04  3.55E-04  6.63E-05  5.35E-04  1.41E-05  1.54E-02
0POPULATION=2.21E+04     DILUTION=1.00E+01     TRANSIT TIME=2.40E+01 HR (INCLUDING 24 HR FOR TREATMENT FACILITY)
0AVERAGE INDIVIDUAL CONSUMPTION (L/YR)     ADULT=3.70E+02     TEEN=2.60E+02     CHILD=2.60E+02
0-----CUMULATIVE TOTAL-----
0PATHWAY     AGE GROUP       USAGE     BONE     LIVER   TOTAL BODY  THYROID   KIDNEY     LUNG     GI-LLI
 DRINKING    CUMUL TOTAL   7.47E+06  8.21E-03  5.33E-04  3.55E-04  6.63E-05  5.35E-04  1.41E-05  1.54E-02
1                                   *   *   *   RECREATION POPULATION DOSES   *   *   *
0_____________________________________________________________________________________________
0LOCATION- Lake Anna
0DILUTION= 1.00E+01          TRANSIT TIME= 0.00E+00 HR          SWF=  .3
0                                                  ________________DOSE (PERSON-PERSON)_____________
0PATHWAY      AGE GROUP          USAGE            SKIN        TOTAL BODY       THYROID
 SHORELINE   TOTAL POPUL        1.31E+06        8.61E-05       7.40E-05        7.40E-05
0_____________________________________________________________________________________________
0LOCATION- Lake Anna
0DILUTION= 1.00E+01          TRANSIT TIME= 0.00E+00 HR
0                                                  ________________DOSE (PERSON-PERSON)_____________
0PATHWAY      AGE GROUP          USAGE            SKIN        TOTAL BODY       THYROID
 SWIMMING    TOTAL POPUL        8.76E+05                       6.21E-05        6.21E-05
0_____________________________________________________________________________________________
0LOCATION- Lake Anna
0DILUTION= 1.00E+01          TRANSIT TIME= 0.00E+00 HR
0                                                  ________________DOSE (PERSON-PERSON)_____________
0PATHWAY      AGE GROUP          USAGE            SKIN        TOTAL BODY       THYROID
 BOATING     TOTAL POPUL        2.19E+06                       7.76E-05        7.76E-05
1                    *  *  *  COST-BENEFIT ANALYSIS  *  *  *
0  NUCLIDE        RELEASE     _____PERSON-REM DOSE_____PERSON-REM PER CURIE____
                !   CI/YR    ! TOTAL BODY !   THYROID  ! TOTAL BODY !   THYROID  !
    6C   14     !  4.40E-04  !  2.01E-03  !  2.01E-03  !  4.56E+00  !  4.56E+00  !
   15P   32     !  6.60E-04  !  6.08E-01  !  4.23E-08  !  9.22E+02  !  6.42E-05  !
   28NI  63     !  1.50E-04  !  1.49E-04  !  0.00E+00  !  9.94E-01  !  0.00E+00  !
   29CU  64     !  8.20E-03  !  3.64E-05  !  3.17E-05  !  4.43E-03  !  3.87E-03  !
   35BR  84     !  2.00E-05  !  7.03E-07  !  7.03E-07  !  3.51E-02  !  3.51E-02  !
   37RB  89     !  4.80E-05  !  2.17E-06  !  2.17E-06  !  4.51E-02  !  4.51E-02  !
   38SR  91     !  9.80E-04  !  2.13E-05  !  1.92E-05  !  2.18E-02  !  1.96E-02  !
   38SR  92     !  8.80E-04  !  2.31E-05  !  2.31E-05  !  2.63E-02  !  2.63E-02  !
   39Y   90     !  3.40E-06  !  4.92E-10  !  4.47E-10  !  1.45E-04  !  1.32E-04  !
```

	39Y	91M	!	1.00E-05	!	1.01E-07	!	1.01E-07	!	1.01E-02	!	1.01E-02	!
	39Y	91	!	2.40E-04	!	1.70E-07	!	8.35E-08	!	7.09E-04	!	3.48E-04	!
	39Y	92	!	6.60E-04	!	3.07E-06	!	3.07E-06	!	4.66E-03	!	4.66E-03	!
	39Y	93	!	9.80E-04	!	1.91E-06	!	1.91E-06	!	1.95E-03	!	1.95E-03	!
	40ZR	95	!	1.00E-03	!	7.95E-05	!	7.92E-05	!	7.95E-02	!	7.92E-02	!
	52TE	129M	!	1.40E-04	!	1.67E-04	!	3.55E-04	!	1.19E+00	!	2.53E+00	!
	52TE	129	!	1.50E-04	!	2.87E-07	!	2.87E-07	!	1.91E-03	!	1.91E-03	!
	52TE	131M	!	1.00E-04	!	5.57E-06	!	8.41E-06	!	5.57E-02	!	8.41E-02	!
	52TE	131	!	3.00E-05	!	2.23E-07	!	2.23E-07	!	7.43E-03	!	7.43E-03	!
	52TE	132	!	2.40E-04	!	7.17E-05	!	8.42E-05	!	2.99E-01	!	3.51E-01	!
	58CE	143	!	1.90E-04	!	1.20E-06	!	1.20E-06	!	6.33E-03	!	6.32E-03	!
	59PR	143	!	1.40E-04	!	7.62E-09	!	2.25E-09	!	5.44E-05	!	1.60E-05	!
	59PR	144	!	3.20E-03	!	1.80E-06	!	1.80E-06	!	5.62E-04	!	5.62E-04	!
	74W	187	!	2.10E-04	!	2.15E-06	!	1.88E-06	!	1.02E-02	!	8.94E-03	!
	93NP	239	!	1.40E-02	!	4.00E-05	!	4.00E-05	!	2.86E-03	!	2.85E-03	!
	35BR	83	!	7.50E-05	!	1.30E-08	!	1.29E-08	!	1.74E-04	!	1.72E-04	!
	44RU	105	!	1.00E-04	!	1.22E-06	!	1.22E-06	!	1.22E-02	!	1.22E-02	!
	56BA	139	!	2.50E-05	!	2.00E-08	!	2.00E-08	!	7.99E-04	!	7.99E-04	!
	57LA	142	!	2.50E-05	!	1.13E-06	!	1.13E-06	!	4.53E-02	!	4.53E-02	!
0	TOTAL					6.11E-01		2.66E-03					
1													

1
1

north anna_biota_sept06.inp
(revised ^3H - 850 Ci/yr)

```
*****************************************************************************
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*            L      AAA   DDDD   TTTTT   AAA   PPPP     IIIII IIIII         *
*            L     A   A  D   D    T    A   A  P   P      I     I           *
*            L     A   A  D   D    T    A   A  P   P      I     I           *
*            L     AAAAA  D   D    T    AAAAA  PPPP       I     I           *
*            L     A   A  D   D    T    A   A  P          I     I           *
*            LLLLL A   A  DDDD     T    A   A  P        IIIII IIIII         *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*          EVALUATION OF RADIATION DOSES FROM RELEASES OF RADIACTIVITY      *
*                                                                           *
*                    IN NUCLEAR POWER PLANTS LIQUID EFFLUENTS               *
*                                                                           *
*                     REVISION DATE:  JSB PC - February 1996                *
*                                                                           *
*                                                                           *
*      North Anna - biota                                                   *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                        RADIOLOGICAL ASSESSMENT BRANCH                     *
*                                                                           *
*                        DIVISION OF SYSTEMS INTEGRATION                    *
*                                                                           *
*                        U. S. NUCLEAR REGULATORY COMMISSION                *
*                                                                           *
*                        WASHINGTON, D. C.                                  *
*                                                                           *
*                        DATE OF RUN:    13-Nov-2006                        *
*                                                                           *
*****************************************************************************
1
 North Anna - biota
0 DISCHARGE=2.20E+01 CFS          SOURCE TERM MULTIPLIER=1.00E+00
0 50-MILE POPULATION=1.00E+00     FRACTION ---  ADULT= .71
                                                TEENAGER= .11
                                                CHILD= .18
0 FRESHWATER SITE
1
 Table 5.4-6 of ER
 NO INTERNAL RECONCENTRATION MODEL EMPLOYED
0                              *  *  *  ADULT DOSE FACTORS  *  *  *
```

0

NUCLIDE	CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
1H 3	8.50E+02	0.00E+00	5.99E-08	5.99E-08	5.99E-08	5.99E-08	5.99E-08	5.99E-08	0.00E+00	0.00E+00	1.00E+00
11NA 24	3.50E-03	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	1.70E-06	2.90E-08	2.50E-08	1.00E+00
24CR 51	2.10E-02	0.00E+00	0.00E+00	2.66E-09	1.59E-09	5.86E-10	3.53E-09	6.69E-07	2.60E-10	2.20E-10	1.00E+00
25MN 54	2.80E-03	0.00E+00	4.57E-06	8.72E-07	0.00E+00	1.36E-06	0.00E+00	1.40E-05	6.80E-09	5.80E-09	1.00E+00
25MN 56	4.20E-03	0.00E+00	1.15E-07	2.04E-08	0.00E+00	1.46E-07	0.00E+00	3.67E-06	1.30E-08	1.10E-08	1.00E+00
26FE 55	6.40E-03	2.75E-06	1.90E-06	4.43E-07	0.00E+00	0.00E+00	1.06E-06	1.09E-06	0.00E+00	0.00E+00	1.00E+00
26FE 59	2.00E-04	4.34E-06	1.02E-05	3.91E-06	0.00E+00	0.00E+00	2.85E-06	3.40E-05	9.40E-09	8.00E-09	1.00E+00
27CO 57	7.90E-05	0.00E+00	1.75E-07	2.91E-07	0.00E+00	0.00E+00	0.00E+00	4.44E-06	1.00E-09	9.10E-10	1.00E+00
27CO 58	3.40E-03	0.00E+00	7.45E-07	1.67E-06	0.00E+00	0.00E+00	0.00E+00	1.51E-05	8.20E-09	7.00E-09	1.00E+00
27CO 60	1.00E-02	0.00E+00	2.14E-06	4.72E-06	0.00E+00	0.00E+00	0.00E+00	4.02E-05	2.00E-08	1.70E-08	1.00E+00
30ZN 65	7.50E-04	4.84E-06	1.54E-05	6.96E-06	0.00E+00	1.03E-05	0.00E+00	9.70E-06	4.60E-09	4.00E-09	1.00E+00
37RB 88	2.70E-04	0.00E+00	6.05E-08	3.21E-08	0.00E+00	0.00E+00	0.00E+00	8.36E-19	4.00E-09	3.50E-09	1.00E+00
38SR 89	3.60E-04	3.08E-04	0.00E+00	8.84E-06	0.00E+00	0.00E+00	0.00E+00	4.94E-05	6.50E-13	5.60E-13	1.00E+00
38SR 90	3.80E-05	8.71E-03	0.00E+00	1.75E-04	0.00E+00	0.00E+00	0.00E+00	2.19E-04	0.00E+00	0.00E+00	1.00E+00
41NB 95	1.90E-03	6.22E-09	3.46E-09	1.86E-09	0.00E+00	3.42E-09	0.00E+00	2.10E-05	6.00E-09	5.10E-09	1.00E+00
42MO 99	3.90E-03	0.00E+00	4.31E-06	8.20E-07	0.00E+00	9.76E-06	0.00E+00	9.99E-06	2.20E-09	1.90E-09	1.00E+00
43TC 99M	5.10E-03	2.47E-10	6.98E-10	8.89E-09	0.00E+00	1.06E-08	3.42E-10	4.13E-07	1.10E-09	9.60E-10	1.00E+00
44RU 103	4.90E-03	1.85E-07	0.00E+00	7.97E-08	0.00E+00	7.06E-07	0.00E+00	2.16E-05	4.20E-09	3.60E-09	1.00E+00
44RU 106	7.40E-02	2.75E-06	0.00E+00	3.48E-07	0.00E+00	5.31E-06	0.00E+00	1.78E-04	1.80E-09	1.50E-09	1.00E+00
47AG 110M	1.10E-03	1.60E-07	1.48E-07	8.79E-08	0.00E+00	2.91E-07	0.00E+00	6.04E-05	2.10E-08	1.80E-08	1.00E+00
51SB 124	6.80E-04	2.80E-06	5.29E-08	1.11E-06	6.79E-09	0.00E+00	2.18E-06	7.95E-05	1.50E-08	1.30E-08	1.00E+00
53I 131	1.40E-02	4.16E-06	5.95E-06	3.41E-06	1.95E-03	1.02E-05	0.00E+00	1.57E-06	3.40E-09	2.80E-09	1.00E+00
53I 132	2.80E-03	2.03E-07	5.43E-07	1.90E-07	1.90E-05	8.65E-07	0.00E+00	1.02E-07	2.00E-08	1.70E-08	1.00E+00
53I 133	2.40E-02	1.42E-06	2.47E-06	7.53E-07	3.63E-04	4.31E-06	0.00E+00	2.22E-06	4.50E-09	3.70E-09	1.00E+00
53I 134	1.90E-03	1.06E-07	2.88E-07	1.03E-07	4.99E-06	4.58E-07	0.00E+00	2.51E-10	1.90E-08	1.60E-08	1.00E+00
53I 135	8.20E-03	4.43E-07	1.16E-06	4.28E-07	7.65E-05	1.86E-06	0.00E+00	1.31E-06	1.40E-08	1.20E-08	1.00E+00
55CS 134	9.90E-03	6.22E-05	1.48E-04	1.21E-04	0.00E+00	4.79E-05	1.59E-05	2.59E-06	1.40E-08	1.20E-08	1.00E+00
55CS 136	1.20E-03	6.51E-06	2.57E-05	1.85E-05	0.00E+00	1.43E-05	1.96E-06	2.92E-06	1.70E-08	1.50E-08	1.00E+00
55CS 137	1.30E-02	7.97E-05	1.09E-04	7.14E-05	0.00E+00	3.70E-05	1.23E-05	2.11E-06	4.90E-09	4.20E-09	1.00E+00
55CS 138	2.10E-04	5.52E-08	1.09E-07	5.40E-08	0.00E+00	8.01E-08	7.91E-09	4.65E-13	2.40E-08	2.10E-08	1.00E+00
56BA 140	5.50E-03	2.03E-05	2.55E-08	1.33E-06	0.00E+00	8.67E-09	1.46E-08	4.18E-05	2.40E-09	2.10E-09	1.00E+00
57LA 140	7.40E-03	2.50E-09	1.26E-09	3.33E-10	0.00E+00	0.00E+00	0.00E+00	9.25E-05	1.70E-08	1.50E-08	1.00E+00
58CE 141	1.30E-04	9.36E-09	6.33E-09	7.18E-10	0.00E+00	2.94E-09	0.00E+00	2.42E-05	6.20E-10	5.50E-10	1.00E+00
58CE 144	3.20E-03	4.88E-07	2.04E-07	2.62E-08	0.00E+00	1.21E-07	0.00E+00	1.65E-04	3.70E-10	3.20E-10	1.00E+00

0 * * * TEENAGER DOSE FACTORS * * *

0

NUCLIDE	CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
1H 3	8.50E+02	0.00E+00	6.04E-08	6.04E-08	6.04E-08	6.04E-08	6.04E-08	6.04E-08			
11NA 24	3.50E-03	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06	2.30E-06			
24CR 51	2.10E-02	0.00E+00	0.00E+00	3.60E-09	2.00E-09	7.89E-10	5.14E-09	6.05E-07			
25MN 54	2.80E-03	0.00E+00	5.90E-06	1.17E-06	0.00E+00	1.76E-06	0.00E+00	1.21E-05			
25MN 56	4.20E-03	0.00E+00	1.58E-07	2.81E-08	0.00E+00	2.00E-07	0.00E+00	1.04E-05			
26FE 55	6.40E-03	3.78E-06	2.68E-06	6.25E-07	0.00E+00	0.00E+00	1.70E-06	1.16E-06			
26FE 59	2.00E-04	5.87E-06	1.37E-05	5.29E-06	0.00E+00	0.00E+00	4.32E-06	3.24E-05			
27CO 57	7.90E-05	0.00E+00	2.38E-07	3.99E-07	0.00E+00	0.00E+00	0.00E+00	4.44E-06			
27CO 58	3.40E-03	0.00E+00	9.72E-07	2.24E-06	0.00E+00	0.00E+00	0.00E+00	1.34E-05			
27CO 60	1.00E-02	0.00E+00	2.81E-06	6.33E-06	0.00E+00	0.00E+00	0.00E+00	3.66E-05			
30ZN 65	7.50E-04	5.76E-06	2.00E-05	9.33E-06	0.00E+00	1.28E-05	0.00E+00	8.47E-06			
37RB 88	2.70E-04	0.00E+00	8.52E-08	4.54E-08	0.00E+00	0.00E+00	0.00E+00	7.30E-15			
38SR 89	3.60E-04	4.40E-04	0.00E+00	1.26E-05	0.00E+00	0.00E+00	0.00E+00	5.24E-05			
38SR 90	3.80E-05	1.02E-02	0.00E+00	2.04E-04	0.00E+00	0.00E+00	0.00E+00	2.33E-04			
41NB 95	1.90E-03	8.22E-09	4.56E-09	2.51E-09	0.00E+00	4.42E-09	0.00E+00	1.95E-05			
42MO 99	3.90E-03	0.00E+00	6.03E-06	1.15E-06	0.00E+00	1.38E-05	0.00E+00	1.08E-05			
43TC 99M	5.10E-03	3.32E-10	9.26E-10	1.20E-08	0.00E+00	1.38E-08	5.14E-10	6.08E-07			
44RU 103	4.90E-03	2.55E-07	0.00E+00	1.09E-07	0.00E+00	8.99E-07	0.00E+00	2.13E-05			
44RU 106	7.40E-02	3.92E-06	0.00E+00	4.94E-07	0.00E+00	7.56E-06	0.00E+00	1.88E-04			
47AG 110M	1.10E-03	2.05E-07	1.94E-07	1.18E-07	0.00E+00	3.70E-07	0.00E+00	5.45E-05			
51SB 124	6.80E-04	3.87E-06	7.13E-08	1.51E-06	8.78E-09	0.00E+00	3.38E-06	7.80E-05			
53I 131	1.40E-02	5.85E-06	8.19E-06	4.40E-06	2.39E-03	1.41E-05	0.00E+00	1.62E-06			

53I	132	2.80E-03	2.79E-07	7.30E-07	2.62E-07	2.46E-05	1.15E-06	0.00E+00	3.18E-07
53I	133	2.40E-02	2.01E-06	3.41E-06	1.04E-06	4.76E-04	5.98E-06	0.00E+00	2.58E-06
53I	134	1.90E-03	1.46E-07	3.87E-07	1.39E-07	6.45E-06	6.10E-07	0.00E+00	5.10E-09
53I	135	8.20E-03	6.10E-07	1.57E-06	5.82E-07	1.01E-04	2.48E-06	0.00E+00	1.74E-06
55CS	134	9.90E-03	8.37E-05	1.97E-04	9.14E-05	0.00E+00	6.26E-05	2.39E-05	2.45E-06
55CS	136	1.20E-03	8.59E-06	3.38E-05	2.27E-05	0.00E+00	1.84E-05	2.90E-06	2.72E-06
55CS	137	1.30E-02	1.12E-04	1.49E-04	5.19E-05	0.00E+00	5.07E-05	1.97E-05	2.12E-06
55CS	138	2.10E-04	7.76E-08	1.49E-07	7.45E-08	0.00E+00	1.10E-07	1.28E-08	6.76E-11
56BA	140	5.50E-03	2.84E-05	3.48E-08	1.83E-06	0.00E+00	1.18E-08	2.34E-08	4.38E-05
57LA	140	7.40E-03	3.48E-09	1.71E-09	4.55E-10	0.00E+00	0.00E+00	0.00E+00	9.82E-05
58CE	141	1.30E-04	1.33E-08	8.88E-09	1.02E-09	0.00E+00	4.18E-09	0.00E+00	2.54E-05
58CE	144	3.20E-03	6.96E-07	2.88E-07	3.74E-08	0.00E+00	1.72E-07	0.00E+00	1.75E-04

0 * * * CHILD DOSE FACTORS * * *

0

			INGESTION DOSE FACTORS (MREM/PCI INTAKE)							SHORELINE (MREM/HR)/(PCI/M**2)		
NUCLIDE		CURIE/YEAR	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN	TOTAL BODY	RECON
1H	3	8.50E+02	0.00E+00	1.16E-07	1.16E-07	1.16E-07	1.16E-07	1.16E-07	1.16E-07			
11NA	24	3.50E-03	5.80E-06	5.80E-06	5.80E-06	5.80E-06	5.80E-06	5.80E-06	5.80E-06			
24CR	51	2.10E-02	0.00E+00	0.00E+00	8.90E-09	4.94E-09	1.35E-09	9.02E-09	4.72E-07			
25MN	54	2.80E-03	0.00E+00	1.07E-05	2.85E-06	0.00E+00	3.00E-06	0.00E+00	8.98E-06			
25MN	56	4.20E-03	0.00E+00	3.34E-07	7.54E-08	0.00E+00	4.04E-07	0.00E+00	4.84E-05			
26FE	55	6.40E-03	1.15E-05	6.10E-06	1.89E-06	0.00E+00	0.00E+00	3.45E-06	1.13E-06			
26FE	59	2.00E-04	1.65E-05	2.67E-05	1.33E-05	0.00E+00	0.00E+00	7.74E-06	2.78E-05			
27CO	57	7.90E-05	0.00E+00	4.93E-07	9.98E-07	0.00E+00	0.00E+00	0.00E+00	4.04E-06			
27CO	58	3.40E-03	0.00E+00	1.80E-06	5.51E-06	0.00E+00	0.00E+00	0.00E+00	1.05E-05			
27CO	60	1.00E-02	0.00E+00	5.29E-06	1.56E-05	0.00E+00	0.00E+00	0.00E+00	2.93E-05			
30ZN	65	7.50E-04	1.37E-05	3.65E-05	2.27E-05	0.00E+00	2.30E-05	0.00E+00	6.41E-06			
37RB	88	2.70E-04	0.00E+00	1.90E-07	1.32E-07	0.00E+00	0.00E+00	0.00E+00	9.32E-09			
38SR	89	3.60E-04	1.32E-03	0.00E+00	3.77E-05	0.00E+00	0.00E+00	0.00E+00	5.11E-05			
38SR	90	3.80E-05	2.56E-02	0.00E+00	5.15E-04	0.00E+00	0.00E+00	0.00E+00	2.29E-04			
41NB	95	1.90E-03	2.25E-08	8.76E-09	6.26E-09	0.00E+00	8.23E-09	0.00E+00	1.62E-05			
42MO	99	3.90E-03	0.00E+00	1.33E-05	3.29E-06	0.00E+00	2.84E-05	0.00E+00	1.10E-05			
43TC	99M	5.10E-03	9.23E-10	1.81E-09	3.00E-08	0.00E+00	2.63E-08	9.19E-10	1.03E-06			
44RU	103	4.90E-03	7.31E-07	0.00E+00	2.81E-07	0.00E+00	1.84E-06	0.00E+00	1.89E-05			
44RU	106	7.40E-02	1.17E-05	0.00E+00	1.46E-06	0.00E+00	1.58E-05	0.00E+00	1.82E-04			
47AG	110M	1.10E-03	5.39E-07	3.64E-07	2.91E-07	0.00E+00	6.78E-07	0.00E+00	4.33E-05			
51SB	124	6.80E-04	1.11E-05	1.44E-07	3.89E-06	2.45E-08	0.00E+00	6.16E-06	6.94E-05			
53I	131	1.40E-02	1.72E-05	1.73E-05	9.83E-06	5.72E-03	2.84E-05	0.00E+00	1.54E-06			
53I	132	2.80E-03	8.00E-07	1.47E-06	6.76E-07	6.82E-05	2.25E-06	0.00E+00	1.73E-06			
53I	133	2.40E-02	5.92E-06	7.32E-06	2.77E-06	1.36E-03	1.22E-05	0.00E+00	2.95E-06			
53I	134	1.90E-03	4.19E-07	7.78E-07	3.58E-07	1.79E-05	1.19E-06	0.00E+00	5.16E-07			
53I	135	8.20E-03	1.75E-06	3.15E-06	1.49E-06	2.79E-04	4.83E-06	0.00E+00	2.40E-06			
55CS	134	9.90E-03	2.34E-04	3.84E-04	8.10E-05	0.00E+00	1.19E-04	4.27E-05	2.07E-06			
55CS	136	1.20E-03	2.35E-05	6.46E-05	4.18E-05	0.00E+00	3.44E-05	5.13E-06	2.27E-06			
55CS	137	1.30E-02	3.27E-04	3.13E-04	4.62E-05	0.00E+00	1.02E-04	3.67E-05	1.96E-06			
55CS	138	2.10E-04	2.28E-07	3.17E-07	2.01E-07	0.00E+00	2.23E-07	2.40E-08	1.46E-07			
56BA	140	5.50E-03	8.31E-05	7.28E-08	4.85E-06	0.00E+00	2.37E-08	4.34E-08	4.21E-05			
57LA	140	7.40E-03	1.01E-08	3.53E-09	1.19E-09	0.00E+00	0.00E+00	0.00E+00	9.84E-05			
58CE	141	1.30E-04	3.97E-08	1.98E-08	2.94E-09	0.00E+00	8.68E-09	0.00E+00	2.47E-05			
58CE	144	3.20E-03	2.08E-06	6.52E-07	1.11E-07	0.00E+00	3.61E-07	0.00E+00	1.70E-04			

0 * * * INFANT DOSE FACTORS * * *

0

			INGESTION DOSE FACTORS (MREM/PCI INTAKE)							SHORELINE (MREM/HR)/(PCI/M**2)		
NUCLIDE		CURIE/YEAR	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN	TOTAL BODY	RECON
1H	3	8.50E+02	0.00E+00	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07	1.76E-07			
11NA	24	3.50E-03	1.01E-05	1.01E-05	1.01E-05	1.01E-05	1.01E-05	1.01E-05	1.01E-05			
24CR	51	2.10E-02	0.00E+00	0.00E+00	1.41E-08	9.20E-09	2.01E-09	1.79E-08	4.11E-07			
25MN	54	2.80E-03	0.00E+00	1.99E-05	4.51E-06	0.00E+00	4.41E-06	0.00E+00	7.31E-06			
25MN	56	4.20E-03	0.00E+00	8.18E-07	1.41E-07	0.00E+00	7.03E-07	0.00E+00	7.43E-05			
26FE	55	6.40E-03	1.39E-05	8.98E-06	2.40E-06	0.00E+00	0.00E+00	4.39E-06	1.14E-06			
26FE	59	2.00E-04	3.08E-05	5.38E-05	2.12E-05	0.00E+00	0.00E+00	1.59E-05	2.57E-05			
27CO	57	7.90E-05	0.00E+00	1.15E-06	1.87E-06	0.00E+00	0.00E+00	0.00E+00	3.92E-06			
27CO	58	3.40E-03	0.00E+00	3.60E-06	8.98E-06	0.00E+00	0.00E+00	0.00E+00	8.97E-06			

27CO	60	1.00E-02	0.00E+00	1.08E-05	2.55E-05	0.00E+00	0.00E+00	0.00E+00	2.57E-05
30ZN	65	7.50E-04	1.84E-05	6.31E-05	2.91E-05	0.00E+00	3.06E-05	0.00E+00	5.33E-05
37RB	88	2.70E-04	0.00E+00	4.98E-07	2.73E-07	0.00E+00	0.00E+00	0.00E+00	4.85E-07
38SR	89	3.60E-04	2.51E-03	0.00E+00	7.20E-05	0.00E+00	0.00E+00	0.00E+00	5.16E-05
38SR	90	3.80E-05	2.83E-02	0.00E+00	5.74E-04	0.00E+00	0.00E+00	0.00E+00	2.31E-04
41NB	95	1.90E-03	4.20E-08	1.73E-08	1.00E-08	0.00E+00	1.24E-08	0.00E+00	1.46E-05
42MO	99	3.90E-03	0.00E+00	3.40E-05	6.63E-06	0.00E+00	5.08E-05	0.00E+00	1.12E-05
43TC	99M	5.10E-03	1.92E-09	3.96E-09	5.10E-08	0.00E+00	4.26E-08	2.07E-09	1.15E-06
44RU	103	4.90E-03	1.48E-06	0.00E+00	4.95E-07	0.00E+00	3.08E-06	0.00E+00	1.80E-05
44RU	106	7.40E-02	2.41E-05	0.00E+00	3.01E-06	0.00E+00	2.85E-05	0.00E+00	1.83E-04
47AG	110M	1.10E-03	9.96E-07	7.27E-07	4.81E-07	0.00E+00	1.04E-06	0.00E+00	3.77E-05
51SB	124	6.80E-04	2.14E-05	3.15E-07	6.63E-06	5.68E-08	0.00E+00	1.34E-05	6.60E-05
53I	131	1.40E-02	3.59E-05	4.23E-05	1.86E-05	1.39E-02	4.94E-05	0.00E+00	1.51E-06
53I	132	2.80E-03	1.66E-06	3.37E-06	1.20E-06	1.58E-04	3.76E-06	0.00E+00	2.73E-06
53I	133	2.40E-02	1.25E-05	1.82E-05	5.33E-06	3.31E-03	2.14E-05	0.00E+00	3.08E-06
53I	134	1.90E-03	8.69E-07	1.78E-06	6.33E-07	4.15E-05	1.99E-06	0.00E+00	1.84E-06
53I	135	8.20E-03	3.64E-06	7.24E-06	2.64E-06	6.49E-04	8.07E-06	0.00E+00	2.62E-06
55CS	134	9.90E-03	3.77E-04	7.03E-04	7.10E-05	0.00E+00	1.81E-04	7.42E-05	1.91E-06
55CS	136	1.20E-03	4.59E-05	1.35E-04	5.04E-05	0.00E+00	5.38E-05	1.10E-05	2.05E-06
55CS	137	1.30E-02	5.22E-04	6.11E-04	4.33E-05	0.00E+00	1.64E-04	6.64E-05	1.91E-06
55CS	138	2.10E-04	4.81E-07	7.82E-07	3.79E-07	0.00E+00	3.90E-07	6.09E-08	1.25E-06
56BA	140	5.50E-03	1.71E-04	1.71E-07	8.81E-06	0.00E+00	4.06E-08	1.05E-07	4.20E-05
57LA	140	7.40E-03	2.11E-08	8.32E-09	2.14E-09	0.00E+00	0.00E+00	0.00E+00	9.77E-05
58CE	141	1.30E-04	7.87E-08	4.80E-08	5.65E-09	0.00E+00	1.48E-08	0.00E+00	2.48E-05
58CE	144	3.20E-03	2.98E-06	1.22E-06	1.67E-07	0.00E+00	4.93E-07	0.00E+00	1.71E-04

0TOTAL NUMBER IN SOURCE TERM IS 34 TOTAL RELEASE IS 8.5024E+02

1 * * * POPULATION WATER CONSUMPTION DOSES * * *

0

0 HYDROSPHERE TRITIUM DOSE

0AVERAGE INDIVIDUAL WATER CONSUMPTION = 3.0 L/DAY

0PATHWAY	AGE GROUP	USAGE	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI
WATER	TOTAL	2.86E+11	0.00E+00	6.48E-03	6.48E-03	6.48E-03	6.48E-03	6.48E-03	6.48E-03

1* * * DOSE TO BIOTA * * *

0 MRADS PER YEAR

0

outfall DILUTION= 1.00E+01 TRANSIT TIME= 0.00E+00 HR

0	INTERNAL	EXTERNAL	TOTAL
FISH	2.29E+00	3.00E+00	5.29E+00
INVERTEBRATE	3.89E+01	5.98E+00	4.49E+01
ALGAE	2.97E+01	1.37E-02	2.97E+01
MUSKRAT	8.98E+00	2.00E+00	1.10E+01
RACCOON	3.15E+00	1.49E+00	4.64E+00
HERON	4.35E+01	1.99E+00	4.55E+01
DUCK	7.92E+00	2.99E+00	1.09E+01

1 * * * COST-BENEFIT ANALYSIS * * *

0 NUCLIDE		RELEASE	PERSON-REM DOSE		PERSON-REM PER CURIE	
		CI/YR	TOTAL BODY	THYROID	TOTAL BODY	THYROID
1H	3	8.50E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
11NA	24	3.50E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
24CR	51	2.10E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
25MN	54	2.80E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
25MN	56	4.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
26FE	55	6.40E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
26FE	59	2.00E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27CO	57	7.90E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27CO	58	3.40E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27CO	60	1.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
30ZN	65	7.50E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
37RB	88	2.70E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38SR	89	3.60E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38SR	90	3.80E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
41NB	95	1.90E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
42MO	99	3.90E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00

	43TC 99M	5.10E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	44RU 103	4.90E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	44RU 106	7.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	47AG 110M	1.10E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	51SB 124	6.80E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	53I 131	1.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	53I 132	2.80E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	53I 133	2.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	53I 134	1.90E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	53I 135	8.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	55CS 134	9.90E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	55CS 136	1.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	55CS 137	1.30E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	55CS 138	2.10E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	56BA 140	5.50E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	57LA 140	7.40E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	58CE 141	1.30E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
	58CE 144	3.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
0	TOTAL		0.00E+00	0.00E+00			
1							

1
1

northanna_biota_other_sept06.inp
(no change as no ^3H in sourceterm)

```
*****************************************************************************
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*            L      AAA   DDDD   TTTTT   AAA   PPPP     IIIII IIIII         *
*            L     A   A  D   D    T    A   A  P   P      I     I           *
*            L     A   A  D   D    T    A   A  P   P      I     I           *
*            L     AAAAA  D   D    T    AAAAA  PPPP       I     I           *
*            L     A   A  D   D    T    A   A  P          I     I           *
*            LLLLL A   A  DDDD     T    A   A  P        IIIII IIIII         *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*          EVALUATION OF RADIATION DOSES FROM RELEASES OF RADIACTIVITY      *
*                                                                           *
*                    IN NUCLEAR POWER PLANTS LIQUID EFFLUENTS               *
*                                                                           *
*                     REVISION DATE:  JSB PC - February 1996                *
*                                                                           *
*                                                                           *
*      North Anna - Liquid Effluent - biota (other radionuclides)           *
*                                                                           *
*                                                                           *
*                                                                           *
*                                                                           *
*                        RADIOLOGICAL ASSESSMENT BRANCH                     *
*                                                                           *
*                        DIVISION OF SYSTEMS INTEGRATION                    *
*                                                                           *
*                        U. S. NUCLEAR REGULATORY COMMISSION                *
*                                                                           *
*                        WASHINGTON, D. C.                                  *
*                                                                           *
*                        DATE OF RUN:    13-Nov-2006                        *
*                                                                           *
*****************************************************************************
1
 North Anna - Liquid Effluent - biota (other radionuclides)
0  DISCHARGE=2.20E+01 CFS          SOURCE TERM MULTIPLIER=1.00E+00
0  50-MILE POPULATION=1.00E+00     FRACTION ---  ADULT= .71
                                                 TEENAGER= .11
                                                 CHILD= .18
0  FRESHWATER SITE
1
 Table 5.4-6 of ER
 NO INTERNAL RECONCENTRATION MODEL EMPLOYED
0                              *  *  *  ADULT DOSE FACTORS  *  *  *
```

0

NUCLIDE	CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
6C 14	4.40E-04	2.84E-06	5.68E-07	5.68E-07	5.68E-07	5.68E-07	5.68E-07	5.68E-07	0.00E+00	0.00E+00	1.00E+00
15P 32	6.60E-04	1.93E-04	1.20E-05	7.46E-06	0.00E+00	0.00E+00	0.00E+00	2.17E-05	0.00E+00	0.00E+00	1.00E+00
28NI 63	1.50E-04	1.30E-04	9.01E-06	4.36E-06	0.00E+00	0.00E+00	0.00E+00	1.88E-06	0.00E+00	0.00E+00	1.00E+00
29CU 64	8.20E-03	0.00E+00	8.33E-08	3.91E-08	0.00E+00	2.10E-07	0.00E+00	7.10E-06	1.70E-09	1.50E-09	1.00E+00
35BR 84	2.00E-05	0.00E+00	0.00E+00	5.21E-08	0.00E+00	0.00E+00	0.00E+00	4.09E-13	1.40E-08	1.20E-08	1.00E+00
37RB 89	4.80E-05	0.00E+00	4.01E-08	2.82E-08	0.00E+00	0.00E+00	0.00E+00	2.33E-21	1.80E-08	1.50E-08	1.00E+00
38SR 91	9.80E-04	5.67E-06	0.00E+00	2.29E-07	0.00E+00	0.00E+00	0.00E+00	2.70E-05	8.30E-09	7.10E-09	1.00E+00
38SR 92	8.80E-04	2.15E-06	0.00E+00	9.30E-08	0.00E+00	0.00E+00	0.00E+00	4.26E-05	1.00E-08	9.00E-09	1.00E+00
39Y 90	3.40E-06	9.62E-09	0.00E+00	2.58E-10	0.00E+00	0.00E+00	0.00E+00	1.02E-04	2.60E-12	2.20E-12	1.00E+00
39Y 91M	1.00E-05	9.09E-11	0.00E+00	3.52E-12	0.00E+00	0.00E+00	0.00E+00	2.67E-10	4.40E-09	3.80E-09	1.00E+00
39Y 91	2.40E-04	1.41E-07	0.00E+00	3.77E-09	0.00E+00	0.00E+00	0.00E+00	7.76E-05	2.70E-11	2.40E-11	1.00E+00
39Y 92	6.60E-04	8.45E-10	0.00E+00	2.47E-11	0.00E+00	0.00E+00	0.00E+00	1.48E-05	1.90E-09	1.60E-09	1.00E+00
39Y 93	9.80E-04	2.68E-09	0.00E+00	7.40E-11	0.00E+00	0.00E+00	0.00E+00	8.50E-05	7.80E-10	5.70E-10	1.00E+00
40ZR 95	1.00E-03	3.04E-08	9.75E-09	6.60E-09	0.00E+00	1.53E-08	0.00E+00	3.09E-05	5.80E-09	5.00E-09	1.00E+00
52TE 129M	1.40E-04	1.15E-05	4.29E-06	1.82E-06	3.95E-06	4.80E-05	0.00E+00	5.79E-05	9.00E-10	7.70E-10	1.00E+00
52TE 129	1.50E-04	3.14E-08	1.18E-08	7.65E-09	2.41E-08	1.32E-07	0.00E+00	2.37E-08	8.40E-10	7.10E-10	1.00E+00
52TE 131M	1.00E-04	1.73E-06	8.46E-07	7.05E-07	1.34E-06	8.57E-06	0.00E+00	8.40E-05	9.90E-09	8.40E-09	1.00E+00
52TE 131	3.00E-05	1.97E-08	8.23E-09	6.22E-09	1.62E-08	8.63E-08	0.00E+00	2.79E-09	2.60E-06	2.20E-09	1.00E+00
52TE 132	2.40E-04	2.52E-06	1.63E-06	1.53E-06	1.80E-06	1.57E-05	0.00E+00	7.71E-05	2.00E-09	1.70E-09	1.00E+00
58CE 143	1.90E-04	1.65E-09	1.22E-06	1.35E-10	0.00E+00	5.37E-10	0.00E+00	4.56E-05	2.50E-09	2.20E-09	1.00E+00
59PR 143	1.40E-04	9.20E-09	3.69E-09	4.56E-10	0.00E+00	2.13E-09	0.00E+00	4.03E-05	0.00E+00	0.00E+00	1.00E+00
59PR 144	3.20E-03	3.01E-11	1.25E-11	1.53E-12	0.00E+00	7.05E-12	0.00E+00	4.33E-18	2.30E-10	2.00E-10	1.00E+00
74W 187	2.10E-04	1.03E-07	8.61E-08	3.01E-08	0.00E+00	0.00E+00	0.00E+00	2.82E-05	3.60E-09	3.10E-09	1.00E+00
93NP 239	1.40E-02	1.19E-09	1.17E-10	6.45E-11	0.00E+00	3.65E-10	0.00E+00	2.40E-05	1.10E-09	9.50E-10	1.00E+00
35BR 83	7.50E-05	0.00E+00	0.00E+00	4.02E-08	0.00E+00	0.00E+00	0.00E+00	5.79E-08	9.30E-11	6.40E-11	1.00E+00
44RU 105	1.00E-04	1.54E-08	0.00E+00	6.08E-09	0.00E+00	1.99E-07	0.00E+00	9.42E-06	5.10E-09	4.50E-09	1.00E+00
56BA 139	2.50E-05	9.70E-08	6.91E-11	2.84E-09	0.00E+00	6.46E-11	3.92E-11	1.72E-07	2.70E-09	2.40E-09	1.00E+00
57LA 142	2.50E-05	1.28E-10	5.82E-11	1.45E-11	0.00E+00	0.00E+00	0.00E+00	4.25E-07	1.80E-08	1.50E-08	1.00E+00

0 * * * TEENAGER DOSE FACTORS * * *

0

NUCLIDE	CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
6C 14	4.40E-04	4.06E-06	8.12E-07	8.12E-07	8.12E-07	8.12E-07	8.12E-07	8.12E-07			
15P 32	6.60E-04	2.76E-04	1.71E-05	1.07E-05	0.00E+00	0.00E+00	0.00E+00	2.32E-05			
28NI 63	1.50E-04	1.77E-04	1.25E-05	6.00E-06	0.00E+00	0.00E+00	0.00E+00	1.99E-06			
29CU 64	8.20E-03	0.00E+00	1.15E-07	5.41E-08	0.00E+00	2.91E-07	0.00E+00	8.92E-06			
35BR 84	2.00E-05	0.00E+00	0.00E+00	7.22E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
37RB 89	4.80E-05	0.00E+00	5.50E-08	3.89E-08	0.00E+00	0.00E+00	0.00E+00	8.43E-17			
38SR 91	9.80E-04	8.07E-06	0.00E+00	3.21E-07	0.00E+00	0.00E+00	0.00E+00	3.66E-05			
38SR 92	8.80E-04	3.05E-06	0.00E+00	1.30E-07	0.00E+00	0.00E+00	0.00E+00	7.77E-05			
39Y 90	3.40E-06	1.37E-08	0.00E+00	3.69E-10	0.00E+00	0.00E+00	0.00E+00	1.13E-04			
39Y 91M	1.00E-05	1.29E-10	0.00E+00	4.93E-12	0.00E+00	0.00E+00	0.00E+00	6.09E-09			
39Y 91	2.40E-04	2.01E-07	0.00E+00	5.39E-09	0.00E+00	0.00E+00	0.00E+00	8.24E-05			
39Y 92	6.60E-04	1.21E-09	0.00E+00	3.50E-11	0.00E+00	0.00E+00	0.00E+00	3.32E-05			
39Y 93	9.80E-04	3.83E-09	0.00E+00	1.05E-10	0.00E+00	0.00E+00	0.00E+00	1.17E-04			
40ZR 95	1.00E-03	4.12E-08	1.30E-08	8.94E-09	0.00E+00	1.91E-08	0.00E+00	3.00E-05			
52TE 129M	1.40E-04	1.63E-05	6.05E-06	2.58E-06	5.26E-06	6.82E-05	0.00E+00	6.12E-05			
52TE 129	1.50E-04	4.48E-08	1.67E-08	1.09E-08	3.20E-08	1.88E-07	0.00E+00	2.45E-07			
52TE 131M	1.00E-04	2.44E-06	1.17E-06	9.76E-07	1.76E-06	1.22E-05	0.00E+00	9.39E-05			
52TE 131	3.00E-05	2.79E-08	1.15E-08	8.72E-09	2.15E-08	1.22E-07	0.00E+00	2.29E-09			
52TE 132	2.40E-04	3.49E-06	2.21E-06	2.08E-06	2.33E-06	2.12E-05	0.00E+00	7.00E-05			
58CE 143	1.90E-04	2.35E-09	1.71E-06	1.91E-10	0.00E+00	7.67E-10	0.00E+00	5.14E-05			
59PR 143	1.40E-04	1.31E-08	5.23E-09	6.52E-10	0.00E+00	3.04E-09	0.00E+00	4.31E-05			
59PR 144	3.20E-03	4.30E-11	1.76E-11	2.18E-12	0.00E+00	1.01E-11	0.00E+00	4.74E-14			
74W 187	2.10E-04	1.46E-07	1.19E-07	4.17E-08	0.00E+00	0.00E+00	0.00E+00	3.22E-05			
93NP 239	1.40E-02	1.76E-09	1.66E-10	9.22E-11	0.00E+00	5.21E-10	0.00E+00	2.67E-05			
35BR 83	7.50E-05	0.00E+00	0.00E+00	5.74E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
44RU 105	1.00E-04	2.18E-08	0.00E+00	8.46E-09	0.00E+00	2.75E-07	0.00E+00	1.76E-05			
56BA 139	2.50E-05	1.39E-07	9.78E-11	4.05E-09	0.00E+00	9.22E-11	6.74E-11	1.24E-06			
57LA 142	2.50E-05	1.79E-10	7.95E-11	1.98E-11	0.00E+00	0.00E+00	0.00E+00	2.42E-06			

0 * * * CHILD DOSE FACTORS * * *

0

NUCLIDE	CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
6C 14	4.40E-04	1.21E-05	2.42E-06	2.42E-06	2.42E-06	2.42E-06	2.42E-06	2.42E-06			
15P 32	6.60E-04	8.25E-04	3.86E-05	3.18E-05	0.00E+00	0.00E+00	0.00E+00	2.28E-05			
28NI 63	1.50E-04	5.38E-04	2.88E-05	1.83E-05	0.00E+00	0.00E+00	0.00E+00	1.94E-06			
29CU 64	8.20E-03	0.00E+00	2.45E-07	1.48E-07	0.00E+00	5.92E-07	0.00E+00	1.15E-05			
35BR 84	2.00E-05	0.00E+00	0.00E+00	1.98E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
37RB 89	4.80E-05	0.00E+00	1.17E-07	1.04E-07	0.00E+00	0.00E+00	0.00E+00	1.02E-09			
38SR 91	9.80E-04	2.40E-05	0.00E+00	9.06E-07	0.00E+00	0.00E+00	0.00E+00	5.30E-05			
38SR 92	8.80E-04	9.03E-06	0.00E+00	3.62E-07	0.00E+00	0.00E+00	0.00E+00	1.71E-04			
39Y 90	3.40E-06	4.11E-08	0.00E+00	1.10E-09	0.00E+00	0.00E+00	0.00E+00	1.17E-04			
39Y 91M	1.00E-05	3.82E-10	0.00E+00	1.39E-11	0.00E+00	0.00E+00	0.00E+00	7.48E-07			
39Y 91	2.40E-04	6.02E-07	0.00E+00	1.61E-08	0.00E+00	0.00E+00	0.00E+00	8.02E-05			
39Y 92	6.60E-04	3.60E-09	0.00E+00	1.03E-10	0.00E+00	0.00E+00	0.00E+00	1.04E-04			
39Y 93	9.80E-04	1.14E-08	0.00E+00	3.13E-10	0.00E+00	0.00E+00	0.00E+00	1.70E-04			
40ZR 95	1.00E-03	1.16E-07	2.55E-08	2.27E-08	0.00E+00	3.65E-08	0.00E+00	2.66E-05			
52TE 129M	1.40E-04	4.87E-05	1.36E-05	7.56E-06	1.57E-05	1.43E-04	0.00E+00	5.94E-05			
52TE 129	1.50E-04	1.34E-07	3.74E-08	3.18E-08	9.56E-08	3.92E-07	0.00E+00	8.34E-06			
52TE 131M	1.00E-04	7.20E-06	2.49E-06	2.65E-06	5.12E-06	2.41E-05	0.00E+00	1.01E-04			
52TE 131	3.00E-05	8.30E-08	2.53E-08	2.47E-08	6.35E-08	2.51E-07	0.00E+00	4.36E-07			
52TE 132	2.40E-04	1.01E-05	4.47E-06	5.40E-06	6.51E-06	4.15E-05	0.00E+00	4.50E-05			
58CE 143	1.90E-04	6.99E-09	3.79E-06	5.49E-10	0.00E+00	1.59E-09	0.00E+00	5.55E-05			
59PR 143	1.40E-04	3.93E-08	1.18E-08	1.95E-09	0.00E+00	6.39E-09	0.00E+00	4.24E-05			
59PR 144	3.20E-03	1.29E-10	3.99E-11	6.49E-12	0.00E+00	2.11E-11	0.00E+00	8.59E-08			
74W 187	2.10E-04	4.29E-07	2.54E-07	1.14E-07	0.00E+00	0.00E+00	0.00E+00	3.57E-05			
93NP 239	1.40E-02	5.25E-09	3.77E-10	2.65E-10	0.00E+00	1.09E-09	0.00E+00	2.79E-05			
35BR 83	7.50E-05	0.00E+00	0.00E+00	1.71E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
44RU 105	1.00E-04	6.45E-08	0.00E+00	2.34E-08	0.00E+00	5.67E-07	0.00E+00	4.21E-05			
56BA 139	2.50E-05	4.14E-07	2.21E-10	1.20E-08	0.00E+00	1.93E-10	1.30E-10	2.39E-05			
57LA 142	2.50E-05	5.24E-10	1.67E-10	5.23E-11	0.00E+00	0.00E+00	0.00E+00	3.31E-05			

0 * * * INFANT DOSE FACTORS * * *

0

NUCLIDE	CURIE/YEAR	INGESTION DOSE FACTORS (MREM/PCI INTAKE) BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SHORELINE (MREM/HR)/(PCI/M**2) SKIN	TOTAL BODY	RECON
6C 14	4.40E-04	2.37E-05	5.06E-06	5.06E-06	5.06E-06	5.06E-06	5.06E-06	5.06E-06			
15P 32	6.60E-04	1.70E-03	1.00E-04	6.59E-05	0.00E+00	0.00E+00	0.00E+00	2.30E-05			
28NI 63	1.50E-04	6.34E-04	3.92E-05	2.20E-05	0.00E+00	0.00E+00	0.00E+00	1.95E-06			
29CU 64	8.20E-03	0.00E+00	6.09E-07	2.82E-07	0.00E+00	1.03E-06	0.00E+00	1.25E-05			
35BR 84	2.00E-05	0.00E+00	0.00E+00	3.82E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
37RB 89	4.80E-05	0.00E+00	2.86E-07	1.97E-07	0.00E+00	0.00E+00	0.00E+00	9.74E-08			
38SR 91	9.80E-04	5.00E-05	0.00E+00	1.81E-06	0.00E+00	0.00E+00	0.00E+00	5.92E-05			
38SR 92	8.80E-04	1.92E-05	0.00E+00	7.13E-07	0.00E+00	0.00E+00	0.00E+00	2.07E-04			
39Y 90	3.40E-06	8.69E-08	0.00E+00	2.33E-09	0.00E+00	0.00E+00	0.00E+00	1.20E-04			
39Y 91M	1.00E-05	8.10E-10	0.00E+00	2.76E-11	0.00E+00	0.00E+00	0.00E+00	2.70E-06			
39Y 91	2.40E-04	1.13E-06	0.00E+00	3.01E-08	0.00E+00	0.00E+00	0.00E+00	8.10E-05			
39Y 92	6.60E-04	7.65E-09	0.00E+00	2.15E-10	0.00E+00	0.00E+00	0.00E+00	1.46E-04			
39Y 93	9.80E-04	2.43E-08	0.00E+00	6.62E-10	0.00E+00	0.00E+00	0.00E+00	1.92E-04			
40ZR 95	1.00E-03	2.06E-07	5.02E-08	3.56E-08	0.00E+00	5.41E-08	0.00E+00	2.50E-05			
52TE 129M	1.40E-04	1.00E-04	3.43E-05	1.54E-05	3.84E-05	2.50E-04	0.00E+00	5.97E-05			
52TE 129	1.50E-04	2.84E-07	9.79E-08	6.63E-08	2.38E-07	7.07E-07	0.00E+00	2.27E-05			
52TE 131M	1.00E-04	1.52E-05	6.12E-06	5.05E-06	1.24E-05	4.21E-05	0.00E+00	1.03E-04			
52TE 131	3.00E-05	1.76E-07	6.50E-08	4.94E-08	1.57E-07	4.50E-07	0.00E+00	7.11E-06			
52TE 132	2.40E-04	2.08E-05	1.03E-05	9.61E-06	1.52E-05	6.44E-05	0.00E+00	3.81E-05			
58CE 143	1.90E-04	1.48E-08	9.82E-06	1.12E-09	0.00E+00	2.86E-09	0.00E+00	5.73E-05			
59PR 143	1.40E-04	8.13E-08	3.04E-08	4.03E-09	0.00E+00	1.13E-08	0.00E+00	4.29E-05			
59PR 144	3.20E-03	2.74E-10	1.06E-10	1.38E-11	0.00E+00	3.84E-11	0.00E+00	4.93E-06			
74W 187	2.10E-04	9.03E-07	6.28E-07	2.17E-07	0.00E+00	0.00E+00	0.00E+00	3.69E-05			
93NP 239	1.40E-02	1.11E-08	9.93E-10	5.61E-10	0.00E+00	1.98E-09	0.00E+00	2.87E-05			
35BR 83	7.50E-05	0.00E+00	0.00E+00	3.63E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00			
44RU 105	1.00E-04	1.36E-07	0.00E+00	4.58E-08	0.00E+00	1.00E-06	0.00E+00	5.41E-05			
56BA 139	2.50E-05	8.81E-07	5.84E-10	2.55E-08	0.00E+00	3.51E-10	3.54E-10	5.58E-05			

```
   57LA 142   2.50E-05 1.10E-09 4.04E-10 9.67E-11 0.00E+00 0.00E+00 0.00E+00 6.86E-05
0TOTAL NUMBER IN SOURCE TERM IS   28     TOTAL RELEASE IS 3.2896E-02
1*    *    *  DOSE TO BIOTA  *    *    *
0                    MRADS PER YEAR
0_____________________________________________
 outfall              DILUTION=  1.00E+01          TRANSIT TIME=  0.00E+00 HR
0                    INTERNAL       EXTERNAL         TOTAL
 FISH                4.45E+00       2.27E-03       4.45E+00
 INVERTEBRATE        1.89E+00       3.92E-03       1.89E+00
 ALGAE               2.53E+01       6.21E-04       2.53E+01
 MUSKRAT             3.20E+01       1.31E-03       3.20E+01
 RACCOON             2.25E-01       8.26E-04       2.26E-01
 HERON               8.37E+00       1.20E-03       8.37E+00
 DUCK                3.20E+01       1.81E-03       3.20E+01
1                     *  *  *  COST-BENEFIT ANALYSIS  *  *  *
0  NUCLIDE        RELEASE     _____PERSON-REM DOSE_________PERSON-REM PER CURIE____
                !  CI/YR    ! TOTAL BODY !   THYROID  ! TOTAL BODY !   THYROID  !
    6C    14    !  4.40E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   15P    32    !  6.60E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   28NI   63    !  1.50E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   29CU   64    !  8.20E-03 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   35BR   84    !  2.00E-05 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   37RB   89    !  4.80E-05 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   38SR   91    !  9.80E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   38SR   92    !  8.80E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   39Y    90    !  3.40E-06 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   39Y    91M   !  1.00E-05 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   39Y    91    !  2.40E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   39Y    92    !  6.60E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   39Y    93    !  9.80E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   40ZR   95    !  1.00E-03 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   52TE 129M    !  1.40E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   52TE 129     !  1.50E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   52TE 131M    !  1.00E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   52TE 131     !  3.00E-05 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   52TE 132     !  2.40E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   58CE 143     !  1.90E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   59PR 143     !  1.40E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   59PR 144     !  3.20E-03 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   74W  187     !  2.10E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   93NP 239     !  1.40E-02 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   35BR  83     !  7.50E-05 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   44RU 105     !  1.00E-04 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   56BA 139     !  2.50E-05 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
   57LA 142     !  2.50E-05 !  0.00E+00  !  0.00E+00  !  0.00E+00  !  0.00E+00  !
0  TOTAL                      0.00E+00     0.00E+00
1
```

north anna_mei_primary_Sept06.gnp

1

```
*****************************************************************************************
*                                                                                       *
*                                                                                       *
*                                                                                       *
*            GGGGGGGG     AA     SSSSSSSS  PPPPPPPP     AA     RRRRRRRR    IIIII IIIII  *
*            G      G     AA     S         PP     P     AA     RR     R      I     I    *
*            G           A  A    SSSSSSS   PP     P    A  A    RRRRRRRR      I     I    *
*            G   GGGGG  AAAAAA         S   PPPPPPPP   AAAAAA   RRRR          I     I    *
*            G     G   A      A        S   PP        A      A  RR RR         I     I    *
*            GGGGGGG  A        A SSSSSSS   PP       A        A RR   RR     IIIII IIIII  *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                   EVALUATION OF RADIATION DOSES FROM RELEASES OF RADIOACTIVITY        *
*                                                                                       *
*                          IN NUCLEAR POWER PLANTS AIRBORNE EFFLUENTS                   *
*                                                                                       *
*                            REVISION DATE:  JSB PC - MARCH 1994                        *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*            North Anna - mei - primary_Apr06                                           *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                            RELIABILITY AND RISK ASSESSMENT BRANCH                     *
*                                                                                       *
*                            OFFICE OF NUCLEAR REACTOR REGULATION                       *
*                                                                                       *
*                            U.S. NUCLEAR REGULATORY COMMISSION                         *
*                                                                                       *
*                            WASHINGTON, D.C. 20555                                     *
*                                                                                       *
*                                DATE OF RUN:     13-Nov-2006                           *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*****************************************************************************************
```

1

North Anna - mei - primary_Apr06

0 JOB CONTROL PARAMETERS

```
JC(1) =  1  :POPULATION/INDIVIDUAL DOSE SELECTION
JC(2) =  1  :NUMBER OF SOURCE RELEASE POINTS
JC(3) =  1  :PRINT CONTROL FOR DOSE ACCUMULATION
JC(4) =  0  :READ CONTROL FOR BLOCK DATA CHANGE RECORDS
JC(5) =  0  :PRINT CONTROL FOR DOSE FACTOR TABLE
JC(6) =  0  :CALCULATION CONTROL FOR UNIT DOSE FACTORS
JC(7) =  0  :READ CONTROL FOR DISPERSION DATA INPUT FILE
JC(8) =  0
JC(9) =  0
```

```
        JC(10)=  0
0
   EXPOSURE PATHWAY FRACTIONS

        PARAMETER DESCRIPTION(FRACTION)     VALUE
        ---------------------------------------
        FV   LEAFY VEGETABLE FROM GARDEN      .50
        FG   OTHER EDIBLES FROM GARDEN        .76
        FP   TIME MILK COWS ON PASTURE        .67
        FB   TIME BEEF ON PASTURE             .67
        FGT  TIME MILK GOATS ON PASTURE       .75
        FPF  MILK COW INTAKE FROM PASTURE    1.00
        FBF  BEEF INTAKE FROM PASTURE        1.00
        FPG  MILK GOAT INTAKE FROM PASTURE   1.00

        HUMIDITY(G/M**3)   8.00
0
   SOURCE TERM RELEASE NUMBER  1

        RELEASE POINT     major contributors plus nobles gases
        UML =  1.00E+00   SOURCE TERM MULTIPLICATION FACTOR
        JC1 =  0          NEW OR PREVIOUS MET DATA PARAMETER
        JC2 =  0          NEW OR PREVIOUS SOURCE TERM RELEASE DATA PARAMETER
0         NUCLIDE     CI/YR          NUCLIDE     CI/YR          NUCLIDE     CI/YR
          -------     -----          -------     -----          -------     -----
          36KR 88   7.40E+01         25MN 54   5.90E-03         51SB124   2.00E-04
          36KR 89   4.70E+02         26FE 55   7.10E-03         53I 131   5.10E-01
          54XE131M  1.80E+03         27CO 58   2.30E-02         53I 132   2.40E+00
          55CS137   1.00E-02         27CO 60   1.40E-02         53I 133   1.90E+00
          54XE133   4.60E+03         26FE 59   8.90E-04         53I 134   4.10E+00
          54XE135M  7.70E+02         30ZN 65   1.20E-02         53I 135   2.60E+00
          54XE135   8.20E+02         38SR 89   6.20E-03         18AR 41   3.00E+02
          54XE137   9.80E+02         38SR 90   1.20E-03         55CS134   6.80E-03
          54XE138   7.80E+02         40ZR 95   1.70E-03         36KR 85M  3.60E+01
           1H   3   3.50E+03         41NB 95   9.20E-03         36KR 85   4.10E+03
           6C  14   1.20E+01         44RU103   3.80E-03         36KR 87   4.90E+01
0                 1.830E+04 TOTAL CURIES FOR  33 RADIONUCLIDES
1


  North Anna - mei - primary_Apr06

0                                                                  REPORT CONTROL FLAGS
  JS SPECIAL LOCATION DIR MILES    X/Q      X/Q:DEC   X/Q:DCDP  DEPOSITE  PL GD VT MT CM GM IN
  -- ---------------- --- -----  --------  --------  --------  --------  -- -- -- -- -- -- --
   1 Site Bound (EAB) ESE   .88  3.70E-06  3.70E-06  3.30E-06  1.20E-08   1  1  1  1  1  1  1
   1 Nearest Resid    NNE   .96  2.40E-06  2.40E-06  2.10E-06  7.20E-09   1  1  1  1  1  1  1
   1 Nearest Meat      SE  1.37  1.40E-06  1.40E-06  1.20E-06  3.10E-09   1  1  1  1  1  1  1
   1 Veg Garden        NE   .94  2.00E-06  2.00E-06  1.80E-06  6.00E-09   1  1  1  1  1  1  1
   1 nearest biota    ESE   .25  2.69E-05  2.68E-05  2.54E-05  5.10E-08   1  1  1  1  1  1  1
0                                  REPORTS ARE NOT PRINTED IF JS=1 OR CONTROL FLAGS=1
                                                                 FLAGS:  PL - PLUME
                                                                         GD - GROUND
                                                                         VT - VEGETABLE
                                                                         MT - MEAT
                                                                         CM - COW MILK
                                                                         GM - GOAT MILK
                                                                         IN - INHALATION
1

  North Anna - mei - primary_Apr06
  SPECIAL LOCATION NO.  1  Site Bound (EAB)
```

AT .88 MILES ESE

ANNUAL BETA AIR DOSE = 4.73E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 3.19E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.10E+00	2.10E+00	2.10E+00	2.10E+00	2.10E+00	2.10E+00	2.15E+00	6.15E+00
GROUND	2.06E-01	2.06E-01	2.06E-01	2.06E-01	2.06E-01	2.06E-01	2.06E-01	2.42E-01
VEGET								
ADULT	8.07E-01	7.92E-01	1.62E+00	8.30E-01	8.06E-01	9.71E+00	7.41E-01	7.34E-01
TEEN	1.06E+00	1.05E+00	2.60E+00	1.13E+00	1.09E+00	1.30E+01	9.95E-01	9.83E-01
CHILD	1.99E+00	1.93E+00	6.14E+00	2.13E+00	2.06E+00	2.50E+01	1.90E+00	1.88E+00
MEAT								
ADULT	1.79E-01	2.10E-01	4.84E-01	1.83E-01	1.78E-01	4.93E-01	1.72E-01	1.71E-01
TEEN	1.30E-01	1.47E-01	4.08E-01	1.34E-01	1.31E-01	3.58E-01	1.26E-01	1.26E-01
CHILD	2.11E-01	2.17E-01	7.65E-01	2.17E-01	2.12E-01	5.57E-01	2.07E-01	2.06E-01
COW MILK								
ADULT	3.41E-01	3.05E-01	5.88E-01	3.74E-01	3.58E-01	9.39E+00	2.89E-01	2.84E-01
TEEN	4.97E-01	4.52E-01	1.07E+00	5.83E-01	5.56E-01	1.49E+01	4.36E-01	4.25E-01
CHILD	9.38E-01	8.59E-01	2.62E+00	1.10E+00	1.05E+00	2.95E+01	8.56E-01	8.40E-01
INFANT	1.69E+00	1.61E+00	5.05E+00	2.09E+00	1.90E+00	7.12E+01	1.57E+00	1.54E+00
GOATMILK								
ADULT	6.05E-01	4.89E-01	6.75E-01	6.63E-01	5.89E-01	1.27E+01	4.88E-01	4.71E-01
TEEN	8.13E-01	6.92E-01	1.23E+00	1.00E+00	8.76E-01	2.00E+01	7.03E-01	6.69E-01
CHILD	1.38E+00	1.24E+00	2.98E+00	1.79E+00	1.57E+00	3.97E+01	1.28E+00	1.23E+00
INFANT	2.33E+00	2.15E+00	5.61E+00	3.27E+00	2.70E+00	9.56E+01	2.22E+00	2.13E+00
INHAL								
ADULT	3.00E-01	3.00E-01	9.28E-03	3.05E-01	3.10E-01	1.60E+00	3.11E-01	2.95E-01
TEEN	3.03E-01	3.04E-01	1.21E-02	3.12E-01	3.18E-01	1.98E+00	3.22E-01	2.98E-01
CHILD	2.69E-01	2.67E-01	1.55E-02	2.76E-01	2.82E-01	2.30E+00	2.83E-01	2.63E-01
INFANT	1.55E-01	1.54E-01	1.01E-02	1.63E-01	1.64E-01	2.01E+00	1.65E-01	1.51E-01

1

North Anna - mei - primary_Apr06
SPECIAL LOCATION NO. 2 Nearest Resid
AT .96 MILES NNE

ANNUAL BETA AIR DOSE = 3.07E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.07E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN

PLUME	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.39E+00	3.99E+00
GROUND	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.45E-01
VEGET								
ADULT	5.20E-01	5.11E-01	1.03E+00	5.34E-01	5.19E-01	5.86E+00	4.80E-01	4.76E-01
TEEN	6.85E-01	6.76E-01	1.65E+00	7.27E-01	7.03E-01	7.88E+00	6.45E-01	6.38E-01
CHILD	1.29E+00	1.25E+00	3.92E+00	1.37E+00	1.33E+00	1.51E+01	1.23E+00	1.22E+00
MEAT								
ADULT	1.16E-01	1.34E-01	3.13E-01	1.18E-01	1.15E-01	3.04E-01	1.12E-01	1.11E-01
TEEN	8.41E-02	9.43E-02	2.64E-01	8.68E-02	8.45E-02	2.21E-01	8.20E-02	8.15E-02
CHILD	1.36E-01	1.40E-01	4.96E-01	1.40E-01	1.37E-01	3.44E-01	1.34E-01	1.33E-01
COW MILK								
ADULT	2.19E-01	1.97E-01	3.78E-01	2.38E-01	2.29E-01	5.65E+00	1.87E-01	1.84E-01
TEEN	3.19E-01	2.92E-01	6.91E-01	3.71E-01	3.54E-01	8.93E+00	2.82E-01	2.76E-01
CHILD	6.04E-01	5.56E-01	1.69E+00	7.03E-01	6.73E-01	1.77E+01	5.54E-01	5.45E-01
INFANT	1.09E+00	1.04E+00	3.25E+00	1.33E+00	1.21E+00	4.28E+01	1.02E+00	1.00E+00
GOATMILK								
ADULT	3.86E-01	3.16E-01	4.30E-01	4.20E-01	3.76E-01	7.64E+00	3.16E-01	3.06E-01
TEEN	5.21E-01	4.48E-01	7.82E-01	6.35E-01	5.58E-01	1.21E+01	4.54E-01	4.34E-01
CHILD	8.85E-01	8.07E-01	1.90E+00	1.13E+00	9.99E-01	2.39E+01	8.26E-01	7.96E-01
INFANT	1.50E+00	1.40E+00	3.59E+00	2.06E+00	1.72E+00	5.75E+01	1.44E+00	1.38E+00
INHAL								
ADULT	1.94E-01	1.95E-01	5.94E-03	1.98E-01	2.01E-01	1.03E+00	2.02E-01	1.91E-01
TEEN	1.97E-01	1.97E-01	7.73E-03	2.02E-01	2.06E-01	1.27E+00	2.09E-01	1.93E-01
CHILD	1.74E-01	1.73E-01	9.93E-03	1.79E-01	1.83E-01	1.48E+00	1.83E-01	1.70E-01
INFANT	1.01E-01	9.96E-02	6.45E-03	1.06E-01	1.06E-01	1.29E+00	1.07E-01	9.80E-02

1

North Anna - mei - primary_Apr06
SPECIAL LOCATION NO. 3 Nearest Meat
AT 1.37 MILES SE

ANNUAL BETA AIR DOSE = 1.79E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.21E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	7.96E-01	7.96E-01	7.96E-01	7.96E-01	7.96E-01	7.96E-01	8.13E-01	2.33E+00
GROUND	5.32E-02	5.32E-02	5.32E-02	5.32E-02	5.32E-02	5.32E-02	5.32E-02	6.25E-02
VEGET								
ADULT	2.97E-01	2.93E-01	5.60E-01	3.03E-01	2.96E-01	2.60E+00	2.80E-01	2.78E-01

TEEN	3.93E-01	3.89E-01	9.09E-01	4.10E-01	4.00E-01	3.49E+00	3.75E-01	3.72E-01
CHILD	7.41E-01	7.25E-01	2.16E+00	7.77E-01	7.58E-01	6.68E+00	7.18E-01	7.13E-01
MEAT								
ADULT	6.68E-02	7.48E-02	1.82E-01	6.77E-02	6.65E-02	1.48E-01	6.51E-02	6.49E-02
TEEN	4.87E-02	5.31E-02	1.53E-01	4.98E-02	4.88E-02	1.08E-01	4.78E-02	4.76E-02
CHILD	7.91E-02	8.07E-02	2.88E-01	8.06E-02	7.94E-02	1.69E-01	7.81E-02	7.78E-02
COW MILK								
ADULT	1.22E-01	1.13E-01	2.14E-01	1.31E-01	1.27E-01	2.46E+00	1.09E-01	1.07E-01
TEEN	1.79E-01	1.68E-01	3.92E-01	2.02E-01	1.95E-01	3.89E+00	1.64E-01	1.61E-01
CHILD	3.43E-01	3.23E-01	9.59E-01	3.86E-01	3.73E-01	7.72E+00	3.22E-01	3.18E-01
INFANT	6.22E-01	6.01E-01	1.86E+00	7.25E-01	6.75E-01	1.86E+01	5.91E-01	5.84E-01
GOATMILK								
ADULT	2.13E-01	1.83E-01	2.36E-01	2.28E-01	2.09E-01	3.34E+00	1.83E-01	1.78E-01
TEEN	2.90E-01	2.59E-01	4.31E-01	3.40E-01	3.07E-01	5.26E+00	2.62E-01	2.53E-01
CHILD	5.03E-01	4.69E-01	1.05E+00	6.10E-01	5.52E-01	1.04E+01	4.77E-01	4.64E-01
INFANT	8.58E-01	8.12E-01	2.00E+00	1.10E+00	9.52E-01	2.50E+01	8.29E-01	8.06E-01
INHAL								
ADULT	1.13E-01	1.13E-01	3.41E-03	1.15E-01	1.17E-01	5.95E-01	1.18E-01	1.12E-01
TEEN	1.15E-01	1.15E-01	4.44E-03	1.18E-01	1.20E-01	7.37E-01	1.21E-01	1.13E-01
CHILD	1.02E-01	1.01E-01	5.71E-03	1.04E-01	1.07E-01	8.55E-01	1.07E-01	9.94E-02
INFANT	5.87E-02	5.81E-02	3.71E-03	6.16E-02	6.18E-02	7.46E-01	6.23E-02	5.72E-02

1

North Anna - mei - primary_Apr06
SPECIAL LOCATION NO. 4 Veg Garden
AT .94 MILES NE

ANNUAL BETA AIR DOSE = 2.56E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.72E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.14E+00	1.14E+00	1.14E+00	1.14E+00	1.14E+00	1.14E+00	1.16E+00	3.32E+00
GROUND	1.03E-01	1.03E-01	1.03E-01	1.03E-01	1.03E-01	1.03E-01	1.03E-01	1.21E-01
VEGET								
ADULT	4.33E-01	4.26E-01	8.57E-01	4.45E-01	4.33E-01	4.89E+00	4.00E-01	3.97E-01
TEEN	5.71E-01	5.64E-01	1.38E+00	6.06E-01	5.86E-01	6.56E+00	5.38E-01	5.31E-01
CHILD	1.07E+00	1.04E+00	3.26E+00	1.14E+00	1.11E+00	1.26E+01	1.03E+00	1.02E+00
MEAT								
ADULT	9.63E-02	1.12E-01	2.61E-01	9.82E-02	9.58E-02	2.53E-01	9.31E-02	9.26E-02

TEEN	7.01E-02	7.86E-02	2.20E-01	7.23E-02	7.04E-02	1.84E-01	6.83E-02	6.79E-02
CHILD	1.14E-01	1.17E-01	4.13E-01	1.17E-01	1.14E-01	2.87E-01	1.12E-01	1.11E-01
COW MILK								
ADULT	1.82E-01	1.64E-01	3.15E-01	1.99E-01	1.91E-01	4.71E+00	1.56E-01	1.53E-01
TEEN	2.66E-01	2.43E-01	5.76E-01	3.09E-01	2.95E-01	7.44E+00	2.35E-01	2.30E-01
CHILD	5.03E-01	4.64E-01	1.41E+00	5.86E-01	5.61E-01	1.48E+01	4.62E-01	4.54E-01
INFANT	9.08E-01	8.67E-01	2.71E+00	1.11E+00	1.01E+00	3.56E+01	8.48E-01	8.34E-01
GOATMILK								
ADULT	3.21E-01	2.63E-01	3.58E-01	3.50E-01	3.13E-01	6.37E+00	2.63E-01	2.55E-01
TEEN	4.34E-01	3.73E-01	6.51E-01	5.29E-01	4.65E-01	1.01E+01	3.78E-01	3.62E-01
CHILD	7.38E-01	6.72E-01	1.58E+00	9.46E-01	8.33E-01	1.99E+01	6.88E-01	6.63E-01
INFANT	1.25E+00	1.16E+00	2.99E+00	1.72E+00	1.43E+00	4.79E+01	1.20E+00	1.15E+00
INHAL								
ADULT	1.62E-01	1.62E-01	5.05E-03	1.65E-01	1.68E-01	8.66E-01	1.68E-01	1.59E-01
TEEN	1.64E-01	1.64E-01	6.57E-03	1.68E-01	1.72E-01	1.07E+00	1.74E-01	1.61E-01
CHILD	1.45E-01	1.44E-01	8.44E-03	1.49E-01	1.52E-01	1.25E+00	1.53E-01	1.42E-01
INFANT	8.38E-02	8.30E-02	5.47E-03	8.81E-02	8.85E-02	1.09E+00	8.93E-02	8.17E-02

1

North Anna - mei - primary_Apr06
SPECIAL LOCATION NO. 5 nearest biota
AT .25 MILES ESE

ANNUAL BETA AIR DOSE = 2.23E+01 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.43E+01 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	9.37E+00	9.37E+00	9.37E+00	9.37E+00	9.37E+00	9.37E+00	9.58E+00	2.64E+01
GROUND	8.75E-01	8.75E-01	8.75E-01	8.75E-01	8.75E-01	8.75E-01	8.75E-01	1.03E+00
VEGET								
ADULT	5.64E+00	5.57E+00	1.04E+01	5.74E+00	5.63E+00	4.34E+01	5.36E+00	5.33E+00
TEEN	7.47E+00	7.41E+00	1.70E+01	7.77E+00	7.60E+00	5.84E+01	7.19E+00	7.13E+00
CHILD	1.41E+01	1.39E+01	4.06E+01	1.47E+01	1.44E+01	1.12E+02	1.38E+01	1.37E+01
MEAT								
ADULT	1.28E+00	1.41E+00	3.48E+00	1.29E+00	1.27E+00	2.61E+00	1.25E+00	1.24E+00
TEEN	9.31E-01	1.00E+00	2.93E+00	9.49E-01	9.33E-01	1.90E+00	9.15E-01	9.12E-01
CHILD	1.51E+00	1.54E+00	5.51E+00	1.54E+00	1.52E+00	2.98E+00	1.50E+00	1.49E+00
COW MILK								
ADULT	2.30E+00	2.15E+00	4.05E+00	2.44E+00	2.37E+00	4.07E+01	2.08E+00	2.06E+00

TEEN	3.39E+00	3.20E+00	7.43E+00	3.76E+00	3.64E+00	6.43E+01	3.13E+00	3.08E+00
CHILD	6.51E+00	6.18E+00	1.82E+01	7.22E+00	7.00E+00	1.28E+02	6.16E+00	6.09E+00
INFANT	1.18E+01	1.15E+01	3.53E+01	1.35E+01	1.27E+01	3.07E+02	1.13E+01	1.12E+01
GOATMILK								
ADULT	3.99E+00	3.49E+00	4.42E+00	4.23E+00	3.92E+00	5.53E+01	3.49E+00	3.42E+00
TEEN	5.47E+00	4.95E+00	8.07E+00	6.28E+00	5.73E+00	8.71E+01	5.00E+00	4.86E+00
CHILD	9.54E+00	8.98E+00	1.97E+01	1.13E+01	1.03E+01	1.72E+02	9.12E+00	8.90E+00
INFANT	1.63E+01	1.56E+01	3.76E+01	2.03E+01	1.79E+01	4.12E+02	1.58E+01	1.55E+01
INHAL								
ADULT	2.17E+00	2.18E+00	7.00E-02	2.22E+00	2.25E+00	1.18E+01	2.27E+00	2.14E+00
TEEN	2.20E+00	2.21E+00	9.10E-02	2.26E+00	2.31E+00	1.47E+01	2.35E+00	2.16E+00
CHILD	1.95E+00	1.94E+00	1.17E-01	2.01E+00	2.05E+00	1.70E+01	2.06E+00	1.91E+00
INFANT	1.13E+00	1.11E+00	7.53E-02	1.18E+00	1.19E+00	1.49E+01	1.20E+00	1.10E+00

north anna_mei_other_Sept 06 . gnp

1

```
*****************************************************************************************
*                                                                                       *
*                                                                                       *
*                                                                                       *
*            GGGGGGGG     AA     SSSSSSSS  PPPPPPPP     AA     RRRRRRRR    IIIII IIIII  *
*            G      G     AA     S         PP     P     AA     RR     R      I     I    *
*            G           A  A    SSSSSSS   PP     P    A  A    RRRRRRRR      I     I    *
*            G   GGGGG  AAAAAA         S   PPPPPPPP   AAAAAA   RRRR          I     I    *
*            G     G   A      A        S   PP        A      A  RR RR         I     I    *
*            GGGGGGG  A        A SSSSSSS   PP       A        A RR   RR     IIIII IIIII  *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                   EVALUATION OF RADIATION DOSES FROM RELEASES OF RADIOACTIVITY        *
*                                                                                       *
*                           IN NUCLEAR POWER PLANTS AIRBORNE EFFLUENTS                  *
*                                                                                       *
*                             REVISION DATE:  JSB PC - MARCH 1994                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*            North Anna - mei - other radionuclides_Apr06                               *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                             RELIABILITY AND RISK ASSESSMENT BRANCH                    *
*                                                                                       *
*                             OFFICE OF NUCLEAR REACTOR REGULATION                      *
*                                                                                       *
*                             U.S. NUCLEAR REGULATORY COMMISSION                        *
*                                                                                       *
*                             WASHINGTON, D.C. 20555                                    *
*                                                                                       *
*                                 DATE OF RUN:     13-Nov-2006                          *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*****************************************************************************************
```

1

North Anna - mei - other radionuclides_Apr06

0 JOB CONTROL PARAMETERS

```
JC(1) =  1  :POPULATION/INDIVIDUAL DOSE SELECTION
JC(2) =  1  :NUMBER OF SOURCE RELEASE POINTS
JC(3) =  1  :PRINT CONTROL FOR DOSE ACCUMULATION
JC(4) =  0  :READ CONTROL FOR BLOCK DATA CHANGE RECORDS
JC(5) =  0  :PRINT CONTROL FOR DOSE FACTOR TABLE
JC(6) =  0  :CALCULATION CONTROL FOR UNIT DOSE FACTORS
JC(7) =  0  :READ CONTROL FOR DISPERSION DATA INPUT FILE
JC(8) =  0
JC(9) =  0
```

```
        JC(10)=  0
0
   EXPOSURE PATHWAY FRACTIONS

        PARAMETER DESCRIPTION(FRACTION)     VALUE
        ----------------------------------------
        FV   LEAFY VEGETABLE FROM GARDEN      .50
        FG   OTHER EDIBLES FROM GARDEN        .76
        FP   TIME MILK COWS ON PASTURE        .67
        FB   TIME BEEF ON PASTURE             .67
        FGT  TIME MILK GOATS ON PASTURE       .75
        FPF  MILK COW INTAKE FROM PASTURE    1.00
        FBF  BEEF INTAKE FROM PASTURE        1.00
        FPG  MILK GOAT INTAKE FROM PASTURE   1.00

        HUMIDITY(G/M**3)   8.00
0
   SOURCE TERM RELEASE NUMBER  1

        RELEASE POINT     major contributors plus nobles gases
        UML =  1.00E+00   SOURCE TERM MULTIPLICATION FACTOR
        JC1 =  0          NEW OR PREVIOUS MET DATA PARAMETER
        JC2 =  0          NEW OR PREVIOUS SOURCE TERM RELEASE DATA PARAMETER
0         NUCLIDE     CI/YR          NUCLIDE     CI/YR          NUCLIDE     CI/YR
          -------     -----          -------     -----          -------     -----
          11NA 24   4.40E-03         38SR 92   8.60E-04         52TE131M  8.30E-05
          15P  32   1.00E-03         39Y  91   2.60E-04         52TE132   2.10E-05
          24CR 51   3.80E-02         39Y  92   6.80E-04         55CS136   6.50E-04
          25MN 56   3.80E-03         39Y  93   1.20E-03         55CS138   1.90E-04
          27CO 57   8.20E-06         42MO 99   6.50E-02         56BA140   3.00E-02
          28NI 63   7.10E-06         43TC 99M  3.30E-04         57LA140   2.00E-03
          29CU 64   1.10E-02         44RU106   7.80E-05         58CE141   1.00E-02
          37RB 89   4.70E-05         47AG110M  2.20E-06         58CE144   2.10E-05
          39Y  90   5.00E-05         51SB125   6.10E-05         59PR144   2.10E-05
          38SR 91   1.10E-03         52TE129M  2.40E-04         74W 187   2.10E-04
          93NP239   1.30E-02
0                 1.843E-01 TOTAL CURIES FOR  31 RADIONUCLIDES
1


  North Anna - mei - other radionuclides_Apr06

0                                                                    REPORT CONTROL FLAGS
  JS SPECIAL LOCATION DIR MILES    X/Q     X/Q:DEC   X/Q:DCDP  DEPOSITE  PL GD VT MT CM GM IN
  -- ---------------- --- -----  -------- -------- -------- -------- -- -- -- -- -- -- --
   1 Site Bound (EAB) ESE   .88  3.70E-06 3.70E-06 3.30E-06 1.20E-08  1  1  1  1  1  1  1
   1 Nearest Resid    NNE   .96  2.40E-06 2.40E-06 2.10E-06 7.20E-09  1  1  1  1  1  1  1
   1 Nearest Meat      SE  1.37  1.40E-06 1.40E-06 1.20E-06 3.10E-09  1  1  1  1  1  1  1
   1 Veg Garden        NE   .94  2.00E-06 2.00E-06 1.80E-06 6.00E-09  1  1  1  1  1  1  1
0                                  REPORTS ARE NOT PRINTED IF JS=1 OR CONTROL FLAGS=1
                                                                 FLAGS:  PL - PLUME
                                                                         GD - GROUND
                                                                         VT - VEGETABLE
                                                                         MT - MEAT
                                                                         CM - COW MILK
                                                                         GM - GOAT MILK
                                                                         IN - INHALATION
1

  North Anna - mei - other radionuclides_Apr06
  SPECIAL LOCATION NO.  1  Site Bound (EAB)
        AT   .88 MILES ESE
```

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	6.12E-04	6.12E-04	6.12E-04	6.12E-04	6.12E-04	6.12E-04	6.12E-04	7.03E-04
VEGET								
ADULT	4.53E-04	1.42E-02	5.90E-03	3.58E-04	5.39E-04	1.81E-05	1.63E-05	0.00E+00
TEEN	6.89E-04	1.68E-02	9.43E-03	5.13E-04	7.56E-04	2.76E-05	2.79E-05	0.00E+00
CHILD	1.43E-03	1.31E-02	2.25E-02	8.55E-04	1.20E-03	6.65E-05	4.06E-05	0.00E+00
MEAT								
ADULT	8.22E-05	4.48E-03	1.50E-03	1.07E-04	3.92E-04	2.32E-05	1.02E-06	0.00E+00
TEEN	6.84E-05	2.80E-03	1.27E-03	8.97E-05	3.29E-04	1.83E-05	9.16E-07	0.00E+00
CHILD	1.23E-04	1.71E-03	2.38E-03	1.26E-04	4.34E-04	3.44E-05	1.04E-06	0.00E+00
COW MILK								
ADULT	3.79E-04	1.99E-03	4.54E-03	8.46E-04	1.04E-03	4.16E-06	1.60E-05	0.00E+00
TEEN	6.65E-04	2.73E-03	8.36E-03	1.52E-03	1.88E-03	7.21E-06	3.01E-05	0.00E+00
CHILD	1.43E-03	2.24E-03	2.06E-02	2.72E-03	3.17E-03	1.58E-05	4.70E-05	0.00E+00
INFANT	2.69E-03	2.26E-03	4.23E-02	6.76E-03	5.62E-03	3.13E-05	9.64E-05	0.00E+00
GOATMILK								
ADULT	6.31E-04	9.09E-04	5.91E-03	9.64E-04	4.34E-04	5.57E-07	4.25E-05	0.00E+00
TEEN	1.06E-03	1.24E-03	1.09E-02	1.69E-03	7.41E-04	9.65E-07	8.10E-05	0.00E+00
CHILD	2.01E-03	1.00E-03	2.68E-02	2.88E-03	1.18E-03	2.11E-06	1.19E-04	0.00E+00
INFANT	3.34E-03	1.00E-03	5.52E-02	6.72E-03	1.93E-03	4.18E-06	2.54E-04	0.00E+00
INHAL								
ADULT	2.87E-05	2.97E-03	3.11E-04	4.15E-05	2.32E-05	5.04E-06	5.34E-03	0.00E+00
TEEN	3.86E-05	3.25E-03	4.40E-04	5.73E-05	3.18E-05	6.75E-06	8.64E-03	0.00E+00
CHILD	4.51E-05	1.61E-03	6.01E-04	5.81E-05	3.12E-05	7.91E-06	7.47E-03	0.00E+00
INFANT	2.94E-05	6.39E-04	4.51E-04	4.78E-05	1.90E-05	5.23E-06	6.92E-03	0.00E+00

1

North Anna - mei - other radionuclides_Apr06
SPECIAL LOCATION NO. 2 Nearest Resid
AT .96 MILES NNE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

GROUND	3.67E-04	3.67E-04	3.67E-04	3.67E-04	3.67E-04	3.67E-04	3.67E-04	4.22E-04
VEGET								
ADULT	2.72E-04	8.52E-03	3.54E-03	2.15E-04	3.23E-04	1.08E-05	9.75E-06	0.00E+00
TEEN	4.13E-04	1.01E-02	5.66E-03	3.08E-04	4.54E-04	1.66E-05	1.67E-05	0.00E+00
CHILD	8.57E-04	7.86E-03	1.35E-02	5.13E-04	7.21E-04	3.99E-05	2.44E-05	0.00E+00
MEAT								
ADULT	4.93E-05	2.69E-03	9.02E-04	6.44E-05	2.35E-04	1.39E-05	6.13E-07	0.00E+00
TEEN	4.10E-05	1.68E-03	7.59E-04	5.38E-05	1.97E-04	1.10E-05	5.50E-07	0.00E+00
CHILD	7.37E-05	1.02E-03	1.43E-03	7.57E-05	2.61E-04	2.06E-05	6.22E-07	0.00E+00
COW MILK								
ADULT	2.27E-04	1.20E-03	2.72E-03	5.08E-04	6.23E-04	2.49E-06	9.59E-06	0.00E+00
TEEN	3.99E-04	1.64E-03	5.01E-03	9.11E-04	1.13E-03	4.32E-06	1.81E-05	0.00E+00
CHILD	8.60E-04	1.34E-03	1.23E-02	1.63E-03	1.90E-03	9.48E-06	2.82E-05	0.00E+00
INFANT	1.61E-03	1.36E-03	2.54E-02	4.06E-03	3.37E-03	1.88E-05	5.78E-05	0.00E+00
GOATMILK								
ADULT	3.79E-04	5.45E-04	3.55E-03	5.78E-04	2.60E-04	3.34E-07	2.55E-05	0.00E+00
TEEN	6.37E-04	7.45E-04	6.53E-03	1.02E-03	4.45E-04	5.79E-07	4.86E-05	0.00E+00
CHILD	1.21E-03	6.00E-04	1.61E-02	1.73E-03	7.08E-04	1.27E-06	7.12E-05	0.00E+00
INFANT	2.01E-03	6.02E-04	3.31E-02	4.03E-03	1.16E-03	2.51E-06	1.52E-04	0.00E+00
INHAL								
ADULT	1.82E-05	1.89E-03	1.98E-04	2.64E-05	1.48E-05	3.21E-06	3.40E-03	0.00E+00
TEEN	2.46E-05	2.07E-03	2.80E-04	3.64E-05	2.02E-05	4.29E-06	5.50E-03	0.00E+00
CHILD	2.87E-05	1.02E-03	3.82E-04	3.70E-05	1.98E-05	5.03E-06	4.75E-03	0.00E+00
INFANT	1.87E-05	4.06E-04	2.87E-04	3.04E-05	1.21E-05	3.33E-06	4.40E-03	0.00E+00

1

North Anna - mei - other radionuclides_Apr06
SPECIAL LOCATION NO. 3 Nearest Meat
AT 1.37 MILES SE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	1.58E-04	1.58E-04	1.58E-04	1.58E-04	1.58E-04	1.58E-04	1.58E-04	1.82E-04
VEGET								
ADULT	1.17E-04	3.67E-03	1.53E-03	9.24E-05	1.39E-04	4.67E-06	4.20E-06	0.00E+00
TEEN	1.78E-04	4.35E-03	2.44E-03	1.33E-04	1.95E-04	7.14E-06	7.21E-06	0.00E+00

CHILD	3.69E-04	3.39E-03	5.80E-03	2.21E-04	3.10E-04	1.72E-05	1.05E-05	0.00E+00
MEAT								
ADULT	2.12E-05	1.16E-03	3.88E-04	2.77E-05	1.01E-04	6.00E-06	2.64E-07	0.00E+00
TEEN	1.77E-05	7.22E-04	3.27E-04	2.32E-05	8.50E-05	4.72E-06	2.37E-07	0.00E+00
CHILD	3.17E-05	4.41E-04	6.14E-04	3.26E-05	1.12E-04	8.89E-06	2.68E-07	0.00E+00
COW MILK								
ADULT	9.78E-05	5.15E-04	1.17E-03	2.19E-04	2.68E-04	1.07E-06	4.13E-06	0.00E+00
TEEN	1.72E-04	7.06E-04	2.16E-03	3.92E-04	4.86E-04	1.86E-06	7.78E-06	0.00E+00
CHILD	3.70E-04	5.78E-04	5.31E-03	7.02E-04	8.19E-04	4.08E-06	1.21E-05	0.00E+00
INFANT	6.94E-04	5.84E-04	1.09E-02	1.75E-03	1.45E-03	8.08E-06	2.49E-05	0.00E+00
GOATMILK								
ADULT	1.63E-04	2.35E-04	1.53E-03	2.49E-04	1.12E-04	1.44E-07	1.10E-05	0.00E+00
TEEN	2.74E-04	3.21E-04	2.81E-03	4.37E-04	1.91E-04	2.49E-07	2.09E-05	0.00E+00
CHILD	5.20E-04	2.58E-04	6.92E-03	7.44E-04	3.05E-04	5.46E-07	3.06E-05	0.00E+00
INFANT	8.64E-04	2.59E-04	1.42E-02	1.73E-03	4.99E-04	1.08E-06	6.56E-05	0.00E+00
INHAL								
ADULT	1.04E-05	1.08E-03	1.13E-04	1.51E-05	8.44E-06	1.83E-06	1.94E-03	0.00E+00
TEEN	1.40E-05	1.18E-03	1.60E-04	2.08E-05	1.16E-05	2.45E-06	3.14E-03	0.00E+00
CHILD	1.64E-05	5.85E-04	2.19E-04	2.11E-05	1.13E-05	2.88E-06	2.72E-03	0.00E+00
INFANT	1.07E-05	2.32E-04	1.64E-04	1.74E-05	6.92E-06	1.90E-06	2.51E-03	0.00E+00

1

North Anna - mei - other radionuclides_Apr06
SPECIAL LOCATION NO. 4 Veg Garden
AT .94 MILES NE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.06E-04	3.51E-04
VEGET								
ADULT	2.26E-04	7.10E-03	2.95E-03	1.79E-04	2.70E-04	9.04E-06	8.13E-06	0.00E+00
TEEN	3.44E-04	8.42E-03	4.71E-03	2.57E-04	3.78E-04	1.38E-05	1.40E-05	0.00E+00
CHILD	7.14E-04	6.55E-03	1.12E-02	4.27E-04	6.01E-04	3.32E-05	2.03E-05	0.00E+00
MEAT								
ADULT	4.11E-05	2.24E-03	7.52E-04	5.37E-05	1.96E-04	1.16E-05	5.11E-07	0.00E+00
TEEN	3.42E-05	1.40E-03	6.33E-04	4.48E-05	1.65E-04	9.14E-06	4.58E-07	0.00E+00

CHILD	6.14E-05	8.53E-04	1.19E-03	6.31E-05	2.17E-04	1.72E-05	5.19E-07	0.00E+00
COW MILK								
ADULT	1.89E-04	9.96E-04	2.27E-03	4.23E-04	5.20E-04	2.08E-06	7.99E-06	0.00E+00
TEEN	3.32E-04	1.37E-03	4.18E-03	7.59E-04	9.40E-04	3.60E-06	1.51E-05	0.00E+00
CHILD	7.17E-04	1.12E-03	1.03E-02	1.36E-03	1.59E-03	7.90E-06	2.35E-05	0.00E+00
INFANT	1.34E-03	1.13E-03	2.12E-02	3.38E-03	2.81E-03	1.56E-05	4.82E-05	0.00E+00
GOATMILK								
ADULT	3.16E-04	4.54E-04	2.96E-03	4.82E-04	2.17E-04	2.78E-07	2.12E-05	0.00E+00
TEEN	5.31E-04	6.20E-04	5.44E-03	8.46E-04	3.70E-04	4.82E-07	4.05E-05	0.00E+00
CHILD	1.01E-03	5.00E-04	1.34E-02	1.44E-03	5.90E-04	1.06E-06	5.93E-05	0.00E+00
INFANT	1.67E-03	5.02E-04	2.76E-02	3.36E-03	9.66E-04	2.09E-06	1.27E-04	0.00E+00
INHAL								
ADULT	1.56E-05	1.62E-03	1.70E-04	2.26E-05	1.27E-05	2.75E-06	2.91E-03	0.00E+00
TEEN	2.10E-05	1.77E-03	2.40E-04	3.12E-05	1.73E-05	3.68E-06	4.71E-03	0.00E+00
CHILD	2.46E-05	8.78E-04	3.28E-04	3.17E-05	1.70E-05	4.31E-06	4.07E-03	0.00E+00
INFANT	1.60E-05	3.48E-04	2.46E-04	2.61E-05	1.04E-05	2.85E-06	3.77E-03	0.00E+00

north anna - noble gases - Sept06.gnp

1

```
*****************************************************************************************
*                                                                                       *
*                                                                                       *
*                                                                                       *
*            GGGGGGGG     AA     SSSSSSSS  PPPPPPPP     AA     RRRRRRRR    IIIII IIIII  *
*            G      G     AA     S         PP     P     AA     RR     R      I     I    *
*            G           A  A    SSSSSSS   PP     P    A  A    RRRRRRRR      I     I    *
*            G   GGGGG  AAAAAA         S   PPPPPPPP   AAAAAA   RRRR          I     I    *
*            G     G   A      A        S   PP        A      A  RR RR         I     I    *
*            GGGGGGG  A        A SSSSSSS   PP       A        A RR   RR     IIIII IIIII  *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                   EVALUATION OF RADIATION DOSES FROM RELEASES OF RADIOACTIVITY        *
*                                                                                       *
*                          IN NUCLEAR POWER PLANTS AIRBORNE EFFLUENTS                   *
*                                                                                       *
*                             REVISION DATE:  JSB PC - MARCH 1994                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*            North Anna - noble gases_Apr06                                             *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                             RELIABILITY AND RISK ASSESSMENT BRANCH                    *
*                                                                                       *
*                             OFFICE OF NUCLEAR REACTOR REGULATION                      *
*                                                                                       *
*                             U.S. NUCLEAR REGULATORY COMMISSION                        *
*                                                                                       *
*                             WASHINGTON, D.C. 20555                                    *
*                                                                                       *
*                                 DATE OF RUN:     13-Nov-2006                          *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*****************************************************************************************
```

1
North Anna - noble gases_Apr06

0 JOB CONTROL PARAMETERS

```
JC(1) =  1  :POPULATION/INDIVIDUAL DOSE SELECTION
JC(2) =  1  :NUMBER OF SOURCE RELEASE POINTS
JC(3) =  1  :PRINT CONTROL FOR DOSE ACCUMULATION
JC(4) =  0  :READ CONTROL FOR BLOCK DATA CHANGE RECORDS
JC(5) =  0  :PRINT CONTROL FOR DOSE FACTOR TABLE
JC(6) =  0  :CALCULATION CONTROL FOR UNIT DOSE FACTORS
JC(7) =  0  :READ CONTROL FOR DISPERSION DATA INPUT FILE
JC(8) =  0
JC(9) =  0
```

```
        JC(10)=  0
0
   EXPOSURE PATHWAY FRACTIONS

        PARAMETER DESCRIPTION(FRACTION)    VALUE
        ---------------------------------------
        FV   LEAFY VEGETABLE FROM GARDEN     .50
        FG   OTHER EDIBLES FROM GARDEN       .76
        FP   TIME MILK COWS ON PASTURE       .67
        FB   TIME BEEF ON PASTURE            .67
        FGT  TIME MILK GOATS ON PASTURE      .75
        FPF  MILK COW INTAKE FROM PASTURE   1.00
        FBF  BEEF INTAKE FROM PASTURE       1.00
        FPG  MILK GOAT INTAKE FROM PASTURE  1.00

        HUMIDITY(G/M**3)   8.00
0
   SOURCE TERM RELEASE NUMBER  1

        RELEASE POINT     noble gases
        UML =  1.00E+00   SOURCE TERM MULTIPLICATION FACTOR
        JC1 =  0          NEW OR PREVIOUS MET DATA PARAMETER
        JC2 =  0          NEW OR PREVIOUS SOURCE TERM RELEASE DATA PARAMETER
0         NUCLIDE     CI/YR          NUCLIDE     CI/YR
          -------     -----          -------     -----
          18AR 41   3.00E+02         54XE131M  1.80E+03
          36KR 83M  1.30E-03         54XE133M  8.70E+01
          36KR 85M  3.60E+01         54XE133   4.60E+03
          36KR 85   4.10E+03         54XE135M  7.70E+02
          36KR 87   4.90E+01         54XE135   8.20E+02
          36KR 88   7.40E+01         54XE137   9.80E+02
          36KR 89   4.70E+02         54XE138   7.80E+02
0                 1.487E+04 TOTAL CURIES FOR  14 RADIONUCLIDES
1


  North Anna - noble gases_Apr06

0                                                                    REPORT CONTROL FLAGS
  JS SPECIAL LOCATION DIR MILES    X/Q      X/Q:DEC   X/Q:DCDP  DEPOSITE  PL GD VT MT CM GM IN
  -- ---------------- --- -----  --------  --------  --------  --------  -- -- -- -- -- -- --
   1 Site Bound (EAB) ESE   .88  3.70E-06  3.70E-06  3.30E-06  1.20E-08   1  1  1  1  1  1  1
   1 Nearest Resid    NNE   .96  2.40E-06  2.40E-06  2.10E-06  7.20E-09   1  1  1  1  1  1  1
   1 Nearest Meat      SE  1.37  1.40E-06  1.40E-06  1.20E-06  3.10E-09   1  1  1  1  1  1  1
   1 Veg Garden        NE   .94  2.00E-06  2.00E-06  1.80E-06  6.00E-09   1  1  1  1  1  1  1
0                                   REPORTS ARE NOT PRINTED IF JS=1 OR CONTROL FLAGS=1
                                                                  FLAGS:  PL - PLUME
                                                                          GD - GROUND
                                                                          VT - VEGETABLE
                                                                          MT - MEAT
                                                                          CM - COW MILK
                                                                          GM - GOAT MILK
                                                                          IN - INHALATION
1

  North Anna - noble gases_Apr06
  SPECIAL LOCATION NO.  1  Site Bound (EAB)
        AT    .88 MILES ESE

    ANNUAL BETA AIR DOSE = 4.74E+00 MILLRADS
   ANNUAL GAMMA AIR DOSE = 3.19E+00 MILLRADS
```

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.11E+00	2.11E+00	2.11E+00	2.11E+00	2.11E+00	2.11E+00	2.15E+00	6.16E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

1

North Anna - noble gases_Apr06
SPECIAL LOCATION NO. 2 Nearest Resid
AT .96 MILES NNE

ANNUAL BETA AIR DOSE = 3.08E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.07E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.37E+00	1.40E+00	3.99E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

1

North Anna - noble gases_Apr06
SPECIAL LOCATION NO. 3 Nearest Meat
AT 1.37 MILES SE

ANNUAL BETA AIR DOSE = 1.80E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.21E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	7.97E-01	7.97E-01	7.97E-01	7.97E-01	7.97E-01	7.97E-01	8.14E-01	2.33E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

1

North Anna - noble gases_Apr06
SPECIAL LOCATION NO. 4 Veg Garden
AT .94 MILES NE

ANNUAL BETA AIR DOSE = 2.56E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.73E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.14E+00	1.14E+00	1.14E+00	1.14E+00	1.14E+00	1.14E+00	1.16E+00	3.33E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

1

1

```
*****************************************************************************************
*                                                                                       *
*                                                                                       *
*                                                                                       *
*          GGGGGGGG     AA     SSSSSSSS  PPPPPPPP     AA     RRRRRRRR    IIIII IIIII    *
*          G      G     AA     S         PP     P     AA     RR     R      I     I      *
*          G           A  A    SSSSSSS   PP     P    A  A    RRRRRRRR      I     I      *
*          G   GGGGG  AAAAAA         S   PPPPPPPP   AAAAAA   RRRR          I     I      *
*          G     G   A      A        S   PP        A      A  RR RR         I     I      *
*          GGGGGGG  A        A SSSSSSS   PP       A        A RR   RR     IIIII IIIII    *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                EVALUATION OF RADIATION DOSES FROM RELEASES OF RADIOACTIVITY           *
*                                                                                       *
*                        IN NUCLEAR POWER PLANTS AIRBORNE EFFLUENTS                     *
*                                                                                       *
*                          REVISION DATE:  JSB PC - MARCH 1994                          *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*          North Anna - population- primary                                             *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                          RELIABILITY AND RISK ASSESSMENT BRANCH                       *
*                                                                                       *
*                          OFFICE OF NUCLEAR REACTOR REGULATION                         *
*                                                                                       *
*                          U.S. NUCLEAR REGULATORY COMMISSION                           *
*                                                                                       *
*                          WASHINGTON, D.C. 20555                                       *
*                                                                                       *
```

1
North Anna - population- primary

0 SITE POPULATION DATA (PEOPLE)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50	TOTAL
	DOWNWIND DISTANCE(MILES)										
N	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
NNE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
NE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
ENE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
E	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
ESE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
SE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
SSE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
S	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
SSW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
SW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
WSW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
W	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
WNW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
NW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
NNW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	

1.740E+05
TOTAL 1.113E+03 3.340E+03 5.567E+03 7.794E+03 1.002E+04 8.351E+04 3.340E+05 5.567E+05 7.794E+05 1.002E+06
2.784E+06
AVERAGE SITE DENSITY(PEOPLE/M**2) = 1.39E-04
0

SITE ANNUAL MILK PRODUCTION (LITERS/YR)

	DOWNWIND DISTANCE(MILES)										
DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50	TOTAL
N	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
NNE	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
NE	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
ENE	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
E	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
ESE	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
SE	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
SSE	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
S	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
SSW	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
SW	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
WSW	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
W	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
WNW	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
NW	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
NNW	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	4.500E+07
TOTAL	2.880E+05	8.640E+05	1.440E+06	2.016E+06	2.592E+06	2.160E+07	8.640E+07	1.440E+08	2.016E+08	2.592E+08	7.200E+08

AVERAGE SITE DENSITY(LITERS/M**2) = 3.60E-02

1

North Anna - population- primary

0

SITE ANNUAL MEAT PRODUCTION (KG/YR)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50	TOTAL
N	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
NNE	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
NE	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
ENE	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
E	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
ESE	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
SE	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
SSE	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
S	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
SSW	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
SW	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
WSW	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
W	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
WNW	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
NW	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
NNW	4.250E+04	1.275E+05	2.125E+05	2.975E+05	3.825E+05	3.188E+06	1.275E+07	2.125E+07	2.975E+07	3.825E+07	1.063E+08
TOTAL	6.800E+05	2.040E+06	3.400E+06	4.760E+06	6.120E+06	5.100E+07	2.040E+08	3.400E+08	4.760E+08	6.120E+08	1.700E+09

AVERAGE SITE DENSITY(KG/M**2) = 8.50E-02

0

SITE ANNUAL VEGETATION PRODUCTION (KG/YR)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50	TOTAL
	DOWNWIND DISTANCE(MILES)										
N	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
NNE	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
NE	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
ENE	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
E	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
ESE	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
SE	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
SSE	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
S	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
SSW	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
SW	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
WSW	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
W	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
WNW	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
NW	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
NNW	1.350E+04	4.050E+04	6.750E+04	9.450E+04	1.215E+05	1.012E+06	4.050E+06	6.750E+06	9.450E+06	1.215E+07	3.375E+07
TOTAL	2.160E+05	6.480E+05	1.080E+06	1.512E+06	1.944E+06	1.620E+07	6.480E+07	1.080E+08	1.512E+08	1.944E+08	5.400E+08

AVERAGE SITE DENSITY(KG/M**2) = 2.70E-02

0 AGRICULTURAL PRODUCTIVITY

FOOD	ANNUAL USE	TOTAL SITE	TOTAL POPULATION

PRODUCT	UNITS/PERSON	PRODUCTION	EXPORT	SERVED
VEGETATION(KG)	1.97E+02	5.40E+08	0.00E+00	2.74E+06
MILK (L)	1.31E+02	7.20E+08	3.56E+08	5.51E+06
MEAT (KG)	8.06E+01	1.70E+09	1.48E+09	2.11E+07

1
North Anna - population- primary

0 JOB CONTROL PARAMETERS

```
JC(1) =  0  :POPULATION/INDIVIDUAL DOSE SELECTION
JC(2) =  1  :NUMBER OF SOURCE RELEASE POINTS
JC(3) =  1  :PRINT CONTROL FOR DOSE ACCUMULATION
JC(4) =  0  :READ CONTROL FOR BLOCK DATA CHANGE RECORDS
JC(5) =  0  :PRINT CONTROL FOR DOSE FACTOR TABLE
JC(6) =  0  :CALCULATION CONTROL FOR UNIT DOSE FACTORS
JC(7) =  1  :READ CONTROL FOR DISPERSION DATA INPUT FILE
JC(8) =  0
JC(9) =  0
JC(10)=  0
```

0
EXPOSURE PATHWAY FRACTIONS

PARAMETER	DESCRIPTION(FRACTION)	VALUE
FV	LEAFY VEGETABLE FROM GARDEN	.50
FG	OTHER EDIBLES FROM GARDEN	.76
FP	TIME MILK COWS ON PASTURE	.67
FB	TIME BEEF ON PASTURE	.67
FGT	TIME MILK GOATS ON PASTURE	.75
FPF	MILK COW INTAKE FROM PASTURE	1.00
FBF	BEEF INTAKE FROM PASTURE	1.00
FPG	MILK GOAT INTAKE FROM PASTURE	1.00

HUMIDITY(G/M**3) 8.00
DISTANCE TO EAST COAST (MILES): 1.20E+03

0
SOURCE TERM RELEASE NUMBER 1

```
RELEASE POINT     major contributors plus nobles gases
UML =  1.00E+00   SOURCE TERM MULTIPLICATION FACTOR
JC1 =  0          NEW OR PREVIOUS MET DATA PARAMETER
JC2 =  0          NEW OR PREVIOUS SOURCE TERM RELEASE DATA PARAMETER
```

0 NUCLIDE CI/YR NUCLIDE CI/YR NUCLIDE CI/YR

36KR 88	7.40E+01	25MN 54	5.90E-03	51SB124	2.00E-04
36KR 89	4.70E+02	26FE 55	7.10E-03	53I 131	5.10E-01
54XE131M	1.80E+03	27CO 58	2.30E-02	53I 132	2.40E+00
55CS137	1.00E-02	27CO 60	1.40E-02	53I 133	1.90E+00
54XE133	4.60E+03	26FE 59	8.90E-04	53I 134	4.10E+00
54XE135M	7.70E+02	30ZN 65	1.20E-02	53I 135	2.60E+00
54XE135	8.20E+02	38SR 89	6.20E-03	18AR 41	3.00E+02
54XE137	9.80E+02	38SR 90	1.20E-03	55CS134	6.80E-03
54XE138	7.80E+02	40ZR 95	1.70E-03	36KR 85M	3.60E+01
1H 3	3.50E+03	41NB 95	9.20E-03	36KR 85	4.10E+03
6C 14	1.20E+01	44RU103	3.80E-03	36KR 87	4.90E+01

0 1.830E+04 TOTAL CURIES FOR 33 RADIONUCLIDES

1

North Anna - population- primary

0

SITE ANNUAL X/Q DATA (SEC/M**3)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
N	2.872E-06	9.831E-07	4.447E-07	2.689E-07	1.859E-07	9.126E-08	3.428E-08	1.664E-08	1.046E-08	7.422E-09
NNE	3.619E-06	1.241E-06	5.618E-07	3.399E-07	2.351E-07	1.155E-07	4.349E-08	2.116E-08	1.332E-08	9.465E-09
NE	2.952E-06	1.016E-06	4.613E-07	2.796E-07	1.936E-07	9.529E-08	3.595E-08	1.752E-08	1.104E-08	7.854E-09
ENE	1.807E-06	6.318E-07	2.910E-07	1.779E-07	1.240E-07	6.179E-08	2.375E-08	1.175E-08	7.475E-09	5.353E-09
E	3.413E-06	1.223E-06	5.748E-07	3.558E-07	2.503E-07	1.266E-07	4.982E-08	2.511E-08	1.616E-08	1.167E-08
ESE	4.887E-06	1.787E-06	8.596E-07	5.394E-07	3.831E-07	1.971E-07	7.964E-08	4.100E-08	2.675E-08	1.951E-08
SE	3.416E-06	1.234E-06	5.904E-07	3.693E-07	2.617E-07	1.343E-07	5.409E-08	2.782E-08	1.815E-08	1.324E-08
SSE	1.885E-06	6.456E-07	2.941E-07	1.785E-07	1.238E-07	6.122E-08	2.334E-08	1.152E-08	7.336E-09	5.260E-09
S	1.810E-06	6.025E-07	2.662E-07	1.583E-07	1.080E-07	5.175E-08	1.871E-08	8.825E-09	5.453E-09	3.823E-09
SSW	1.432E-06	4.804E-07	2.130E-07	1.269E-07	8.669E-08	4.165E-08	1.510E-08	7.124E-09	4.400E-09	3.083E-09
SW	1.285E-06	4.313E-07	1.918E-07	1.145E-07	7.841E-08	3.780E-08	1.379E-08	6.540E-09	4.053E-09	2.848E-09
WSW	1.195E-06	4.022E-07	1.794E-07	1.073E-07	7.358E-08	3.559E-08	1.306E-08	6.232E-09	3.878E-09	2.733E-09
W	1.455E-06	4.946E-07	2.228E-07	1.342E-07	9.249E-08	4.519E-08	1.687E-08	8.170E-09	5.135E-09	3.646E-09
WNW	1.265E-06	4.278E-07	1.921E-07	1.156E-07	7.962E-08	3.893E-08	1.458E-08	7.093E-09	4.473E-09	3.184E-09
NW	1.299E-06	4.441E-07	2.010E-07	1.215E-07	8.399E-08	4.124E-08	1.551E-08	7.553E-09	4.760E-09	3.386E-09
NNW	1.117E-06	3.836E-07	1.741E-07	1.055E-07	7.306E-08	3.598E-08	1.358E-08	6.620E-09	4.173E-09	2.967E-09

0

SITE ANNUAL DECAYED X/Q FOR XE-133M (SEC/M**3)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
N	2.860E-06	9.753E-07	4.386E-07	2.637E-07	1.813E-07	8.762E-08	3.160E-08	1.450E-08	8.621E-09	5.792E-09
NNE	3.605E-06	1.231E-06	5.544E-07	3.336E-07	2.295E-07	1.111E-07	4.020E-08	1.851E-08	1.105E-08	7.444E-09
NE	2.941E-06	1.008E-06	4.554E-07	2.745E-07	1.890E-07	9.169E-08	3.327E-08	1.536E-08	9.183E-09	6.198E-09

ENE	1.800E-06	6.265E-07	2.869E-07	1.744E-07	1.208E-07	5.920E-08	2.180E-08	1.016E-08	6.094E-09	4.118E-09
E	3.397E-06	1.212E-06	5.660E-07	3.482E-07	2.433E-07	1.209E-07	4.547E-08	2.151E-08	1.301E-08	8.842E-09
ESE	4.864E-06	1.770E-06	8.458E-07	5.272E-07	3.719E-07	1.878E-07	7.233E-08	3.485E-08	2.131E-08	1.459E-08
SE	3.401E-06	1.223E-06	5.810E-07	3.610E-07	2.541E-07	1.280E-07	4.912E-08	2.364E-08	1.445E-08	9.890E-09
SSE	1.878E-06	6.407E-07	2.902E-07	1.752E-07	1.208E-07	5.880E-08	2.150E-08	1.002E-08	6.022E-09	4.081E-09
S	1.805E-06	5.989E-07	2.634E-07	1.559E-07	1.059E-07	5.015E-08	1.755E-08	7.903E-09	4.666E-09	3.127E-09
SSW	1.431E-06	4.773E-07	2.106E-07	1.249E-07	8.492E-08	4.027E-08	1.410E-08	6.334E-09	3.727E-09	2.490E-09
SW	1.280E-06	4.284E-07	1.895E-07	1.126E-07	7.670E-08	3.647E-08	1.283E-08	5.776E-09	3.402E-09	2.272E-09
WSW	1.191E-06	3.993E-07	1.771E-07	1.054E-07	7.188E-08	3.426E-08	1.209E-08	5.461E-09	3.220E-09	2.151E-09
W	1.450E-06	4.909E-07	2.199E-07	1.317E-07	9.029E-08	4.345E-08	1.558E-08	7.130E-09	4.239E-09	2.849E-09
WNW	1.261E-06	4.247E-07	1.897E-07	1.135E-07	7.780E-08	3.748E-08	1.350E-08	6.225E-09	3.723E-09	2.515E-09
NW	1.295E-06	4.409E-07	1.985E-07	1.194E-07	8.209E-08	3.973E-08	1.439E-08	6.642E-09	3.974E-09	2.685E-09
NNW	1.113E-06	3.805E-07	1.717E-07	1.034E-07	7.121E-08	3.451E-08	1.250E-08	5.749E-09	3.424E-09	2.302E-09

1

North Anna - population- primary

0

SITE ANNUAL DECAYED (FOR I-131) AND DEPLETED X/Q DATA (SEC/M**3)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
N	2.569E-06	8.375E-07	3.596E-07	2.089E-07	1.397E-07	6.416E-08	2.111E-08	8.902E-09	5.012E-09	3.234E-09
NNE	3.238E-06	1.057E-06	4.544E-07	2.642E-07	1.767E-07	8.126E-08	2.680E-08	1.133E-08	6.394E-09	4.132E-09
NE	2.642E-06	8.654E-07	3.732E-07	2.173E-07	1.455E-07	6.703E-08	2.216E-08	9.389E-09	5.304E-09	3.432E-09
ENE	1.616E-06	5.381E-07	2.353E-07	1.382E-07	9.317E-08	4.340E-08	1.460E-08	6.269E-09	3.570E-09	2.322E-09
E	3.052E-06	1.041E-06	4.646E-07	2.763E-07	1.879E-07	8.880E-08	3.055E-08	1.336E-08	7.687E-09	5.037E-09
ESE	4.370E-06	1.521E-06	6.945E-07	4.187E-07	2.874E-07	1.381E-07	4.874E-08	2.176E-08	1.268E-08	8.388E-09
SE	3.055E-06	1.050E-06	4.771E-07	2.866E-07	1.964E-07	9.408E-08	3.311E-08	1.476E-08	8.602E-09	5.690E-09
SSE	1.687E-06	5.500E-07	2.379E-07	1.388E-07	9.304E-08	4.303E-08	1.436E-08	6.157E-09	3.509E-09	2.286E-09
S	1.620E-06	5.137E-07	2.155E-07	1.231E-07	8.127E-08	3.650E-08	1.590E-08	4.759E-09	2.641E-09	1.688E-09
SSW	1.285E-06	4.095E-07	1.724E-07	9.870E-08	6.523E-08	2.936E-08	9.340E-09	3.834E-09	2.125E-09	1.356E-09
SW	1.150E-06	3.676E-07	1.552E-07	8.907E-08	5.897E-08	2.663E-08	8.518E-09	3.513E-09	1.952E-09	1.248E-09
WSW	1.070E-06	3.428E-07	1.451E-07	8.343E-08	5.531E-08	2.505E-08	8.057E-09	3.340E-09	1.862E-09	1.193E-09
W	1.302E-06	4.214E-07	1.802E-07	1.043E-07	6.952E-08	3.179E-08	1.039E-08	4.372E-09	2.461E-09	1.588E-09
WNW	1.132E-06	3.645E-07	1.554E-07	8.985E-08	5.986E-08	2.739E-08	8.987E-09	3.802E-09	2.149E-09	1.391E-09
NW	1.163E-06	3.784E-07	1.626E-07	9.447E-08	6.315E-08	2.902E-08	9.566E-09	4.050E-09	2.289E-09	1.481E-09
NNW	9.996E-07	3.267E-07	1.408E-07	8.198E-08	5.489E-08	2.528E-08	8.356E-09	3.538E-09	1.997E-09	1.291E-09

0

SITE ANNUAL DEPOSITION DATA (1/M**2)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
N	7.773E-09	2.402E-09	9.557E-10	5.222E-10	3.319E-10	1.426E-10	4.421E-11	1.752E-11	9.357E-12	5.792E-12
NNE	1.129E-08	3.487E-09	1.388E-09	7.583E-10	4.820E-10	2.070E-10	6.420E-11	2.544E-11	1.359E-11	8.410E-12
NE	9.103E-09	2.812E-09	1.119E-09	6.115E-10	3.887E-10	1.669E-10	5.177E-11	2.052E-11	1.096E-11	6.782E-12

ENE	4.908E-09	1.516E-09	6.033E-10	3.297E-10	2.095E-10	9.001E-11	2.791E-11	1.106E-11	5.907E-12	3.656E-12
E	6.899E-09	2.132E-09	8.482E-10	4.635E-10	2.946E-10	1.265E-10	3.924E-11	1.555E-11	8.305E-12	5.140E-12
ESE	9.195E-09	2.841E-09	1.130E-09	6.177E-10	3.926E-10	1.686E-10	5.230E-11	2.073E-11	1.107E-11	6.851E-12
SE	8.252E-09	2.550E-09	1.015E-09	5.544E-10	3.524E-10	1.514E-10	4.693E-11	1.860E-11	9.934E-12	6.149E-12
SSE	7.369E-09	2.277E-09	9.059E-10	4.950E-10	3.146E-10	1.351E-10	4.191E-11	1.661E-11	8.870E-12	5.490E-12
S	8.694E-09	2.686E-09	1.069E-09	5.841E-10	3.712E-10	1.594E-10	4.944E-11	1.960E-11	1.046E-11	6.477E-12
SSW	5.762E-09	1.780E-09	7.084E-10	3.871E-10	2.460E-10	1.057E-10	3.277E-11	1.299E-11	6.936E-12	4.293E-12
SW	4.749E-09	1.467E-09	5.839E-10	3.191E-10	2.028E-10	8.710E-11	2.701E-11	1.071E-11	5.717E-12	3.538E-12
WSW	4.125E-09	1.274E-09	5.071E-10	2.771E-10	1.761E-10	7.565E-11	2.346E-11	9.298E-12	4.965E-12	3.073E-12
W	4.855E-09	1.500E-09	5.969E-10	3.262E-10	2.073E-10	8.905E-11	2.761E-11	1.094E-11	5.844E-12	3.617E-12
WNW	4.502E-09	1.391E-09	5.534E-10	3.024E-10	1.922E-10	8.256E-11	2.560E-11	1.015E-11	5.419E-12	3.354E-12
NW	4.045E-09	1.250E-09	4.973E-10	2.718E-10	1.727E-10	7.420E-11	2.301E-11	9.119E-12	4.870E-12	3.014E-12
NNW	2.937E-09	9.072E-10	3.610E-10	1.973E-10	1.254E-10	5.386E-11	1.670E-11	6.619E-12	3.535E-12	2.188E-12

1

North Anna - population- primary

0

JS	SPECIAL LOCATION	DIR	MILES	X/Q	X/Q:DEC	X/Q:DCDP	DEPOSITE	REPORT CONTROL FLAGS PL	GD	VT	MT	CM	GM	IN
1	Site Bound (EAB)	ESE	.88	3.70E-06	3.70E-06	3.30E-06	1.20E-08	1	1	1	1	1	1	1
1	Nearest Resid	NNE	.96	2.40E-06	2.40E-06	2.10E-06	7.20E-09	1	1	1	1	1	1	1
1	Nearest Meat	SE	1.37	1.40E-06	1.40E-06	1.20E-06	3.10E-09	1	1	1	1	1	1	1
1	Veg Garden	NE	.94	2.00E-06	2.00E-06	1.80E-06	6.00E-09	1	1	1	1	1	1	1

0

REPORTS ARE NOT PRINTED IF JS=1 OR CONTROL FLAGS=1

FLAGS:
PL - PLUME
GD - GROUND
VT - VEGETABLE
MT - MEAT
CM - COW MILK
GM - GOAT MILK
IN - INHALATION

1

North Anna - population- primary
major contributors plus nobles gases

RELEASE, ENVIRONS INVENTORY, AND ANNUAL PATHWAY INVENTORIES-CI

NUCLIDE	RELEASE	ENVIRON	GROUND	VEGETATION	MILK	MEAT
KR 88	7.40E+01	3.46E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00

```
*  KR 89   4.70E+02 4.13E-03 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
*  XE131M  1.80E+03 8.39E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
*  CS137   1.00E-02 1.60E-01 7.77E-02 7.57E-07 1.09E-06 8.55E-07 *
*  XE133   4.60E+03 9.53E+01 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
*  XE135M  7.70E+02 3.29E-02 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
*  XE135   8.20E+02 1.23E+00 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
*  XE137   9.80E+02 1.05E-02 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
*  XE138   7.80E+02 3.03E-02 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
*  H   3   3.50E+03 4.21E+04 0.00E+00 4.90E-02 3.27E-02 9.26E-02 *
*  C  14   1.20E+01 2.40E+02 0.00E+00 2.46E-03 1.97E-03 1.20E-02 *
*  MN 54   5.90E-03 7.28E-03 3.52E-03 3.46E-07 1.19E-08 8.67E-08 *
*  FE 55   7.10E-03 2.75E-02 1.33E-02 4.55E-07 7.09E-08 5.52E-06 *
*  CO 58   2.30E-02 6.45E-03 3.12E-03 7.39E-07 1.51E-07 3.96E-06 *
*  CO 60   1.40E-02 9.86E-02 4.78E-02 9.67E-07 1.21E-07 3.69E-06 *
*  FE 59   8.90E-04 1.57E-04 7.56E-05 1.85E-08 6.21E-09 3.81E-07 *
*  ZN 65   1.20E-02 1.16E-02 5.60E-03 8.60E-07 4.24E-06 7.36E-06 *
*  SR 89   6.20E-03 1.24E-03 5.97E-04 1.48E-07 2.99E-08 4.25E-08 *
*  SR 90   1.20E-03 1.90E-02 9.21E-03 9.78E-08 9.07E-09 1.60E-08 *
*  ZR 95   1.70E-03 4.31E-04 2.08E-04 5.04E-08 5.44E-11 7.35E-07 *
*  NB 95   9.20E-03 1.28E-03 6.17E-04 1.41E-07 1.24E-07 2.39E-05 *
*  RU103   3.80E-03 5.90E-04 2.85E-04 6.83E-08 2.13E-11 1.52E-05 *
*  SB124   2.00E-04 4.77E-05 2.30E-05 5.65E-09 1.89E-09 9.92E-09 *
*  I 131   5.10E-01 1.62E-02 3.84E-03 1.84E-07 1.72E-05 4.95E-06 *
*  I 132   2.40E+00 9.09E-04 8.46E-05 0.00E+00 2.26E-19 0.00E+00 *
*  I 133   1.90E+00 6.51E-03 1.31E-03 2.54E-26 5.11E-07 1.61E-12 *
*  I 134   4.10E+00 5.91E-04 3.14E-05 0.00E+00 2.78E-40 0.00E+00 *
*  I 135   2.60E+00 2.82E-03 4.20E-04 0.00E+00 1.71E-10 5.50E-28 *
*  AR 41   3.00E+02 9.06E-02 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
*  CS134   6.80E-03 2.01E-02 9.75E-03 4.38E-07 6.82E-07 5.29E-07 *
*  KR 85M  3.60E+01 2.61E-02 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
*  KR 85   4.10E+03 4.60E+04 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
*  KR 87   4.90E+01 1.03E-02 0.00E+00 0.00E+00 0.00E+00 0.00E+00 *
 +-------------------------------------------------------------+
1
```

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.76E+00	2.76E+00	2.76E+00	2.76E+00	2.76E+00	2.76E+00	3.00E+00	1.73E+01
	15.64%	15.66%	9.86%	15.38%	15.56%	4.73%	16.91%	54.03%
GROUND	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	9.48E-01

	4.58%	4.58%	2.88%	4.50%	4.55%	1.38%	4.55%	2.97%
INHAL	3.80E+00	3.80E+00	9.21E-02	3.85E+00	3.89E+00	1.74E+01	3.93E+00	3.76E+00
	21.55%	21.58%	.33%	21.45%	21.91%	29.79%	22.14%	11.79%
VEGET	5.90E+00	5.85E+00	1.30E+01	5.98E+00	5.83E+00	6.25E+00	5.78E+00	5.75E+00
	33.40%	33.20%	46.27%	33.32%	32.87%	10.70%	32.55%	18.02%
COW MILK	2.39E+00	2.29E+00	5.46E+00	2.53E+00	2.46E+00	2.77E+01	2.27E+00	2.25E+00
	13.53%	12.98%	19.48%	14.12%	13.87%	47.47%	12.76%	7.03%
MEAT	2.00E+00	2.12E+00	5.93E+00	2.02E+00	1.99E+00	3.46E+00	1.97E+00	1.96E+00
	11.31%	12.00%	21.17%	11.24%	11.24%	5.93%	11.09%	6.15%
TOTAL	1.77E+01	1.76E+01	2.80E+01	1.80E+01	1.77E+01	5.84E+01	1.78E+01	3.19E+01

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	3.76E+00	3.76E+00	3.76E+00	3.76E+00	3.76E+00	3.76E+00	4.29E+00	3.63E+01
	4.28%	4.24%	1.46%	4.25%	4.27%	2.30%	4.87%	30.28%
GROUND	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	9.48E-01
	.92%	.91%	.31%	.91%	.92%	.50%	.92%	.79%
INHAL	6.01E+00	6.01E+00	9.21E-02	6.06E+00	6.10E+00	1.96E+01	6.14E+00	5.97E+00
	6.84%	6.79%	.04%	6.84%	6.92%	12.02%	6.97%	4.98%
VEGET	3.03E+01	3.02E+01	9.92E+01	3.04E+01	3.02E+01	3.06E+01	3.02E+01	3.01E+01
	34.45%	34.15%	38.62%	34.33%	34.32%	18.78%	34.29%	25.14%
COW MILK	1.48E+01	1.46E+01	4.02E+01	1.51E+01	1.49E+01	6.49E+01	1.45E+01	1.45E+01
	16.80%	16.45%	15.64%	17.01%	16.93%	39.80%	16.50%	12.08%
MEAT	3.23E+01	3.32E+01	1.13E+02	3.24E+01	3.23E+01	4.34E+01	3.21E+01	3.20E+01
	36.72%	37.46%	43.93%	36.65%	36.63%	26.60%	36.44%	26.72%
TOTAL	8.79E+01	8.86E+01	2.57E+02	8.85E+01	8.81E+01	1.63E+02	8.80E+01	1.20E+02

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = *TOTAL*

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
KR 88	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.38E-01	3.48E-01
	1.34%	1.34%	.84%	1.32%	1.33%	.40%	1.34%	1.09%
KR 89	1.24E-02	1.24E-02	1.24E-02	1.24E-02	1.24E-02	1.24E-02	1.25E-02	2.93E-02
	.07%	.07%	.04%	.07%	.07%	.02%	.07%	.09%
XE131M	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.52E-01	1.51E+00
	.70%	.70%	.44%	.68%	.69%	.21%	.86%	4.73%
CS137	2.89E-01	1.99E-01	3.89E-01	4.21E-01	2.71E-01	1.95E-01	2.22E-01	2.28E-01
	1.64%	1.13%	1.39%	2.35%	1.53%	.33%	1.25%	.71%
XE133	9.82E-01	9.82E-01	9.82E-01	9.82E-01	9.82E-01	9.82E-01	1.05E+00	3.35E+00
	5.57%	5.57%	3.51%	5.47%	5.53%	1.68%	5.93%	10.51%
XE135M	6.76E-02	6.76E-02	6.76E-02	6.76E-02	6.76E-02	6.76E-02	6.79E-02	1.12E-01
	.38%	.38%	.24%	.38%	.38%	.12%	.38%	.35%
XE135	6.43E-01	6.43E-01	6.43E-01	6.43E-01	6.43E-01	6.43E-01	6.60E-01	2.08E+00
	3.64%	3.65%	2.30%	3.58%	3.62%	1.10%	3.72%	6.51%
XE137	3.47E-03	3.47E-03	3.47E-03	3.47E-03	3.47E-03	3.47E-03	4.07E-03	6.37E-02
	.02%	.02%	.01%	.02%	.02%	.00%	.02%	.20%
XE138	1.72E-01	1.72E-01	1.72E-01	1.72E-01	1.72E-01	1.72E-01	1.74E-01	3.60E-01
	.97%	.98%	.61%	.96%	.97%	.29%	.98%	1.13%
H 3	9.20E+00	9.20E+00	0.00E+00	9.20E+00	9.20E+00	9.20E+00	9.20E+00	9.20E+00
	52.13%	52.20%	.00%	51.26%	51.84%	15.75%	51.84%	28.82%
C 14	4.53E+00	4.53E+00	2.26E+01	4.53E+00	4.53E+00	4.53E+00	4.53E+00	4.53E+00
	25.65%	25.68%	80.81%	25.22%	25.51%	7.75%	25.51%	14.18%
MN 54	1.27E-02	1.73E-02	1.22E-02	1.46E-02	1.29E-02	1.22E-02	2.08E-02	1.44E-02
	.07%	.10%	.04%	.08%	.07%	.02%	.12%	.04%
FE 55	8.15E-04	1.38E-03	5.01E-03	3.18E-03	0.00E+00	0.00E+00	2.32E-03	0.00E+00

	.00%	.00%	.02%	.02%	.00%	.00%	.01%	.00%
CO 58	1.62E-02	3.42E-02	1.31E-02	1.44E-02	1.31E-02	1.31E-02	3.53E-02	1.53E-02
	.09%	.19%	.05%	.08%	.07%	.02%	.20%	.05%
CO 60	4.97E-01	5.48E-01	4.86E-01	4.91E-01	4.86E-01	4.86E-01	5.74E-01	5.72E-01
	2.81%	3.11%	1.74%	2.73%	2.74%	.83%	3.23%	1.79%
FE 59	7.41E-04	2.89E-03	7.98E-04	1.28E-03	3.63E-04	3.63E-04	1.57E-03	4.26E-04
	.00%	.02%	.00%	.00%	.00%	.00%	.00%	.00%
ZN 65	5.46E-02	4.94E-02	4.01E-02	9.40E-02	6.59E-02	1.34E-02	2.42E-02	1.54E-02
	.31%	.28%	.14%	.52%	.37%	.02%	.14%	.05%
SR 89	2.54E-03	1.04E-02	8.86E-02	2.00E-07	2.00E-07	2.00E-07	9.81E-03	2.32E-07
	.01%	.06%	.32%	.00%	.00%	.00%	.06%	.00%
SR 90	2.59E-02	2.40E-02	1.29E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-02	0.00E+00
	.15%	.14%	4.60%	.00%	.00%	.00%	.07%	.00%
ZR 95	6.69E-04	5.31E-03	8.36E-04	6.86E-04	7.19E-04	6.24E-04	3.81E-03	7.24E-04
	.00%	.03%	.00%	.00%	.00%	.00%	.02%	.00%
NB 95	1.93E-03	7.14E-02	2.05E-03	1.97E-03	1.97E-03	1.88E-03	6.75E-03	2.22E-03
	.01%	.41%	.00%	.01%	.01%	.00%	.04%	.00%
RU103	8.23E-04	4.52E-02	1.11E-03	6.14E-04	2.34E-03	6.14E-04	2.67E-03	7.17E-04
	.00%	.26%	.00%	.00%	.01%	.00%	.02%	.00%
SB124	1.95E-04	8.63E-04	2.21E-04	1.80E-04	1.79E-04	1.79E-04	7.35E-04	2.07E-04
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 131	6.80E-02	2.50E-02	9.53E-02	1.15E-01	1.90E-01	3.53E+01	6.44E-03	7.82E-03
	.39%	.14%	.34%	.64%	1.07%	60.49%	.04%	.02%
I 132	1.93E-03	1.67E-03	1.97E-03	3.69E-03	5.33E-03	1.07E-01	8.62E-04	1.01E-03
	.01%	.00%	.00%	.02%	.03%	.18%	.00%	.00%
I 133	1.29E-02	1.89E-02	2.27E-02	3.38E-02	5.64E-02	4.80E+00	2.90E-03	3.53E-03
	.07%	.11%	.08%	.19%	.32%	8.22%	.02%	.01%
I 134	7.86E-04	4.21E-04	8.26E-04	1.58E-03	2.32E-03	2.41E-02	3.01E-04	3.57E-04
	.00%	.00%	.00%	.00%	.01%	.04%	.00%	.00%

I 135	7.86E-03	1.17E-02	8.26E-03	1.54E-02	2.26E-02	8.70E-01	3.02E-03	3.52E-03
	.04%	.07%	.03%	.09%	.13%	1.49%	.02%	.01%
AR 41	4.23E-01	4.23E-01	4.23E-01	4.23E-01	4.23E-01	4.23E-01	4.23E-01	7.52E-01
	2.40%	2.40%	1.51%	2.36%	2.38%	.72%	2.38%	2.35%
CS134	1.67E-01	7.22E-02	1.57E-01	2.47E-01	1.27E-01	7.01E-02	8.98E-02	8.18E-02
	.95%	.41%	.56%	1.38%	.71%	.12%	.51%	.26%
KR 85M	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.26E-02	4.48E-02
	.07%	.07%	.04%	.07%	.07%	.02%	.07%	.14%
KR 85	5.04E-02	5.04E-02	5.04E-02	5.04E-02	5.04E-02	5.04E-02	1.67E-01	8.44E+00
	.29%	.29%	.18%	.28%	.28%	.09%	.94%	26.44%
KR 87	3.54E-02	3.54E-02	3.54E-02	3.54E-02	3.54E-02	3.54E-02	3.66E-02	1.57E-01
	.20%	.20%	.13%	.20%	.20%	.06%	.21%	.49%
TOTAL	1.77E+01	1.76E+01	2.80E+01	1.80E+01	1.77E+01	5.84E+01	1.78E+01	3.19E+01

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = PLUME

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
KR 88	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.38E-01	3.48E-01
	8.57%	8.57%	8.57%	8.57%	8.57%	8.57%	7.92%	2.02%
KR 89	1.24E-02	1.24E-02	1.24E-02	1.24E-02	1.24E-02	1.24E-02	1.25E-02	2.93E-02
	.45%	.45%	.45%	.45%	.45%	.45%	.42%	.17%
XE131M	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.52E-01	1.51E+00
	4.45%	4.45%	4.45%	4.45%	4.45%	4.45%	5.08%	8.76%
XE133	9.82E-01	9.82E-01	9.82E-01	9.82E-01	9.82E-01	9.82E-01	1.05E+00	3.35E+00
	35.58%	35.58%	35.58%	35.58%	35.58%	35.58%	35.07%	19.44%
XE135M	6.76E-02	6.76E-02	6.76E-02	6.76E-02	6.76E-02	6.76E-02	6.79E-02	1.12E-01
	2.45%	2.45%	2.45%	2.45%	2.45%	2.45%	2.26%	.65%
XE135	6.43E-01	6.43E-01	6.43E-01	6.43E-01	6.43E-01	6.43E-01	6.60E-01	2.08E+00

	23.28%	23.28%	23.28%	23.28%	23.28%	23.28%	22.00%	12.05%
XE137	3.47E-03	3.47E-03	3.47E-03	3.47E-03	3.47E-03	3.47E-03	4.07E-03	6.37E-02
	.13%	.13%	.13%	.13%	.13%	.13%	.14%	.37%
XE138	1.72E-01	1.72E-01	1.72E-01	1.72E-01	1.72E-01	1.72E-01	1.74E-01	3.60E-01
	6.23%	6.23%	6.23%	6.23%	6.23%	6.23%	5.79%	2.09%
AR 41	4.23E-01	4.23E-01	4.23E-01	4.23E-01	4.23E-01	4.23E-01	4.23E-01	7.52E-01
	15.33%	15.33%	15.33%	15.33%	15.33%	15.33%	14.10%	4.36%
KR 85M	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.26E-02	4.48E-02
	.44%	.44%	.44%	.44%	.44%	.44%	.42%	.26%
KR 85	5.04E-02	5.04E-02	5.04E-02	5.04E-02	5.04E-02	5.04E-02	1.67E-01	8.44E+00
	1.82%	1.82%	1.82%	1.82%	1.82%	1.82%	5.57%	48.93%
KR 87	3.54E-02	3.54E-02	3.54E-02	3.54E-02	3.54E-02	3.54E-02	3.66E-02	1.57E-01
	1.28%	1.28%	1.28%	1.28%	1.28%	1.28%	1.22%	.91%
TOTAL	2.76E+00	2.76E+00	2.76E+00	2.76E+00	2.76E+00	2.76E+00	3.00E+00	1.73E+01

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = GROUND

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
CS137	1.95E-01	1.95E-01	1.95E-01	1.95E-01	1.95E-01	1.95E-01	1.95E-01	2.28E-01
	24.20%	24.20%	24.20%	24.20%	24.20%	24.20%	24.20%	24.06%
MN 54	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.44E-02
	1.52%	1.52%	1.52%	1.52%	1.52%	1.52%	1.52%	1.51%
CO 58	1.31E-02	1.31E-02	1.31E-02	1.31E-02	1.31E-02	1.31E-02	1.31E-02	1.53E-02
	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%
CO 60	4.86E-01	4.86E-01	4.86E-01	4.86E-01	4.86E-01	4.86E-01	4.86E-01	5.72E-01
	60.21%	60.21%	60.21%	60.21%	60.21%	60.21%	60.21%	60.38%
FE 59	3.63E-04	3.63E-04	3.63E-04	3.63E-04	3.63E-04	3.63E-04	3.63E-04	4.26E-04
	.04%	.04%	.04%	.04%	.04%	.04%	.04%	.04%

ZN 65	1.34E-02	1.34E-02	1.34E-02	1.34E-02	1.34E-02	1.34E-02	1.34E-02	1.54E-02
	1.66%	1.66%	1.66%	1.66%	1.66%	1.66%	1.66%	1.63%
SR 89	2.00E-07	2.00E-07	2.00E-07	2.00E-07	2.00E-07	2.00E-07	2.00E-07	2.32E-07
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
ZR 95	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	7.24E-04
	.08%	.08%	.08%	.08%	.08%	.08%	.08%	.08%
NB 95	1.88E-03	1.88E-03	1.88E-03	1.88E-03	1.88E-03	1.88E-03	1.88E-03	2.22E-03
	.23%	.23%	.23%	.23%	.23%	.23%	.23%	.23%
RU103	6.14E-04	6.14E-04	6.14E-04	6.14E-04	6.14E-04	6.14E-04	6.14E-04	7.17E-04
	.08%	.08%	.08%	.08%	.08%	.08%	.08%	.08%
SB124	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04	2.07E-04
	.02%	.02%	.02%	.02%	.02%	.02%	.02%	.02%
I 131	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	7.82E-03
	.80%	.80%	.80%	.80%	.80%	.80%	.80%	.83%
I 132	8.62E-04	8.62E-04	8.62E-04	8.62E-04	8.62E-04	8.62E-04	8.62E-04	1.01E-03
	.11%	.11%	.11%	.11%	.11%	.11%	.11%	.11%
I 133	2.90E-03	2.90E-03	2.90E-03	2.90E-03	2.90E-03	2.90E-03	2.90E-03	3.53E-03
	.36%	.36%	.36%	.36%	.36%	.36%	.36%	.37%
I 134	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.57E-04
	.04%	.04%	.04%	.04%	.04%	.04%	.04%	.04%
I 135	3.02E-03	3.02E-03	3.02E-03	3.02E-03	3.02E-03	3.02E-03	3.02E-03	3.52E-03
	.37%	.37%	.37%	.37%	.37%	.37%	.37%	.37%
CS134	7.01E-02	7.01E-02	7.01E-02	7.01E-02	7.01E-02	7.01E-02	7.01E-02	8.18E-02
	8.67%	8.67%	8.67%	8.67%	8.67%	8.67%	8.67%	8.63%
TOTAL	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	9.48E-01

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = INHAL

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
CS137	3.48E-03	7.28E-05	5.56E-03	6.58E-03	2.33E-03	0.00E+00	8.23E-04	0.00E+00
	.09%	.00%	6.03%	.17%	.06%	.00%	.02%	.00%
H 3	3.76E+00	3.76E+00	0.00E+00	3.76E+00	3.76E+00	3.76E+00	3.76E+00	3.76E+00
	98.97%	98.97%	.00%	97.78%	96.80%	21.63%	95.79%	100.00%
MN 54	4.04E-05	3.77E-04	0.00E+00	2.36E-04	5.79E-05	0.00E+00	8.50E-03	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.22%	.00%
FE 55	3.29E-05	3.77E-05	2.03E-04	1.31E-04	0.00E+00	0.00E+00	5.80E-04	0.00E+00
	.00%	.00%	.22%	.00%	.00%	.00%	.01%	.00%
CO 58	5.19E-05	2.04E-03	0.00E+00	3.70E-05	0.00E+00	0.00E+00	2.22E-02	0.00E+00
	.00%	.05%	.00%	.00%	.00%	.00%	.57%	.00%
CO 60	2.26E-04	3.35E-03	0.00E+00	1.65E-04	0.00E+00	0.00E+00	8.73E-02	0.00E+00
	.00%	.09%	.00%	.00%	.00%	.00%	2.22%	.00%
FE 59	1.03E-05	1.42E-04	1.18E-05	2.54E-05	0.00E+00	0.00E+00	9.54E-04	0.00E+00
	.00%	.00%	.01%	.00%	.00%	.00%	.02%	.00%
ZN 65	6.08E-04	5.32E-04	4.03E-04	1.25E-03	8.24E-04	0.00E+00	1.07E-02	0.00E+00
	.02%	.01%	.44%	.03%	.02%	.00%	.27%	.00%
SR 89	6.35E-05	1.90E-03	2.21E-03	0.00E+00	0.00E+00	0.00E+00	9.81E-03	0.00E+00
	.00%	.05%	2.40%	.00%	.00%	.00%	.25%	.00%
SR 90	7.18E-04	7.62E-04	3.58E-02	0.00E+00	0.00E+00	0.00E+00	1.31E-02	0.00E+00
	.02%	.02%	38.87%	.00%	.00%	.00%	.33%	.00%
ZR 95	4.35E-05	2.19E-04	2.06E-04	6.04E-05	9.24E-05	0.00E+00	3.19E-03	0.00E+00
	.00%	.00%	.22%	.00%	.00%	.00%	.08%	.00%
NB 95	4.22E-05	8.03E-04	1.43E-04	7.35E-05	7.18E-05	0.00E+00	4.86E-03	0.00E+00
	.00%	.02%	.16%	.00%	.00%	.00%	.12%	.00%
RU103	2.77E-06	3.59E-04	6.63E-06	0.00E+00	2.27E-05	0.00E+00	2.05E-03	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.05%	.00%
SB124	2.74E-06	6.95E-05	7.15E-06	1.23E-07	0.00E+00	1.67E-08	5.32E-04	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.01%	.00%

I 131	1.38E-02	3.50E-03	1.88E-02	2.43E-02	4.12E-02	8.01E+00	0.00E+00	0.00E+00
	.36%	.09%	20.35%	.63%	1.06%	45.99%	.00%	.00%
I 132	1.07E-03	8.06E-04	1.11E-03	2.83E-03	4.47E-03	1.06E-01	0.00E+00	0.00E+00
	.03%	.02%	1.20%	.07%	.11%	.61%	.00%	.00%
I 133	9.64E-03	1.54E-02	1.91E-02	3.00E-02	5.18E-02	4.64E+00	0.00E+00	0.00E+00
	.25%	.40%	20.71%	.78%	1.33%	26.65%	.00%	.00%
I 134	4.86E-04	1.20E-04	5.25E-04	1.28E-03	2.02E-03	2.38E-02	0.00E+00	0.00E+00
	.01%	.00%	.57%	.03%	.05%	.14%	.00%	.00%
I 135	4.84E-03	8.67E-03	5.24E-03	1.24E-02	1.96E-02	8.67E-01	0.00E+00	0.00E+00
	.13%	.23%	5.68%	.32%	.50%	4.98%	.00%	.00%
CS134	4.05E-03	6.00E-05	2.87E-03	5.96E-03	2.00E-03	0.00E+00	7.02E-04	0.00E+00
	.11%	.00%	3.11%	.15%	.05%	.00%	.02%	.00%
TOTAL	3.80E+00	3.80E+00	9.21E-02	3.85E+00	3.89E+00	1.74E+01	3.93E+00	3.76E+00

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = VEGET

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
CS137	4.86E-02	1.58E-03	9.78E-02	1.15E-01	3.84E-02	0.00E+00	1.34E-02	0.00E+00
	.82%	.03%	.75%	1.92%	.66%	.00%	.23%	.00%
H 3	3.44E+00	3.44E+00	0.00E+00	3.44E+00	3.44E+00	3.44E+00	3.44E+00	3.44E+00
	58.36%	58.79%	.00%	57.53%	58.98%	55.05%	59.55%	59.80%
C 14	2.31E+00	2.31E+00	1.16E+01	2.31E+00	2.31E+00	2.31E+00	2.31E+00	2.31E+00
	39.24%	39.53%	89.22%	38.68%	39.65%	37.01%	40.04%	40.20%
MN 54	4.40E-04	4.43E-03	0.00E+00	2.03E-03	5.92E-04	0.00E+00	0.00E+00	0.00E+00
	.00%	.08%	.00%	.03%	.01%	.00%	.00%	.00%
FE 55	3.33E-04	5.03E-04	2.04E-03	1.26E-03	0.00E+00	0.00E+00	7.19E-04	0.00E+00
	.00%	.00%	.02%	.02%	.00%	.00%	.01%	.00%

CO 58	1.81E-03	1.04E-02	0.00E+00	7.16E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.03%	.18%	.00%	.01%	.00%	.00%	.00%	.00%
CO 60	6.70E-03	3.65E-02	0.00E+00	2.71E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.11%	.62%	.00%	.05%	.00%	.00%	.00%	.00%
FE 59	1.07E-04	6.04E-04	1.25E-04	2.53E-04	0.00E+00	0.00E+00	7.29E-05	0.00E+00
	.00%	.01%	.00%	.00%	.00%	.00%	.00%	.00%
ZN 65	8.72E-03	7.68E-03	5.66E-03	1.71E-02	1.11E-02	0.00E+00	0.00E+00	0.00E+00
	.15%	.13%	.04%	.29%	.19%	.00%	.00%	.00%
SR 89	2.16E-03	7.42E-03	7.56E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.04%	.13%	.58%	.00%	.00%	.00%	.00%	.00%
SR 90	2.36E-02	2.18E-02	1.17E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.40%	.37%	9.05%	.00%	.00%	.00%	.00%	.00%
ZR 95	4.97E-07	1.51E-03	2.39E-06	6.58E-07	9.92E-07	0.00E+00	0.00E+00	0.00E+00
	.00%	.03%	.00%	.00%	.00%	.00%	.00%	.00%
NB 95	3.88E-07	2.81E-03	1.33E-06	6.45E-07	6.25E-07	0.00E+00	0.00E+00	0.00E+00
	.00%	.05%	.00%	.00%	.00%	.00%	.00%	.00%
RU103	8.22E-06	1.44E-03	2.01E-05	0.00E+00	6.41E-05	0.00E+00	0.00E+00	0.00E+00
	.00%	.02%	.00%	.00%	.00%	.00%	.00%	.00%
SB124	9.43E-06	4.37E-04	2.52E-05	4.06E-07	0.00E+00	5.81E-08	1.73E-05	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 131	8.68E-04	2.89E-04	1.25E-03	1.53E-03	2.58E-03	4.96E-01	0.00E+00	0.00E+00
	.01%	.00%	.00%	.03%	.04%	7.94%	.00%	.00%
I 133	2.94E-23	6.10E-23	5.89E-23	8.84E-23	1.52E-22	1.42E-20	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CS134	4.80E-02	1.08E-03	4.22E-02	8.65E-02	2.75E-02	0.00E+00	9.56E-03	0.00E+00
	.81%	.02%	.33%	1.45%	.47%	.00%	.17%	.00%
TOTAL	5.90E+00	5.85E+00	1.30E+01	5.98E+00	5.83E+00	6.25E+00	5.78E+00	5.75E+00

1

North Anna - population- primary

ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = COW MILK

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
CS137	3.42E-02	1.14E-03	7.86E-02	8.98E-02	2.99E-02	0.00E+00	1.06E-02	0.00E+00
	1.43%	.05%	1.44%	3.54%	1.22%	.00%	.47%	.00%
H 3	1.21E+00	1.21E+00	0.00E+00	1.21E+00	1.21E+00	1.21E+00	1.21E+00	1.21E+00
	50.57%	52.77%	.00%	47.65%	49.04%	4.35%	53.30%	53.75%
C 14	1.04E+00	1.04E+00	5.19E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00	1.04E+00
	43.51%	45.41%	95.16%	41.00%	42.20%	3.75%	45.87%	46.25%
MN 54	8.32E-06	7.51E-05	0.00E+00	3.74E-05	1.09E-05	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
FE 55	2.91E-05	3.98E-05	1.78E-04	1.08E-04	0.00E+00	0.00E+00	6.19E-05	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CO 58	2.03E-04	1.05E-03	0.00E+00	7.85E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.05%	.00%	.00%	.00%	.00%	.00%	.00%
CO 60	4.61E-04	2.26E-03	0.00E+00	1.83E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.02%	.10%	.00%	.00%	.00%	.00%	.00%	.00%
FE 59	1.99E-05	1.01E-04	2.34E-05	4.60E-05	0.00E+00	0.00E+00	1.33E-05	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
ZN 65	2.37E-02	1.87E-02	1.51E-02	4.52E-02	2.93E-02	0.00E+00	0.00E+00	0.00E+00
	.99%	.82%	.28%	1.78%	1.19%	.00%	.00%	.00%
SR 89	2.45E-04	7.61E-04	8.57E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.01%	.03%	.16%	.00%	.00%	.00%	.00%	.00%
SR 90	1.19E-03	1.03E-03	5.92E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.05%	.04%	1.08%	.00%	.00%	.00%	.00%	.00%
ZR 95	2.96E-10	8.18E-07	1.44E-09	3.85E-10	5.75E-10	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NB 95	1.88E-07	1.23E-03	6.50E-07	3.06E-07	2.96E-07	0.00E+00	0.00E+00	0.00E+00
	.00%	.05%	.00%	.00%	.00%	.00%	.00%	.00%

RU103	1.42E-09	2.25E-07	3.50E-09	0.00E+00	1.08E-08	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SB124	1.75E-06	7.36E-05	4.71E-06	7.40E-08	0.00E+00	1.08E-08	3.17E-06	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 131	4.43E-02	1.37E-02	6.53E-02	7.83E-02	1.32E-01	2.53E+01	0.00E+00	0.00E+00
	1.85%	.60%	1.20%	3.09%	5.35%	91.33%	.00%	.00%
I 132	3.61E-17	5.94E-17	4.06E-17	9.04E-17	1.41E-16	3.59E-15	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 133	3.29E-04	6.32E-04	6.64E-04	9.71E-04	1.66E-03	1.59E-01	0.00E+00	0.00E+00
	.01%	.03%	.01%	.04%	.07%	.57%	.00%	.00%
I 134	2.37E-38	1.71E-38	2.61E-38	5.89E-38	9.20E-38	1.16E-36	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 135	6.09E-08	1.42E-07	6.73E-08	1.47E-07	2.30E-07	1.11E-05	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CS134	3.68E-02	8.43E-04	3.66E-02	7.29E-02	2.31E-02	0.00E+00	8.11E-03	0.00E+00
	1.54%	.04%	.67%	2.88%	.94%	.00%	.36%	.00%
TOTAL	2.39E+00	2.29E+00	5.46E+00	2.53E+00	2.46E+00	2.77E+01	2.27E+00	2.25E+00

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = MEAT

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
CS137	7.64E-03	2.37E-04	1.16E-02	1.46E-02	4.90E-03	0.00E+00	1.68E-03	0.00E+00
	.38%	.01%	.20%	.72%	.25%	.00%	.09%	.00%
H 3	7.89E-01	7.89E-01	0.00E+00	7.89E-01	7.89E-01	7.89E-01	7.89E-01	7.89E-01
	39.52%	37.29%	.00%	39.12%	39.57%	22.78%	40.08%	40.16%
C 14	1.18E+00	1.18E+00	5.88E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00	1.18E+00
	58.89%	55.57%	99.10%	58.29%	58.96%	33.94%	59.71%	59.84%
MN 54	1.21E-05	1.54E-04	0.00E+00	5.93E-05	1.75E-05	0.00E+00	0.00E+00	0.00E+00

	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
FE 55	4.21E-04 .02%	8.01E-04 .04%	2.59E-03 .04%	1.68E-03 .08%	0.00E+00 .00%	0.00E+00 .00%	9.54E-04 .05%	0.00E+00 .00%
CO 58	1.06E-03 .05%	7.62E-03 .36%	0.00E+00 .00%	4.44E-04 .02%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
CO 60	2.80E-03 .14%	1.90E-02 .90%	0.00E+00 .00%	1.20E-03 .06%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
FE 59	2.41E-04 .01%	1.68E-03 .08%	2.75E-04 .00%	5.96E-04 .03%	0.00E+00 .00%	0.00E+00 .00%	1.70E-04 .00%	0.00E+00 .00%
ZN 65	8.21E-03 .41%	9.06E-03 .43%	5.48E-03 .09%	1.70E-02 .84%	1.12E-02 .56%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
SR 89	6.47E-05 .00%	2.79E-04 .01%	2.26E-03 .04%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
SR 90	4.35E-04 .02%	4.68E-04 .02%	2.16E-02 .36%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
ZR 95	7.87E-07 .00%	2.96E-03 .14%	3.72E-06 .00%	1.10E-06 .00%	1.68E-06 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
NB 95	7.19E-06 .00%	6.47E-02 3.06%	2.44E-05 .00%	1.26E-05 .00%	1.23E-05 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
RU103	1.98E-04 .00%	4.28E-02 2.02%	4.73E-04 .00%	0.00E+00 .00%	1.63E-03 .08%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
SB124	1.80E-06 .00%	1.03E-04 .00%	4.68E-06 .00%	8.11E-08 .00%	0.00E+00 .00%	1.10E-08 .00%	3.41E-06 .00%	0.00E+00 .00%
I 131	2.62E-03 .13%	1.03E-03 .05%	3.51E-03 .06%	4.61E-03 .23%	7.85E-03 .39%	1.50E+00 43.28%	0.00E+00 .00%	0.00E+00 .00%
I 133	2.00E-10 .00%	4.89E-10 .00%	3.90E-10 .00%	6.24E-10 .00%	1.08E-09 .00%	9.63E-08 .00%	0.00E+00 .00%	0.00E+00 .00%
I 135	3.83E-26 .00%	1.04E-25 .00%	4.10E-26 .00%	9.86E-26 .00%	1.56E-25 .00%	6.91E-24 .00%	0.00E+00 .00%	0.00E+00 .00%

CS134	8.05E-03	1.77E-04	5.46E-03	1.20E-02	3.84E-03	0.00E+00	1.31E-03	0.00E+00
	.40%	.00%	.09%	.59%	.19%	.00%	.07%	.00%
TOTAL	2.00E+00	2.12E+00	5.93E+00	2.02E+00	1.99E+00	3.46E+00	1.97E+00	1.96E+00

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = *TOTAL*

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
KR 88	2.52E-01	2.52E-01	2.52E-01	2.52E-01	2.52E-01	2.52E-01	2.53E-01	3.71E-01
	.29%	.28%	.10%	.29%	.29%	.15%	.29%	.31%
KR 89	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.47E-02	3.43E-02
	.02%	.02%	.00%	.02%	.02%	.00%	.02%	.03%
XE131M	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.94E-01	2.92E+00
	.27%	.27%	.09%	.27%	.27%	.15%	.33%	2.43%
CS137	3.73E-01	2.01E-01	5.42E-01	6.05E-01	3.33E-01	1.95E-01	2.43E-01	2.28E-01
	.42%	.23%	.21%	.68%	.38%	.12%	.28%	.19%
XE133	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.77E+00	5.64E+00
	1.88%	1.86%	.64%	1.87%	1.87%	1.01%	2.01%	4.70%
XE135M	7.07E-02	7.07E-02	7.07E-02	7.07E-02	7.07E-02	7.07E-02	7.11E-02	1.17E-01
	.08%	.08%	.03%	.08%	.08%	.04%	.08%	.10%
XE135	7.12E-01	7.12E-01	7.12E-01	7.12E-01	7.12E-01	7.12E-01	7.31E-01	2.30E+00
	.81%	.80%	.28%	.80%	.81%	.44%	.83%	1.92%
XE137	3.93E-03	3.93E-03	3.93E-03	3.93E-03	3.93E-03	3.93E-03	4.61E-03	7.21E-02
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.06%
XE138	1.80E-01	1.80E-01	1.80E-01	1.80E-01	1.80E-01	1.80E-01	1.82E-01	3.77E-01
	.21%	.20%	.07%	.20%	.20%	.11%	.21%	.31%
H 3	3.27E+01	3.27E+01	0.00E+00	3.27E+01	3.27E+01	3.27E+01	3.27E+01	3.27E+01
	37.17%	36.89%	.00%	36.93%	37.10%	20.03%	37.13%	27.25%
C 14	5.00E+01	5.00E+01	2.50E+02	5.00E+01	5.00E+01	5.00E+01	5.00E+01	5.00E+01

	56.84%	56.41%	97.28%	56.47%	56.74%	30.62%	56.79%	41.68%
MN 54	1.28E-02	1.84E-02	1.22E-02	1.50E-02	1.31E-02	1.22E-02	2.08E-02	1.44E-02
	.01%	.02%	.00%	.02%	.01%	.00%	.02%	.01%
FE 55	3.61E-03	6.69E-03	2.22E-02	1.44E-02	0.00E+00	0.00E+00	8.65E-03	0.00E+00
	.00%	.00%	.00%	.02%	.00%	.00%	.00%	.00%
CO 58	2.34E-02	8.53E-02	1.31E-02	1.74E-02	1.31E-02	1.31E-02	3.53E-02	1.53E-02
	.03%	.10%	.00%	.02%	.01%	.00%	.04%	.01%
CO 60	5.16E-01	6.75E-01	4.86E-01	4.99E-01	4.86E-01	4.86E-01	5.74E-01	5.72E-01
	.59%	.76%	.19%	.56%	.55%	.30%	.65%	.48%
FE 59	2.35E-03	1.40E-02	2.63E-03	5.25E-03	3.63E-04	3.63E-04	2.70E-03	4.26E-04
	.00%	.02%	.00%	.00%	.00%	.00%	.00%	.00%
ZN 65	1.32E-01	1.27E-01	9.10E-02	2.50E-01	1.68E-01	1.34E-02	2.42E-02	1.54E-02
	.15%	.14%	.04%	.28%	.19%	.00%	.03%	.01%
SR 89	3.20E-03	1.29E-02	1.12E-01	2.00E-07	2.00E-07	2.00E-07	9.81E-03	2.32E-07
	.00%	.01%	.04%	.00%	.00%	.00%	.01%	.00%
SR 90	2.99E-02	2.81E-02	1.49E+00	0.00E+00	0.00E+00	0.00E+00	1.31E-02	0.00E+00
	.03%	.03%	.58%	.00%	.00%	.00%	.01%	.00%
ZR 95	6.74E-04	2.47E-02	8.61E-04	6.93E-04	7.30E-04	6.24E-04	3.81E-03	7.24E-04
	.00%	.03%	.00%	.00%	.00%	.00%	.00%	.00%
NB 95	1.98E-03	4.98E-01	2.22E-03	2.05E-03	2.05E-03	1.88E-03	6.75E-03	2.22E-03
	.00%	.56%	.00%	.00%	.00%	.00%	.00%	.00%
RU103	2.12E-03	3.27E-01	4.22E-03	6.14E-04	1.31E-02	6.14E-04	2.67E-03	7.17E-04
	.00%	.37%	.00%	.00%	.01%	.00%	.00%	.00%
SB124	2.09E-04	1.61E-03	2.56E-04	1.81E-04	1.79E-04	1.80E-04	7.61E-04	2.07E-04
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 131	1.29E-01	4.51E-02	1.82E-01	2.22E-01	3.70E-01	7.00E+01	6.44E-03	7.82E-03
	.15%	.05%	.07%	.25%	.42%	42.91%	.00%	.00%
I 132	1.93E-03	1.67E-03	1.97E-03	3.69E-03	5.33E-03	1.07E-01	8.62E-04	1.01E-03
	.00%	.00%	.00%	.00%	.00%	.07%	.00%	.00%

I 133	1.32E-02	1.95E-02	2.33E-02	3.48E-02	5.80E-02	4.96E+00	2.90E-03	3.53E-03
	.02%	.02%	.00%	.04%	.07%	3.04%	.00%	.00%
I 134	7.86E-04	4.21E-04	8.26E-04	1.58E-03	2.32E-03	2.41E-02	3.01E-04	3.57E-04
	.00%	.00%	.00%	.00%	.00%	.01%	.00%	.00%
I 135	7.86E-03	1.17E-02	8.26E-03	1.54E-02	2.26E-02	8.70E-01	3.02E-03	3.52E-03
	.00%	.01%	.00%	.02%	.03%	.53%	.00%	.00%
AR 41	4.48E-01	4.48E-01	4.48E-01	4.48E-01	4.48E-01	4.48E-01	4.48E-01	7.96E-01
	.51%	.51%	.17%	.51%	.51%	.27%	.51%	.66%
CS134	2.56E-01	7.42E-02	2.29E-01	3.98E-01	1.74E-01	7.01E-02	1.06E-01	8.18E-02
	.29%	.08%	.09%	.45%	.20%	.04%	.12%	.07%
KR 85M	1.32E-02	1.32E-02	1.32E-02	1.32E-02	1.32E-02	1.32E-02	1.36E-02	4.83E-02
	.01%	.01%	.00%	.01%	.01%	.00%	.02%	.04%
KR 85	1.40E-01	1.40E-01	1.40E-01	1.40E-01	1.40E-01	1.40E-01	4.65E-01	2.35E+01
	.16%	.16%	.05%	.16%	.16%	.09%	.53%	19.58%
KR 87	3.73E-02	3.73E-02	3.73E-02	3.73E-02	3.73E-02	3.73E-02	3.86E-02	1.66E-01
	.04%	.04%	.01%	.04%	.04%	.02%	.04%	.14%
TOTAL	8.79E+01	8.86E+01	2.57E+02	8.85E+01	8.81E+01	1.63E+02	8.80E+01	1.20E+02

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = PLUME

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
KR 88	2.52E-01	2.52E-01	2.52E-01	2.52E-01	2.52E-01	2.52E-01	2.53E-01	3.71E-01
	6.71%	6.71%	6.71%	6.71%	6.71%	6.71%	5.92%	1.02%
KR 89	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.47E-02	3.43E-02
	.38%	.38%	.38%	.38%	.38%	.38%	.34%	.09%
XE131M	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.37E-01	2.94E-01	2.92E+00
	6.31%	6.31%	6.31%	6.31%	6.31%	6.31%	6.86%	8.03%
XE133	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.65E+00	1.77E+00	5.64E+00

	43.91%	43.91%	43.91%	43.91%	43.91%	43.91%	41.27%	15.52%
XE135M	7.07E-02	7.07E-02	7.07E-02	7.07E-02	7.07E-02	7.07E-02	7.11E-02	1.17E-01
	1.88%	1.88%	1.88%	1.88%	1.88%	1.88%	1.66%	.32%
XE135	7.12E-01	7.12E-01	7.12E-01	7.12E-01	7.12E-01	7.12E-01	7.31E-01	2.30E+00
	18.93%	18.93%	18.93%	18.93%	18.93%	18.93%	17.06%	6.34%
XE137	3.93E-03	3.93E-03	3.93E-03	3.93E-03	3.93E-03	3.93E-03	4.61E-03	7.21E-02
	.10%	.10%	.10%	.10%	.10%	.10%	.11%	.20%
XE138	1.80E-01	1.80E-01	1.80E-01	1.80E-01	1.80E-01	1.80E-01	1.82E-01	3.77E-01
	4.79%	4.79%	4.79%	4.79%	4.79%	4.79%	4.25%	1.04%
AR 41	4.48E-01	4.48E-01	4.48E-01	4.48E-01	4.48E-01	4.48E-01	4.48E-01	7.96E-01
	11.92%	11.92%	11.92%	11.92%	11.92%	11.92%	10.45%	2.19%
KR 85M	1.32E-02	1.32E-02	1.32E-02	1.32E-02	1.32E-02	1.32E-02	1.36E-02	4.83E-02
	.35%	.35%	.35%	.35%	.35%	.35%	.32%	.13%
KR 85	1.40E-01	1.40E-01	1.40E-01	1.40E-01	1.40E-01	1.40E-01	4.65E-01	2.35E+01
	3.72%	3.72%	3.72%	3.72%	3.72%	3.72%	10.86%	64.65%
KR 87	3.73E-02	3.73E-02	3.73E-02	3.73E-02	3.73E-02	3.73E-02	3.86E-02	1.66E-01
	.99%	.99%	.99%	.99%	.99%	.99%	.90%	.46%
TOTAL	3.76E+00	3.76E+00	3.76E+00	3.76E+00	3.76E+00	3.76E+00	4.29E+00	3.63E+01

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = GROUND

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
CS137	1.95E-01	1.95E-01	1.95E-01	1.95E-01	1.95E-01	1.95E-01	1.95E-01	2.28E-01
	24.20%	24.20%	24.20%	24.20%	24.20%	24.20%	24.20%	24.06%
MN 54	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.22E-02	1.44E-02
	1.52%	1.52%	1.52%	1.52%	1.52%	1.52%	1.52%	1.51%
CO 58	1.31E-02	1.31E-02	1.31E-02	1.31E-02	1.31E-02	1.31E-02	1.31E-02	1.53E-02
	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%

CO 60	4.86E-01	4.86E-01	4.86E-01	4.86E-01	4.86E-01	4.86E-01	4.86E-01	5.72E-01
	60.21%	60.21%	60.21%	60.21%	60.21%	60.21%	60.21%	60.38%
FE 59	3.63E-04	3.63E-04	3.63E-04	3.63E-04	3.63E-04	3.63E-04	3.63E-04	4.26E-04
	.04%	.04%	.04%	.04%	.04%	.04%	.04%	.04%
ZN 65	1.34E-02	1.34E-02	1.34E-02	1.34E-02	1.34E-02	1.34E-02	1.34E-02	1.54E-02
	1.66%	1.66%	1.66%	1.66%	1.66%	1.66%	1.66%	1.63%
SR 89	2.00E-07	2.00E-07	2.00E-07	2.00E-07	2.00E-07	2.00E-07	2.00E-07	2.32E-07
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
ZR 95	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	6.24E-04	7.24E-04
	.08%	.08%	.08%	.08%	.08%	.08%	.08%	.08%
NB 95	1.88E-03	1.88E-03	1.88E-03	1.88E-03	1.88E-03	1.88E-03	1.88E-03	2.22E-03
	.23%	.23%	.23%	.23%	.23%	.23%	.23%	.23%
RU103	6.14E-04	6.14E-04	6.14E-04	6.14E-04	6.14E-04	6.14E-04	6.14E-04	7.17E-04
	.08%	.08%	.08%	.08%	.08%	.08%	.08%	.08%
SB124	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04	2.07E-04
	.02%	.02%	.02%	.02%	.02%	.02%	.02%	.02%
I 131	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	6.44E-03	7.82E-03
	.80%	.80%	.80%	.80%	.80%	.80%	.80%	.83%
I 132	8.62E-04	8.62E-04	8.62E-04	8.62E-04	8.62E-04	8.62E-04	8.62E-04	1.01E-03
	.11%	.11%	.11%	.11%	.11%	.11%	.11%	.11%
I 133	2.90E-03	2.90E-03	2.90E-03	2.90E-03	2.90E-03	2.90E-03	2.90E-03	3.53E-03
	.36%	.36%	.36%	.36%	.36%	.36%	.36%	.37%
I 134	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04	3.57E-04
	.04%	.04%	.04%	.04%	.04%	.04%	.04%	.04%
I 135	3.02E-03	3.02E-03	3.02E-03	3.02E-03	3.02E-03	3.02E-03	3.02E-03	3.52E-03
	.37%	.37%	.37%	.37%	.37%	.37%	.37%	.37%
CS134	7.01E-02	7.01E-02	7.01E-02	7.01E-02	7.01E-02	7.01E-02	7.01E-02	8.18E-02
	8.67%	8.67%	8.67%	8.67%	8.67%	8.67%	8.67%	8.63%
TOTAL	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	8.08E-01	9.48E-01

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = INHAL

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
CS137	3.48E-03	7.28E-05	5.56E-03	6.58E-03	2.33E-03	0.00E+00	8.23E-04	0.00E+00
	.06%	.00%	6.03%	.11%	.04%	.00%	.01%	.00%
H 3	5.97E+00	5.97E+00	0.00E+00	5.97E+00	5.97E+00	5.97E+00	5.97E+00	5.97E+00
	99.35%	99.35%	.00%	98.59%	97.96%	30.44%	97.31%	100.00%
MN 54	4.04E-05	3.77E-04	0.00E+00	2.36E-04	5.79E-05	0.00E+00	8.50E-03	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.14%	.00%
FE 55	3.29E-05	3.77E-05	2.03E-04	1.31E-04	0.00E+00	0.00E+00	5.80E-04	0.00E+00
	.00%	.00%	.22%	.00%	.00%	.00%	.00%	.00%
CO 58	5.19E-05	2.04E-03	0.00E+00	3.70E-05	0.00E+00	0.00E+00	2.22E-02	0.00E+00
	.00%	.03%	.00%	.00%	.00%	.00%	.36%	.00%
CO 60	2.26E-04	3.35E-03	0.00E+00	1.65E-04	0.00E+00	0.00E+00	8.73E-02	0.00E+00
	.00%	.06%	.00%	.00%	.00%	.00%	1.42%	.00%
FE 59	1.03E-05	1.42E-04	1.18E-05	2.54E-05	0.00E+00	0.00E+00	9.54E-04	0.00E+00
	.00%	.00%	.01%	.00%	.00%	.00%	.02%	.00%
ZN 65	6.08E-04	5.32E-04	4.03E-04	1.25E-03	8.24E-04	0.00E+00	1.07E-02	0.00E+00
	.01%	.00%	.44%	.02%	.01%	.00%	.17%	.00%
SR 89	6.35E-05	1.90E-03	2.21E-03	0.00E+00	0.00E+00	0.00E+00	9.81E-03	0.00E+00
	.00%	.03%	2.40%	.00%	.00%	.00%	.16%	.00%
SR 90	7.18E-04	7.62E-04	3.58E-02	0.00E+00	0.00E+00	0.00E+00	1.31E-02	0.00E+00
	.01%	.01%	38.87%	.00%	.00%	.00%	.21%	.00%
ZR 95	4.35E-05	2.19E-04	2.06E-04	6.04E-05	9.24E-05	0.00E+00	3.19E-03	0.00E+00
	.00%	.00%	.22%	.00%	.00%	.00%	.05%	.00%
NB 95	4.22E-05	8.03E-04	1.43E-04	7.35E-05	7.18E-05	0.00E+00	4.86E-03	0.00E+00
	.00%	.01%	.16%	.00%	.00%	.00%	.08%	.00%

RU103	2.77E-06	3.59E-04	6.63E-06	0.00E+00	2.27E-05	0.00E+00	2.05E-03	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.03%	.00%
SB124	2.74E-06	6.95E-05	7.15E-06	1.23E-07	0.00E+00	1.67E-08	5.32E-04	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 131	1.38E-02	3.50E-03	1.88E-02	2.43E-02	4.12E-02	8.01E+00	0.00E+00	0.00E+00
	.23%	.06%	20.35%	.40%	.68%	40.82%	.00%	.00%
I 132	1.07E-03	8.06E-04	1.11E-03	2.83E-03	4.47E-03	1.06E-01	0.00E+00	0.00E+00
	.02%	.01%	1.20%	.05%	.07%	.54%	.00%	.00%
I 133	9.64E-03	1.54E-02	1.91E-02	3.00E-02	5.18E-02	4.64E+00	0.00E+00	0.00E+00
	.16%	.26%	20.71%	.49%	.85%	23.66%	.00%	.00%
I 134	4.86E-04	1.20E-04	5.25E-04	1.28E-03	2.02E-03	2.38E-02	0.00E+00	0.00E+00
	.00%	.00%	.57%	.02%	.03%	.12%	.00%	.00%
I 135	4.84E-03	8.67E-03	5.24E-03	1.24E-02	1.96E-02	8.67E-01	0.00E+00	0.00E+00
	.08%	.14%	5.68%	.20%	.32%	4.42%	.00%	.00%
CS134	4.05E-03	6.00E-05	2.87E-03	5.96E-03	2.00E-03	0.00E+00	7.02E-04	0.00E+00
	.07%	.00%	3.11%	.10%	.03%	.00%	.01%	.00%
TOTAL	6.01E+00	6.01E+00	9.21E-02	6.06E+00	6.10E+00	1.96E+01	6.14E+00	5.97E+00

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = VEGET

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
CS137	4.86E-02	1.58E-03	9.78E-02	1.15E-01	3.84E-02	0.00E+00	1.34E-02	0.00E+00
	.16%	.00%	.10%	.38%	.13%	.00%	.04%	.00%
H 3	1.06E+01	1.06E+01	0.00E+00	1.06E+01	1.06E+01	1.06E+01	1.06E+01	1.06E+01
	34.96%	35.01%	.00%	34.86%	35.03%	34.56%	35.10%	35.13%
C 14	1.96E+01	1.96E+01	9.78E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01	1.96E+01
	64.57%	64.66%	98.59%	64.39%	64.70%	63.82%	64.82%	64.87%

MN 54	4.40E-04	4.43E-03	0.00E+00	2.03E-03	5.92E-04	0.00E+00	0.00E+00	0.00E+00
	.00%	.01%	.00%	.00%	.00%	.00%	.00%	.00%
FE 55	3.33E-04	5.03E-04	2.04E-03	1.26E-03	0.00E+00	0.00E+00	7.19E-04	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CO 58	1.81E-03	1.04E-02	0.00E+00	7.16E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.03%	.00%	.00%	.00%	.00%	.00%	.00%
CO 60	6.70E-03	3.65E-02	0.00E+00	2.71E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.02%	.12%	.00%	.00%	.00%	.00%	.00%	.00%
FE 59	1.07E-04	6.04E-04	1.25E-04	2.53E-04	0.00E+00	0.00E+00	7.29E-05	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
ZN 65	8.72E-03	7.68E-03	5.66E-03	1.71E-02	1.11E-02	0.00E+00	0.00E+00	0.00E+00
	.03%	.03%	.00%	.06%	.04%	.00%	.00%	.00%
SR 89	2.16E-03	7.42E-03	7.56E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.02%	.08%	.00%	.00%	.00%	.00%	.00%
SR 90	2.36E-02	2.18E-02	1.17E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.08%	.07%	1.18%	.00%	.00%	.00%	.00%	.00%
ZR 95	4.97E-07	1.51E-03	2.39E-06	6.58E-07	9.92E-07	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NB 95	3.88E-07	2.81E-03	1.33E-06	6.45E-07	6.25E-07	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
RU103	8.22E-06	1.44E-03	2.01E-05	0.00E+00	6.41E-05	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SB124	9.43E-06	4.37E-04	2.52E-05	4.06E-07	0.00E+00	5.81E-08	1.73E-05	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 131	8.68E-04	2.89E-04	1.25E-03	1.53E-03	2.58E-03	4.96E-01	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	1.62%	.00%	.00%
I 133	2.94E-23	6.10E-23	5.89E-23	8.84E-23	1.52E-22	1.42E-20	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CS134	4.80E-02	1.08E-03	4.22E-02	8.65E-02	2.75E-02	0.00E+00	9.56E-03	0.00E+00
	.16%	.00%	.04%	.28%	.09%	.00%	.03%	.00%

TOTAL	3.03E+01	3.02E+01	9.92E+01	3.04E+01	3.02E+01	3.06E+01	3.02E+01	3.01E+01

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = COW MILK

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
CS137	6.76E-02	2.26E-03	1.55E-01	1.78E-01	5.93E-02	0.00E+00	2.09E-02	0.00E+00
	.46%	.02%	.39%	1.18%	.40%	.00%	.14%	.00%
H 3	6.56E+00	6.56E+00	0.00E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00	6.56E+00
	44.42%	45.03%	.00%	43.57%	43.98%	10.10%	45.17%	45.28%
C 14	7.93E+00	7.93E+00	3.96E+01	7.93E+00	7.93E+00	7.93E+00	7.93E+00	7.93E+00
	53.68%	54.41%	98.70%	52.65%	53.15%	12.21%	54.58%	54.72%
MN 54	1.65E-05	1.49E-04	0.00E+00	7.41E-05	2.15E-05	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
FE 55	5.76E-05	7.88E-05	3.53E-04	2.14E-04	0.00E+00	0.00E+00	1.23E-04	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CO 58	4.02E-04	2.07E-03	0.00E+00	1.55E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.01%	.00%	.00%	.00%	.00%	.00%	.00%
CO 60	9.12E-04	4.48E-03	0.00E+00	3.62E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.03%	.00%	.00%	.00%	.00%	.00%	.00%
FE 59	3.94E-05	2.00E-04	4.62E-05	9.10E-05	0.00E+00	0.00E+00	2.63E-05	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
ZN 65	4.68E-02	3.70E-02	3.00E-02	8.95E-02	5.80E-02	0.00E+00	0.00E+00	0.00E+00
	.32%	.25%	.07%	.59%	.39%	.00%	.00%	.00%
SR 89	4.86E-04	1.51E-03	1.70E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.01%	.04%	.00%	.00%	.00%	.00%	.00%
SR 90	2.35E-03	2.03E-03	1.17E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.02%	.01%	.29%	.00%	.00%	.00%	.00%	.00%

ZR 95	5.86E-10	1.62E-06	2.84E-09	7.61E-10	1.14E-09	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NB 95	3.72E-07	2.44E-03	1.29E-06	6.06E-07	5.85E-07	0.00E+00	0.00E+00	0.00E+00
	.00%	.02%	.00%	.00%	.00%	.00%	.00%	.00%
RU103	2.81E-09	4.46E-07	6.93E-09	0.00E+00	2.14E-08	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SB124	3.46E-06	1.46E-04	9.33E-06	1.46E-07	0.00E+00	2.14E-08	6.28E-06	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 131	8.76E-02	2.71E-02	1.29E-01	1.55E-01	2.61E-01	5.01E+01	0.00E+00	0.00E+00
	.59%	.19%	.32%	1.03%	1.75%	77.21%	.00%	.00%
I 132	7.14E-17	1.17E-16	8.04E-17	1.79E-16	2.80E-16	7.11E-15	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 133	6.50E-04	1.25E-03	1.31E-03	1.92E-03	3.29E-03	3.14E-01	0.00E+00	0.00E+00
	.00%	.00%	.00%	.01%	.02%	.48%	.00%	.00%
I 134	4.69E-38	3.39E-38	5.17E-38	1.17E-37	1.82E-37	2.29E-36	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 135	1.20E-07	2.81E-07	1.33E-07	2.91E-07	4.56E-07	2.20E-05	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CS134	7.28E-02	1.67E-03	7.23E-02	1.44E-01	4.57E-02	0.00E+00	1.60E-02	0.00E+00
	.49%	.01%	.18%	.96%	.31%	.00%	.11%	.00%
TOTAL	1.48E+01	1.46E+01	4.02E+01	1.51E+01	1.49E+01	6.49E+01	1.45E+01	1.45E+01

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = MEAT

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
CS137	5.79E-02	1.79E-03	8.78E-02	1.10E-01	3.72E-02	0.00E+00	1.27E-02	0.00E+00
	.18%	.00%	.08%	.34%	.12%	.00%	.04%	.00%
H 3	9.55E+00	9.55E+00	0.00E+00	9.55E+00	9.55E+00	9.55E+00	9.55E+00	9.55E+00

	29.60%	28.79%	.00%	29.46%	29.61%	22.01%	29.79%	29.82%
C 14	2.25E+01 69.66%	2.25E+01 67.76%	1.12E+02 99.64%	2.25E+01 69.33%	2.25E+01 69.69%	2.25E+01 51.81%	2.25E+01 70.11%	2.25E+01 70.18%
MN 54	9.18E-05 .00%	1.16E-03 .00%	0.00E+00 .00%	4.49E-04 .00%	1.32E-04 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
FE 55	3.19E-03 .00%	6.07E-03 .02%	1.96E-02 .02%	1.27E-02 .04%	0.00E+00 .00%	0.00E+00 .00%	7.23E-03 .02%	0.00E+00 .00%
CO 58	8.05E-03 .02%	5.77E-02 .17%	0.00E+00 .00%	3.37E-03 .01%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
CO 60	2.12E-02 .07%	1.44E-01 .43%	0.00E+00 .00%	9.06E-03 .03%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
FE 59	1.83E-03 .00%	1.27E-02 .04%	2.08E-03 .00%	4.51E-03 .01%	0.00E+00 .00%	0.00E+00 .00%	1.28E-03 .00%	0.00E+00 .00%
ZN 65	6.22E-02 .19%	6.86E-02 .21%	4.15E-02 .04%	1.29E-01 .40%	8.50E-02 .26%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
SR 89	4.90E-04 .00%	2.12E-03 .00%	1.71E-02 .02%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
SR 90	3.30E-03 .01%	3.54E-03 .01%	1.64E-01 .15%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
ZR 95	5.97E-06 .00%	2.24E-02 .07%	2.82E-05 .00%	8.31E-06 .00%	1.28E-05 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
NB 95	5.45E-05 .00%	4.90E-01 1.48%	1.85E-04 .00%	9.54E-05 .00%	9.33E-05 .00%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
RU103	1.50E-03 .00%	3.24E-01 .98%	3.58E-03 .00%	0.00E+00 .00%	1.24E-02 .04%	0.00E+00 .00%	0.00E+00 .00%	0.00E+00 .00%
SB124	1.36E-05 .00%	7.79E-04 .00%	3.54E-05 .00%	6.14E-07 .00%	0.00E+00 .00%	8.35E-08 .00%	2.59E-05 .00%	0.00E+00 .00%
I 131	1.99E-02 .06%	7.77E-03 .02%	2.66E-02 .02%	3.50E-02 .11%	5.94E-02 .18%	1.14E+01 26.18%	0.00E+00 .00%	0.00E+00 .00%

I 133	1.51E-09	3.71E-09	2.95E-09	4.73E-09	8.18E-09	7.30E-07	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
I 135	2.91E-25	7.89E-25	3.11E-25	7.47E-25	1.19E-24	5.24E-23	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CS134	6.10E-02	1.34E-03	4.13E-02	9.07E-02	2.91E-02	0.00E+00	9.92E-03	0.00E+00
	.19%	.00%	.04%	.28%	.09%	.00%	.03%	.00%
TOTAL	3.23E+01	3.32E+01	1.13E+02	3.24E+01	3.23E+01	4.34E+01	3.21E+01	3.20E+01

1

North Anna - population- primary
SPECIAL LOCATION NO. 1 Site Bound (EAB)
AT .88 MILES ESE

ANNUAL BETA AIR DOSE = 4.73E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 3.19E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	2.10E+00	2.10E+00	2.10E+00	2.10E+00	2.10E+00	2.10E+00	2.15E+00	6.15E+00
GROUND	2.06E-01	2.06E-01	2.06E-01	2.06E-01	2.06E-01	2.06E-01	2.06E-01	2.42E-01
VEGET								
ADULT	8.07E-01	7.92E-01	1.62E+00	8.30E-01	8.06E-01	9.71E+00	7.41E-01	7.34E-01
TEEN	1.06E+00	1.05E+00	2.60E+00	1.13E+00	1.09E+00	1.30E+01	9.95E-01	9.83E-01
CHILD	1.99E+00	1.93E+00	6.14E+00	2.13E+00	2.06E+00	2.50E+01	1.90E+00	1.88E+00
MEAT								
ADULT	1.79E-01	2.10E-01	4.84E-01	1.83E-01	1.78E-01	4.93E-01	1.72E-01	1.71E-01
TEEN	1.30E-01	1.47E-01	4.08E-01	1.34E-01	1.31E-01	3.58E-01	1.26E-01	1.26E-01
CHILD	2.11E-01	2.17E-01	7.65E-01	2.17E-01	2.12E-01	5.57E-01	2.07E-01	2.06E-01
COW MILK								
ADULT	3.41E-01	3.05E-01	5.88E-01	3.74E-01	3.58E-01	9.39E+00	2.89E-01	2.84E-01
TEEN	4.97E-01	4.52E-01	1.07E+00	5.83E-01	5.56E-01	1.49E+01	4.36E-01	4.25E-01

CHILD	9.38E-01	8.59E-01	2.62E+00	1.10E+00	1.05E+00	2.95E+01	8.56E-01	8.40E-01
INFANT	1.69E+00	1.61E+00	5.05E+00	2.09E+00	1.90E+00	7.12E+01	1.57E+00	1.54E+00
GOATMILK								
ADULT	6.05E-01	4.89E-01	6.75E-01	6.63E-01	5.89E-01	1.27E+01	4.88E-01	4.71E-01
TEEN	8.13E-01	6.92E-01	1.23E+00	1.00E+00	8.76E-01	2.00E+01	7.03E-01	6.69E-01
CHILD	1.38E+00	1.24E+00	2.98E+00	1.79E+00	1.57E+00	3.97E+01	1.28E+00	1.23E+00
INFANT	2.33E+00	2.15E+00	5.61E+00	3.27E+00	2.70E+00	9.56E+01	2.22E+00	2.13E+00
INHAL								
ADULT	3.00E-01	3.00E-01	9.28E-03	3.05E-01	3.10E-01	1.60E+00	3.11E-01	2.95E-01
TEEN	3.03E-01	3.04E-01	1.21E-02	3.12E-01	3.18E-01	1.98E+00	3.22E-01	2.98E-01
CHILD	2.69E-01	2.67E-01	1.55E-02	2.76E-01	2.82E-01	2.30E+00	2.83E-01	2.63E-01
INFANT	1.55E-01	1.54E-01	1.01E-02	1.63E-01	1.64E-01	2.01E+00	1.65E-01	1.51E-01

1

North Anna - population- primary
SPECIAL LOCATION NO. 2 Nearest Resid
AT .96 MILES NNE

ANNUAL BETA AIR DOSE = 3.07E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 2.07E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.36E+00	1.39E+00	3.99E+00
GROUND	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.45E-01
VEGET								
ADULT	5.20E-01	5.11E-01	1.03E+00	5.34E-01	5.19E-01	5.86E+00	4.80E-01	4.76E-01
TEEN	6.85E-01	6.76E-01	1.65E+00	7.27E-01	7.03E-01	7.88E+00	6.45E-01	6.38E-01
CHILD	1.29E+00	1.25E+00	3.92E+00	1.37E+00	1.33E+00	1.51E+01	1.23E+00	1.22E+00

MEAT								
ADULT	1.16E-01	1.34E-01	3.13E-01	1.18E-01	1.15E-01	3.04E-01	1.12E-01	1.11E-01
TEEN	8.41E-02	9.43E-02	2.64E-01	8.68E-02	8.45E-02	2.21E-01	8.20E-02	8.15E-02
CHILD	1.36E-01	1.40E-01	4.96E-01	1.40E-01	1.37E-01	3.44E-01	1.34E-01	1.33E-01
COW MILK								
ADULT	2.19E-01	1.97E-01	3.78E-01	2.38E-01	2.29E-01	5.65E+00	1.87E-01	1.84E-01
TEEN	3.19E-01	2.92E-01	6.91E-01	3.71E-01	3.54E-01	8.93E+00	2.82E-01	2.76E-01
CHILD	6.04E-01	5.56E-01	1.69E+00	7.03E-01	6.73E-01	1.77E+01	5.54E-01	5.45E-01
INFANT	1.09E+00	1.04E+00	3.25E+00	1.33E+00	1.21E+00	4.28E+01	1.02E+00	1.00E+00
GOATMILK								
ADULT	3.86E-01	3.16E-01	4.30E-01	4.20E-01	3.76E-01	7.64E+00	3.16E-01	3.06E-01
TEEN	5.21E-01	4.48E-01	7.82E-01	6.35E-01	5.58E-01	1.21E+01	4.54E-01	4.34E-01
CHILD	8.85E-01	8.07E-01	1.90E+00	1.13E+00	9.99E-01	2.39E+01	8.26E-01	7.96E-01
INFANT	1.50E+00	1.40E+00	3.59E+00	2.06E+00	1.72E+00	5.75E+01	1.44E+00	1.38E+00
INHAL								
ADULT	1.94E-01	1.95E-01	5.94E-03	1.98E-01	2.01E-01	1.03E+00	2.02E-01	1.91E-01
TEEN	1.97E-01	1.97E-01	7.73E-03	2.02E-01	2.06E-01	1.27E+00	2.09E-01	1.93E-01
CHILD	1.74E-01	1.73E-01	9.93E-03	1.79E-01	1.83E-01	1.48E+00	1.83E-01	1.70E-01
INFANT	1.01E-01	9.96E-02	6.45E-03	1.06E-01	1.06E-01	1.29E+00	1.07E-01	9.80E-02

1

North Anna - population- primary
SPECIAL LOCATION NO. 3 Nearest Meat
AT 1.37 MILES SE

ANNUAL BETA AIR DOSE = 1.79E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.21E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	7.96E-01	7.96E-01	7.96E-01	7.96E-01	7.96E-01	7.96E-01	8.13E-01	2.33E+00
GROUND	5.32E-02	5.32E-02	5.32E-02	5.32E-02	5.32E-02	5.32E-02	5.32E-02	6.25E-02
VEGET								
ADULT	2.97E-01	2.93E-01	5.60E-01	3.03E-01	2.96E-01	2.60E+00	2.80E-01	2.78E-01
TEEN	3.93E-01	3.89E-01	9.09E-01	4.10E-01	4.00E-01	3.49E+00	3.75E-01	3.72E-01
CHILD	7.41E-01	7.25E-01	2.16E+00	7.77E-01	7.58E-01	6.68E+00	7.18E-01	7.13E-01
MEAT								
ADULT	6.68E-02	7.48E-02	1.82E-01	6.77E-02	6.65E-02	1.48E-01	6.51E-02	6.49E-02
TEEN	4.87E-02	5.31E-02	1.53E-01	4.98E-02	4.88E-02	1.08E-01	4.78E-02	4.76E-02
CHILD	7.91E-02	8.07E-02	2.88E-01	8.06E-02	7.94E-02	1.69E-01	7.81E-02	7.78E-02
COW MILK								
ADULT	1.22E-01	1.13E-01	2.14E-01	1.31E-01	1.27E-01	2.46E+00	1.09E-01	1.07E-01
TEEN	1.79E-01	1.68E-01	3.92E-01	2.02E-01	1.95E-01	3.89E+00	1.64E-01	1.61E-01
CHILD	3.43E-01	3.23E-01	9.59E-01	3.86E-01	3.73E-01	7.72E+00	3.22E-01	3.18E-01
INFANT	6.22E-01	6.01E-01	1.86E+00	7.25E-01	6.75E-01	1.86E+01	5.91E-01	5.84E-01
GOATMILK								
ADULT	2.13E-01	1.83E-01	2.36E-01	2.28E-01	2.09E-01	3.34E+00	1.83E-01	1.78E-01
TEEN	2.90E-01	2.59E-01	4.31E-01	3.40E-01	3.07E-01	5.26E+00	2.62E-01	2.53E-01
CHILD	5.03E-01	4.69E-01	1.05E+00	6.10E-01	5.52E-01	1.04E+01	4.77E-01	4.64E-01
INFANT	8.58E-01	8.12E-01	2.00E+00	1.10E+00	9.52E-01	2.50E+01	8.29E-01	8.06E-01
INHAL								
ADULT	1.13E-01	1.13E-01	3.41E-03	1.15E-01	1.17E-01	5.95E-01	1.18E-01	1.12E-01
TEEN	1.15E-01	1.15E-01	4.44E-03	1.18E-01	1.20E-01	7.37E-01	1.21E-01	1.13E-01
CHILD	1.02E-01	1.01E-01	5.71E-03	1.04E-01	1.07E-01	8.55E-01	1.07E-01	9.94E-02

INFANT	5.87E-02	5.81E-02	3.71E-03	6.16E-02	6.18E-02	7.46E-01	6.23E-02	5.72E-02

1

North Anna - population- primary
SPECIAL LOCATION NO. 4 Veg Garden
AT .94 MILES NE

ANNUAL BETA AIR DOSE = 2.56E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 1.72E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	1.14E+00	1.14E+00	1.14E+00	1.14E+00	1.14E+00	1.14E+00	1.16E+00	3.32E+00
GROUND	1.03E-01	1.03E-01	1.03E-01	1.03E-01	1.03E-01	1.03E-01	1.03E-01	1.21E-01
VEGET								
ADULT	4.33E-01	4.26E-01	8.57E-01	4.45E-01	4.33E-01	4.89E+00	4.00E-01	3.97E-01
TEEN	5.71E-01	5.64E-01	1.38E+00	6.06E-01	5.86E-01	6.56E+00	5.38E-01	5.31E-01
CHILD	1.07E+00	1.04E+00	3.26E+00	1.14E+00	1.11E+00	1.26E+01	1.03E+00	1.02E+00
MEAT								
ADULT	9.63E-02	1.12E-01	2.61E-01	9.82E-02	9.58E-02	2.53E-01	9.31E-02	9.26E-02
TEEN	7.01E-02	7.86E-02	2.20E-01	7.23E-02	7.04E-02	1.84E-01	6.83E-02	6.79E-02
CHILD	1.14E-01	1.17E-01	4.13E-01	1.17E-01	1.14E-01	2.87E-01	1.12E-01	1.11E-01
COW MILK								
ADULT	1.82E-01	1.64E-01	3.15E-01	1.99E-01	1.91E-01	4.71E+00	1.56E-01	1.53E-01
TEEN	2.66E-01	2.43E-01	5.76E-01	3.09E-01	2.95E-01	7.44E+00	2.35E-01	2.30E-01
CHILD	5.03E-01	4.64E-01	1.41E+00	5.86E-01	5.61E-01	1.48E+01	4.62E-01	4.54E-01
INFANT	9.08E-01	8.67E-01	2.71E+00	1.11E+00	1.01E+00	3.56E+01	8.48E-01	8.34E-01
GOATMILK								
ADULT	3.21E-01	2.63E-01	3.58E-01	3.50E-01	3.13E-01	6.37E+00	2.63E-01	2.55E-01

TEEN	4.34E-01	3.73E-01	6.51E-01	5.29E-01	4.65E-01	1.01E+01	3.78E-01	3.62E-01
CHILD	7.38E-01	6.72E-01	1.58E+00	9.46E-01	8.33E-01	1.99E+01	6.88E-01	6.63E-01
INFANT	1.25E+00	1.16E+00	2.99E+00	1.72E+00	1.43E+00	4.79E+01	1.20E+00	1.15E+00
INHAL								
ADULT	1.62E-01	1.62E-01	5.05E-03	1.65E-01	1.68E-01	8.66E-01	1.68E-01	1.59E-01
TEEN	1.64E-01	1.64E-01	6.57E-03	1.68E-01	1.72E-01	1.07E+00	1.74E-01	1.61E-01
CHILD	1.45E-01	1.44E-01	8.44E-03	1.49E-01	1.52E-01	1.25E+00	1.53E-01	1.42E-01
INFANT	8.38E-02	8.30E-02	5.47E-03	8.81E-02	8.85E-02	1.09E+00	8.93E-02	8.17E-02

1North Anna - population- primary
COST BENEFIT TABLES (NUCLIDE RELEASE, T.BODY AND THYROID - PERSON-REM)
0major contributors plus nobles gases

0NUCLIDE	CI/YR	T.BODY	THYROID
KR 88	7.40E+01	2.37E-01	2.37E-01
KR 89	4.70E+02	1.24E-02	1.24E-02
XE131M	1.80E+03	1.23E-01	1.23E-01
CS137	1.00E-02	2.89E-01	1.95E-01
XE133	4.60E+03	9.82E-01	9.82E-01
XE135M	7.70E+02	6.76E-02	6.76E-02
XE135	8.20E+02	6.43E-01	6.43E-01
XE137	9.80E+02	3.47E-03	3.47E-03
XE138	7.80E+02	1.72E-01	1.72E-01
H 3	3.50E+03	9.20E+00	9.20E+00
C 14	1.20E+01	4.53E+00	4.53E+00
MN 54	5.90E-03	1.27E-02	1.22E-02
FE 55	7.10E-03	8.15E-04	0.00E+00
CO 58	2.30E-02	1.62E-02	1.31E-02
CO 60	1.40E-02	4.97E-01	4.86E-01
FE 59	8.90E-04	7.41E-04	3.63E-04
ZN 65	1.20E-02	5.46E-02	1.34E-02
SR 89	6.20E-03	2.54E-03	2.00E-07
SR 90	1.20E-03	2.59E-02	0.00E+00
ZR 95	1.70E-03	6.69E-04	6.24E-04
NB 95	9.20E-03	1.93E-03	1.88E-03
RU103	3.80E-03	8.23E-04	6.14E-04
SB124	2.00E-04	1.95E-04	1.79E-04
I 131	5.10E-01	6.80E-02	3.53E+01

```
 I 132  I 2.40E+00 I 1.93E-03 I 1.07E-01 I
 I 133  I 1.90E+00 I 1.29E-02 I 4.80E+00 I
 I 134  I 4.10E+00 I 7.86E-04 I 2.41E-02 I
 I 135  I 2.60E+00 I 7.86E-03 I 8.70E-01 I
 AR 41  I 3.00E+02 I 4.23E-01 I 4.23E-01 I
 CS134  I 6.80E-03 I 1.67E-01 I 7.01E-02 I
 KR 85M I 3.60E+01 I 1.22E-02 I 1.22E-02 I
 KR 85  I 4.10E+03 I 5.04E-02 I 5.04E-02 I
 KR 87  I 4.90E+01 I 3.54E-02 I 3.54E-02 I
 SUBTOTALS  CI/YR    T.BODY      THYROID
 -------+----------+----------+----------+
 NOBLE  I 1.48E+04 I 2.76E+00 I 2.76E+00 I
 IODINE I 1.15E+01 I 9.14E-02 I 4.11E+01 I
 PART.  I 1.02E-01 I 1.07E+00 I 7.94E-01 I
 C-14   I 1.20E+01 I 4.53E+00 I 4.53E+00 I
 H-3    I 3.50E+03 I 9.20E+00 I 9.20E+00 I
 -------+----------+----------+----------+
 TOTAL  I 1.83E+04 I 1.77E+01 I 5.84E+01 I
1North Anna - population- primary
  COST BENEFIT TABLES (NUCLIDE RELEASE, T.BODY AND THYROID - PERSON-REM)
0major contributors plus nobles gases
0NUCLIDE    CI/YR    T.BODY      THYROID
 -------+----------+----------+----------+
 KR 88  I 7.40E+01 I 2.37E-01 I 2.37E-01 I
 KR 89  I 4.70E+02 I 1.24E-02 I 1.24E-02 I
 XE131M I 1.80E+03 I 1.23E-01 I 1.23E-01 I
 CS137  I 1.00E-02 I 2.89E-01 I 1.95E-01 I
 XE133  I 4.60E+03 I 9.82E-01 I 9.82E-01 I
 XE135M I 7.70E+02 I 6.76E-02 I 6.76E-02 I
 XE135  I 8.20E+02 I 6.43E-01 I 6.43E-01 I
 XE137  I 9.80E+02 I 3.47E-03 I 3.47E-03 I
 XE138  I 7.80E+02 I 1.72E-01 I 1.72E-01 I
 H   3  I 3.50E+03 I 9.20E+00 I 9.20E+00 I
 C  14  I 1.20E+01 I 4.53E+00 I 4.53E+00 I
 MN 54  I 5.90E-03 I 1.27E-02 I 1.22E-02 I
 FE 55  I 7.10E-03 I 8.15E-04 I 0.00E+00 I
 CO 58  I 2.30E-02 I 1.62E-02 I 1.31E-02 I
 CO 60  I 1.40E-02 I 4.97E-01 I 4.86E-01 I
 FE 59  I 8.90E-04 I 7.41E-04 I 3.63E-04 I
 ZN 65  I 1.20E-02 I 5.46E-02 I 1.34E-02 I
 SR 89  I 6.20E-03 I 2.54E-03 I 2.00E-07 I
 SR 90  I 1.20E-03 I 2.59E-02 I 0.00E+00 I
 ZR 95  I 1.70E-03 I 6.69E-04 I 6.24E-04 I
 NB 95  I 9.20E-03 I 1.93E-03 I 1.88E-03 I
```

```
 RU103   I 3.80E-03 I 8.23E-04 I 6.14E-04 I
 SB124   I 2.00E-04 I 1.95E-04 I 1.79E-04 I
 I 131   I 5.10E-01 I 6.80E-02 I 3.53E+01 I
 I 132   I 2.40E+00 I 1.93E-03 I 1.07E-01 I
 I 133   I 1.90E+00 I 1.29E-02 I 4.80E+00 I
 I 134   I 4.10E+00 I 7.86E-04 I 2.41E-02 I
 I 135   I 2.60E+00 I 7.86E-03 I 8.70E-01 I
 AR 41   I 3.00E+02 I 4.23E-01 I 4.23E-01 I
 CS134   I 6.80E-03 I 1.67E-01 I 7.01E-02 I
 KR 85M  I 3.60E+01 I 1.22E-02 I 1.22E-02 I
 KR 85   I 4.10E+03 I 5.04E-02 I 5.04E-02 I
 KR 87   I 4.90E+01 I 3.54E-02 I 3.54E-02 I
 SUBTOTALS  CI/YR    T.BODY      THYROID
 -------+----------+----------+----------+
 NOBLE   I 1.48E+04 I 2.76E+00 I 2.76E+00 I
 IODINE  I 1.15E+01 I 9.14E-02 I 4.11E+01 I
 PART.   I 1.02E-01 I 1.07E+00 I 7.94E-01 I
 C-14    I 1.20E+01 I 4.53E+00 I 4.53E+00 I
 H-3     I 3.50E+03 I 9.20E+00 I 9.20E+00 I
 -------+----------+----------+----------+
 TOTAL   I 1.83E+04 I 1.77E+01 I 5.84E+01 I
0   *** PROGRAM TERMINATED DUE TO BLANK CONTROL CARD
        OR NUMBER OF RELEASE POINTS JC(2) ZERO OR NEGATIVE ***
1
```

1

```
*****************************************************************************************************
 *       *
         *
 *       *
 *       *        GGGGGGGG     AA     SSSSSSSS  PPPPPPPP     AA     RRRRRRRR    IIIII IIIII
 *       *        G      G     AA     S         PP     P     AA     RR     R      I     I
 *       *        G           A  A    SSSSSSS   PP     P    A  A    RRRRRRRR      I     I
 *       *        G   GGGGG  AAAAAA          S  PPPPPPPP   AAAAAA   RRRR          I     I
 *       *        G     G   A      A         S  PP        A      A  RR RR         I     I
 *       *        GGGGGGG  A        A SSSSSSS   PP       A        A RR   RR     IIIII IIIII
 *       *
 *       *
 *       *
 *       *
 *       *
 *       *                  EVALUATION OF RADIATION DOSES FROM RELEASES OF RADIOACTIVITY
 *       *
 *       *                      IN NUCLEAR POWER PLANTS AIRBORNE EFFLUENTS
 *       *
 *       *                         REVISION DATE:  JSB PC - MARCH 1994
 *       *
 *
```

North Anna - population- primary

RELIABILITY AND RISK ASSESSMENT BRANCH

OFFICE OF NUCLEAR REACTOR REGULATION

U.S. NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555

DATE OF RUN: 27-Apr-2006

****

1
North Anna - population- primary

0 SITE POPULATION DATA (PEOPLE)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50	TOTAL
N	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
NNE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
NE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
ENE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
E	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
ESE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
SE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
SSE	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
S	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
SSW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
SW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
WSW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
W	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
WNW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
NW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
NNW	6.959E+01	2.088E+02	3.480E+02	4.871E+02	6.263E+02	5.219E+03	2.088E+04	3.480E+04	4.871E+04	6.263E+04	1.740E+05
TOTAL	1.113E+03	3.340E+03	5.567E+03	7.794E+03	1.002E+04	8.351E+04	3.340E+05	5.567E+05	7.794E+05	1.002E+06	2.784E+06

AVERAGE SITE DENSITY(PEOPLE/M**2) = 1.39E-04

0

SITE ANNUAL MILK PRODUCTION (LITERS/YR)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50	TOTAL
N	1.800E+04	5.400E+04	9.000E+04	1.260E+05	1.620E+05	1.350E+06	5.400E+06	9.000E+06	1.260E+07	1.620E+07	

```
4.500E+07
   NNE 1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   NE  1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   ENE 1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
    E  1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   ESE 1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   SE  1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   SSE 1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
    S  1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   SSW 1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   SW  1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   WSW 1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
    W  1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   WNW 1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   NW  1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
   NNW 1.800E+04 5.400E+04 9.000E+04 1.260E+05 1.620E+05 1.350E+06 5.400E+06 9.000E+06 1.260E+07 1.620E+07
4.500E+07
 TOTAL 2.880E+05 8.640E+05 1.440E+06 2.016E+06 2.592E+06 2.160E+07 8.640E+07 1.440E+08 2.016E+08 2.592E+08
7.200E+08
  AVERAGE SITE DENSITY(LITERS/M**2) = 3.60E-02
1
  North Anna - population- primary

0                          SITE ANNUAL MEAT PRODUCTION (KG/YR)
                                     DOWNWIND DISTANCE(MILES)
   DIR    0-1       1-2       2-3       3-4       4-5       5-10      10-20     20-30     30-40     40-50
TOTAL
   --- --------- --------- --------- --------- --------- --------- --------- --------- --------- ---------
---------
    N  4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   NNE 4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   NE  4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
```

```
1.063E+08
   ENE 4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
    E  4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   ESE 4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   SE  4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   SSE 4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
    S  4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   SSW 4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   SW  4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   WSW 4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
    W  4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   WNW 4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   NW  4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
   NNW 4.250E+04 1.275E+05 2.125E+05 2.975E+05 3.825E+05 3.188E+06 1.275E+07 2.125E+07 2.975E+07 3.825E+07
1.063E+08
 TOTAL 6.800E+05 2.040E+06 3.400E+06 4.760E+06 6.120E+06 5.100E+07 2.040E+08 3.400E+08 4.760E+08 6.120E+08
1.700E+09
  AVERAGE SITE DENSITY(KG/M**2) = 8.50E-02
0
                                SITE ANNUAL VEGETATION PRODUCTION (KG/YR)
                                          DOWNWIND DISTANCE(MILES)
   DIR    0-1        1-2        2-3        3-4        4-5        5-10       10-20      20-30      30-40      40-50
TOTAL
   --- --------- --------- --------- --------- --------- --------- --------- --------- --------- ---------
---------
    N  1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   NNE 1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   NE  1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   ENE 1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
    E  1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   ESE 1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
```

```
3.375E+07
   SE  1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   SSE 1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
    S  1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   SSW 1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   SW  1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   WSW 1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
    W  1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   WNW 1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   NW  1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
   NNW 1.350E+04 4.050E+04 6.750E+04 9.450E+04 1.215E+05 1.012E+06 4.050E+06 6.750E+06 9.450E+06 1.215E+07
3.375E+07
 TOTAL 2.160E+05 6.480E+05 1.080E+06 1.512E+06 1.944E+06 1.620E+07 6.480E+07 1.080E+08 1.512E+08 1.944E+08
5.400E+08
  AVERAGE SITE DENSITY(KG/M**2) = 2.70E-02
0   AGRICULTURAL PRODUCTIVITY

          FOOD          ANNUAL USE    TOTAL SITE                TOTAL POPULATION
        PRODUCT        UNITS/PERSON   PRODUCTION      EXPORT         SERVED
        -------         --------      --------      --------       --------
    VEGETATION(KG)      1.97E+02      5.40E+08      0.00E+00       2.74E+06
    MILK      (L)       1.31E+02      7.20E+08      3.56E+08       5.51E+06
    MEAT      (KG)      8.06E+01      1.70E+09      1.48E+09       2.11E+07
1
  North Anna - population- primary

0   JOB CONTROL PARAMETERS

         JC(1) =  0  :POPULATION/INDIVIDUAL DOSE SELECTION
         JC(2) =  1  :NUMBER OF SOURCE RELEASE POINTS
         JC(3) =  1  :PRINT CONTROL FOR DOSE ACCUMULATION
         JC(4) =  0  :READ CONTROL FOR BLOCK DATA CHANGE RECORDS
         JC(5) =  0  :PRINT CONTROL FOR DOSE FACTOR TABLE
         JC(6) =  0  :CALCULATION CONTROL FOR UNIT DOSE FACTORS
         JC(7) =  1  :READ CONTROL FOR DISPERSION DATA INPUT FILE
         JC(8) =  0
         JC(9) =  0
         JC(10)=  0
0
```

```
EXPOSURE PATHWAY FRACTIONS

     PARAMETER DESCRIPTION(FRACTION)     VALUE
     ---------------------------------------
     FV   LEAFY VEGETABLE FROM GARDEN      .50
     FG   OTHER EDIBLES FROM GARDEN        .76
     FP   TIME MILK COWS ON PASTURE        .67
     FB   TIME BEEF ON PASTURE             .67
     FGT  TIME MILK GOATS ON PASTURE       .75
     FPF  MILK COW INTAKE FROM PASTURE    1.00
     FBF  BEEF INTAKE FROM PASTURE        1.00
     FPG  MILK GOAT INTAKE FROM PASTURE   1.00

     HUMIDITY(G/M**3)   8.00
     DISTANCE TO EAST COAST (MILES):  1.20E+03
0
SOURCE TERM RELEASE NUMBER  1

     RELEASE POINT     major contributors plus nobles gases
     UML =  1.00E+00   SOURCE TERM MULTIPLICATION FACTOR
     JC1 =  0          NEW OR PREVIOUS MET DATA PARAMETER
     JC2 =  0          NEW OR PREVIOUS SOURCE TERM RELEASE DATA PARAMETER
0         ***NUCLIDE NOT FOUND IN LIBRARY P32      1.00E-03 CI/YR
0         ***NUCLIDE NOT FOUND IN LIBRARY Y90      5.00E-05 CI/YR
0         ***NUCLIDE NOT FOUND IN LIBRARY Y91      2.60E-04 CI/YR
0         ***NUCLIDE NOT FOUND IN LIBRARY Y92      6.80E-04 CI/YR
0         ***NUCLIDE NOT FOUND IN LIBRARY Y93      1.20E-03 CI/YR
0         ***NUCLIDE NOT FOUND IN LIBRARY TC99m    3.30E-04 CI/YR
0         ***NUCLIDE NOT FOUND IN LIBRARY AG110m   2.20E-06 CI/YR
0         ***NUCLIDE NOT FOUND IN LIBRARY TE129m   2.40E-04 CI/YR
0         ***NUCLIDE NOT FOUND IN LIBRARY TE131m   8.30E-05 CI/YR
0         ***NUCLIDE NOT FOUND IN LIBRARY W187     2.10E-04 CI/YR
0       NUCLIDE     CI/YR          NUCLIDE     CI/YR
        -------     -----          -------     -----
        11NA 24   4.40E-03         42MO 99   6.50E-02
        24CR 51   3.80E-02         44RU106   7.80E-05
        25MN 56   3.80E-03         51SB125   6.10E-05
        27CO 57   8.20E-06         52TE132   2.10E-05
        28NI 63   7.10E-06         55CS136   6.50E-04
        29CU 64   1.10E-02         55CS138   1.90E-04
        37RB 89   4.70E-05         56BA140   3.00E-02
        38SR 91   1.10E-03         57LA140   2.00E-03
        93NP239   1.30E-02         58CE141   1.00E-02
        38SR 92   8.60E-04         58CE144   2.10E-05
        59PR144   2.10E-05
0                1.803E-01 TOTAL CURIES FOR  21 RADIONUCLIDES
1
North Anna - population- primary
```

0

SITE ANNUAL X/Q DATA (SEC/M**3)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
N	2.872E-06	9.831E-07	4.447E-07	2.689E-07	1.859E-07	9.126E-08	3.428E-08	1.664E-08	1.046E-08	7.422E-09
NNE	3.619E-06	1.241E-06	5.618E-07	3.399E-07	2.351E-07	1.155E-07	4.349E-08	2.116E-08	1.332E-08	9.465E-09
NE	2.952E-06	1.016E-06	4.613E-07	2.796E-07	1.936E-07	9.529E-08	3.595E-08	1.752E-08	1.104E-08	7.854E-09
ENE	1.807E-06	6.318E-07	2.910E-07	1.779E-07	1.240E-07	6.179E-08	2.375E-08	1.175E-08	7.475E-09	5.353E-09
E	3.413E-06	1.223E-06	5.748E-07	3.558E-07	2.503E-07	1.266E-07	4.982E-08	2.511E-08	1.616E-08	1.167E-08
ESE	4.887E-06	1.787E-06	8.596E-07	5.394E-07	3.831E-07	1.971E-07	7.964E-08	4.100E-08	2.675E-08	1.951E-08
SE	3.416E-06	1.234E-06	5.904E-07	3.693E-07	2.617E-07	1.343E-07	5.409E-08	2.782E-08	1.815E-08	1.324E-08
SSE	1.885E-06	6.456E-07	2.941E-07	1.785E-07	1.238E-07	6.122E-08	2.334E-08	1.152E-08	7.336E-09	5.260E-09
S	1.810E-06	6.025E-07	2.662E-07	1.583E-07	1.080E-07	5.175E-08	1.871E-08	8.825E-09	5.453E-09	3.823E-09
SSW	1.432E-06	4.804E-07	2.130E-07	1.269E-07	8.669E-08	4.165E-08	1.510E-08	7.124E-09	4.400E-09	3.083E-09
SW	1.285E-06	4.313E-07	1.918E-07	1.145E-07	7.841E-08	3.780E-08	1.379E-08	6.540E-09	4.053E-09	2.848E-09
WSW	1.195E-06	4.022E-07	1.794E-07	1.073E-07	7.358E-08	3.559E-08	1.306E-08	6.232E-09	3.878E-09	2.733E-09
W	1.455E-06	4.946E-07	2.228E-07	1.342E-07	9.249E-08	4.519E-08	1.687E-08	8.170E-09	5.135E-09	3.646E-09
WNW	1.265E-06	4.278E-07	1.921E-07	1.156E-07	7.962E-08	3.893E-08	1.458E-08	7.093E-09	4.473E-09	3.184E-09
NW	1.299E-06	4.441E-07	2.010E-07	1.215E-07	8.399E-08	4.124E-08	1.551E-08	7.553E-09	4.760E-09	3.386E-09
NNW	1.117E-06	3.836E-07	1.741E-07	1.055E-07	7.306E-08	3.598E-08	1.358E-08	6.620E-09	4.173E-09	2.967E-09

0

SITE ANNUAL DECAYED X/Q FOR XE-133M (SEC/M**3)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
N	2.860E-06	9.753E-07	4.386E-07	2.637E-07	1.813E-07	8.762E-08	3.160E-08	1.450E-08	8.621E-09	5.792E-09
NNE	3.605E-06	1.231E-06	5.544E-07	3.336E-07	2.295E-07	1.111E-07	4.020E-08	1.851E-08	1.105E-08	7.444E-09
NE	2.941E-06	1.008E-06	4.554E-07	2.745E-07	1.890E-07	9.169E-08	3.327E-08	1.536E-08	9.183E-09	6.198E-09
ENE	1.800E-06	6.265E-07	2.869E-07	1.744E-07	1.208E-07	5.920E-08	2.180E-08	1.016E-08	6.094E-09	4.118E-09
E	3.397E-06	1.212E-06	5.660E-07	3.482E-07	2.433E-07	1.209E-07	4.547E-08	2.151E-08	1.301E-08	8.842E-09
ESE	4.864E-06	1.770E-06	8.458E-07	5.272E-07	3.719E-07	1.878E-07	7.233E-08	3.485E-08	2.131E-08	1.459E-08
SE	3.401E-06	1.223E-06	5.810E-07	3.610E-07	2.541E-07	1.280E-07	4.912E-08	2.364E-08	1.445E-08	9.890E-09
SSE	1.878E-06	6.407E-07	2.902E-07	1.752E-07	1.208E-07	5.880E-08	2.150E-08	1.002E-08	6.022E-09	4.081E-09
S	1.805E-06	5.989E-07	2.634E-07	1.559E-07	1.059E-07	5.015E-08	1.755E-08	7.903E-09	4.666E-09	3.127E-09
SSW	1.431E-06	4.773E-07	2.106E-07	1.249E-07	8.492E-08	4.027E-08	1.410E-08	6.334E-09	3.727E-09	2.490E-09
SW	1.280E-06	4.284E-07	1.895E-07	1.126E-07	7.670E-08	3.647E-08	1.283E-08	5.776E-09	3.402E-09	2.272E-09
WSW	1.191E-06	3.993E-07	1.771E-07	1.054E-07	7.188E-08	3.426E-08	1.209E-08	5.461E-09	3.220E-09	2.151E-09
W	1.450E-06	4.909E-07	2.199E-07	1.317E-07	9.029E-08	4.345E-08	1.558E-08	7.130E-09	4.239E-09	2.849E-09
WNW	1.261E-06	4.247E-07	1.897E-07	1.135E-07	7.780E-08	3.748E-08	1.350E-08	6.225E-09	3.723E-09	2.515E-09
NW	1.295E-06	4.409E-07	1.985E-07	1.194E-07	8.209E-08	3.973E-08	1.439E-08	6.642E-09	3.974E-09	2.685E-09
NNW	1.113E-06	3.805E-07	1.717E-07	1.034E-07	7.121E-08	3.451E-08	1.250E-08	5.749E-09	3.424E-09	2.302E-09

1

North Anna - population- primary

0

SITE ANNUAL DECAYED (FOR I-131) AND DEPLETED X/Q DATA (SEC/M**3)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50

N	2.569E-06	8.375E-07	3.596E-07	2.089E-07	1.397E-07	6.416E-08	2.111E-08	8.902E-09	5.012E-09	3.234E-09
NNE	3.238E-06	1.057E-06	4.544E-07	2.642E-07	1.767E-07	8.126E-08	2.680E-08	1.133E-08	6.394E-09	4.132E-09
NE	2.642E-06	8.654E-07	3.732E-07	2.173E-07	1.455E-07	6.703E-08	2.216E-08	9.389E-09	5.304E-09	3.432E-09
ENE	1.616E-06	5.381E-07	2.353E-07	1.382E-07	9.317E-08	4.340E-08	1.460E-08	6.269E-09	3.570E-09	2.322E-09
E	3.052E-06	1.041E-06	4.646E-07	2.763E-07	1.879E-07	8.880E-08	3.055E-08	1.336E-08	7.687E-09	5.037E-09
ESE	4.370E-06	1.521E-06	6.945E-07	4.187E-07	2.874E-07	1.381E-07	4.874E-08	2.176E-08	1.268E-08	8.388E-09
SE	3.055E-06	1.050E-06	4.771E-07	2.866E-07	1.964E-07	9.408E-08	3.311E-08	1.476E-08	8.602E-09	5.690E-09
SSE	1.687E-06	5.500E-07	2.379E-07	1.388E-07	9.304E-08	4.303E-08	1.436E-08	6.157E-09	3.509E-09	2.286E-09
S	1.620E-06	5.137E-07	2.155E-07	1.231E-07	8.127E-08	3.650E-08	1.590E-08	4.759E-09	2.641E-09	1.688E-09
SSW	1.285E-06	4.095E-07	1.724E-07	9.870E-08	6.523E-08	2.936E-08	9.340E-09	3.834E-09	2.125E-09	1.356E-09
SW	1.150E-06	3.676E-07	1.552E-07	8.907E-08	5.897E-08	2.663E-08	8.518E-09	3.513E-09	1.952E-09	1.248E-09
WSW	1.070E-06	3.428E-07	1.451E-07	8.343E-08	5.531E-08	2.505E-08	8.057E-09	3.340E-09	1.862E-09	1.193E-09
W	1.302E-06	4.214E-07	1.802E-07	1.043E-07	6.952E-08	3.179E-08	1.039E-08	4.372E-09	2.461E-09	1.588E-09
WNW	1.132E-06	3.645E-07	1.554E-07	8.985E-08	5.986E-08	2.739E-08	8.987E-09	3.802E-09	2.149E-09	1.391E-09
NW	1.163E-06	3.784E-07	1.626E-07	9.447E-08	6.315E-08	2.902E-08	9.566E-09	4.050E-09	2.289E-09	1.481E-09
NNW	9.996E-07	3.267E-07	1.408E-07	8.198E-08	5.489E-08	2.528E-08	8.356E-09	3.538E-09	1.997E-09	1.291E-09

0

SITE ANNUAL DEPOSITION DATA (1/M**2)

DOWNWIND DISTANCE(MILES)

DIR	0-1	1-2	2-3	3-4	4-5	5-10	10-20	20-30	30-40	40-50
N	7.773E-09	2.402E-09	9.557E-10	5.222E-10	3.319E-10	1.426E-10	4.421E-11	1.752E-11	9.357E-12	5.792E-12
NNE	1.129E-08	3.487E-09	1.388E-09	7.583E-10	4.820E-10	2.070E-10	6.420E-11	2.544E-11	1.359E-11	8.410E-12
NE	9.103E-09	2.812E-09	1.119E-09	6.115E-10	3.887E-10	1.669E-10	5.177E-11	2.052E-11	1.096E-11	6.782E-12
ENE	4.908E-09	1.516E-09	6.033E-10	3.297E-10	2.095E-10	9.001E-11	2.791E-11	1.106E-11	5.907E-12	3.656E-12
E	6.899E-09	2.132E-09	8.482E-10	4.635E-10	2.946E-10	1.265E-10	3.924E-11	1.555E-11	8.305E-12	5.140E-12
ESE	9.195E-09	2.841E-09	1.130E-09	6.177E-10	3.926E-10	1.686E-10	5.230E-11	2.073E-11	1.107E-11	6.851E-12
SE	8.252E-09	2.550E-09	1.015E-09	5.544E-10	3.524E-10	1.514E-10	4.693E-11	1.860E-11	9.934E-12	6.149E-12
SSE	7.369E-09	2.277E-09	9.059E-10	4.950E-10	3.146E-10	1.351E-10	4.191E-11	1.661E-11	8.870E-12	5.490E-12
S	8.694E-09	2.686E-09	1.069E-09	5.841E-10	3.712E-10	1.594E-10	4.944E-11	1.960E-11	1.046E-11	6.477E-12
SSW	5.762E-09	1.780E-09	7.084E-10	3.871E-10	2.460E-10	1.057E-10	3.277E-11	1.299E-11	6.936E-12	4.293E-12
SW	4.749E-09	1.467E-09	5.839E-10	3.191E-10	2.028E-10	8.710E-11	2.701E-11	1.071E-11	5.717E-12	3.538E-12
WSW	4.125E-09	1.274E-09	5.071E-10	2.771E-10	1.761E-10	7.565E-11	2.346E-11	9.298E-12	4.965E-12	3.073E-12
W	4.855E-09	1.500E-09	5.969E-10	3.262E-10	2.073E-10	8.905E-11	2.761E-11	1.094E-11	5.844E-12	3.617E-12
WNW	4.502E-09	1.391E-09	5.534E-10	3.024E-10	1.922E-10	8.256E-11	2.560E-11	1.015E-11	5.419E-12	3.354E-12
NW	4.045E-09	1.250E-09	4.973E-10	2.718E-10	1.727E-10	7.420E-11	2.301E-11	9.119E-12	4.870E-12	3.014E-12
NNW	2.937E-09	9.072E-10	3.610E-10	1.973E-10	1.254E-10	5.386E-11	1.670E-11	6.619E-12	3.535E-12	2.188E-12

1

North Anna - population- primary

0

JS	SPECIAL LOCATION	DIR	MILES	X/Q	X/Q:DEC	X/Q:DCDP	DEPOSITE	REPORT CONTROL FLAGS PL	GD	VT	MT	CM	GM	IN
1	Site Bound (EAB)	ESE	.88	3.70E-06	3.70E-06	3.30E-06	1.20E-08	1	1	1	1	1	1	1

```
  1 Nearest Resid    NNE   .96  2.40E-06  2.40E-06  2.10E-06  7.20E-09   1  1  1  1  1  1  1
  1 Nearest Meat      SE  1.37  1.40E-06  1.40E-06  1.20E-06  3.10E-09   1  1  1  1  1  1  1
  1 Veg Garden        NE   .94  2.00E-06  2.00E-06  1.80E-06  6.00E-09   1  1  1  1  1  1  1
0                                   REPORTS ARE NOT PRINTED IF JS=1 OR CONTROL FLAGS=1
                                                                  FLAGS:  PL - PLUME
                                                                          GD - GROUND
                                                                          VT - VEGETABLE
                                                                          MT - MEAT
                                                                          CM - COW MILK
                                                                          GM - GOAT MILK
                                                                          IN - INHALATION
1

  North Anna - population- primary
  major contributors plus nobles gases

  RELEASE, ENVIRONS  INVENTORY, AND ANNUAL PATHWAY INVENTORIES-CI

   NUCLIDE RELEASE  ENVIRON   GROUND VEGETATION  MILK     MEAT
 +-------------------------------------------------------------+
 *  NA 24  4.40E-03 1.09E-05 4.12E-06 1.68E-37 6.37E-10 2.29E-17 *
 *  CR 51  3.80E-02 4.15E-03 2.00E-03 3.93E-07 4.13E-07 7.11E-07 *
 *  MN 56  3.80E-03 1.61E-06 3.16E-07 0.00E+00 1.43E-22 0.00E+00 *
 *  CO 57  8.20E-06 8.78E-06 4.25E-06 4.58E-10 6.48E-11 1.91E-09 *
 *  NI 63  7.10E-06 1.32E-04 6.41E-05 6.13E-10 4.64E-10 8.67E-10 *
 *  CU 64  1.10E-02 2.29E-05 8.33E-06 1.37E-42 1.98E-10 1.96E-19 *
 *  RB 89  4.70E-05 1.97E-09 7.25E-11 0.00E+00 0.00E+00 0.00E+00 *
 *  SR 91  1.10E-03 1.72E-06 5.77E-07 0.00E+00 1.35E-13 1.51E-25 *
 *  NP239  1.30E-02 1.21E-04 5.46E-05 2.78E-15 2.44E-11 2.08E-11 *
 *  SR 92  8.60E-04 3.84E-07 7.77E-08 0.00E+00 4.48E-22 0.00E+00 *
 *  MO 99  6.50E-02 7.06E-04 3.21E-04 1.93E-13 2.49E-07 1.10E-08 *
 *  RU106  7.80E-05 1.13E-04 5.49E-05 4.82E-09 6.45E-13 5.91E-07 *
 *  SB125  6.10E-05 2.42E-04 1.17E-04 4.04E-09 7.75E-10 4.83E-09 *
 *  TE132  2.10E-05 2.71E-07 1.24E-07 8.35E-16 1.49E-11 9.01E-11 *
 *  CS136  6.50E-04 3.37E-05 1.61E-05 9.25E-10 2.61E-08 8.81E-09 *
 *  CS138  1.90E-04 1.68E-08 1.26E-09 0.00E+00 0.00E+00 0.00E+00 *
 *  BA140  3.00E-02 1.52E-03 7.25E-04 3.90E-08 3.95E-08 3.13E-07 *
 *  LA140  2.00E-03 1.33E-05 5.81E-06 2.43E-19 1.68E-12 2.13E-13 *
 *  CE141  1.00E-02 1.28E-03 6.19E-04 1.36E-07 5.24E-09 1.06E-07 *
 *  CE144  2.10E-05 2.36E-05 1.14E-05 1.18E-09 1.66E-11 4.52E-10 *
 *  PR144  2.10E-05 9.95E-10 4.19E-11 0.00E+00 0.00E+00 0.00E+00 *
 +-------------------------------------------------------------+
1

  North Anna - population- primary
  ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

  PATHWAY   T.BODY    GI-TRACT    BONE     LIVER     KIDNEY    THYROID    LUNG      SKIN
```

GROUND	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.66E-03
	69.40%	4.65%	29.62%	57.19%	44.27%	98.26%	4.13%	100.00%
INHAL	2.22E-04	2.27E-02	1.74E-03	3.23E-04	2.10E-04	3.86E-05	5.37E-02	0.00E+00
	6.64%	45.49%	22.19%	7.98%	4.01%	1.64%	95.76%	.00%
VEGET	1.13E-04	6.35E-03	1.46E-03	4.26E-05	5.50E-05	8.97E-07	1.31E-05	0.00E+00
	3.37%	12.73%	18.59%	1.05%	1.05%	.04%	.02%	.00%
COW MILK	5.57E-04	2.39E-03	9.26E-04	1.33E-03	2.12E-03	1.42E-06	4.10E-05	0.00E+00
	16.67%	4.78%	11.83%	32.68%	40.52%	.06%	.07%	.00%
MEAT	1.31E-04	1.61E-02	1.39E-03	4.46E-05	5.32E-04	2.06E-07	4.85E-06	0.00E+00
	3.92%	32.35%	17.77%	1.10%	10.16%	.01%	.01%	.00%
TOTAL	3.34E-03	4.99E-02	7.83E-03	4.05E-03	5.24E-03	2.36E-03	5.61E-02	2.66E-03

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
GROUND	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.66E-03
	48.84%	1.46%	12.97%	41.08%	21.44%	98.14%	4.13%	100.00%
INHAL	2.22E-04	2.27E-02	1.74E-03	3.23E-04	2.10E-04	3.86E-05	5.37E-02	0.00E+00
	4.67%	14.33%	9.71%	5.73%	1.94%	1.64%	95.64%	.00%
VEGET	1.13E-04	6.35E-03	1.46E-03	4.26E-05	5.50E-05	8.97E-07	1.31E-05	0.00E+00
	2.37%	4.01%	8.14%	.75%	.51%	.04%	.02%	.00%
COW MILK	1.10E-03	4.72E-03	1.83E-03	2.62E-03	4.20E-03	2.81E-06	8.11E-05	0.00E+00
	23.21%	2.98%	10.25%	46.45%	38.83%	.12%	.14%	.00%
MEAT	9.93E-04	1.22E-01	1.05E-02	3.38E-04	4.03E-03	1.56E-06	3.67E-05	0.00E+00
	20.91%	77.22%	58.93%	5.99%	37.29%	.07%	.07%	.00%
TOTAL	4.75E-03	1.58E-01	1.79E-02	5.65E-03	1.08E-02	2.36E-03	5.62E-02	2.66E-03

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = *TOTAL*

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
NA 24	9.88E-05 2.96%	9.88E-05 .20%	9.88E-05 1.26%	9.88E-05 2.44%	9.88E-05 1.89%	9.88E-05 4.19%	9.88E-05 .18%	7.16E-05 2.69%
CR 51	2.70E-04 8.10%	8.02E-04 1.61%	2.64E-04 3.37%	2.64E-04 6.50%	2.65E-04 5.06%	2.68E-04 11.34%	8.33E-04 1.48%	3.12E-04 11.70%
MN 56	2.09E-06 .06%	5.32E-05 .11%	2.08E-06 .03%	2.09E-06 .05%	2.09E-06 .04%	2.08E-06 .09%	1.49E-05 .03%	2.46E-06 .09%
CO 57	2.63E-06 .08%	5.79E-06 .01%	2.32E-06 .03%	2.50E-06 .06%	2.32E-06 .04%	2.32E-06 .10%	5.62E-06 .01%	2.55E-06 .10%
NI 63	6.98E-06 .21%	1.92E-06 .00%	2.07E-04 2.64%	1.29E-05 .32%	0.00E+00 .00%	0.00E+00 .00%	1.44E-06 .00%	0.00E+00 .00%
CU 64	7.50E-06 .22%	3.63E-04 .73%	7.49E-06 .10%	7.51E-06 .19%	7.56E-06 .14%	7.49E-06 .32%	6.48E-05 .12%	8.49E-06 .32%
RB 89	1.10E-09 .00%	6.52E-10 .00%	6.51E-10 .00%	1.29E-09 .00%	6.51E-10 .00%	6.51E-10 .00%	6.51E-10 .00%	7.82E-10 .00%
SR 91	2.46E-06 .07%	1.33E-04 .27%	2.50E-06 .03%	2.45E-06 .06%	2.45E-06 .05%	2.45E-06 .10%	3.06E-05 .05%	2.87E-06 .11%
NP239	3.13E-05 .94%	1.30E-03 2.60%	3.43E-05 .44%	3.37E-05 .83%	3.20E-05 .61%	3.11E-05 1.32%	5.38E-04 .96%	3.60E-05 1.35%
SR 92	4.19E-07 .01%	2.48E-05 .05%	4.21E-07 .00%	4.19E-07 .01%	4.19E-07 .00%	4.19E-07 .02%	5.73E-06 .01%	4.66E-07 .02%
MO 99	5.51E-04 16.51%	1.49E-02 29.89%	3.66E-04 4.67%	1.22E-03 30.18%	2.26E-03 43.18%	3.66E-04 15.49%	6.51E-03 11.59%	4.23E-04 15.90%
RU106	8.81E-05 2.64%	1.49E-02 29.95%	3.57E-04 4.56%	4.94E-05 1.22%	5.93E-04 11.31%	4.94E-05 2.09%	8.75E-04 1.56%	5.92E-05 2.23%
SB125	2.22E-04 6.64%	3.20E-04 .64%	2.36E-04 3.01%	2.18E-04 5.37%	2.18E-04 4.16%	2.18E-04 9.22%	3.43E-04 .61%	2.46E-04 9.23%
TE132	1.72E-07 .00%	9.81E-06 .02%	2.04E-07 .00%	1.72E-07 .00%	5.45E-07 .01%	1.80E-07 .00%	6.22E-06 .01%	1.49E-07 .00%
CS136	5.86E-04 17.55%	1.93E-04 .39%	3.34E-04 4.27%	7.84E-04 19.33%	4.96E-04 9.47%	1.45E-04 6.13%	1.96E-04 .35%	1.64E-04 6.16%
CS138	2.32E-08	1.68E-08	2.37E-08	2.92E-08	2.61E-08	1.58E-08	1.69E-08	1.81E-08

	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
BA140	1.19E-03 35.61%	1.08E-02 21.60%	5.34E-03 68.18%	9.17E-04 22.62%	9.14E-04 17.44%	9.12E-04 38.65%	4.19E-02 74.58%	1.04E-03 39.15%
LA140	5.23E-05 1.57%	7.66E-04 1.53%	5.29E-05 .68%	5.26E-05 1.30%	5.22E-05 1.00%	5.22E-05 2.21%	3.12E-04 .56%	5.92E-05 2.22%
CE141	2.22E-04 6.63%	4.97E-03 9.96%	4.39E-04 5.61%	3.51E-04 8.65%	2.71E-04 5.18%	2.04E-04 8.64%	4.25E-03 7.57%	2.30E-04 8.63%
CE144	6.79E-06 .20%	2.26E-04 .45%	8.80E-05 1.12%	3.53E-05 .87%	2.15E-05 .41%	2.19E-06 .09%	1.87E-04 .33%	2.53E-06 .10%
PR144	5.03E-12 .00%	4.63E-11 .00%	5.07E-12 .00%	5.05E-12 .00%	5.04E-12 .00%	5.03E-12 .00%	1.40E-09 .00%	5.78E-12 .00%
TOTAL	3.34E-03	4.99E-02	7.83E-03	4.05E-03	5.24E-03	2.36E-03	5.61E-02	2.66E-03

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = GROUND

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
NA 24	6.17E-05 2.66%	6.17E-05 2.66%	6.17E-05 2.66%	6.17E-05 2.66%	6.17E-05 2.66%	6.17E-05 2.66%	6.17E-05 2.66%	7.16E-05 2.69%
CR 51	2.64E-04 11.37%	2.64E-04 11.37%	2.64E-04 11.37%	2.64E-04 11.37%	2.64E-04 11.37%	2.64E-04 11.37%	2.64E-04 11.37%	3.12E-04 11.70%
MN 56	2.08E-06 .09%	2.08E-06 .09%	2.08E-06 .09%	2.08E-06 .09%	2.08E-06 .09%	2.08E-06 .09%	2.08E-06 .09%	2.46E-06 .09%
CO 57	2.32E-06 .10%	2.32E-06 .10%	2.32E-06 .10%	2.32E-06 .10%	2.32E-06 .10%	2.32E-06 .10%	2.32E-06 .10%	2.55E-06 .10%
CU 64	7.49E-06 .32%	7.49E-06 .32%	7.49E-06 .32%	7.49E-06 .32%	7.49E-06 .32%	7.49E-06 .32%	7.49E-06 .32%	8.49E-06 .32%
RB 89	6.51E-10 .00%	6.51E-10 .00%	6.51E-10 .00%	6.51E-10 .00%	6.51E-10 .00%	6.51E-10 .00%	6.51E-10 .00%	7.82E-10 .00%
SR 91	2.45E-06 .11%	2.45E-06 .11%	2.45E-06 .11%	2.45E-06 .11%	2.45E-06 .11%	2.45E-06 .11%	2.45E-06 .11%	2.87E-06 .11%

NP239	3.11E-05	3.11E-05	3.11E-05	3.11E-05	3.11E-05	3.11E-05	3.11E-05	3.60E-05
	1.34%	1.34%	1.34%	1.34%	1.34%	1.34%	1.34%	1.35%
SR 92	4.19E-07	4.19E-07	4.19E-07	4.19E-07	4.19E-07	4.19E-07	4.19E-07	4.66E-07
	.02%	.02%	.02%	.02%	.02%	.02%	.02%	.02%
MO 99	3.66E-04	3.66E-04	3.66E-04	3.66E-04	3.66E-04	3.66E-04	3.66E-04	4.23E-04
	15.77%	15.77%	15.77%	15.77%	15.77%	15.77%	15.77%	15.90%
RU106	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	5.92E-05
	2.13%	2.13%	2.13%	2.13%	2.13%	2.13%	2.13%	2.23%
SB125	2.18E-04	2.18E-04	2.18E-04	2.18E-04	2.18E-04	2.18E-04	2.18E-04	2.46E-04
	9.39%	9.39%	9.39%	9.39%	9.39%	9.39%	9.39%	9.23%
TE132	1.27E-07	1.27E-07	1.27E-07	1.27E-07	1.27E-07	1.27E-07	1.27E-07	1.49E-07
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CS136	1.45E-04	1.45E-04	1.45E-04	1.45E-04	1.45E-04	1.45E-04	1.45E-04	1.64E-04
	6.24%	6.24%	6.24%	6.24%	6.24%	6.24%	6.24%	6.16%
CS138	1.58E-08	1.58E-08	1.58E-08	1.58E-08	1.58E-08	1.58E-08	1.58E-08	1.81E-08
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
BA140	9.12E-04	9.12E-04	9.12E-04	9.12E-04	9.12E-04	9.12E-04	9.12E-04	1.04E-03
	39.33%	39.33%	39.33%	39.33%	39.33%	39.33%	39.33%	39.15%
LA140	5.22E-05	5.22E-05	5.22E-05	5.22E-05	5.22E-05	5.22E-05	5.22E-05	5.92E-05
	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.22%
CE141	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.30E-04
	8.79%	8.79%	8.79%	8.79%	8.79%	8.79%	8.79%	8.63%
CE144	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.53E-06
	.09%	.09%	.09%	.09%	.09%	.09%	.09%	.10%
PR144	5.03E-12	5.03E-12	5.03E-12	5.03E-12	5.03E-12	5.03E-12	5.03E-12	5.78E-12
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
TOTAL	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.66E-03

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = INHAL

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN

NA 24	3.62E-05	3.62E-05	3.62E-05	3.62E-05	3.62E-05	3.62E-05	3.62E-05	0.00E+00
	16.35%	.16%	2.09%	11.21%	17.28%	93.78%	.07%	.00%
CR 51	4.13E-06	1.05E-04	0.00E+00	0.00E+00	8.70E-07	2.39E-06	5.66E-04	0.00E+00
	1.86%	.46%	.00%	.00%	.41%	6.20%	1.05%	.00%
MN 56	2.55E-10	5.11E-05	0.00E+00	1.63E-09	1.70E-09	0.00E+00	1.28E-05	0.00E+00
	.00%	.23%	.00%	.00%	.00%	.00%	.02%	.00%
CO 57	6.08E-09	2.22E-07	0.00E+00	5.99E-09	0.00E+00	0.00E+00	3.30E-06	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NI 63	1.20E-07	8.34E-08	3.55E-06	2.42E-07	0.00E+00	0.00E+00	1.44E-06	0.00E+00
	.05%	.00%	.20%	.07%	.00%	.00%	.00%	.00%
CU 64	5.34E-09	3.55E-04	0.00E+00	1.20E-08	3.74E-08	0.00E+00	5.73E-05	0.00E+00
	.00%	1.56%	.00%	.00%	.02%	.00%	.11%	.00%
RB 89	4.47E-10	7.68E-13	0.00E+00	6.38E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SR 91	2.00E-09	1.31E-04	5.04E-08	0.00E+00	0.00E+00	0.00E+00	2.82E-05	0.00E+00
	.00%	.58%	.00%	.00%	.00%	.00%	.05%	.00%
NP239	1.71E-07	1.27E-03	3.25E-06	2.63E-06	8.95E-07	0.00E+00	5.07E-04	0.00E+00
	.08%	5.58%	.19%	.81%	.43%	.00%	.94%	.00%
SR 92	9.65E-11	2.43E-05	2.28E-09	0.00E+00	0.00E+00	0.00E+00	5.31E-06	0.00E+00
	.00%	.11%	.00%	.00%	.00%	.00%	.00%	.00%
MO 99	1.59E-06	1.32E-02	0.00E+00	7.84E-06	1.87E-05	0.00E+00	6.14E-03	0.00E+00
	.72%	58.29%	.00%	2.43%	8.91%	.00%	11.43%	.00%
RU106	7.97E-07	6.24E-05	6.34E-06	0.00E+00	1.12E-05	0.00E+00	8.26E-04	0.00E+00
	.36%	.27%	.37%	.00%	5.33%	.00%	1.54%	.00%
SB125	8.58E-07	5.28E-06	3.75E-06	3.81E-08	0.00E+00	3.67E-09	1.15E-04	0.00E+00
	.39%	.02%	.22%	.01%	.00%	.00%	.21%	.00%
TE132	3.53E-09	8.29E-06	5.89E-09	4.43E-09	2.97E-08	4.14E-09	6.10E-06	0.00E+00
	.00%	.04%	.00%	.00%	.01%	.01%	.01%	.00%
CS136	7.05E-05	6.31E-06	2.78E-05	9.61E-05	5.55E-05	0.00E+00	8.07E-06	0.00E+00
	31.78%	.03%	1.60%	29.73%	26.46%	.00%	.02%	.00%
CS138	7.42E-09	9.50E-10	7.83E-09	1.34E-08	1.03E-08	0.00E+00	1.08E-09	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%

BA140	8.50E-05	5.64E-03	1.34E-03	1.53E-06	5.17E-07	0.00E+00	4.09E-02	0.00E+00
	38.34%	24.86%	77.01%	.47%	.25%	.00%	76.18%	.00%
LA140	9.01E-08	7.13E-04	7.02E-07	3.22E-07	0.00E+00	0.00E+00	2.60E-04	0.00E+00
	.04%	3.14%	.04%	.10%	.00%	.00%	.48%	.00%
CE141	1.77E-05	1.05E-03	2.33E-04	1.46E-04	6.67E-05	0.00E+00	4.04E-03	0.00E+00
	7.97%	4.61%	13.41%	45.01%	31.78%	.00%	7.52%	.00%
CE144	4.54E-06	1.51E-05	8.48E-05	3.28E-05	1.91E-05	0.00E+00	1.85E-04	0.00E+00
	2.05%	.07%	4.88%	10.14%	9.12%	.00%	.34%	.00%
PR144	2.17E-15	4.13E-11	4.29E-14	1.65E-14	9.17E-15	0.00E+00	1.39E-09	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
TOTAL	2.22E-04	2.27E-02	1.74E-03	3.23E-04	2.10E-04	3.86E-05	5.37E-02	0.00E+00

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = VEGET

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
NA 24	4.25E-34	4.25E-34	4.25E-34	4.25E-34	4.25E-34	4.25E-34	4.25E-34	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CR 51	1.54E-06	2.45E-04	0.00E+00	0.00E+00	2.95E-07	8.86E-07	1.86E-06	0.00E+00
	1.37%	3.86%	.00%	.00%	.54%	98.75%	14.24%	.00%
CO 57	1.99E-07	2.00E-06	0.00E+00	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.18%	.03%	.00%	.26%	.00%	.00%	.00%	.00%
NI 63	4.37E-06	1.17E-06	1.29E-04	8.02E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	3.87%	.02%	8.87%	18.85%	.00%	.00%	.00%	.00%
CU 64	8.34E-41	1.11E-38	0.00E+00	1.60E-40	3.98E-40	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NP239	2.92E-16	6.98E-11	5.59E-15	4.76E-16	1.44E-15	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
MO 99	2.54E-10	1.99E-09	0.00E+00	1.20E-09	2.65E-09	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
RU106	2.75E-06	8.69E-04	2.19E-05	0.00E+00	3.63E-05	0.00E+00	0.00E+00	0.00E+00

	2.44%	13.68%	1.50%	.00%	66.06%	.00%	.00%	.00%
SB125	2.60E-06	7.75E-05	1.16E-05	1.11E-07	0.00E+00	1.12E-08	7.93E-06	0.00E+00
	2.30%	1.22%	.79%	.26%	.00%	1.25%	60.65%	.00%
TE132	1.93E-12	5.87E-11	3.37E-12	1.86E-12	1.76E-11	2.28E-12	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CS136	2.16E-05	2.57E-06	9.15E-06	3.13E-05	1.71E-05	0.00E+00	2.46E-06	0.00E+00
	19.13%	.04%	.63%	73.66%	31.17%	.00%	18.84%	.00%
BA140	7.95E-05	1.64E-03	1.28E-03	1.38E-06	4.61E-07	0.00E+00	8.20E-07	0.00E+00
	70.52%	25.85%	87.99%	3.24%	.84%	.00%	6.27%	.00%
LA140	1.23E-19	2.29E-14	9.77E-19	4.22E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CE141	1.58E-07	3.32E-03	2.09E-06	1.24E-06	5.63E-07	0.00E+00	0.00E+00	0.00E+00
	.14%	52.20%	.14%	2.91%	1.02%	.00%	.00%	.00%
CE144	5.08E-08	1.97E-04	9.50E-07	3.50E-07	2.02E-07	0.00E+00	0.00E+00	0.00E+00
	.05%	3.10%	.07%	.82%	.37%	.00%	.00%	.00%
TOTAL	1.13E-04	6.35E-03	1.46E-03	4.26E-05	5.50E-05	8.97E-07	1.31E-05	0.00E+00

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = COW MILK

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
NA 24	8.89E-07	8.89E-07	8.89E-07	8.89E-07	8.89E-07	8.89E-07	8.89E-07	0.00E+00
	.16%	.04%	.10%	.07%	.04%	62.52%	2.17%	.00%
CR 51	8.92E-07	1.28E-04	0.00E+00	0.00E+00	1.67E-07	5.09E-07	1.06E-06	0.00E+00
	.16%	5.35%	.00%	.00%	.00%	35.81%	2.59%	.00%
MN 56	2.50E-21	1.10E-18	0.00E+00	1.25E-20	1.56E-20	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CO 57	1.55E-08	1.42E-07	0.00E+00	8.51E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NI 63	1.85E-06	4.49E-07	5.48E-05	3.34E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.33%	.02%	5.91%	.25%	.00%	.00%	.00%	.00%

CU 64	6.73E-09	8.45E-07	0.00E+00	1.27E-08	3.14E-08	0.00E+00	0.00E+00	0.00E+00
	.00%	.04%	.00%	.00%	.00%	.00%	.00%	.00%
SR 91	2.76E-11	2.37E-09	7.09E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NP239	1.43E-12	3.13E-07	2.76E-11	2.30E-12	6.92E-12	0.00E+00	0.00E+00	0.00E+00
	.00%	.01%	.00%	.00%	.00%	.00%	.00%	.00%
SR 92	3.67E-20	1.78E-17	8.85E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
MO 99	1.83E-04	1.30E-03	0.00E+00	8.43E-04	1.86E-03	0.00E+00	0.00E+00	0.00E+00
	32.82%	54.59%	.00%	63.60%	87.68%	.00%	.00%	.00%
RU106	2.06E-10	5.88E-08	1.64E-09	0.00E+00	2.65E-09	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SB125	2.76E-07	7.45E-06	1.24E-06	1.15E-08	0.00E+00	1.19E-09	8.33E-07	0.00E+00
	.05%	.31%	.13%	.00%	.00%	.08%	2.03%	.00%
TE132	1.91E-08	5.16E-07	3.36E-08	1.80E-08	1.71E-07	2.26E-08	0.00E+00	0.00E+00
	.00%	.02%	.00%	.00%	.00%	1.59%	.00%	.00%
CS136	3.25E-04	3.61E-05	1.43E-04	4.77E-04	2.60E-04	0.00E+00	3.77E-05	0.00E+00
	58.44%	1.51%	15.44%	36.02%	12.25%	.00%	92.10%	.00%
BA140	4.47E-05	8.43E-04	7.26E-04	7.62E-07	2.54E-07	0.00E+00	4.56E-07	0.00E+00
	8.03%	35.32%	78.40%	.06%	.01%	.00%	1.11%	.00%
LA140	4.71E-13	8.06E-08	3.78E-12	1.59E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CE141	3.42E-09	6.50E-05	4.54E-08	2.63E-08	1.19E-08	0.00E+00	0.00E+00	0.00E+00
	.00%	2.72%	.00%	.00%	.00%	.00%	.00%	.00%
CE144	4.02E-10	1.41E-06	7.51E-09	2.71E-09	1.56E-09	0.00E+00	0.00E+00	0.00E+00
	.00%	.06%	.00%	.00%	.00%	.00%	.00%	.00%
TOTAL	5.57E-04	2.39E-03	9.26E-04	1.33E-03	2.12E-03	1.42E-06	4.10E-05	0.00E+00

1

North Anna - population- primary
ALARA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = MEAT

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN

NA 24	6.30E-15	6.30E-15	6.30E-15	6.30E-15	6.30E-15	6.30E-15	6.30E-15	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CR 51	3.05E-07	6.08E-05	0.00E+00	0.00E+00	6.25E-08	1.78E-07	3.86E-07	0.00E+00
	.23%	.38%	.00%	.00%	.01%	86.44%	7.97%	.00%
CO 57	9.02E-08	1.11E-06	0.00E+00	5.20E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.07%	.00%	.00%	.12%	.00%	.00%	.00%	.00%
NI 63	6.46E-07	2.17E-07	1.92E-05	1.25E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.49%	.00%	1.38%	2.80%	.00%	.00%	.00%	.00%
CU 64	1.27E-18	1.96E-16	0.00E+00	2.56E-18	6.40E-18	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SR 91	5.81E-24	5.95E-22	1.47E-22	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NP239	2.29E-13	6.75E-08	4.32E-12	3.92E-13	1.20E-12	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
MO 99	1.53E-06	1.47E-05	0.00E+00	7.54E-06	1.69E-05	0.00E+00	0.00E+00	0.00E+00
	1.17%	.09%	.00%	16.90%	3.17%	.00%	.00%	.00%
RU106	3.52E-05	1.40E-02	2.79E-04	0.00E+00	4.96E-04	0.00E+00	0.00E+00	0.00E+00
	26.88%	86.50%	20.09%	.00%	93.13%	.00%	.00%	.00%
SB125	3.36E-07	1.24E-05	1.46E-06	1.50E-08	0.00E+00	1.44E-09	1.06E-06	0.00E+00
	.26%	.08%	.10%	.03%	.00%	.70%	21.82%	.00%
TE132	2.25E-08	8.78E-07	3.83E-08	2.27E-08	2.17E-07	2.65E-08	0.00E+00	0.00E+00
	.02%	.00%	.00%	.05%	.04%	12.86%	.00%	.00%
CS136	2.41E-05	3.31E-06	9.40E-06	3.44E-05	1.89E-05	0.00E+00	2.67E-06	0.00E+00
	18.43%	.02%	.68%	77.03%	3.56%	.00%	55.12%	.00%
BA140	6.87E-05	1.74E-03	1.08E-03	1.25E-06	4.20E-07	0.00E+00	7.32E-07	0.00E+00
	52.44%	10.76%	77.73%	2.79%	.08%	.00%	15.09%	.00%
LA140	1.16E-14	2.62E-09	9.00E-14	4.16E-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CE141	1.29E-08	3.39E-04	1.70E-07	1.07E-07	4.90E-08	0.00E+00	0.00E+00	0.00E+00
	.00%	2.10%	.01%	.24%	.00%	.00%	.00%	.00%
CE144	2.04E-09	9.92E-06	3.80E-08	1.48E-08	8.65E-09	0.00E+00	0.00E+00	0.00E+00
	.00%	.06%	.00%	.03%	.00%	.00%	.00%	.00%

TOTAL	1.31E-04	1.61E-02	1.39E-03	4.46E-05	5.32E-04	2.06E-07	4.85E-06	0.00E+00

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = *TOTAL*

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
NA 24	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	9.97E-05	7.16E-05
	2.10%	.06%	.56%	1.77%	.92%	4.22%	.18%	2.69%
CR 51	2.73E-04	1.33E-03	2.64E-04	2.64E-04	2.66E-04	2.69E-04	8.37E-04	3.12E-04
	5.76%	.84%	1.47%	4.67%	2.46%	11.40%	1.49%	11.70%
MN 56	2.09E-06	5.32E-05	2.08E-06	2.09E-06	2.09E-06	2.08E-06	1.49E-05	2.46E-06
	.04%	.03%	.01%	.04%	.02%	.09%	.03%	.09%
CO 57	3.24E-06	1.32E-05	2.32E-06	2.85E-06	2.32E-06	2.32E-06	5.62E-06	2.55E-06
	.07%	.00%	.01%	.05%	.02%	.10%	.01%	.10%
NI 63	1.30E-05	3.78E-06	3.86E-04	2.43E-05	0.00E+00	0.00E+00	1.44E-06	0.00E+00
	.27%	.00%	2.16%	.43%	.00%	.00%	.00%	.00%
CU 64	7.51E-06	3.64E-04	7.49E-06	7.53E-06	7.59E-06	7.49E-06	6.48E-05	8.49E-06
	.16%	.23%	.04%	.13%	.07%	.32%	.12%	.32%
RB 89	1.10E-09	6.52E-10	6.51E-10	1.29E-09	6.51E-10	6.51E-10	6.51E-10	7.82E-10
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SR 91	2.46E-06	1.33E-04	2.51E-06	2.45E-06	2.45E-06	2.45E-06	3.06E-05	2.87E-06
	.05%	.08%	.01%	.04%	.02%	.10%	.05%	.11%
NP239	3.13E-05	1.30E-03	3.43E-05	3.37E-05	3.20E-05	3.11E-05	5.38E-04	3.60E-05
	.66%	.82%	.19%	.60%	.30%	1.32%	.96%	1.35%
SR 92	4.19E-07	2.48E-05	4.21E-07	4.19E-07	4.19E-07	4.19E-07	5.73E-06	4.66E-07
	.00%	.02%	.00%	.00%	.00%	.02%	.01%	.02%
MO 99	7.40E-04	1.63E-02	3.66E-04	2.10E-03	4.20E-03	3.66E-04	6.51E-03	4.23E-04
	15.60%	10.28%	2.04%	37.17%	38.78%	15.47%	11.58%	15.90%
RU106	3.20E-04	1.07E-01	2.19E-03	4.94E-05	3.85E-03	4.94E-05	8.75E-04	5.92E-05
	6.73%	67.41%	12.27%	.87%	35.62%	2.09%	1.56%	2.23%
SB125	2.24E-04	4.09E-04	2.46E-04	2.18E-04	2.18E-04	2.18E-04	3.50E-04	2.46E-04

	4.72%	.26%	1.38%	3.86%	2.01%	9.21%	.62%	9.23%
TE132	3.39E-07	1.61E-05	4.90E-07	3.39E-07	2.14E-06	3.77E-07	6.22E-06	1.49E-07
	.00%	.01%	.00%	.00%	.02%	.02%	.01%	.00%
CS136	1.06E-03	2.50E-04	5.36E-04	1.48E-03	8.75E-04	1.45E-04	2.50E-04	1.64E-04
	22.40%	.16%	3.00%	26.17%	8.09%	6.12%	.45%	6.16%
CS138	2.32E-08	1.68E-08	2.37E-08	2.92E-08	2.61E-08	1.58E-08	1.69E-08	1.81E-08
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
BA140	1.69E-03	2.30E-02	1.32E-02	9.26E-04	9.17E-04	9.12E-04	4.19E-02	1.04E-03
	35.50%	14.53%	73.59%	16.40%	8.47%	38.60%	74.50%	39.15%
LA140	5.23E-05	7.66E-04	5.29E-05	5.26E-05	5.22E-05	5.22E-05	3.12E-04	5.92E-05
	1.10%	.48%	.30%	.93%	.48%	2.21%	.56%	2.22%
CE141	2.22E-04	7.26E-03	4.40E-04	3.51E-04	2.71E-04	2.04E-04	4.25E-03	2.30E-04
	4.67%	4.58%	2.46%	6.23%	2.51%	8.63%	7.56%	8.63%
CE144	6.80E-06	2.92E-04	8.83E-05	3.54E-05	2.16E-05	2.19E-06	1.87E-04	2.53E-06
	.14%	.18%	.49%	.63%	.20%	.09%	.33%	.10%
PR144	5.03E-12	4.63E-11	5.07E-12	5.05E-12	5.04E-12	5.03E-12	1.40E-09	5.78E-12
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
TOTAL	4.75E-03	1.58E-01	1.79E-02	5.65E-03	1.08E-02	2.36E-03	5.62E-02	2.66E-03

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = GROUND

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
NA 24	6.17E-05	6.17E-05	6.17E-05	6.17E-05	6.17E-05	6.17E-05	6.17E-05	7.16E-05
	2.66%	2.66%	2.66%	2.66%	2.66%	2.66%	2.66%	2.69%
CR 51	2.64E-04	2.64E-04	2.64E-04	2.64E-04	2.64E-04	2.64E-04	2.64E-04	3.12E-04
	11.37%	11.37%	11.37%	11.37%	11.37%	11.37%	11.37%	11.70%
MN 56	2.08E-06	2.08E-06	2.08E-06	2.08E-06	2.08E-06	2.08E-06	2.08E-06	2.46E-06
	.09%	.09%	.09%	.09%	.09%	.09%	.09%	.09%
CO 57	2.32E-06	2.32E-06	2.32E-06	2.32E-06	2.32E-06	2.32E-06	2.32E-06	2.55E-06
	.10%	.10%	.10%	.10%	.10%	.10%	.10%	.10%

CU 64	7.49E-06	7.49E-06	7.49E-06	7.49E-06	7.49E-06	7.49E-06	7.49E-06	8.49E-06
	.32%	.32%	.32%	.32%	.32%	.32%	.32%	.32%
RB 89	6.51E-10	6.51E-10	6.51E-10	6.51E-10	6.51E-10	6.51E-10	6.51E-10	7.82E-10
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SR 91	2.45E-06	2.45E-06	2.45E-06	2.45E-06	2.45E-06	2.45E-06	2.45E-06	2.87E-06
	.11%	.11%	.11%	.11%	.11%	.11%	.11%	.11%
NP239	3.11E-05	3.11E-05	3.11E-05	3.11E-05	3.11E-05	3.11E-05	3.11E-05	3.60E-05
	1.34%	1.34%	1.34%	1.34%	1.34%	1.34%	1.34%	1.35%
SR 92	4.19E-07	4.19E-07	4.19E-07	4.19E-07	4.19E-07	4.19E-07	4.19E-07	4.66E-07
	.02%	.02%	.02%	.02%	.02%	.02%	.02%	.02%
MO 99	3.66E-04	3.66E-04	3.66E-04	3.66E-04	3.66E-04	3.66E-04	3.66E-04	4.23E-04
	15.77%	15.77%	15.77%	15.77%	15.77%	15.77%	15.77%	15.90%
RU106	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	4.94E-05	5.92E-05
	2.13%	2.13%	2.13%	2.13%	2.13%	2.13%	2.13%	2.23%
SB125	2.18E-04	2.18E-04	2.18E-04	2.18E-04	2.18E-04	2.18E-04	2.18E-04	2.46E-04
	9.39%	9.39%	9.39%	9.39%	9.39%	9.39%	9.39%	9.23%
TE132	1.27E-07	1.27E-07	1.27E-07	1.27E-07	1.27E-07	1.27E-07	1.27E-07	1.49E-07
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CS136	1.45E-04	1.45E-04	1.45E-04	1.45E-04	1.45E-04	1.45E-04	1.45E-04	1.64E-04
	6.24%	6.24%	6.24%	6.24%	6.24%	6.24%	6.24%	6.16%
CS138	1.58E-08	1.58E-08	1.58E-08	1.58E-08	1.58E-08	1.58E-08	1.58E-08	1.81E-08
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
BA140	9.12E-04	9.12E-04	9.12E-04	9.12E-04	9.12E-04	9.12E-04	9.12E-04	1.04E-03
	39.33%	39.33%	39.33%	39.33%	39.33%	39.33%	39.33%	39.15%
LA140	5.22E-05	5.22E-05	5.22E-05	5.22E-05	5.22E-05	5.22E-05	5.22E-05	5.92E-05
	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.22%
CE141	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.04E-04	2.30E-04
	8.79%	8.79%	8.79%	8.79%	8.79%	8.79%	8.79%	8.63%
CE144	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.19E-06	2.53E-06
	.09%	.09%	.09%	.09%	.09%	.09%	.09%	.10%
PR144	5.03E-12	5.03E-12	5.03E-12	5.03E-12	5.03E-12	5.03E-12	5.03E-12	5.78E-12
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%

TOTAL	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.32E-03	2.66E-03

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = INHAL

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
NA 24	3.62E-05	3.62E-05	3.62E-05	3.62E-05	3.62E-05	3.62E-05	3.62E-05	0.00E+00
	16.35%	.16%	2.09%	11.21%	17.28%	93.78%	.07%	.00%
CR 51	4.13E-06	1.05E-04	0.00E+00	0.00E+00	8.70E-07	2.39E-06	5.66E-04	0.00E+00
	1.86%	.46%	.00%	.00%	.41%	6.20%	1.05%	.00%
MN 56	2.55E-10	5.11E-05	0.00E+00	1.63E-09	1.70E-09	0.00E+00	1.28E-05	0.00E+00
	.00%	.23%	.00%	.00%	.00%	.00%	.02%	.00%
CO 57	6.08E-09	2.22E-07	0.00E+00	5.99E-09	0.00E+00	0.00E+00	3.30E-06	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NI 63	1.20E-07	8.34E-08	3.55E-06	2.42E-07	0.00E+00	0.00E+00	1.44E-06	0.00E+00
	.05%	.00%	.20%	.07%	.00%	.00%	.00%	.00%
CU 64	5.34E-09	3.55E-04	0.00E+00	1.20E-08	3.74E-08	0.00E+00	5.73E-05	0.00E+00
	.00%	1.56%	.00%	.00%	.02%	.00%	.11%	.00%
RB 89	4.47E-10	7.68E-13	0.00E+00	6.38E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SR 91	2.00E-09	1.31E-04	5.04E-08	0.00E+00	0.00E+00	0.00E+00	2.82E-05	0.00E+00
	.00%	.58%	.00%	.00%	.00%	.00%	.05%	.00%
NP239	1.71E-07	1.27E-03	3.25E-06	2.63E-06	8.95E-07	0.00E+00	5.07E-04	0.00E+00
	.08%	5.58%	.19%	.81%	.43%	.00%	.94%	.00%
SR 92	9.65E-11	2.43E-05	2.28E-09	0.00E+00	0.00E+00	0.00E+00	5.31E-06	0.00E+00
	.00%	.11%	.00%	.00%	.00%	.00%	.00%	.00%
MO 99	1.59E-06	1.32E-02	0.00E+00	7.84E-06	1.87E-05	0.00E+00	6.14E-03	0.00E+00
	.72%	58.29%	.00%	2.43%	8.91%	.00%	11.43%	.00%
RU106	7.97E-07	6.24E-05	6.34E-06	0.00E+00	1.12E-05	0.00E+00	8.26E-04	0.00E+00
	.36%	.27%	.37%	.00%	5.33%	.00%	1.54%	.00%
SB125	8.58E-07	5.28E-06	3.75E-06	3.81E-08	0.00E+00	3.67E-09	1.15E-04	0.00E+00
	.39%	.02%	.22%	.01%	.00%	.00%	.21%	.00%

TE132	3.53E-09	8.29E-06	5.89E-09	4.43E-09	2.97E-08	4.14E-09	6.10E-06	0.00E+00
	.00%	.04%	.00%	.00%	.01%	.01%	.01%	.00%
CS136	7.05E-05	6.31E-06	2.78E-05	9.61E-05	5.55E-05	0.00E+00	8.07E-06	0.00E+00
	31.78%	.03%	1.60%	29.73%	26.46%	.00%	.02%	.00%
CS138	7.42E-09	9.50E-10	7.83E-09	1.34E-08	1.03E-08	0.00E+00	1.08E-09	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
BA140	8.50E-05	5.64E-03	1.34E-03	1.53E-06	5.17E-07	0.00E+00	4.09E-02	0.00E+00
	38.34%	24.86%	77.01%	.47%	.25%	.00%	76.18%	.00%
LA140	9.01E-08	7.13E-04	7.02E-07	3.22E-07	0.00E+00	0.00E+00	2.60E-04	0.00E+00
	.04%	3.14%	.04%	.10%	.00%	.00%	.48%	.00%
CE141	1.77E-05	1.05E-03	2.33E-04	1.46E-04	6.67E-05	0.00E+00	4.04E-03	0.00E+00
	7.97%	4.61%	13.41%	45.01%	31.78%	.00%	7.52%	.00%
CE144	4.54E-06	1.51E-05	8.48E-05	3.28E-05	1.91E-05	0.00E+00	1.85E-04	0.00E+00
	2.05%	.07%	4.88%	10.14%	9.12%	.00%	.34%	.00%
PR144	2.17E-15	4.13E-11	4.29E-14	1.65E-14	9.17E-15	0.00E+00	1.39E-09	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
TOTAL	2.22E-04	2.27E-02	1.74E-03	3.23E-04	2.10E-04	3.86E-05	5.37E-02	0.00E+00

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = VEGET

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
NA 24	4.25E-34	4.25E-34	4.25E-34	4.25E-34	4.25E-34	4.25E-34	4.25E-34	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CR 51	1.54E-06	2.45E-04	0.00E+00	0.00E+00	2.95E-07	8.86E-07	1.86E-06	0.00E+00
	1.37%	3.86%	.00%	.00%	.54%	98.75%	14.24%	.00%
CO 57	1.99E-07	2.00E-06	0.00E+00	1.11E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.18%	.03%	.00%	.26%	.00%	.00%	.00%	.00%
NI 63	4.37E-06	1.17E-06	1.29E-04	8.02E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	3.87%	.02%	8.87%	18.85%	.00%	.00%	.00%	.00%
CU 64	8.34E-41	1.11E-38	0.00E+00	1.60E-40	3.98E-40	0.00E+00	0.00E+00	0.00E+00

	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NP239	2.92E-16	6.98E-11	5.59E-15	4.76E-16	1.44E-15	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
MO 99	2.54E-10	1.99E-09	0.00E+00	1.20E-09	2.65E-09	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
RU106	2.75E-06	8.69E-04	2.19E-05	0.00E+00	3.63E-05	0.00E+00	0.00E+00	0.00E+00
	2.44%	13.68%	1.50%	.00%	66.06%	.00%	.00%	.00%
SB125	2.60E-06	7.75E-05	1.16E-05	1.11E-07	0.00E+00	1.12E-08	7.93E-06	0.00E+00
	2.30%	1.22%	.79%	.26%	.00%	1.25%	60.65%	.00%
TE132	1.93E-12	5.87E-11	3.37E-12	1.86E-12	1.76E-11	2.28E-12	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CS136	2.16E-05	2.57E-06	9.15E-06	3.13E-05	1.71E-05	0.00E+00	2.46E-06	0.00E+00
	19.13%	.04%	.63%	73.66%	31.17%	.00%	18.84%	.00%
BA140	7.95E-05	1.64E-03	1.28E-03	1.38E-06	4.61E-07	0.00E+00	8.20E-07	0.00E+00
	70.52%	25.85%	87.99%	3.24%	.84%	.00%	6.27%	.00%
LA140	1.23E-19	2.29E-14	9.77E-19	4.22E-19	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CE141	1.58E-07	3.32E-03	2.09E-06	1.24E-06	5.63E-07	0.00E+00	0.00E+00	0.00E+00
	.14%	52.20%	.14%	2.91%	1.02%	.00%	.00%	.00%
CE144	5.08E-08	1.97E-04	9.50E-07	3.50E-07	2.02E-07	0.00E+00	0.00E+00	0.00E+00
	.05%	3.10%	.07%	.82%	.37%	.00%	.00%	.00%
TOTAL	1.13E-04	6.35E-03	1.46E-03	4.26E-05	5.50E-05	8.97E-07	1.31E-05	0.00E+00

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = COW MILK

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
NA 24	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	1.76E-06	0.00E+00
	.16%	.04%	.10%	.07%	.04%	62.52%	2.17%	.00%
CR 51	1.77E-06	2.53E-04	0.00E+00	0.00E+00	3.30E-07	1.01E-06	2.10E-06	0.00E+00
	.16%	5.35%	.00%	.00%	.00%	35.81%	2.59%	.00%

MN 56	4.94E-21	2.18E-18	0.00E+00	2.48E-20	3.08E-20	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CO 57	3.07E-08	2.81E-07	0.00E+00	1.68E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NI 63	3.67E-06	8.88E-07	1.08E-04	6.61E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.33%	.02%	5.91%	.25%	.00%	.00%	.00%	.00%
CU 64	1.33E-08	1.67E-06	0.00E+00	2.51E-08	6.21E-08	0.00E+00	0.00E+00	0.00E+00
	.00%	.04%	.00%	.00%	.00%	.00%	.00%	.00%
SR 91	5.45E-11	4.70E-09	1.40E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NP239	2.83E-12	6.19E-07	5.46E-11	4.54E-12	1.37E-11	0.00E+00	0.00E+00	0.00E+00
	.00%	.01%	.00%	.00%	.00%	.00%	.00%	.00%
SR 92	7.26E-20	3.52E-17	1.75E-18	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
MO 99	3.62E-04	2.58E-03	0.00E+00	1.67E-03	3.68E-03	0.00E+00	0.00E+00	0.00E+00
	32.82%	54.59%	.00%	63.60%	87.68%	.00%	.00%	.00%
RU106	4.08E-10	1.16E-07	3.25E-09	0.00E+00	5.25E-09	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SB125	5.45E-07	1.47E-05	2.45E-06	2.28E-08	0.00E+00	2.36E-09	1.65E-06	0.00E+00
	.05%	.31%	.13%	.00%	.00%	.08%	2.03%	.00%
TE132	3.77E-08	1.02E-06	6.65E-08	3.57E-08	3.38E-07	4.46E-08	0.00E+00	0.00E+00
	.00%	.02%	.00%	.00%	.00%	1.59%	.00%	.00%
CS136	6.44E-04	7.14E-05	2.83E-04	9.45E-04	5.14E-04	0.00E+00	7.47E-05	0.00E+00
	58.44%	1.51%	15.44%	36.02%	12.25%	.00%	92.10%	.00%
BA140	8.84E-05	1.67E-03	1.44E-03	1.51E-06	5.02E-07	0.00E+00	9.02E-07	0.00E+00
	8.03%	35.32%	78.40%	.06%	.01%	.00%	1.11%	.00%
LA140	9.32E-13	1.59E-07	7.47E-12	3.14E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CE141	6.76E-09	1.29E-04	8.98E-08	5.20E-08	2.36E-08	0.00E+00	0.00E+00	0.00E+00
	.00%	2.72%	.00%	.00%	.00%	.00%	.00%	.00%
CE144	7.95E-10	2.78E-06	1.49E-08	5.36E-09	3.08E-09	0.00E+00	0.00E+00	0.00E+00
	.00%	.06%	.00%	.00%	.00%	.00%	.00%	.00%

TOTAL	1.10E-03	4.72E-03	1.83E-03	2.62E-03	4.20E-03	2.81E-06	8.11E-05	0.00E+00

1

North Anna - population- primary
NEPA ANNUAL INTEGRATED POPULATION DOSE SUMMARY (PERSON-REM)
PATHWAY = MEAT

NUCLIDE	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
NA 24	4.77E-14	4.77E-14	4.77E-14	4.77E-14	4.77E-14	4.77E-14	4.77E-14	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CR 51	2.31E-06	4.61E-04	0.00E+00	0.00E+00	4.73E-07	1.35E-06	2.93E-06	0.00E+00
	.23%	.38%	.00%	.00%	.01%	86.44%	7.97%	.00%
CO 57	6.83E-07	8.41E-06	0.00E+00	3.94E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.07%	.00%	.00%	.12%	.00%	.00%	.00%	.00%
NI 63	4.89E-06	1.64E-06	1.45E-04	9.47E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.49%	.00%	1.38%	2.80%	.00%	.00%	.00%	.00%
CU 64	9.64E-18	1.49E-15	0.00E+00	1.94E-17	4.85E-17	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
SR 91	4.41E-23	4.51E-21	1.11E-21	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
NP239	1.74E-12	5.12E-07	3.28E-11	2.97E-12	9.12E-12	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
MO 99	1.16E-05	1.12E-04	0.00E+00	5.72E-05	1.28E-04	0.00E+00	0.00E+00	0.00E+00
	1.17%	.09%	.00%	16.90%	3.17%	.00%	.00%	.00%
RU106	2.67E-04	1.06E-01	2.12E-03	0.00E+00	3.76E-03	0.00E+00	0.00E+00	0.00E+00
	26.88%	86.50%	20.09%	.00%	93.13%	.00%	.00%	.00%
SB125	2.55E-06	9.39E-05	1.11E-05	1.13E-07	0.00E+00	1.09E-08	8.01E-06	0.00E+00
	.26%	.08%	.10%	.03%	.00%	.70%	21.82%	.00%
TE132	1.71E-07	6.66E-06	2.90E-07	1.72E-07	1.65E-06	2.01E-07	0.00E+00	0.00E+00
	.02%	.00%	.00%	.05%	.04%	12.86%	.00%	.00%
CS136	1.83E-04	2.51E-05	7.12E-05	2.60E-04	1.44E-04	0.00E+00	2.02E-05	0.00E+00
	18.43%	.02%	.68%	77.03%	3.56%	.00%	55.12%	.00%
BA140	5.21E-04	1.32E-02	8.19E-03	9.45E-06	3.19E-06	0.00E+00	5.54E-06	0.00E+00
	52.44%	10.76%	77.73%	2.79%	.08%	.00%	15.09%	.00%

LA140	8.80E-14	1.99E-08	6.82E-13	3.16E-13	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	.00%	.00%	.00%	.00%	.00%	.00%	.00%	.00%
CE141	9.77E-08	2.57E-03	1.29E-06	8.07E-07	3.71E-07	0.00E+00	0.00E+00	0.00E+00
	.00%	2.10%	.01%	.24%	.00%	.00%	.00%	.00%
CE144	1.54E-08	7.51E-05	2.88E-07	1.12E-07	6.55E-08	0.00E+00	0.00E+00	0.00E+00
	.00%	.06%	.00%	.03%	.00%	.00%	.00%	.00%
TOTAL	9.93E-04	1.22E-01	1.05E-02	3.38E-04	4.03E-03	1.56E-06	3.67E-05	0.00E+00

1

North Anna - population- primary
SPECIAL LOCATION NO. 1 Site Bound (EAB)
AT .88 MILES ESE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	6.06E-04	6.06E-04	6.06E-04	6.06E-04	6.06E-04	6.06E-04	6.06E-04	6.96E-04
VEGET								
ADULT	3.82E-04	1.34E-02	4.22E-03	2.38E-04	3.32E-04	1.07E-06	1.63E-05	0.00E+00
TEEN	5.73E-04	1.58E-02	6.70E-03	3.19E-04	4.16E-04	1.42E-06	2.79E-05	0.00E+00
CHILD	1.15E-03	1.23E-02	1.58E-02	4.99E-04	6.21E-04	2.76E-06	4.06E-05	0.00E+00
MEAT								
ADULT	2.65E-05	3.97E-03	2.69E-04	9.69E-06	1.10E-04	4.30E-08	1.02E-06	0.00E+00
TEEN	2.12E-05	2.48E-03	2.23E-04	7.64E-06	9.25E-05	3.21E-08	9.16E-07	0.00E+00
CHILD	3.46E-05	1.51E-03	4.14E-04	9.54E-06	1.21E-04	5.09E-08	1.04E-06	0.00E+00
COW MILK								
ADULT	2.13E-04	1.48E-03	2.54E-04	5.79E-04	1.02E-03	2.92E-06	1.60E-05	0.00E+00
TEEN	3.57E-04	2.03E-03	4.54E-04	1.03E-03	1.85E-03	5.08E-06	3.01E-05	0.00E+00
CHILD	6.81E-04	1.67E-03	1.09E-03	1.80E-03	3.12E-03	1.06E-05	4.70E-05	0.00E+00

INFANT	1.13E-03	1.69E-03	2.16E-03	4.39E-03	5.54E-03	1.85E-05	9.64E-05	0.00E+00
GOATMILK								
ADULT	4.09E-04	2.59E-04	1.68E-04	6.06E-04	4.32E-04	3.92E-07	4.25E-05	0.00E+00
TEEN	6.51E-04	3.45E-04	2.89E-04	1.04E-03	7.37E-04	6.82E-07	8.10E-05	0.00E+00
CHILD	1.01E-03	2.74E-04	6.60E-04	1.66E-03	1.17E-03	1.42E-06	1.19E-04	0.00E+00
INFANT	1.26E-03	2.72E-04	1.30E-03	3.55E-03	1.92E-03	2.48E-06	2.54E-04	0.00E+00
INHAL								
ADULT	2.30E-05	2.88E-03	1.60E-04	3.33E-05	2.23E-05	4.95E-06	5.26E-03	0.00E+00
TEEN	3.06E-05	3.12E-03	2.24E-04	4.56E-05	3.05E-05	6.63E-06	8.50E-03	0.00E+00
CHILD	3.40E-05	1.52E-03	3.03E-04	4.60E-05	2.99E-05	7.75E-06	7.34E-03	0.00E+00
INFANT	2.08E-05	6.01E-04	2.22E-04	3.59E-05	1.82E-05	5.09E-06	6.79E-03	0.00E+00

1

North Anna - population- primary
SPECIAL LOCATION NO. 2 Nearest Resid
AT .96 MILES NNE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	3.64E-04	3.64E-04	3.64E-04	3.64E-04	3.64E-04	3.64E-04	3.64E-04	4.18E-04
VEGET								
ADULT	2.29E-04	8.02E-03	2.53E-03	1.43E-04	1.99E-04	6.40E-07	9.75E-06	0.00E+00
TEEN	3.44E-04	9.50E-03	4.02E-03	1.91E-04	2.50E-04	8.50E-07	1.67E-05	0.00E+00
CHILD	6.90E-04	7.38E-03	9.50E-03	3.00E-04	3.72E-04	1.66E-06	2.44E-05	0.00E+00
MEAT								
ADULT	1.59E-05	2.38E-03	1.62E-04	5.82E-06	6.62E-05	2.58E-08	6.13E-07	0.00E+00
TEEN	1.27E-05	1.49E-03	1.34E-04	4.58E-06	5.55E-05	1.92E-08	5.50E-07	0.00E+00
CHILD	2.08E-05	9.06E-04	2.48E-04	5.72E-06	7.29E-05	3.05E-08	6.22E-07	0.00E+00

COW MILK									
ADULT	1.28E-04	8.88E-04	1.53E-04	3.47E-04	6.14E-04	1.75E-06	9.59E-06	0.00E+00
TEEN	2.14E-04	1.22E-03	2.73E-04	6.16E-04	1.11E-03	3.05E-06	1.81E-05	0.00E+00
CHILD	4.09E-04	1.00E-03	6.52E-04	1.08E-03	1.87E-03	6.34E-06	2.82E-05	0.00E+00
INFANT	6.77E-04	1.01E-03	1.30E-03	2.63E-03	3.32E-03	1.11E-05	5.78E-05	0.00E+00
GOATMILK								
ADULT	2.45E-04	1.55E-04	1.01E-04	3.64E-04	2.59E-04	2.35E-07	2.55E-05	0.00E+00
TEEN	3.90E-04	2.07E-04	1.73E-04	6.21E-04	4.42E-04	4.09E-07	4.86E-05	0.00E+00
CHILD	6.04E-04	1.64E-04	3.96E-04	9.94E-04	7.04E-04	8.51E-07	7.12E-05	0.00E+00
INFANT	7.53E-04	1.63E-04	7.77E-04	2.13E-03	1.15E-03	1.49E-06	1.52E-04	0.00E+00
INHAL								
ADULT	1.47E-05	1.83E-03	1.02E-04	2.12E-05	1.42E-05	3.15E-06	3.34E-03	0.00E+00
TEEN	1.94E-05	1.99E-03	1.43E-04	2.90E-05	1.94E-05	4.22E-06	5.41E-03	0.00E+00
CHILD	2.16E-05	9.69E-04	1.93E-04	2.93E-05	1.90E-05	4.93E-06	4.67E-03	0.00E+00
INFANT	1.32E-05	3.82E-04	1.41E-04	2.28E-05	1.16E-05	3.24E-06	4.32E-03	0.00E+00

1

North Anna - population- primary
SPECIAL LOCATION NO. 3 Nearest Meat
AT 1.37 MILES SE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	1.57E-04	1.57E-04	1.57E-04	1.57E-04	1.57E-04	1.57E-04	1.57E-04	1.80E-04
VEGET								
ADULT	9.87E-05	3.45E-03	1.09E-03	6.14E-05	8.59E-05	2.76E-07	4.20E-06	0.00E+00
TEEN	1.48E-04	4.09E-03	1.73E-03	8.23E-05	1.07E-04	3.66E-07	7.21E-06	0.00E+00

CHILD	2.97E-04	3.18E-03	4.09E-03	1.29E-04	1.60E-04	7.13E-07	1.05E-05	0.00E+00
MEAT								
ADULT	6.84E-06	1.03E-03	6.96E-05	2.50E-06	2.85E-05	1.11E-08	2.64E-07	0.00E+00
TEEN	5.48E-06	6.40E-04	5.77E-05	1.97E-06	2.39E-05	8.29E-09	2.37E-07	0.00E+00
CHILD	8.94E-06	3.90E-04	1.07E-04	2.46E-06	3.14E-05	1.31E-08	2.68E-07	0.00E+00
COW MILK								
ADULT	5.49E-05	3.83E-04	6.57E-05	1.49E-04	2.65E-04	7.54E-07	4.13E-06	0.00E+00
TEEN	9.23E-05	5.25E-04	1.17E-04	2.65E-04	4.79E-04	1.31E-06	7.78E-06	0.00E+00
CHILD	1.76E-04	4.31E-04	2.81E-04	4.65E-04	8.07E-04	2.73E-06	1.21E-05	0.00E+00
INFANT	2.91E-04	4.36E-04	5.59E-04	1.13E-03	1.43E-03	4.77E-06	2.49E-05	0.00E+00
GOATMILK								
ADULT	1.06E-04	6.69E-05	4.34E-05	1.57E-04	1.12E-04	1.01E-07	1.10E-05	0.00E+00
TEEN	1.68E-04	8.91E-05	7.46E-05	2.67E-04	1.90E-04	1.76E-07	2.09E-05	0.00E+00
CHILD	2.60E-04	7.07E-05	1.71E-04	4.28E-04	3.03E-04	3.66E-07	3.06E-05	0.00E+00
INFANT	3.24E-04	7.02E-05	3.35E-04	9.16E-04	4.96E-04	6.41E-07	6.56E-05	0.00E+00
INHAL								
ADULT	8.38E-06	1.05E-03	5.81E-05	1.21E-05	8.10E-06	1.80E-06	1.91E-03	0.00E+00
TEEN	1.11E-05	1.14E-03	8.16E-05	1.66E-05	1.11E-05	2.41E-06	3.09E-03	0.00E+00
CHILD	1.24E-05	5.54E-04	1.10E-04	1.67E-05	1.09E-05	2.82E-06	2.67E-03	0.00E+00
INFANT	7.57E-06	2.19E-04	8.07E-05	1.30E-05	6.63E-06	1.85E-06	2.47E-03	0.00E+00

1

North Anna - population- primary
SPECIAL LOCATION NO. 4 Veg Garden
AT .94 MILES NE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

GROUND	3.03E-04	3.03E-04	3.03E-04	3.03E-04	3.03E-04	3.03E-04	3.03E-04	3.48E-04
VEGET								
ADULT	1.91E-04	6.69E-03	2.11E-03	1.19E-04	1.66E-04	5.33E-07	8.13E-06	0.00E+00
TEEN	2.87E-04	7.92E-03	3.35E-03	1.59E-04	2.08E-04	7.08E-07	1.40E-05	0.00E+00
CHILD	5.75E-04	6.15E-03	7.92E-03	2.50E-04	3.10E-04	1.38E-06	2.03E-05	0.00E+00
MEAT								
ADULT	1.32E-05	1.99E-03	1.35E-04	4.85E-06	5.52E-05	2.15E-08	5.11E-07	0.00E+00
TEEN	1.06E-05	1.24E-03	1.12E-04	3.82E-06	4.63E-05	1.60E-08	4.58E-07	0.00E+00
CHILD	1.73E-05	7.55E-04	2.07E-04	4.77E-06	6.07E-05	2.54E-08	5.19E-07	0.00E+00
COW MILK								
ADULT	1.06E-04	7.40E-04	1.27E-04	2.89E-04	5.12E-04	1.46E-06	7.99E-06	0.00E+00
TEEN	1.79E-04	1.02E-03	2.27E-04	5.13E-04	9.26E-04	2.54E-06	1.51E-05	0.00E+00
CHILD	3.40E-04	8.34E-04	5.43E-04	9.01E-04	1.56E-03	5.28E-06	2.35E-05	0.00E+00
INFANT	5.64E-04	8.44E-04	1.08E-03	2.19E-03	2.77E-03	9.24E-06	4.82E-05	0.00E+00
GOATMILK								
ADULT	2.05E-04	1.29E-04	8.40E-05	3.03E-04	2.16E-04	1.96E-07	2.12E-05	0.00E+00
TEEN	3.25E-04	1.72E-04	1.44E-04	5.18E-04	3.69E-04	3.41E-07	4.05E-05	0.00E+00
CHILD	5.03E-04	1.37E-04	3.30E-04	8.28E-04	5.86E-04	7.09E-07	5.93E-05	0.00E+00
INFANT	6.28E-04	1.36E-04	6.48E-04	1.77E-03	9.61E-04	1.24E-06	1.27E-04	0.00E+00
INHAL								
ADULT	1.26E-05	1.57E-03	8.72E-05	1.82E-05	1.22E-05	2.70E-06	2.87E-03	0.00E+00
TEEN	1.67E-05	1.70E-03	1.22E-04	2.49E-05	1.66E-05	3.62E-06	4.63E-03	0.00E+00
CHILD	1.85E-05	8.31E-04	1.65E-04	2.51E-05	1.63E-05	4.23E-06	4.00E-03	0.00E+00
INFANT	1.14E-05	3.28E-04	1.21E-04	1.96E-05	9.95E-06	2.78E-06	3.70E-03	0.00E+00

1North Anna - population- primary
COST BENEFIT TABLES (NUCLIDE RELEASE, T.BODY AND THYROID - PERSON-REM)
0major contributors plus nobles gases
0NUCLIDE CI/YR T.BODY THYROID

NA 24	4.40E-03	9.88E-05	9.88E-05
CR 51	3.80E-02	2.70E-04	2.68E-04
MN 56	3.80E-03	2.09E-06	2.08E-06
CO 57	8.20E-06	2.63E-06	2.32E-06
NI 63	7.10E-06	6.98E-06	0.00E+00
CU 64	1.10E-02	7.50E-06	7.49E-06
RB 89	4.70E-05	1.10E-09	6.51E-10
SR 91	1.10E-03	2.46E-06	2.45E-06
NP239	1.30E-02	3.13E-05	3.11E-05
SR 92	8.60E-04	4.19E-07	4.19E-07
MO 99	6.50E-02	5.51E-04	3.66E-04
RU106	7.80E-05	8.81E-05	4.94E-05
SB125	6.10E-05	2.22E-04	2.18E-04
TE132	2.10E-05	1.72E-07	1.80E-07
CS136	6.50E-04	5.86E-04	1.45E-04
CS138	1.90E-04	2.32E-08	1.58E-08
BA140	3.00E-02	1.19E-03	9.12E-04
LA140	2.00E-03	5.23E-05	5.22E-05
CE141	1.00E-02	2.22E-04	2.04E-04
CE144	2.10E-05	6.79E-06	2.19E-06
PR144	2.10E-05	5.03E-12	5.03E-12

SUBTOTALS	CI/YR	T.BODY	THYROID
NOBLE	0.00E+00	0.00E+00	0.00E+00
IODINE	0.00E+00	0.00E+00	0.00E+00
PART.	1.80E-01	3.34E-03	2.36E-03
C-14	0.00E+00	0.00E+00	0.00E+00
H-3	0.00E+00	0.00E+00	0.00E+00
TOTAL	1.80E-01	3.34E-03	2.36E-03

1North Anna - population- primary
COST BENEFIT TABLES (NUCLIDE RELEASE, T.BODY AND THYROID - PERSON-REM)
0major contributors plus nobles gases

0NUCLIDE	CI/YR	T.BODY	THYROID

```
NA 24  I 4.40E-03 I 9.88E-05 I 9.88E-05 I
CR 51  I 3.80E-02 I 2.70E-04 I 2.68E-04 I
MN 56  I 3.80E-03 I 2.09E-06 I 2.08E-06 I
CO 57  I 8.20E-06 I 2.63E-06 I 2.32E-06 I
NI 63  I 7.10E-06 I 6.98E-06 I 0.00E+00 I
CU 64  I 1.10E-02 I 7.50E-06 I 7.49E-06 I
RB 89  I 4.70E-05 I 1.10E-09 I 6.51E-10 I
SR 91  I 1.10E-03 I 2.46E-06 I 2.45E-06 I
NP239  I 1.30E-02 I 3.13E-05 I 3.11E-05 I
SR 92  I 8.60E-04 I 4.19E-07 I 4.19E-07 I
MO 99  I 6.50E-02 I 5.51E-04 I 3.66E-04 I
RU106  I 7.80E-05 I 8.81E-05 I 4.94E-05 I
SB125  I 6.10E-05 I 2.22E-04 I 2.18E-04 I
TE132  I 2.10E-05 I 1.72E-07 I 1.80E-07 I
CS136  I 6.50E-04 I 5.86E-04 I 1.45E-04 I
CS138  I 1.90E-04 I 2.32E-08 I 1.58E-08 I
BA140  I 3.00E-02 I 1.19E-03 I 9.12E-04 I
LA140  I 2.00E-03 I 5.23E-05 I 5.22E-05 I
CE141  I 1.00E-02 I 2.22E-04 I 2.04E-04 I
CE144  I 2.10E-05 I 6.79E-06 I 2.19E-06 I
PR144  I 2.10E-05 I 5.03E-12 I 5.03E-12 I
-------+----------+----------+----------+
```

```
SUBTOTALS  CI/YR    T.BODY      THYROID
-------+----------+----------+----------+
NOBLE  I 0.00E+00 I 0.00E+00 I 0.00E+00 I
IODINE I 0.00E+00 I 0.00E+00 I 0.00E+00 I
PART.  I 1.80E-01 I 3.34E-03 I 2.36E-03 I
C-14   I 0.00E+00 I 0.00E+00 I 0.00E+00 I
H-3    I 0.00E+00 I 0.00E+00 I 0.00E+00 I
-------+----------+----------+----------+
TOTAL  I 1.80E-01 I 3.34E-03 I 2.36E-03 I
0   *** PROGRAM TERMINATED DUE TO BLANK CONTROL CARD
        OR NUMBER OF RELEASE POINTS JC(2) ZERO OR NEGATIVE ***
1
```

north anna_mei_tritium_Sept06.Inp

1

```
*****************************************************************************************
*                                                                                       *
*                                                                                       *
*                                                                                       *
*          GGGGGGGG     AA     SSSSSSSS  PPPPPPPP     AA     RRRRRRRR    IIIII IIIII    *
*          G      G     AA     S         PP     P     AA     RR     R      I     I      *
*          G           A  A    SSSSSSS   PP     P    A  A    RRRRRRRR      I     I      *
*          G   GGGGG  AAAAAA         S  PPPPPPPP   AAAAAA   RRRR          I     I      *
*          G     G   A      A        S  PP        A      A  RR RR         I     I      *
*          GGGGGGG  A        A SSSSSSS  PP       A        A RR   RR     IIIII IIIII    *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                EVALUATION OF RADIATION DOSES FROM RELEASES OF RADIOACTIVITY           *
*                                                                                       *
*                        IN NUCLEAR POWER PLANTS AIRBORNE EFFLUENTS                     *
*                                                                                       *
*                          REVISION DATE:  JSB PC - MARCH 1994                          *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*          North Anna - mei - primary_Apr06                                             *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*                          RELIABILITY AND RISK ASSESSMENT BRANCH                       *
*                                                                                       *
*                          OFFICE OF NUCLEAR REACTOR REGULATION                         *
*                                                                                       *
*                          U.S. NUCLEAR REGULATORY COMMISSION                           *
*                                                                                       *
*                          WASHINGTON, D.C. 20555                                       *
*                                                                                       *
*                             DATE OF RUN:     13-Nov-2006                               *
*                                                                                       *
*                                                                                       *
*                                                                                       *
*****************************************************************************************
```

1
North Anna - mei - primary_Apr06

0 JOB CONTROL PARAMETERS

```
JC(1) =  1  :POPULATION/INDIVIDUAL DOSE SELECTION
JC(2) =  1  :NUMBER OF SOURCE RELEASE POINTS
JC(3) =  1  :PRINT CONTROL FOR DOSE ACCUMULATION
JC(4) =  0  :READ CONTROL FOR BLOCK DATA CHANGE RECORDS
JC(5) =  0  :PRINT CONTROL FOR DOSE FACTOR TABLE
JC(6) =  0  :CALCULATION CONTROL FOR UNIT DOSE FACTORS
JC(7) =  0  :READ CONTROL FOR DISPERSION DATA INPUT FILE
JC(8) =  0
JC(9) =  0
```

```
        JC(10)=  0
0
    EXPOSURE PATHWAY FRACTIONS

        PARAMETER DESCRIPTION(FRACTION)    VALUE
        ---------------------------------------
        FV   LEAFY VEGETABLE FROM GARDEN     .50
        FG   OTHER EDIBLES FROM GARDEN       .76
        FP   TIME MILK COWS ON PASTURE       .67
        FB   TIME BEEF ON PASTURE            .67
        FGT  TIME MILK GOATS ON PASTURE      .75
        FPF  MILK COW INTAKE FROM PASTURE   1.00
        FBF  BEEF INTAKE FROM PASTURE       1.00
        FPG  MILK GOAT INTAKE FROM PASTURE  1.00

        HUMIDITY(G/M**3)   8.00
0
    SOURCE TERM RELEASE NUMBER  1

        RELEASE POINT     major contributors plus nobles gases
        UML =  1.00E+00   SOURCE TERM MULTIPLICATION FACTOR
        JC1 =  0          NEW OR PREVIOUS MET DATA PARAMETER
        JC2 =  0          NEW OR PREVIOUS SOURCE TERM RELEASE DATA PARAMETER
0         NUCLIDE     CI/YR
          -------     -----
           1H   3   2.16E+02
0                 2.160E+02 TOTAL CURIES FOR   1 RADIONUCLIDES
1


  North Anna - mei - primary_Apr06

0                                                                  REPORT CONTROL FLAGS
  JS SPECIAL LOCATION DIR MILES    X/Q      X/Q:DEC   X/Q:DCDP  DEPOSITE  PL GD VT MT CM GM IN
  -- ---------------- --- -----  --------  --------  --------  --------  -- -- -- -- -- -- --
   1 Site Bound (EAB) ESE   .88  3.70E-06  3.70E-06  3.30E-06  1.20E-08   1  1  1  1  1  1  1
   1 Nearest Resid    NNE   .96  2.40E-06  2.40E-06  2.10E-06  7.20E-09   1  1  1  1  1  1  1
   1 Nearest Meat      SE  1.37  1.40E-06  1.40E-06  1.20E-06  3.10E-09   1  1  1  1  1  1  1
   1 Veg Garden        NE   .94  2.00E-06  2.00E-06  1.80E-06  6.00E-09   1  1  1  1  1  1  1
   1 nearest biota    ESE   .25  2.69E-05  2.68E-05  2.54E-05  5.10E-08   1  1  1  1  1  1  1
0                                   REPORTS ARE NOT PRINTED IF JS=1 OR CONTROL FLAGS=1
                                                                 FLAGS:  PL - PLUME
                                                                         GD - GROUND
                                                                         VT - VEGETABLE
                                                                         MT - MEAT
                                                                         CM - COW MILK
                                                                         GM - GOAT MILK
                                                                         IN - INHALATION
1

  North Anna - mei - primary_Apr06
  SPECIAL LOCATION NO.  1  Site Bound (EAB)
        AT   .88 MILES ESE

    ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
   ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

  PATHWAY   T.BODY     GI-TRACT     BONE      LIVER      KIDNEY     THYROID     LUNG       SKIN
 ---------+----------+----------+----------+----------+----------+----------+----------+----------+
 PLUME    : 0.00E+00 : 0.00E+00 : 0.00E+00 : 0.00E+00 : 0.00E+00 : 0.00E+00 : 0.00E+00 : 0.00E+00 :
 ---------+----------+----------+----------+----------+----------+----------+----------+----------+
 GROUND   : 0.00E+00 : 0.00E+00 : 0.00E+00 : 0.00E+00 : 0.00E+00 : 0.00E+00 : 0.00E+00 : 0.00E+00 :
```

VEGET								
ADULT	3.07E-02	3.07E-02	0.00E+00	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02
TEEN	3.62E-02	3.62E-02	0.00E+00	3.62E-02	3.62E-02	3.62E-02	3.62E-02	3.62E-02
CHILD	5.68E-02	5.68E-02	0.00E+00	5.68E-02	5.68E-02	5.68E-02	5.68E-02	5.68E-02
MEAT								
ADULT	4.74E-03	4.74E-03	0.00E+00	4.74E-03	4.74E-03	4.74E-03	4.74E-03	4.74E-03
TEEN	2.82E-03	2.82E-03	0.00E+00	2.82E-03	2.82E-03	2.82E-03	2.82E-03	2.82E-03
CHILD	3.42E-03	3.42E-03	0.00E+00	3.42E-03	3.42E-03	3.42E-03	3.42E-03	3.42E-03
COW MILK								
ADULT	1.11E-02	1.11E-02	0.00E+00	1.11E-02	1.11E-02	1.11E-02	1.11E-02	1.11E-02
TEEN	1.45E-02	1.45E-02	0.00E+00	1.45E-02	1.45E-02	1.45E-02	1.45E-02	1.45E-02
CHILD	2.29E-02	2.29E-02	0.00E+00	2.29E-02	2.29E-02	2.29E-02	2.29E-02	2.29E-02
INFANT	3.48E-02	3.48E-02	0.00E+00	3.48E-02	3.48E-02	3.48E-02	3.48E-02	3.48E-02
GOATMILK								
ADULT	2.27E-02	2.27E-02	0.00E+00	2.27E-02	2.27E-02	2.27E-02	2.27E-02	2.27E-02
TEEN	2.95E-02	2.95E-02	0.00E+00	2.95E-02	2.95E-02	2.95E-02	2.95E-02	2.95E-02
CHILD	4.68E-02	4.68E-02	0.00E+00	4.68E-02	4.68E-02	4.68E-02	4.68E-02	4.68E-02
INFANT	7.10E-02	7.10E-02	0.00E+00	7.10E-02	7.10E-02	7.10E-02	7.10E-02	7.10E-02
INHAL								
ADULT	1.82E-02	1.82E-02	0.00E+00	1.82E-02	1.82E-02	1.82E-02	1.82E-02	1.82E-02
TEEN	1.84E-02	1.84E-02	0.00E+00	1.84E-02	1.84E-02	1.84E-02	1.84E-02	1.84E-02
CHILD	1.62E-02	1.62E-02	0.00E+00	1.62E-02	1.62E-02	1.62E-02	1.62E-02	1.62E-02
INFANT	9.33E-03	9.33E-03	0.00E+00	9.33E-03	9.33E-03	9.33E-03	9.33E-03	9.33E-03

1

North Anna - mei - primary_Apr06
SPECIAL LOCATION NO. 2 Nearest Resid
AT .96 MILES NNE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	1.99E-02	1.99E-02	0.00E+00	1.99E-02	1.99E-02	1.99E-02	1.99E-02	1.99E-02
TEEN	2.35E-02	2.35E-02	0.00E+00	2.35E-02	2.35E-02	2.35E-02	2.35E-02	2.35E-02
CHILD	3.68E-02	3.68E-02	0.00E+00	3.68E-02	3.68E-02	3.68E-02	3.68E-02	3.68E-02

MEAT								
ADULT	3.07E-03	3.07E-03	0.00E+00	3.07E-03	3.07E-03	3.07E-03	3.07E-03	3.07E-03
TEEN	1.83E-03	1.83E-03	0.00E+00	1.83E-03	1.83E-03	1.83E-03	1.83E-03	1.83E-03
CHILD	2.22E-03	2.22E-03	0.00E+00	2.22E-03	2.22E-03	2.22E-03	2.22E-03	2.22E-03
COW MILK								
ADULT	7.22E-03	7.22E-03	0.00E+00	7.22E-03	7.22E-03	7.22E-03	7.22E-03	7.22E-03
TEEN	9.39E-03	9.39E-03	0.00E+00	9.39E-03	9.39E-03	9.39E-03	9.39E-03	9.39E-03
CHILD	1.49E-02	1.49E-02	0.00E+00	1.49E-02	1.49E-02	1.49E-02	1.49E-02	1.49E-02
INFANT	2.26E-02	2.26E-02	0.00E+00	2.26E-02	2.26E-02	2.26E-02	2.26E-02	2.26E-02
GOATMILK								
ADULT	1.47E-02	1.47E-02	0.00E+00	1.47E-02	1.47E-02	1.47E-02	1.47E-02	1.47E-02
TEEN	1.92E-02	1.92E-02	0.00E+00	1.92E-02	1.92E-02	1.92E-02	1.92E-02	1.92E-02
CHILD	3.04E-02	3.04E-02	0.00E+00	3.04E-02	3.04E-02	3.04E-02	3.04E-02	3.04E-02
INFANT	4.61E-02	4.61E-02	0.00E+00	4.61E-02	4.61E-02	4.61E-02	4.61E-02	4.61E-02
INHAL								
ADULT	1.18E-02	1.18E-02	0.00E+00	1.18E-02	1.18E-02	1.18E-02	1.18E-02	1.18E-02
TEEN	1.19E-02	1.19E-02	0.00E+00	1.19E-02	1.19E-02	1.19E-02	1.19E-02	1.19E-02
CHILD	1.05E-02	1.05E-02	0.00E+00	1.05E-02	1.05E-02	1.05E-02	1.05E-02	1.05E-02
INFANT	6.05E-03	6.05E-03	0.00E+00	6.05E-03	6.05E-03	6.05E-03	6.05E-03	6.05E-03

1

North Anna - mei - primary_Apr06
SPECIAL LOCATION NO. 3 Nearest Meat
AT 1.37 MILES SE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	1.16E-02	1.16E-02	0.00E+00	1.16E-02	1.16E-02	1.16E-02	1.16E-02	1.16E-02
TEEN	1.37E-02	1.37E-02	0.00E+00	1.37E-02	1.37E-02	1.37E-02	1.37E-02	1.37E-02
CHILD	2.15E-02	2.15E-02	0.00E+00	2.15E-02	2.15E-02	2.15E-02	2.15E-02	2.15E-02
MEAT								
ADULT	1.79E-03	1.79E-03	0.00E+00	1.79E-03	1.79E-03	1.79E-03	1.79E-03	1.79E-03
TEEN	1.07E-03	1.07E-03	0.00E+00	1.07E-03	1.07E-03	1.07E-03	1.07E-03	1.07E-03
CHILD	1.29E-03	1.29E-03	0.00E+00	1.29E-03	1.29E-03	1.29E-03	1.29E-03	1.29E-03

COW MILK								
ADULT	4.21E-03	4.21E-03	0.00E+00	4.21E-03	4.21E-03	4.21E-03	4.21E-03	4.21E-03
TEEN	5.48E-03	5.48E-03	0.00E+00	5.48E-03	5.48E-03	5.48E-03	5.48E-03	5.48E-03
CHILD	8.68E-03	8.68E-03	0.00E+00	8.68E-03	8.68E-03	8.68E-03	8.68E-03	8.68E-03
INFANT	1.32E-02	1.32E-02	0.00E+00	1.32E-02	1.32E-02	1.32E-02	1.32E-02	1.32E-02
GOATMILK								
ADULT	8.59E-03	8.59E-03	0.00E+00	8.59E-03	8.59E-03	8.59E-03	8.59E-03	8.59E-03
TEEN	1.12E-02	1.12E-02	0.00E+00	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02
CHILD	1.77E-02	1.77E-02	0.00E+00	1.77E-02	1.77E-02	1.77E-02	1.77E-02	1.77E-02
INFANT	2.69E-02	2.69E-02	0.00E+00	2.69E-02	2.69E-02	2.69E-02	2.69E-02	2.69E-02
INHAL								
ADULT	6.89E-03	6.89E-03	0.00E+00	6.89E-03	6.89E-03	6.89E-03	6.89E-03	6.89E-03
TEEN	6.95E-03	6.95E-03	0.00E+00	6.95E-03	6.95E-03	6.95E-03	6.95E-03	6.95E-03
CHILD	6.14E-03	6.14E-03	0.00E+00	6.14E-03	6.14E-03	6.14E-03	6.14E-03	6.14E-03
INFANT	3.53E-03	3.53E-03	0.00E+00	3.53E-03	3.53E-03	3.53E-03	3.53E-03	3.53E-03

1

North Anna - mei - primary_Apr06
SPECIAL LOCATION NO. 4 Veg Garden
AT .94 MILES NE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	1.66E-02	1.66E-02	0.00E+00	1.66E-02	1.66E-02	1.66E-02	1.66E-02	1.66E-02
TEEN	1.96E-02	1.96E-02	0.00E+00	1.96E-02	1.96E-02	1.96E-02	1.96E-02	1.96E-02
CHILD	3.07E-02	3.07E-02	0.00E+00	3.07E-02	3.07E-02	3.07E-02	3.07E-02	3.07E-02
MEAT								
ADULT	2.56E-03	2.56E-03	0.00E+00	2.56E-03	2.56E-03	2.56E-03	2.56E-03	2.56E-03
TEEN	1.53E-03	1.53E-03	0.00E+00	1.53E-03	1.53E-03	1.53E-03	1.53E-03	1.53E-03
CHILD	1.85E-03	1.85E-03	0.00E+00	1.85E-03	1.85E-03	1.85E-03	1.85E-03	1.85E-03
COW MILK								
ADULT	6.02E-03	6.02E-03	0.00E+00	6.02E-03	6.02E-03	6.02E-03	6.02E-03	6.02E-03
TEEN	7.83E-03	7.83E-03	0.00E+00	7.83E-03	7.83E-03	7.83E-03	7.83E-03	7.83E-03
CHILD	1.24E-02	1.24E-02	0.00E+00	1.24E-02	1.24E-02	1.24E-02	1.24E-02	1.24E-02

INFANT	1.88E-02	1.88E-02	0.00E+00	1.88E-02	1.88E-02	1.88E-02	1.88E-02	1.88E-02
GOATMILK								
ADULT	1.23E-02	1.23E-02	0.00E+00	1.23E-02	1.23E-02	1.23E-02	1.23E-02	1.23E-02
TEEN	1.60E-02	1.60E-02	0.00E+00	1.60E-02	1.60E-02	1.60E-02	1.60E-02	1.60E-02
CHILD	2.53E-02	2.53E-02	0.00E+00	2.53E-02	2.53E-02	2.53E-02	2.53E-02	2.53E-02
INFANT	3.84E-02	3.84E-02	0.00E+00	3.84E-02	3.84E-02	3.84E-02	3.84E-02	3.84E-02
INHAL								
ADULT	9.84E-03	9.84E-03	0.00E+00	9.84E-03	9.84E-03	9.84E-03	9.84E-03	9.84E-03
TEEN	9.93E-03	9.93E-03	0.00E+00	9.93E-03	9.93E-03	9.93E-03	9.93E-03	9.93E-03
CHILD	8.77E-03	8.77E-03	0.00E+00	8.77E-03	8.77E-03	8.77E-03	8.77E-03	8.77E-03
INFANT	5.04E-03	5.04E-03	0.00E+00	5.04E-03	5.04E-03	5.04E-03	5.04E-03	5.04E-03

1

North Anna - mei - primary_Apr06
SPECIAL LOCATION NO. 5 nearest biota
AT .25 MILES ESE

ANNUAL BETA AIR DOSE = 0.00E+00 MILLRADS
ANNUAL GAMMA AIR DOSE = 0.00E+00 MILLRADS

PATHWAY	T.BODY	GI-TRACT	BONE	LIVER	KIDNEY	THYROID	LUNG	SKIN
PLUME	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GROUND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
VEGET								
ADULT	2.23E-01	2.23E-01	0.00E+00	2.23E-01	2.23E-01	2.23E-01	2.23E-01	2.23E-01
TEEN	2.63E-01	2.63E-01	0.00E+00	2.63E-01	2.63E-01	2.63E-01	2.63E-01	2.63E-01
CHILD	4.12E-01	4.12E-01	0.00E+00	4.12E-01	4.12E-01	4.12E-01	4.12E-01	4.12E-01
MEAT								
ADULT	3.44E-02	3.44E-02	0.00E+00	3.44E-02	3.44E-02	3.44E-02	3.44E-02	3.44E-02
TEEN	2.05E-02	2.05E-02	0.00E+00	2.05E-02	2.05E-02	2.05E-02	2.05E-02	2.05E-02
CHILD	2.48E-02	2.48E-02	0.00E+00	2.48E-02	2.48E-02	2.48E-02	2.48E-02	2.48E-02
COW MILK								
ADULT	8.08E-02	8.08E-02	0.00E+00	8.08E-02	8.08E-02	8.08E-02	8.08E-02	8.08E-02
TEEN	1.05E-01	1.05E-01	0.00E+00	1.05E-01	1.05E-01	1.05E-01	1.05E-01	1.05E-01
CHILD	1.67E-01	1.67E-01	0.00E+00	1.67E-01	1.67E-01	1.67E-01	1.67E-01	1.67E-01
INFANT	2.53E-01	2.53E-01	0.00E+00	2.53E-01	2.53E-01	2.53E-01	2.53E-01	2.53E-01
GOATMILK								
ADULT	1.65E-01	1.65E-01	0.00E+00	1.65E-01	1.65E-01	1.65E-01	1.65E-01	1.65E-01
TEEN	2.14E-01	2.14E-01	0.00E+00	2.14E-01	2.14E-01	2.14E-01	2.14E-01	2.14E-01

CHILD	3.40E-01	3.40E-01	0.00E+00	3.40E-01	3.40E-01	3.40E-01	3.40E-01	3.40E-01
INFANT	5.15E-01	5.15E-01	0.00E+00	5.15E-01	5.15E-01	5.15E-01	5.15E-01	5.15E-01
INHAL								
ADULT	1.32E-01	1.32E-01	0.00E+00	1.32E-01	1.32E-01	1.32E-01	1.32E-01	1.32E-01
TEEN	1.33E-01	1.33E-01	0.00E+00	1.33E-01	1.33E-01	1.33E-01	1.33E-01	1.33E-01
CHILD	1.18E-01	1.18E-01	0.00E+00	1.18E-01	1.18E-01	1.18E-01	1.18E-01	1.18E-01
INFANT	6.77E-02	6.77E-02	0.00E+00	6.77E-02	6.77E-02	6.77E-02	6.77E-02	6.77E-02