Table 2.1 Radioactive Liquid Waste Sampling and Analysis Program

Liquid Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit of Detection (LLD) (µCi/ml)[a,d]
Batch Releases[g]: Waste Tanks	Each Batch (Prior to Release)	Each Batch (Prior to Release)	Principal Gamma Emitters[c]	5×10^{-7}
			I-131	1×10^{-6}
	One Batch Each Month	One Batch Each Month	Dissolved and Entrained Gases	1×10^{-5}
	Each Batch	Monthly Composite[b]	H-3	1×10^{-5}
			Gross alpha	1×10^{-7}
	Each Batch	Quarterly Composite[b]	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}
Continuous Release[e]: Turbine Building Sumps	Continuous[j,h,k]	Weekly Composite[f]	Principal Gamma Emitters[c]	5×10^{-7}
			I-131	1×10^{-6}
	Weekly Grab Sample	Each Sample	Dissolved and Entrained Gases	1×10^{-5}
	Continuous[j,k]	Monthly Composite[f]	H-3	1×10^{-5}
			Gross Alpha	1×10^{-7}
	Continuous[j,k]	Quarterly Composite[f]	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}
Continuous Release[e]: Steam Generator Blowdown	Weekly Grab Sample During Releases[l]	Each Sample Composite[b]	Principal Gamma Emitters[c]	5×10^{-7}
			I-131	1×10^{-6}
	Grab Sample Each Month During Releases	Each Sample	Dissolved and Entrained Gases	1×10^{-5}
	Weekly Grab Sample During Releases[l]	Monthly Composite[b]	H-3	1×10^{-5}
			Gross Alpha	1×10^{-7}
	Weekly Grab Sample During Releases[l]	Quarterly Composite[b]	Sr-89, Sr-90	5×10^{-8}
			Fe-55	1×10^{-6}

Table 2.1 Radioactive Liquid Waste Sampling and Analysis Program

Table Notations

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

For a particular measurement system, which may include radiochemical separation:

$$LLD = \frac{4.66 s_b}{E \bullet V \bullet 2.22 X 10^6 \bullet Y \bullet \exp(-\lambda \Delta\tau)}$$

where:

LLD = the "a priori" lower limit of detection (microCurie per unit mass or volume),

s_b = the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (counts per minute),

E = the counting efficiency (counts per disintegration),

V = the sample size (units of mass or volume),

2.22×10^6 = the number of disintegrations per minute per microCurie,

Y = the fractional radiochemical yield, when applicable,

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

$\Delta\tau$ = the elapsed time between the midpoint of sample collection and the time of counting (sec).

Typical values of E, V, Y, and $\Delta\tau$ should be used in the calculation.

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

Table 2.1 Radioactive Liquid Waste Sampling and Analysis Program

Table Notations [Cont'd]

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

c. The principal gamma emitters for which the LLD specification will apply are exclusively the following radionuclides: Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144. This list does not mean that only the nuclides are to be detected and reported. Other peaks which are measurable and identifiable, together with the above nuclides, **SHALL** also be identified and reported.

d. Nuclides which are below the LLD for the analyses should not be reported as being present at the LLD level. When unusual circumstances result in LLDs higher than required, the reasons **SHALL** be documented in the Annual Radioactive Effluent Report.

e. A CONTINUOUS RELEASE is the discharge of liquid wastes of a non-discrete volume; e.g., from a volume of system that has an input flow during the continuous release.

f. To be representative of the quantities and concentrations of radioactive materials in liquid effluents, samples **SHALL** be collected continuously in proportion to the rate of flow of the effluent stream. Prior to analyses, all samples taken for the composite **SHALL** be thoroughly mixed in order for the composite sample to be representative of the effluent release.

g. A BATCH RELEASE is the discharge of liquid wastes of a discrete volume. Prior to sampling for analyses, each batch **SHALL** be isolated, and then thoroughly mixed to assure representative sampling.

h. Daily grab samples from the turbine building sumps **SHALL** be collected and analyzed for principal gamma emitters, including I-131, whenever primary to secondary leakage exceeds 150 gpd in any steam generator. This sampling is provided in lieu of continuous monitoring with automatic isolation.

i. Grab samples **SHALL** be collected at least once per 12 hours when steam generator blowdown releases are being made and the specific activity of the secondary coolant is $\geq$0.01 μCi/gram DOSE EQUIVALENT I-131 or primary to secondary leakage exceeds 150 gpd.

Table 2.1 Radioactive Liquid Waste Sampling and Analysis Program

Table Notations [Cont'd]

j. A continuous sample is one in which the sampling media is in place at all times during the release period, with the exception of periods necessary to change sampling media and scheduled short term equipment maintenance. If the sample media is not in place during the entire release period, an explanation of the occurrence, actions taken to restore the sampler and to prevent recurrence, and a summary description to explain the occurrence's effect on the analysis validity **SHALL** be included in the Annual Radioactive Effluent Report.

k. Continuous samples of the Turbine Building Sumps are collected via on-line composite samplers. These samplers function on timers and collect a predetermined volume of effluent whenever the TBS pumps are in operation. Samples from these compositors are collected daily and saved for the preparation of a weekly composite prepared utilizing volumes proportional to the sample volumes collected daily by the compositor. If the use of a submersible pump is necessary to maintain sump level, that pump should be positioned above the normal TBS pump controlling level and include a timer to allow the calculation of the additional release volume.

Table 2.2 Radioactive Liquid Effluent Monitoring Instrumentation

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. Gross Radioactivity Monitors Providing Automatic Termination of Release			
a. Liquid Radwaste Effluent Line	1	During releases	1
b. Steam Generator Blowdown Effluent Line	1/Unit	During releases	2
2. Flow Rate Measurement Devices			
a. Liquid RadwasteEffluent Line	1	During releases requiring throttling of flow	4
b. Steam Generator Blowdown Flow	1/Gen	During releases	4
3. Continuous Composite Samplers			
a. Each Turbine Building Sump Effluent Line	1/Unit	During releases	3
4. Discharge Canal Monitor	1	At all times	6
5. Tank Level Monitor			
a. Condensate Storage Tanks	1/Unit	When tanks are in use	5
b. Temporary Outdoor Tanks Holding Radioactive Liquid	1/Tank	When tanks are in use	5
6. Discharge Canal Flow System (Daily determination and following changes in flow)	NA	At all times	

Table 2.2 Radioactive Liquid Effluent Monitoring Instrumentation

Table Notations

ACTION 1 With the number of channels Operable less than required by the Minimum Channels Operable requirement, effluent releases may continue for up to 14 days provided that prior to each release:

a. At least two independent samples are analyzed in accordance with Specification 2.2.1, and

b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge line valving.

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 2 With the number of channels Operable less than required by the Minimum Channels Operable requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are analyzed for gross radioactivity (beta or gamma) at a limit of detection of at least 10^{-7} μCi/gram:

1. At least once per 12 hours when the specific activity of the secondary coolant is ≥0.01 μCi/gram DOSE EQUIVALENT I-131, or
2. At least once per 24 hours when the specific activity of the secondary coolant is <0.01 μCi/gram DOSE EQUIVALENT I-131.

ACTION 3 With the numbers of channels Operable less than required by the Minimum Channels Operable requirement, effluent releases via this pathway may continue for up to 30 days provided that, at least once per 12 hours, grab samples are collected and saved for weekly composition and analysis in accordance with Table 2.1.

ACTION 4 With the number of channels Operable less than required by the Minimum Channels Operable requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 4 hours during actual releases. Pump curves may be used to estimate flow.

ACTION 5 With the number of channels Operable less than required by the Minimum Channels Operable requirement, liquid additions to the tank may continue for up to 30 days provided the tank liquid level is estimated during all liquid additions.

ACTION 6 With the numbers of channels Operable less than required by the Minimum Channels Operable requirement, effluent releases via this pathway may continue for up to 30 days provided that, at least once per 12 hours, grab samples are collected and analyzed for gamma emitters.

Table 2.3 Radioactive Liquid Effluent Monitoring Instrumentation Surveillance Requirements

Instrument	CHANNEL CHECK Frequency (4)	SOURCE CHECK Frequency	FUNCTIONAL TEST Frequency	CALIBRATION Frequency
Liquid Radwaste Effluent Line Gross Radioactivity Monitor	Daily during releases	Prior to each release	Quarterly(1)	At least once every 18 months(3)
Liquid Radwaste Effluent Line Flow Instrument	Daily during releases	----	----	At least once every 18 months
Steam Generator Blowdown Gross Radioactivity Monitors	Daily during releases	Monthly	Quarterly(1)	At least once every 18 months(3)
Steam Generator Blowdown Flow	Daily during releases	----	----	At least once every 18 months
Turbine Building Sump Continuous Composite Samplers	Daily during releases (Includes sample volume check)	----	----	----
Discharge Canal Monitor	Daily during releases	Monthly	Quarterly(2)	At least once every 18 months(3)
Discharge Canal Flow Instruments	Daily during releases	----	----	At least once every 18 months
Condensate Storage Tank Level Monitors	Daily	----	Quarterly	At least once every 18 months
Level Monitors for Temporary Outdoor Tanks Holding Radioactive Liquid	Daily when in use	----	Quarterly when in use	At least once every 18 months when in use

Table 2.3 Radioactive Liquid Effluent Monitoring Instrumentation Surveillance Requirements

Table Notations

1. The CHANNEL FUNCTIONAL TEST **SHALL** also demonstrate that automatic isolation of this pathway and control room annunciation occurs if any of the following conditions exists:

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

   b. Circuit failure (if provided).

   c. Instrument indicates a downscale failure (if provided).

   d. Instrument controls not set in operate mode (if provided).

2. The CHANNEL FUNCTIONAL TEST **SHALL** also demonstrate that alarm annunciation occurs if any of the following conditions exists:

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

   b. Circuit failure (if provided).

   c. Instrument indicates a downscale failure (if provided).

   d. Instrument controls not set in operate mode (if provided).

3. The initial CHANNEL CALIBRATION **SHALL** be performed using one or more of the reference standards certified by the National Institute of Standards and Technology or using sources traceable to NIST standards. These standards **SHALL** permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATIONS, sources that have been related to the initial calibration **SHALL** be used.

4. The CHANNEL CHECK **SHALL** consist of verifying indication of flow during periods of release. A CHANNEL CHECK **SHALL** be made at least once daily on any day on which continuous, periodic, or batch releases are made.

TABLE 3.1 Radioactive Gaseous Waste Sampling and Analysis Program

Gaseous Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit[a] of Detection (LLD)(µCi/ml)
CONTINUOUS RELEASE Points:	Weekly [b, i] Gas Grab Sample	Weekly	Principal Gamma Emitters [e]	1×10^{-4}
Plant Vents:	Continuous [g, i, h]	Weekly [c] Charcoal Sample	I-131, I-133	1×10^{-12}
Unit 1 Aux Bldg. Unit 2 Aux Bldg. Radwaste Bldg.	Continuous [g, i, h]	Weekly [c] Particulate Sample	Principal Gamma Emitters [e]	1×10^{-11}
Spent Fuel Pool Unit 1 Shield Bldg. Unit 2 Shield Bldg.	Continuous [g, i, h]	Monthly Silica Gel Sample	H-3	1×10^{-6}
	Continuous [g, i, h]	Each Particulate Sample	Gross Alpha	1×10^{-11}
	Continuous [g, i, h]	Quarterly [d] Particulate Composite	Sr-89, Sr-90	1×10^{-11}
	Continuous [g]	Noble Gas Monitor	Noble Gases, Gross beta and gamma	1×10^{-4}
Atmospheric Steam Releases [k]	Daily [j] Grab Sample During Release	Each Sample	Principal Gamma Emitters [e]	5×10^{-7}
			I-131, I-133	1×10^{-6}
	Daily [j] Grab Sample During Release	Monthly [l] Composite	H-3	1×10^{-5}
			Gross Alpha	1×10^{-7}
	Daily [j] Grab Sample During Release	Quarterly [l] Composite	Sr-89, Sr-90	5×10^{-8}

Table 3.1 Radioactive Gaseous Waste Sampling and Analysis Program

Gaseous Release Type	Sampling Frequency	Minimum Analysis Frequency	Type of Activity Analysis	Lower Limit[a,l] of Detection (LLD)(□Ci/ml)
Containment Purge[m]	Gas Grab Sample Prior to each Purge	Each Sample (Prior to Release)	Principal Gamma Emitters [e]	1×10^{-4}
	Grab[g, h, m] Prior to Release and Continuous	Each Sample	H-3	1×10^{-6}
	Grab[g,h, m] Prior to Release and Continuous	Charcoal Sample	I-131, I-133	1×10^{-12}
	Grab[g, h, m] Prior to Release and Continuous	Particulate Sample	Principal Gamma Emitters [e]	1×10^{-11}
	Grab[g, h, m] Prior to Release and Continuous	Each Particulate Sample	Gross Alpha	1×10^{-11}
	Grab[g, h, m] Prior to Release and Continuous	Quarterly [d] Particulate Composite	Sr-89, Sr-90	1×10^{-11}
Waste Gas Storage Tanks	Gas Grab Sample Prior to each Release	Each Sample (Prior to Release)	Principal Gamma Emitters [e]	1×10^{-4}
	Grab Sample Prior to each Release	Each Sample (Prior to Release)	H-3	1×10^{-6}

Table 3.1 - Radioactive Gaseous Waste Sampling and Analysis Program

Table Notations

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

For a particular measurement system, which may include radiochemical separation:

$$\text{LLD} = \frac{4.66 s_b}{E \bullet \text{V} \bullet 2.22 \text{X} 10^6 \bullet \text{Y} \bullet \exp(-\lambda \Delta t)}$$

where:

LLD	=	the "a priori" lower limit of detection (microCurie per unit mass or volume.
s_b	=	the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (counts per minute).
E	=	the counting efficiency (counts per disintegration),
V	=	the sample size (units of mass or volume),
2.22×10^6	=	the number of disintegrations per minute per microCurie,
Y	=	the fractional radiochemical yield, when applicable,
λ	=	the radioactive decay constant for the particular radionuclide (sec^{-1}), and
Δt	=	the elapsed time between the midpoint of sample collection and the time of counting (sec).

Typical values of E, V, Y, and $\Delta\tau$ should be used in the calculation.

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

Table 3.1 - Radioactive Gaseous Waste Sampling and Analysis Program

Table Notations [Cont'd]

b. Grab samples taken at the ventilation exhausts are generally below minimum detectable levels for most nuclides with existing analytical equipment. If this is the case, PWR GALE Code noble gas isotopic ratios may be assumed.

c. With >1 μCi/gm DOSE EQUIVALENT I-131 in either Unit 1 or Unit 2 reactor coolant system, the iodine and particulate collection devices for all release points **SHALL** be removed and analyzed daily until it is shown that a pattern exists which can be used to predict the release rate. Sampling may then revert to weekly. When samples collected for one day are analyzed, the corresponding LLD's may be increased by a factor of 10. Samples **SHALL** be analyzed within 48 hours after removal.

d. To be representative of the average quantities and concentrations of radioactive materials in particulate form in gaseous effluents, samples should be collected in proportion to the rate of flow of the effluent streams.

e. The principal gamma emitters for which the LLD control applies include the following radionuclides: Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, and Xe-138 for noble gas analysis and Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, and Ce-144 in iodine and particulate analysis. This list does not mean that only these nuclides are to be considered. Other gamma peaks that are identifiable, together with those of the above nuclides, **SHALL** also be detected and reported.

f. Nuclides which are below the LLD for analyses should not be reported as being present at the LLD level for that nuclide. When unusual circumstances result in LLD's higher than reported, the reasons **SHALL** be documented in the Annual Radioactive Effluent Report.

g. For continuous samples, the ratio of the sample flow rate to the samples stream flow rate **SHALL** be known for the time period sampled (Conservative assumptions may be used). Design flow rates may be used for building exhaust vent flow rates.

h. A continuous sample is one in which the sampling media is in place at all times during the release period, with the exception of periods necessary to change sampling media and scheduled short term equipment maintenance of two hours or less. If the sample media is not in place during the entire release period (except as described above), an explanation of the occurrence, actions taken to restore the sampler and to prevent reoccurrence, and a summary description to explain the occurrence's effect on the analysis validity **SHALL** be included in the Annual Radioactive Effluent Report.

Table 3.1 Radioactive Gaseous Waste Sampling and Analysis Program

Table Notations [Cont'd]

i. Releases are made via the shield building vents only during PURGING, or operation of special ventilation systems. When ventilation fans in any vent path are not in service for the entire sample period, in lieu of weekly removal and analysis of iodine and particulate collection devices, these devices may be removed and analyzed following each release provided that the release lasts less than one week. Releases made via the plant ventilation paths as a result of routine surveillance tests, operational testing or scheduled short term maintenance activities of 2 hours or less do not require special sampling and analysis provided that plant conditions do not indicate the completion of these activities would cause an increase in the release of activity. Removal and analysis of collection devices is not required if releases are not being made.

j. Grab samples for atmospheric steam releases are representative liquid grab samples from the respective steam generator.

k. Atmospheric steam releases are the timed releases of steam from the steam generators to the atmosphere via either the power operated reliefs, steam dump valves or flash tank vents. It does not include steam dumped via the condenser.

l. A composite sample is one in which the quantity of liquid sampled is proportional to the quantity of steam released and in which the method of sampling employed results in a specimen which is representative of the total steam released form the respective steam generator.

m. Containment Purges includes PURGE releases with either the Inservice Purge or Containment Purge Fans and also VENTING of containment utilizing the Post Loca Vent System. When the release is completed via the Post Loca Vent, the pre-release tritium, particulate and charcoal samples should be used for all analyses, and continuous samples collected during the release are not required. During Cold Shutdown periods, the availability of ventilation systems and the position of containment air-lock doors may require that portions of the required samples be collected with installed continuous monitors or portable sampling equipment.

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table 3.2 Radioactive Gaseous Effluent Monitoring Instrumentation

INSTRUMENT	MINIMUM CHANNELS OPERABLE	APPLICABILITY	ACTION
1. Waste Gas Holdup System Explosive Gas (Oxygen) Monitors	2	During system operation	2
2. Effluent Release Points Unit 1 Aux Bldg. Unit 2 Aux Bldg. Rad Waste Bldg. Spent Fuel Pool Unit 1 Shield Bldg. Unit 2 Shield Bldg.			
a. Noble Gas Activity Monitor*	1	During releases	4, 5, 7
b. Iodine Sampler Cartridge	1	During releases	3
c. Particulate Sampler Filter	1	During releases	3
d. Sampler Flow Integrator	1	During releases	1
3. Air Ejector Noble Gas Monitors (Each Unit)	1	During power operation	6

* Noble gas activity monitors providing automatic termination of releases (except the Radwaste Building which has no automatic isolation function).

Table 3.2 Radioactive Gaseous Effluent Monitoring Instrumentation

Table Notations

ACTION 1 With the number of channels Operable less than required by the Minimum Channels Operable requirement, effluent releases via this pathway may continue for up to 30 days provided the flow rate is estimated at least once per 12 hours.

Otherwise, suspend release of radioactive effluents via this pathway.

ACTION 2 With the number of channels Operable less than required by the Minimum Channels Operable requirement, operating of this system may continue for up to 14 days. With two channels inoperable, manually isolate the oxygen addition line.

ACTION 3 With the numbers of channels Operable less than required by the Minimum Channels Operable requirement, effluent releases via this pathway may continue for up to 30 days provided samples are collected with auxiliary sampling equipment as required in Table 3.1.

ACTION 4 With the number of channels Operable less than required by the Minimum Channels Operable requirement, effluent releases via this pathway may continue for up to 30 days provided grab samples are taken at least once per 12 hours and these samples are analyzed for gross activity within 24 hours.

ACTION 5 With the number of channels Operable less than required by the Minimum Channels Operable requirement, immediately suspend Purging of radioactive effluents via this pathway during periods when containment integrity is required or the primary system is initially opened to the atmosphere. (applicable to Reactor Building Vents)

ACTION 6 With the number of channels Operable less than required by the Minimum Channels Operable requirement, air ejector operation may continue for up to 30 days provided grab samples are taken at least once per 24 hours and these samples are analyzed for gross activity within 24 hours.

ACTION 7 With the number of channels operable less than required by the Minimum Channels operable requirement, the contents of the waste gas decay tanks may be released to the environment for up to 14 days provided that prior to initiating the release:

a. At least two independent samples of the tank's contents are analyzed, and
b. At least two technically qualified members of the Facility Staff independently verify the release rate calculations and discharge valve lineup;

Otherwise, suspend release of radioactive effluents via this pathway (applicable to Unit 2 Auxiliary Building Vent).

Table 3.3 - Radioactive Gaseous Effluent Monitoring Instrumentation Surveillance Requirements

Instrument	CHANNEL CHECK Frequency	SOURCE CHECK Frequency	FUNCTIONAL TEST Frequency	CALIBRATION Frequency
Waste Gas Holdup System Explosive Gas (Oxygen) Monitors	Daily during system operation	----	Monthly(2)	Quarterly(5)
Effluent Release Points Unit 1 Aux Bldg. Unit 2 Aux Bldg. Rad Waste Bldg. Spent Fuel Pool Unit 1 Shield Bldg. Unit 2 Shield Bldg.				
Noble Gas Activity Monitor (4) (Except Radwaste Building)	Daily during releases	Monthly*	Quarterly(1)	At least once every 18 months(3)
Noble Gas Activity Monitor Radwaste Building (4)	Daily during releases	Monthly	Quarterly(2)	At least once every 18 months(3)
Iodine and Particulate Samplers	Weekly	----		----
Sampler Flow Rate Monitor	Weekly	----	----	At least once every 18 months
Air Ejector Noble Gas Monitors (Each Unit)	Daily during releases	Monthly	Quarterly(2)	At least once every 18 months(3)

* A SOURCE CHECK of the applicable nobles gas monitor **SHALL** be conducted prior to each waste gas decay tank or containment purge release.

Table 3.3 - Radioactive Gaseous Effluent Monitoring Instrumentation Surveillance Requirements

Table Notations

1. The CHANNEL FUNCTIONAL TEST **SHALL** also demonstrate that automatic isolation of this pathway and control room alarm annunciation occurs if any of the following exists.

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

   b. Circuit failure (if provided).

   c. Instrument indicates a downscale failure (if provided).

   d. Instrument controls not set in operate mode (if provided).

2. The CHANNEL FUNCTIONAL TEST **SHALL** also demonstrate that alarm annunciation occurs if any of the following conditions exists:

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

   b. Circuit failure (if provided).

   c. Instrument indicates a downscale failure (if provided).

   d. Instrument controls not set in operate mode (if provided).

3. The initial CHANNEL CALIBRATION **SHALL** be performed using one or more of the reference standards certified by the National Institute of Standards and Technology or using sources traceable to NIST standards. These standards **SHALL** permit calibrating the system over its intended range of energy and measurement range. For subsequent CHANNEL CALIBRATIONS, sources that have been related to the initial calibration **SHALL** be used.

4. Noble gas monitor in the Radwaste Building vent not provided with automatic isolation trip.

5. The CHANNEL CALIBRATION **SHALL** include the use of a nitrogen zero gas and an oxygen span gas with a nominal concentration suitable for the range of the instrument.

Table 4.1 Liquid Source Terms

RADIONUCLIDE	WATER EFFLUENT CONCENTRATION (µCi/ml) **	WASTE EFFLUENT A_i (Ci/Yr)	SGBD A_i (Ci/Yr)
Mo-99	2E-4	6.42E-3	1.415E-2
I-131	1E-5	3.061E-2	4.11E-2
Te-132	9E-5	2.12E-3	3.61E-3
I-132	1E-3	2.83E-3	1.88E-2
I-133	1E-6	2.365E-2	4.856E-2
Cs-134	9E-6	1.464E-1	4.047E-2
I-135	3E-4	4.84E-3	1.792E-2
Cs-136	6E-5	5.743E-2	1.862E-2
Cs-137	1E-5	8.214E-2	2.69E-2
All Others	1E-7	0	2E-5
H-3	1E-2	1.89E2	1.41E2
Noble gases	2E-4	---	---
TOTAL		1.894E2	1.412E2

** MPC = Ten times the values listed in 10CFR-20.1001-20.2402, App. B, Table 2, Column 2.

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table 4.2 - Adult Ingestion Dose Values (A_{it}) for the Prairie Island Nuclear Generating Plant (Mrem/Hr Per μCi/ml)

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI
H-3	0.00E-01	2.26E-01	2.26E-01	2.26E-01	2.26E-01	2.26E-01	2.26E-01
C-14	3.13E 04	6.26E 03	6.26E 03	6.26E 03	6.26E 03	6.26E 03	6.26E 03
NA-24	4.07E 02	4.07E 02	4.07E 02	4.07E 02	4.07E 02	4.07E 02	4.07E 02
CR-51	0.00E-01	0.00E-01	1.27E 00	7.61E-01	2.81E-01	1.69E 00	3.20E 02
MN-54	0.00E-01	4.38E 03	8.35E 02	0.00E-01	1.30E 03	0.00E-01	1.34E 04
MN-56	0.00E-01	1.10E 02	1.95E 01	0.00E-01	1.40E 02	0.00E-01	3.51E 03
FE-55	6.58E 02	4.55E 02	1.06E 02	0.00E-01	0.00E-01	2.54E 02	2.61E 02
FE-59	1.04E 03	2.44E 03	9.36E 02	0.00E-01	0.00E-01	6.82E 02	8.14E 03
CO-57	0.00E-01	2.10E 01	3.48E 01	0.00E-01	0.00E-01	0.00E-01	5.32E 02
CO-58	0.00E-01	8.92E 01	2.00E 02	0.00E-01	0.00E-01	0.00E-01	1.81E 03
CO-60	0.00E-01	2.56E 02	5.65E 02	0.00E-01	0.00E-01	0.00E-01	4.81E 03
NI-63	3.11E 04	2.16E 03	1.04E 03	0.00E-01	0.00E-01	0.00E-01	4.50E 02
NI-65	1.26E 02	1.64E 01	7.49E 00	0.00E-01	0.00E-01	0.00E-01	4.17E 02
CU-64	0.00E-01	9.97E 00	4.68E 00	0.00E-01	2.51E 01	0.00E-01	8.50E 02
ZN-65	2.32E 04	7.37E 04	3.33E 04	0.00E-01	4.93E 04	0.00E-01	4.64E 04
ZN-69	4.93E 01	9.43E 01	6.56E 00	0.00E-01	6.13E 01	0.00E-01	1.42E 01
BR-83	0.00E-01	0.00E-01	4.04E 01	0.00E-01	0.00E-01	0.00E-01	5.82E 01
BR-84	0.00E-01	0.00E-01	5.24E 01	0.00E-01	0.00E-01	0.00E-01	4.11E-04
BR-85	0.00E-01	0.00E-01	2.15E 00	0.00E-01	0.00E-01	0.00E-01	1.01E-15
RB-86	0.00E-01	1.01E 05	4.71E 04	0.00E-01	0.00E-01	0.00E-01	1.99E 04
RB-88	0.00E-01	2.90E 02	1.54E 02	0.00E-01	0.00E-01	0.00E-01	4.00E-09
RB-89	0.00E-01	1.92E 02	1.35E 02	0.00E-01	0.00E-01	0.00E-01	1.12E-11
SR-89	2.21E 04	0.00E-01	6.35E 02	0.00E-01	0.00E-01	0.00E-01	3.55E 03
SR-90	5.44E 05	0.00E-01	1.34E 05	0.00E-01	0.00E-01	0.00E-01	1.57E 04
SR-91	4.07E 02	0.00E-01	1.64E 01	0.00E-01	0.00E-01	0.00E-01	1.94E 03
SR-92	1.54E 02	0.00E-01	6.68E 00	0.00E-01	0.00E-01	0.00E-01	3.06E 03
Y-90	5.76E-01	0.00E-01	1.54E-02	0.00E-01	0.00E-01	0.00E-01	6.10E 03
Y-91M	5.44E-03	0.00E-01	2.11E-04	0.00E-01	0.00E-01	0.00E-01	1.60E-02
Y-91	8.44E 00	0.00E-01	2.26E-01	0.00E-01	0.00E-01	0.00E-01	4.64E 03
Y-92	5.06E-02	0.00E-01	1.48E-03	0.00E-01	0.00E-01	0.00E-01	8.86E 02
Y-93	1.60E-01	0.00E-01	4.43E-03	0.00E-01	0.00E-01	0.00E-01	5.09E 03
ZR-95	2.40E-01	7.70E-02	5.21E-02	0.00E-01	1.21E-01	0.00E-01	2.44E 02
ZR-97	1.33E-02	2.68E-03	1.22E-03	0.00E-01	4.04E-03	0.00E-01	8.30E 02
NB-95	4.47E 02	2.48E 02	1.34E 02	0.00E-01	2.46E 02	0.00E-01	1.51E 04
NB-97	3.76E 00	9.48E-01	3.46E-01	0.00E-01	1.11E 00	0.00E-01	3.50E 03
MO-99	0.00E-01	1.03E 02	1.96E 01	0.00E-01	2.34E 02	0.00E-01	2.39E 02
TC-99M	8.87E-03	2.51E-02	3.19E-01	0.00E-01	3.81E-01	1.23E-02	1.48E 01
TC-101	9.12E-03	1.31E-02	1.29E-01	0.00E-01	2.37E-01	6.72E-03	3.95E-14
RU-103	4.43E 00	0.00E-01	1.91E 00	0.00E-01	1.69E 01	0.00E-01	5.17E 02
RU-105	3.69E-01	0.00E-01	1.46E-01	0.00E-01	4.76E 00	0.00E-01	2.26E 02
RU-106	6.58E 01	0.00E-01	8.33E 00	0.00E-01	1.27E 02	0.00E-01	4.26E 03

Table 4.2 - Adult Ingestion Dose Values (A_{it}) for the Prairie Island Nuclear Generating Plant (Mrem/Hr Per μCi/ml)

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI
RH-105	2.92E 00	2.12E 00	1.40E 00	0.00E-01	9.00E 00	0.00E-01	3.38E 02
AG-110M	8.81E-01	8.15E-01	4.84E-01	0.00E-01	1.60E 00	0.00E-01	2.9E 02
SB-124	6.74E 00	1.27E-01	2.66E-01	1.63E-02	0.00E-01	5.23E 00	1.91E 02
SB-125	5.34E 00	5.75E-02	1.07E 00	4.74E-03	0.00E-01	5.58E 02	4.72E 01
SB-126	2.75E 00	5.60E-02	9.94E-01	1.69E-02	0.00E-01	1.69E 00	2.25E 02
TE-125M	2.57E 03	9.30E 02	3.44E 02	7.72E 02	1.04E 04	0.00E-01	1.02E 04
TE-127M	6.48E 03	2.32E 03	7.90E 02	1.66E 03	2.63E 04	0.00E-01	2.17E 04
TE-127	1.05E-02	3.78E 01	2.28E 01	7.80E 01	4.29E 02	0.00E-01	8.31E 03
TE-129M	1.10E 04	4.11E 03	1.74E 03	3.78E 03	4.60E 04	0.00E-01	5.54E 04
TE-129	3.01E 01	1.13E 01	7.33E 00	2.31E 01	1.26E 02	0.00E-01	2.27E 01
TE-131M	1.66E 03	8.10E 02	6.75E 02	1.28E 03	8.21E 03	0.00E-01	8.04E 04
TE-131	1.89E 01	7.88E 00	5.96E 00	1.55E 01	8.26E 01	0.00E-01	2.67E 00
5TE-132	2.41E 03	1.56E 03	1.47E 03	1.72E 03	1.50E 04	0.00E-01	7.38E 04
I-130	2.71E 01	8.01E 01	3.16E 01	6.79E 03	1.25E 02	0.00E-01	6.89E 01
I-131	1.49E 02	2.14E 02	1.22E 02	7.00E 04	3.66E 02	0.00E-01	5.64E 01
I-132	7.29E 00	1.95E 01	6.82E 00	6.82E 02	3.11E 01	0.00E-01	3.66E 00
I-133	5.10E 01	8.87E 01	2.70E 01	1.30E 04	1.55E 02	0.00E-01	7.97E 01
I-134	3.81E 00	1.03E 01	3.70E 00	1.79E 02	1.64E 01	0.00E-01	9.01E-03
I-135	1.59E 01	4.17E 01	1.54E 01	2.75E 03	6.68E 01	0.00E-01	4.70E 01
CS-134	2.98E 05	7.09E 05	5.79E 05	0.00E-01	2.29E 05	7.61E 04	1.24E 04
CS-136	3.12E 04	1.23E 05	8.86E 04	0.00E-01	6.85E 04	9.38E 03	1.40E 04
CS-137	3.82E 05	5.22E 05	3.42E 05	0.00E-01	1.77E 05	5.89E 04	1.01E 04
CS-138	2.64E 02	5.22E 02	2.59E 02	0.00E-01	3.84E 02	3.79E 01	2.23E-03
BA-139	9.29E-01	6.62E-04	2.72E-02	0.00E-01	6.19E-04	3.75E-04	1.65E 00
BA-140	1.94E 02	2.44E-01	1.27E 01	0.00E-01	8.30E-02	1.40E-01	4.00E 02
BA-141	4.51E-01	3.41E-0.4	1.52E-02	0.00E-01	3.17E-04	1.93E-04	2.13E-10
BA-142	2.04E-01	2.10E-04	1.28E-02	0.00E-01	1.77E-04	1.19E-04	2.37E-19
LA-140	1.50E-01	7.54E-02	1.99E-02	0.00E-01	0.00E-01	0.00E-01	5.54E 03
LA-142	7.66E-03	3.48E-03	8.68E-04	0.00E-01	0.00E-01	0.00E-01	2.54E 01
CE-141	2.24E-02	1.52E-02	1.72E-03	0.00E-01	7.04E-03	0.00E-01	5.79E 01
CE-143	3.95E-03	2.92E 00	3.23E-04	0.00E-01	1.29E-03	0.00E-01	1.09E 02
CE-144	1.17E 00	4.88E-01	6.27E-02	0.00E-01	2.90E-01	0.00E-01	3.95E 02
PR-143	5.51E-01	2.21E-01	2.73E-02	0.00E-01	1.27E-01	0.00E-01	2.41E 03
PR-144	1.80E-03	7.48E-04	9.16E-05	0.00E-01	4.22E-04	0.00E-01	2.59E-10
ND-147	3.76E-01	4.35E-01	2.60E-02	0.00E-01	2.54E-01	0.00E-01	2.09E 03
W-187	2.96E 02	2.47E 02	8.65E 01	0.00E-01	0.00E-01	0.00E-01	8.10E 04
NP-239	2.85E-02	2.80E-03	1.54E-03	0.00E-01	8.74E-03	0.00E-01	5.75E 02

The values in the above table are calculated utilizing an adult fish consumption of 21 Kg/yr.

Table 5.1 - Monitor Alarm Setpoint Determination for PINGP

MONITOR	RELEASE POINT	SOURCE OF RELEASE	SOURCE TERMS (A) (TABLE 5.2)	X/Q (sec/m^3)	EFFLUENT FLOW RATE (F) (cfm)	RELEASE FRACTION (Tm)
1R-30 and 1R-37	Aux. Bldg. Vent - Unit 1	Aux. Bldg. Unit 1 Exhaust	Aux. Bldg.	3.38E-5	2.9E+4	0.2
		Air Ejector Unit 1	Air Ejector	3.38E-5	2.9E+4	
2R-30 and 2R-37	Aux. Bldg. Vent - Unit 2	Aux. Bldg. - Unit 2 Exhaust	Aux. Bldg.	3.38E-5	4.1E+4	0.3
		Gas Decay Tanks	Xe-133 (100%)	1.32E-4	4.1E+4	
		Air Ejector Unit 2	Air Ejector	3.38E-5	4.1E+4	
1R-12 and 1R-22	Shield Bldg. Vent - Unit 1	Cont. - Units 1&2 Purge, Unit 1 Inservice Purge	Shield Bldg.	1.32E-4	3.2E+4 (Note 2)	0.3
2R-12 and 2R-22	Shield Bldg. Vent - Unit 2	Cont. - Unit 2 Inservice Purge	Shield Bldg.	1.32E-4	4.6E+3	0.3
R-35	Radwaste Bldg. Vent	Radwaste Bldg. Exhaust	Aux. Bldg.	3.38E-5	6.1E+3	0.1
R-25 and R-31	Spent Fuel Pool Air Vent	Spent Fuel Pool Air Exhaust	Aux. Bldg.	3.38E-5	1.8E+4	0.1

NOTE: Values listed for T_m are nominal values only. They may be adjusted as necessary to allow a reasonable margin to the monitor setpoint. Duplicate values of T_m are assigned to both Shield Building vents since only one containment will be purged at any one time. The assigned T_m values of all active release points SHALL NOT be greater than unity.

NOTE: When purging the Unit 1 containment via the inservice purge system, the monitor setpoints may be based on 4.6E+3 cfm for the duration of the release.

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table 5.2 Gaseous Source Terms

RADIONUCLIDE	AUX. BLDG A (Ci/Yr)	SHIELD BLDG. A (Ci/Yr)	AIR EJECTOR A (Ci/Yr)
Kr-85m	3EO	-	2EO
Kr-85	2EO	2.2E1	-
Kr-87	1EO	-	-
Kr-88	5EO	1EO	3EO
Xe-131m	2EO	2.1E1	1EO
Xe-133m	5EO	2E1	3EO
Xe-133	3.7E2	2.7E3	2.3E2
Xe-135	8EO	6EO	5EO
Xe-138	1EO	-	-
TOTAL	3.97E2	2.77E3	2.44E2

"-" indicates that the release is less than 1 Ci/yr.

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table 5.3 Critical Organ Dose Values (P_{il}) for Child

ISOTOPE	P_{il} $\frac{mrem/yr}{\mu Ci/m^3}$
H-3	1.12 E 3
Cr-51	1.70 E 4
Mn-54	1.58 E 6
Fe-59	1.27 E 6
Co-58	1.11 E 6
Co-60	7.07 E 6
Zn-65	9.95 E 5
Rb-86	1.98 E 5
Sr-89	2.16 E 6
Sr-90	1.01 E 8
Y-91	2.63 E 6
Zr-95	2.23 E 6
Nb-95	6.14 E 5
Ru-103	6.62 E 5
Ru-106	1.43 E 7
Ag-110m	5.48 E 6
Te-127m	1.48 E 6
Te-129m	1.76 E 6
Cs-134	1.01 E 6
Cs-136	1.71 E 5
Cs-137	9.07 E 5
Ba-140	1.74 E 6
Ce-141	5.44 E 5
Ce-144	1.20 E 7
I-131	1.62 E 7

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table 5.4 Dose Factors for Noble Gases *

Radionuclide	Total Body Dose Factor Ki (mrem/yr per µCi/m³)	Skin Dose Factor Li (mrem/yr per µCi/m³)	Gamma Air Dose Factor Mi (mrad/yr per µCi/m³)	Beta Air Dose Factor Ni (mrad/yr per µCi/m³)
Kr-83m	7.56E-02	----	1.93E+01	2.88E+02
Kr-85m	1.17E+03	1.46E+03	1.23E+03	1.97E+03
Kr-85	1.61E+01	1.34E+03	1.72E+01	1.95E+03
Kr-87	5.92E+03	9.73+03	6.17E+03	1.03E+04
Kr-88	1.47E+04	2.37E+03	1.52E+04	2.93E+03
Kr-89	1.66E+04	1.01E+04	1.73E+04	1.06E+04
Kr-90	1.56E+04	7.29E+03	163E+04	7.83E+03
Xe-131m	9.15E+01	4.76E+02	1.56E+02	1.11E+03
Xe-133m	2.51E+02	9.94E+02	3.27E+02	1.48E+03
Xe-133	2.94E+02	3.06E+02	3.53E+02	1.05E+03
Xe-135m	3.12E+03	7.11E+02	3.36E+03	7.39E+02
Xe-135	1.81E+03	1.86E+03	1.92E+03	2.46E+03
Xe-137	1.42E+03	1.22E+04	1.51E+03	1.27E+04
Xe-138	8.83E+03	4.13E+03	9.21E+03	4.75E+03
Ar-41	8.84E+03	2.69E+03	9.30E+03	3.28E+03

* The listed dose factors are for radionuclides that may be detected in gaseous effluents. All others are 0.

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table 5.5-1 R Values for the Prairie Island Nuclear Generating Plant* - Ground, All Ages

PATHWAY = GROUND

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C-14	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Na-24	1.42E+10	1.42E+10	1.42E+10	1.42E+10	1.42E+10	1.42E+10	1.42E+10	1.65E+10
P-32	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Cr-51	4.66E+06	4.66E+06	4.66E+06	4.66E+06	4.66E+06	4.66E+06	4.66E+06	5.51E+06
Mn-54	1.39E+09	1.39E+09	1.39E+09	1.39E+09	1.39E+09	1.39E+09	1.39E+09	1.63E+09
MN-56	9.04E+05	9.04E+05	9.04E+05	9.04E+05	9.04E+05	9.04E+05	9.04E+05	1.07E+06
Fe-55	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Fe-59	2.73E+08	2.73E+08	2.73E+08	2.73E+08	2.73E+08	2.73E+08	2.73E+08	3.21E+08
Co-58	3.79E+08	3.79E+08	3.79E+08	3.79E+08	3.79E+08	3.79E+08	3.79E+08	4.44E+08
Co-60	2.15E+10	2.15E+10	2.15E+10	2.15E+10	2.15E+10	2.15E+10	2.15E+10	2.53E+10
Ni-63	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ni-65	2.97E+05	2.97E+05	2.97E+05	2.97E+05	2.97E+05	2.97E+05	2.97E+05	3.45E+05
Cu-64	6.12E+05	6.12E+05	6.12E+05	6.12E+05	6.12E+05	6.12E+05	6.12E+05	6.93E+05
Zn-65	7.47E+08	7.47E+08	7.47E+08	7.47E+08	7.47E+08	7.47E+08	7.47E+08	8.59E+08
Zn-69	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-83	8.15E+01	8.15E+01	8.15E+01	8.15E+01	8.15E+01	8.15E+01	8.15E+01	1.18E+02
Br-84	2.03E+05	2.03E+05	2.03E+05	2.03E+05	2.03E+05	2.03E+05	2.03E+05	2.36E+05
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	8.99E+06	8.99E+06	8.99E+06	8.99E+06	8.99E+06	8.99E+06	8.99E+06	1.03E+07
Rb-88	3.31E+04	3.31E+04	3.31E+04	3.31E+04	3.31E+04	3.31E+04	3.31E+04	3.78E+04
Rb-89	1.23E+05	1.23E+05	1.23E+05	1.23E+05	1.23E+05	1.23E+05	1.23E+05	1.47E+05
Sr-89	2.26E+04	2.26E+04	2.26E+04	2.26E+04	2.26E+04	2.26E+04	2.26E+04	2.62E+04
Sr-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-91	2.15E+06	2.15E+06	2.15E+06	2.15E+06	2.15E+06	2.15E+06	2.15E+06	2.51E+06
Sr-92	7.77E+05	7.77E+05	7.77E+05	7.77E+05	7.77E+05	7.77E+05	7.77E+05	8.63E+05
Y-90	4.49E+02	4.49E+02	4.49E+02	4.49E+02	4.49E+02	4.49E+02	4.49E+02	5.30E+02
Y-91M	1.00E+05	1.00E+05	1.00E+05	1.00E+05	1.00E+05	1.00E+05	1.00E+05	1.16E+05
Y-91	1.07E+06	1.07E+06	1.07E+06	1.07E+06	1.07E+06	1.07E+06	1.07E+06	1.21E+06
Y-92	1.80E+04	1.80E+04	1.80E+04	1.80E+04	1.80E+04	1.80E+04	1.80E+04	2.14E+04
Y-93	1.83E+05	1.83E+05	1.83E+05	1.83E+05	1.83E+05	1.83E+05	1.83E+05	2.51E+05
Zr-95	2.45E+07	2.45E+07	2.45E+07	2.45E+07	2.45E+07	2.45E+07	2.45E+07	2.84E+07
Zr-97	2.96E+05	2.96E+05	2.96E+05	2.96E+05	2.96E+05	2.96E+05	2.96E+05	3.45E+05
Nb-95	1.36E+08	1.36E+08	1.36E+08	1.36E+08	1.36E+08	1.36E+08	1.36E+08	1.61E+08
Mo-99	4.00E+05	4.00E+05	4.00E+05	4.00E+05	4.00E+05	4.00E+05	4.00E+05	4.63E+05
Tc-99M	1.84E+04	1.84E+04	1.84E+04	1.84E+04	1.84E+04	1.84E+04	1.84E+04	2.11E+04
Tc-101	2.04E+04	2.04E+04	2.04E+04	2.04E+04	2.04E+04	2.04E+04	2.04E+04	2.26E+04
Ru-103	1.08E+08	1.08E+08	1.08E+08	1.08E+08	1.08E+08	1.08E+08	1.08E+08	1.26E+08
Ru-105	6.36E+05	6.36E+05	6.36E+05	6.36E+05	6.36E+05	6.36E+05	6.36E+05	7.21E+05
Ru-106	4.17E+08	4.17E+08	4.17E+08	4.17E+08	4.17E+08	4.17E+08	4.17E+08	5.01E+08
Ag-110M	3.44E+09	3.44E+09	3.44E+09	3.44E+09	3.44E+09	3.44E+09	3.44E+09	4.01E+09
Te-125M	1.55E+06	1.55E+06	1.55E+06	1.55E+06	1.55E+06	1.55E+06	1.55E+06	2.13E+06
Te-127M	9.17E+04	9.17E+04	9.17E+04	9.17E+04	9.17E+04	9.17E+04	9.17E+04	1.08E+05
Te-127	2.96E+03	2.96E+03	2.96E+03	2.96E+03	2.96E+03	2.96E+03	2.96E+03	3.25E+03
Te-129M	1.98E+07	1.98E+07	1.98E+07	1.98E+07	1.98E+07	1.98E+07	1.98E+07	2.31E+07
Te-129	2.62E+04	2.62E+04	2.62E+04	2.62E+04	2.62E+04	2.62E+04	2.62E+04	3.10E+04
Te-131M	8.03E+06	8.03E+06	8.03E+06	8.03E+06	8.03E+06	8.03E+06	8.03E+06	9.46E+06

Table 5.5-1 R Values for the Prairie Island Nuclear Generating Plant* - Ground, All Ages

PATHWAY = GROUND

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-131	2.92E+04	2.92E+04	2.92E+04	2.92E+04	2.92E+04	2.92E+04	2.92E+04	3.45E+07
Te-132	4.24E+06	4.24E+06	4.24E+06	4.24E+06	4.24E+06	4.24E+06	4.24E+06	4.98E+06
I-130	5.51E+06	5.51E+06	5.51E+06	5.51E+06	5.51E+06	5.51E+06	5.51E+06	6.69E+06
I-131	1.72E+07	1.72E+07	1.72E+07	1.72E+07	1.72E+07	1.72E+07	1.72E+07	2.09E+07
I-132	1.25E+06	1.25E+06	1.25E+06	1.25E+06	1.25E+06	1.25E+06	1.25E+06	1.47E+06
I-133	2.45E+06	2.45E+06	2.45E+06	2.45E+06	2.45E+06	2.45E+06	2.45E+06	2.98E+06
I-134	4.47E+05	4.47E+05	4.47E+05	4.47E+05	4.47E+05	4.47E+05	4.47E+05	5.31E+05
I-135	2.53E+06	2.53E+06	2.53E+06	2.53E+06	2.53E+06	2.53E+06	2.53E+06	2.95E+06
Cs-134	6.85E+09	6.85E+09	6.85E+09	6.85E+09	6.85E+09	6.85E+09	6.85E+09	8.00E+09
Cs-136	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.49E+08	1.69E+08
Cs-137	1.03E+10	1.03E+10	1.03E+10	1.03E+10	1.03E+10	1.03E+10	1.03E+10	1.20E+10
Cs-138	3.59E+05	3.59E+05	3.59E+05	3.59E+05	3.59E+05	3.59E+05	3.59E+05	4.10E+05
Ba-139	1.06E+05	1.06E+05	1.06E+05	1.06E+05	1.06E+05	1.06E+05	1.06E+05	1.19E+05
Ba-140	2.05E+07	2.05E+07	2.05E+07	2.05E+07	2.05E+07	2.05E+07	2.05E+07	2.35E+07
Ba-141	4.11E+04	4.11E+04	4.11E+04	4.11E+04	4.11E+04	4.11E+04	4.11E+04	4.68E+04
Ba-142	4.49E+04	4.49E+04	4.49E+04	4.49E+04	4.49E+04	4.49E+04	4.49E+04	5.11E+04
La-140	1.92E+07	1.92E+07	1.92E+07	1.92E+07	1.92E+07	1.92E+07	1.92E+07	2.18E+07
La-142	7.60E+05	7.60E+05	7.60E+05	7.60E+05	7.60E+05	7.60E+05	7.60E+05	9.12E+05
Ce-141	1.37E+07	1.37E+07	1.37E+07	1.37E+07	1.37E+07	1.37E+07	1.37E+07	1.54E+07
Ce-143	2.31E+06	2.31E+06	2.31E+06	2.31E+06	2.31E+06	2.31E+06	2.31E+06	2.63E+06
Ce-144	6.96E+07	6.96E+07	6.96E+07	6.96E+07	6.96E+07	6.96E+07	6.96E+07	8.04E+07
Pr-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Pr-144	1.83E+03	1.83E+03	1.83E+03	1.83E+03	1.83E+03	1.83E+03	1.83E+03	2.11E+03
Nd-147	8.39E+05	8.39E+05	8.39E+05	8.39E+05	8.39E+05	8.39E+05	8.39E+05	1.01E+06
W-187	2.35E+06	2.35E+06	2.35E+06	2.35E+06	2.35E+06	2.35E+06	2.35E+06	2.73E+06
Np-239	1.71E+06	1.71E+06	1.71E+06	1.71E+06	1.71E+06	1.71E+06	1.71E+06	1.98E+06
Co-57	1.89E+06	1.89E+06	1.89E+06	1.89E+06	1.89E+06	1.89E+06	1.89E+06	2.07E+06
Br-82	2.14E+06	2.14E+06	2.14E+06	2.14E+06	2.14E+06	2.14E+06	2.14E+06	2.47E+06
Nb-97	1.76E+05	1.76E+05	1.76E+05	1.76E+05	1.76E+05	1.76E+05	1.76E+05	2.07E+05
Sb-124	5.98E+07	5.98E+07	5.98E+07	5.98E+07	5.98E+07	5.98E+07	5.98E+07	6.90E+07
Sb-125	2.33E+09	2.33E+09	2.33E+09	2.33E+09	2.33E+09	2.33E+09	2.33E+09	2.63E+09
Sb-126	5.06E+08	5.06E+08	5.06E+08	5.06E+08	5.06E+08	5.06E+08	5.06E+08	5.69E+08

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-2 R Values for the Prairie Island Nuclear Generating Plant* - Vegetable, Adult

PATHWAY = VEGETABLE
AGE GROUP = ADULT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	2.26E+03	2.26E+03	2.26E+03	2.26E+03	2.26E+03	2.26E+03	2.26E+03
C-14	1.43E+10	2.87E+09	2.87E+09	2.87E+09	2.87E+09	2.87E+09	2.87E+09	0.00E+00
Na-24	1.37E+08	1.37E+08	1.37E+08	1.37E+08	1.37E+08	1.37E+08	1.37E+08	0.00E+00
P-32	1.53E+09	1.03E+08	5.92E+07	0.00E+00	0.00E+00	0.00E+00	1.72E+08	0.00E+00
Cr-51	0.00E+00	0.00E+00	4.49E+04	2.75E+04	1.01E+04	6.09E+04	1.15E+07	0.00E+00
Mn-54	0.00E+00	3.08E+08	5.87E+07	0.00E+00	9.16E+07	0.00E+00	9.43E+08	0.00E+00
MN-56	0.00E+00	1.59E+01	2.83E+00	0.00E+00	2.02E+01	0.00E+00	5.09E+02	0.00E+00
Fe-55	2.00E+08	1.38E+08	3.22E+07	0.00E+00	0.00E+00	7.69E+07	7.91E+07	0.00E+00
Fe-59	1.24E+08	2.90E+08	1.11E+08	0.00E+00	0.00E+00	8.11E+07	9.68E+08	0.00E+00
Co-58	0.00E+00	2.99E+07	6.71E+07	0.00E+00	0.00E+00	0.00E+00	6.07E+08	0.00E+00
Co-60	0.00E+00	1.66E+08	3.67E+08	0.00E+00	0.00E+00	0.00E+00	3.13E+09	0.00E+00
Ni-63	1.20E+08	8.31E+08	4.02E+08	0.00E+00	0.00E+00	0.00E+00	1.73E+08	0.00E+00
Ni-65	6.16E+01	8.01E+00	3.65E+00	0.00E+00	0.00E+00	0.00E+00	2.03E+02	0.00E+00
Cu-64	0.00E+00	9.42E+03	4.42E+03	0.00E+00	2.37E+04	0.00E+00	8.03E+05	0.00E+00
Zn-65	4.01E+08	1.28E+09	5.77E+08	0.00E+00	8.54E+08	0.00E+00	8.04E+08	0.00E+00
Zn-69	5.61E-06	1.07E-05	7.46E-07	0.00E+00	6.97E-06	0.00E+00	1.61E-06	1.00E+00
Br-83	0.00E+00	0.00E+00	9.95E-179	0.00E+00	0.00E+00	0.00E+00	1.43E-178	2.00E+00
Br-84	0.00E+00	0.00E+00	2.57E-11	0.00E+00	0.00E+00	0.00E+00	2.02E-16	3.00E+00
Br-85	0.00E+00	0.00E+00	5.88E-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.00E+00
Rb-86	0.00E+00	2.21E+08	1.03E+08	0.00E+00	0.00E+00	0.00E+00	4.36E+07	5.00E+00
Rb-88	0.00E+00	3.47E-22	1.84E-22	0.00E+00	0.00E+00	0.00E+00	4.79E-33	6.00E+00
Rb-89	0.00E+00	3.34E-26	2.35E-26	0.00E+00	0.00E+00	0.00E+00	1.94E-39	0.00E+00
Sr-89	1.01E+10	0.00E+00	2.90E+08	0.00E+00	0.00E+00	0.00E+00	1.62E+09	0.00E+00
Sr-90	6.71E+11	0.00E+00	1.65E+11	0.00E+00	0.00E+00	0.00E+00	1.94E+10	0.00E+00
Sr-91	3.05E+05	0.00E+00	1.23E+04	0.00E+00	0.00E+00	0.00E+00	1.45E+06	0.00E+00
Sr-92	4.27E+02	0.00E+00	1.85E+01	0.00E+00	0.00E+00	0.00E+00	8.47E+03	0.00E+00
Y-90	1.51E+02	0.00E+00	4.06E+00	0.00E+00	0.00E+00	0.00E+00	1.60E+06	0.00E+00
Y-91M	5.24E-09	0.00E+00	2.03E-10	0.00E+00	0.00E+00	0.00E+00	1.54E-08	0.00E+00
Y-91	4.99E+06	0.00E+00	1.33E+05	0.00E+00	0.00E+00	0.00E+00	2.74E+09	0.00E+00
Y-92	4.87E-20	0.00E+00	1.42E-21	0.00E+00	0.00E+00	0.00E+00	8.52E-16	0.00E+00
Y-93	1.70E+02	0.00E+00	4.68E+00	0.00E+00	0.00E+00	0.00E+00	5.38E+06	0.00E+00
Zr-95	9.67E+04	3.10E+04	2.10E+04	0.00E+00	4.87E+04	0.00E+00	9.83E+07	0.00E+00
Zr-97	5.23E-03	1.06E-03	4.83E-04	0.00E+00	1.59E-03	0.00E+00	3.27E+02	0.00E+00
Nb-95	1.40E+05	7.79E+04	4.19E+04	0.00E+00	7.70E+04	0.00E+00	4.73E+08	0.00E+00
Mo-99	0.00E+00	7.60E+04	1.45E+04	0.00E+00	1.72E+05	0.00E+00	1.76E+05	0.00E+00
Tc-99M	5.68E-12	1.61E-11	2.05E-10	0.00E+00	2.44E-10	7.87E-12	9.50E-09	0.00E+00
Tc-101	8.43E-31	1.21E-30	1.19E-29	0.00E+00	2.19E-29	6.20E-31	3.65E-42	0.00E+00
Ru-103	4.72E+06	0.00E+00	2.04E+06	0.00E+00	1.80E+07	0.00E+00	5.52E+08	0.00E+00
Ru-105	5.40E+01	0.00E+00	2.13E+01	0.00E+00	6.98E+02	0.00E+00	3.30E+04	0.00E+00
Ru-106	1.94E+08	0.00E+00	2.46E+07	0.00E+00	3.75E+08	0.00E+00	1.26E+10	0.00E+00
Ag-110M	1.13E+07	1.05E+07	6.22E+06	0.00E+00	2.06E+07	0.00E+00	4.27E+09	0.00E+00
Te-125M	1.21E+08	4.39E+07	1.62E+07	3.64E+07	4.92E+08	0.00E+00	4.83E+08	0.00E+00
Te-127M	5.03E+08	1.80E+08	6.13E+07	1.29E+08	2.04E+09	0.00E+00	1.69E+09	0.00E+00
Te-127	5.87E+03	2.11E+03	1.27E+03	4.35E+03	2.39E+04	0.00E+00	4.63E+05	0.00E+00

Table 5.5-2 R Values for the Prairie Island Nuclear Generating Plant* - Vegetable, Adult

PATHWAY = VEGETABLE
AGE GROUP = ADULT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-129M	2.94E+08	1.10E+08	4.65E+07	1.01E+08	1.23E+09	0.00E+00	1.48E+09	0.00E+00
Te-129	8.06E-04	3.03E-04	1.96E-04	6.19E-04	3.39E-03	0.00E+00	6.09E-04	0.00E+00
Te-131M	9.66E+05	4.72E+05	3.94E+05	7.48E+05	4.79E+06	0.00E+00	4.69E+07	0.00E+00
Te-131	1.60E-15	6.67E-16	5.04E-16	1.31E-15	6.99E-15	0.00E+00	2.26E-16	0.00E+00
Te-132	4.59E+06	2.97E+06	2.79E+06	3.28E+06	2.86E+07	0.00E+00	1.40E+08	0.00E+00
I-130	3.92E+05	1.16E+06	4.56E+05	9.80E+07	1.80E+06	0.00E+00	9.95E+05	0.00E+00
I-131	8.08E+07	1.16E+08	6.62E+07	3.79E+10	1.98E+08	0.00E+00	3.05E+07	0.00E+00
I-132	5.77E+01	1.54E+02	5.40E+01	5.40E+03	2.46E+02	0.00E+00	2.90E+01	0.00E+00
I-133	2.09E+06	3.63E+06	1.11E+06	5.33E+08	6.33E+06	0.00E+00	3.26E+06	0.00E+00
I-134	9.70E-05	2.63E-04	9.42E-05	4.56E-03	4.19E-04	0.00E+00	2.30E-07	0.00E+00
I-135	3.90E+04	1.02E+05	3.77E+04	6.74E+06	1.64E+05	0.00E+00	1.15E+05	0.00E+00
Cs-134	4.55E+09	1.08E+10	8.84E+09	0.00E+00	3.50E+09	1.16E+09	1.89E+08	0.00E+00
Cs-136	4.20E+07	1.66E+08	1.19E+08	0.00E+00	9.22E+07	1.26E+07	1.88E+07	0.00E+00
Cs-137	6.64E+09	9.08E+09	5.95E+09	0.00E+00	3.08E+09	1.02E+09	1.76E+08	0.00E+00
Cs-138	3.94E-11	7.79E-11	3.86E-11	0.00E+00	5.72E-11	5.65E-12	3.32E-16	0.00E+00
Ba-139	2.86E-02	2.04E-05	8.39E-04	0.00E+00	1.91E-05	1.16E-05	5.08E-02	0.00E+00
Ba-140	1.28E+08	1.61E+05	8.41E+06	0.00E+00	5.48E+04	9.23E+04	2.64E+08	0.00E+00
Ba-141	5.08E-22	3.84E-25	1.71E-23	0.00E+00	3.57E-25	2.18E-25	2.39E-31	0.00E+00
Ba-142	6.09E-39	6.27E-42	3.83E-40	0.00E+00	5.29E-42	3.55E-42	8.58E-57	0.00E+00
La-140	1.98E+03	9.97E+02	2.63E+02	0.00E+00	0.00E+00	0.00E+00	7.32E+07	0.00E+00
La-142	2.03E-04	9.21E-05	2.29E-05	0.00E+00	0.00E+00	0.00E+00	6.72E-01	0.00E+00
Ce-141	1.94E+05	1.31E+05	1.49E+04	0.00E+00	6.11E+04	0.00E+00	5.03E+08	0.00E+00
Ce-143	9.98E+02	7.38E+05	8.17E+01	0.00E+00	3.25E+02	0.00E+00	2.76E+07	0.00E+00
Ce-144	3.15E+07	1.32E+07	1.69E+06	0.00E+00	7.81E+06	0.00E+00	1.07E+10	0.00E+00
Pr-143	6.25E+04	2.51E+04	3.10E+03	0.00E+00	1.45E+04	0.00E+00	2.74E+08	0.00E+00
Pr-144	3.13E-26	1.30E-26	1.59E-25	0.00E+00	7.32E-27	0.00E+00	4.50E-33	0.00E+00
Nd-147	2.73E+03	3.15E+03	1.89E+02	0.00E+00	1.84E+03	0.00E+00	1.51E+07	0.00E+00
W-187	3.81E+04	3.18E+04	1.11E+04	0.00E+00	0.00E+00	0.00E+00	1.04E+07	0.00E+00
Np-239	1.43E+03	1.40E+02	7.74E+01	0.00E+00	4.38E+02	0.00E+00	2.88E+07	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-3 R Values for the Prairie Island Nuclear Generating Plant* - Vegetable, Teen

PATHWAY = VEGETABLE
AGE GROUP = TEEN

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	2.59E+03	2.59E+03	2.59E+03	2.59E+03	2.59E+03	2.59E+03	2.59E+03
C-14	2.32E+10	4.65E+09	4.65E+09	4.65E+09	4.65E+09	4.65E+09	4.65E+09	0.00E+00
Na-24	2.10E+08	2.10E+08	2.10E+08	2.10E+08	2.10E+08	2.10E+08	2.10E+08	0.00E+00
P-32	1.75E+09	1.09E+08	6.80E+07	0.00E+00	0.00E+00	0.00E+00	1.47E+08	0.00E+00
Cr-51	0.00E+00	0.00E+00	6.10E+04	3.39E+04	1.34E+04	8.71E+04	1.03E+07	0.00E+00
Mn-54	0.00E+00	4.47E+08	8.86E+07	0.00E+00	1.33E+08	0.00E+00	9.17E+08	0.00E+00
MN-56	0.00E+00	1.44E+02	2.56E+00	0.00E+00	1.82E+01	0.00E+00	9.46E+02	0.00E+00
Fe-55	3.10E+08	2.20E+08	5.13E+07	0.00E+00	0.00E+00	1.40E+08	9.53E+07	0.00E+00
Fe-59	1.76E+08	4.10E+08	1.58E+08	0.00E+00	0.00E+00	1.29E+08	9.70E+08	0.00E+00
Co-58	0.00E+00	4.25E+07	9.78E+07	0.00E+00	0.00E+00	0.00E+00	5.85E+08	0.00E+00
Co-60	0.00E+00	2.48E+08	5.58E+08	0.00E+00	0.00E+00	0.00E+00	3.23E+09	0.00E+00
Ni-63	1.85E+10	1.31E+09	6.27E+08	0.00E+00	0.00E+00	0.00E+00	2.08E+08	0.00E+00
Ni-65	5.74E+01	7.33E+00	3.34E+00	0.00E+00	0.00E+00	0.00E+00	3.98E+02	0.00E+00
Cu-64	0.00E+00	8.53E+03	4.01E+03	0.00E+00	2.16E+04	0.00E+00	6.62E+05	0.00E+00
Zn-65	5.36E+08	1.86E+09	8.68E+08	0.00E+00	1.19E+06	0.00E+00	7.88E+08	0.00E+00
Zn-69	5.25E-06	1.00E-05	7.00E-07	0.00E+00	6.54E-06	0.00E+00	1.84E-05	0.00E+00
Br-83	0.00E+00	0.00E+00	9.33E-179	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	2.34E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	5.50E-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	2.76E+08	1.30E+08	0.00E+00	0.00E+00	0.00E+00	4.08E+07	0.00E+00
Rb-88	0.00E+00	3.21E-22	1.71E-22	0.00E+00	0.00E+00	0.00E+00	2.75E-29	0.00E+00
Rb-89	0.00E+00	3.01E-26	1.58E-26	0.00E+00	0.00E+00	0.00E+00	4.61E-35	0.00E+00
Sr-89	1.54E+10	0.00E+00	4.41E+08	0.00E+00	0.00E+00	0.00E+00	1.83E+09	0.00E+00
Sr-90	8.33E+11	0.00E+00	2.06E+11	0.00E+00	0.00E+00	0.00E+00	2.34E+10	0.00E+00
Sr-91	2.85E+05	0.00E+00	1.13E+04	0.00E+00	0.00E+00	0.00E+00	1.29E+06	0.00E+00
Sr-92	3.98E+02	0.00E+00	1.70E+01	0.00E+00	0.00E+00	0.00E+00	1.01E+04	0.00E+00
Y-90	1.41E+02	0.00E+00	3.81E+00	0.00E+00	0.00E+00	0.00E+00	1.17E+06	0.00E+00
Y-91M	4.88E-09	0.00E+00	1.87E-10	0.00E+00	0.00E+00	0.00E+00	2.31E-07	0.00E+00
Y-91	7.64E+06	0.00E+00	2.05E+05	0.00E+00	0.00E+00	0.00E+00	3.13E+09	0.00E+00
Y-92	4.57E-20	0.00E+00	1.32E-21	0.00E+00	0.00E+00	0.00E+00	1.25E-15	0.00E+00
Y-93	1.59E+02	0.00E+00	4.36E+00	0.00E+00	0.00E+00	0.00E+00	4.86E+06	0.00E+00
Zr-95	8.67E+04	2.74E+04	1.88E+04	0.00E+00	4.02E+04	0.00E+00	6.31E+07	0.00E+00
Zr-97	4.84E-03	9.58E-04	4.41E-04	0.00E+00	1.45E-03	0.00E+00	2.59E+02	0.00E+00
Nb-95	1.89E+05	1.05E+05	5.78E+04	0.00E+00	1.02E+05	0.00E+00	4.49E+08	0.00E+00
Mo-99	0.00E+00	6.97E+04	1.33E+04	0.00E+00	1.60E+05	0.00E+00	1.25E+05	0.00E+00
Tc-99M	5.01E-12	1.40E-11	1.81E-10	0.00E+00	2.08E-10	7.76E-12	9.18E-09	0.00E+00
Tc-101	7.84E-31	1.11E-30	1.10E-29	0.00E+00	2.02E-29	6.79E-31	1.91E-37	0.00E+00
Ru-103	6.75E+06	0.00E+00	2.89E+06	0.00E+00	2.38E+07	0.00E+00	5.64E+08	0.00E+00
Ru-105	5.02E+01	0.00E+00	1.95E+01	0.00E+00	6.33E+02	0.00E+00	4.05E+04	0.00E+00
Ru-106	3.12E+08	0.00E+00	3.93E+07	0.00E+00	6.02E+08	0.00E+00	1.50E+10	0.00E+00
Ag-110M	1.63E+07	1.54E+07	9.37E+06	0.00E+00	2.94E+07	0.00E+00	4.33E+09	0.00E+00
Te-125M	1.86E+08	6.70E+07	2.49E+07	5.19E+07	0.00E+00	0.00E+00	5.48E+08	0.00E+00
Te-127M	7.95E+08	2.82E+08	9.45E+07	1.89E+08	3.22E+09	0.00E+00	1.98E+09	0.00E+00

Table 5.5-3 R Values for the Prairie Island Nuclear Generating Plant* - Vegetable, Teen

PATHWAY = VEGETABLE
AGE GROUP = TEEN

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	5.53E+03	1.96E+03	1.19E+03	3.82E+03	2.24E+04	0.00E+00	4.27E+05	0.00E+00
Te-129M	4.23E+08	1.57E+08	6.70E+07	1.37E+08	1.77E+09	0.00E+00	1.59E+09	0.00E+00
Te-129	7.55E-04	2.81E-04	1.84E-04	5.39E-04	3.17E-03	0.00E+00	4.13E-03	0.00E+00
Te-131M	8.94E+05	4.29E+05	3.58E+05	6.45E+05	4.47E+06	0.00E+00	3.44E+07	0.00E+00
Te-131	1.48E-15	6.11E-16	4.64E-16	1.14E-15	6.49E-15	0.00E+00	1.22E-16	0.00E+00
Te-132	4.17E+06	2.64E+06	2.46E+06	2.78E+06	2.53E+07	0.00E+00	8.37E+07	0.00E+00
I-130	3.50E+05	1.01E+06	4.05E+05	8.27E+07	1.56E+06	0.00E+00	7.79E+05	0.00E+00
I-131	7.69E+07	1.08E+08	5.78E+07	3.14E+10	1.85E+08	0.00E+00	2.13E+07	0.00E+00
I-132	5.20E+01	1.36E+02	4.89E+01	4.59E+03	2.14E+02	0.00E+00	5.93E+01	0.00E+00
I-133	1.94E+06	3.29E+06	1.00E+06	4.59E+08	5.77E+06	0.00E+00	2.49E+06	0.00E+00
I-134	8.76E-05	2.32E-04	8.34E-05	3.87E-03	3.66E-04	0.00E+00	3.06E-06	0.00E+00
I-135	3.53E+04	9.07E+04	3.36E+04	5.84E+06	1.43E+05	0.00E+00	1.01E+05	0.00E+00
Cs-134	6.91E+09	1.63E+10	7.55E+09	0.00E+00	5.17E+09	1.97E+09	2.02E+08	0.00E+00
Cs-136	4.28E+07	1.69E+08	1.13E+08	0.00E+00	9.18E+07	1.45E+07	1.36E+07	0.00E+00
Cs-137	1.06E+10	1.41E+10	4.90E+09	0.00E+00	4.79E+09	1.86E+09	2.00E+08	0.00E+00
Cs-138	3.64E-11	6.98E-11	3.49E-11	0.00E+00	5.16E-11	6.00E-12	3.17E-14	0.00E+00
Ba-139	2.69E-02	1.90E-05	7.85E-04	0.00E+00	1.79E-05	1.31E-05	2.40E-01	0.00E+00
Ba-140	1.38E+08	1.69E+05	8.89E+06	0.00E+00	5.73E+04	1.14E+05	2.13E+08	0.00E+00
Ba-141	4.75E-22	3.55E-25	1.59E-23	0.00E+00	3.29E-25	2.43E-25	1.01E-27	0.00E+00
Ba-142	5.61E-39	5.61E-42	3.45E-40	0.00E+00	4.75E-42	3.74E-42	1.72E-50	0.00E+00
La-140	1.81E+03	8.88E+02	2.36E+02	0.00E+00	0.00E+00	0.00E+00	5.10E+07	0.00E+00
La-142	1.86E-04	8.26E-05	2.06E-05	0.00E+00	0.00E+00	0.00E+00	2.51E+00	0.00E+00
Ce-141	2.79E+05	1.86E+05	2.14E+04	0.00E+00	8.77E+04	0.00E+00	5.33E+08	0.00E+00
Ce-143	9.33E+02	6.79E+05	7.58E+01	0.00E+00	3.05E+02	0.00E+00	2.04E+07	0.00E+00
Ce-144	5.05E+07	2.09E+07	2.71E+06	0.00E+00	1.25E+07	0.00E+00	1.27E+10	0.00E+00
Pr-143	6.99E+04	2.79E+04	3.48E+03	0.00E+00	1.62E+04	0.00E+00	2.30E+08	0.00E+00
Pr-144	2.93E-26	1.20E-26	1.49E-27	0.00E+00	6.88E-27	0.00E+00	3.23E-29	0.00E+00
Nd-147	2.67E+03	2.90E+03	1.74E+02	0.00E+00	1.70E+03	0.00E+00	1.05E+07	0.00E+00
W-187	3.54E+04	2.89E+04	1.01E+04	0.00E+00	0.00E+00	0.00E+00	7.81E+06	0.00E+00
Np-239	1.39E+03	1.31E+02	7.26E+01	0.00E+00	4.10E+02	0.00E+00	2.10E+07	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-4 R Values for the Prairie Island Nuclear Generating Plant* - Vegetable, Child

PATHWAY = VEGETABLE
AGE GROUP = CHILD

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	4.01E+03	4.01E+03	4.01E+03	4.01E+03	4.01E+03	4.01E+03	4.01E+03
C-14	5.60E+10	1.12E+10	1.12E+10	1.12E+10	1.12E+10	1.12E+10	1.12E+10	0.00E+00
Na-24	4.27E+08	4.27E+08	4.27E+08	4.27E+08	4.27E+08	4.27E+08	4.27E+08	0.00E+00
P-32	3.67E+09	1.72E+08	1.42E+08	0.00E+00	0.00E+00	0.00E+00	1.02E+08	0.00E+00
Cr-51	0.00E+00	0.00E+00	1.16E+05	6.43E+04	1.76E+04	1.17E+05	6.14E+06	0.00E+00
Mn-54	0.00E+00	6.54E+08	1.74E+08	0.00E+00	1.83E+08	0.00E+00	5.49E+08	0.00E+00
MN-56	0.00E+00	1.88E+01	4.20E+00	0.00E+00	2.28E+01	0.00E+00	2.73E+03	0.00E+00
Fe-55	7.63E+08	4.05E+08	1.25E+08	0.00E+00	0.00E+00	2.29E+08	7.50E+07	0.00E+00
Fe-59	3.89E+08	6.30E+08	3.14E+08	0.00E+00	0.00E+00	1.83E+08	6.56E+08	0.00E+00
Co-58	0.00E+00	6.27E+07	1.92E+08	0.00E+00	0.00E+00	0.00E+00	3.66E+08	0.00E+00
Co-60	0.00E+00	3.77E+08	1.11E+09	0.00E+00	0.00E+00	0.00E+00	2.09E+09	0.00E+00
Ni-63	4.55E+10	2.44E+09	1.55E+09	0.00E+00	0.00E+00	0.00E+00	1.64E+08	0.00E+00
Ni-65	1.05E+02	9.91E+00	5.79E+00	0.00E+00	0.00E+00	0.00E+00	1.21E+03	0.00E+00
Cu-64	0.00E+00	1.13E+04	6.80E+03	0.00E+00	2.72E+04	0.00E+00	5.28E+05	0.00E+00
Zn-65	1.03E+09	2.89E+09	1.70E+09	0.00E+00	1.72E+09	0.00E+00	4.81E+08	0.00E+00
Zn-69	9.69E-06	1.40E-05	1.29E-06	0.00E+00	8.49E-06	0.00E+00	8.83E-04	0.00E+00
Br-83	0.00E+00	0.00E+00	1.72E-178	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	3.97E-11	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	1.02E-143	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	4.55E+08	2.80E+08	0.00E+00	0.00E+00	0.00E+00	2.93E+07	0.00E+00
Rb-88	0.00E+00	4.43E-22	3.08E-22	0.00E+00	0.00E+00	0.00E+00	2.17E-23	0.00E+00
Rb-89	0.00E+00	3.96E-26	3.52E-26	0.00E+00	0.00E+00	0.00E+00	3.46E-28	0.00E+00
Sr-89	3.66E+10	0.00E+00	1.05E+09	0.00E+00	0.00E+00	0.00E+00	1.42E+09	0.00E+00
Sr-90	1.38E+12	0.00E+00	3.50E+11	0.00E+00	0.00E+00	0.00E+00	1.86E+10	0.00E+00
Sr-91	5.25E+05	0.00E+00	1.98E+04	0.00E+00	0.00E+00	0.00E+00	1.16E+06	0.00E+00
Sr-92	7.29E+02	0.00E+00	2.92E+01	0.00E+00	0.00E+00	0.00E+00	1.38E+04	0.00E+00
Y-90	2.62E+02	0.00E+00	7.02E+00	0.00E+00	0.00E+00	0.00E+00	7.47E+05	0.00E+00
Y-91M	8.95E-09	0.00E+00	4.43E-10	0.00E+00	0.00E+00	0.00E+00	1.75E-05	0.00E+00
Y-91	1.82E+07	0.00E+00	4.86E+05	0.00E+00	0.00E+00	0.00E+00	2.42E+09	0.00E+00
Y-92	8.42E-20	0.00E+00	2.41E-21	0.00E+00	0.00E+00	0.00E+00	2.43E-15	0.00E+00
Y-93	2.93E+02	0.00E+00	8.05E+00	0.00E+00	0.00E+00	0.00E+00	4.37E+06	0.00E+00
Zr-95	1.52E+05	3.34E+04	2.98E+04	0.00E+00	4.79E+04	0.00E+00	3.49E+07	0.00E+00
Zr-97	8.84E-03	1.28E-03	7.54E-04	0.00E+00	1.83E-03	0.00E+00	1.93E+02	0.00E+00
Nb-95	4.04E+05	1.57E+05	1.12E+05	0.00E+00	1.48E+05	0.00E+00	2.91E+08	0.00E+00
Mo-99	0.00E+00	9.52E+04	2.36E+04	0.00E+00	2.03E+05	0.00E+00	7.88E+04	0.00E+00
Tc-99M	8.63E-12	1.69E-11	2.80E-10	0.00E+00	2.46E-10	8.59E-12	9.63E-09	0.00E+00
Tc-101	1.44E-30	1.51E-30	1.91E-29	0.00E+00	2.57E-29	7.98E-31	4.80E-30	0.00E+00
Ru-103	1.52E+07	0.00E+00	5.84E+06	0.00E+00	3.82E+07	0.00E+00	3.93E+08	0.00E+00
Ru-105	9.19E+01	0.00E+00	3.33E+01	0.00E+00	8.08E+02	0.00E+00	6.00E+04	0.00E+00
Ru-106	7.52E+08	0.00E+00	9.38E+07	0.00E+00	1.02E+09	0.00E+00	1.17E+10	0.00E+00
Ag-110M	3.45E+07	2.33E+07	1.86E+07	0.00E+00	4.34E+07	0.00E+00	2.77E+09	0.00E+00
Te-125M	4.39E+08	1.19E+08	5.86E+07	1.23E+08	0.00E+00	0.00E+00	4.24E+08	0.00E+00
Te-127M	1.90E+09	5.13E+08	2.26E+08	4.55E+08	5.43E+09	0.00E+00	1.54E+09	0.00E+00

Table 5.5-4 R Values for the Prairie Island Nuclear Generating Plant* - Vegetable, Child

PATHWAY = VEGETABLE
AGE GROUP = CHILD

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	1.02E+04	2.75E+03	2.19E+03	7.07E+03	2.91E+04	0.00E+00	3.99E+05	0.00E+00
Te-129M	9.84E+08	2.75E+08	1.53E+08	3.17E+08	2.89E+09	0.00E+00	1.20E+09	0.00E+00
Te-129	1.40E-03	3.90E-04	3.32E-04	9.97E-04	4.09E-03	0.00E+00	8.70E-02	0.00E+00
Te-131M	1.63E+06	5.65E+05	6.01E+05	1.16E+06	5.47E+06	0.00E+00	2.29E+07	0.00E+00
Te-131	2.73E-15	8.33E-16	8.13E-16	2.09E-15	8.26E-15	0.00E+00	1.43E-14	0.00E+00
Te-132	7.47E+06	3.31E+06	4.00E+06	4.82E+06	3.07E+07	0.00E+00	3.33E+07	0.00E+00
I-130	6.15E+05	1.24E+06	6.40E+05	1.37E+08	1.86E+06	0.00E+00	5.81E+05	0.00E+00
I-131	1.43E+08	1.44E+08	8.17E+07	4.76E+10	2.36E+08	0.00E+00	1.28E+07	0.00E+00
I-132	9.24E+01	1.70E+02	7.80E+01	7.87E+03	2.60E+02	0.00E+00	2.00E+02	0.00E+00
I-133	3.53E+06	4.37E+06	1.65E+06	8.12E+08	7.28E+06	0.00E+00	1.76E+06	0.00E+00
I-134	1.56E-04	2.89E-04	1.33E-04	6.65E-03	4.42E-04	0.00E+00	1.92E-04	0.00E+00
I-135	6.26E+04	1.13E+05	5.33E+04	9.98E+06	1.73E+05	0.00E+00	8.59E+04	0.00E+00
Cs-134	1.56E+10	2.56E+10	5.41E+09	0.00E+00	7.94E+09	2.85E+09	1.38E+08	0.00E+00
Cs-136	8.05E+07	2.21E+08	1.43E+08	0.00E+00	1.18E+08	1.76E+07	7.78E+06	0.00E+00
Cs-137	2.50E+10	2.39E+10	3.53E+09	0.00E+00	7.79E+09	2.80E+09	1.50E+08	0.00E+00
Cs-138	6.62E-11	9.20E-11	5.83E-11	0.00E+00	6.47E-11	6.96E-12	4.24E-11	0.00E+00
Ba-139	4.97E-02	2.65E-05	1.44E-03	0.00E+00	2.32E-05	1.56E-05	2.87E+00	0.00E+00
Ba-140	2.76E+08	2.42E+05	1.61E+07	0.00E+00	7.88E+04	1.44E+05	1.40E+08	0.00E+00
Ba-141	8.76E-22	4.91E-25	2.85E-23	0.00E+00	4.24E-25	2.88E-24	4.99E-22	0.00E+00
Ba-142	1.02E-38	7.31E-42	5.67E-40	0.00E+00	5.92E-42	4.30E-42	1.32E-40	0.00E+00
La-140	3.25E+03	1.13E+03	3.54E+02	0.00E+00	0.00E+00	0.00E+00	3.16E+07	0.00E+00
La-142	3.37E-04	1.07E-04	3.36E-05	0.00E+00	0.00E+00	0.00E+00	2.13E+01	0.00E+00
Ce-141	6.47E+05	3.23E+05	4.79E+04	0.00E+00	1.41E+05	0.00E+00	4.03E+08	0.00E+00
Ce-143	1.72E+03	9.31E+05	1.35E+02	0.00E+00	3.91E+02	0.00E+00	1.36E+07	0.00E+00
Ce-144	1.22E+08	3.82E+07	6.50E+06	0.00E+00	2.11E+07	0.00E+00	9.95E+09	0.00E+00
Pr-143	1.45E+05	4.36E+04	7.21E+03	0.00E+00	2.36E+04	0.00E+00	1.57E+08	0.00E+00
Pr-144	5.44E-26	1.68E-26	2.74E-27	0.00E+00	8.90E-27	0.00E+00	3.62E-23	0.00E+00
Nd-147	4.91E+03	3.98E+03	3.08E+02	0.00E+00	2.18E+03	0.00E+00	6.30E+06	0.00E+00
W-187	6.44E+04	3.81E+04	1.71E+04	0.00E+00	0.00E+00	0.00E+00	5.36E+06	0.00E+00
Np-239	2.56E+03	1.84E+02	1.29E+02	0.00E+00	5.31E+02	0.00E+00	1.36E+07	0.00E+00
Co-57	0.00E+00	2.81E+05	5.70E+05	0.00E+00	0.00E+00	0.00E+00	2.31E+06	0.00E+00
Br-82	0.00E+00	0.00E+00	3.38E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-97	3.65E-06	6.59E-07	3.08E-07	0.00E+00	7.32E-07	0.00E+00	2.04E-01	0.00E+00
Sb-124	1.42E+07	1.78E+05	4.82E+06	3.03E+04	0.00E+00	7.63E+06	8.59E+07	0.00E+00
Sb-125	4.91E+08	3.79E+06	1.03E+08	4.55E+05	0.00E+00	2.74E+08	1.17E+09	0.00E+00
Sb-126	1.58E+08	2.42E+06	5.69E+07	9.29E+05	0.00E+00	7.56E+07	3.19E+09	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-5 R Values for the Prairie Island Nuclear Generating Plant* - Meat, Adult

PATHWAY = MEAT
AGE GROUP = ADULT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	3.25E+02	3.25E+02	3.25E+02	3.25E+02	3.25E+02	3.25E+02	3.25E+02
C-14	5.38E+09	1.08E+09	1.08E+09	1.08E+09	1.08E+09	1.08E+09	1.08E+09	0.00E+00
Na-24	7.88E+07	7.88E+07	7.88E+07	7.88E+07	7.88E+07	7.88E+07	7.88E+07	0.00E+00
P-32	2.29E+09	1.54E+08	8.86E+07	0.00E+00	0.00E+00	0.00E+00	2.58E+08	0.00E+00
Cr-51	0.00E+00	0.00E+00	3.20E+03	1.96E+03	7.21E+02	4.35E+03	8.24E+05	0.00E+00
Mn-54	0.00E+00	4.96E+06	9.46E+05	0.00E+00	1.47E+06	0.00E+00	1.52E+07	0.00E+00
MN-56	0.00E+00	7.79E-54	1.38E-54	0.00E+00	9.89E-54	0.00E+00	2.49E-52	0.00E+00
Fe-55	1.60E+08	1.11E+08	2.58E+07	0.00E+00	0.00E+00	6.17E+07	6.34E+07	0.00E+00
Fe-59	1.25E+08	2.94E+08	1.13E+08	0.00E+00	0.00E+00	8.21E+07	9.80E+08	0.00E+00
Co-58	0.00E+00	8.87E+06	1.99E+07	0.00E+00	0.00E+00	0.00E+00	1.80E+08	0.00E+00
Co-60	0.00E+00	4.25E+07	9.37E+07	0.00E+00	0.00E+00	0.00E+00	7.98E+08	0.00E+00
Ni-63	1.18E+10	8.16E+08	3.95E+08	0.00E+00	0.00E+00	0.00E+00	1.70E+08	0.00E+00
Ni-65	1.16E-52	1.50E-53	6.85E-54	0.00E+00	0.00E+00	0.00E+00	3.81E-52	0.00E+00
Cu-64	0.00E+00	1.69E-07	7.92E-08	0.00E+00	4.25E-07	0.00E+00	1.44E-05	0.00E+00
Zn-65	2.21E+08	7.03E+08	3.18E+08	0.00E+00	4.70E+08	0.00E+00	4.43E+08	0.00E+00
Zn-69	9.83E-154	1.88E-153	1.31E-154	0.00E+00	1.22E-153	0.00E+00	2.82E-154	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	3.82E-270	0.00E+00	0.00E+00	0.00E+00	3.00E-275	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	2.30E+08	1.07E+08	0.00E+00	0.00E+00	0.00E+00	4.53E+07	0.00E+00
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	1.47E+08	0.00E+00	4.21E+06	0.00E+00	0.00E+00	0.00E+00	2.35E+07	0.00E+00
Sr-90	7.57E+09	0.00E+00	1.86E+09	0.00E+00	0.00E+00	0.00E+00	2.19E+08	0.00E+00
Sr-91	7.66E-11	0.00E+00	3.09E-12	0.00E+00	0.00E+00	0.00E+00	3.65E-10	0.00E+00
Sr-92	6.05E-50	0.00E+00	2.62E-51	0.00E+00	0.00E+00	0.00E+00	1.20E-48	0.00E+00
Y-90	2.86E-19	0.00E+00	7.67E-21	0.00E+00	0.00E+00	0.00E+00	3.03E-15	0.00E+00
Y-91M	3.80E-174	0.00E+00	1.47E-175	0.00E+00	0.00E+00	0.00E+00	1.12E-173	0.00E+00
Y-91	5.43E+06	0.00E+00	1.45E+05	0.00E+00	0.00E+00	0.00E+00	2.99E+09	0.00E+00
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	2.36E-11	0.00E+00	6.52E-13	0.00E+00	0.00E+00	0.00E+00	7.49E-07	0.00E+00
Zr-95	5.05E+04	1.62E+04	1.10E+04	0.00E+00	2.54E+04	0.00E+00	5.13E+07	0.00E+00
Zr-97	1.03E-83	2.08E-84	9.50E-85	0.00E+00	3.14E-84	0.00E+00	6.44E-79	0.00E+00
Nb-95	1.07E+06	5.96E+05	3.20E+05	0.00E+00	5.89E+05	0.00E+00	3.62E+09	0.00E+00
Mo-99	0.00E+00	1.13E-16	2.15E-17	0.00E+00	2.56E-16	0.00E+00	2.62E-16	0.00E+00
Tc-99M	1.37E-238	3.86E-238	4.91E-237	0.00E+00	5.86E-237	1.89E-238	2.28E-235	0.00E+00
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	4.94E+07	0.00E+00	2.13E+07	0.00E+00	1.89E+08	0.00E+00	5.77E+09	0.00E+00
Ru-105	2.94E-28	0.00E+00	1.16E-28	0.00E+00	3.80E-27	0.00E+00	1.80E-25	0.00E+00
Ru-106	1.54E+09	0.00E+00	1.95E+08	0.00E+00	2.98E+09	0.00E+00	9.99E+10	0.00E+00
Ag-110M	3.76E+06	3.48E+06	2.07E+06	0.00E+00	6.84E+06	0.00E+00	1.42E+09	0.00E+00
Te-125M	1.95E+08	7.08E+07	2.62E+07	5.88E+07	7.95E+08	0.00E+00	7.80E+08	0.00E+00
Te-127M	7.05E+08	2.52E+08	8.59E+07	1.80E+08	2.86E+09	0.00E+00	2.36E+09	0.00E+00

Table 5.5-5 R Values for the Prairie Island Nuclear Generating Plant* - Meat, Adult

PATHWAY = MEAT
AGE GROUP = ADULT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	8.57E-11	3.08E-11	1.85E-11	6.35E-11	3.49E-10	0.00E+00	6.76E-09	0.00E+00
Te-129M	5.71E+08	2.13E+08	9.03E+07	1.96E+08	2.38E+09	0.00E+00	2.87E+09	0.00E+00
Te-129	2.42E-121	9.09E-122	5.89E-122	1.86E-121	1.02E-120	0.00E+00	1.83E-121	0.00E+00
Te-131M	2.31E+02	1.13E+02	9.40E+01	1.79E+02	1.14E+03	0.00E+00	1.12E+04	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	7.28E+05	4.71E+05	4.42E+05	5.20E+05	4.53E+06	0.00E+00	2.23E+07	0.00E+00
I-130	1.04E-06	3.06E-06	1.21E-06	2.59E-04	4.77E-06	0.00E+00	2.63E-06	0.00E+00
I-131	5.28E+06	7.55E+06	4.33E+06	2.48E+09	1.29E+07	0.00E+00	1.99E+06	0.00E+00
I-132	3.59E-59	9.61E-59	3.36E-59	3.36E-57	1.53E-58	0.00E+00	1.81E-59	0.00E+00
I-133	1.83E-01	3.19E-01	9.72E-02	4.68E+01	5.56E-01	0.00E+00	2.87E-01	0.00E+00
I-134	5.77E-162	1.57E-161	5.60E-162	2.72E-160	2.49E-161	0.00E+00	1.37E-164	0.00E+00
I-135	2.24E-17	5.86E-17	2.16E-17	3.86E-15	9.39E-17	0.00E+00	6.62E-17	0.00E+00
Cs-134	3.62E+08	8.61E+08	7.04E+08	0.00E+00	2.79E+08	9.26E+07	1.51E+07	0.00E+00
Cs-136	5.66E+06	2.23E+07	1.61E+07	0.00E+00	1.24E+07	1.70E+06	2.54E+06	0.00E+00
Cs-137	5.10E+08	6.98E+08	4.57E+08	0.00E+00	2.37E+08	7.88E+07	1.35E+07	0.00E+00
Cs-138	1.53E-267	3.03E-267	1.50E-267	0.00E+00	2.22E-267	2.20E-268	1.29E-272	0.00E+00
Ba-139	6.54E-102	4.66E-105	1.92E-103	0.00E+00	4.36E-105	2.64E-105	1.16E-101	0.00E+00
Ba-140	1.38E+07	1.73E+04	9.02E+05	0.00E+00	5.88E+03	9.90E+03	2.84E+07	0.00E+00
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	1.86E-02	9.36E-03	2.47E-03	0.00E+00	0.00E+00	0.00E+00	6.87E+02	0.00E+00
La-142	1.80E-92	8.19E-93	2.04E-93	0.00E+00	0.00E+00	0.00E+00	5.98E-89	0.00E+00
Ce-141	6.54E+03	4.42E+03	5.02E+02	0.00E+00	2.05E+03	0.00E+00	1.69E+07	0.00E+00
Ce-143	1.01E-02	7.44E+00	8.23E-04	0.00E+00	3.27E-03	0.00E+00	2.78E+02	0.00E+00
Ce-144	7.72E+05	3.23E+05	4.14E+04	0.00E+00	1.91E+05	0.00E+00	2.61E+08	0.00E+00
Pr-143	1.00E+04	4.01E+03	4.96E+02	0.00E+00	2.32E+03	0.00E+00	4.38E+07	0.00E+00
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	6.72E-03	7.77E-03	4.65E-04	0.00E+00	4.54E-03	0.00E+00	3.73E+01	0.00E+00
W-187	1.04E-02	8.67E-03	3.03E-03	0.00E+00	0.00E+00	0.00E+00	2.84E+00	0.00E+00
Np-239	1.30E-01	1.28E-02	7.03E-03	0.00E+00	3.98E-02	0.00E+00	2.62E+03	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-6 R Values for the Prairie Island Nuclear Generating Plant* - Meat, Teen

PATHWAY = MEAT
AGE GROUP = TEEN

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	1.94E+02	1.94E+02	1.94E+02	1.94E+02	1.94E+02	1.94E+02	1.94E+02
C-14	4.54E+09	9.08E+08	9.08E+08	9.08E+08	9.08E+08	9.08E+08	9.08E+08	0.00E+00
Na-24	6.30E+07	6.30E+07	6.30E+07	6.30E+07	6.30E+07	6.30E+07	6.30E+07	0.00E+00
P-32	1.94E+09	1.20E+08	7.51E+07	0.00E+00	0.00E+00	0.00E+00	1.63E+08	0.00E+00
Cr-51	0.00E+00	0.00E+00	2.62E+03	1.46E+03	5.74E+02	3.74E+03	4.40E+05	0.00E+00
Mn-54	0.00E+00	3.78E+06	7.50E+05	0.00E+00	1.13E+06	0.00E+00	7.75E+06	0.00E+00
MN-56	0.00E+00	6.33E-53	1.13E-54	0.00E+00	8.01E-54	0.00E+00	4.16E-52	0.00E+00
Fe-55	1.30E+08	9.22E+07	2.15E+07	0.00E+00	0.00E+00	5.85E+07	3.99E+07	0.00E+00
Fe-59	1.00E+08	2.33E+08	9.01E+07	0.00E+00	0.00E+00	7.36E+07	5.52E+08	0.00E+00
Co-58	0.00E+00	6.84E+06	1.58E+07	0.00E+00	0.00E+00	0.00E+00	9.43E+07	0.00E+00
Co-60	0.00E+00	3.30E+07	7.42E+07	0.00E+00	0.00E+00	0.00E+00	4.29E+08	0.00E+00
Ni-63	9.47E+09	6.69E+08	3.21E+08	0.00E+00	0.00E+00	0.00E+00	1.06E+08	0.00E+00
Ni-65	9.69E-53	1.24E-53	5.64E-54	0.00E+00	0.00E+00	0.00E+00	6.71E-52	0.00E+00
Cu-64	0.00E+00	1.38E-07	6.47E-08	0.00E+00	3.48E-07	0.00E+00	1.07E-05	0.00E+00
Zn-65	1.55E+08	5.40E+08	2.52E+08	0.00E+00	3.45E+05	0.00E+00	2.29E+08	0.00E+00
Zn-69	8.29E-154	1.58E-153	1.11E-154	0.00E+00	1.03E-153	0.00E+00	2.91E-153	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	3.13E-270	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.92E+08	9.00E+07	0.00E+00	0.00E+00	0.00E+00	2.84E+07	0.00E+00
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	1.24E+08	0.00E+00	3.55E+06	0.00E+00	0.00E+00	0.00E+00	1.47E+07	0.00E+00
Sr-90	4.90E+09	0.00E+00	1.21E+09	0.00E+00	0.00E+00	0.00E+00	1.37E+08	0.00E+00
Sr-91	6.44E-11	0.00E+00	2.56E-12	0.00E+00	0.00E+00	0.00E+00	2.92E-10	0.00E+00
Sr-92	5.07E-50	0.00E+00	2.16E-51	0.00E+00	0.00E+00	0.00E+00	1.29E-48	0.00E+00
Y-90	2.41E-19	0.00E+00	6.48E-21	0.00E+00	0.00E+00	0.00E+00	1.98E-15	0.00E+00
Y-91M	3.19E-174	0.00E+00	1.22E-175	0.00E+00	0.00E+00	0.00E+00	1.50E-172	0.00E+00
Y-91	4.57E+06	0.00E+00	1.23E+05	0.00E+00	0.00E+00	0.00E+00	1.87E+09	0.00E+00
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	1.99E-11	0.00E+00	5.47E-13	0.00E+00	0.00E+00	0.00E+00	6.09E-07	0.00E+00
Zr-95	4.04E+04	1.28E+04	8.77E+03	0.00E+00	1.87E+04	0.00E+00	2.94E+07	0.00E+00
Zr-97	8.59E-84	1.70E-84	7.83E-85	0.00E+00	2.58E-84	0.00E+00	4.60E-79	0.00E+00
Nb-95	8.36E+05	4.64E+05	2.55E+05	0.00E+00	4.50E+05	0.00E+00	1.98E+09	0.00E+00
Mo-99	0.00E+00	9.34E-17	1.78E-17	0.00E+00	2.14E-16	0.00E+00	1.67E-16	0.00E+00
Tc-99M	1.08E-238	3.03E-238	3.92E-237	0.00E+00	4.51E-237	1.68E-238	1.99E-235	0.00E+00
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	4.03E+07	0.00E+00	1.72E+07	0.00E+00	1.42E+08	0.00E+00	3.36E+09	0.00E+00
Ru-105	2.46E-28	0.00E+00	9.53E-29	0.00E+00	3.10E-27	0.00E+00	1.98E-25	0.00E+00
Ru-106	1.30E+09	0.00E+00	1.64E+08	0.00E+00	2.51E+09	0.00E+00	6.23E+10	0.00E+00
Ag-110M	2.85E+06	2.69E+06	1.64E+06	0.00E+00	5.14E+06	0.00E+00	7.57E+08	0.00E+00
Te-125M	1.65E+08	5.94E+07	2.21E+07	4.61E+07	0.00E+00	0.00E+00	4.87E+08	0.00E+00
Te-127M	5.95E+08	2.11E+08	7.07E+07	1.41E+08	2.41E+09	0.00E+00	1.48E+09	0.00E+00

Table 5.5-6 R Values for the Prairie Island Nuclear Generating Plant* - Meat, Teen

PATHWAY = MEAT
AGE GROUP = TEEN

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	7.27E-11	2.58E-11	1.56E-11	5.02E-11	2.95E-10	0.00E+00	5.62E-09	0.00E+00
Te-129M	4.78E+08	1.77E+08	7.57E+07	1.54E+08	2.00E+09	0.00E+00	1.79E+09	0.00E+00
Te-129	2.04E-121	7.60E-122	4.96E-122	1.46E-121	8.56E-121	0.00E+00	1.12E-120	0.00E+00
Te-131M	1.92E+02	9.22E+01	7.69E+01	1.39E+02	9.62E+02	0.00E+00	7.40E+03	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	5.96E+05	3.77E+05	3.52E+05	3.98E+05	3.62E+06	0.00E+00	1.19E+07	0.00E+00
I-130	8.35E-07	2.42E-06	9.64E-07	1.97E-04	3.72E-06	0.00E+00	1.86E-06	0.00E+00
I-131	4.39E+06	6.14E+06	3.30E+06	1.79E+09	1.06E+07	0.00E+00	1.22E+06	0.00E+00
I-132	2.92E-59	7.64E-59	2.74E-59	2.57E-57	1.20E-58	0.00E+00	3.33E-59	0.00E+00
I-133	1.53E-01	2.60E-01	7.93E-02	3.63E+01	4.56E-01	0.00E+00	1.97E-01	0.00E+00
I-134	4.69E-162	1.24E-161	4.47E-162	2.07E-160	1.96E-161	0.00E+00	1.64E-163	0.00E+00
I-135	1.82E-17	4.69E-17	1.74E-17	3.01E-15	7.40E-17	0.00E+00	5.19E-17	0.00E+00
Cs-134	2.88E+08	6.78E+08	3.14E+08	0.00E+00	2.15E+08	8.22E+07	8.43E+06	0.00E+00
Cs-136	4.41E+06	1.74E+07	1.17E+07	0.00E+00	9.45E+06	1.49E+06	1.40E+06	0.00E+00
Cs-137	4.24E+08	5.64E+08	1.96E+08	0.00E+00	1.92E+08	7.46E+07	8.02E+06	0.00E+00
Cs-138	1.27E-267	2.44E-267	1.22E-267	0.00E+00	1.80E-267	2.10E-268	1.11E-270	0.00E+00
Ba-139	5.54E-102	3.90E-105	1.61E-103	0.00E+00	3.68E-105	2.69E-105	4.94E-101	0.00E+00
Ba-140	1.14E+07	1.39E+04	7.34E+05	0.00E+00	4.73E+03	9.38E+03	1.76E+07	0.00E+00
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	1.53E-02	7.51E-03	2.00E-03	0.00E+00	0.00E+00	0.00E+00	4.31E+02	0.00E+00
La-142	1.49E-92	6.61E-93	1.65E-93	0.00E+00	0.00E+00	0.00E+00	2.01E-88	0.00E+00
Ce-141	5.49E+03	3.67E+03	4.21E+02	0.00E+00	1.73E+03	0.00E+00	1.05E+07	0.00E+00
Ce-143	8.47E-03	6.16E+00	6.88E-04	0.00E+00	2.76E-03	0.00E+00	1.85E+02	0.00E+00
Ce-144	6.51E+05	2.69E+05	3.50E+04	0.00E+00	1.61E+05	0.00E+00	1.64E+08	0.00E+00
Pr-143	8.42E+03	3.36E+03	4.19E+02	0.00E+00	1.95E+03	0.00E+00	2.77E+07	0.00E+00
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	5.92E-03	6.44E-03	3.86E-04	0.00E+00	3.78E-03	0.00E+00	2.32E+01	0.00E+00
W-187	8.69E-03	7.08E-03	2.48E-03	0.00E+00	0.00E+00	0.00E+00	1.92E+00	0.00E+00
Np-239	1.13E-01	1.07E-02	5.94E-03	0.00E+00	3.36E-02	0.00E+00	1.72E+03	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2-MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-7 R Values for the Prairie Island Nuclear Generating Plant* - Meat, Child

PATHWAY = MEAT
AGE GROUP = CHILD

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	2.34E+02	2.34E+02	2.34E+02	2.34E+02	2.34E+02	2.34E+02	2.34E+02
C-14	8.54E+09	1.71E+09	1.71E+09	1.71E+09	1.71E+09	1.71E+09	1.71E+09	0.00E+00
Na-24	1.00E+08	1.00E+08	1.00E+08	1.00E+08	1.00E+08	1.00E+08	1.00E+08	0.00E+00
P-32	3.65E+09	1.71E+08	1.41E+08	0.00E+00	0.00E+00	0.00E+00	1.01E+08	0.00E+00
Cr-51	0.00E+00	0.00E+00	4.08E+03	2.27E+03	6.20E+02	4.14E+03	2.17E+05	0.00E+00
Mn-54	0.00E+00	4.33E+06	1.15E+06	0.00E+00	1.21E+06	0.00E+00	3.63E+06	0.00E+00
MN-56	0.00E+00	8.44E-54	1.88E-54	0.00E+00	1.02E-53	0.00E+00	1.22E-51	0.00E+00
Fe-55	2.49E+08	1.32E+08	4.10E+07	0.00E+00	0.00E+00	7.48E+07	2.45E+07	0.00E+00
Fe-59	1.77E+08	2.87E+08	1.43E+08	0.00E+00	0.00E+00	8.32E+07	2.99E+08	0.00E+00
Co-58	0.00E+00	7.99E+06	2.44E+07	0.00E+00	0.00E+00	0.00E+00	4.66E+07	0.00E+00
Co-60	0.00E+00	3.91E+07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.17E+08	0.00E+00
Ni-63	1.82E+10	9.72E+08	6.18E+08	0.00E+00	0.00E+00	0.00E+00	6.55E+07	0.00E+00
Ni-65	1.81E-52	1.70E-53	9.95E-54	0.00E+00	0.00E+00	0.00E+00	2.09E-51	0.00E+00
Cu-64	0.00E+00	1.85E-07	1.12E-07	0.00E+00	4.47E-07	0.00E+00	8.68E-06	0.00E+00
Zn-65	2.33E+08	6.55E+08	3.86E+08	0.00E+00	3.91E+08	0.00E+00	1.09E+08	0.00E+00
Zn-69	1.56E-153	2.25E-153	2.08E-154	0.00E+00	1.37E-153	0.00E+00	1.42E-151	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	5.42E-270	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	2.72E+08	1.67E+08	0.00E+00	0.00E+00	0.00E+00	1.75E+07	0.00E+00
Rb-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-89	2.34E+08	0.00E+00	6.69E+06	0.00E+00	0.00E+00	0.00E+00	9.07E+06	0.00E+00
Sr-90	6.33E+09	0.00E+00	1.60E+09	0.00E+00	0.00E+00	0.00E+00	8.52E+07	0.00E+00
Sr-91	1.21E-10	0.00E+00	4.56E-12	0.00E+00	0.00E+00	0.00E+00	2.67E-10	0.00E+00
Sr-92	9.47E-50	0.00E+00	3.80E-51	0.00E+00	0.00E+00	0.00E+00	1.79E-48	0.00E+00
Y-90	4.55E-19	0.00E+00	1.22E-20	0.00E+00	0.00E+00	0.00E+00	1.30E-15	0.00E+00
Y-91M	5.95E-174	0.00E+00	2.94E-175	0.00E+00	0.00E+00	0.00E+00	1.17E-170	0.00E+00
Y-91	8.64E+06	0.00E+00	2.31E+05	0.00E+00	0.00E+00	0.00E+00	1.15E+09	0.00E+00
Y-92	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Y-93	3.75E-11	0.00E+00	1.03E-12	0.00E+00	0.00E+00	0.00E+00	5.58E-07	0.00E+00
Zr-95	7.18E+04	1.58E+04	1.40E+04	0.00E+00	2.26E+04	0.00E+00	1.65E+07	0.00E+00
Zr-97	1.60E-83	2.31E-84	1.36E-84	0.00E+00	3.31E-84	0.00E+00	3.50E-79	0.00E+00
Nb-95	1.44E+06	5.62E+05	4.02E+05	0.00E+00	5.28E+05	0.00E+00	1.04E+09	0.00E+00
Mo-99	0.00E+00	1.30E-16	3.22E-17	0.00E+00	2.78E-16	0.00E+00	1.07E-16	0.00E+00
Tc-99M	1.90E-238	3.73E-238	6.18E-237	0.00E+00	5.42E-237	1.89E-238	2.12E-235	0.00E+00
Tc-101	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ru-103	7.28E+07	0.00E+00	2.80E+07	0.00E+00	1.83E+08	0.00E+00	1.88E+09	0.00E+00
Ru-105	4.58E-28	0.00E+00	1.66E-28	0.00E+00	4.03E-27	0.00E+00	2.99E-25	0.00E+00
Ru-106	2.45E+09	0.00E+00	3.05E+08	0.00E+00	3.30E+09	0.00E+00	3.81E+10	0.00E+00
Ag-110M	4.72E+06	3.19E+06	2.55E+06	0.00E+00	5.94E+06	0.00E+00	3.79E+08	0.00E+00
Te-125M	3.10E+08	8.40E+07	4.13E+07	8.69E+07	0.00E+00	0.00E+00	2.99E+08	0.00E+00
Te-127M	1.12E+09	3.02E+08	1.33E+08	2.68E+08	3.20E+09	0.00E+00	9.08E+08	0.00E+00

Table 5.5-7 R Values for the Prairie Island Nuclear Generating Plant* - Meat, Child

PATHWAY = MEAT
AGE GROUP = CHILD

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	1.37E-10	3.69E-11	2.93E-11	9.46E-11	3.89E-10	0.00E+00	5.34E-09	0.00E+00
Te-129M	9.01E+08	2.52E+08	1.40E+08	2.90E+08	2.64E+09	0.00E+00	1.10E+09	0.00E+00
Te-129	3.85E-121	1.07E-121	9.13E-122	2.74E-121	1.13E-120	0.00E+00	2.39E-119	0.00E+00
Te-131M	3.58E+02	1.24E+02	1.32E+02	2.55E+02	1.20E+03	0.00E+00	5.02E+03	0.00E+00
Te-131	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-132	1.09E+06	4.81E+05	5.81E+05	7.01E+05	4.47E+06	0.00E+00	4.84E+06	0.00E+00
I-130	1.49E-06	3.02E-06	1.55E-06	3.32E-04	4.51E-06	0.00E+00	1.41E-06	0.00E+00
I-131	8.14E+06	8.19E+06	4.65E+06	2.71E+09	1.34E+07	0.00E+00	7.29E+05	0.00E+00
I-132	5.28E-59	9.70E-59	4.46E-59	4.50E-57	1.48E-58	0.00E+00	1.14E-58	0.00E+00
I-133	2.85E-01	3.52E-01	1.33E-01	6.54E+01	5.87E-01	0.00E+00	1.42E-01	0.00E+00
I-134	8.50E-162	1.58E-161	7.26E-162	3.63E-160	2.41E-161	0.00E+00	1.05E-161	0.00E+00
I-135	3.29E-17	5.93E-17	2.80E-17	5.25E-15	9.09E-17	0.00E+00	4.52E-17	0.00E+00
Cs-134	5.08E+08	8.33E+08	1.76E+08	0.00E+00	2.58E+08	9.26E+07	4.49E+06	0.00E+00
Cs-136	7.62E+06	2.09E+07	1.35E+07	0.00E+00	1.11E+07	1.66E+06	7.36E+05	0.00E+00
Cs-137	7.81E+08	7.47E+08	1.10E+08	0.00E+00	2.43E+08	8.76E+07	4.68E+06	0.00E+00
Cs-138	2.36E-267	3.28E-267	2.08E-267	0.00E+00	2.31E-267	2.48E-268	1.51E-267	0.00E+00
Ba-139	1.04E-101	5.56E-105	3.02E-103	0.00E+00	4.85E-105	3.27E-105	6.01E-100	0.00E+00
Ba-140	2.10E+07	1.84E+04	1.23E+06	0.00E+00	5.99E+03	1.10E+04	1.06E+07	0.00E+00
Ba-141	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ba-142	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
La-140	2.80E-02	9.77E-03	3.05E-03	0.00E+00	0.00E+00	0.00E+00	2.72E+02	0.00E+00
La-142	2.75E-92	8.76E-93	2.74E-93	0.00E+00	0.00E+00	0.00E+00	1.74E-87	0.00E+00
Ce-141	1.03E+04	5.16E+03	7.66E+02	0.00E+00	2.26E+03	0.00E+00	6.43E+06	0.00E+00
Ce-143	1.59E-02	8.61E+00	1.25E-03	0.00E+00	3.61E-03	0.00E+00	1.26E+02	0.00E+00
Ce-144	1.23E+06	3.84E+05	6.55E+04	0.00E+00	2.13E+05	0.00E+00	1.00E+08	0.00E+00
Pr-143	1.59E+04	4.79E+03	7.91E+02	0.00E+00	2.59E+03	0.00E+00	1.72E+07	0.00E+00
Pr-144	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nd-147	1.11E-02	9.00E-03	6.97E-04	0.00E+00	4.94E-03	0.00E+00	1.43E+01	0.00E+00
W-187	1.61E-02	9.53E-03	4.28E-03	0.00E+00	0.00E+00	0.00E+00	1.34E+00	0.00E+00
Np-239	2.13E-01	1.53E-02	1.08E-02	0.00E+00	4.43E-02	0.00E+00	1.13E+03	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2-MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-8 R Values for the Prairie Island Nuclear Generating Plant* - Cow Milk, Adult

PATHWAY = COW MILK
AGE GROUP = ADULT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	7.63E+02	7.63E+02	7.63E+02	7.63E+02	7.63E+02	7.63E+02	7.63E+02
C-14	5.87E+09	1.17E+09	1.17E+09	1.17E+09	1.17E+09	1.17E+09	1.17E+09	0.00E+00
Na-24	3.01E+08	3.01E+08	3.01E+08	3.01E+08	3.01E+08	3.01E+08	3.01E+08	0.00E+00
P-32	8.41E+09	5.67E+08	3.25E+08	0.00E+00	0.00E+00	0.00E+00	9.46E+08	0.00E+00
Cr-51	0.00E+00	0.00E+00	1.30E+04	7.94E+03	2.93E+03	1.76E+04	3.34E+06	0.00E+00
Mn-54	0.00E+00	4.54E+06	8.67E+05	0.00E+00	1.35E+06	0.00E+00	1.39E+07	0.00E+00
MN-56	0.00E+00	2.08E-03	3.69E-04	0.00E+00	2.64E-03	0.00E+00	6.65E-02	0.00E+00
Fe-55	1.37E+07	9.47E+06	2.21E+06	0.00E+00	0.00E+00	5.28E+06	5.43E+06	0.00E+00
Fe-59	1.40E+07	3.29E+07	1.26E+07	0.00E+00	0.00E+00	9.19E+06	1.10E+08	0.00E+00
Co-58	0.00E+00	2.29E+06	5.14E+06	0.00E+00	0.00E+00	0.00E+00	4.65E+07	0.00E+00
Co-60	0.00E+00	9.27E+06	2.04E+07	0.00E+00	0.00E+00	0.00E+00	1.74E+08	0.00E+00
Ni-63	4.20E+09	2.91E+08	1.41E+08	0.00E+00	0.00E+00	0.00E+00	6.07E+07	0.00E+00
Ni-65	1.86E-01	2.41E-02	1.10E-02	0.00E+00	0.00E+00	0.00E+00	6.11E-01	0.00E+00
Cu-64	0.00E+00	1.23E+04	5.77E+03	0.00E+00	3.10E+04	0.00E+00	1.05E+06	0.00E+00
Zn-65	8.52E+08	2.71E+09	1.23E+09	0.00E+00	1.81E+09	0.00E+00	1.71E+09	0.00E+00
Zn-69	1.06E-12	2.03E-12	1.41E-13	0.00E+00	1.32E-12	0.00E+00	3.05E-13	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	8.24E-24	0.00E+00	0.00E+00	0.00E+00	6.47E-29	0.00E+00
Br-85	0.00E+00	0.00E+00	3.40E-288	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.22E+09	5.70E+08	0.00E+00	0.00E+00	0.00E+00	2.41E+08	0.00E+00
Rb-88	0.00E+00	1.09E-45	5.76E-46	0.00E+00	0.00E+00	0.00E+00	1.50E-56	0.00E+00
Rb-89	0.00E+00	1.59E-53	1.12E-53	0.00E+00	0.00E+00	0.00E+00	9.23E-67	0.00E+00
Sr-89	6.99E+08	0.00E+00	2.00E+07	0.00E+00	0.00E+00	0.00E+00	1.12E+08	0.00E+00
Sr-90	2.85E+10	0.00E+00	6.99E+09	0.00E+00	0.00E+00	0.00E+00	8.22E+08	0.00E+00
Sr-91	1.45E+04	0.00E+00	5.85E+02	0.00E+00	0.00E+00	0.00E+00	6.90E+04	0.00E+00
Sr-92	2.45E-01	0.00E+00	1.06E-02	0.00E+00	0.00E+00	0.00E+00	4.85E+00	0.00E+00
Y-90	3.82E-02	0.00E+00	1.02E-03	0.00E+00	0.00E+00	0.00E+00	4.05E+02	0.00E+00
Y-91M	3.02E-20	0.00E+00	1.17E-21	0.00E+00	0.00E+00	0.00E+00	8.86E-20	0.00E+00
Y-91	4.12E+03	0.00E+00	1.10E+02	0.00E+00	0.00E+00	0.00E+00	2.27E+06	0.00E+00
Y-92	4.79E-43	0.00E+00	1.40E-44	0.00E+00	0.00E+00	0.00E+00	8.38E-39	0.00E+00
Y-93	1.12E-01	0.00E+00	3.09E-03	0.00E+00	0.00E+00	0.00E+00	3.55E+03	0.00E+00
Zr-95	1.47E+02	4.72E+01	3.19E+01	0.00E+00	7.40E+01	0.00E+00	1.50E+05	0.00E+00
Zr-97	4.50E-10	9.07E-11	4.15E-11	0.00E+00	1.37E-10	0.00E+00	2.81E-05	0.00E+00
Nb-95	3.85E+04	2.14E+04	1.15E+04	0.00E+00	2.12E+04	0.00E+00	1.30E+08	0.00E+00
Mo-99	0.00E+00	1.55E+04	2.96E+03	0.00E+00	3.52E+04	0.00E+00	3.60E+04	0.00E+00
Tc-99M	4.04E-23	1.14E-22	1.46E-21	0.00E+00	1.74E-21	5.60E-23	6.76E-20	0.00E+00
Tc-101	1.34E-60	1.93E-60	1.89E-59	0.00E+00	3.48E-59	9.87E-61	5.81E-72	0.00E+00
Ru-103	4.79E+02	0.00E+00	2.06E+02	0.00E+00	1.83E+03	0.00E+00	5.59E+04	0.00E+00
Ru-105	4.29E-04	0.00E+00	1.70E-04	0.00E+00	5.55E-03	0.00E+00	2.63E-01	0.00E+00
Ru-106	1.12E+04	0.00E+00	1.42E+03	0.00E+00	2.17E+04	0.00E+00	7.28E+05	0.00E+00
Ag-110M	3.28E+07	3.03E+07	1.80E+07	0.00E+00	5.96E+07	0.00E+00	1.24E+10	0.00E+00
Te-125M	8.87E+06	3.21E+06	1.19E+06	2.67E+06	3.61E+07	0.00E+00	3.54E+07	0.00E+00
Te-127M	2.89E+07	1.03E+07	3.53E+06	7.39E+06	1.18E+08	0.00E+00	9.70E+07	0.00E+00

Table 5.5-8 R Values for the Prairie Island Nuclear Generating Plant* - Cow Milk, Adult

PATHWAY = COW MILK
AGE GROUP = ADULT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	3.23E+02	1.16E+02	7.00E+01	2.40E+02	1.32E+03	0.00E+00	2.55E+04	0.00E+00
Te-129M	3.03E+07	1.13E+07	4.79E+06	1.04E+07	1.26E+08	0.00E+00	1.52E+08	0.00E+00
Te-129	1.45E-10	5.44E-11	3.53E-11	1.11E-10	6.09E-10	0.00E+00	1.09E-10	0.00E+00
Te-131M	1.84E+05	9.01E+04	7.51E+04	1.43E+05	9.13E+05	0.00E+00	8.95E+06	0.00E+00
Te-131	1.87E-33	7.80E-34	5.90E-34	1.54E-33	8.18E-33	0.00E+00	2.64E-34	0.00E+00
Te-132	1.23E+06	7.95E+05	7.46E+05	8.78E+05	7.66E+06	0.00E+00	3.76E+07	0.00E+00
I-130	2.10E+05	6.18E+05	2.44E+05	5.24E+07	9.65E+05	0.00E+00	5.32E+05	0.00E+00
I-131	1.46E+08	2.08E+08	1.19E+08	6.82E+10	3.57E+08	0.00E+00	5.49E+07	0.00E+00
I-132	8.24E-02	2.20E-01	7.71E-02	7.71E+00	3.51E-01	0.00E+00	4.14E-02	0.00E+00
I-133	1.94E+06	3.37E+06	1.03E+06	4.95E+08	5.88E+06	0.00E+00	3.03E+06	0.00E+00
I-134	1.02E-12	2.76E-12	9.88E-13	4.79E-11	4.39E-12	0.00E+00	2.41E-15	0.00E+00
I-135	6.43E+03	1.68E+04	6.21E+03	1.11E+06	2.70E+04	0.00E+00	1.90E+04	0.00E+00
Cs-134	3.11E+09	7.41E+09	6.05E+09	0.00E+00	2.40E+09	7.96E+08	1.30E+08	0.00E+00
Cs-136	1.25E+08	4.94E+08	3.55E+08	0.00E+00	2.75E+08	3.77E+07	5.61E+07	0.00E+00
Cs-137	4.32E+09	5.91E+09	3.87E+09	0.00E+00	2.01E+09	6.67E+08	1.14E+08	0.00E+00
Cs-138	4.58E-24	9.05E-24	4.48E-24	0.00E+00	6.65E-24	6.57E-25	3.86E-29	0.00E+00
Ba-139	2.22E-08	1.58E-11	6.50E-10	0.00E+00	1.48E-11	8.98E-12	3.94E-08	0.00E+00
Ba-140	1.29E+07	1.62E+04	8.44E+05	0.00E+00	5.50E+03	9.26E+03	2.65E+07	0.00E+00
Ba-141	4.00E-47	3.03E-50	1.35E-48	0.00E+00	2.81E-50	1.72E-50	1.89E-56	0.00E+00
Ba-142	1.38E-80	1.42E-83	8.70E-82	0.00E+00	1.20E-83	8.05E-84	1.95E-98	0.00E+00
La-140	2.26E+00	1.14E+00	3.01E-01	0.00E+00	0.00E+00	0.00E+00	8.35E+04	0.00E+00
La-142	9.33E-12	4.24E-12	1.06E-12	0.00E+00	0.00E+00	0.00E+00	3.10E-08	0.00E+00
Ce-141	2.26E+03	1.53E+03	1.73E+02	0.00E+00	7.08E+02	0.00E+00	5.83E+06	0.00E+00
Ce-143	2.08E+01	1.54E+04	1.70E+00	0.00E+00	6.77E+00	0.00E+00	5.75E+05	0.00E+00
Ce-144	1.89E+05	7.92E+04	1.02E+04	0.00E+00	4.70E+04	0.00E+00	6.41E+07	0.00E+00
Pr-143	7.54E+01	3.02E+01	3.74E+00	0.00E+00	1.75E+01	0.00E+00	3.30E+05	0.00E+00
Pr-144	3.01E-54	1.25E-54	1.53E-53	0.00E+00	7.05E-55	0.00E+00	4.33E-61	0.00E+00
Nd-147	2.50E+00	2.89E+00	1.73E-01	0.00E+00	1.69E+00	0.00E+00	1.39E+04	0.00E+00
W-187	3.26E+03	2.72E+03	9.53E+02	0.00E+00	0.00E+00	0.00E+00	8.92E+05	0.00E+00
Np-239	1.84E+00	1.81E-01	9.96E-02	0.00E+00	5.63E-01	0.00E+00	3.70E+04	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2-MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-9 R Values for the Prairie Island Nuclear Generating Plant* - Cow Milk, Teen

PATHWAY = COW MILK
AGE GROUP = TEEN

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	9.94E+02	9.94E+02	9.94E+02	9.94E+02	9.94E+02	9.94E+02	9.94E+02
C-14	1.08E+10	2.16E+09	2.16E+09	2.16E+09	2.16E+09	2.16E+09	2.16E+09	0.00E+00
Na-24	5.25E+08	5.25E+08	5.25E+08	5.25E+08	5.25E+08	5.25E+08	5.25E+08	0.00E+00
P-32	1.55E+10	9.62E+08	6.02E+08	0.00E+00	0.00E+00	0.00E+00	1.30E+09	0.00E+00
Cr-51	0.00E+00	0.00E+00	2.32E+04	1.29E+04	5.08E+03	3.31E+04	3.90E+06	0.00E+00
Mn-54	0.00E+00	7.57E+06	1.50E+06	0.00E+00	2.26E+06	0.00E+00	1.55E+07	0.00E+00
MN-56	0.00E+00	3.69E-02	6.57E-04	0.00E+00	4.67E-03	0.00E+00	2.43E-01	0.00E+00
Fe-55	2.43E+07	1.72E+07	4.02E+06	0.00E+00	0.00E+00	1.09E+07	7.46E+06	0.00E+00
Fe-59	2.44E+07	5.70E+07	2.20E+07	0.00E+00	0.00E+00	1.80E+07	1.35E+08	0.00E+00
Co-58	0.00E+00	3.86E+06	8.90E+06	0.00E+00	0.00E+00	0.00E+00	5.32E+07	0.00E+00
Co-60	0.00E+00	1.57E+07	3.54E+07	0.00E+00	0.00E+00	0.00E+00	2.05E+08	0.00E+00
Ni-63	7.37E+09	5.21E+08	2.50E+08	0.00E+00	0.00E+00	0.00E+00	8.29E+07	0.00E+00
Ni-65	3.40E-01	4.34E-02	1.98E-02	0.00E+00	0.00E+00	0.00E+00	2.35E+00	0.00E+00
Cu-64	0.00E+00	2.19E+04	1.03E+04	0.00E+00	5.54E+04	0.00E+00	1.70E+06	0.00E+00
Zn-65	1.31E+09	4.54E+09	2.12E+09	0.00E+00	2.91E+06	0.00E+00	1.92E+09	0.00E+00
Zn-69	1.95E-12	3.72E-12	2.60E-13	0.00E+00	2.43E-12	0.00E+00	6.85E-12	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	1.47E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	6.26E-288	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	2.23E+09	1.05E+09	0.00E+00	0.00E+00	0.00E+00	3.30E+08	0.00E+00
Rb-88	0.00E+00	1.97E-45	1.05E-45	0.00E+00	0.00E+00	0.00E+00	1.69E-52	0.00E+00
Rb-89	0.00E+00	2.81E-53	1.48E-53	0.00E+00	0.00E+00	0.00E+00	4.31E-62	0.00E+00
Sr-89	1.29E+09	0.00E+00	3.69E+07	0.00E+00	0.00E+00	0.00E+00	1.53E+08	0.00E+00
Sr-90	4.02E+10	0.00E+00	9.93E+09	0.00E+00	0.00E+00	0.00E+00	1.13E+09	0.00E+00
Sr-91	2.66E+04	0.00E+00	1.06E+03	0.00E+00	0.00E+00	0.00E+00	1.21E+05	0.00E+00
Sr-92	4.48E-01	0.00E+00	1.91E-02	0.00E+00	0.00E+00	0.00E+00	1.14E+01	0.00E+00
Y-90	7.02E-02	0.00E+00	1.89E-03	0.00E+00	0.00E+00	0.00E+00	5.79E+02	0.00E+00
Y-91M	5.53E-20	0.00E+00	2.11E-21	0.00E+00	0.00E+00	0.00E+00	2.61E-18	0.00E+00
Y-91	7.57E+03	0.00E+00	2.03E+02	0.00E+00	0.00E+00	0.00E+00	3.10E+06	0.00E+00
Y-92	8.84E-43	0.00E+00	2.56E-44	0.00E+00	0.00E+00	0.00E+00	2.43E-38	0.00E+00
Y-93	2.06E-01	0.00E+00	5.65E-03	0.00E+00	0.00E+00	0.00E+00	6.30E+03	0.00E+00
Zr-95	2.57E+02	8.12E+01	5.58E+01	0.00E+00	1.19E+02	0.00E+00	1.87E+05	0.00E+00
Zr-97	8.18E-10	1.62E-10	7.46E-11	0.00E+00	2.45E-10	0.00E+00	4.38E-05	0.00E+00
Nb-95	6.57E+04	3.64E+04	2.00E+04	0.00E+00	3.53E+04	0.00E+00	1.56E+08	0.00E+00
Mo-99	0.00E+00	2.81E+04	5.35E+03	0.00E+00	6.42E+04	0.00E+00	5.03E+04	0.00E+00
Tc-99M	7.01E-23	1.96E-22	2.53E-21	0.00E+00	2.92E-21	1.09E-22	1.28E-19	0.00E+00
Tc-101	2.45E-60	3.49E-60	3.43E-59	0.00E+00	6.31E-59	2.12E-60	5.96E-67	0.00E+00
Ru-103	8.51E+02	0.00E+00	3.64E+02	0.00E+00	3.00E+03	0.00E+00	7.11E+04	0.00E+00
Ru-105	7.84E-04	0.00E+00	3.04E-04	0.00E+00	9.89E-03	0.00E+00	6.33E-01	0.00E+00
Ru-106	2.07E+04	0.00E+00	2.61E+03	0.00E+00	3.99E+04	0.00E+00	9.92E+05	0.00E+00
Ag-110M	5.42E+07	5.13E+07	3.12E+07	0.00E+00	9.78E+07	0.00E+00	1.44E+10	0.00E+00
Te-125M	1.64E+07	5.89E+06	2.19E+06	4.57E+06	0.00E+00	0.00E+00	4.82E+07	0.00E+00
Te-127M	5.33E+07	1.89E+07	6.34E+06	1.27E+07	2.16E+08	0.00E+00	1.33E+08	0.00E+00

Table 5.5-9 R Values for the Prairie Island Nuclear Generating Plant* - Cow Milk, Teen

PATHWAY = COW MILK
AGE GROUP = TEEN

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	5.99E+02	2.12E+02	1.29E+02	4.13E+02	2.43E+03	0.00E+00	4.63E+04	0.00E+00
Te-129M	5.54E+07	2.06E+07	8.77E+06	1.79E+07	2.32E+08	0.00E+00	2.08E+08	0.00E+00
Te-129	2.67E-10	9.94E-11	6.48E-11	1.90E-10	1.12E-09	0.00E+00	1.46E-09	0.00E+00
Te-131M	3.35E+05	1.61E+05	1.34E+05	2.42E+05	1.68E+06	0.00E+00	1.29E+07	0.00E+00
Te-131	3.41E-33	1.41E-33	1.07E-33	2.63E-33	1.49E-32	0.00E+00	2.80E-34	0.00E+00
Te-132	2.20E+06	1.39E+06	1.30E+06	1.47E+06	1.33E+07	0.00E+00	4.41E+07	0.00E+00
I-130	3.68E+05	1.07E+06	4.26E+05	8.69E+07	1.64E+06	0.00E+00	8.19E+05	0.00E+00
I-131	2.64E+08	3.70E+08	1.99E+08	1.08E+11	6.37E+08	0.00E+00	7.31E+07	0.00E+00
I-132	1.46E-01	3.82E-01	1.37E-01	1.29E+01	6.02E-01	0.00E+00	1.67E-01	0.00E+00
I-133	3.54E+06	6.00E+06	1.83E+06	8.37E+08	1.05E+07	0.00E+00	4.54E+06	0.00E+00
I-134	1.81E-12	4.79E-12	1.72E-12	7.98E-11	7.55E-12	0.00E+00	6.31E-14	0.00E+00
I-135	1.14E+04	2.94E+04	1.09E+04	1.89E+06	4.64E+04	0.00E+00	3.26E+04	0.00E+00
Cs-134	5.40E+09	1.27E+10	5.90E+09	0.00E+00	4.04E+09	1.54E+09	1.58E+08	0.00E+00
Cs-136	2.13E+08	8.38E+08	5.63E+08	0.00E+00	4.56E+08	7.19E+07	6.74E+07	0.00E+00
Cs-137	7.83E+09	1.04E+10	3.63E+09	0.00E+00	3.55E+09	1.38E+09	1.48E+08	0.00E+00
Cs-138	8.31E-24	1.60E-23	7.98E-24	0.00E+00	1.18E-23	1.37E-24	7.24E-27	0.00E+00
Ba-139	4.11E-08	2.89E-11	1.20E-09	0.00E+00	2.72E-11	1.99E-11	3.66E-07	0.00E+00
Ba-140	2.32E+07	2.85E+04	1.50E+06	0.00E+00	9.66E+03	1.92E+04	3.59E+07	0.00E+00
Ba-141	7.36E-47	5.49E-50	2.46E-48	0.00E+00	5.10E-50	3.76E-50	1.57E-52	0.00E+00
Ba-142	2.51E-80	2.51E-83	1.54E-81	0.00E+00	2.12E-83	1.67E-83	7.69E-92	0.00E+00
La-140	4.05E+00	1.99E+00	5.30E-01	0.00E+00	0.00E+00	0.00E+00	1.14E+05	0.00E+00
La-142	1.68E-11	7.48E-12	1.86E-12	0.00E+00	0.00E+00	0.00E+00	2.28E-07	0.00E+00
Ce-141	4.14E+03	2.76E+03	3.17E+02	0.00E+00	1.30E+03	0.00E+00	7.90E+06	0.00E+00
Ce-143	3.82E+01	2.78E+04	3.11E+00	0.00E+00	1.25E+01	0.00E+00	8.36E+05	0.00E+00
Ce-144	3.49E+05	1.44E+05	1.87E+04	0.00E+00	8.62E+04	0.00E+00	8.77E+07	0.00E+00
Pr-143	1.38E+02	5.53E+01	6.89E+00	0.00E+00	3.21E+01	0.00E+00	4.56E+05	0.00E+00
Pr-144	5.55E-54	2.27E-54	2.81E-55	0.00E+00	1.30E-54	0.00E+00	6.11E-57	0.00E+00
Nd-147	4.81E+00	5.23E+00	3.13E-01	0.00E+00	3.07E+00	0.00E+00	1.89E+04	0.00E+00
W-187	5.96E+03	4.86E+03	1.70E+03	0.00E+00	0.00E+00	0.00E+00	1.31E+06	0.00E+00
Np-239	3.51E+00	3.31E-01	1.84E-01	0.00E+00	1.04E+00	0.00E+00	5.32E+04	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2-MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-10 R Values for the Prairie Island Nuclear Generating Plant* - Cow Milk, Child

PATHWAY = COW MILK
AGE GROUP = CHILD

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	1.57E+03	1.57E+03	1.57E+03	1.57E+03	1.57E+03	1.57E+03	1.57E+03
C-14	2.66E+10	5.32E+09	5.32E+09	5.32E+09	5.32E+09	5.32E+09	5.32E+09	0.00E+00
Na-24	1.09E+09	1.09E+09	1.09E+09	1.09E+09	1.09E+09	1.09E+09	1.09E+09	0.00E+00
P-32	3.83E+10	1.79E+09	1.48E+09	0.00E+00	0.00E+00	0.00E+00	1.06E+09	0.00E+00
Cr-51	0.00E+00	0.00E+00	4.73E+04	2.63E+04	7.17E+03	4.79E+04	2.51E+06	0.00E+00
Mn-54	0.00E+00	1.13E+07	3.02E+06	0.00E+00	3.17E+06	0.00E+00	9.50E+06	0.00E+00
MN-56	0.00E+00	6.44E-03	1.44E-03	0.00E+00	7.79E-03	0.00E+00	9.33E-01	0.00E+00
Fe-55	6.10E+07	3.24E+07	1.00E+07	0.00E+00	0.00E+00	1.83E+07	6.00E+06	0.00E+00
Fe-59	5.66E+07	9.16E+07	4.56E+07	0.00E+00	0.00E+00	2.66E+07	9.54E+07	0.00E+00
Co-58	0.00E+00	5.90E+06	1.81E+07	0.00E+00	0.00E+00	0.00E+00	3.44E+07	0.00E+00
Co-60	0.00E+00	2.44E+07	7.19E+07	0.00E+00	0.00E+00	0.00E+00	1.35E+08	0.00E+00
Ni-63	1.85E+10	9.90E+08	6.29E+08	0.00E+00	0.00E+00	0.00E+00	6.67E+07	0.00E+00
Ni-65	8.30E-01	7.82E-02	4.56E-02	0.00E+00	0.00E+00	0.00E+00	9.58E+00	0.00E+00
Cu-64	0.00E+00	3.85E+04	2.32E+04	0.00E+00	9.29E+04	0.00E+00	1.81E+06	0.00E+00
Zn-65	2.57E+09	7.22E+09	4.25E+09	0.00E+00	4.31E+09	0.00E+00	1.20E+09	0.00E+00
Zn-69	4.80E-12	6.93E-12	6.41E-13	0.00E+00	4.21E-12	0.00E+00	4.37E-10	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	3.34E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	1.54E-287	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	4.13E+09	2.54E+09	0.00E+00	0.00E+00	0.00E+00	2.66E+08	0.00E+00
Rb-88	0.00E+00	3.63E-45	2.52E-45	0.00E+00	0.00E+00	0.00E+00	1.78E-46	0.00E+00
Rb-89	0.00E+00	4.94E-53	4.39E-53	0.00E+00	0.00E+00	0.00E+00	4.30E-55	0.00E+00
Sr-89	3.19E+09	0.00E+00	9.10E+07	0.00E+00	0.00E+00	0.00E+00	1.23E+08	0.00E+00
Sr-90	6.80E+10	0.00E+00	1.72E+10	0.00E+00	0.00E+00	0.00E+00	9.15E+08	0.00E+00
Sr-91	6.52E+04	0.00E+00	2.46E+03	0.00E+00	0.00E+00	0.00E+00	1.44E+05	0.00E+00
Sr-92	1.09E+00	0.00E+00	4.39E-02	0.00E+00	0.00E+00	0.00E+00	2.07E+01	0.00E+00
Y-90	1.74E-01	0.00E+00	4.65E-03	0.00E+00	0.00E+00	0.00E+00	4.95E+02	0.00E+00
Y-91M	1.35E-19	0.00E+00	6.68E-21	0.00E+00	0.00E+00	0.00E+00	2.64E-16	0.00E+00
Y-91	1.87E+04	0.00E+00	5.00E+02	0.00E+00	0.00E+00	0.00E+00	2.49E+06	0.00E+00
Y-92	2.17E-42	0.00E+00	6.21E-44	0.00E+00	0.00E+00	0.00E+00	6.27E-38	0.00E+00
Y-93	5.06E-01	0.00E+00	1.39E-02	0.00E+00	0.00E+00	0.00E+00	7.55E+03	0.00E+00
Zr-95	5.98E+02	1.31E+02	1.17E+02	0.00E+00	1.88E+02	0.00E+00	1.37E+05	0.00E+00
Zr-97	1.99E-09	2.88E-10	1.70E-10	0.00E+00	4.13E-10	0.00E+00	4.36E-05	0.00E+00
Nb-95	1.48E+05	5.77E+04	4.12E+04	0.00E+00	5.42E+04	0.00E+00	1.07E+08	0.00E+00
Mo-99	0.00E+00	5.11E+04	1.26E+04	0.00E+00	1.09E+05	0.00E+00	4.22E+04	0.00E+00
Tc-99M	1.61E-22	3.15E-22	5.23E-21	0.00E+00	4.58E-21	1.60E-22	1.80E-19	0.00E+00
Tc-101	6.01E-60	6.29E-60	7.98E-59	0.00E+00	1.07E-58	3.33E-60	2.00E-59	0.00E+00
Ru-103	2.01E+03	0.00E+00	7.74E+02	0.00E+00	5.07E+03	0.00E+00	5.20E+04	0.00E+00
Ru-105	1.91E-03	0.00E+00	6.95E-04	0.00E+00	1.68E-02	0.00E+00	1.25E+00	0.00E+00
Ru-106	5.09E+04	0.00E+00	6.36E+03	0.00E+00	6.88E+04	0.00E+00	7.93E+05	0.00E+00
Ag-110M	1.18E+08	7.94E+07	6.34E+07	0.00E+00	1.48E+08	0.00E+00	9.44E+09	0.00E+00
Te-125M	4.02E+07	1.09E+07	5.35E+06	1.13E+07	0.00E+00	0.00E+00	3.87E+07	0.00E+00
Te-127M	1.31E+08	3.54E+07	1.56E+07	3.14E+07	3.75E+08	0.00E+00	1.06E+08	0.00E+00

Table 5.5-10 R Values for the Prairie Island Nuclear Generating Plant* - Cow Milk, Child

PATHWAY = COW MILK
AGE GROUP = CHILD

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	1.47E+03	3.97E+02	3.16E+02	1.02E+03	4.19E+03	0.00E+00	5.76E+04	0.00E+00
Te-129M	1.37E+08	3.81E+07	2.12E+07	4.40E+07	4.01E+08	0.00E+00	1.67E+08	0.00E+00
Te-129	6.58E-10	1.84E-10	1.56E-10	4.69E-10	1.92E-09	0.00E+00	4.09E-08	0.00E+00
Te-131M	8.17E+05	2.82E+05	3.01E+05	5.81E+05	2.73E+06	0.00E+00	1.15E+07	0.00E+00
Te-131	8.38E-33	2.55E-33	2.49E-33	6.41E-33	2.53E-32	0.00E+00	4.40E-32	0.00E+00
Te-132	5.24E+06	2.32E+06	2.80E+06	3.38E+06	2.15E+07	0.00E+00	2.34E+07	0.00E+00
I-130	8.62E+05	1.74E+06	8.97E+05	1.92E+08	2.60E+06	0.00E+00	8.15E+05	0.00E+00
I-131	6.41E+08	6.44E+08	3.66E+08	2.13E+11	1.06E+09	0.00E+00	5.74E+07	0.00E+00
I-132	3.46E-01	6.35E-01	2.92E-01	2.95E+01	9.72E-01	0.00E+00	7.48E-01	0.00E+00
I-133	8.59E+06	1.06E+07	4.02E+06	1.97E+09	1.77E+07	0.00E+00	4.28E+06	0.00E+00
I-134	4.28E-12	7.94E-12	3.65E-12	1.83E-10	1.21E-11	0.00E+00	5.27E-12	0.00E+00
I-135	2.70E+04	4.87E+04	2.30E+04	4.31E+06	7.46E+04	0.00E+00	3.71E+04	0.00E+00
Cs-134	1.25E+10	2.05E+10	4.31E+09	0.00E+00	6.34E+09	2.27E+09	1.10E+08	0.00E+00
Cs-136	4.81E+08	1.32E+09	8.55E+08	0.00E+00	7.04E+08	1.05E+08	4.64E+07	0.00E+00
Cs-137	1.89E+10	1.81E+10	2.67E+09	0.00E+00	5.89E+09	2.12E+09	1.13E+08	0.00E+00
Cs-138	2.02E-23	2.80E-23	1.78E-23	0.00E+00	1.97E-23	2.12E-24	1.29E-23	0.00E+00
Ba-139	1.01E-07	5.39E-11	2.93E-09	0.00E+00	4.71E-11	3.17E-11	5.83E-06	0.00E+00
Ba-140	5.61E+07	4.92E+04	3.28E+06	0.00E+00	1.60E+04	2.93E+04	2.84E+07	0.00E+00
Ba-141	1.81E-46	1.01E-49	5.89E-48	0.00E+00	8.77E-50	5.95E-49	1.03E-46	0.00E+00
Ba-142	6.04E-80	4.35E-83	3.37E-81	0.00E+00	3.52E-83	2.56E-83	7.88E-82	0.00E+00
La-140	9.70E+00	3.39E+00	1.06E+00	0.00E+00	0.00E+00	0.00E+00	9.45E+04	0.00E+00
La-142	4.07E-11	1.30E-11	4.06E-12	0.00E+00	0.00E+00	0.00E+00	2.57E-06	0.00E+00
Ce-141	1.02E+04	5.08E+03	7.54E+02	0.00E+00	2.23E+03	0.00E+00	6.34E+06	0.00E+00
Ce-143	9.38E+01	5.08E+04	7.36E+00	0.00E+00	2.13E+01	0.00E+00	7.44E+05	0.00E+00
Ce-144	8.60E+05	2.69E+05	4.59E+04	0.00E+00	1.49E+05	0.00E+00	7.03E+07	0.00E+00
Pr-143	3.43E+02	1.03E+02	1.70E+01	0.00E+00	5.57E+01	0.00E+00	3.70E+05	0.00E+00
Pr-144	1.37E-53	4.24E-54	6.90E-55	0.00E+00	2.24E-54	0.00E+00	9.14E-51	0.00E+00
Nd-147	1.18E+01	9.55E+00	7.40E-01	0.00E+00	5.24E+00	0.00E+00	1.51E+04	0.00E+00
W-187	1.45E+04	8.56E+03	3.84E+03	0.00E+00	0.00E+00	0.00E+00	1.20E+06	0.00E+00
Np-239	8.63E+00	6.20E-01	4.35E-01	0.00E+00	1.79E+00	0.00E+00	4.58E+04	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-11 R Values for the Prairie Island Nuclear Generating Plant* - Cow Milk, Infant

PATHWAY = COW MILK
AGE GROUP = INFANT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	2.38E+03	2.38E+03	2.38E+03	2.38E+03	2.38E+03	2.38E+03	2.38E+03
C-14	5.21E+10	1.11E+10	1.11E+10	1.11E+10	1.11E+10	1.11E+10	1.11E+10	0.00E+00
Na-24	1.90E+09	1.90E+09	1.90E+09	1.90E+09	1.90E+09	1.90E+09	1.90E+09	0.00E+00
P-32	7.89E+10	4.64E+09	3.22E+09	0.00E+00	0.00E+00	0.00E+00	1.07E+09	0.00E+00
Cr-51	0.00E+00	0.00E+00	7.49E+04	4.89E+04	1.07E+04	9.51E+04	2.18E+06	0.00E+00
Mn-54	0.00E+00	2.11E+07	4.77E+06	0.00E+00	4.67E+06	0.00E+00	7.73E+06	0.00E+00
MN-56	0.00E+00	1.58E-02	2.72E-03	0.00E+00	1.36E-02	0.00E+00	1.43E+00	0.00E+00
Fe-55	7.37E+07	4.76E+07	1.27E+07	0.00E+00	0.00E+00	2.33E+07	6.05E+06	0.00E+00
Fe-59	1.06E+08	1.85E+08	7.28E+07	0.00E+00	0.00E+00	5.46E+07	8.82E+07	0.00E+00
Co-58	0.00E+00	1.18E+07	2.93E+07	0.00E+00	0.00E+00	0.00E+00	2.94E+07	0.00E+00
Co-60	0.00E+00	4.98E+07	1.18E+08	0.00E+00	0.00E+00	0.00E+00	1.18E+08	0.00E+00
Ni-63	2.18E+10	1.35E+09	7.56E+08	0.00E+00	0.00E+00	0.00E+00	6.70E+07	0.00E+00
Ni-65	1.76E+00	1.99E-01	9.05E-02	0.00E+00	0.00E+00	0.00E+00	1.52E+01	0.00E+00
Cu-64	0.00E+00	9.56E+04	4.43E+04	0.00E+00	1.62E+05	0.00E+00	1.96E+06	0.00E+00
Zn-65	2.51E+09	1.18E+10	5.45E+09	0.00E+00	5.74E+09	0.00E+00	9.99E+09	0.00E+00
Zn-69	1.02E-11	1.84E-11	1.37E-12	0.00E+00	7.65E-12	0.00E+00	1.50E-09	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	6.43E-23	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	3.29E-287	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.05E+10	5.18E+09	0.00E+00	0.00E+00	0.00E+00	2.68E+08	0.00E+00
Rb-88	0.00E+00	9.52E-45	5.22E-45	0.00E+00	0.00E+00	0.00E+00	9.27E-45	0.00E+00
Rb-89	0.00E+00	1.21E-52	8.31E-53	0.00E+00	0.00E+00	0.00E+00	4.11E-53	0.00E+00
Sr-89	6.06E+09	0.00E+00	1.74E+08	0.00E+00	0.00E+00	0.00E+00	1.25E+08	0.00E+00
Sr-90	7.40E+10	0.00E+00	1.88E+10	0.00E+00	0.00E+00	0.00E+00	9.23E+08	0.00E+00
Sr-91	1.36E+05	0.00E+00	4.92E+03	0.00E+00	0.00E+00	0.00E+00	1.61E+05	0.00E+00
Sr-92	2.33E+00	0.00E+00	8.65E-02	0.00E+00	0.00E+00	0.00E+00	2.51E+01	0.00E+00
Y-90	3.67E-01	0.00E+00	9.85E-03	0.00E+00	0.00E+00	0.00E+00	5.07E+02	0.00E+00
Y-91M	2.86E-19	0.00E+00	9.75E-21	0.00E+00	0.00E+00	0.00E+00	9.54E-16	0.00E+00
Y-91	3.54E+04	0.00E+00	9.35E+02	0.00E+00	0.00E+00	0.00E+00	2.52E+06	0.00E+00
Y-92	4.61E-42	0.00E+00	1.30E-43	0.00E+00	0.00E+00	0.00E+00	8.80E-38	0.00E+00
Y-93	1.08E+00	0.00E+00	2.94E-02	0.00E+00	0.00E+00	0.00E+00	8.53E+03	0.00E+00
Zr-95	1.06E+03	2.59E+02	1.83E+02	0.00E+00	2.79E+02	0.00E+00	1.29E+05	0.00E+00
Zr-97	4.22E-09	7.23E-10	3.30E-10	0.00E+00	7.29E-10	0.00E+00	4.61E-05	0.00E+00
Nb-95	2.77E+05	1.14E+05	6.59E+04	0.00E+00	8.17E+04	0.00E+00	9.62E+07	0.00E+00
Mo-99	0.00E+00	1.31E+05	2.55E+04	0.00E+00	1.95E+05	0.00E+00	4.30E+04	0.00E+00
Tc-99M	3.35E-22	6.90E-22	8.89E-21	0.00E+00	7.42E-21	3.61E-22	2.00E-19	0.00E+00
Tc-101	1.28E-59	1.61E-59	1.59E-58	0.00E+00	1.91E-58	8.77E-60	2.73E-57	0.00E+00
Ru-103	4.08E+03	0.00E+00	1.36E+03	0.00E+00	8.48E+03	0.00E+00	4.96E+04	0.00E+00
Ru-105	4.04E-03	0.00E+00	1.34E-03	0.00E+00	2.97E-02	0.00E+00	1.61E+00	0.00E+00
Ru-106	1.05E+05	0.00E+00	1.31E+04	0.00E+00	1.24E+05	0.00E+00	7.97E+05	0.00E+00
Ag-110M	2.17E+08	1.58E+08	1.05E+08	0.00E+00	2.27E+08	0.00E+00	8.22E+09	0.00E+00
Te-125M	8.21E+07	2.74E+07	1.11E+07	2.76E+07	0.00E+00	0.00E+00	3.91E+07	0.00E+00
Te-127M	2.66E+08	8.92E+07	3.22E+07	7.69E+07	6.55E+08	0.00E+00	1.07E+08	0.00E+00

Table 5.5-11 R Values for the Prairie Island Nuclear Generating Plant* - Cow Milk, Infant

PATHWAY = COW MILK
AGE GROUP = INFANT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	3.13E+03	1.05E+05	6.73E+02	2.55E+03	7.64E+03	0.00E+00	6.57E+04	0.00E+00
Te-129M	2.80E+08	9.62E+07	4.32E+07	1.08E+08	7.01E+08	0.00E+00	1.67E+08	0.00E+00
Te-129	1.39E-09	4.81E-10	3.25E-10	1.17E-09	3.47E-09	0.00E+00	1.11E-07	0.00E+00
Te-131M	1.72E+06	6.94E+03	5.73E+05	1.41E+06	4.78E+06	0.00E+00	1.17E+07	0.00E+00
Te-131	1.78E-32	6.56E-33	4.95E-33	1.58E-32	4.54E-32	0.00E+00	7.17E-31	0.00E+00
Te-132	1.08E+07	5.35E+06	4.99E+06	7.89E+06	3.34E+07	0.00E+00	1.98E+07	0.00E+00
I-130	1.77E+06	3.90E+06	1.56E+06	4.37E+08	4.28E+06	0.00E+00	8.35E+05	0.00E+00
I-131	1.34E+09	1.58E+09	6.93E+08	5.18E+11	1.84E+09	0.00E+00	5.62E+07	0.00E+00
I-132	7.17E-01	1.46E+00	5.18E-01	6.83E+01	1.62E+00	0.00E+00	1.18E+00	0.00E+00
I-133	1.81E+07	2.64E+07	7.74E+06	4.80E+09	3.11E+07	0.00E+00	4.47E+06	0.00E+00
I-134	8.87E-12	1.82E-11	6.24E-12	4.24E-10	2.03E-11	0.00E+00	1.88E-11	0.00E+00
I-135	5.62E+04	1.12E+05	4.08E+04	9.96E+06	1.25E+05	0.00E+00	4.05E+04	0.00E+00
Cs-134	2.01E+10	3.74E+10	3.78E+09	0.00E+00	9.64E+09	3.95E+09	1.02E+08	0.00E+00
Cs-136	9.39E+08	2.76E+09	1.03E+09	0.00E+00	1.10E+09	2.25E+08	4.19E+07	0.00E+00
Cs-137	3.01E+10	3.53E+10	2.50E+09	0.00E+00	9.46E+09	3.83E+09	1.10E+08	0.00E+00
Cs-138	4.25E-23	6.91E-23	3.27E-23	0.00E+00	3.45E-23	5.38E-24	1.10E-22	0.00E+00
Ba-139	2.15E-07	1.42E-10	6.22E-09	0.00E+00	8.56E-11	8.63E-11	1.36E-05	0.00E+00
Ba-140	1.15E+08	1.15E+05	5.95E+06	0.00E+00	2.74E+04	7.09E+04	2.84E+07	0.00E+00
Ba-141	3.84E-46	2.63E-49	1.21E-47	0.00E+00	1.58E-49	1.60E-49	4.70E-45	0.00E+00
Ba-142	1.27E-79	1.06E-82	6.26E-81	0.00E+00	6.09E-83	6.40E-83	5.25E-79	0.00E+00
La-140	2.03E+01	7.99E+00	2.06E+00	0.00E+00	0.00E+00	0.00E+00	9.39E+04	0.00E+00
La-142	8.54E-11	3.14E-11	7.51E-12	0.00E+00	0.00E+00	0.00E+00	5.33E-06	0.00E+00
Ce-141	2.02E+04	1.23E+04	1.45E+03	0.00E+00	3.80E+03	0.00E+00	6.36E+06	0.00E+00
Ce-143	1.99E+02	1.32E+05	1.50E+01	0.00E+00	3.84E+01	0.00E+00	7.69E+05	0.00E+00
Ce-144	1.23E+06	5.04E+05	6.90E+04	0.00E+00	2.04E+05	0.00E+00	7.07E+07	0.00E+00
Pr-143	7.09E+02	2.65E+02	3.51E+01	0.00E+00	9.86E+01	0.00E+00	3.74E+05	0.00E+00
Pr-144	2.92E-53	1.13E-53	1.47E-54	0.00E+00	4.09E-54	0.00E+00	5.24E-49	0.00E+00
Nd-147	2.34E+01	2.40E+01	1.47E+00	0.00E+00	9.26E+00	0.00E+00	1.52E+04	0.00E+00
W-187	3.04E+04	2.12E+04	7.31E+03	0.00E+00	0.00E+00	0.00E+00	1.24E+06	0.00E+00
Np-239	1.82E+01	1.63E+00	9.22E-01	0.00E+00	3.25E+00	0.00E+00	4.72E+04	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-12 R Values for the Prairie Island Nuclear Generating Plant* - Goat Milk, Adult

PATHWAY = GOAT MILK
AGE GROUP = ADULT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	1.56E+03	1.56E+03	1.56E+03	1.56E+03	1.56E+03	1.56E+03	1.56E+03
C-14	5.87E+09	1.17E+09	1.17E+09	1.17E+09	1.17E+09	1.17E+09	1.17E+09	0.00E+00
Na-24	3.61E+07	3.61E+07	3.61E+07	3.61E+07	3.61E+07	3.61E+07	3.61E+07	0.00E+00
P-32	1.01E+10	6.80E+08	3.90E+08	0.00E+00	0.00E+00	0.00E+00	1.14E+09	0.00E+00
Cr-51	0.00E+00	0.00E+00	1.56E+03	9.52E+02	3.51E+02	2.11E+03	4.01E+05	0.00E+00
Mn-54	0.00E+00	5.45E+05	1.04E+05	0.00E+00	1.62E+05	0.00E+00	1.67E+06	0.00E+00
MN-56	0.00E+00	2.50E-04	4.43E-05	0.00E+00	3.17E-04	0.00E+00	7.97E-03	0.00E+00
Fe-55	1.78E+05	1.23E+05	2.87E+04	0.00E+00	0.00E+00	6.87E+04	7.06E+04	0.00E+00
Fe-59	1.82E+05	4.28E+05	1.64E+05	0.00E+00	0.00E+00	1.19E+05	1.43E+06	0.00E+00
Co-58	0.00E+00	2.75E+05	6.17E+05	0.00E+00	0.00E+00	0.00E+00	5.58E+06	0.00E+00
Co-60	0.00E+00	1.11E+06	2.45E+06	0.00E+00	0.00E+00	0.00E+00	2.09E+07	0.00E+00
Ni-63	5.03E+08	3.49E+07	1.69E+07	0.00E+00	0.00E+00	0.00E+00	7.28E+06	0.00E+00
Ni-65	2.23E-02	2.89E-03	1.32E-03	0.00E+00	0.00E+00	0.00E+00	7.34E-02	0.00E+00
Cu-64	0.00E+00	1.37E+03	6.43E+02	0.00E+00	3.45E+03	0.00E+00	1.17E+05	0.00E+00
Zn-65	1.02E+08	3.25E+08	1.47E+08	0.00E+00	2.18E+08	0.00E+00	2.05E+08	0.00E+00
Zn-69	1.27E-13	2.43E-13	1.69E-14	0.00E+00	1.58E-13	0.00E+00	3.66E-14	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	9.89E-25	0.00E+00	0.00E+00	0.00E+00	7.77E-30	0.00E+00
Br-85	0.00E+00	0.00E+00	4.09E-289	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.47E+08	6.84E+07	0.00E+00	0.00E+00	0.00E+00	2.89E+07	0.00E+00
Rb-88	0.00E+00	1.30E-46	6.91E-47	0.00E+00	0.00E+00	0.00E+00	1.80E-57	0.00E+00
Rb-89	0.00E+00	1.91E-54	1.34E-54	0.00E+00	0.00E+00	0.00E+00	1.11E-67	0.00E+00
Sr-89	1.47E+09	0.00E+00	4.21E+07	0.00E+00	0.00E+00	0.00E+00	2.35E+08	0.00E+00
Sr-90	5.98E+10	0.00E+00	1.47E+10	0.00E+00	0.00E+00	0.00E+00	1.73E+09	0.00E+00
Sr-91	3.04E+04	0.00E+00	1.23E+03	0.00E+00	0.00E+00	0.00E+00	1.45E+05	0.00E+00
Sr-92	5.14E-01	0.00E+00	2.22E-02	0.00E+00	0.00E+00	0.00E+00	1.02E+01	0.00E+00
Y-90	4.58E-03	0.00E+00	1.23E-04	0.00E+00	0.00E+00	0.00E+00	4.86E+01	0.00E+00
Y-91M	3.62E-21	0.00E+00	1.40E-22	0.00E+00	0.00E+00	0.00E+00	1.06E-20	0.00E+00
Y-91	4.94E+02	0.00E+00	1.32E+01	0.00E+00	0.00E+00	0.00E+00	2.72E+05	0.00E+00
Y-92	5.74E-44	0.00E+00	1.68E-45	0.00E+00	0.00E+00	0.00E+00	1.01E-39	0.00E+00
Y-93	1.34E-02	0.00E+00	3.70E-04	0.00E+00	0.00E+00	0.00E+00	4.25E+02	0.00E+00
Zr-95	1.77E+01	5.66E+00	3.83E+00	0.00E+00	8.88E+00	0.00E+00	1.79E+04	0.00E+00
Zr-97	5.39E-11	1.09E-11	4.98E-12	0.00E+00	1.64E-11	0.00E+00	3.37E-06	0.00E+00
Nb-95	4.62E+03	2.57E+03	1.38E+03	0.00E+00	2.54E+03	0.00E+00	1.56E+07	0.00E+00
Mo-99	0.00E+00	1.87E+03	3.55E+02	0.00E+00	4.22E+03	0.00E+00	4.32E+03	0.00E+00
Tc-99M	4.85E-24	1.37E-23	1.75E-22	0.00E+00	2.08E-22	6.72E-24	8.11E-21	0.00E+00
Tc-101	1.61E-61	2.32E-61	2.27E-60	0.00E+00	4.17E-60	1.18E-61	6.97E-73	0.00E+00
Ru-103	5.74E+01	0.00E+00	2.47E+01	0.00E+00	2.19E+02	0.00E+00	6.70E+03	0.00E+00
Ru-105	5.15E-05	0.00E+00	2.03E-05	0.00E+00	6.66E-04	0.00E+00	3.15E-02	0.00E+00
Ru-106	1.35E+03	0.00E+00	1.71E+02	0.00E+00	2.61E+03	0.00E+00	8.74E+04	0.00E+00
Ag-110M	3.93E+06	3.64E+06	2.16E+06	0.00E+00	7.15E+06	0.00E+00	1.48E+09	0.00E+00
Te-125M	1.06E+06	3.86E+05	1.43E+05	3.20E+05	4.33E+06	0.00E+00	4.25E+06	0.00E+00
Te-127M	3.47E+06	1.24E+06	4.23E+05	8.87E+05	1.41E+07	0.00E+00	1.16E+07	0.00E+00

Table 5.5-12 R Values for the Prairie Island Nuclear Generating Plant* - Goat Milk, Adult

PATHWAY = GOAT MILK
AGE GROUP = ADULT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	3.88E+01	1.39E+01	8.40E+00	2.87E+01	1.58E+02	0.00E+00	3.06E+03	0.00E+00
Te-129M	3.63E+06	1.36E+06	5.75E+05	1.25E+06	1.52E+07	0.00E+00	1.83E+07	0.00E+00
Te-129	1.74E-11	6.53E-12	4.23E-12	1.33E-11	7.30E-11	0.00E+00	1.31E-11	0.00E+00
Te-131M	2.21E+04	1.08E+04	9.01E+03	1.71E+04	1.10E+05	0.00E+00	1.07E+06	0.00E+00
Te-131	2.24E-34	9.36E-35	7.08E-35	1.84E-34	9.82E-34	0.00E+00	3.17E-35	0.00E+00
Te-132	1.47E+05	9.54E+04	8.95E+04	1.05E+05	9.19E+05	0.00E+00	4.51E+06	0.00E+00
I-130	2.52E+05	7.42E+05	2.93E+05	6.29E+07	1.16E+06	0.00E+00	6.39E+05	0.00E+00
I-131	1.75E+08	2.50E+08	1.43E+08	8.19E+10	4.28E+08	0.00E+00	6.59E+07	0.00E+00
I-132	9.89E-02	2.64E-01	9.25E-02	9.25E+00	4.21E-01	0.00E+00	4.97E-02	0.00E+00
I-133	2.32E+06	4.04E+06	1.23E+06	5.94E+08	7.05E+06	0.00E+00	3.63E+06	0.00E+00
I-134	1.22E-12	3.31E-12	1.19E-12	5.74E-11	5.27E-12	0.00E+00	2.89E-15	0.00E+00
I-135	7.71E+03	2.02E+04	7.45E+03	1.33E+06	3.24E+04	0.00E+00	2.28E+04	0.00E+00
Cs-134	9.34E+09	2.22E+10	1.82E+10	0.00E+00	7.19E+09	2.39E+09	3.89E+08	0.00E+00
Cs-136	3.75E+08	1.48E+09	1.07E+09	0.00E+00	8.24E+08	1.13E+08	1.68E+08	0.00E+00
Cs-137	1.30E+10	1.77E+10	1.16E+10	0.00E+00	6.02E+09	2.00E+09	3.43E+08	0.00E+00
Cs-138	1.37E-23	2.71E-23	1.34E-23	0.00E+00	2.00E-23	1.97E-24	1.16E-28	0.00E+00
Ba-139	2.67E-09	1.90E-12	7.81E-11	0.00E+00	1.78E-12	1.08E-12	4.73E-09	0.00E+00
Ba-140	1.55E+06	1.94E+03	1.01E+05	0.00E+00	6.60E+02	1.11E+03	3.18E+06	0.00E+00
Ba-141	4.80E-48	3.63E-51	1.62E-49	0.00E+00	3.38E-51	2.06E-51	2.26E-57	0.00E+00
Ba-142	1.66E-81	1.71E-84	1.04E-82	0.00E+00	1.44E-84	9.66E-85	2.34E-99	0.00E+00
La-140	2.71E-01	1.36E-01	3.61E-02	0.00E+00	0.00E+00	0.00E+00	1.00E+04	0.00E+00
La-142	1.12E-12	5.09E-13	1.27E-13	0.00E+00	0.00E+00	0.00E+00	3.72E-09	0.00E+00
Ce-141	2.71E+02	1.83E+02	2.08E+01	0.00E+00	8.50E+01	0.00E+00	7.00E+05	0.00E+00
Ce-143	2.49E+00	1.84E+03	2.04E-01	0.00E+00	8.12E-01	0.00E+00	6.89E+04	0.00E+00
Ce-144	2.27E+04	9.50E+03	1.22E+03	0.00E+00	5.64E+03	0.00E+00	7.69E+06	0.00E+00
Pr-143	9.04E+00	3.63E+00	4.48E-01	0.00E+00	2.09E+00	0.00E+00	3.96E+04	0.00E+00
Pr-144	3.61E-55	1.50E-55	1.83E-54	0.00E+00	8.45E-56	0.00E+00	5.19E-62	0.00E+00
Nd-147	3.00E-01	3.46E-01	2.07E-02	0.00E+00	2.03E-01	0.00E+00	1.66E+03	0.00E+00
W-187	3.91E+02	3.27E+02	1.14E+02	0.00E+00	0.00E+00	0.00E+00	1.07E+05	0.00E+00
Np-239	2.20E-01	2.17E-02	1.19E-02	0.00E+00	6.76E-02	0.00E+00	4.45E+03	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2-MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-13 R Values for the Prairie Island Nuclear Generating Plant* - Goat Milk, Teen

PATHWAY = GOAT MILK
AGE GROUP = TEEN

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	2.03E+03	2.03E+03	2.03E+03	2.03E+03	2.03E+03	2.03E+03	2.03E+03
C-14	1.08E+10	2.16E+09	2.16E+09	2.16E+09	2.16E+09	2.16E+09	2.16E+09	0.00E+00
Na-24	6.30E+07	6.30E+07	6.30E+07	6.30E+07	6.30E+07	6.30E+07	6.30E+07	0.00E+00
P-32	1.86E+10	1.15E+09	7.22E+08	0.00E+00	0.00E+00	0.00E+00	1.57E+09	0.00E+00
Cr-51	0.00E+00	0.00E+00	2.78E+03	1.55E+03	6.10E+02	3.97E+03	4.68E+05	0.00E+00
Mn-54	0.00E+00	9.08E+05	1.80E+05	0.00E+00	2.71E+05	0.00E+00	1.86E+06	0.00E+00
MN-56	0.00E+00	4.43E-03	7.88E-05	0.00E+00	5.61E-04	0.00E+00	2.92E-02	0.00E+00
Fe-55	3.16E+05	2.24E+05	5.23E+04	0.00E+00	0.00E+00	1.42E+05	9.70E+04	0.00E+00
Fe-59	3.17E+05	7.41E+05	2.86E+05	0.00E+00	0.00E+00	2.34E+05	1.75E+06	0.00E+00
Co-58	0.00E+00	4.63E+05	1.07E+06	0.00E+00	0.00E+00	0.00E+00	6.39E+06	0.00E+00
Co-60	0.00E+00	1.88E+06	4.24E+06	0.00E+00	0.00E+00	0.00E+00	2.45E+07	0.00E+00
Ni-63	8.85E+08	6.25E+07	3.00E+07	0.00E+00	0.00E+00	0.00E+00	9.95E+06	0.00E+00
Ni-65	4.08E-02	5.21E-03	2.37E-03	0.00E+00	0.00E+00	0.00E+00	2.82E-01	0.00E+00
Cu-64	0.00E+00	2.44E+03	1.15E+03	0.00E+00	6.17E+03	0.00E+00	1.89E+05	0.00E+00
Zn-65	1.57E+08	5.45E+08	2.54E+08	0.00E+00	3.49E+05	0.00E+00	2.31E+08	0.00E+00
Zn-69	2.34E-13	4.46E-13	3.12E-14	0.00E+00	2.92E-13	0.00E+00	8.22E-13	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	1.77E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	7.51E-289	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	2.67E+08	1.26E+08	0.00E+00	0.00E+00	0.00E+00	3.96E+07	0.00E+00
Rb-88	0.00E+00	2.37E-46	1.26E-46	0.00E+00	0.00E+00	0.00E+00	2.03E-53	0.00E+00
Rb-89	0.00E+00	3.38E-54	1.77E-54	0.00E+00	0.00E+00	0.00E+00	5.17E-63	0.00E+00
Sr-89	2.70E+09	0.00E+00	7.74E+07	0.00E+00	0.00E+00	0.00E+00	3.22E+08	0.00E+00
Sr-90	8.45E+10	0.00E+00	2.09E+10	0.00E+00	0.00E+00	0.00E+00	2.37E+09	0.00E+00
Sr-91	5.58E+04	0.00E+00	2.22E+03	0.00E+00	0.00E+00	0.00E+00	2.53E+05	0.00E+00
Sr-92	9.41E-01	0.00E+00	4.01E-02	0.00E+00	0.00E+00	0.00E+00	2.40E+01	0.00E+00
Y-90	8.42E-03	0.00E+00	2.27E-04	0.00E+00	0.00E+00	0.00E+00	6.95E+01	0.00E+00
Y-91M	6.63E-21	0.00E+00	2.53E-22	0.00E+00	0.00E+00	0.00E+00	3.13E-19	0.00E+00
Y-91	9.09E+02	0.00E+00	2.44E+01	0.00E+00	0.00E+00	0.00E+00	3.73E+05	0.00E+00
Y-92	1.06E-43	0.00E+00	3.07E-45	0.00E+00	0.00E+00	0.00E+00	2.91E-39	0.00E+00
Y-93	2.47E-02	0.00E+00	6.78E-04	0.00E+00	0.00E+00	0.00E+00	7.56E+02	0.00E+00
Zr-95	3.09E+01	9.74E+00	6.70E+00	0.00E+00	1.43E+01	0.00E+00	2.25E+04	0.00E+00
Zr-97	9.82E-11	1.94E-11	8.95E-12	0.00E+00	2.95E-11	0.00E+00	5.26E-06	0.00E+00
Nb-95	7.88E+03	4.37E+03	2.41E+03	0.00E+00	4.24E+03	0.00E+00	1.87E+07	0.00E+00
Mo-99	0.00E+00	3.37E+03	6.42E+02	0.00E+00	7.71E+03	0.00E+00	6.03E+03	0.00E+00
Tc-99M	8.42E-24	2.35E-23	3.04E-22	0.00E+00	3.50E-22	1.30E-23	1.54E-20	0.00E+00
Tc-101	2.94E-61	4.18E-61	4.11E-60	0.00E+00	7.57E-60	2.55E-61	7.15E-68	0.00E+00
Ru-103	1.02E+02	0.00E+00	4.37E+01	0.00E+00	3.60E+02	0.00E+00	8.53E+03	0.00E+00
Ru-105	9.41E-05	0.00E+00	3.65E-05	0.00E+00	1.19E-03	0.00E+00	7.60E-02	0.00E+00
Ru-106	2.48E+03	0.00E+00	3.13E+02	0.00E+00	4.79E+03	0.00E+00	1.19E+05	0.00E+00
Ag-110M	6.50E+06	6.15E+06	3.74E+06	0.00E+00	1.17E+07	0.00E+00	1.73E+09	0.00E+00
Te-125M	1.96E+06	7.07E+05	2.62E+05	5.48E+05	0.00E+00	0.00E+00	5.79E+06	0.00E+00
Te-127M	6.40E+06	2.27E+06	7.61E+05	1.52E+06	2.59E+07	0.00E+00	1.59E+07	0.00E+00

Table 5.5-13 R Values for the Prairie Island Nuclear Generating Plant* - Goat Milk, Teen

PATHWAY = GOAT MILK
AGE GROUP = TEEN

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	7.19E+01	2.55E+01	1.55E+01	4.96E+01	2.91E+02	0.00E+00	5.55E+03	0.00E+00
Te-129M	6.65E+06	2.47E+06	1.05E+06	2.15E+06	2.78E+07	0.00E+00	2.50E+07	0.00E+00
Te-129	3.20E-11	1.19E-11	7.78E-12	2.28E-11	1.34E-10	0.00E+00	1.75E-10	0.00E+00
Te-131M	4.03E+04	1.93E+04	1.61E+04	2.90E+04	2.01E+05	0.00E+00	1.55E+06	0.00E+00
Te-131	4.10E-34	1.69E-34	1.28E-34	3.16E-34	1.79E-33	0.00E+00	3.36E-35	0.00E+00
Te-132	2.64E+05	1.67E+05	1.56E+05	1.76E+05	1.60E+06	0.00E+00	5.29E+06	0.00E+00
I-130	4.42E+05	1.28E+06	5.11E+05	1.04E+08	1.97E+06	0.00E+00	9.83E+05	0.00E+00
I-131	3.17E+08	4.44E+08	2.38E+08	1.29E+11	7.64E+08	0.00E+00	8.78E+07	0.00E+00
I-132	1.75E-01	4.59E-01	1.65E-01	1.55E+01	7.23E-01	0.00E+00	2.00E-01	0.00E+00
I-133	4.24E+06	7.20E+06	2.20E+06	1.00E+09	1.26E+07	0.00E+00	5.45E+06	0.00E+00
I-134	2.17E-12	5.75E-12	2.06E-12	9.58E-11	9.06E-12	0.00E+00	7.57E-14	0.00E+00
I-135	1.37E+04	3.53E+04	1.31E+04	2.27E+06	5.57E+04	0.00E+00	3.91E+04	0.00E+00
Cs-134	1.62E+10	3.82E+10	1.77E+10	0.00E+00	1.21E+10	4.63E+09	4.75E+08	0.00E+00
Cs-136	6.39E+08	2.51E+09	1.69E+09	0.00E+00	1.37E+09	2.16E+08	2.02E+08	0.00E+00
Cs-137	2.35E+10	3.13E+10	1.09E+10	0.00E+00	1.06E+10	4.13E+09	4.45E+08	0.00E+00
Cs-138	2.49E-23	4.79E-23	2.39E-23	0.00E+00	3.54E-23	4.11E-24	2.17E-26	0.00E+00
Ba-139	4.93E-09	3.47E-12	1.44E-10	0.00E+00	3.27E-12	2.39E-12	4.40E-08	0.00E+00
Ba-140	2.79E+06	3.42E+03	1.80E+05	0.00E+00	1.16E+03	2.30E+03	4.30E+06	0.00E+00
Ba-141	8.83E-48	6.59E-51	2.95E-49	0.00E+00	6.12E-51	4.51E-51	1.88E-53	0.00E+00
Ba-142	3.01E-81	3.01E-84	1.85E-82	0.00E+00	2.54E-84	2.00E-84	9.23E-93	0.00E+00
La-140	4.86E-01	2.39E-01	6.36E-02	0.00E+00	0.00E+00	0.00E+00	1.37E+04	0.00E+00
La-142	2.02E-12	8.98E-13	2.24E-13	0.00E+00	0.00E+00	0.00E+00	2.73E-08	0.00E+00
Ce-141	4.96E+02	3.31E+02	3.81E+01	0.00E+00	1.56E+02	0.00E+00	9.48E+05	0.00E+00
Ce-143	4.58E+00	3.34E+03	3.73E-01	0.00E+00	1.50E+00	0.00E+00	1.00E+05	0.00E+00
Ce-144	4.18E+04	1.73E+04	2.25E+03	0.00E+00	1.03E+04	0.00E+00	1.05E+07	0.00E+00
Pr-143	1.66E+01	6.63E+00	8.27E-01	0.00E+00	3.86E+00	0.00E+00	5.47E+04	0.00E+00
Pr-144	6.65E-55	2.72E-55	3.37E-56	0.00E+00	1.56E-55	0.00E+00	7.33E-58	0.00E+00
Nd-147	5.77E-01	6.27E-01	3.76E-02	0.00E+00	3.68E-01	0.00E+00	2.26E+03	0.00E+00
W-187	7.15E+02	5.83E+02	2.04E+02	0.00E+00	0.00E+00	0.00E+00	1.58E+05	0.00E+00
Np-239	4.21E-01	3.97E-02	2.20E-02	0.00E+00	1.25E-01	0.00E+00	6.38E+03	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-14 R Values for the Prairie Island Nuclear Generating Plant* - Goat Milk, Child

PATHWAY = GOAT MILK
AGE GROUP = CHILD

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	3.20E+03	3.20E+03	3.20E+03	3.20E+03	3.20E+03	3.20E+03	3.20E+03
C-14	2.66E+10	5.32E+09	5.32E+09	5.32E+09	5.32E+09	5.32E+09	5.32E+09	0.00E+00
Na-24	1.31E+08	1.31E+08	1.31E+08	1.31E+08	1.31E+08	1.31E+08	1.31E+08	0.00E+00
P-32	4.59E+10	2.15E+09	1.77E+09	0.00E+00	0.00E+00	0.00E+00	1.27E+09	0.00E+00
Cr-51	0.00E+00	0.00E+00	5.68E+03	3.15E+03	8.61E+02	5.75E+03	3.01E+05	0.00E+00
Mn-54	0.00E+00	1.36E+06	3.62E+05	0.00E+00	3.81E+05	0.00E+00	1.14E+06	0.00E+00
MN-56	0.00E+00	7.73E-04	1.72E-04	0.00E+00	9.34E-04	0.00E+00	1.12E-01	0.00E+00
Fe-55	7.93E+05	4.21E+05	1.30E+05	0.00E+00	0.00E+00	2.38E+05	7.79E+04	0.00E+00
Fe-59	7.36E+05	1.19E+06	5.93E+05	0.00E+00	0.00E+00	3.45E+05	1.24E+06	0.00E+00
Co-58	0.00E+00	7.08E+05	2.17E+06	0.00E+00	0.00E+00	0.00E+00	4.13E+06	0.00E+00
Co-60	0.00E+00	2.93E+06	8.63E+06	0.00E+00	0.00E+00	0.00E+00	1.62E+07	0.00E+00
Ni-63	2.22E+09	1.19E+08	7.54E+07	0.00E+00	0.00E+00	0.00E+00	8.00E+06	0.00E+00
Ni-65	9.97E-02	9.38E-03	5.48E-03	0.00E+00	0.00E+00	0.00E+00	1.15E+00	0.00E+00
Cu-64	0.00E+00	4.29E+03	2.59E+03	0.00E+00	1.04E+04	0.00E+00	2.01E+05	0.00E+00
Zn-65	3.08E+08	8.66E+08	5.11E+08	0.00E+00	5.17E+08	0.00E+00	1.44E+08	0.00E+00
Zn-69	5.76E-13	8.32E-13	7.69E-14	0.00E+00	5.05E-13	0.00E+00	5.25E-11	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	4.00E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	1.85E-288	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	4.96E+08	3.05E+08	0.00E+00	0.00E+00	0.00E+00	3.19E+07	0.00E+00
Rb-88	0.00E+00	4.36E-46	3.03E-46	0.00E+00	0.00E+00	0.00E+00	2.14E-47	0.00E+00
Rb-89	0.00E+00	5.92E-54	5.27E-54	0.00E+00	0.00E+00	0.00E+00	5.16E-56	0.00E+00
Sr-89	6.69E+09	0.00E+00	1.91E+08	0.00E+00	0.00E+00	0.00E+00	2.59E+08	0.00E+00
Sr-90	1.43E+11	0.00E+00	3.62E+10	0.00E+00	0.00E+00	0.00E+00	1.92E+09	0.00E+00
Sr-91	1.37E+05	0.00E+00	5.17E+03	0.00E+00	0.00E+00	0.00E+00	3.03E+05	0.00E+00
Sr-92	2.30E+00	0.00E+00	9.22E-02	0.00E+00	0.00E+00	0.00E+00	4.35E+01	0.00E+00
Y-90	2.09E-02	0.00E+00	5.58E-04	0.00E+00	0.00E+00	0.00E+00	5.94E+01	0.00E+00
Y-91M	1.62E-20	0.00E+00	8.01E-22	0.00E+00	0.00E+00	0.00E+00	3.17E-17	0.00E+00
Y-91	2.25E+03	0.00E+00	6.00E+01	0.00E+00	0.00E+00	0.00E+00	2.99E+05	0.00E+00
Y-92	2.61E-43	0.00E+00	7.45E-45	0.00E+00	0.00E+00	0.00E+00	7.53E-39	0.00E+00
Y-93	6.07E-02	0.00E+00	1.67E-03	0.00E+00	0.00E+00	0.00E+00	9.06E+02	0.00E+00
Zr-95	7.17E+01	1.58E+01	1.40E+01	0.00E+00	2.26E+01	0.00E+00	1.64E+04	0.00E+00
Zr-97	2.39E-10	3.45E-11	2.04E-11	0.00E+00	4.96E-11	0.00E+00	5.23E-06	0.00E+00
Nb-95	1.78E+04	6.93E+03	4.95E+03	0.00E+00	6.51E+03	0.00E+00	1.28E+07	0.00E+00
Mo-99	0.00E+00	6.13E+03	1.52E+03	0.00E+00	1.31E+04	0.00E+00	5.07E+03	0.00E+00
Tc-99M	1.93E-23	3.79E-23	6.27E-22	0.00E+00	5.50E-22	1.92E-23	2.15E-20	0.00E+00
Tc-101	7.21E-61	7.55E-61	9.57E-60	0.00E+00	1.29E-59	3.99E-61	2.40E-60	0.00E+00
Ru-103	2.42E+02	0.00E+00	9.28E+01	0.00E+00	6.08E+02	0.00E+00	6.24E+03	0.00E+00
Ru-105	2.30E-04	0.00E+00	8.33E-05	0.00E+00	2.02E-03	0.00E+00	1.50E-01	0.00E+00
Ru-106	6.11E+03	0.00E+00	7.63E+02	0.00E+00	8.26E+03	0.00E+00	9.51E+04	0.00E+00
Ag-110M	1.41E+07	9.52E+06	7.61E+06	0.00E+00	1.77E+07	0.00E+00	1.13E+09	0.00E+00
Te-125M	4.82E+06	1.31E+06	6.42E+05	1.35E+06	0.00E+00	0.00E+00	4.65E+06	0.00E+00
Te-127M	1.58E+07	4.25E+06	1.87E+06	3.77E+06	4.50E+07	0.00E+00	1.28E+07	0.00E+00

Table 5.5-14 R Values for the Prairie Island Nuclear Generating Plant* - Goat Milk, Child

PATHWAY = GOAT MILK
AGE GROUP = CHILD

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	1.77E+02	4.77E+01	3.79E+01	1.22E+02	5.03E+02	0.00E+00	6.91E+03	0.00E+00
Te-129M	1.64E+07	4.58E+06	2.54E+06	5.28E+06	4.81E+07	0.00E+00	2.00E+07	0.00E+00
Te-129	7.89E-11	2.20E-11	1.87E-11	5.63E-11	2.31E-10	0.00E+00	4.91E-09	0.00E+00
Te-131M	9.80E+04	3.39E+04	3.61E+04	6.97E+04	3.28E+05	0.00E+00	1.37E+06	0.00E+00
Te-131	1.01E-33	3.06E-34	2.99E-34	7.69E-34	3.04E-33	0.00E+00	5.28E-33	0.00E+00
Te-132	6.29E+05	2.78E+05	3.36E+05	4.06E+05	2.59E+06	0.00E+00	2.80E+06	0.00E+00
I-130	1.03E+06	2.09E+06	1.08E+06	2.30E+08	3.12E+06	0.00E+00	9.77E+05	0.00E+00
I-131	7.69E+08	7.73E+08	4.39E+08	2.56E+11	1.27E+09	0.00E+00	6.88E+07	0.00E+00
I-132	4.15E-01	7.62E-01	3.51E-01	3.54E+01	1.17E+00	0.00E+00	8.97E-01	0.00E+00
I-133	1.03E+07	1.27E+07	4.82E+06	2.37E+09	2.12E+07	0.00E+00	5.14E+06	0.00E+00
I-134	5.13E-12	9.53E-12	4.39E-12	2.19E-10	1.46E-11	0.00E+00	6.32E-12	0.00E+00
I-135	3.24E+04	5.84E+04	2.76E+04	5.17E+06	8.95E+04	0.00E+00	4.45E+04	0.00E+00
Cs-134	3.74E+10	6.14E+10	1.29E+10	0.00E+00	1.90E+10	6.82E+09	3.31E+08	0.00E+00
Cs-136	1.44E+09	3.96E+09	2.56E+09	0.00E+00	2.11E+09	3.15E+08	1.39E+08	0.00E+00
Cs-137	5.66E+10	5.42E+10	8.00E+09	0.00E+00	1.77E+10	6.35E+09	3.39E+08	0.00E+00
Cs-138	6.05E-23	8.40E-23	5.33E-23	0.00E+00	5.91E-23	6.36E-24	3.87E-23	0.00E+00
Ba-139	1.21E-08	6.47E-12	3.51E-10	0.00E+00	5.65E-12	3.80E-12	6.99E-07	0.00E+00
Ba-140	6.73E+06	5.90E+03	3.93E+05	0.00E+00	1.92E+03	3.52E+03	3.41E+06	0.00E+00
Ba-141	2.17E-47	1.22E-50	7.07E-49	0.00E+00	1.05E-50	7.14E-50	1.24E-47	0.00E+00
Ba-142	7.25E-81	5.22E-84	4.05E-82	0.00E+00	4.22E-84	3.07E-84	9.46E-83	0.00E+00
La-140	1.16E+00	4.07E-01	1.27E-01	0.00E+00	0.00E+00	0.00E+00	1.13E+04	0.00E+00
La-142	4.88E-12	1.56E-12	4.87E-13	0.00E+00	0.00E+00	0.00E+00	3.08E-07	0.00E+00
Ce-141	1.22E+03	6.09E+02	9.05E+01	0.00E+00	2.67E+02	0.00E+00	7.60E+05	0.00E+00
Ce-143	1.13E+01	6.10E+03	8.84E-01	0.00E+00	2.56E+00	0.00E+00	8.93E+04	0.00E+00
Ce-144	1.03E+05	3.23E+04	5.50E+03	0.00E+00	1.79E+04	0.00E+00	8.43E+06	0.00E+00
Pr-143	4.11E+01	1.23E+01	2.04E+00	0.00E+00	6.69E+00	0.00E+00	4.44E+04	0.00E+00
Pr-144	1.65E-54	5.09E-55	8.29E-56	0.00E+00	2.69E-55	0.00E+00	1.10E-51	0.00E+00
Nd-147	1.42E+00	1.15E+00	8.88E-02	0.00E+00	6.29E-01	0.00E+00	1.82E+03	0.00E+00
W-187	1.73E+03	1.03E+03	4.61E+02	0.00E+00	0.00E+00	0.00E+00	1.44E+05	0.00E+00
Np-239	1.04E+00	7.43E-02	5.23E-02	0.00E+00	2.15E-01	0.00E+00	5.50E+03	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-15 R Values for the Prairie Island Nuclear Generating Plant* - Goat Milk, Infant

PATHWAY = GOAT MILK
AGE GROUP = INFANT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	4.86E+03	4.86E+03	4.86E+03	4.86E+03	4.86E+03	4.86E+03	4.86E+03
C-14	5.21E+10	1.11E+10	1.11E+10	1.11E+10	1.11E+10	1.11E+10	1.11E+10	0.00E+00
Na-24	2.28E+08	2.28E+08	2.28E+08	2.28E+08	2.28E+08	2.28E+08	2.28E+08	0.00E+00
P-32	9.47E+10	5.57E+09	3.87E+09	0.00E+00	0.00E+00	0.00E+00	1.28E+09	0.00E+00
Cr-51	0.00E+00	0.00E+00	8.99E+03	5.87E+03	1.28E+03	1.14E+04	2.62E+05	0.00E+00
Mn-54	0.00E+00	2.53E+06	5.73E+05	0.00E+00	5.60E+05	0.00E+00	9.28E+05	0.00E+00
MN-56	0.00E+00	1.89E-03	3.26E-04	0.00E+00	1.63E-03	0.00E+00	1.72E-01	0.00E+00
Fe-55	9.59E+05	6.19E+05	1.66E+05	0.00E+00	0.00E+00	3.03E+05	7.86E+04	0.00E+00
Fe-59	1.37E+06	2.40E+06	9.46E+05	0.00E+00	0.00E+00	7.09E+05	1.15E+06	0.00E+00
Co-58	0.00E+00	1.42E+06	3.51E+06	0.00E+00	0.00E+00	0.00E+00	3.53E+06	0.00E+00
Co-60	0.00E+00	5.97E+06	1.41E+07	0.00E+00	0.00E+00	0.00E+00	1.42E+07	0.00E+00
Ni-63	2.61E+09	1.62E+08	9.07E+07	0.00E+00	0.00E+00	0.00E+00	8.04E+06	0.00E+00
Ni-65	2.11E-01	2.39E-02	1.09E-02	0.00E+00	0.00E+00	0.00E+00	1.82E+00	0.00E+00
Cu-64	0.00E+00	1.07E+04	4.93E+03	0.00E+00	1.80E+04	0.00E+00	2.19E+05	0.00E+00
Zn-65	3.01E+08	1.42E+09	6.55E+08	0.00E+00	6.88E+08	0.00E+00	1.20E+09	0.00E+00
Zn-69	1.23E-12	2.21E-12	1.64E-13	0.00E+00	9.18E-13	0.00E+00	1.80E-10	0.00E+00
Br-83	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	7.72E-24	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	3.94E-288	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.26E+09	6.22E+08	0.00E+00	0.00E+00	0.00E+00	3.22E+07	0.00E+00
Rb-88	0.00E+00	1.14E-45	6.26E-46	0.00E+00	0.00E+00	0.00E+00	1.11E-45	0.00E+00
Rb-89	0.00E+00	1.45E-53	9.97E-54	0.00E+00	0.00E+00	0.00E+00	4.93E-54	0.00E+00
Sr-89	1.27E+10	0.00E+00	3.65E+08	0.00E+00	0.00E+00	0.00E+00	2.62E+08	0.00E+00
Sr-90	1.55E+11	0.00E+00	3.95E+10	0.00E+00	0.00E+00	0.00E+00	1.94E+09	0.00E+00
Sr-91	2.85E+05	0.00E+00	1.03E+04	0.00E+00	0.00E+00	0.00E+00	3.38E+05	0.00E+00
Sr-92	4.89E+00	0.00E+00	1.82E-01	0.00E+00	0.00E+00	0.00E+00	5.27E+01	0.00E+00
Y-90	4.41E-02	0.00E+00	1.18E-03	0.00E+00	0.00E+00	0.00E+00	6.09E+01	0.00E+00
Y-91M	3.43E-20	0.00E+00	1.17E-21	0.00E+00	0.00E+00	0.00E+00	1.14E-16	0.00E+00
Y-91	4.25E+03	0.00E+00	1.12E+02	0.00E+00	0.00E+00	0.00E+00	3.02E+05	0.00E+00
Y-92	5.54E-43	0.00E+00	1.56E-44	0.00E+00	0.00E+00	0.00E+00	1.06E-38	0.00E+00
Y-93	1.29E-01	0.00E+00	3.53E-03	0.00E+00	0.00E+00	0.00E+00	1.02E+03	0.00E+00
Zr-95	1.27E+02	3.10E+01	2.20E+01	0.00E+00	3.34E+01	0.00E+00	1.55E+04	0.00E+00
Zr-97	5.06E-10	8.68E-11	3.96E-11	0.00E+00	8.75E-11	0.00E+00	5.54E-06	0.00E+00
Nb-95	3.32E+04	1.37E+04	7.91E+03	0.00E+00	9.81E+03	0.00E+00	1.15E+07	0.00E+00
Mo-99	0.00E+00	1.57E+04	3.05E+03	0.00E+00	2.34E+04	0.00E+00	5.16E+03	0.00E+00
Tc-99M	4.02E-23	8.28E-23	1.07E-21	0.00E+00	8.91E-22	4.33E-23	2.40E-20	0.00E+00
Tc-101	1.53E-60	1.93E-60	1.91E-59	0.00E+00	2.29E-59	1.05E-60	3.28E-58	0.00E+00
Ru-103	4.89E+02	0.00E+00	1.64E+02	0.00E+00	1.02E+03	0.00E+00	5.95E+03	0.00E+00
Ru-105	4.84E-04	0.00E+00	1.61E-04	0.00E+00	3.56E-03	0.00E+00	1.93E-01	0.00E+00
Ru-106	1.26E+04	0.00E+00	1.57E+03	0.00E+00	1.49E+04	0.00E+00	9.56E+04	0.00E+00
Ag-110M	2.61E+07	1.90E+07	1.26E+07	0.00E+00	2.72E+07	0.00E+00	9.86E+08	0.00E+00
Te-125M	9.85E+06	3.29E+06	1.33E+06	3.31E+06	0.00E+00	0.00E+00	4.69E+06	0.00E+00
Te-127M	3.19E+07	1.07E+07	3.86E+06	9.22E+06	7.86E+07	0.00E+00	1.29E+07	0.00E+00

Table 5.5-15 R Values for the Prairie Island Nuclear Generating Plant* - Goat Milk, Infant

PATHWAY = GOAT MILK
AGE GROUP = INFANT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	3.75E+02	1.26E+04	8.07E+01	3.06E+02	9.16E+02	0.00E+00	7.89E+03	0.00E+00
Te-129M	3.36E+07	1.15E+07	5.18E+06	1.29E+07	8.41E+07	0.00E+00	2.01E+07	0.00E+00
Te-129	1.67E-10	5.77E-11	3.90E-11	1.40E-10	4.16E-10	0.00E+00	1.34E-08	0.00E+00
Te-131M	2.07E+05	8.33E+02	6.87E+04	1.69E+05	5.73E+05	0.00E+00	1.40E+06	0.00E+00
Te-131	2.13E-33	7.87E-34	5.95E-34	1.90E-33	5.45E-33	0.00E+00	8.61E-32	0.00E+00
Te-132	1.30E+06	6.42E+05	5.99E+05	9.47E+05	4.01E+06	0.00E+00	2.37E+06	0.00E+00
I-130	2.12E+06	4.67E+06	1.88E+06	5.24E+08	5.13E+06	0.00E+00	1.00E+06	0.00E+00
I-131	1.60E+09	1.89E+09	8.31E+08	6.21E+11	2.21E+09	0.00E+00	6.75E+07	0.00E+00
I-132	8.61E-01	1.75E+00	6.22E-01	8.19E+01	1.95E+00	0.00E+00	1.42E+00	0.00E+00
I-133	2.18E+07	3.17E+07	9.28E+06	5.76E+09	3.73E+07	0.00E+00	5.36E+06	0.00E+00
I-134	1.06E-11	2.18E-11	7.49E-12	5.08E-10	2.44E-11	0.00E+00	2.25E-11	0.00E+00
I-135	6.75E+04	1.34E+05	4.89E+04	1.20E+07	1.50E+05	0.00E+00	4.86E+04	0.00E+00
Cs-134	6.02E+10	1.12E+11	1.13E+10	0.00E+00	2.89E+10	1.19E+10	3.05E+08	0.00E+00
Cs-136	2.82E+09	8.28E+09	3.09E+09	0.00E+00	3.30E+09	6.75E+08	1.26E+08	0.00E+00
Cs-137	9.04E+10	1.06E+11	7.50E+09	0.00E+00	2.84E+10	1.15E+10	3.31E+08	0.00E+00
Cs-138	1.28E-22	2.07E-22	9.81E-23	0.00E+00	1.03E-22	1.61E-23	3.31E-22	0.00E+00
Ba-139	2.58E-08	1.71E-11	7.46E-10	0.00E+00	1.03E-11	1.04E-11	1.63E-06	0.00E+00
Ba-140	1.39E+07	1.39E+04	7.14E+05	0.00E+00	3.29E+03	8.51E+03	3.40E+06	0.00E+00
Ba-141	4.61E-47	3.16E-50	1.45E-48	0.00E+00	1.90E-50	1.92E-50	5.63E-46	0.00E+00
Ba-142	1.53E-80	1.27E-83	7.51E-82	0.00E+00	7.31E-84	7.68E-84	6.30E-80	0.00E+00
La-140	2.43E+00	9.59E-01	2.47E-01	0.00E+00	0.00E+00	0.00E+00	1.13E+04	0.00E+00
La-142	1.02E-11	3.76E-12	9.01E-13	0.00E+00	0.00E+00	0.00E+00	6.39E-07	0.00E+00
Ce-141	2.42E+03	1.48E+03	1.74E+02	0.00E+00	4.56E+02	0.00E+00	7.63E+05	0.00E+00
Ce-143	2.38E+01	1.58E+04	1.80E+00	0.00E+00	4.60E+00	0.00E+00	9.22E+04	0.00E+00
Ce-144	1.48E+05	6.05E+04	8.28E+03	0.00E+00	2.44E+04	0.00E+00	8.48E+06	0.00E+00
Pr-143	8.51E+01	3.18E+01	4.22E+00	0.00E+00	1.18E+01	0.00E+00	4.49E+04	0.00E+00
Pr-144	3.50E-54	1.35E-54	1.76E-55	0.00E+00	4.90E-55	0.00E+00	6.29E-50	0.00E+00
Nd-147	2.81E+00	2.88E+00	1.77E-01	0.00E+00	1.11E+00	0.00E+00	1.83E+03	0.00E+00
W-187	3.65E+03	2.54E+03	8.77E+02	0.00E+00	0.00E+00	0.00E+00	1.49E+05	0.00E+00
Np-239	2.19E+00	1.96E-01	1.11E-01	0.00E+00	3.90E-01	0.00E+00	5.66E+03	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-16 R Values for the Prairie Island Nuclear Generating Plant* - Inhalation, Adult

PATHWAY = INHALATION
AGE GROUP = ADULT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	1.26E+03	1.26E+03	1.26E+03	1.26E+03	1.26E+03	1.26E+03	1.26E+03
C-14	1.82E+04	3.41E+03	3.41E+03	3.41E+03	3.41E+03	3.41E+03	3.41E+03	0.00E+00
Na-24	1.02E+04	1.02E+04	1.02E+04	1.02E+04	1.02E+04	1.02E+04	1.02E+04	0.00E+00
P-32	1.32E+06	7.71E+04	5.01E+04	0.00E+00	0.00E+00	0.00E+00	8.64E+04	0.00E+00
Cr-51	0.00E+00	0.00E+00	1.00E+02	5.95E+01	2.28E+01	1.44E+04	3.32E+03	0.00E+00
Mn-54	0.00E+00	3.96E+04	6.30E+03	0.00E+00	9.84E+03	1.40E+06	7.74E+04	0.00E+00
MN-56	0.00E+00	1.24E+00	1.83E-01	0.00E+00	1.30E+00	9.44E+03	2.02E+04	0.00E+00
Fe-55	2.46E+04	1.70E+04	3.94E+03	0.00E+00	0.00E+00	7.21E+04	6.03E+03	0.00E+00
Fe-59	1.18E+04	2.78E+04	1.06E+04	0.00E+00	0.00E+00	1.02E+06	1.88E+05	0.00E+00
Co-58	0.00E+00	1.58E+03	2.07E+03	0.00E+00	0.00E+00	9.28E+05	1.06E+05	0.00E+00
Co-60	0.00E+00	1.15E+04	1.48E+04	0.00E+00	0.00E+00	5.97E+06	2.85E+05	0.00E+00
Ni-63	4.32E+05	3.14E+04	1.45E+04	0.00E+00	0.00E+00	1.78E+05	1.34E+04	0.00E+00
Ni-65	1.54E+00	2.10E-01	9.12E-02	0.00E+00	0.00E+00	5.60E+03	1.23E+04	0.00E+00
Cu-64	0.00E+00	1.46E+00	6.15E-01	0.00E+00	4.62E+00	6.78E+03	4.90E+04	0.00E+00
Zn-65	3.24E+04	1.03E+05	4.66E+04	0.00E+00	6.90E+04	8.64E+05	5.34E+04	0.00E+00
Zn-69	3.38E-02	6.51E-02	4.52E-03	0.00E+00	4.22E-02	9.20E+02	1.63E+01	0.00E+00
Br-83	0.00E+00	0.00E+00	2.41E+02	0.00E+00	0.00E+00	0.00E+00	2.32E+02	0.00E+00
Br-84	0.00E+00	0.00E+00	3.13E+02	0.00E+00	0.00E+00	0.00E+00	1.64E-03	0.00E+00
Br-85	0.00E+00	0.00E+00	1.28E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.35E+05	5.90E+04	0.00E+00	0.00E+00	0.00E+00	1.66E+04	0.00E+00
Rb-88	0.00E+00	3.87E+02	1.93E+02	0.00E+00	0.00E+00	0.00E+00	3.34E-09	0.00E+00
Rb-89	0.00E+00	2.56E+02	1.70E+02	0.00E+00	0.00E+00	0.00E+00	9.28E-12	0.00E+00
Sr-89	3.04E+05	0.00E+00	8.72E+03	0.00E+00	0.00E+00	1.40E+06	3.50E+05	0.00E+00
Sr-90	9.92E+07	0.00E+00	6.10E+06	0.00E+00	0.00E+00	9.60E+06	7.22E+05	0.00E+00
Sr-91	6.19E+01	0.00E+00	2.50E+00	0.00E+00	0.00E+00	3.65E+04	1.91E+05	0.00E+00
Sr-92	6.74E+00	0.00E+00	2.91E-01	0.00E+00	0.00E+00	1.65E+04	4.30E+04	0.00E+00
Y-90	2.09E+03	0.00E+00	5.61E+01	0.00E+00	0.00E+00	1.70E+05	5.06E+05	0.00E+00
Y-91M	2.61E-01	0.00E+00	1.02E-02	0.00E+00	0.00E+00	1.92E+03	1.33E+00	0.00E+00
Y-91	4.62E+05	0.00E+00	1.24E+04	0.00E+00	0.00E+00	1.70E+06	3.85E+05	0.00E+00
Y-92	1.03E+01	0.00E+00	3.02E-01	0.00E+00	0.00E+00	1.57E+04	7.35E+04	0.00E+00
Y-93	9.44E+01	0.00E+00	2.61E+00	0.00E+00	0.00E+00	4.85E+04	4.22E+05	0.00E+00
Zr-95	1.07E+05	3.44E+04	2.33E+04	0.00E+00	5.42E+04	1.77E+06	1.50E+05	0.00E+00
Zr-97	9.68E+01	1.96E+01	9.04E+00	0.00E+00	2.97E+01	7.87E+04	5.23E+05	0.00E+00
Nb-95	1.41E+04	7.82E+03	4.21E+03	0.00E+00	7.74E+03	5.05E+05	1.04E+05	0.00E+00
Mo-99	0.00E+00	1.21E+02	2.30E+01	0.00E+00	2.91E+02	9.12E+04	2.48E+05	0.00E+00
Tc-99M	1.03E-03	2.91E-03	3.70E-02	0.00E+00	4.42E-02	7.64E+02	4.16E+03	0.00E+00
Tc-101	4.18E-05	6.02E-05	5.90E-04	0.00E+00	1.08E-03	3.99E+02	1.09E-11	0.00E+00
Ru-103	1.53E+03	0.00E+00	6.58E+02	0.00E+00	5.83E+03	5.05E+05	1.10E+05	0.00E+00
Ru-105	7.90E-01	0.00E+00	3.11E-01	0.00E+00	1.02E+00	1.10E+04	4.82E+04	0.00E+00
Ru-106	6.91E+04	0.00E+00	8.72E+03	0.00E+00	1.34E+05	9.36E+06	9.12E+05	0.00E+00
Ag-110M	1.08E+04	1.00E+04	5.94E+03	0.00E+00	1.97E+04	4.63E+06	3.02E+05	0.00E+00
Te-125M	3.42E+03	1.58E+03	4.67E+02	1.05E+03	1.24E+04	3.14E+05	7.06E+04	0.00E+00
Te-127M	1.26E+04	5.77E+03	1.57E+03	3.29E+03	4.58E+04	9.60E+05	1.50E+05	0.00E+00

Table 5.5-16 R Values for the Prairie Island Nuclear Generating Plant* - Inhalation, Adult

PATHWAY = INHALATION
AGE GROUP = ADULT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	1.40E+00	6.42E-01	3.10E-01	1.06E+00	5.10E+00	6.51E+03	5.74E+04	0.00E+00
Te-129M	9.76E+03	4.67E+03	1.57E+03	3.44E+03	3.66E+04	1.16E+06	3.83E+05	0.00E+00
Te-129	4.98E-02	2.39E-02	1.24E-02	3.90E-02	1.87E-01	1.94E+03	1.57E+02	0.00E+00
Te-131M	6.99E+01	4.36E+01	2.90E-02	5.50E+01	3.09E+02	1.46E+05	5.56E+05	0.00E+00
Te-131	1.11E-02	5.95E-03	3.59E-03	9.36E-03	4.37E-02	1.39E+03	1.84E+01	0.00E+00
Te-132	2.60E+02	2.15E+02	1.62E+02	1.90E+02	1.46E+03	2.88E+05	5.10E+05	0.00E+00
I-130	4.58E+03	1.34E+04	5.28E+03	1.14E+06	2.09E+04	0.00E+00	7.69E+03	0.00E+00
I-131	2.52E+04	3.58E+04	2.05E+04	1.19E+07	6.13E+04	0.00E+00	6.28E+03	0.00E+00
I-132	1.16E+03	3.26E+03	1.16E+03	1.14E+05	5.18E+03	0.00E+00	4.06E+02	0.00E+00
I-133	8.64E+03	1.48E+04	4.52E+03	2.15E+06	2.58E+04	0.00E+00	8.88E+03	0.00E+00
I-134	6.44E+02	1.73E+03	6.15E+02	2.98E+04	2.75E+03	0.00E+00	1.01E+00	0.00E+00
I-135	2.68E+03	6.98E+03	2.57E+03	4.48E+05	1.11E+04	0.00E+00	5.25E+03	0.00E+00
Cs-134	3.73E+05	8.48E+05	7.28E+05	0.00E+00	2.87E+05	9.76E+04	1.04E+04	0.00E+00
Cs-136	3.90E+04	1.46E+05	1.10E+05	0.00E+00	8.56E+04	1.20E+04	1.17E+04	0.00E+00
Cs-137	4.78E+05	6.21E+05	4.28E+05	0.00E+00	2.22E+05	7.52E+04	8.40E+03	0.00E+00
Cs-138	3.31E+02	6.21E+02	3.24E+02	0.00E+00	4.80E+02	4.86E+01	1.86E-03	0.00E+00
Ba-139	9.36E-01	6.66E-04	2.74E-02	0.00E+00	6.22E-04	3.76E+03	8.96E+02	0.00E+00
Ba-140	3.90E+04	4.90E+01	2.57E+03	0.00E+00	1.67E+01	1.27E+06	2.18E+05	0.00E+00
Ba-141	1.00E-01	7.53E-05	3.36E-03	0.00E+00	7.00E-05	1.94E+03	1.16E-07	0.00E+00
Ba-142	2.63E-02	2.70E-05	1.66E-03	0.00E+00	2.29E-05	1.19E+03	1.57E-16	0.00E+00
La-140	3.44E+02	1.74E+02	4.58E+01	0.00E+00	0.00E+00	1.36E+05	4.58E+05	0.00E+00
La-142	6.83E-01	3.10E-01	7.72E-02	0.00E+00	0.00E+00	6.33E+03	2.11E+05	0.00E+00
Ce-141	1.99E+04	1.35E+04	1.53E+03	0.00E+00	6.26E+03	3.62E+05	1.20E+05	0.00E+00
Ce-143	1.86E+02	1.38E+02	1.53E+01	0.00E+00	6.08E+01	7.98E+04	2.26E+05	0.00E+00
Ce-144	3.43E+06	1.43E+06	1.84E+05	0.00E+00	8.48E+05	7.78E+06	8.16E+05	0.00E+00
Pr-143	9.36E+03	3.75E+03	4.64E+02	0.00E+00	2.16E+03	2.81E+05	2.00E+05	0.00E+00
Pr-144	3.01E-02	1.25E-02	1.53E-03	0.00E+00	7.05E-03	1.02E+03	2.15E-08	0.00E+00
Nd-147	5.27E+03	6.10E+03	3.65E+02	0.00E+00	3.56E+03	2.21E+05	1.73E+05	0.00E+00
W-187	8.48E+00	7.08E+00	2.48E+00	0.00E+00	0.00E+00	2.90E+04	1.55E+05	0.00E+00
Np-239	2.30E+02	2.26E+01	1.24E+01	0.00E+00	7.00E+01	3.76E+04	1.19E+05	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-17 R Values for the Prairie Island Nuclear Generating Plant* - Inhalation, Teen

PATHWAY = INHALATION
AGE GROUP = TEEN

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	1.27E+03	1.27E+03	1.27E+03	1.27E+03	1.27E+03	1.27E+03	1.27E+03
C-14	2.60E+04	4.87E+03	4.87E+03	4.87E+03	4.87E+03	4.87E+03	4.87E+03	0.00E+00
Na-24	1.38E+04	1.38E+04	1.38E+04	1.38E+04	1.38E+04	1.38E+04	1.38E+04	0.00E+00
P-32	1.89E+06	1.10E+05	7.16E+04	1.27E+03	0.00E+00	0.00E+00	9.28E+04	0.00E+00
Cr-51	0.00E+00	0.00E+00	1.35E+02	4.87E+03	3.07E+01	2.10E+04	3.00E+03	0.00E+00
Mn-54	0.00E+00	5.11E+04	8.40E+03	1.38E+04	1.27E+04	1.98E+06	6.68E+04	0.00E+00
MN-56	0.00E+00	1.70E+00	2.52E-01	0.00E+00	1.79E+00	1.52E+04	5.74E+04	0.00E+00
Fe-55	3.34E+04	2.38E+04	5.54E+03	7.50E+01	0.00E+00	1.24E+05	6.39E+03	0.00E+00
Fe-59	8.72E+03	3.70E+04	1.43E+04	0.00E+00	0.00E+00	1.53E+06	1.78E+05	0.00E+00
Co-58	0.00E+00	2.07E+03	2.78E+03	0.00E+00	0.00E+00	1.34E+06	9.52E+04	0.00E+00
Co-60	0.00E+00	1.51E+04	1.98E+04	0.00E+00	0.00E+00	8.72E+06	2.59E+05	0.00E+00
Ni-63	5.80E+05	4.34E+04	1.98E+04	0.00E+00	0.00E+00	3.07E+05	1.42E+04	0.00E+00
Ni-65	2.18E+00	2.93E-01	1.27E-01	0.00E+00	0.00E+00	9.36E+03	3.67E+04	0.00E+00
Cu-64	0.00E+00	2.03E+00	8.48E-01	0.00E+00	6.41E+00	1.11E+04	6.14E+04	0.00E+00
Zn-65	3.86E+04	1.34E+05	6.24E+04	0.00E+00	8.64E+04	1.24E+06	4.66E+04	0.00E+00
Zn-69	4.83E-02	9.20E-02	6.46E-03	0.00E+00	6.02E-02	1.58E+03	2.85E+02	0.00E+00
Br-83	0.00E+00	0.00E+00	3.44E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	4.33E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	1.83E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.90E+05	8.40E+04	0.00E+00	0.00E+00	0.00E+00	1.77E+04	0.00E+00
Rb-88	0.00E+00	5.46E+02	2.72E+02	0.00E+00	0.00E+00	0.00E+00	2.92E-05	0.00E+00
Rb-89	0.00E+00	3.52E+02	2.33E+02	0.00E+00	0.00E+00	0.00E+00	3.38E-07	0.00E+00
Sr-89	4.34E+05	0.00E+00	1.25E+04	0.00E+00	0.00E+00	2.42E+06	3.71E+05	0.00E+00
Sr-90	1.08E+08	0.00E+00	6.68E+06	0.00E+00	0.00E+00	1.65E+07	7.65E+05	0.00E+00
Sr-91	8.80E+01	0.00E+00	3.51E+00	0.00E+00	0.00E+00	6.07E+04	2.59E+05	0.00E+00
Sr-92	9.52E+00	0.00E+00	4.06E-01	0.00E+00	0.00E+00	2.74E+04	1.19E+05	0.00E+00
Y-90	2.98E+03	0.00E+00	8.00E+01	0.00E+00	0.00E+00	2.93E+05	5.59E+05	0.00E+00
Y-91M	3.70E-01	0.00E+00	1.42E-02	0.00E+00	0.00E+00	3.20E+03	3.02E+01	0.00E+00
Y-91	6.61E+05	0.00E+00	1.77E+04	0.00E+00	0.00E+00	2.94E+06	4.09E+05	0.00E+00
Y-92	1.47E+01	0.00E+00	4.29E-01	0.00E+00	0.00E+00	2.68E+04	1.65E+05	0.00E+00
Y-93	1.35E+02	0.00E+00	3.72E+00	0.00E+00	0.00E+00	8.32E+04	5.79E+05	0.00E+00
Zr-95	1.46E+05	4.58E+04	3.15E+04	0.00E+00	6.74E+04	2.69E+06	1.49E+05	0.00E+00
Zr-97	1.38E+02	2.72E+01	1.26E+01	0.00E+00	4.12E+01	1.30E+05	6.30E+05	0.00E+00
Nb-95	1.86E+04	1.03E+04	5.66E+03	0.00E+00	1.00E+04	7.51E+05	9.68E+04	0.00E+00
Mo-99	0.00E+00	1.69E+02	3.22E+01	0.00E+00	4.11E+02	1.54E+05	2.69E+05	0.00E+00
Tc-99M	1.38E-03	3.86E-03	4.99E-02	0.00E+00	5.76E-02	1.15E+03	6.13E+03	0.00E+00
Tc-101	5.92E-05	8.40E-05	8.24E-04	0.00E+00	1.52E-03	6.67E+02	8.72E-07	0.00E+00
Ru-103	2.10E+03	0.00E+00	8.96E+02	0.00E+00	7.43E+03	7.83E+05	1.09E+05	0.00E+00
Ru-105	1.12E+00	0.00E+00	4.34E-01	0.00E+00	1.41E+00	1.82E+04	9.04E+04	0.00E+00
Ru-106	9.84E+04	0.00E+00	1.24E+04	0.00E+00	1.90E+05	1.61E+07	9.60E+05	0.00E+00
Ag-110M	1.38E+04	1.31E+04	7.99E+03	0.00E+00	2.50E+04	6.75E+06	2.73E+05	0.00E+00
Te-125M	4.88E+03	2.24E+03	6.67E+02	1.40E+03	0.00E+00	5.36E+05	7.50E+04	0.00E+00
Te-127M	1.80E+04	8.16E+03	2.18E+03	4.38E+03	6.54E+04	1.66E+06	1.59E+05	0.00E+00

Table 5.5-17 R Values for the Prairie Island Nuclear Generating Plant* - Inhalation, Teen

PATHWAY = INHALATION
AGE GROUP = TEEN

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	2.01E+00	9.12E-01	4.42E-01	1.42E+00	7.28E+00	1.12E+04	8.08E+04	0.00E+00
Te-129M	1.39E+04	6.58E+03	2.25E+03	4.58E+03	5.19E+04	1.98E+06	4.05E+05	0.00E+00
Te-129	7.10E-02	3.38E-02	1.76E-02	5.18E-02	2.66E-01	3.30E+03	1.62E+03	0.00E+00
Te-131M	9.84E+01	6.01E+01	4.02E+01	7.25E+01	4.39E+02	2.38E+05	6.21E+05	0.00E+00
Te-131	1.58E-02	8.32E-03	5.04E-03	1.24E-02	6.18E-02	2.34E+03	1.51E+01	0.00E+00
Te-132	3.60E+02	2.90E+04	2.19E+02	2.46E+02	1.95E+03	4.49E+05	4.63E+05	0.00E+00
I-130	6.24E+03	1.79E+04	7.17E+03	1.49E+06	2.75E+04	0.00E+00	9.12E+03	0.00E+00
I-131	3.54E+04	4.91E+04	2.64E+04	1.46E+07	8.40E+04	0.00E+00	6.49E+03	0.00E+00
I-132	1.59E+03	4.38E+03	1.58E+03	1.51E+05	6.92E+03	0.00E+00	1.27E+03	0.00E+00
I-133	1.22E+04	1.89E+04	6.22E+03	2.92E+06	3.59E+04	0.00E+00	1.03E+04	0.00E+00
I-134	8.88E+02	2.32E+03	8.40E+02	3.95E+04	3.66E+03	0.00E+00	2.04E+01	0.00E+00
I-135	3.70E+03	9.44E+03	3.49E+03	6.21E+05	1.49E+04	0.00E+00	6.95E+03	0.00E+00
Cs-134	5.02E+05	1.13E+06	5.49E+05	0.00E+00	3.75E+05	1.46E+05	9.76E+03	0.00E+00
Cs-136	5.15E+04	1.94E+05	1.37E+05	0.00E+00	1.10E+05	1.78E+04	1.09E+04	0.00E+00
Cs-137	6.70E+05	8.48E+05	3.11E+05	0.00E+00	3.04E+05	1.21E+05	8.48E+03	0.00E+00
Cs-138	4.66E+02	8.56E+02	4.46E+02	0.00E+00	6.62E+02	7.87E+01	2.70E-01	0.00E+00
Ba-139	1.34E+00	9.44E-04	3.90E-02	0.00E+00	8.88E-04	6.46E+03	6.45E+03	0.00E+00
Ba-140	5.47E+04	6.70E+01	3.52E+03	0.00E+00	2.28E+01	2.03E+06	2.29E+05	0.00E+00
Ba-141	1.42E-01	1.06E-04	4.74E-03	0.00E+00	9.84E-05	3.29E+03	7.46E-14	0.00E+00
Ba-142	3.70E-02	3.70E-05	2.27E-03	0.00E+00	3.14E-05	1.91E+03	4.79E-10	0.00E+00
La-140	4.79E+02	2.36E+02	6.26E+01	0.00E+00	0.00E+00	2.14E+05	4.87E+05	0.00E+00
La-142	9.60E-01	4.25E-01	1.06E-01	0.00E+00	0.00E+00	1.02E+04	1.20E+04	0.00E+00
Ce-141	2.84E+04	1.90E+04	2.17E+03	0.00E+00	8.88E+03	6.14E+05	1.26E+05	0.00E+00
Ce-143	2.66E+02	1.94E+02	2.16E+01	0.00E+00	8.64E+01	1.30E+05	2.55E+05	0.00E+00
Ce-144	4.89E+06	2.02E+06	2.62E+05	0.00E+00	1.21E+06	1.34E+07	8.64E+05	0.00E+00
Pr-143	1.34E+04	5.31E+03	6.62E+02	0.00E+00	3.09E+03	4.83E+05	2.14E+05	0.00E+00
Pr-144	4.30E-02	1.76E-02	2.18E-03	0.00E+00	1.01E-02	1.75E+03	2.35E-04	0.00E+00
Nd-147	7.86E+03	8.56E+03	5.13E+02	0.00E+00	5.02E+03	3.72E+05	1.82E+05	0.00E+00
W-187	1.20E+01	9.76E+00	3.43E+00	0.00E+00	0.00E+00	4.74E+04	1.77E+05	0.00E+00
Np-239	3.38E+02	3.19E+01	1.77E+01	0.00E+00	1.00E+02	6.49E+04	1.32E+05	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-18 R Values for the Prairie Island Nuclear Generating Plant* - Inhalation, Child

PATHWAY = INHALATION
AGE GROUP = CHILD

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	1.12E+03	1.12E+03	1.12E+03	1.12E+03	1.12E+03	1.12E+03	1.12E+03
C-14	3.59E+04	6.73E+03	6.73E+03	6.73E+03	6.73E+03	6.73E+03	6.73E+03	0.00E+00
Na-24	1.61E+04	1.61E+04	1.61E+04	1.61E+04	1.61E+04	1.61E+04	1.61E+04	0.00E+00
P-32	2.60E+06	1.14E+05	9.88E+04	0.00E+00	0.00E+00	0.00E+00	4.22E+04	0.00E+00
Cr-51	0.00E+00	0.00E+00	1.54E+02	8.55E+01	2.43E+01	1.70E+04	1.08E+03	0.00E+00
Mn-54	0.00E+00	4.29E+04	9.51E+03	0.00E+00	1.00E+04	1.58E+06	2.29E+04	0.00E+00
MN-56	0.00E+00	1.66E+00	3.12E-01	0.00E+00	1.67E+00	1.31E+04	1.23E+05	0.00E+00
Fe-55	4.74E+04	2.52E+04	7.77E+03	0.00E+00	0.00E+00	1.11E+05	2.87E+05	0.00E+00
Fe-59	2.07E+04	3.34E+04	1.67E+04	0.00E+00	0.00E+00	1.27E+06	7.07E+04	0.00E+00
Co-58	0.00E+00	1.77E+03	3.16E+03	0.00E+00	0.00E+00	1.11E+06	3.44E+04	0.00E+00
Co-60	0.00E+00	1.31E+04	2.26E+04	0.00E+00	0.00E+00	7.07E+06	9.62E+04	0.00E+00
Ni-63	8.21E+05	4.63E+04	2.80E+04	0.00E+00	0.00E+00	2.75E+05	6.33E+03	0.00E+00
Ni-65	2.99E+00	2.96E-01	1.64E-01	0.00E+00	0.00E+00	8.18E+03	8.40E+04	0.00E+00
Cu-64	0.00E+00	1.99E+00	1.07E+00	0.00E+00	6.03E+00	9.58E+03	3.67E+04	0.00E+00
Zn-65	4.26E+04	1.13E+05	7.03E+04	0.00E+00	7.14E+04	9.95E+05	1.63E+04	0.00E+00
Zn-69	6.70E-02	9.66E-02	8.92E-03	0.00E+00	5.85E-02	1.42E+03	1.02E+04	0.00E+00
Br-83	0.00E+00	0.00E+00	4.74E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	5.48E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	2.53E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.98E+05	1.14E+05	0.00E+00	0.00E+00	0.00E+00	7.99E+03	0.00E+00
Rb-88	0.00E+00	5.62E+02	3.66E+02	0.00E+00	0.00E+00	0.00E+00	1.72E+01	0.00E+00
Rb-89	0.00E+00	3.45E+02	2.90E+02	0.00E+00	0.00E+00	0.00E+00	1.89E+00	0.00E+00
Sr-89	5.99E+05	0.00E+00	1.72E+04	0.00E+00	0.00E+00	2.16E+06	1.67E+05	0.00E+00
Sr-90	1.01E+08	0.00E+00	6.44E+06	0.00E+00	0.00E+00	1.48E+07	3.43E+05	0.00E+00
Sr-91	1.21E+02	0.00E+00	4.59E+00	0.00E+00	0.00E+00	5.33E+04	1.74E+05	0.00E+00
Sr-92	1.31E+01	0.00E+00	5.25E-01	0.00E+00	0.00E+00	2.40E+04	2.42E+05	0.00E+00
Y-90	4.11E+03	0.00E+00	1.11E+02	0.00E+00	0.00E+00	2.62E+05	2.68E+05	0.00E+00
Y-91M	5.07E-01	0.00E+00	1.84E-02	0.00E+00	0.00E+00	2.81E+03	1.72E+03	0.00E+00
Y-91	9.14E+05	0.00E+00	2.44E+04	0.00E+00	0.00E+00	2.63E+06	1.84E+05	0.00E+00
Y-92	2.04E+01	0.00E+00	5.81E-01	0.00E+00	0.00E+00	2.39E+04	2.39E+05	0.00E+00
Y-93	1.86E+02	0.00E+00	5.11E+00	0.00E+00	0.00E+00	7.44E+04	3.89E+05	0.00E+00
Zr-95	1.90E+05	4.18E+04	3.70E+04	0.00E+00	5.96E+04	2.23E+06	6.11E+04	0.00E+00
Zr-97	1.88E+02	2.72E+01	1.60E+01	0.00E+00	3.89E+01	1.13E+05	3.51E+05	0.00E+00
Nb-95	2.35E+04	9.18E+03	6.55E+03	0.00E+00	8.62E+03	6.14E+05	3.70E+04	0.00E+00
Mo-99	0.00E+00	1.72E+02	4.26E+01	0.00E+00	3.92E+02	1.35E+05	1.27E+05	0.00E+00
Tc-99M	1.78E-03	3.48E-03	5.77E-02	0.00E+00	5.07E-02	9.51E+02	4.81E+03	0.00E+00
Tc-101	8.10E-05	8.51E-05	1.08E-03	0.00E+00	1.45E-03	5.85E+02	1.63E+01	0.00E+00
Ru-103	2.79E+03	0.00E+00	1.07E+03	0.00E+00	7.03E+03	6.62E+05	4.48E+04	0.00E+00
Ru-105	1.53E+00	0.00E+00	5.55E-01	0.00E+00	1.34E+00	1.59E+04	9.95E+04	0.00E+00
Ru-106	1.36E+05	0.00E+00	1.69E+04	0.00E+00	1.84E+05	1.43E+07	4.29E+05	0.00E+00
Ag-110M	1.69E+04	1.14E+04	9.14E+03	0.00E+00	2.12E+04	5.48E+06	1.00E+05	0.00E+00
Te-125M	6.73E+03	2.33E+03	9.14E+02	1.92E+03	0.00E+00	4.77E+05	3.38E+04	0.00E+00
Te-127M	2.49E+04	8.55E+03	3.02E+03	6.07E+03	6.36E+04	1.48E+06	7.14E+04	0.00E+00

Table 5.5-18 R Values for the Prairie Island Nuclear Generating Plant* - Inhalation, Child

PATHWAY = INHALATION
AGE GROUP = CHILD

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	2.77E+00	9.51E-01	6.11E-01	1.96E+00	7.07E+00	1.00E+04	5.62E+04	0.00E+00
Te-129M	1.92E+04	6.85E+03	3.04E+03	6.33E+03	5.03E+04	1.76E+06	1.82E+05	0.00E+00
Te-129	9.77E-02	3.50E-02	2.38E-02	7.14E-02	2.57E-01	2.93E+03	2.55E+04	0.00E+00
Te-131M	1.34E+02	5.92E+01	5.07E+01	9.77E+01	4.00E+02	2.06E+05	3.08E+05	0.00E+00
Te-131	2.17E-02	8.44E-03	6.59E-03	1.70E-02	5.88E-02	2.05E+03	1.33E+03	0.00E+00
Te-132	4.81E+02	2.72E+02	2.63E+02	3.17E+02	1.77E+03	3.77E+05	1.38E+05	0.00E+00
I-130	8.18E+03	1.64E+04	8.44E+03	1.85E+06	2.45E+04	0.00E+00	5.11E+03	0.00E+00
I-131	4.81E+04	4.81E+04	2.73E+04	1.62E+07	7.88E+04	0.00E+00	2.84E+03	0.00E+00
I-132	2.12E+03	4.07E+03	1.88E+03	1.94E+05	6.25E+03	0.00E+00	3.20E+03	0.00E+00
I-133	1.66E+04	2.03E+04	7.70E+02	3.85E+06	3.38E+04	0.00E+00	5.48E+03	0.00E+00
I-134	1.17E+03	2.03E+03	9.95E+02	5.07E+04	3.30E+03	0.00E+00	9.55E+02	0.00E+00
I-135	4.18E+03	8.73E+03	4.14E+03	7.92E+05	1.34E+04	0.00E+00	4.44E+03	0.00E+00
Cs-134	6.51E+05	1.01E+06	2.25E+05	0.00E+00	3.30E+05	1.21E+05	3.85E+03	0.00E+00
Cs-136	6.51E+04	1.71E+05	1.16E+05	0.00E+00	9.55E+04	1.45E+04	4.18E+03	0.00E+00
Cs-137	9.07E+05	8.25E+05	1.28E+05	0.00E+00	2.82E+05	1.04E+05	3.62E+03	0.00E+00
Cs-138	6.33E+02	8.40E+02	5.55E+02	0.00E+00	6.22E+02	6.81E+01	2.70E+02	0.00E+00
Ba-139	1.84E+00	9.84E-04	5.37E-02	0.00E+00	8.62E-04	5.77E+03	5.77E+04	0.00E+00
Ba-140	7.40E+04	6.48E+01	4.33E+03	0.00E+00	2.11E+01	1.74E+06	1.02E+05	0.00E+00
Ba-141	1.96E-01	1.09E-04	6.36E-03	0.00E+00	9.47E-05	2.92E+03	2.75E+02	0.00E+00
Ba-142	5.00E-02	3.60E-05	2.79E-03	0.00E+00	2.91E-05	1.64E+03	2.74E+00	0.00E+00
La-140	6.44E+02	2.25E+02	7.55E+01	0.00E+00	0.00E+00	1.83E+05	2.26E+05	0.00E+00
La-142	1.30E+00	4.11E-01	1.29E-01	0.00E+00	0.00E+00	8.70E+03	7.59E+04	0.00E+00
Ce-141	3.92E+04	1.95E+04	2.90E+03	0.00E+00	8.55E+03	5.44E+05	5.66E+04	0.00E+00
Ce-143	3.66E+02	1.99E+02	2.87E+01	0.00E+00	8.36E+01	1.15E+05	1.27E+05	0.00E+00
Ce-144	6.77E+06	2.12E+06	3.61E+05	0.00E+00	1.17E+06	1.20E+07	3.89E+05	0.00E+00
Pr-143	1.85E+04	5.55E+03	9.14E+02	0.00E+00	3.00E+03	4.33E+05	9.73E+04	0.00E+00
Pr-144	5.96E-02	1.85E-02	3.00E-03	0.00E+00	9.77E-03	1.57E+03	1.97E+02	0.00E+00
Nd-147	1.08E+04	8.73E+03	6.81E+02	0.00E+00	4.81E+03	3.28E+05	8.21E+04	0.00E+00
W-187	1.63E+01	9.66E+00	4.33E+00	0.00E+00	0.00E+00	4.11E+04	9.10E+04	0.00E+00
Np-239	4.66E+02	3.34E+01	2.35E+01	0.00E+00	9.73E+01	5.81E+04	6.40E+04	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 5.5-19 R Values for the Prairie Island Nuclear Generating Plant* - Inhalation, Infant

PATHWAY = INHALATION
AGE GROUP = INFANT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
H-3	0.00E+00	6.47E+02	6.47E+02	6.47E+02	6.47E+02	6.47E+02	6.47E+02	6.47E+02
C-14	2.65E+04	5.31E+03	5.31E+03	5.31E+03	5.31E+03	5.31E+03	5.31E+03	0.00E+00
Na-24	1.06E+04	1.06E+04	1.06E+04	1.06E+04	1.06E+04	1.06E+04	1.06E+04	0.00E+00
P-32	2.03E+06	1.12E+05	7.74E+04	0.00E+00	0.00E+00	0.00E+00	1.61E+04	0.00E+00
Cr-51	0.00E+00	0.00E+00	8.95E+01	5.75E+01	1.32E+01	1.28E+04	3.57E+02	0.00E+00
Mn-54	0.00E+00	2.53E+04	4.98E+03	0.00E+00	4.98E+03	1.00E+06	7.06E+03	0.00E+00
MN-56	0.00E+00	1.54E+00	2.21E-01	0.00E+00	1.10E+00	1.25E+04	7.17E+04	0.00E+00
Fe-55	1.97E+04	1.17E+04	3.33E+03	0.00E+00	0.00E+00	8.69E+04	1.09E+03	0.00E+00
Fe-59	1.36E+04	2.35E+04	9.48E+03	0.00E+00	0.00E+00	1.02E+06	2.48E+04	0.00E+00
Co-58	0.00E+00	1.22E+03	1.82E+03	0.00E+00	0.00E+00	7.77E+05	1.11E+04	0.00E+00
Co-60	0.00E+00	8.02E+03	1.18E+04	0.00E+00	0.00E+00	4.51E+06	3.19E+04	0.00E+00
Ni-63	3.39E+05	2.04E+04	1.16E+04	0.00E+00	0.00E+00	2.09E+05	2.42E+03	0.00E+00
Ni-65	2.39E+00	2.84E-01	1.23E-01	0.00E+00	0.00E+00	8.12E+03	5.01E+04	0.00E+00
Cu-64	0.00E+00	1.88E+00	7.74E-01	0.00E+00	3.98E+00	9.30E+03	1.50E+04	0.00E+00
Zn-65	1.93E+04	6.26E+04	3.11E+04	0.00E+00	3.25E+04	6.47E+05	5.14E+04	0.00E+00
Zn-69	5.39E-02	9.67E-02	7.18E-03	0.00E+00	4.02E-02	1.47E+03	1.32E+04	0.00E+00
Br-83	0.00E+00	0.00E+00	3.81E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-84	0.00E+00	0.00E+00	4.00E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Br-85	0.00E+00	0.00E+00	2.04E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Rb-86	0.00E+00	1.90E+05	8.82E+04	0.00E+00	0.00E+00	0.00E+00	3.04E+03	0.00E+00
Rb-88	0.00E+00	5.57E+02	2.87E+02	0.00E+00	0.00E+00	0.00E+00	3.39E+02	0.00E+00
Rb-89	0.00E+00	3.21E+02	2.06E+02	0.00E+00	0.00E+00	0.00E+00	6.82E+01	0.00E+00
Sr-89	3.98E+05	0.00E+00	1.14E+04	0.00E+00	0.00E+00	2.03E+06	6.40E+04	0.00E+00
Sr-90	4.09E+07	0.00E+00	2.59E+06	0.00E+00	0.00E+00	1.12E+07	1.31E+05	0.00E+00
Sr-91	9.56E+01	0.00E+00	3.46E+00	0.00E+00	0.00E+00	5.26E+04	7.34E+04	0.00E+00
Sr-92	1.05E+01	0.00E+00	3.91E-01	0.00E+00	0.00E+00	2.38E+04	1.40E+05	0.00E+00
Y-90	3.29E+03	0.00E+00	8.82E+01	0.00E+00	0.00E+00	2.69E+05	1.04E+05	0.00E+00
Y-91M	4.07E+19	0.00E+00	1.39E-02	0.00E+00	0.00E+00	2.79E+03	2.35E+03	0.00E+00
Y-91	5.88E+05	0.00E+00	1.57E+04	0.00E+00	0.00E+00	2.45E+06	7.03E+04	0.00E+00
Y-92	1.64E+01	0.00E+00	4.61E-01	0.00E+00	0.00E+00	2.45E+04	1.27E+05	0.00E+00
Y-93	1.50E+02	0.00E+00	4.07E+00	0.00E+00	0.00E+00	7.64E+04	1.67E+05	0.00E+00
Zr-95	1.15E+05	2.79E+04	2.03E+04	0.00E+00	3.11E+04	1.75E+06	2.17E+04	0.00E+00
Zr-97	1.50E+02	2.56E+01	1.17E+01	0.00E+00	2.59E+01	1.10E+05	1.40E+05	0.00E+00
Nb-95	1.57E+04	6.43E+03	3.78E+03	0.00E+00	4.72E+03	4.79E+05	1.27E+04	0.00E+00
Mo-99	0.00E+00	1.65E+02	3.23E+01	0.00E+00	2.65E+02	1.35E+05	4.87E+04	0.00E+00
Tc-99M	1.40E-03	2.88E-03	3.72E-02	0.00E+00	3.11E-02	8.11E+02	2.03E+03	0.00E+00
Tc-101	6.51E-05	8.23E-05	8.12E-04	0.00E+00	9.79E-04	5.84E+02	8.44E+02	0.00E+00
Ru-103	2.02E+03	0.00E+00	6.79E+02	0.00E+00	4.24E+03	5.52E+05	1.61E+04	0.00E+00
Ru-105	1.22E+00	0.00E+00	4.10E-01	0.00E+00	8.99E-01	1.57E+04	4.84E+04	0.00E+00
Ru-106	8.68E+04	0.00E+00	1.09E+04	0.00E+00	1.07E+05	1.16E+07	1.64E+05	0.00E+00
Ag-110M	9.98E+03	7.22E+03	5.00E+03	0.00E+00	1.09E+04	3.67E+06	3.30E+04	0.00E+00
Te-125M	4.76E+03	1.99E+03	6.58E+02	1.62E+03	0.00E+00	4.47E+05	1.29E+04	0.00E+00
Te-127M	1.67E+04	6.90E+03	2.07E+03	4.87E+03	3.75E+04	1.31E+06	2.73E+04	0.00E+00

Table 5.5-19 R Values for the Prairie Island Nuclear Generating Plant* - Inhalation, Infant

PATHWAY = INHALATION
AGE GROUP = INFANT

NUCLIDE	BONE	LIVER	T. BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
Te-127	2.23E+00	9.53E-01	4.76E-01	1.85E+00	4.86E+00	1.03E+04	2.44E+04	0.00E+00
Te-129M	1.41E+04	6.09E+03	2.23E+03	5.47E+03	3.18E+04	1.68E+06	6.90E+04	0.00E+00
Te-129	7.88E-02	3.47E-02	1.88E-02	6.75E-02	1.75E-01	3.00E+03	2.63E+04	0.00E+00
Te-131M	1.07E+02	5.50E+01	3.63E+01	8.93E+01	2.65E+02	1.99E+03	1.19E+05	0.00E+00
Te-131	1.74E-02	8.22E-03	5.00E-03	1.58E-02	3.99E-02	2.06E+03	8.22E+03	0.00E+00
Te-132	3.72E+02	2.37E+02	1.76E+02	2.79E+02	1.03E+03	3.40E+05	4.41E+04	0.00E+00
I-130	6.36E+03	1.39E+03	5.57E+03	1.60E+06	1.53E+04	0.00E+00	1.99E+03	0.00E+00
I-131	3.79E+04	4.44E+04	1.96E+04	1.48E+07	5.18E+04	0.00E+00	1.06E+03	0.00E+00
I-132	1.69E+03	3.54E+03	1.26E+03	1.69E+05	3.95E+03	0.00E+00	1.90E+03	0.00E+00
I-133	1.32E+04	1.92E+03	5.60E+03	3.56E+06	2.24E+04	0.00E+00	2.16E+03	0.00E+00
I-134	9.21E+02	1.88E+03	6.65E+02	4.45E+04	2.09E+03	0.00E+00	1.29E+03	0.00E+00
I-135	3.86E+03	7.60E+03	2.77E+03	6.96E+05	8.47E+03	0.00E+00	1.83E+03	0.00E+00
Cs-134	3.96E+05	7.03E+05	7.45E+04	0.00E+00	1.90E+03	7.97E+04	1.33E+03	0.00E+00
Cs-136	4.83E+04	1.35E+05	5.29E+04	0.00E+00	5.64E+04	1.18E+04	1.43E+03	0.00E+00
Cs-137	5.49E+05	6.12E+05	4.55E+04	0.00E+00	1.72E+05	7.13E+04	1.33E+03	0.00E+00
Cs-138	5.05E+02	7.81E+02	3.98E+02	0.00E+00	4.10E+02	6.54E+01	8.76E+02	0.00E+00
Ba-139	1.48E+00	9.84E-04	4.30E-02	0.00E+00	5.92E-04	5.95E+03	5.10E+03	0.00E+00
Ba-140	5.60E+04	5.60E+01	2.90E+03	0.00E+00	1.34E+01	1.60E+06	3.84E+04	0.00E+00
Ba-141	1.57E-01	1.08E-04	4.97E-03	0.00E+00	6.50E-05	2.97E+03	4.75E+03	0.00E+00
Ba-142	3.98E-02	3.30E-05	1.96E-03	0.00E+00	1.90E-05	1.55E+03	6.93E+02	0.00E+00
La-140	5.05E+02	2.00E+02	5.15E+01	0.00E+00	0.00E+00	1.68E+05	8.48E+04	0.00E+00
La-142	1.03E+00	3.77E-01	9.04E-02	0.00E+00	0.00E+00	8.22E+03	5.95E+04	0.00E+00
Ce-141	2.77E+04	1.67E+04	1.99E+03	0.00E+00	5.25E+03	5.17E+05	2.16E+04	0.00E+00
Ce-143	2.93E+02	1.93E+02	2.21E+01	0.00E+00	5.64E+01	1.16E+05	4.97E+04	0.00E+00
Ce-144	3.19E+06	1.21E+06	1.76E+05	0.00E+00	5.38E+05	9.84E+06	1.48E+05	0.00E+00
Pr-143	1.40E+04	5.24E+03	6.99E+02	0.00E+00	1.97E+03	4.33E+05	3.72E+04	0.00E+00
Pr-144	4.79E-02	1.85E-02	2.41E-03	0.00E+00	6.72E-03	1.61E+03	4.28E+03	0.00E+00
Nd-147	7.94E+03	8.13E+03	5.00E+02	0.00E+00	3.15E+03	3.22E+05	3.12E+04	0.00E+00
W-187	1.30E+01	9.02E+00	3.12E+00	0.00E+00	0.00E+00	3.96E+04	3.56E+04	0.00E+00
Np-239	3.71E+02	3.32E+01	1.88E+01	0.00E+00	6.62E+01	5.95E+04	2.49E+04	0.00E+00

* R VALUES IN UNITS OF MREM/YR PER μCI/M^3 FOR INHALATION AND TRITIUM, AND IN UNITS OF M^2 -MREM/YR PER μCI/SEC FOR ALL OTHERS.

Table 7.1 Radiological Environmental Monitoring Program Sample Collection and Analysis

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
1. AIRBORNE Radioiodine and Particulates	Samples from 5 locations: 3 samples from offsite locations (in different sectors) of the highest calculated annual average ground level D/Q, 1 sample from the vicinity of a community having the highest calculated annual average ground-level D/Q, and 1 sample from a control location specified in the REMP	Continuous Sampler operation with sample collection weekly	Radioiodine analysis weekly for I-131 Particulate: Gross beta activity on each filter weekly*. Analysis **SHALL** be performed more than 24 hours following filter change. Perform gamma isotopic analysis on composite (by location) sample quarterly.
2. DIRECT RADIATION	32 TLD stations established with duplicate dosimeters placed at the following locations: 1. Using the 16 meteorological wind sectors as guidelines, an inner ring of stations in the general area of the site boundary is established and an outer ring of stations in the 4 to 5 mile distance from the plant site is established. Because of inaccessibility, seven sectors in the inner and outer rings are not covered	Quarterly	Gamma dose quarterly

* If Gross beta activity in any indictor sample exceeds 10 times the yearly average of the control sample, a gamma isotopic analysis is required.

** Sample locations are further described by the REMP.

Table 7.1 Radiological Environmental Monitoring Program Sample Collection and Analysis

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
2. DIRECT RADIATION [Cont'd]			
	2. Seven dosimeters are established at special interest areas and a control station.		
3. WATERBORNE			
a. Surface	Upstream & downstream locations	Monthly Composite of weekly samples (water & ice conditions permitting)	Gamma isotopic analysis of each monthly composite Tritium analysis of quarterly composites of monthly composites
b. Ground	3 samples from wells within 5 miles of the plant site and 1 sample from a well greater than 10 miles from the plant site	Quarterly	Gamma isotopic and tritium analyses of each sample
c. Drinking	1 sample from the City of Red Wing water supply	Monthly Composite of weekly samples	I-131 Analysis and Gross beta and gamma isotopic analyses of each monthly composite Tritium analysis of quarterly composites of monthly composites

** Sample locations are further described by the REMP.

Table 7.1 Radiological Environmental Monitoring Program
Sample Collection and Analysis

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
3. WATERBORNE [Cont'd]			
d. Sediment from shoreline	One sample upstream of plant, one sample downstream of plant, and one from shoreline of recreational area.	Semiannually	Gamma isotopic analysis of each sample
4. INGESTION			
a. Milk	One sample from dairy farm having highest D/Q, one sample from each of three dairy farms calculated to have doses from I-131 > 1 mRem/yr, and one sample from 10-20 miles	Semimonthly when animals are on pasture; monthly at other times.	Gamma isotopic and I-131 analysis of each sample
b. Fish and Invertebrates	One sample of one game specie of fish located upstream and downstream of the plant site One sample of Invertebrates upstream and downstream of the plant site	Semiannually	Gamma isotopic analyses on each sample (edible portion only on fish)

** Sample locations are further described by the REMP.

Table 7.1 Radiological Environmental Monitoring Program Sample Collection and Analysis

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
4. INGESTION [Cont'd]			
c. Food Products	One sample of corn from any field that is irrigated by water into which liquid plant wastes have been discharged***	At time of harvest	Gamma isotopic analysis of edible portion of each sample
	One sample of broad leaf vegetation from highest D/Q garden and one sample from 10-20 miles	At time of harvest	I-131 analyses of edible portion of each sample

** Sample locations are further described by the REMP.
*** As determined by methods outlined in the ODCM.

Table 7.2 - Reporting Levels for Radioactivity Concentration in Environmental Samples

ANALYSIS	WATER (pCi/l)	AIRBORNE PARTICULATE OR GASES (pCi/m^3)	FISH (pCi/kg, wet)	MILK (pCi/l)	FOOD PRODUCTS (pCi/kg, wet)
H-3	20,000[(a)]				
Mn-54	1,000		30,000		
Fe-59	400		10,000		
Co-58	1,000		30,000		
Co-60	300		10,000		
Zn-65	300		20,000		
Zr-Nb-95	400[(b)]				
I-131	2[(a)]	0.9		3	100
Cs-134	30	10	1,000	60	1,000
Cs-137	50	20	2,000	70	2,000
Ba-La-140	200[(b)]			300[(b)]	

(a) Drinking water pathway level.

(b) Total for parent and daughter.

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table 7.3 - Detection Capabilities for Environmental Sample Analysis Lower Limit of Detection (LLD)[a]

ANALYSIS	WATER (pCi/l)	AIRBORN PARTICULATE OR GASES (PcI/M^3)	FISH (pCi/kg, wet)	MILK (pCi/l)	FOOD PRODUCTS (pCi/kg, wet)	SEDIMENT (pCi/kg, dry)
Gross Beta	4	0.01				
H-3	2,000[b]					
Mn-54	15		130			
Fe-9	30		260			
Co-58, 60	15		130			
Zm-65	30		260			
Zr-Nb-95	15 [c]					
1-131[d]	1[b]	0.07		1	60	
Cs-134	15	0.05	130	15	60	150
Cs-137	18	0.06	150	18	80	180
Ba-La-140	15[c]			15[c]		

Table 7.3 - Table Notation

a - The LLD is the smallest concentration of radioactive material in a sample that will be detected with 95% probability with 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{4.66 s_b}{E.V.2.22.Y.\exp(-\lambda \Lambda\tau)}$$

Where:

LLD is the apriori lower limit of detection as defined above (as picocurie per unit mass or volume), s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute). In calculating the LLD for a radionuclide determined by gamma-ray spectrometry, the background **SHALL** include the typical contributing of other radionuclides normally present in the samples (e.g., potassium-40 in milk samples). Typical values of E, V, Y and Δt **SHALL** be used in the calculations.

E is the counting efficiency (as counts per transformation),

2.22 is the number of transformation per minute per picocurie,

Y is the fractional radiochemical yield (when applicable),

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

$\Delta\tau$ is the elapsed time between sample collection (or end of the sample collection period) and time of counting.

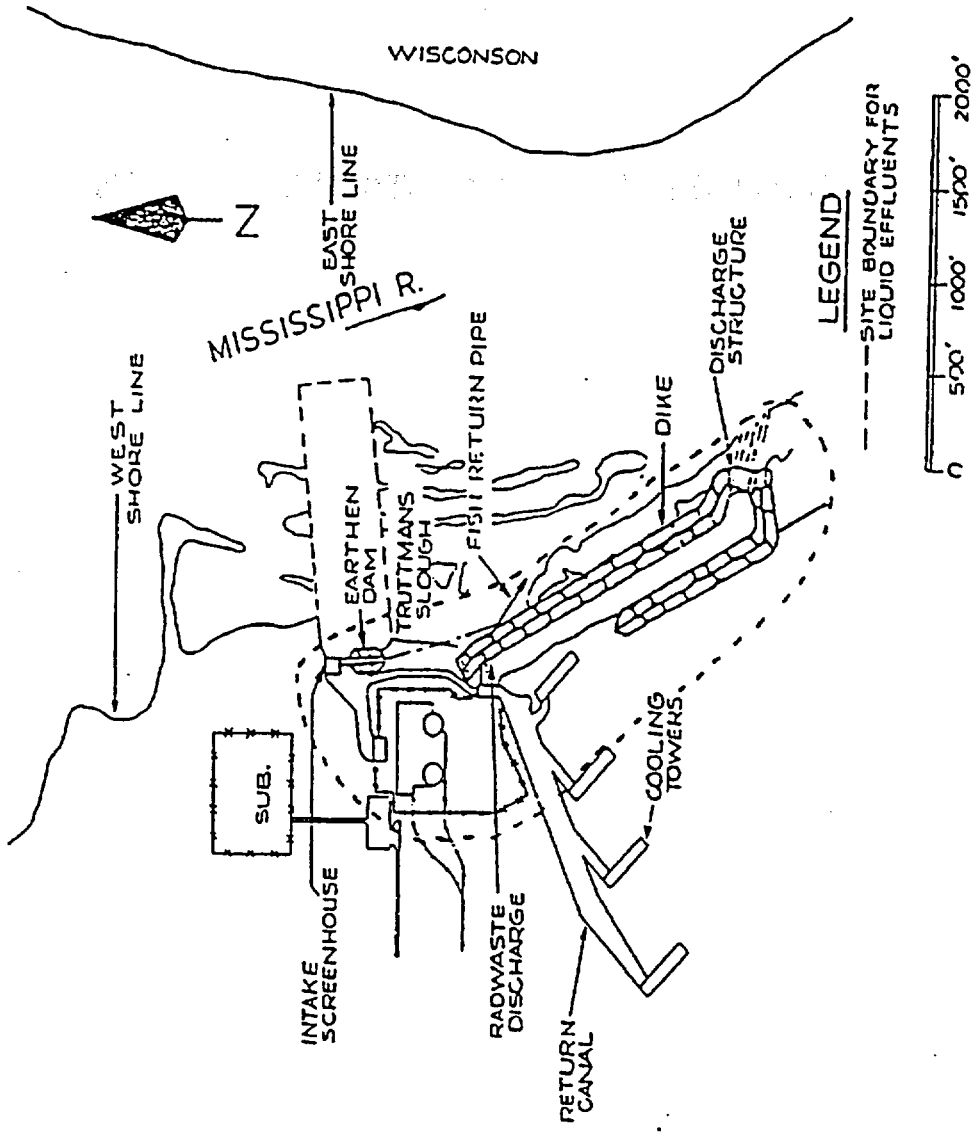
b - Drinking water pathway limit.

c - Total for parent and daughter

d - These LLDs apply only where "^{131}I analysis" is specified.

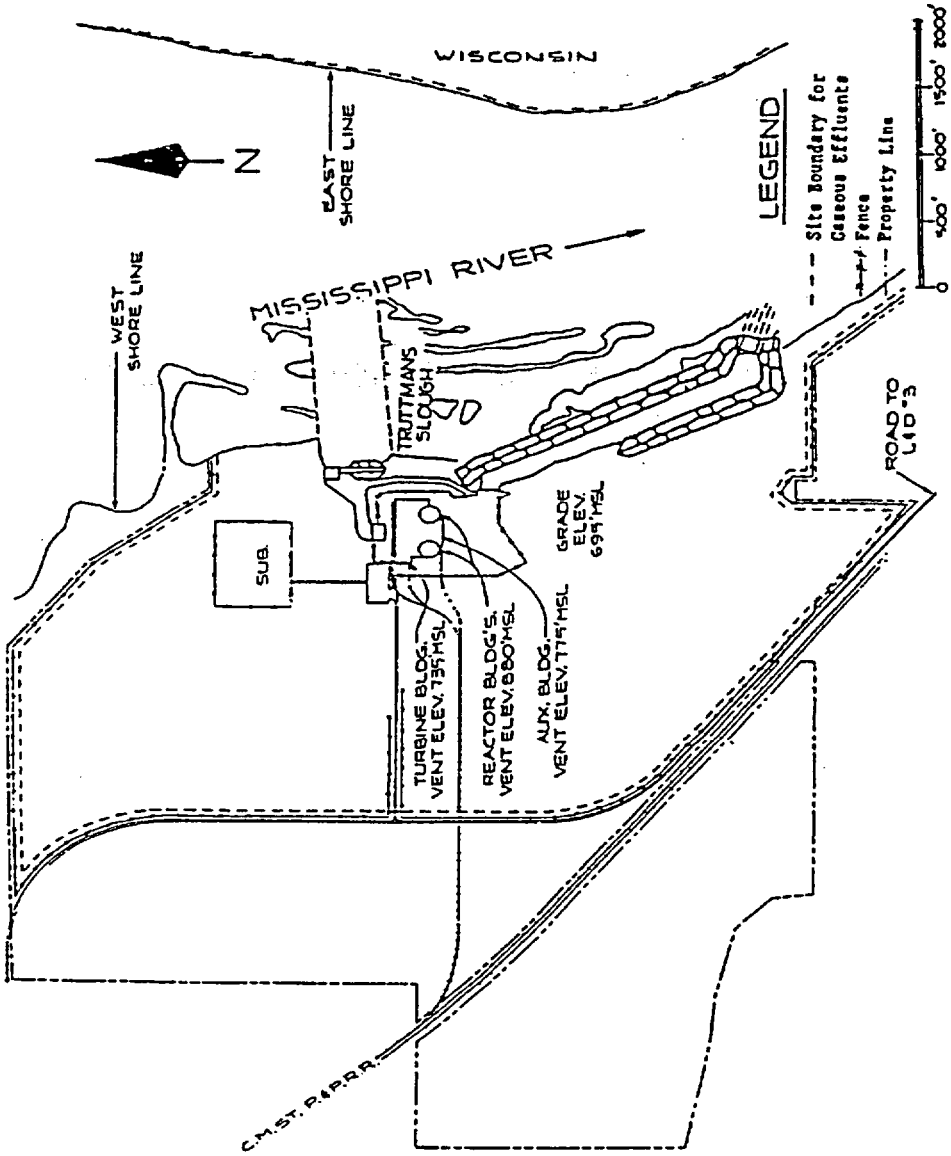
e - Where "Gamma Isotopic Analysis" is specified, the LLD specification applies to the following radionuclides: ^{54}Mn, ^{59}Fe, ^{58}Co, ^{60}Co, ^{65}Zn, ^{95}Zr-Nb, ^{137}Cs, ^{134}Cs, and ^{140}Ba-La. Other peaks which are measurable and identifiable, together with the above nuclides, **SHALL** also be identified and reported.

Figure 3.1 - Prairie Island Nuclear Generating Plant Site Boundary For Liquid Effluents



THIS PAGE IS LEFT INTENTIONALLY BLANK

Figure 3.2 - Prairie Island Nuclear Generating Plant Site Boundary For Gaseous Effluents



THIS PAGE IS LEFT INTENTIONALLY BLANK

Appendix A Meteorological Analyses

Table A-1	Release Conditions
Table A-2	Distance to Site Boundary
Table A-3	Long Term - Ground Level - Site Boundary - χ/Q and D/Q
Table A-4	Long Term - Ground Level - Standard Distances - χ/Q
Table A-5	Long Term - Ground Level - Standard Distances - D/Q
Table A-6	Short Term - Ground Level - Site Boundary - χ/q and D/q
Table A-7	Short Term - Ground Level - Standard Distances - χ/q
Table A-8	Short Term - Ground Level - Standard Distances - D/q

THIS PAGE IS LEFT INTENTIONALLY BLANK

Appendix A

Summary of Dispersion Calculational Procedures

Undepleted, undecayed dispersion parameters were computed using the computer program XOQDOQ (Sagendorf and Goll, 1977). Specifically, sector average χ/Q and D/Q values were obtained for a sector width of 22.5 degrees. Building wake corrections were used to adjust calculations for ground-level releases. Standard open terrain recirculation correction factors were also applied as available as default values in XOQDOQ.

Dispersion calculations were based on ground level releases for the shield buildings, turbine buildings, and auxiliary building (hereafter referred to as the plant complex). A summary of release conditions used as input to XOQDOQ is presented in Table A-1 and controlling site boundary distances are defined in Table A-2. Computed χ/Q and D/Q values for site boundary locations (relative to release points) and for standard distances (to five miles from the source in 0.1mile increments) are presented in Tables A-3 through A-8.

Onsite meteorological data for the period April 1, 1977 through March 31, 1978 (as presented in Appendix B) were used as input to XOQDOQ. Data were collected and ΔT stability classes were defined in conformance with NRC Regulatory Guide 1.23. DIspersion calculations for the plant complex were based on ΔT 42.7-12.2m and 12.2 meter wind data (joint data recovery of 96 percent).

REFERENCES

1. Sagendorf, J.F. and Goll, J.T., XOQDOQ Program for the Evaluation of Routine Effluent Releases at Nuclear Power Stations, NUREG-0324, U.S. Nuclear Regulatory Commission, September 1977.

Table A-1 - Prairie Island Release Conditions

	Shield Buildings	Auxiliary Building	Turbine Building
Type Release	**Ground Level (Long Term and Short Term)**	**Ground Level (Long Term)**	**Ground Level (Long Term)**
Release Point Height (m)	56.4	24.4	33.6, 12.2
Adjacent Building Height	62.2	62.2*	62.2*
Relative Location to Adjacent Structures	Adjacent to Auxiliary Building	Adjacent to Auxiliary Building	Adjacent to Auxiliary Building
Exit Velocity (m/sec)	N.A.	N.A.	N.A.
Internal Stack Diameter (m)	N.A.	N.A.	N.A.
Building Cross-Sectional Area (m^2)	2,170	2,170**	2,170**
Purge Frequency *** (times/yr)	20	N.A.	N.A.
Purge Duration*** (hours/release)	5	N.A.	N.A.

* Height of Shield Buildings
** Shield Building cross-sectional area
*** Applied to short-term calculations only

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table A-2 Distances (Miles) to Controlling Site Boundary Locations

As Measured from Edge of Plant Complex

Sector	Distance
N	0.28
NNE	0.26
NE	0.84*
ENE	0.62*
E	0.59*
ESE	0.61*
SE	0.67
SSE	0.43
S	0.43
SSW	0.40
SW	0.40
WSW	0.37
W	0.36
WNW	0.36
NW	0.43
NNW	0.48

*Over-water distances

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table A-3 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Site Boundary Locations (identified in Table A-2)

Site Boundary Sector	χ/Q (sec/m^3)	D/Q (1/m^2)
N	1.82E-05	1.18E-07
NNE	1.52E-05	8.55E-08
NE	1.83E-06	7.74E-09
ENE	3.25E-06	1.84E-08
E	1.05E-05	4.23E-08
ESE	1.86E-05	7.30E-08
SE	1.67E-05	6.80E-08
SSE	1.95E-05	6.81E-08
S	8.12E-06	3.19E-08
SSW	7.08E-06	2.55E-08
SW	7.66E-06	2.77E-08
WSW	1.13E-05	3.53E-08
W	2.66E-05	7.63E-08
WNW	3.38E-05	1.42E-07
NW	2.13E-05	9.02E-08
NNW	1.11E-05	5.43E-08

Period of Record: 4/1/77 - 3/31/78

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table A-4 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/Q), SEC/M^3, for Long Term Ground Level Releases > 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)

Miles

Sector	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	1.20E-04	3.44E-05	1.66E-05	1.02E-05	7.04E-06	5.29E-06	4.13E-06
NNE	8.53E-05	2.44E-05	1.18E-05	7.20E-06	4.93E-06	3.67E-06	2.83E-06
NE	8.18E-05	2.35E-05	1.14E-05	6.87E-06	4.69E-06	3.49E-06	2.69E-06
ENE	7.88E-05	2.26E-05	1.10E-05	6.70E-06	4.62E-06	3.46E-06	2.69E-06
E	2.40E-04	6.89E-05	3.34E-05	2.02E-05	1.38E-05	1.02E-05	7.88E-06
ESE	4.52E-04	1.30E-04	6.28E-05	3.80E-05	2.59E-05	1.92E-05	1.48E-05
SE	4.85E-04	1.39E-04	6.74E-05	4.07E-05	2.77E-05	2.04E-05	1.56E-05
SSE	2.59E-04	7.44E-05	3.60E-05	2.17E-05	1.48E-05	1.10E-05	8.44E-06
S	1.08E-04	3.09E-05	1.46E-05	9.06E-06	6.20E-06	4.62E-06	3.58E-06
SSW	8.60E-05	2.46E-05	1.19E-05	7.19E-06	4.91E-06	3.66E-06	2.83E-06
SW	9.19E-05	2.62E-05	1.26E-05	7.72E-06	5.31E-06	3.98E-06	3.09E-06
WSW	1.17E-04	3.35E-05	1.61E-05	9.80E-06	6.70E-06	4.97E-06	3.83E-06
W	2.64E-04	7.56E-05	3.66E-05	2.22E-05	1.51E-05	1.12E-05	8.61E-06
WNW	3.42E-04	9.80E-05	4.75E-05	2.88E-05	1.98E-05	1.47E-05	1.14E-05
NW	2.91E-04	8.35E-05	4.05E-05	2.46E-05	1.68E-05	1.25E-05	9.67E-06
NNW	1.76E-04	5.04E-05	2.45E-05	1.50E-05	1.03E-05	7.70E-06	5.99E-06

Period of Record: 4/1/77 - 3/31/78

Table A-4 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/Q), SEC/M^3, for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	3.18E-06	2.39E-06	1.87E-06	1.51E-06	1.24E-06	1.04E-06	8.80E-07
NNE	2.17E-06	1.62E-06	1.27E-06	1.02E-06	8.33E-07	6.95E-07	5.90E-07
NE	2.06E-06	1.54E-06	1.20E-06	9.60E-07	7.86E-07	6.56E-07	5.56E-07
ENE	2.07E-06	1.55E-06	1.21E-06	9.72E-07	7.98E-07	6.66E-07	5.65E-07
E	6.02E-06	4.51E-06	3.52E-06	2.82E-06	2.31E-06	1.93E-06	1.64E-06
ESE	1.13E-05	8.44E-06	6.58E-06	5.28E-06	4.33E-06	3.62E-06	3.07E-06
SE	1.19E-05	8.92E-06	6.96E-06	5.58E-06	4.58E-06	3.82E-06	3.25E-06
SSE	6.45E-06	4.82E-06	3.76E-06	3.01E-06	2.47E-06	2.06E-06	1.75E-06
S	2.74E-06	2.06E-06	1.61E-06	1.29E-06	1.06E-06	8.88E-07	7.54E-07
SSW	2.17E-06	1.63E-06	1.27E-06	1.02E-06	8.36E-07	6.99E-07	5.93E-07
SW	2.38E-06	1.78E-06	1.39E-06	1.12E-06	9.17E-07	7.66E-07	6.50E-07
WSW	2.93E-06	2.19E-06	1.71E-06	1.37E-06	1.12E-06	9.35E-07	7.93E-07
W	6.57E-06	4.91E-06	3.83E-06	3.07E-06	2.51E-06	2.10E-06	1.78E-06
WNW	8.77E-06	6.58E-06	5.14E-06	4.13E-06	3.39E-06	2.83E-06	2.41E-06
NW	7.40E-06	5.56E-06	4.35E-06	3.50E-06	2.88E-06	2.41E-06	2.05E-06
NNW	4.60E-06	3.46E-06	2.71E-06	2.18E-06	1.79E-06	1.50E-06	1.28E-06

Period of Record: 4/1/77 - 3/31/78

Table A-4 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/Q), SEC/M^3, for Long Term Ground Level Releases > 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)

Miles

Sector	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	7.57E-07	6.59E-07	5.79E-07	5.13E-07	4.59E-07	4.14E-07	3.76E-07
NNE	5.07E-07	4.41E-07	3.87E-07	3.43E-07	3.07E-07	2.77E-07	2.52E-07
NE	4.77E-07	4.15E-07	3.64E-07	3.23E-07	2.89E-07	2.61E-07	2.38E-07
ENE	4.86E-07	4.23E-07	3.71E-07	3.29E-07	2.94E-07	2.65E-07	2.41E-07
E	1.41E-06	1.23E-06	1.08E-06	9.55E-07	8.56E-07	7.75E-07	7.05E-06
ESE	2.64E-06	2.30E-06	2.02E-06	1.79E-06	1.61E-06	1.46E-06	1.32E-06
SE	2.79E-06	2.43E-06	2.14E-06	1.90E-06	1.70E-06	1.54E-06	1.40E-06
SSE	1.50E-06	1.31E-06	1.15E-06	1.02E-06	9.12E-07	8.25E-07	7.51E-07
S	6.49E-07	5.65E-07	4.97E-07	4.41E-07	3.95E-07	3.56E-07	3.24E-07
SSW	5.10E-07	4.44E-07	3.90E-07	3.46E-07	3.10E-07	2.80E-07	2.54E-07
SW	5.59E-07	4.87E-07	4.27E-07	3.79E-07	3.39E-07	3.06E-07	2.78E-07
WSW	6.82E-07	5.93E-07	5.21E-07	4.61E-07	4.13E-07	3.74E-07	3.40E-07
W	1.53E-06	1.33E-06	1.17E-06	1.04E-06	9.29E-07	8.40E-07	7.64E-07
WNW	2.07E-06	1.80E-06	1.59E-06	1.41E-06	1.26E-06	1.14E-06	1.03E-06
NW	1.76E-06	1.54E-06	1.35E-06	1.20E-06	1.08E-06	9.72E-06	8.83E-07
NNW	1.10E-06	9.59E-07	8.43E-07	7.47E-07	6.69E-07	6.04E-07	5.49E-07

Period of Record: 4/1/77 - 3/31/78

Table A-4 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/Q), SEC/M^3, for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	3.42E-07	3.14E-07	2.89E-07	2.67E-07	2.47E-07	2.30E-07	2.15E-07
NNE	2.30E-07	2.11E-07	1.94E-07	1.80E-07	1.67E-07	1.56E-07	1.45E-07
NE	2.17E-07	1.99E-07	1.84E-07	1.70E-07	1.58E-07	1.47E-07	1.38E-07
ENE	2.20E-07	2.01E-07	1.85E-07	1.71E-07	1.59E-07	1.48E-07	1.38E-07
E	6.44E-07	5.92E-07	5.46E-07	5.05E-07	4.70E-07	4.38E-07	4.09E-07
ESE	1.21E-06	1.11E-06	1.03E-06	9.51E-07	8.84E-07	8.25E-07	7.71E-07
SE	1.28E-06	1.18E-06	1.09E-06	1.01E-06	9.37E-07	8.74E-07	8.17E-07
SSE	6.86E-07	6.31E-07	5.82E-07	5.39E-07	5.01E-07	4.67E-07	4.37E-07
S	2.96E-07	2.71E-07	2.50E-07	2.31E-07	2.15E-07	2.00E-07	1.87E-07
SSW	2.32E-07	2.13E-07	1.96E-07	1.82E-07	1.69E-07	1.57E-07	1.47E-07
SW	2.53E-07	2.32E-07	2.14E-07	1.98E-07	1.83E-07	1.71E-07	1.59E-07
WSW	3.11E-07	2.85E-07	2.63E-07	2.43E-07	2.26E-07	2.11E-07	1.97E-07
W	6.99E-07	6.42E-07	5.93E-07	5.49E-07	5.10E-07	4.76E-07	4.45E-07
WNW	9.44E-07	8.67E-07	7.99E-07	7.39E-07	6.86E-07	6.39E-07	5.97E-07
NW	8.07E-07	7.41E-07	6.83E-07	6.32E-07	5.87E-07	5.47E-07	5.12E-07
NNW	5.01E-07	4.59E-07	4.23E-07	3.91E-07	3.63E-07	3.38E-07	3.15E-07

Period of Record: 4/1/77 - 3/31/78

Table A-4 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/Q), SEC/M^3, for Long Term Ground Level Releases > 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)

Miles

Sector	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	2.01E-07	1.88E-07	1.77E-07	1.67E-07	1.58E-07	1.49E-07	1.42E-07
NNE	1.36E-07	1.28E-07	1.20E-07	1.14E-07	1.07E-07	1.02E-07	9.65E-08
NE	1.29E-07	1.21E-07	1.14E-07	1.08E-07	1.02E-07	9.69E-08	9.20E-08
ENE	1.29E-07	1.21E-07	1.14E-07	1.07E-07	1.01E-07	9.60E-08	9.11E-08
E	3.84E-07	3.61E-07	3.40E-07	3.21E-07	3.04E-07	2.88E-07	2.74E-07
ESE	7.23E-07	6.80E-07	6.41E-07	6.05E-07	5.73E-07	5.43E-07	5.16E-07
SE	7.67E-07	7.21E-07	6.80E-07	6.42E-07	6.08E-07	5.77E-07	5.48E-07
SSE	4.10E-07	3.85E-07	3.63E-07	3.43E-07	3.24E-07	3.08E-07	2.92E-07
S	1.75E-07	1.64E-07	1.55E-07	1.46E-07	1.38E-07	1.31E-07	1.24E-07
SSW	1.38E-07	1.29E-07	1.22E-07	1.15E-07	1.09E-07	1.03E-07	9.77E-08
SW	1.49E-07	1.40E-07	1.32E-07	1.24E-07	1.17E-07	1.11E-07	1.05E-07
WSW	1.85E-07	1.74E-07	1.64E-07	1.54E-07	1.46E-07	1.39E-07	1.32E-07
W	4.17E-07	3.92E-07	3.70E-07	3.49E-07	3.30E-07	3.13E-07	2.98E-07
WNW	5.60E-07	5.26E-07	4.95E-07	4.67E-07	4.42E-07	4.19E-07	3.98E-07
NW	4.79E-07	4.50E-07	4.24E-07	4.00E-07	3.79E-07	3.59E-07	3.41E-07
NNW	2.95E-07	2.77E-07	2.61E-07	2.46E-07	2.32E-07	2.20E-07	2.09E-07

\Period of Record: 4/1/77 - 3/31/78

Table A-4 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/Q), SEC/M^3, for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	1.35E-07	1.28E-07	1.22E-07	1.16E-07	1.11E-07	1.07E-07	1.02E-07
NNE	9.18E-08	8.74E-08	8.34E-08	7.97E-08	7.62E-08	7.30E-08	7.00E-08
NE	8.75E-08	8.34E-08	7.96E-08	7.61E-08	7.28E-08	6.98E-08	6.70E-08
ENE	8.66E-08	8.24E-08	7.86E-08	7.50E-08	7.17E-08	6.86E-08	6.58E-08
E	2.60E-07	2.48E-07	2.37E-07	2.26E-07	2.17E-07	2.08E-07	1.99E-07
ESE	4.91E-07	4.68E-07	4.47E-07	4.27E-07	4.09E-07	3.92E-07	3.76E-07
SE	5.22E-07	4.97E-07	4.75E-07	4.54E-07	4.35E-07	4.17E-07	4.00E-07
SSE	2.78E-07	2.65E-07	2.53E-07	2.42E-07	2.32E-07	2.22E-07	2.13E-07
S	1.18E-07	1.12E-07	1.07E-07	1.02E-07	9.79E-08	9.38E-08	8.99E-08
SSW	9.29E-08	8.85E-08	8.44E-08	8.07E-08	7.72E-08	7.39E-08	7.09E-08
SW	1.00E-07	9.54E-08	9.10E-08	8.69E-08	8.31E-08	7.95E-08	7.62E-08
WSW	1.25E-07	1.19E-07	1.14E-07	1.09E-07	1.04E-07	9.98E-08	9.57E-08
W	2.83E-07	2.70E-07	2.58E-07	2.47E-07	2.36E-07	2.26E-07	2.17E-07
WNW	3.78E-07	3.60E-07	3.44E-07	3.28E-07	3.14E-07	3.01E-07	2.89E-07
NW	3.24E-07	3.09E-07	2.95E-07	2.82E-07	2.70E-07	2.58E-07	2.48E-07
NNW	1.99E-07	1.89E-07	1.80E-07	1.72E-07	1.65E-07	1.58E-07	1.51E-07

Period of Record: 4/1/77 - 3/31/78

Table A-4 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/Q), SEC/M^3, for Long Term Ground Level Releases > 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)

Miles

Sector	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
N	9.79E-08	9.41E-08	9.04E-08	8.71E-08	8.39E-08	8.09E-08	7.81E-08	7.54E-08
NNE	6.72E-08	6.46E-08	6.22E-08	5.99E-08	5.77E-08	5.57E-08	5.38E-08	5.20E-08
NE	6.43E-08	6.18E-08	5.95E-08	5.74E-08	5.53E-08	5.34E-08	5.16E-08	4.99E-08
ENE	6.31E-08	6.06E-08	5.83E-08	5.62E-08	5.41E-08	5.22E-08	5.04E-08	4.87E-08
E	1.91E-07	1.84E-07	1.77E-07	1.71E-07	1.65E-07	1.59E-07	1.54E-07	1.49E-07
ESE	3.62E-07	3.48E-07	3.35E-07	3.23E-07	3.11E-07	3.01E-07	2.91E-07	2.81E-07
SE	3.85E-07	3.70E-07	3.56E-07	3.44E-07	3.31E-07	3.20E-07	3.09E-07	2.99E-07
SSE	2.05E-07	1.97E-07	1.90E-07	1.83E-07	1.76E-07	1.70E-07	1.65E-07	1.59E-07
S	8.63E-08	8.30E-08	7.98E-08	7.69E-08	7.41E-08	7.15E-08	6.91E-08	6.68E-08
SSW	6.81E-08	6.55E-08	6.30E-08	6.07E-08	5.85E-08	5.65E-08	5.46E-08	5.27E-08
SW	7.32E-08	7.03E-08	6.76E-08	6.51E-08	6.28E-08	6.06E-08	5.85E-08	5.65E-08
WSW	9.19E-08	8.84E-08	8.51E-08	8.20E-08	7.91E-08	7.64E-08	7.38E-08	7.14E-08
W	2.09E-07	2.01E-07	1.93E-07	1.86E-07	1.80E-07	1.73E-07	1.68E-07	1.62E-07
WNW	2.77E-07	2.66E-07	2.56E-07	2.47E-07	2.38E-07	2.30E-07	2.22E-07	2.15E-07
NW	2.38E-07	2.29E-07	2.20E-07	2.12E-07	2.05E-07	1.97E-07	1.91E-07	1.84E-07
NNW	1.45E-07	1.39E-07	1.34E-07	1.29E-07	1.24E-07	1.20E-07	1.16E-07	1.12E-07

Period of Record: 4/1/77 - 3/31/78

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table A-5 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/Q), $1/m^2$, for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	5.38E-07	2.01E-07	1.09E-07	6.97E-08	4.87E-08	3.62E-08	2.81E-08
NNE	3.39E-07	1.27E-07	6.87E-08	4.39E-08	3.07-08	2.28E-08	1.77E-08
NE	2.21E-07	8.28E-08	4.49E-08	2.87E-08	2.01E-08	1.49E-08	1.16E-08
ENE	2.88E-07	1.08E-07	5.85E-08	3.73E-08	2.61E-08	1.94E-08	1.51E-08
E	6.15E-07	2.30E-07	1.25E-07	7.97E-08	5.57E-08	4.14E-08	3.22E-08
ESE	1.12E-06	4.19E-07	2.27E-07	1.45E-07	1.02E-07	7.54E-08	5.86E-08
SE	1.22E-06	4.55E-07	2.47E-07	1.58E-07	1.10E-07	8.19E-08	6.36E-08
SSE	5.81E-07	2.17E-07	1.18E-07	7.53E-08	5.27E-08	3.91E-08	3.04E-08
S	2.72E-07	1.02E-07	5.53E-08	3.53E-08	2.47E-08	1.83E-08	1.42E-08
SSW	2.00E-07	7.47E-08	4.06E-08	2.59E-08	1.81E-08	1.34E-08	1.04E-08
SW	2.16E-07	8.06E-08	4.38E-08	2.79E-08	1.95E-08	1.45E-08	1.13E-08
WSW	2.39E-07	8.93E-08	4.85E-08	3.09E-08	2.16E-08	1.61E-08	1.25E-08
W	5.00E-07	1.87E-07	1.01E-07	6.47E-08	4.53E-08	3.36E-08	2.61E-08
WNW	9.50E-07	3.55E-07	1.93E-07	1.23E-07	8.60E-08	6.39E-08	4.96E-08
NW	7.95E-07	2.97E-07	1.61E-07	1.03E-07	7.20E-08	5.35E-08	4.15E-08
NNW	5.54E-07	2.07E-07	1.12E-07	7.17E-08	5.02E-08	3.72E-08	2.89E-08

Period of Record: 4/1/77 - 3/31/78

Table A-5 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/Q), 1/m^2, for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	2.13E-08	1.56E-08	1.19E-08	9.32E-09	7.47E-09	6.10E-09	5.07E-09
NNE	1.34E-08	9.84E-09	7.49E-09	5.87E-09	4.70E-09	3.84E-09	3.19E-09
NE	8.76E-09	6.43E-09	4.90E-09	3.83E-09	3.07E-09	2.51E-09	2.09E-09
ENE	1.14E-08	8.37E-09	6.37E-09	4.99E-09	4.00E-09	3.27E-09	2.72E-09
E	2.43E-08	1.79E-08	1.36E-08	1.07E-08	8.54E-09	6.98E-09	5.80E-09
ESE	4.43E-08	3.26E-08	2.48E-08	1.94E-08	1.56E-08	1.27E-08	1.06E-08
SE	4.81E-08	3.54E-08	2.69E-08	2.11E-08	1.69E-08	1.38E-08	1.15E-08
SSE	2.30E-08	1.69E-08	1.29E-08	1.01E-08	8.07E-09	6.59E-09	5.48E-09
S	1.08E-08	7.92E-09	6.03E-09	4.72E-09	3.78E-09	3.09E-09	2.57E-09
SSW	7.91E-09	5.81E-09	4.42E-09	3.46E-09	2.77E-09	2.27E-09	1.88E-09
SW	8.53E-09	6.26E-09	4.77E-09	3.73E-09	2.99E-09	2.45E-09	2.03E-09
WSW	9.45E-09	6.94E-08	5.28E-09	4.14E-09	3.32E-09	2.71E-09	2.25E-09
W	1.98E-08	1.45E-08	1.10E-08	8.65E-09	6.93E-09	5.67E-09	4.71E-09
WNW	3.76E-08	2.76E-08	2.10E-08	1.64E-08	1.32E-08	1.08E-08	8.95E-09
NW	3.14E-08	2.31E-08	1.76E-08	1.38E-08	1.10E-08	9.02E-09	7.49E-09
NNW	2.19E-08	1.61E-08	1.22E-08	9.59E-09	7.68E-09	6.28E-09	5.22E-09

Period of Record: 4/1/77 - 3/31/78

Table A-5 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/Q), $1/m^2$, for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	4.27E-09	3.65E-09	3.14E-09	2.73E-09	2.40E-09	2.12E-09	1.89E-09
NNE	2.69E-09	2.30E-09	1.98E-09	1.72E-09	1.51E-09	1.33E-09	1.19E-09
NE	1.76E-09	1.50E-09	1.29E-09	1.13E-09	9.87E-10	8.72E-10	7.76E-10
ENE	2.29E-09	1.95E-09	1.68E-09	1.46E-09	1.28E-09	1.14E-09	1.01E-09
E	4.88E-09	4.17E-09	3.59E-09	3.13E-09	2.74E-09	2.42E-09	2.16E-09
ESE	8.90E-09	7.59E-09	6.54E-09	5.69E-09	4.99E-09	4.41E-09	3.93E-09
SE	9.66E-09	8.25E-09	7.11E-09	6.18E-09	5.43E-09	4.79E-09	4.27E-09
SSE	4.61E-09	3.94E-09	3.39E-09	2.95E-09	2.59E-09	2.29E-09	2.04E-09
S	2.16E-09	1.85E-09	1.59E-09	1.38E-09	1.21E-09	1.07E-09	9.55E-10
SSW	1.59E-09	1.35E-09	1.17E-09	1.02E-09	8.91E-10	7.87E-10	7.00E-10
SW	1.71E-09	1.46E-09	1.26E-09	1.10E-09	9.61E-10	8.49E-10	7.56E-10
WSW	1.90E-09	1.62E-09	1.40E-09	1.21E-09	1.06E-09	9.41E-10	8.37E-10
W	3.97E-09	3.39E-09	2.92E-09	2.54E-09	2.23E-09	1.97E-09	1.75E-09
WNW	7.54E-09	6.44E-09	5.55E-09	4.83E-09	4.23E-09	3.74E-09	3.33E-09
NW	6.31E-09	5.39E-09	4.64E-09	4.04E-09	3.54E-09	3.13E-09	2.79E-09
NNW	4.40E-09	3.75E-09	3.23E-09	2.81E-09	2.47E-09	2.18E-09	1.94E-09

Period of Record: 4/1/77 - 3/31/78

Table A-5 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/Q), 1/m^2, for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	1.69E-09	1.52E-09	1.37E-09	1.25E-09	1.14E-09	1.04E-09	9.58E-10
NNE	1.06E-09	9.56E-10	8.65E-10	7.86E-10	7.17E-10	6.57E-10	6.03E-10
NE	6.95E-10	6.25E-10	5.65E-10	5.13E-10	4.69E-10	4.29E-10	3.94E-10
ENE	9.40E-10	8.14E-10	7.36E-10	6.68E-10	6.10E-10	5.59E-10	5.13E-10
E	1.93E-09	1.74E-09	1.57E-09	1.43E-09	1.30E-09	1.19E-09	1.10E-09
ESE	3.51E-09	3.16E-09	2.86E-09	2.60E-09	2.37E-09	2.17E-09	2.00E-09
SE	3.82E-09	3.44E-09	3.11E-09	2.82E-09	2.58E-09	2.36E-09	2.17E-09
SSE	1.82E-09	1.64E-09	1.48E-09	1.35E-09	1.23E-09	1.13E-09	1.04E-09
S	8.55E-10	7.69E-10	6.95E-10	6.32E-10	5.77E-10	5.28E-10	4.85E-10
SSW	6.27E-10	5.64E-10	5.10E-10	4.63E-10	4.23E-10	3.87E-10	3.56E-10
SW	6.76E-10	6.09E-10	5.50E-10	5.00E-10	4.56E-10	4.18E-10	3.84E-10
WSW	7.49E-10	6.74E-10	6.10E-10	5.54E-10	5.06E-10	4.63E-10	4.26E-10
W	1.57E-09	1.41E-09	1.28E-09	1.16E-09	1.06E-09	9.68E-10	8.90E-10
WNW	2.98E-09	2.68E-09	2.42E-09	2.20E-09	2.01E-09	1.84E-09	1.69E-09
NW	2.49E-09	2.24E-09	2.03E-09	1.84E-09	1.68E-09	1.54E-09	1.42E-09
NNW	1.74E-09	1.56E-09	1.41E-09	1.28E-09	1.17E-09	1.07E-09	9.86E-10

Period of Record: 4/1/77 - 3/31/78

Table A-5 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/Q), $1/m^2$, for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	8.84E-10	8.17E-10	7.58E-10	7.05E-10	6.57E-10	6.14E-10	5.75E-10
NNE	5.56E-10	5.15E-10	4.77E-10	4.44E-10	4.14E-10	3.87E-10	3.62E-10
NE	3.64E-10	3.36E-10	3.12E-10	2.90E-10	2.70E-10	2.53E-10	2.37E-10
ENE	4.73E-10	4.38E-10	4.06E-10	3.78E-10	3.52E-10	3.29E-10	3.08E-10
E	1.01E-09	9.34E-10	8.67E-10	8.06E-10	7.51E-10	7.02E-10	6.57E-10
ESE	1.84E-09	1.70E-09	1.58E-09	1.47E-09	1.37E-09	1.28E-09	1.20E-09
SE	2.00E-09	1.85E-09	1.71E-09	1.59E-09	1.49E-09	1.39E-09	1.30E-09
SSE	9.55E-10	8.83E-10	8.19E-10	7.61E-10	7.10E-10	6.63E-10	6.21E-10
S	4.47E-10	4.14E-10	3.84E-10	3.57E-10	3.33E-10	3.11E-10	2.91E-10
SSW	3.28E-10	3.04E-10	2.82E-10	2.62E-10	2.44E-10	2.28E-10	2.14E-10
SW	3.54E-10	3.27E-10	3.04E-10	2.82E-10	2.63E-10	2.46E-10	2.30E-10
WSW	3.92E-10	3.63E-10	3.37E-10	3.13E-10	2.92E-10	2.73E-10	2.55E-10
W	8.20E-10	7.59E-10	7.04E-10	6.54E-10	6.10E-10	5.70E-10	5.34E-10
WNW	1.56E-09	1.44E-09	1.34E-09	1.24E-09	1.16E-09	1.08E-09	1.01E-09
NW	1.31E-09	1.21E-09	1.12E-09	1.04E-09	9.71E-10	9.07E-10	8.49E-10
NNW	9.09E-10	8.41E-10	7.80E-10	7.25E-10	6.76E-10	6.32E-10	5.92E-10

Period of Record: 4/1/77 - 3/31/78

Table A-5 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/Q), 1/m^2, for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	5.40E-10	5.07E-10	4.78E-10	4.51E-10	4.26E-10	4.03E-10	3.82E-10
NNE	3.40E-10	3.19E-10	3.01E-10	2.84E-10	2.68E-10	2.54E-10	2.41E-10
NE	2.22E-10	2.09E-10	1.97E-10	1.86E-10	1.75E-10	1.66E-10	1.57E-10
ENE	2.89E-10	2.72E-10	2.56E-10	2.42E-10	2.28E-10	2.16E-10	2.05E-10
E	6.17E-10	5.80E-10	5.46E-10	5.16E-10	4.87E-10	4.61E-10	4.37E-10
ESE	1.12E-09	1.06E-09	9.95E-10	9.39E-10	8.87E-10	8.40E-10	7.96E-10
SE	1.22E-09	1.15E-09	1.08E-09	1.02E-09	9.64E-10	9.12E-10	8.65E-10
SSE	5.83E-10	5.48E-10	5.16E-10	4.87E-10	4.60E-10	4.36E-10	4.13E-10
S	2.73E-10	2.57E-10	2.42E-10	2.28E-10	2.16E-10	2.04E-10	1.94E-10
SSW	2.00E-10	1.88E-10	1.78E-10	1.67E-10	1.58E-10	1.50E-10	1.42E-10
SW	2.16E-10	2.03E-10	1.92E-10	1.81E-10	1.71E-10	1.62E-10	1.53E-10
WSW	2.40E-10	2.25E-10	2.12E-10	2.00E-10	1.89E-10	1.79E-10	1.70E-10
W	5.01E-10	4.71E-10	4.44E-10	4.19E-10	3.96E-10	3.75E-10	3.55E-10
WNW	9.53E-10	8.96E-10	8.44E-10	7.96E-10	7.52E-10	7.12E-10	6.75E-10
NW	7.97E-10	7.50E-10	7.06E-10	6.66E-10	6.29E-10	5.96E-10	5.65E-10
NNW	5.55E-10	5.22E-10	4.92E-10	4.64E-10	4.38E-10	4.15E-10	3.93E-10

Period of Record: 4/1/77 - 3/31/78

Table A-5 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/Q), $1/m^2$, for Long Term Ground Level Releases
> 500 Hrs/Yr or > 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0
N	3.63E-10	3.45E-10	3.28E-10	3.13E-10	2.99E-10	2.85E-10	2.73E-10	2.61E-10
NNE	2.29E-10	2.17E-10	2.07E-10	1.97E-10	1.88E-10	1.80E-10	1.72E-10	1.64E-10
NE	1.49E-10	1.42E-10	1.35E-10	1.29E-10	1.23E-10	1.17E-10	1.12E-10	1.07E-10
ENE	1.94E-10	1.85E-10	1.76E-10	1.68E-10	1.60E-10	1.53E-10	1.46E-10	1.40E-10
E	4.15E-10	3.94E-10	3.75E-10	3.58E-10	3.41E-10	3.26E-10	3.12E-10	2.98E-10
ESE	7.56E-10	7.18E-10	6.84E-10	6.52E-10	6.22E-10	5.94E-10	5.68E-10	5.43E-10
SE	8.21E-10	7.80E-10	7.45E-10	7.08E-10	6.75E-10	6.45E-10	6.17E-10	5.90E-10
SSE	3.92E-10	3.73E-10	3.55E-10	3.38E-10	3.23E-10	3.08E-10	2.94E-10	2.82E-10
S	1.84E-10	1.75E-10	1.66E-10	1.58E-10	1.51E-10	1.44E-10	1.38E-10	1.32E-10
SSW	1.35E-10	1.28E-10	1.22E-10	1.16E-10	1.11E-10	1.06E-10	1.01E-10	9.69E-11
SW	1.45E-10	1.38E-10	1.32E-10	1.25E-10	1.20E-10	1.14E-10	1.09E-10	1.05E-10
WSW	1.61E-10	1.53E-10	1.46E-10	1.39E-10	1.33E-10	1.27E-10	1.21E-10	1.16E-10
W	3.37E-10	3.20E-10	3.05E-10	2.91E-10	2.77E-10	2.65E-10	2.53E-10	2.42E-10
WNW	6.41E-10	6.09E-10	5.80E-10	5.52E-10	5.27E-10	5.03E-10	4.81E-10	4.61E-10
NW	5.36E-10	5.10E-10	4.85E-10	4.62E-10	4.41E-10	4.21E-10	4.03E-10	3.85E-10
NNW	3.75E-10	3.55E-10	3.38E-10	3.22E-10	3.07E-10	2.93E-10	2.80E-10	2.68E-10

Period of Record: 4/1/77 - 3/31/78

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table A-6 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters for Short Term Ground Level Releases
≤ 500 Hrs/Yr or ≤ 150 Hrs/QTR for Site Boundary Locations (identified in Table A-2)

Site Boundary Sector Sector	χ/q (sec/m^3)	D/q (1/m^2)
N	7.09E-05	4.60E-07
NNE	7.32E-05	4.11E-07
NE	1.60E-05	6.77E-08
ENE	1.97E-05	1.11E-07
E	4.92E-05	1.99E-07
ESE	6.40E-05	2.52E-07
SE	5.98E-05	2.43E-07
SSE	8.79E-05	3.08E-07
S	5.18E-05	2.04E-07
SSW	5.26E-05	1.89E-07
SW	5.25E-05	1.90E-07
WSW	7.83E-05	2.44E-07
W	1.32E-04	3.78E-07
WNW	1.10E-04	4.61E-07
NW	7.67E-05	3.25E-07
NNW	4.79E-05	2.34E-07

Period of Record: 4/1/77 - 3/31/78

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table A-7 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/q), sec/m^3, for Short Term Ground Level Releases
$\leq$ 500 Hrs/Yr or $\leq$ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	3.76E-04	1.13E-04	6.59E-05	4.39E-05	3.15E-05	2.47E-05	1.90E-05
NNE	3.35E-04	1.05E-04	5.94E-05	3.93E-05	2.77E-05	2.19E-05	1.65E-05
NE	4.38E-04	1.33E-04	7.71E-05	4.94E-05	3.39E-05	2.68E-05	2.12E-05
ENE	3.27E-04	1.02E-04	5.93E-05	4.01E-05	2.80E-05	2.19E-05	1.69E-05
E	8.12E-04	2.43E-04	1.39E-04	8.80E-05	6.16E-05	4.84E-05	3.78E-05
ESE	1.17E-03	3.52E-04	1.98E-04	1.27E-04	8.80E-05	6.84E-05	5.32E-05
SE	1.27E-03	3.85E-04	2.06E-04	1.31E-04	9.32E-05	7.34E-05	5.67E-05
SSE	5.30E-04	2.82E-04	1.57E-04	9.85E-05	6.75E-05	5.39E-05	4.30E-05
S	5.01E-04	1.57E-04	8.75E-05	5.74E-05	3.97E-05	3.11E-05	2.51E-05
SSW	4.54E-04	1.43E-04	8.26E-05	5.34E-05	3.60E-05	2.85E-05	2.31E-05
SW	4.46E-04	1.44E-04	8.25E-05	5.30E-05	3.58E-05	2.85E-05	2.35E-05
WSW	6.10E-04	1.95E-04	1.08E-04	6.78E-05	4.59E-05	3.67E-05	3.05E-05
W	1.00E-03	3.10E-04	1.74E-04	1.10E-04	7.59E-05	6.07E-05	4.89E-05
WNW	8.70E-04	2.65E-04	1.50E-04	9.70E-05	6.86E-05	5.33E-05	4.17E-05
NW	8.41E-04	2.50E-04	1.38E-04	8.89E-05	6.37E-05	4.97E-05	3.84E-05
NNW	5.69E-04	1.71E-04	9.73E-05	6.28E-05	4.54E-05	3.55E-05	2.78E-05

Period of Record: 4/1/77 - 3/31/78

Table A-7 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/q), sec/m^3, for Short Term Ground Level Releases
$\leq$ 500 Hrs/Yr or $\leq$ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	1.57E-05	1.26E-05	1.06E-05	8.97E-06	7.73E-06	6.76E-06	5.91E-06
NNE	1.35E-05	1.11E-05	9.26E-06	7.87E-06	6.81E-06	5.96E-06	5.27E-06
NE	1.74E-05	1.44E-05	1.21E-05	1.02E-05	8.57E-06	7.50E-06	6.63E-06
ENE	1.39E-05	1.14E-05	9.46E-06	8.04E-06	6.83E-06	5.97E-06	5.27E-06
E	3.11E-05	2.51E-05	2.11E-05	1.80E-05	1.53E-05	1.33E-05	1.18E-05
ESE	4.35E-05	3.58E-05	2.98E-05	2.54E-05	2.19E-05	1.91E-05	1.71E-05
SE	4.65E-05	3.79E-05	3.18E-05	2.71E-05	2.32E-05	2.03E-05	1.81E-05
SSE	3.53E-05	2.87E-05	2.41E-05	2.05E-05	1.72E-05	1.51E-05	1.35E-05
S	2.05E-05	1.66E-05	1.38E-05	1.17E-05	1.01E-05	8.83E-06	7.81E-06
SSW	1.89E-05	1.54E-05	1.29E-05	1.10E-05	9.05E-06	7.93E-06	7.02E-06
SW	1.95E-05	1.54E-05	1.30E-05	1.12E-05	9.19E-06	8.05E-06	7.21E-06
WSW	2.51E-05	2.05E-05	1.72E-05	1.47E-05	1.21E-05	1.06E-05	9.41E-06
W	4.01E-05	3.24E-05	2.70E-05	2.30E-05	1.89E-05	1.65E-05	1.46E-05
WNW	3.44E-05	2.75E-05	2.31E-05	1.96E-05	1.68E-05	1.48E-05	1.31E-05
NW	3.15E-05	2.57E-05	2.17E-05	1.85E-05	1.60E-05	1.40E-05	1.24E-05
NNW	2.28E-05	1.86E-05	1.54E-05	1.31E-05	1.12E-05	9.85E-06	8.82E-06

Period of Record: 4/1/77 - 3/31/78

Table A-7 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/q), sec/m^3, for Short Term Ground Level Releases
$\leq$ 500 Hrs/Yr or $\leq$ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	5.27E-06	4.74E-06	4.30E-06	3.91E-06	3.59E-06	3.32E-06	3.07E-06
NNE	4.70E-06	4.22E-06	3.82E-06	3.47E-06	3.18E-06	2.97E-06	2.75E-06
NE	5.89E-06	5.30E-06	4.80E-06	4.37E-06	4.01E-06	3.69E-06	3.42E-06
ENE	4.67E-06	4.21E-06	3.80E-06	3.45E-06	3.16E-06	2.91E-06	2.70E-06
E	1.06E-05	9.52E-06	8.66E-06	7.90E-06	7.25E-06	6.74E-06	6.25E-06
ESE	1.52E-05	1.38E-05	1.25E-05	1.13E-05	1.04E-05	9.72E-06	9.03E-06
SE	1.62E-05	1.46E-05	1.33E-05	1.21E-05	1.11E-05	1.03E-05	9.59E-06
SSE	1.20E-05	1.09E-05	9.84E-06	8.96E-06	8.23E-06	7.58E-06	7.04E-06
S	6.97E-06	6.27E-06	5.68E-06	5.18E-06	4.75E-06	4.36E-06	4.04E-06
SSW	6.28E-06	5.66E-06	5.14E-06	4.69E-06	4.31E-06	3.92E-06	3.64E-06
SW	8.43E-06	5.78E-06	5.24E-06	4.77E-06	4.37E-06	3.90E-06	3.62E-06
WSW	8.41E-06	7.58E-06	6.87E-06	6.27E-06	5.77E-06	5.17E-06	4.80E-06
W	1.30E-05	1.17E-05	1.06E-05	9.62E-06	8.83E-06	8.33E-06	7.73E-06
WNW	1.17E-05	1.05E-05	9.65E-06	8.80E-06	8.08E-06	7.42E-06	6.89E-06
NW	1.11E-05	1.00E-05	9.09E-06	8.30E-06	7.63E-06	7.13E-06	6.62E-06
NNW	7.89E-06	7.11E-06	6.47E-06	5.89E-06	5.41E-06	5.01E-06	4.64E-06

Period of Record: 4/1/77 - 3/31/78

Table A-7 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/q), sec/m^3, for Short Term Ground Level Releases
$\leq$ 500 Hrs/Yr or $\leq$ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)

Miles

Sector	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	2.87E-06	2.67E-06	2.50E-06	2.32E-06	2.27E-06	1.94E-06	1.84E-06
NNE	2.56E-06	2.39E-06	2.24E-06	2.09E-06	2.03E-06	1.76E-06	1.66E-06
NE	3.19E-06	2.98E-06	2.79E-06	2.63E-06	2.57E-06	2.24E-06	2.11E-06
ENE	2.51E-06	2.34E-06	2.19E-06	2.05E-06	1.97E-06	1.74E-06	1.64E-06
E	5.82E-06	5.44E-06	5.10E-06	4.89E-06	4.75E-06	4.14E-06	3.92E-06
ESE	8.41E-06	7.87E-06	7.38E-06	7.16E-05	7.09E-06	6.11E-06	5.78E-06
SE	8.93E-06	8.35E-06	7.82E-06	7.70E-05	7.60E-06	6.62E-06	6.26E-06
SSE	6.56E-06	6.14E-06	5.76E-06	5.55E-06	5.36E-06	4.73E-06	4.47E-06
S	3.76E-06	3.51E-06	3.29E-06	3.18E-06	3.06E-06	2.73E-06	2.59E-06
SSW	3.39E-06	3.16E-06	2.96E-06	2.89E-06	2.75E-06	2.42E-06	2.28E-06
SW	3.37E-06	3.15E-06	2.95E-06	2.84E-06	2.70E-06	2.44E-06	2.30E-06
WSW	4.47E-06	4.18E-06	3.92E-06	3.85E-06	3.67E-06	3.28E-06	3.10E-06
W	7.21E-06	6.74E-06	6.32E-06	6.45E-06	6.03E-06	5.30E-06	5.02E-06
WNW	6.42E-06	6.00E-06	5.65E-06	5.32E-06	5.23E-06	4.55E-06	4.30E-06
NW	6.16E-06	5.76E-06	5.40E-06	5.16E-06	5.03E-06	4.37E-06	4.13E-06
NNW	4.31E-06	4.02E-06	3.76E-06	3.57E-06	3.46E-06	3.00E-06	2.83E-06

Period of Record: 4/1/77 - 3/31/78

Table A-7 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/q), sec/m^3, for Short Term Ground Level Releases
$\leq$ 500 Hrs/Yr or $\leq$ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	1.74E-06	1.66E-06	1.58E-06	1.50E-06	1.43E-06	1.37E-06	1.31E-06
NNE	1.57E-06	1.50E-06	1.43E-06	1.36E-06	1.30E-06	1.24E-06	1.19E-06
NE	2.00E-06	1.90E-06	1.81E-06	1.73E-06	1.65E-06	1.58E-06	1.51E-06
ENE	1.55E-06	1.48E-06	1.40E-06	1.33E-06	1.27E-06	1.21E-06	1.16E-06
E	3.71E-06	3.51E-06	3.34E-06	3.19E-06	3.04E-06	2.91E-06	2.79E-06
ESE	5.48E-06	5.18E-06	4.93E-06	4.70E-05	4.49E-06	4.29E-06	4.11E-06
SE5	5.93E-06	5.63E-06	5.36E-06	5.11E-05	4.87E-06	4.66E-06	4.46E-06
SSE	4.24E-06	3.97E-06	3.78E-06	3.60E-06	3.44E-06	3.29E-06	3.15E-06
S	2.45E-06	2.25E-06	2.14E-06	2.04E-06	1.94E-06	1.85E-06	1.77E-06
SSW	2.16E-06	1.96E-06	1.87E-06	1.78E-06	1.70E-06	1.63E-06	1.56E-06
SW	2.18E-06	2.03E-06	1.93E-06	1.84E-06	1.75E-06	1.67E-06	1.60E-06
WSW	2.94E-06	2.70E-06	2.57E-06	2.45E-06	2.34E-06	2.24E-06	2.14E-06
W	4.76E-06	4.34E-06	4.13E-06	3.95E-06	3.77E-06	3.61E-06	3.47E-06
WNW	4.07E-06	3.86E-06	3.67E-06	3.50E-06	3.34E-06	3.20E-06	3.06E-06
NW	3.92E-06	3.69E-06	3.51E-06	3.35E-06	3.20E-06	3.06E-06	2.94E-06
NNW	2.68E-06	2.53E-06	2.40E-06	2.28E-06	2.18E-06	2.08E-06	1.99E-06

Period of Record: 4/1/77 - 3/31/78

Table A-7 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/q), sec/m^3, for Short Term Ground Level Releases
$\leq$ 500 Hrs/Yr or $\leq$ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	1.25E-06	1.20E-06	1.15E-06	1.10E-06	1.06E-06	1.02E-06	9.88E-07
NNE	1.14E-06	1.09E-06	1.05E-06	1.01E-06	9.73E-07	9.37E-07	9.04E-07
NE	1.45E-06	1.39E-06	1.34E-06	1.29E-06	1.24E-06	1.20E-06	1.16E-06
ENE	1.11E-06	1.07E-06	1.02E-06	9.83E-07	9.46E-07	9.11E-07	8.79E-07
E	2.67E-06	2.57E-06	2.47E-06	2.38E-06	2.29E-06	2.21E-06	2.13E-06
ESE	3.94E-06	3.78E-06	3.64E-06	3.50E-06	3.38E-06	3.26E-06	3.15E-06
SE5	4.27E-06	4.10E-06	3.94E-06	3.79E-06	3.65E-06	3.52E-06	3.39E-06
SSE	3.02E-06	2.90E-06	2.79E-06	2.68E-06	2.59E-06	2.50E-06	2.41E-06
S	1.70E-06	1.63E-06	1.57E-06	1.51E-06	1.45E-06	1.40E-06	1.35E-06
SSW	1.50E-06	1.44E-06	1.38E-06	1.33E-06	1.29E-06	1.24E-06	1.20E-06
SW	1.53E-06	1.47E-06	1.41E-06	1.36E-06	1.29E-06	1.25E-06	1.20E-06
WSW	2.06E-06	1.98E-06	1.90E-06	1.83E-06	1.76E-06	1.70E-06	1.64E-06
W	3.33E-06	3.20E-06	3.08E-06	2.97E-06	2.87E-06	2.77E-06	2.68E-06
WNW3	2.93E-06	2.81E-06	2.70E-06	2.60E-06	2.51E-06	2.42E-06	2.33E-06
NW	2.82E-06	2.71E-06	2.60E-06	2.50E-06	2.41E-06	2.32E-06	2.24E-06
NNW	1.91E-06	1.83E-06	1.76E-06	1.69E-06	1.63E-06	1.57E-06	1.52E-06

Period of Record: 4/1/77 - 3/31/78

Table A-7 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/q), sec/m^3, for Short Term Ground Level Releases
$\leq$ 500 Hrs/Yr or $\leq$ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	4.3	4.4	4.5	4.6	4.7	4.8	4.9
N	9.59E-07	9.27E-07	8.97E-07	8.68E-07	8.41E-07	8.16E-07	7.92E-07
NNE	8.73E-07	8.44E-07	8.16E-07	7.90E-07	7.65E-07	7.42E-07	7.20E-07
NE	1.12E-06	1.08E-06	1.05E-06	1.01E-06	9.18E-07	9.51E-07	9.23E-07
ENE	8.47E-07	8.18E-07	7.91E-07	7.66E-07	7.41E-07	7.18E-07	6.97E-07
E	2.06E-06	2.00E-06	1.93E-06	1.87E-06	1.82E-06	1.76E-06	1.71E-06
ESE	3.04E-06	2.94E-06	2.85E-06	2.76E-06	2.67E-06	2.60E-06	2.52E-06
SE5	3.27E-06	3.16E-06	3.06E-06	2.97E-06	2.88E-06	2.79E-06	2.70E-06
SSE	2.34E-06	2.26E-06	2.19E-06	2.12E-06	2.07E-06	2.01E-06	1.95E-06
S	1.30E-06	1.26E-06	1.22E-06	1.18E-06	1.15E-06	1.11E-06	1.08E-06
SSW	1.16E-06	1.12E-06	1.09E-06	1.05E-06	1.02E-06	9.94E-07	9.66E-07
SW	1.16E-06	1.12E-06	1.09E-06	1.05E-06	1.02E-06	9.91E-07	9.62E-07
WSW	1.59E-06	1.54E-06	1.49E-06	1.44E-06	1.39E-06	1.35E-06	1.31E-06
W	2.59E-06	2.51E-06	2.43E-06	2.36E-06	2.29E-06	2.23E-06	2.17E-06
WNW3	2.25E-06	2.18E-06	2.11E-06	2.04E-06	1.98E-06	1.92E-06	1.86E-06
NW	2.16E-06	2.09E-06	2.01E-06	1.95E-06	1.89E-06	1.84E-06	1.79E-06
NNW	1.46E-06	1.41E-06	1.36E-06	1.32E-06	1.28E-06	1.24E-06	1.20E-06

Period of Record: 4/1/77 - 3/31/78

Table A-7 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (χ/q), sec/m^3, for Short Term Ground Level Releases
$\leq$ 500 Hrs/Yr or $\leq$ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)

	Miles
Sector	5.0
N	7.67E-07
NNE	6.99E-07
NE	8.97E-07
ENE	6.76E-07
E	1.67E-06
ESE	2.45E-06
SE	2.62E-06
SSE	1.89E-06
S	1.05E-06
SSW	9.39E-07
SW	9.35E-07
WSW	1.27E-06
W	2.11E-06
WNW	1.81E-06
NW	1.74E-06
NNW	1.17E-06

Period of Record: 4/1/77 - 3/31/78

Table A-8 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/q), $1/m^2$, for Short Term Ground Level Releases
≤ 500 Hrs/Yr or ≤ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	0.1	0.2	0.3	0.4	0.5	0.6	0.7
N	1.68E-06	6.63E-07	4.32E-07	3.00E-07	2.18E-07	1.69E-07	1.29E-07
NNE	1.33E-06	5.43E-07	3.46E-07	2.40E-07	1.72E-07	1.36E-07	1.03E-07
NE	1.19E-06	4.68E-07	3.05E-07	2.06E-07	1.45E-07	1.14E-07	9.10E-08
ENE	1.20E-06	4.86E-07	3.17E-07	2.23E-07	1.58E-07	1.23E-07	9.49E-08
E	2.08E-06	8.09E-07	5.21E-07	3.46E-07	2.49E-07	1.96E-07	1.54E-07
ESE	2.90E-06	1.14E-06	7.17E-07	4.85E-07	3.45E-07	2.69E-07	2.11E-07
SE	3.20E-06	1.26E-06	7.54E-07	5.08E-07	3.71E-07	2.94E-07	2.31E-07
SSE	2.09E-06	8.24E-07	5.16E-07	3.41E-07	2.40E-07	1.92E-07	1.55E-07
S	1.27E-06	5.18E-07	3.24E-07	2.23E-07	1.58E-07	1.23E-07	1.00E-07
SSW	1.06E-06	4.33E-07	2.82E-07	1.92E-07	1.33E-07	1.05E-07	8.51E-08
SW	1.05E-06	4.42E-07	2.85E-07	1.91E-07	1.31E-07	1.04E-07	8.55E-08
WSW	1.24E-06	5.19E-07	3.24E-07	2.14E-07	1.48E-07	1.19E-07	1.94E-08
W	1.90E-06	7.65E-07	4.83E-07	3.22E-07	2.27E-07	1.82E-07	1.48E-07
WNW	2.42E-06	9.62E-07	6.10E-07	4.14E-07	2.99E-07	2.31E-07	1.81E-07
NW	2.30E-06	8.91E-07	5.49E-07	3.72E-07	2.73E-07	2.12E-07	1.65E-07
NNW	1.79E-06	7.01E-07	4.46E-07	3.01E-07	2.21E-07	1.72E-07	1.34E-07

Period of Record: 4/1/77 - 3/31/78

Table A-8 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/q), 1/m^2, for Short Term Ground Level Releases
≤ 500 Hrs/Yr or ≤ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	0.8	0.9	1.0	1.1	1.2	1.3	1.4
N	1.05E-07	8.25E-08	6.73E-08	5.55E-08	4.66E-08	3.99E-08	3.41E-08
NNE	8.35E-08	6.76E-08	5.48E-08	4.55E-08	3.85E-08	3.29E-08	2.85E-08
NE	7.39E-08	5.99E-08	4.95E-08	4.08E-08	3.35E-08	2.87E-08	2.49E-08
ENE	7.67E-08	6.15E-08	4.97E-08	4.13E-08	3.42E-08	2.93E-08	2.53E-08
E	1.25E-07	9.96E-08	8.17E-08	6.79E-08	5.63E-08	4.82E-08	4.18E-08
ESE	1.71E-07	1.38E-07	1.12E-07	9.32E-08	7.87E-08	6.71E-08	5.86E-08
SE	1.88E-07	1.50E-07	1.23E-07	1.02E-07	8.55E-08	7.34E-08	6.38E-08
SSE	1.26E-07	1.01E-07	8.26E-08	6.86E-08	5.63E-08	4.83E-08	4.22E-08
S	8.06E-08	6.40E-08	5.16E-08	4.29E-08	3.60E-08	3.07E-08	2.66E-08
SSW	6.87E-08	5.49E-08	4.50E-08	3.73E-08	3.00E-08	2.57E-08	2.23E-08
SW	7.00E-08	5.41E-08	4.47E-08	3.73E-08	3.00E-08	2.57E-08	2.25E-08
WSW	8.11E-08	6.49E-08	5.32E-08	4.44E-08	3.59E-08	3.08E-08	2.67E-08
W	1.21E-07	9.57E-08	7.80E-08	6.48E-08	5.22E-08	4.46E-08	3.86E-08
WNW	1.47E-07	1.15E-07	9.45E-08	7.80E-08	6.54E-08	5.61E-08	4.86E-08
NW	1.34E-07	1.07E-07	8.78E-08	7.30E-08	6.13E-08	5.23E-08	4.53E-08
NNW	1.08E-07	8.62E-08	6.96E-08	5.74E-08	4.82E-08	4.12E-08	3.60E-08

Period of Record: 4/1/77 - 3/31/78

TABLE A-8 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/q), 1/m^2, for Short Term Ground Level Releases
≤ 500 Hrs/Yr or ≤ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	1.5	1.6	1.7	1.8	1.9	2.0	2.1
N	2.98E-08	2.62E-08	2.33E-08	2.08E-08	1.87E-08	1.70E-08	1.54E-08
NNE	2.49E-08	2.20E-08	1.95E-08	1.74E-08	1.56E-08	1.43E-08	1.30E-08
NE	2.17E-08	1.92E-08	1.70E-08	1.52E-08	1.37E-08	1.23E-08	1.12E-08
ENE	2.20E-08	1.94E-08	1.72E-08	1.54E-08	1.38E-08	1.25E-08	1.13E-08
E	3.66E-08	3.24E-08	2.89E-08	2.58E-08	2.32E-08	2.11E-08	1.91E-08
ESE	5.12E-08	4.53E-08	4.03E-08	3.60E-08	3.23E-08	2.95E-08	2.68E-08
SE	5.61E-08	4.96E-08	4.41E-08	3.95E-08	3.55E-08	3.21E-08	2.92E-08
SSE	3.70E-08	3.27E-08	2.91E-08	2.60E-08	2.34E-08	2.10E-08	1.91E-08
S	2.32E-08	2.05E-08	1.82E-08	1.63E-08	1.46E-08	1.31E-08	1.19E-08
SSW	1.95E-08	1.73E-08	1.54E-08	1.38E-08	1.24E-08	1.10E-08	1.00E-08
SW	1.97E-08	1.74E-08	1.54E-08	1.38E-08	1.24E-08	1.08E-08	9.86E-09
WSW	2.34E-08	2.07E-08	1.84E-08	1.65E-08	1.49E-08	1.30E-08	1.18E-08
W	3.37E-08	2.97E-08	2.64E-08	2.36E-08	2.12E-08	1.95E-08	1.77E-08
WNW	4.26E-08	3.76E-08	3.38E-08	3.02E-08	2.72E-08	2.44E-08	2.22E-08
NW	3.97E-08	3.51E-08	3.12E-08	2.80E-08	2.52E-08	2.30E-08	2.09E-08
NNW	3.15E-08	2.78E-08	2.48E-08	2.22E-08	1.99E-08	1.81E-08	1.64E-08

Period of Record: 4/1/77 - 3/31/78

Table A-8 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/q), 1/m^2, for Short Term Ground Level Releases
≤ 500 Hrs/Yr or ≤ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	2.2	2.3	2.4	2.5	2.6	2.7	2.8
N	1.41E-08	1.29E-08	1.19E-08	1.09E-08	1.05E-08	8.80E-09	8.23E-09
NNE	1.18E-08	1.08E-08	9.96E-09	9.12E-09	8.70E-09	7.42E-09	6.90E-09
NE	1.02E-08	9.34E-09	8.58E-09	7.92E-09	7.61E-09	6.51E-09	6.05E-09
ENE	1.03E-08	9.45E-09	8.69E-09	7.99E-09	7.58E-09	6.56E-09	6.10E-09
E	1.74E-08	1.60E-08	1.47E-08	1.38E-08	1.32E-08	1.13E-08	1.05E-08
ESE	2.44E-08	2.24E-08	2.05E-08	1.96E-08	1.90E-08	1.61E-08	1.50E-08
SE	2.66E-08	2.43E-08	2.24E-08	2.16E-08	2.09E-08	1.79E-08	1.66E-08
SSE	1.74E-08	1.60E-08	1.47E-08	1.39E-08	1.32E-08	1.14E-08	1.06E-08
S	1.09E-08	9.97E-09	9.17E-09	8.70E-09	8.23E-09	7.22E-09	6.73E-09
SSW	9.14E-09	8.37E-09	7.70E-09	7.37E-09	6.91E-09	5.96E-09	5.54E-09
SW	9.00E-09	8.25E-09	7.60E-09	7.18E-09	6.72E-09	5.98E-09	5.56E-09
WSW	1.08E-08	9.89E-09	9.09E-09	8.77E-09	8.21E-09	7.20E-09	6.69E-09
W	1.62E-08	1.48E-08	1.36E-08	1.36E-08	1.25E-08	1.08E-08	1.00E-08
WNW	2.02E-08	1.86E-08	1.71E-08	1.59E-08	1.53E-08	1.31E-08	1.22E-08
NW	1.90E-08	1.74E-08	1.60E-08	1.51E-08	1.44E-08	1.23E-08	1.14E-08
NNW	1.50E-08	1.37E-08	1.26E-08	1.17E-08	1.12E-08	9.53E-09	8.86E-09

Period of Record: 4/1/77 - 3/31/78

Table A-8 - Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/q), $1/m^2$, for Short Term Ground Level Releases
≤ 500 Hrs/Yr or ≤ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	2.9	3.0	3.1	3.2	3.3	3.4	3.5
N	7.68E-09	7.22E-09	6.76E-09	6.35E-09	5.97E-09	5.63E-09	5.31E-09
NNE	6.44E-09	6.04E-09	5.66E-09	5.32E-09	5.00E-09	4.72E-09	4.46E-09
NE	5.64E-09	5.27E-09	4.94E-09	4.64E-09	4.36E-09	4.11E-09	3.89E-09
ENE	5.69E-09	5.33E-09	5.00E-09	4.69E-09	4.41E-09	4.16E-09	3.92E-09
E	9.78E-09	9.10E-09	8.52E-09	8.00E-09	7.52E-09	7.09E-09	6.69E-09
ESE	1.39E-08	1.30E-08	1.21E-08	1.14E-08	1.07E-08	1.01E-08	9.53E-09
SE	1.55E-08	1.44E-08	1.35E-08	1.27E-08	1.19E-08	1.12E-08	1.06E-08
SSE	9.88E-09	9.11E-09	8.52E-09	8.00E-09	7.52E-09	7.08E-09	6.69E-09
S	6.27E-09	5.67E-09	5.31E-09	4.98E-09	4.68E-09	4.41E-09	4.16E-09
SSW	5.16E-09	4..61E-09	4.32E-09	4.06E-09	3.82E-09	3.61E-09	3.41E-09
SW	5.18E-09	4.74E-09	4.45E-09	4.17E-09	3.93E-09	3.70E-09	3.50E-09
WSW	6.24E-09	5.64E-09	5.28E-09	4.96E-09	4.67E-09	4.40E-09	4.16E-09
W	9.36E-09	8.39E-08	7.87E-09	7.40E-09	6.97E-09	6.58E-09	6.22E-09
WNW	1.13E-08	1.06E-08	9.92E-09	9.31E-09	8.76E-09	8.27E-09	7.81E-09
NW	1.07E-08	9.88E-09	9.26E-09	8.70E-09	8.19E-09	7.72E-09	7.31E-09
NNW	8.26E-09	7.66E-09	7.17E-09	6.73E-09	6.33E-09	5.97E-09	5.63E-09

Period of Record: 4/1/77 - 3/31/78

Table A-8 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/q), 1/m^2, for Short Term Ground Level Releases
≤ 500 Hrs/Yr or ≤ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)
Miles

Sector	3.6	3.7	3.8	3.9	4.0	4.1	4.2
N	5.01E-09	4.75E-09	4.50E-09	4.28E-09	4.07E-09	3.88E-09	3.70E-09
NNE	4.22E-09	4.00E-09	3.79E-09	3.60E-09	3.42E-09	3.26E-09	3.11E-09
NE	3.68E-09	3.49E-09	3.31E-09	3.15E-09	3.00E-09	2.85E-09	2.72E-09
ENE	3.71E-09	3.51E-09	3.33E-09	3.17E-09	3.01E-09	2.87E-09	2.74E-09
E	6.33E-09	6.00E-09	5.69E-09	5.41E-09	5.15E-09	4.91E-09	4.68E-09
ESE	9.02E-09	8.54E-09	8.10E-09	7.70E-09	7.32E-09	6.98E-09	6.66E-09
SE	9.99E-09	9.46E-09	8.96E-09	8.51E-09	8.09E-09	7.70E-09	7.33E-09
SSE	6.33E-09	5.99E-09	5.68E-09	5.40E-09	5.14E-09	4.90E-09	4.67E-09
S	3.94E-09	3.73E-09	3.54E-09	3.36E-09	3.20E-09	3.05E-09	2.91E-09
SSW	3.23E-09	3.06E-09	2.91E-09	2.77E-09	2.64E-09	2.51E-09	2.40E-09
SW	3.31E-09	3.14E-09	2.98E-09	2.83E-09	2.66E-09	2.53E-09	2.42E-09
WSW	3.94E-09	3.73E-09	3.54E-09	3.37E-09	3.21E-09	3.06E-09	2.92E-09
W	5.89E-09	5.59E-09	5.31E-09	5.05E-09	4.81E-09	4.59E-09	4.38E-09
WNW	7.39E-09	7.00E-09	6.64E-09	6.31E-09	6.00E-09	5.72E-09	5.45E-09
NW	6.93E-09	6.56E-09	6.23E-09	5.92E-09	5.63E-09	5.36E-09	5.11E-09
NNW	5.33E-09	5.05E-09	4.79E-09	4.58E-09	4.34E-09	4.13E-09	3.94E-09

Period of Record: 4/1/77 - 3/31/78

Table A-8 Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/q), $1/m^2$, for Short Term Ground Level Releases
≤ 500 Hrs/Yr or ≤ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)

Miles

Sector	4.3	4.4	4.5	4.6	4.7	4.8	4.9
N	3.55E-09	3.40E-09	3.26E-09	3.12E-09	2.99E-09	2.87E-09	2.76E-09
NNE	2.97E-09	2.84E-09	2.71E-09	2.60E-09	2.49E-09	2.39E-09	2.30E-09
NE	2.60E-09	2.48E-09	2.37E-09	2.27E-09	2.18E-09	2.09E-09	2.01E-09
ENE	2.61E-09	2.49E-09	2.39E-09	2.29E-09	2.19E-09	2.10E-09	2.02E-09
E	4.48E-09	4.28E-09	4.10E-09	3.93E-09	3.77E-09	3.62E-09	3.47E-09
ESE	6.35E-09	6.07E-09	5.81E-09	5.57E-09	5.34E-09	5.13E-09	4.92E-09
SE	6.99E-09	6.68E-09	6.38E-09	6.12E-09	5.86E-09	5.62E-09	5.38E-09
SSE	4.48E-09	4.28E-09	4.10E-09	3.93E-09	3.78E-09	3.63E-09	3.48E-09
S	2.78E-09	2.65E-09	2.54E-09	2.43E-09	2.34E-09	2.24E-09	2.15E-09
SSW	2.30E-09	2.20E-09	2.11E-09	2.02E-09	1.94E-09	1.86E-09	1.79E-09
SW	2.31E-09	2.21E-09	2.12E-09	2.03E-09	1.95E-09	1.87E-09	1.80E-09
WSW	2.79E-09	2.67E-09	2.55E-09	2.45E-09	2.33E-09	2.24E-09	2.15E-09
W	4.19E-09	4.01E-09	3.84E-09	3.69E-09	3.54E-09	3.40E-09	3.27E-09
WNW	5.20E-09	4.98E-09	4.76E-09	4.57E-09	4.38E-09	4.21E-09	4.04E-09
NW	4.88E-09	4.66E-09	4.44E-09	4.25E-09	4.08E-09	3.92E-09	3.77E-09
NNW	3.76E-09	3.60E-09	3.43E-09	3.29E-09	3.16E-09	3.03E-09	2.9-1E-09

Period of Record: 4/1/77 - 3/31/78

Table A-8 - Prairie Island Dispersion Parameters

Prairie Island Dispersion Parameters (D/q), $1/m^2$, for Short Term Ground Level Releases
≤ 500 Hrs/Yr or ≤ 150 Hrs/QTR for Standard Distances (As Measured from Edge of Plant Complex)

Miles

Sector	5.0
N	2.65E-09
NNE	2.21E-09
NE	1.93E-09
ENE	1.94E-09
E	3.34E-09
ESE	4.73E-09
SE	5.17E-09
SSE	3.35E-09
S	2.07E-09
SSW	1.73E-09
SW	1.73E-09
WSW	2.07E-09
W	3.15E-09
WNW	3.89E-09
NW	3.63E-09
NNW	2.80E-09

Period of Record: 4/1/77 - 3/31/78

Appendix B Prairie Island 12.2m Wind and ΔT 42.7-12.2m Stability Joint Frequency Distributions (4/1/77 - 3/31/78)
PRAIRIE ISLAND NUCLEAR GENERATING PLANT SITE METEOROLOGY - FREQUENCY DISTRIBUTION TABLES

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD: 4/1/77 THROUGH 3/31/78

STABILITY CLASS A
ELEVATION 40 FT.

	WIND SPEED (MPH) AT 40 FT LEVEL						
DIRECTION	1 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	ABOVE 24	TOTAL
N	7	22	29	11	0	0	69
NNE	13	19	20	4	0	0	56
NE	11	35	16	1	0	0	63
ENE	11	33	20	0	0	0	64
E	14	37	24	0	0	0	75
ESE	4	45	49	7	2	0	107
SE	4	10	22	13	1	0	50
SSE	1	7	19	12	2	0	41
S	2	23	45	27	0	0	97
SSW	1	22	39	14	0	0	76
SW	2	17	30	3	0	0	52
WSW	0	21	25	11	0	0	57
W	1	29	46	18	2	0	96
WNW	6	34	64	56	20	1	181
NW	12	42	72	53	20	0	199
NNW	11	43	49	20	2	0	125
VAR	0	0	0	0	0	0	0

TOTAL HOURS THIS CLASS 1408
HOURS OF CALM THIS CLASS 0
PERCENT OF ALL DATA THIS CLASS 16.81

PRAIRIE ISLAND NUCLEAR GENERATING PLANT SITE METEOROLOGY - FREQUENCY DISTRIBUTION TABLES

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD: 4/1/77 THROUGH 3/31/78

STABILITY CLASS B
ELEVATION 40 FT.

	WIND SPEED (MPH) AT 40 FT LEVEL						
DIRECTION	1 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	ABOVE 24	TOTAL
N	0	3	5	1	0	0	9
NNE	1	2	1	1	0	0	5
NE	0	2	0	0	0	0	2
ENE	0	3	2	0	0	0	5
E	0	1	1	0	0	0	2
ESE	1	5	10	6	1	0	23
SE	2	2	8	4	0	0	16
SSE	0	3	4	3	0	0	10
S	1	0	7	9	0	0	17
SSW	0	1	7	0	0	0	8
SW	0	4	1	0	0	0	5
WSW	1	2	5	1	0	0	9
W	0	8	7	3	0	0	18
WNW	1	5	8	6	3	0	23
NW	2	4	11	10	1	0	28
NNW	1	5	3	1	0	1	11
VAR	0	0	0	0	0	0	0

TOTAL HOURS THIS CLASS	191
HOURS OF CALM THIS CLASS	0
PERCENT OF ALL DATA THIS CLASS	2.28

PRAIRIE ISLAND NUCLEAR GENERATING PLANT SITE METEOROLOGY - FREQUENCY DISTRIBUTION TABLES

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD: 4/1/77 THROUGH 3/31/78

STABILITY CLASS C
ELEVATION 40 FT.

	WIND SPEED (MPH) AT 40 FT LEVEL						
DIRECTION	1 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	ABOVE 24	TOTAL
N	2	4	4	1	0	0	11
NNE	2	3	1	0	0	0	6
NE	1	5	1	0	0	0	7
ENE	0	3	1	0	0	0	4
E	1	8	3	0	0	0	12
ESE	0	7	11	2	0	0	20
SE	0	2	5	6	0	0	13
SSE	0	2	6	7	1	0	16
S	0	2	10	4	0	0	16
SSW	1	6	4	0	0	0	11
SW	2	2	3	2	0	0	9
WSW	1	6	5	1	2	0	15
W	0	2	11	4	1	0	18
WNW	1	3	6	7	1	0	18
NW	2	7	11	16	6	1	43
NNW	3	5	7	3	3	0	21
VAR	0	0	0	0	0	0	0

TOTAL HOURS THIS CLASS	240
HOURS OF CALM THIS CLASS	0
PERCENT OF ALL DATA THIS CLASS	2.87

PRAIRIE ISLAND NUCLEAR GENERATING PLANT SITE METEOROLOGY - FREQUENCY DISTRIBUTION TABLES

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD: 4/1/77 THROUGH 3/31/78

STABILITY CLASS D
ELEVATION 40 FT.

	WIND SPEED (MPH) AT 40 FT LEVEL						
DIRECTION	1 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	ABOVE 24	TOTAL
N	9	24	11	8	0	0	52
NNE	6	22	9	0	0	0	37
NE	16	26	4	0	0	0	46
ENE	11	41	4	0	0	0	56
E	11	95	27	0	0	0	133
ESE	8	57	154	19	0	0	238
SE	10	30	90	38	5	0	173
SSE	8	40	59	51	10	0	168
S	1	51	72	17	4	0	145
SSW	5	29	30	12	0	0	76
SW	4	15	17	4	0	0	40
WSW	5	23	31	21	3	4	87
W	6	53	61	28	6	1	155
WNW	14	57	76	75	21	0	243
NW	14	44	72	110	41	0	281
NNW	16	22	41	25	13	0	117
VAR	0	0	0	0	0	0	0

TOTAL HOURS THIS CLASS	2051
HOURS OF CALM THIS CLASS	4
PERCENT OF ALL DATA THIS CLASS	24.49

PRAIRIE ISLAND NUCLEAR GENERATING PLANT SITE METEOROLOGY - FREQUENCY DISTRIBUTION TABLES

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD: 4/1/77 THROUGH 3/31/78

STABILITY CLASS E
ELEVATION 40 FT.

	WIND SPEED (MPH) AT 40 FT LEVEL						
DIRECTION	1 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	ABOVE 24	TOTAL
N	22	30	9	11	1	0	73
NNE	18	29	7	0	0	0	54
NE	22	26	7	1	0	0	56
ENE	19	30	5	1	0	0	55
E	25	96	10	0	0	0	131
ESE	28	144	140	27	0	0	349
SE	24	107	125	41	2	0	299
SSE	21	67	74	23	0	0	185
S	11	56	73	29	1	0	170
SSW	3	26	29	40	1	0	99
SW	14	22	17	12	0	0	65
WSW	14	24	24	11	1	0	74
W	26	73	48	18	1	0	166
WNW	46	136	127	44	4	0	357
NW	46	98	101	62	8	0	315
NNW	43	53	48	10	3	0	157
VAR	0	0	0	0	0	0	0

TOTAL HOURS THIS CLASS 2612
HOURS OF CALM THIS CLASS 7
PERCENT OF ALL DATA THIS CLASS 31.18

PRAIRIE ISLAND NUCLEAR GENERATING PLANT SITE METEOROLOGY - FREQUENCY DISTRIBUTION TABLES

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD: 4/1/77 THROUGH 3/31/78

STABILITY CLASS F
ELEVATION 40 FT.

	WIND SPEED (MPH) AT 40 FT LEVEL						
DIRECTION	1 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	ABOVE 24	TOTAL
N	18	8	3	0	0	0	29
NNE	11	6	1	0	0	0	18
NE	11	5	2	0	0	0	18
ENE	13	7	0	0	0	0	20
E	29	33	2	0	0	0	64
ESE	39	61	9	1	0	0	110
SE	38	69	36	3	0	0	146
SSE	27	32	17	2	1	0	79
S	12	16	21	7	0	0	56
SSW	6	11	17	6	0	0	40
SW	5	3	9	4	0	0	21
WSW	8	8	8	0	0	0	24
W	25	39	12	2	0	0	78
WNW	56	63	12	0	0	0	131
NW	66	71	16	3	0	0	156
NNW	29	19	6	2	0	0	56
VAR	0	0	0	0	0	0	0

TOTAL HOURS THIS CLASS	1053
HOURS OF CALM THIS CLASS	7
PERCENT OF ALL DATA THIS CLASS	12.57

PRAIRIE ISLAND NUCLEAR GENERATING PLANT SITE METEOROLOGY - FREQUENCY DISTRIBUTION TABLES

HOURS AT EACH WIND SPEED AND DIRECTION

PERIOD: 4/1/77 THROUGH 3/31/78

STABILITY CLASS G
ELEVATION 40 FT.

	WIND SPEED (MPH) AT 40 FT LEVEL						
DIRECTION	1 TO 3	4 TO 7	8 TO 12	13 TO 18	19 TO 24	ABOVE 24	TOTAL
N	14	5	0	0	0	0	19
NNE	13	2	1	0	0	0	16
NE	12	2	1	0	0	0	15
ENE	22	1	2	0	0	0	25
E	52	8	2	0	0	0	62
ESE	50	17	1	0	0	0	68
SE	37	23	8	1	0	0	69
SSE	18	8	7	2	0	0	35
S	11	4	4	0	0	0	19
SSW	13	2	2	0	0	0	17
SW	15	5	1	0	0	0	21
WSW	10	1	1	0	0	0	12
W	41	19	1	0	0	0	61
WNW	75	50	0	0	0	0	125
NW	80	66	3	0	0	0	149
NNW	47	19	5	0	0	0	71
VAR	0	0	0	0	0	0	0

TOTAL HOURS THIS CLASS	821
HOURS OF CALM THIS CLASS	37
PERCENT OF ALL DATA THIS CLASS	9.80

THIS PAGE IS LEFT INTENTIONALLY BLANK

Appendix C - Dose Parameters for Radioiodines, Particulates and Tritium

This appendix contains the methodology which was used to calculate the dose parameters for radioiodines, particulates, and tritium to show compliance with 10CFR20 and Appendix I of 10CFR50 for gaseous effluents. These dose parameters, P_i and R_i, were calculated using the methodology outlines in NUREG-0133 along with Regulatory Guide 1.109 Revision 1. The following sections provide the specific methodology which was utilized in calculating the P_i and R_i values for the various exposure pathways.

C.1 Calculation of P_i

The parameter, P_i, contained in the radioiodine and particulates portion of Section 5.2, includes pathway transport parameters of the ith radionuclide, the receptor's usage of the pathway media and the dosimetry of the exposure. Pathway usage rates and the internal dosimetry are functions of the receptor's age: however, the child age group, will always receive the maximum dose under the exposure conditions assumed.

C.1.1 Inhalation Pathway

$$P_{i_I} = K' (BR) DFA_i \qquad \text{(C.1-1)}$$

where:

P_{i_I} = dose parameter for radionuclide i for the inhalation pathway, mrem/yr per $\mu ci/m^3$;

K' = a constant of unit conversion:

= 10^6 pCi/μCi;

BR = the breathing rate of the child age group, m^3/yr;

DFA_i = the maximum organ inhalation dose factor for the child age group for radionuclide i, mrem/pCi.

The age group considered is the child group. The child's breathing rate is taken as 3700 m^3/yr from Table E-5 of Regulatory Guide 1.109 Revision 1. The inhalation dose factors for the child DFA_i, are presented in Table E-9 of Regulatory Guide 1.109 in units of mrem/pCi. The total body is considered as an organ in the selection of DFA_i. The incorporation of breathing rate of the child and the unit conversion factor results in the following:

$$P_{i_l} = 3.7 \times 10^9 \, DFA_i \qquad (C.1\text{-}2)$$

C.2 Calculation of R_i

The radioiodine and particulate specification is applicable to the location in the unrestricted area where the combination of existing pathways and receptor age groups indicates the maximum potential exposure occurs. The inhalation and ground plane exposure pathways **SHALL** be considered to exist at all locations. The grass-goat-milk, the grass-cow-milk, grass-cow-meat, and vegetation pathways are considered based on their existence at the various locations. R_i values have been calculated for the adult, teen, child, and infant age groups for the ground plane, cow milk, goat milk, vegetable and beef ingestion pathways. The methodology which was utilized to calculate these values is presented below.

C.2.1 Inhalation Pathway

$$R_{i_l} = K' \, (BR)_a \, (DFA_i)_a \qquad (C.2\text{-}1)$$

where:

R_{i_l} = dose factor for each identified radionuclide I of the organ of interest, mrey/yr per $\mu Ci/m^3$

K' = a constant of unit conversion:

= 10^6 pCi/μCi;

$(BR)_a$ = breathing rate of the receptor of age group a, m^3/yr;

$(DFA_i)_a$ = organ inhalation dose factor for radionuclide i for the receptor of age group a, mrem/pCi.

The breathing rates $(BR)_a$ for the various age groups are tabulated below, as given in Table E-5 of the Regulatory Guide 1.109 Revision 1.

Age Group (a)	Breathing Rate (m^3/yr)
Infant	1400
Child	3700
Teen	8000
Adult	8000

Inhalation dose factors $(DFA_i)_a$ for the various age groups are given in Tables E-7 through E-10 of Regulatory Guide 1.109 Revision 1.

C.2.2 Ground Plane Pathway

$$R_{i_G} = I_i K'K'' (SF) DFG_i \ (1-e^{-\lambda_i t}) / \lambda_i \qquad \text{(C.2-2)}$$

where:

R_{i_G} = dose factor for the ground plane pathway for each identified radionuclide i for the organ of interest, m^2 -mrem/yr per μCi/sec per;

K' = a constant of unit conversion;

= 10^6 pCi/μCi;

K'' = a constant of unit conversion;

= 8760 mr/year;

λ_i = the radiological decay constant for radionuclide i, sec^{-1};

t = the exposure time, sec;

= 4.73×10^8 sec (5 years)'

DFG_i = the ground plant dose conversion factor for radionuclide i; mrem/hr per pCi/m^2;

SF = the shielding factor (dimensionless)

I_i = factor to account for fractional deposition of radionuclide i.

For radionuclides other than iodine, the factor I_i is equal to one. For radioiodines, the value of I_i may vary. However, a value of 1.0 was used in calculating the R values in Table 5.5-1.

A shielding factor of 0.7 from Table E-15 of Regulatory Guide 1.109 Revision 1 is used. A tabulation of DFG_i values is presented in Table E-6 of Regulatory Guide 1.109 Revision 1.

C.2.3 Grass-Cow or Goat-Milk Pathway

$$R_{i_M} = I_i K' Q_F U_{ap} F_m (DFL_i)_a e^{-\lambda_i t_f} \left[f_p f_s \left[\frac{r(1-e^{-\lambda_{E_i}} t_{ep})}{Y_{p\lambda_{E_i}}} + \frac{B_{iv}(1-e^{-\lambda_i t_b})}{P\lambda_i} \right] + (1-f_p f_s) \left[\frac{r(1-e^{-\lambda_{E_i}} t_{es})}{Ys^{\lambda_{E_i}}} + \frac{B_{iv}\ (1-e^{-\lambda_i t_b})}{P_{\lambda i}} \right] e^{-\lambda_i t_h} \right] \quad \text{(C.2-3)}$$

where:

R_{i_M} = dose factor for the cow milk or goat milk pathway, for each identified radionuclide i for the organ of interest, m^2 - mrey/yr per μCi/sec;

K' = a constant of unit conversion;

= 10^6 pCi/μCi;

Q_F = the cow's or goat's feed consumption rate, kg/day (wet weight);

U_{ap} = the receptor's milk consumption rate for age group a, liters/yr;

Y_P = the agricultural productivity by unit area of pasture feed grass, kg/m^2 ;

Y_S = the agricultural productivity by unit areas of stored feed, kg/m^2;

F_m = the stable element transfer coefficients, pCi/liter per pCI/day;

r = fraction of deposited activity retained on cow's feed grass;

$(DFL_i)_a$ = the organ ingestion dose factor for radionuclide I for the receptor in age group a, mrem/pCI;

λ_E = $\lambda_i + \lambda_w$;

λ_i = the readiological decay constant for radionuclide I, sec^{-1};

λ_w = the decay constant for removal of activity on leaf and plant surfaces by weathering, sec^{-1};

= 5.73×10^{-7} sec^{-1} (corresponding to a 14 day half-lift);

t_f = the transport time from feed to cow or goat to milk to receptor, sec;

t_h = the transport time from harvest, to cow or goat, to consumption, sec;

t_b = period of time that activity builds up in soil, sec;

B_{iv} = concentration factor for uptake of radionuclide i from the soil by the edible parts of crops, pCi/kg (wet weight) per PCi/kg (dry soil);

P = effective surface density for soil, (dry weight) kg/m^2;

f_p = fraction of the year that the cow or goat is on pasture;

f_s = fraction of the cow feed that is pasture grass while the cow is on pasture;

t_{ep} = period of pasture grass exposure during the growing season, sec;

t_{es} = period of crop exposure during the growing season, sec;

I_i = factor to account for fractional deposition of radionuclide i.

For radionuclides other than iodine, the factor I_i is equal to one. For radioiodines, the value of I_i may vary. However, a value of 1.0 was used in calculating the R values Tables 5.5-8 through 5.5-15.

Milk cattle and goats are considered to be fed from two potential sources, pasture grass and stored feeds. Following the development in Regulatory Guide 1.109 Revision 1, the value of f_s was considered unity in lieu of site-specific information. The value of f_p was 0.5 based upon a 6-month grazing period.

Table C-1 contains the appropriate parameter values and their source in Regulatory Guide 1.109 Revision 1.

The concentration of tritium in milk is based on the airborne concentration rather than the deposition. Therefore, the R_i is based on X/Q:

$$R_{T_M} = K'K''' F_m Q_F U_{ap} (DFL_i)_a \; 0.75 \; (0.5/H) \qquad \text{(C.2-4)}$$

where:

R_{T_M} = dose factor for the cow or goat milk pathway for tritium for the organ of interest, mrem/yr per □Ci/m^3;

K''' = a constant of unit conversion;

= 10^3 gm/kg;

H = absolute humidity of the atmosphere, gm/m^3;

0.75 = the fraction of total feed that is water;

0.5 = the ratio of the specific activity of the feed grass to the atmospheric water.

and other parameters and values are given below. A value of H of 8 grams/meter^3, was used in lieu of site-specific information.

C.2.4 Grass-Cow-Meat Pathway

The integrated concentration in meat follows in a similar manner to the development for the milk pathway, therefore:

$$R_{i_B} = I_i K'Q_F U_{ap} F_f (DFL_i)_a e^{-\lambda_i t_s} \left[f_p f_s \left[\frac{r(1-e^{-\lambda} E_i^t ep)}{Y_{p^{\lambda E_i}}} + \frac{B_{iv}(1-e^{-\lambda_i t_b})}{P_{\lambda i}} \right] + \right.$$

$$\left. (1 - f_p f_s) \left[\frac{r(1-e^{-\lambda} E_i^t es)}{Ys^{\lambda}_{Ei}} + \frac{B_{iv}\ (1-e^{-\lambda_i t_b})}{P_{\lambda i}} \right] e^{-\lambda_i t_h} \right] \qquad \text{(C.2-5)}$$

where:

R_{i_B} = dose factor for the meat ingestion pathway for radionuclide i for any organ of interst, m^2 - mrem/yr per □Ci/sec;

F_f = the stable element transfer coefficients, pCi/Kg per pCi/day;

U_{ap} = the receptor's meat consumption rate for age group a, kg/yr;

t_s = the transport time from slaughter to consumption, sec;

t_h = the transport time from harvest to animal consumption, sec;

t_{ep} = period of pasture grass exposure during the growing season, sec;

t_{es} = period of crop exposure during the growing season, sec;

I_i = factor to account for fractional desposition of radionuclide i.

For radionuclides other than iodine, the factor I_i is equal to one. For radioiodines, the value of I_i may vary. However, a value of 1.0 was used in calculating the R values in Tables 5.5-5 through 5.5-7.

All other terms remain the same as defined in Equation C.2-3. Table C-2 contains the values which were used in calculating R_i for the meat pathway.

The concentration of tritium in meat is based on its airborne concentration rather than the deposition. Therefore, the R_i is based on X/Q.

$$R_{T_B} = K'K'' F_f Q_F U_{ap} (DFL_i)_a \quad 0.75\ (0.5/H) \qquad \text{(C.2-6)}$$

where:

R_{T_B} = dose factor for the meat ingestion pathway for tritium for any organ of interest, mrem/yr per $\mu Ci/m^3$.

All other terms are defined in Equation C.2-4 and C.2-5, above.

C.2.5 Vegetation Pathway

The integrated concentration in vegetation consumed by man follows the expression developed in the derivation of the milk factor. Man is considered to consume two types of vegetation (fresh and stored) that differ only in the time period between harvest and consumption, therefore:

$$R_{i_V} = I_i K'(DFL_i)_a \left[U_a^L f_L e^{-\lambda_i t_L} \left[\frac{r(1-e^{-\lambda_{E_i} t_e})}{Y_V \lambda_{E_i}} + \frac{B_{iv}(1-e^{-\lambda_i t_b})}{P_{\lambda i}} \right] + \right.$$

$$\left. (U_a^S f_g e^{-\lambda_i t_h} \left[\frac{r(1-e^{-\lambda_{E_i} t_e})}{Y_v \lambda_{E_i}} + \frac{B_{iv}\ (1-e^{-\lambda_i t_b})}{P_{\lambda i}} \right] \right] \qquad \text{(C.2-7)}$$

where:

R_{T_V} = dose factor for vegetable pathway for radionuclide i for organ of interest, m^2 - mrem/yr per μCi/sec;

K' = a constant of unit conversion;

= 10^6 pCi/μCi;

U_a^L = the consumption rate of fresh leafy vegetation by the receptor in age group a, kg/yr;

U_a^S = the consumption the or stored vegetation by the receptor in age group a, kg/yr;

f_L = the fraction of the annual intake of fresh leafy vegetation grown locally;

f_g = the fraction of the annual intake of stored vegetation grown locally;

t_L = the average time between harvest of leafy vegetation and its consumption, sec;

t_h = the average time between harvest of stored vegetation and its consumption, sec;

Y_V = the vegetation areal density, kg/m^2;

t_e = period of leafy vegetable exposure during growing season, sec;

I_i = factor to account for fractional deposition of radionuclide i.

For radionuclides other than iodine, the factor I_i is equal to one. For radioiodines, the value of I_i may vary. However, a value of 1.0 was used in calculating the R values in tables 5.5-2 through 5.5-4.

All other factors were defined above.

Table C-3 presents the appropriate parameter values and their source in Regulatory Guide 1.109 Revision 1.

In lieu of site-specific data default values for f_L and f_g, 1.0 and 0.76, respectively were used in the calculation of R_i. These values were obtained from Table E-15 of Regulatory Guide 1.109 Revision 1.

The concentration of tritium in vegetation is based on the airborne concentration rather than the deposition. Therefore, the R_i is based on X/Q:

$$R_{Tv} = K'K''' [U_a^L f_L + U_a^S f_g] (DFL_i)_a \; 0.75 \; (0.5/H) \qquad \text{(C.2-8)}$$

where:

R_{Tv} = dose factor for the vegetable pathway for tritium for any organ of interest, m^2 - mrem/yr per Ci/m^3.

All other terms remain the same as those in Equations C.2-4 and C.2-7.

Table C-1 - Parameters for Cow and Goat Milk Pathways

Parameter	Value	Reference (Reg. Guide 1.109 Rev. 1)
Q_F (kg/day)	50 (cow) 6 (goat)	Table E-3 Table E-3
Y_P (kg/m^2)	0.7	Table E-15
t_f (seconds)	1.73×10^5 (2 days)	Table E-15
r	1.0 (radioiodines) 0.2 (particulates)	Table E-15 Table E-15
$(DFL_i)_a$ (mrem/pCi)	Each radionuclide	Tables E-11 to E-14
F_m (pCi/day per pCi/liter)	Each stable element	Table E-1 (cow) Table E-2 (goat)
t_b (seconds)	4.73×10^8 (15 yr)	Table E-15
Y_s (kg/m^2)	2.0	Table E-15
Y_p (kg/m^2)	0.7	Table E-15
t_h (seconds)	7.78×10^6 (90 days)	Table E-15
U_{ap} (liters/yr)	330 infant 330 child 400 teen 310 adult	Table E-5 Table E-5 Table E-5 Table E-5
t_{ep} (seconds)	2.59×10^6 (30 days)	Table E-15
t_{es} (seconds)	5.18×10^6 (60 days)	Table E-15
B_{iv} (pCi/Kg (wet weight) per pCi/Kg (dry soil))	Each stable element	Table E-1
P (Kg/m^2 (dry weight))	240	Table E-15

Table C-2 Parameters for the Meat Pathway

Parameter	Value	Reference (Reg. Guide 1.109 Rev. 1)
r	1.0 (radioiodines) 0.2 (particulates)	Table E-15 Table E-15
F_f (pCi/Kg per pCi/day)	Each stable element	Table E-1
U_{ap} (Kg/yr)	0 infant 41 child 65 teen 110 adult	Table E-5 Table E-5 Table E-5 Table E-5
$(DFL_i)_a$ (mrem/pCi)	Each radionuclide	Tables E-11 to E-14
Y_p (kg/m^2)	0.7	Table E-15
Y_s (kg/m^2)	2.0	Table E-15
t_b (seconds)	4.73×10^8 (15 yr)	Table E-15
t_s (seconds)	1.73×10^6 (20 days)	Table E-15
t_h (seconds)	7.78×10^6 (90 days)	Table E-15
t_{ep} (seconds)	2.59×10^6 (30 days)	Table E-15
t_{es} (seconds)	5.18×10^6 (60 days)	Table E-15
Q_f (kg/day)	50	Table E-3
B_{iv} (pCi/Kg (wet weight) per pCi/Kg (dry soil))	Each stable element	Table E-1
P (Kg/m^2 (dry weight))	240	Table E-15

THIS PAGE IS LEFT INTENTIONALLY BLANK

Table C-3 - Parameters for the Vegetable Pathway

Parameter		Value	Reference (Reg. Guide 1.109 Rev. 1)
r (dimensionless)		1.0 (radioiodines)	Table E-1
		0.2 (particulates)	Table E-1
$(DFL_i)_a$ (mrem/pCi)		Each radionuclide	Tables E-11 to E-14
U_a^L (kg/yr)	- Infant	0	Table E-5
	- Child	26	Table E-5
	- Teen	42	Table E-5
	- Adult	64	Table E-5
U_a^S (kg/yr)	- Infant	0	Table E-5
	- Child	520	Table E-5
	- Teen	630	Table E-5
	- Adult	520	Table E-5
t_L (seconds)		8.6×10^4 (1 day)	Table E-15
t_h (seconds)		5.18×10^6 (60 days)	Table E-15
Y_v (kg/m^2)		2.0	Table E-15
t_e (seconds)		5.18×10^6 (60 days)	Table E-15
t_b (seconds)		4.73×10^8 (15 yr)	Table E-15
P(Kg/m^2 (dry weight))		240	Table E-15
B_{iv} (pCi/Kg (wet weight) per pCi/kg (dry soil))		Each stable element	Table E-1