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April 30, 2003

VPN-018-2003

Trojan Nuclear Plant
Docket 50-344
License NPF-1

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

PGE-1065-2002, "Trojan Nuclear Plant Annual Radioactive Effluent Release Report for 2002"

In accordance with 10 CFR 50.36a and Permanently Defueled Technical Specification 5.8.1.3, the enclosure to this letter is Portland General Electric Company's Trojan Nuclear Plant Annual Radioactive Effluent Release Report for 2002. If there are any questions concerning this report, please contact Lansing Dusek at (503) 556-7409.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen M. Quennoz".

Stephen M. Quennoz
Vice President, Power Supply/Generation

Enclosure

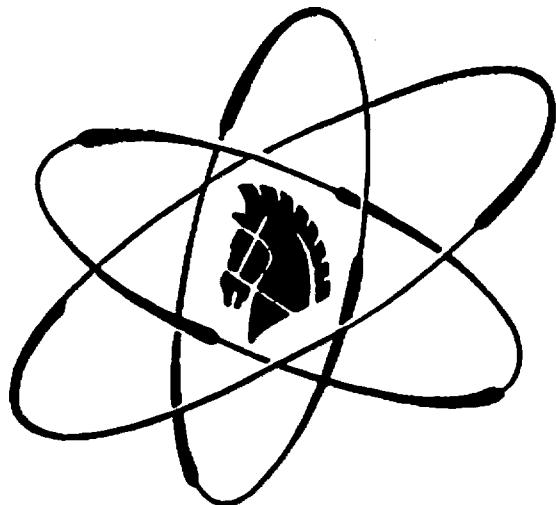
c: Director, NRC Region IV, DNMS
J. Buckley, NRC, NMSS, DWM
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Trojan Nuclear Plant

Radioactive Effluent Release Report for 2002

PORLAND GENERAL ELECTRIC COMPANY



PGE-1065-2002

PGE-1065-2002

TROJAN NUCLEAR PLANT

**ANNUAL RADIOACTIVE
EFFLUENT RELEASE REPORT**

FOR 2002

**Docket 50-344
License NPF-1**

**PORLTAND GENERAL ELECTRIC COMPANY
121 S. W. Salmon Street
Portland, Oregon 97204**

TROJAN NUCLEAR PLANT
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT FOR 2002

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SUMMARY

The Trojan Nuclear Plant Annual Radioactive Effluent Release Report for 2002 is submitted in accordance with 10 CFR 50.36a, and Facility Operating License NPF-1. The report is divided into six sections: (1) effluent and waste disposal report; (2) offsite radiation doses; (3) meteorological data; (4) changes to the Offsite Dose Calculation Manual (ODCM); (5) assessment of doses within the unrestricted area boundary; and (6) direct radiation doses from the facility.

Requirement

Trojan Nuclear Plant Possession Only License NPF-1, Appendix A, Technical Specification 5.8.1.3, "Annual Radioactive Effluent Release Report," requires:

The Annual Radioactive Effluent Release Report covering the activities of the unit shall be submitted in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODCM and Process Control Program.

Offsite Dose Calculation Manual, Control 3.1.2 requires:

The radioactive gaseous effluent monitoring instrumentation channels...shall be OPERABLE with their alarm/trip setpoints set....

b...With the inoperable channels not returned to OPERABLE status within 30 days, identify the cause of the inoperable channels in the annual Radioactive Effluent Release Report in lieu of any other report.

Offsite Dose Calculation Manual, Control 4.1.2 requires:

The Annual Radioactive Effluent Release Report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit as outlined in Regulatory Guide 1.21 (Rev. 1), "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," with data summarized on a quarterly basis following the format of Appendix B thereof.

The Annual Radioactive Effluent Release Report shall include an assessment of the radiation doses from radioactive effluents to MEMBERS OF THE PUBLIC due to their activities in UNRESTRICTED AREAS during the report period. All assumptions used in making these assessments (e.g., specific activity, exposure time and location) shall be included in these reports.

The Annual Radioactive Effluent Report shall include a copy of all licensee event reports required by 10 CFR 50.73(a)(2)(viii).

The Annual Radioactive Effluent Report shall include an assessment of radiation doses from the radioactive liquid and gaseous effluents released from the unit as outlined in Regulatory Guide 1.21. Exceptions to Regulatory Guide 1.21 are documented in DSAR, Table 3.5-1. In addition, the maximum noble gas gamma air and beta air doses shall be evaluated in areas at the SITE BOUNDARY. The assessment of radiation doses shall be performed in accordance with Sections 5 and 6 of the ODCM.

10 CFR 50.36a(a)(2) requires:

Each licensee shall submit a report to the Commission annually that specifies the quantity of each of the principal radionuclides released to unrestricted areas in liquid and in gaseous effluents during the previous 12 months, including any other information as may be required by the Commission to estimate maximum potential annual radiation doses to the public resulting from effluent releases. The report must be submitted as specified in §50.4, and the time between submission of the reports must be no longer than 12 months. If quantities of radioactive materials released during the reporting period are significantly above design objectives, the report must cover this specifically. On the basis of these reports and any additional information the Commission may obtain from the licensee or others, the Commission may require the licensee to take action as the Commission deems appropriate.

Report

Data for the period January 1, 2002, through December 31, 2002, have been included.

No licensee event reports required by 10 CFR 50.73(a)(2)(viii) were submitted during 2002.

1. EFFLUENT AND WASTE DISPOSAL REPORT

This section contains a summary of the liquid and gaseous release limits; a list of the effluent concentration values of the nuclides released; a summary of batch and abnormal release data; a summary of total liquid and gaseous releases; listings of nuclides released classified by pathway, gaseous or liquid, and type, continuous or batch; and a summary of solid radioactive waste shipments. This section represents releases during the period January 1, 2002, through December 31, 2002. The information for January 1, 2002, through December 31, 2002, is presented in Tables 1-1 through 1-15.

The "MDA" notation used in the following data tables indicates that no detectable activity was found when samples were analyzed using counting techniques which ensure compliance with the "Lower Limit of Detection" (LLD) values of ODCM Tables 3.2.1.1-1 and 3.2.2.1-1. The referenced LLD specifications are not used as limiting values for reporting activity; all measurable activity is reported. Gamma emitting nuclides, nuclides with measurable activity, together with those nuclides specified in ODCM Tables 3.2.1.1-1 and 3.2.2.1-1 are reported.

Liquids

There were 32 discharges with no abnormal releases during 2002.

Gaseous

Gaseous activity is assumed to be Kr-85 escaping from micropores in the fuel cladding. Other gaseous isotopes are gone due to their short half-lives. Tritium releases were from spent fuel pool water evaporation and should remain relatively constant with small variations due to seasonal temperature and humidity changes.

PRM-1 monitors the containment purge releases. The requirement to monitor containment purge releases was removed from the ODCM with Amendment 21 (REF. SMQ-022-2001, November 8, 2001). As decommissioning activities inside containment were nearing completion, it was determined that gaseous effluent releases from containment were insignificant.

PRM-2 monitors all gaseous releases from the Auxiliary/Fuel Building.

No unplanned gaseous releases occurred during 2002.

The following terms are used:

\bar{K}_v = Average total body dose factor due to gamma emissions

\bar{L}_v = Average skin dose factor due to beta emissions

\bar{M}_v = Average air dose factor due to beta emissions

\bar{N}_v = Average air dose factor due to gamma emissions

\bar{R}_i = Average dose factor for nuclides other than noble gases at the controlling exposure locations

TABLE 1-1
SUPPLEMENTAL INFORMATION
January 1, 2002, through December 31, 2002

CONTROL LIMITS					
Fission and Activation Gas Release Rate Limits	Unit	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
1. ODCM 3.2.2.1.a, Instantaneous					
$Q_{TV} \leq \frac{1}{2.0\bar{K}_v}$	Ci/sec	2.38E+0	2.38E+0	2.38E+0	2.38E+0
$Q_{TV} \leq \frac{1}{0.33(\bar{L}_v + 1.1\bar{N}_v)}$	Ci/sec	1.76E-1	1.76E-1	1.76E-1	1.76E-1
2. ODCM 3.2.2.2.a, Quarterly Average					
$Q_{TV} < \frac{1}{50\bar{N}_v}$	Ci/sec	9.09E-2	9.09E-2	9.09E-2	9.09E-2
$Q_{TV} < \frac{1}{25\bar{M}_v}$	Ci/sec	1.54E-3	1.54E-3	1.54E-3	1.54E-3
3. ODCM 3.2.2.4.a, Quarterly Average Requiring Use of the Gaseous Radwaste Treatment System					
$Q_{TV} < \frac{1}{100\bar{N}_v}$	Ci/sec	4.55E-2	4.55E-2	4.55E-2	4.55E-2
$Q_{TV} < \frac{1}{50\bar{M}_v}$	Ci/sec	7.69E-4	7.69E-4	7.69E-4	7.69E-4

TABLE 1-2
SUPPLEMENTAL INFORMATION
January 1, 2002, through December 31, 2002

CONTROL LIMITS

<u>Gaseous Tritium, and Particulates With > 8 Day T1/2 Limits</u>	<u>Unit</u>	<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	<u>Fourth Quarter</u>
1. ODCM 3.2.2.1.b, Instantaneous					
$Q_v \leq \frac{1}{0.67\bar{R}_i}$	Ci/sec	1.39E-2	1.39E-2	1.39E-2	1.39E-2
2. ODCM 3.2.2.3.a, Quarterly Average					
$Q_v < \frac{1}{100\bar{R}_i}$	Ci/sec	9.35E-5	9.35E-5	9.35E-5	9.35E-5
3. ODCM 3.2.2.4.b, Quarterly Average Requiring Use of the Ventilation Exhaust Treatment System					
$Q_v < \frac{1}{200\bar{R}_i}$	Ci/sec	4.67E-5	4.67E-5	4.67E-5	4.67E-5

TABLE 1-3
SUPPLEMENTAL INFORMATION
January 1, 2002, through December 31, 2002

CONTROL LIMITS

1.	ODCM 3.2.1.1 Instantaneous	Instantaneous discharge concentrations less than the effluent concentration values (ECVs) listed in 10 CFR Part 20, Appendix B, Table 2, Column 2.
2.	ODCM 3.2.1.2 Quarterly Average	Gross release limit of 2.5 Ci per quarter excluding tritium and dissolved noble gases. If this limit is exceeded, cumulative dose due to liquid effluents will be limited to 1.5 mrem to the whole body and to 2.5 mrem to any organ, using isotope specific methodology in the Plant Offsite Dose Calculation Manual (ODCM).
3.	ODCM 3.2.1.3 Quarterly Average Requiring Use of the Liquid Radwaste Treatment System	The liquid radwaste treatment system shall be maintained and used when activity discharged (excluding tritium and dissolved noble gases) would exceed 1.25 Ci/Qtr.
4.	Tech. Spec. 5.7.2.6 Storage Tank Radioactivity Limit	The quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the liquid radwaste treatment system is less than limits of 10 CFR 20, Appendix B at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents. For temporary storage tanks a limit of 10 curies, excluding tritium and dissolved or entrained noble gases, may be used.

TABLE 1-4
SUPPLEMENTAL INFORMATION

January 1, 2002, through December 31, 2002

EFFLUENT CONCENTRATION VALUES (ECVs)

Liquid

(10 CFR 20, Appendix B, Table 2, Col. 2)

<u>Isotope</u>	ECV ($\mu\text{Ci/cc}$)	<u>Isotope</u>	ECV ($\mu\text{Ci/cc}$)
Tritium	1×10^{-3}	Cesium 134	9×10^{-7}
Iron 55	1×10^{-4}	Cesium 137	1×10^{-6}
Cobalt 57	6×10^{-5}	Cerium 144	3×10^{-6}
Cobalt 60	3×10^{-6}	Europium 152	1×10^{-5}
Strontium 90	5×10^{-7}	Europium 154	7×10^{-6}
Niobium 94	1×10^{-5}	Europium 155	5×10^{-5}
Antimony 125	3×10^{-5}	Americium 241	2×10^{-8}
		Alpha	2×10^{-9}

Gaseous

Gaseous ECVs are not used in effluent calculations at Trojan.

TABLE 1-5
SUPPLEMENTAL INFORMATION

January 1, 2002, through December 31, 2002

AVERAGE ENERGY

Effluent release limits are not based upon \bar{E} , hence, reporting \bar{E} is not required.

MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

Gaseous Releases

Fission and Activation Gases: Gamma spectrometric analysis of gaseous grab samples define radionuclide distribution at least monthly on monitored gaseous release points. Using the known nuclide distributions and process radiation monitor readings, the actual quantities of gaseous releases are calculated.

Particulates: Monthly composite filter samples are analyzed by gamma spectroscopy to determine the concentration of particulate isotopes. Monthly composite samples are analyzed for alpha-emitting isotopes by counting with a gas flow proportional counter. Quarterly composite filters are analyzed for Sr-90 using gas proportional beta counting and chemical separation techniques when necessary.

Tritium: Tritium is collected on dry silica gel in monthly composite samples and counted using liquid scintillation spectroscopy.

Liquid Releases

Fission and Activation Products: Gamma spectrometric analysis of each batch is performed. Monthly and quarterly composites are prepared for batch releases for specified activity determinations.

Tritium: Samples from each batch are distilled and deionized as necessary to remove contamination and counted by liquid scintillation techniques.

Dissolved and Entrained Gases: There are no longer any dissolved or entrained gases in the liquid releases at Trojan.

TABLE 1-6
SUPPLEMENTAL INFORMATION
January 1, 2002, through December 31, 2002

BATCH RELEASES

	<u>Unit</u>	<u>1-1-02 to 6-30-02</u>		<u>7-1-02 to 12-31-02</u>	
		<u>Liquid</u>	<u>Gaseous</u>	<u>Liquid</u>	<u>Gaseous</u>
Number of Batch Releases		17	0	15	0
Total time period for Batch Releases	Hours	16.9	NA	16.8	NA
Maximum time period for Batch Releases	Hours	2.6	NA	3.6	NA
Average time period for Batch Releases	Hours	1.0	NA	1.1	NA
Minimum time period for Batch Releases	Hours	0.7	NA	0.8	NA
Average dilution flow during Batch Releases	GPM	3911	NA	3297	NA

ABNORMAL RELEASES

Number of Abnormal Releases		0	0	0	0
Total Activity Released	Ci	0	0	0	0

TABLE 1-7
SUPPLEMENTAL INFORMATION
January 1, 2002 through December 31, 2002

ESTIMATION OF TOTAL PERCENT ERROR

The estimated total error is calculated as follows:

$$\text{Total Percent Error} = \sqrt{(E_1^2 + E_2^2 + E_3^2 + \dots E_n^2)^{\frac{1}{2}}}$$

Where E_n = Percent error associated with each contributing parameter.

The following values (percent) were used for error calculations:

GASEOUS EFFLUENTS

	<u>Fission & Act. Gases</u>	<u>Particulates</u>	<u>Tritium</u>
Sample Counting Error	25	25	25
Counting System Calibration Error	10	10	10
Counting System Source Error	5	5	5
Temperature/Volume Correction Error	20	NA	NA
Process Flow Measuring Device	10	10	10
Sample Flow Measuring Device	NA	10	10
Plateout Error	NA	10	NA

LIQUID EFFLUENTS

	<u>Fission & Act. Products</u>	<u>Tritium</u>	<u>Gross Alpha</u>
Sample Counting Error	25	25	25
Counting System Calibration Error	10	10	10
Counting System Source Error	5	5	5
Process Flow Measuring Device	10	10	10
Sample Flow Measuring Device	10	10	10

TABLE 1-8

**GASEOUS EFFLUENTS
SUMMATION OF RELEASES**

January 1, 2002, through December 31, 2002

Sheet 1 of 2

	<u>Unit</u>	<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	<u>Fourth Quarter</u>	<u>Estimated Error (%)</u>
FISSION AND ACTIVATION GASES						
Total Activity Released	Ci	3.54E+0	4.62E+0	1.26E+1	2.28E+0	$\pm 3.5\text{E}+1$
Average Release Rate for Quarter	$\mu\text{Ci/sec}$	4.55E-1	5.88E-1	1.59E+0	2.87E-1	
Percent of Limit:						
ODCM 3.2.2.1.a - Instantaneous	%	2.59E-4	3.34E-4	9.03E-4	1.63E-4	
ODCM 3.2.2.2.a - Quarterly Average	%	2.96E-2	3.82E-2	1.03E-1	1.86E-2	
ODCM 3.2.2.4.a - Quarterly Average Requiring Processing	%	5.92E-2	7.64E-2	2.07E-1	3.73E-2	
PARTICULATES						
Total with Half-lives >8 days	Ci	MDA	MDA	MDA	MDA	$\pm 3.2\text{E}+1$
Average Release Rate for Quarter	$\mu\text{Ci/sec}$	NA	NA	NA	NA	
Total Gross Alpha Released	Ci	MDA	MDA	MDA	MDA	

TABLE 1-8

**GASEOUS EFFLUENTS
SUMMATION OF RELEASES**

January 1, 2002, through December 31, 2002

Sheet 2 of 2

	<u>Unit</u>	<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	<u>Fourth Quarter</u>	<u>Estimated Error (%)</u>
TRITIUM						
Total Released	Ci	1.39E+0	2.20E+0	2.69E+0	1.23E+0	<u>±3.1E+1</u>
Average Release Rate for Quarter	$\mu\text{Ci/sec}$	1.78E-1	2.80E-1	3.38E-1	1.55E-1	
PARTICULATES WITH <u>> 8 DAY T1/2 AND TRITIUM</u>						
Total Released	Ci	1.39E+0	2.20E+0	2.69E+0	1.23E+0	<u>±3.2E+1</u>
Average Release Rate for Quarter	$\mu\text{Ci/sec}$	1.78E-1	2.80E-1	3.38E-1	1.55E+0	
Percent of Limit:						
ODCM 3.2.2.1.b Instantaneous	%	1.28E-3	2.01E-3	2.42E-3	1.11E-3	
ODCM 3.2.2.3.a Quarterly Average	%	1.91E-1	3.00E-1	3.62E-1	1.66E-1	
ODCM 3.2.2.4.b Quarterly Average Requiring Processing	%	3.81E-1	6.00E-1	7.23E-1	3.32E-1	

TABLE 1-9

**GASEOUS EFFLUENTS
GROUND LEVEL RELEASES**

January 1, 2002, through December 31, 2002

Sheet 1 of 2

<u>NUCLIDES RELEASED</u>	<u>Unit</u>	<u>Continuous Mode</u>				<u>Batch Mode^[a]</u>
		<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	<u>Fourth Quarter</u>	
Fission Gases						
Krypton 85	Ci	3.54E+0	4.62E+0	1.26E+1	2.28E+0	NA
TOTAL FOR QUARTER	Ci	3.54E+0	4.62E+0	1.26E+1	2.28E+0	NA

[a] Information is for all four quarters of 2002.

TABLE 1-9

**GASEOUS EFFLUENTS
GROUND LEVEL RELEASES**

January 1, 2002, through December 31, 2002

Sheet 2 of 2

<u>NUCLIDES RELEASED</u>	<u>Particulates > 8 Day T1/2</u>	<u>Unit</u>	<u>Continuous Mode</u>			<u>Batch Mode^[a]</u>
			<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	
Manganese 54	Ci	MDA	MDA	MDA	MDA	MDA
Cobalt 57	Ci	MDA	MDA	MDA	MDA	NA
Cobalt 60	Ci	MDA	MDA	MDA	MDA	NA
Strontium 90	Ci	MDA	MDA	MDA	MDA	NA
Cesium 134	Ci	MDA	MDA	MDA	MDA	NA
Cesium 137	Ci	MDA	MDA	MDA	MDA	NA
Cerium 144	Ci	MDA	MDA	MDA	MDA	NA
TOTAL FOR QUARTER	Ci	MDA	MDA	MDA	MDA	NA

^[a] Information is for all four quarters of 2002.

TABLE 1-10

**GASEOUS EFFLUENTS
ELEVATED RELEASES**

January 1, 2002, through December 31, 2002

No Elevated Release Points

TABLE 1-11
GASEOUS EFFLUENTS
LOWER LEVEL OF DETECTION

January 1, 2002, through December 31, 2002

<u>NUCLIDE</u>	<u>UNIT</u>	<u>CONTINUOUS RELEASE</u>
Tritium	$\mu\text{Ci}/\text{ml}$	1.00E-6
Krypton 85	$\mu\text{Ci}/\text{ml}$	1.00E-4
Cobalt 60	$\mu\text{Ci}/\text{ml}$	1.00E-11
Strontium 90	$\mu\text{Ci}/\text{ml}$	1.00E-11
Cesium 134	$\mu\text{Ci}/\text{ml}$	1.00E-11
Cesium 137	$\mu\text{Ci}/\text{ml}$	1.00E-11
Gross Alpha	$\mu\text{Ci}/\text{ml}$	1.00E-11

TABLE 1-12
LIQUID EFFLUENTS
SUMMATION OF RELEASES

January 1, 2002, through December 31, 2002

	<u>Unit</u>	<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>	<u>Fourth Quarter</u>	<u>Estimated Error (%)</u>
FISSION AND ACTIVATION PRODUCTS						
Total Activity Released (excluding gases, tritium, and alpha)	Ci	1.18E-4	4.81E-4	1.16E-3	4.99E-4	$\pm 3.1E+1$
Average Diluted Concentration	$\mu\text{Ci}/\text{ml}$	2.49E-8	4.76E-8	2.45E-7	5.86E-8	
Percent of Limit ODCM 3.2.1.1 - Instantaneous ODCM 3.2.1.2 - Quarterly Limit ODCM 3.2.1.3 - Quarterly Limit Requiring Processing	%	1.34E+0 4.75E-3 9.51E-3	2.37E+0 2.08E-2 4.16E-2	2.59E+1 4.95E-2 9.91E-2	1.33E+1 2.07E-2 4.14E-2	
TRITIUM						
Total Released	Ci	5.78E-3	8.89E-3	5.18E-2	1.62E-2	$\pm 3.1E+1$
Average Diluted Concentration	$\mu\text{Ci}/\text{ml}$	1.22E-6	8.80E-7	1.09E-5	1.90E-6	
Percent of ECV	%	1.22E-1	8.80E-2	1.09E+0	1.90E-1	
GROSS ALPHA RADIOACTIVITY						
Total Activity Released	Ci	6.13E-7	3.87E-5	7.64E-5	1.92E-5	$\pm 3.1E+1$
UNDILUTED VOLUME OF WASTE RELEASES	Liters	4.25E+4	1.27E+5	4.25E+4	8.88E+4	± 5.0
VOLUME OF DILUTION WATER	Liters	4.75E+6	1.01E+7	4.74E+6	8.51E+6	$\pm 1.5E+1$

TABLE 1-13
LIQUID EFFLUENTS

January 1, 2002, through December 31, 2002

<u>NUCLIDES RELEASED</u>	<u>Unit</u>	<u>Continuous Mode^[a]</u>		<u>Batch Mode</u>		<u>Fourth Quarter</u>
		<u>First Quarter</u>	<u>Second Quarter</u>	<u>Third Quarter</u>		
Sodium 22	NA	MDA	MDA	9.06E-7	1.74E-7	
Iron 55	NA	5.42E-6	7.27E-5	4.33E-4	8.79E-5	
Cobalt 57	NA	MDA	MDA	MDA	MDA	
Cobalt 60	NA	8.49E-5	2.50E-4	3.59E-4	2.43E-4	
Strontium 90	NA	1.53E-6	5.05E-6	1.36E-6	1.37E-5	
Niobium 94	NA	MDA	2.24E-6	9.53E-6	1.21E-6	
Silver 108m	NA	MDA	8.96E-7	2.42E-6	1.63E-6	
Antimony 125	NA	MDA	MDA	MDA	MDA	
Cesium 134	NA	MDA	7.29E-7	2.57E-6	MDA	
Cesium 137	NA	2.64E-5	1.33E-4	2.99E-4	1.25E-4	
Cerium 144	NA	MDA	MDA	MDA	MDA	
Europium 152	NA	MDA	MDA	MDA	MDA	
Europium 154	NA	MDA	1.08E-5	3.05E-5	5.02E-6	
Europium 155	NA	MDA	4.59E-6	9.03E-6	2.77E-6	
Americium 241	NA	MDA	MDA	1.48E-5	1.76E-5	
Unidentified	NA	MDA	MDA	MDA	MDA	
TOTAL	Ci	NA	1.18E-4	4.81E-4	1.16E-3	4.99E-4

^[a]Information for all four quarters of 2002.

TABLE 1-14
LIQUID EFFLUENTS
LOWER LEVEL OF DETECTION

January 1, 2002, through December 31, 2002

LOWER LEVEL OF DETECTION

<u>NUCLIDE</u>	<u>UNIT</u>	<u>BATCH RELEASE</u>
Tritium	$\mu\text{Ci}/\text{ml}$	1.00E-5
Iron 55	$\mu\text{Ci}/\text{ml}$	1.00E-6
Cobalt 60	$\mu\text{Ci}/\text{ml}$	5.00E-7
Strontium 90	$\mu\text{Ci}/\text{ml}$	5.00E-8
Cesium 134	$\mu\text{Ci}/\text{ml}$	5.00E-7
Cesium 137	$\mu\text{Ci}/\text{ml}$	5.00E-7
Gross Alpha	$\mu\text{Ci}/\text{ml}$	1.00E-7

TABLE 1-15
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS

January 1, 2002, through December 31, 2002

SOLID WASTE SHIPPED OFFSITE FOR BURIAL OR DISPOSAL (Not Irradiated Fuel) - Type of Waste	Activity*			Volume During 1-1 to 6-30	Activity During 7-1 to 12-31	Volume During 7-1 to 12-31	Estimated** Total Error (%)
	Activity During 1-1 to 6-30	Activity During 7-1 to 12-31	Activity During 7-1 to 12-31				
1. Spent Resin, Filters, Sludges, Evaporator Bottoms, etc.	0	0	3.95E+01 Ci	2.9 m ³	2.5E+01		
2. Dry Compressible Waste, Contaminated Equipment, etc.	3.79E-02 Ci	197.1 m ³	6.10E-02 Ci	164.4 m ³	2.5E+01		
3. Irradiated Components, Control Rods, etc.	0	0	0	0	0	0	0
4. Other	0	0	0	0	0	0	0
ESTIMATE OF MAJOR NUCLIDE DISTRIBUTION BY TYPE OF WASTE							
Nuclide							
1. See attached list, page 3 of 3.							
2. See attached list, page 3 of 3.							
3. N/A							
4. N/A							

* Note: Activity calculations include all shipments from PGE to U.S. Ecology.

** Basis: Instrument inaccuracies (portable and multi-channel analyzer).

TABLE 1-15
SOLID WASTE AND IRRADIATED FUEL SHIPMENTS
January 1, 2002, through December 31, 2002
SOLID WASTE DISPOSITION

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
10 - 1/1/2002 through 6/30/2002	Exclusive Use Truck	U.S. Ecology, Inc.
9 - 7/1/2002 through 12/31/2002	Exclusive Use Truck	P.O. Box 638 Richland, WA 99352

IRRADIATED FUEL SHIPMENTS

<u>Number of Shipments</u>	<u>Mode of Transportation</u>	<u>Destination</u>
0	NA	NA

Table 1-15
Estimate of Major Nuclide Distribution by type of Waste

Isotope	1-1-2002 to 6-30-2002		7-1-2002 to 12-31-2002		Type 2 DAW		Type 1 Resin		7-1-2002 to 12-31-2002		Type 2 DAW		
	Type 1 Resins	Type 2 DAW	Percent	Activity (Ci)	Percent	Activity (Ci)	Percent	Activity (Ci)	Percent	Activity (Ci)	Percent	Activity (Ci)	
Ag-110m	<	0.00%	<	0.0%	1.16E-05	Ag-110m	<	0.00%	1.97E-04	<	0.0%	1.86E-05	
Am-241	<	0.00%	<	0.1%	2.29E-05	Am-241	<	0.00%	6.97E-04	<	0.1%	3.68E-05	
C-14	<	0.00%	<	0.2%	6.20E-05	C-14	<	0.00%	0.15%	<	0.2%	9.98E-05	
Ce-144	0.15%	<	<	0.0%	2.80E-06	Ce-144	0.15%	5.81E-02	<	0.0%	4.51E-06	4.33E-10	
Cm-242	<	0.00%	<	0.0%	2.69E-10	Cm-242	<	0.00%	1.62E-04	<	0.0%	2.37E-05	
Cm-243	<	0.00%	<	0.0%	1.47E-05	Cm-243	<	0.00%	7.90E-09	Co-57	<	0.0%	
Co-57	<	0.00%	<	0.0%	1.64E-02	Co-60	81.79%	3.23E+01	<	0.0%	2.64E-02	43.3%	
Co-60	81.79%	<	<	43.3%	8.52E-06	Cs-134	0.10%	3.89E-02	<	0.0%	1.37E-05	0.0%	
Cs-134	<	0.10%	<	0.0%	8.11E-04	Cs-137	7.83%	3.09E+00	<	2.1%	1.31E-03	0.0%	
Cs-137	7.83%	<	<	2.1%	6.00E-06	Eu-155	0.06%	2.39E-02	<	0.0%	9.65E-06	15.2%	
Eu-155	0.06%	<	<	0.0%	5.75E-03	Fe-55	0.17%	6.68E-02	<	0.1%	5.56E-05	0.0%	
Fe-55	0.06%	<	<	15.2%	3.45E-05	H-3	0.00%	2.60E-05	<	0.0%	4.64E-06	0.0%	
H-3	0.17%	<	<	0.1%	2.88E-06	I-129	<	0.00%	2.75E-04	<	0.0%	1.11E-05	0.0%
I-129	<	0.00%	<	0.0%	6.91E-06	Mn-54	9.70%	3.83E+00	<	35.1%	2.14E-02	0.1%	
Mn-54	<	0.00%	<	0.0%	1.33E-02	Ni-63	<	0.00%	1.72E-04	<	0.1%	3.51E-05	0.0%
Ni-63	9.70%	<	<	35.1%	2.18E-05	Pu-238	<	0.00%	1.02E-02	<	2.4%	1.44E-03	0.0%
Pu-238	<	0.00%	<	0.1%	2.35E-05	Pu-239	<	0.00%	1.98E-05	<	0.0%	2.17E-05	0.0%
Pu-239	<	0.00%	<	0.1%	8.93E-04	Pu-241	<	0.03%	<	0.0%	1.81E-05	0.0%	0.0%
Pu-241	<	0.03%	<	2.4%	<	Pu-242	<	0.00%	<	0.0%	4.03E-04	0.7%	0.0%
Pu-242	<	0.00%	<	0.0%	1.35E-05	Ru-106	0.15%	5.91E-02	<	0.6%	3.86E-04	0.6%	0.0%
Ru-106	<	0.00%	<	0.0%	1.12E-05	Sb-125	0.03%	1.05E-02	<	0.0%	7.88E-06	0.0%	0.0%
Sb-125	0.15%	<	<	0.7%	2.51E-04	Sr-90	<	0.00%	1.98E-05	<	0.0%	0.0%	0.0%
Sr-90	<	0.03%	<	0.6%	2.40E-04	Tc-99	<	0.00%	<	0.0%	0.0%	0.0%	0.0%
Tc-99	<	0.00%	<	0.0%	4.90E-06								
Totals	100	0.00E+00	100	3.79E-02	Totals	100	3.95E+01			100	6.10E-02		

2. OFFSITE RADIATION DOSES

Offsite radiation doses from gaseous and liquid effluents for 2002 are presented in this section. Included are quarterly doses to individuals at locations of maximum exposure and quarterly doses to the 50-mile population. Doses are presented separately for batch and continuous releases from gaseous effluents.

For gaseous effluents, doses were calculated using conservative meteorological data. The highest χ/Q and D/Q values established for each receptor, from 1976 through 1994, were used to calculate population doses. All other doses due to gaseous effluents were conservatively calculated using meteorological data established for the site boundary.

TABLE 2-1

Sheet 1 of 2

**PARAMETERS USED IN CALCULATING DOSES FROM GASEOUS EFFLUENTS
FIRST AND SECOND HALVES 2002**

<u>Parameter</u>	<u>Value</u>
Accumulation and Decay Times (days)	
Harvest of leafy vegetables to consumption by man	1.0
Harvest of pasture grass to consumption by animals	0.0
Harvest of stored feed to consumption by animals	90.0
Harvest of produce to consumption by man	60.0
Animal butchering to consumption	20.0
Food ingestion by animal to milking	2.0
Accumulation time on ground	5,480.0
Human Consumption Rates (kg/yr)	
Leafy vegetables by adult	64.0
Produce by adult	456.0
Meat by adult	110.0
Milk by adult	310.0
Milk by infant	330.0
Breathing Rates (m³/yr)	
Adult	8,000.0
Infant	1,400.0
Animal Consumption Rates (kg/day)	
Animal feed by meat animal	50.0
Animal feed by milk cow	50.0
Animal feed by milk goat	6.0
Exposure Periods During Growing Season (days)	
Leafy vegetables	60.0
Pasture vegetation	30.0
Produce	60.0
Residential Structure Shielding Factor	0.7
Fraction of Particulates Initially Deposited on Leafy Vegetation	0.2
Fraction of Particulates Initially Deposited on Produce	0.2

TABLE 2-1

Sheet 2 of 2

PARAMETERS USED IN CALCULATING DOSES FROM GASEOUS EFFLUENTS

<u>Parameter</u>	<u>Value</u>
Fraction of Iodine Deposited on Leafy Vegetation	1.0
Fraction of Iodine Deposited on Produce	1.0
Surface Density of Soil for Root Zone (kg/m ²)	240.0
Field Decay Half Life (days)	14.0
Agricultural Productivity (kg/m ²)	
Leafy vegetables	2.0
Pasture grass	0.7
Produce	2.0
Period of Long-Term Buildup for Activity in Soil (days)	5,480.0
Fraction of Leafy Vegetables Grown in Garden of Interest	1.0
Fraction of Produce Grown in Garden of Interest	1.0
Fraction of Year Animal Grazes on Pasture	0.5
Fraction of Daily Feed that is Pasture Grass when Animal Grazes	1.0

TABLE 2-2

Sheet 1 of 3

PARAMETERS USED IN CALCULATING DOSES FROM LIQUID EFFLUENTS

Parameter	Value			
	First Quarter 2002	Second Quarter 2002	Third Quarter 2002	Fourth Quarter 2002
Plant Dilution Flow Rate (gpm)	2,280	2,155	1,836	1,993
Columbia River Flow Rate (cfs)	172,293	279,847	167,612	131,944
Dilution Factors				
Drinking water	33,916	58,301	40,981	29,717
Swimming water	7,462	12,826	9,016	6,538
Aquatic biota	7,462	12,826	9,016	6,538
Shoreline sediment	7,462	12,826	9,016	6,538
Irrigation water	33,916	58,301	40,981	29,717
Milk and meat animal water	33,916	58,301	40,981	29,717
Decay Times (days)				
Discharge to drinking water	0.70	0.62	0.71	0.76
Discharge to swimming water	0.0	0.0	0.0	0.0
Discharge to aquatic biota consumption	1.0	1.0	1.0	1.0
Discharge to deposition on shoreline sediment	0.0	0.0	0.0	0.0
Discharge to irrigation water withdrawal	0.70	0.62	0.71	0.76
Discharge to milk and meat animal water withdrawal	0.70	0.62	0.71	0.76
Leafy vegetable harvest to consumption by man	1	1	1	1
Produce harvest to consumption by man	60	60	60	60
Stored feed harvest to consumption by animals	90	90	90	90
Pasture grass to consumption by animals	0	0	0	0
Animal butchering to consumption	20	20	20	20
Food and water ingestion by cow/goat to milking	2	2	2	2

TABLE 2-2

Sheet 2 of 3

PARAMETERS USED IN CALCULATING DOSES FROM LIQUID EFFLUENTS

Parameter	Value			
	First Quarter 2002	Second Quarter 2002	Third Quarter 2002	Fourth Quarter 2002
Accumulation Times (days)				
Shoreline sediment	5,480	5,480	5,480	5,480
Irrigated soil	5,480	5,480	5,480	5,480
Irrigated vegetables	60	60	60	60
Pasture grass	30	30	30	30
Adult Consumption Rates (kg/yr)				
Drinking water	730	730	730	730
Fish	21	21	21	21
Invertebrates (crayfish)	5	5	5	5
Irrigated leafy vegetables	64	64	64	64
Irrigated produce	456	456	456	456
Cow's milk from irrigated pastureland	310	310	310	310
Goat's milk from irrigated pastureland	310	310	310	310
Meat from irrigated pastureland	110	110	110	110
Annual Exposure Times (hr/yr)				
Swimming and boating	12	12	12	12
Shoreline activities	12	12	12	12
Irrigated pasture	2,190	2,190	2,190	2,190
Infant Consumption Rates (kg/yr)				
Drinking water	330	330	330	330
Cow's milk from irrigated pastureland	330	330	330	330
Fraction of Year Animals Graze on Pasture	0.5	0.5	0.5	0.5
Fraction of Year Crops are Irrigated	0.5	0.5	0.5	0.5
Field (Weathering) Half-Life (days)	14	14	14	14
Irrigation Rate (liters/m ² -hr)	0.104	0.104	0.104	0.104
Fractional Concentration of Water in Soil (g/g)	0.2	0.2	0.2	0.2

TABLE 2-2

Sheet 3 of 3

PARAMETERS USED IN CALCULATING DOSES FROM LIQUID EFFLUENTS

Parameter	Value			
	First Quarter 2002	Second Quarter 2002	Third Quarter 2002	Fourth Quarter 2002
Fraction of Leafy Vegetables Grown in Garden of Interest	1	1	1	1
Fraction of Produce Grown in Garden of Interest	0.7	0.7	0.7	0.7
Irrigated Soil Self-Shielding Factor	2.5	2.5	2.5	2.5
Fraction of Isotope in Irrigation Water That is Initially Retained by Leafy Vegetables	0.25	0.25	0.25	0.25
Fraction of Isotope in Irrigation Water That is Initially Retained by Produce	0.25	0.25	0.25	0.25
Pasture Grass Yield (kg/m ²)	0.7	0.7	0.7	0.7
Vegetable Yield (kg/m ²)	2	2	2	2
Surface Density of Soil (kg/m ²)	240	240	240	240
Animal Consumption Rates (kg/day)				
Water by milk cow	60	60	60	60
Water by milk goat	8	8	8	8
Water by beef	50	50	50	50
Pasture vegetation by milk cow	50	50	50	50
Pasture vegetation by milk goat	6	6	6	6
Pasture vegetation by beef	50	50	50	50

TABLE 2-3

Page 1 of 2

SUMMARY OF DOSES RESULTING FROM RADIOACTIVE RELEASES
IN LIQUID WASTES (MREM/YR) [MAXIMUM COMBINATION OF PATHWAYS:
AQUATIC PLUS IRRIGATION (GOAT OR COW MILK CONSUMPTION)]

2002

FIRST QUARTER 2002

<u>AGE GROUP</u>	<u>WHOLE BODY</u>	<u>SKIN</u>	<u>BONE</u>	<u>GI TRACT</u>	<u>THYROID</u>	<u>LUNG</u>	<u>KIDNEY</u>	<u>LIVER</u>
ADULT	3.69E-6	3.70E-6	4.74E-6	5.86E-7	9.17E-8	6.74E-7	1.89E-6	5.27E-6
TEEN	2.29E-6	2.31E-6	5.10E-6	5.17E-7	1.44E-7	8.72E-7	2.05E-6	5.67E-6
CHILD	1.15E-6	1.16E-6	6.64E-6	2.17E-7	4.53E-8	6.71E-7	1.80E-6	5.40E-6
INFANT	1.50E-7	1.50E-7	1.08E-6	3.25E-8	1.67E-8	1.28E-7	2.93E-7	1.05E-6

SECOND QUARTER 2002

<u>AGE GROUP</u>	<u>WHOLE BODY</u>	<u>SKIN</u>	<u>BONE</u>	<u>GI TRACT</u>	<u>THYROID</u>	<u>LUNG</u>	<u>KIDNEY</u>	<u>LIVER</u>
ADULT	1.14E-5	1.15E-5	1.79E-5	3.67E-6	1.70E-7	2.01E-6	7.75E-6	1.78E-5
TEEN	6.95E-6	7.00E-6	1.83E-5	2.86E-6	2.77E-7	2.57E-6	7.88E-6	1.88E-5
CHILD	3.38E-6	3.39E-6	2.24E-5	1.13E-6	7.21E-8	2.05E-6	6.77E-6	1.80E-5
INFANT	3.76E-7	3.76E-7	3.29E-6	5.94E-8	1.58E-8	3.64E-7	9.39E-7	3.30E-6

TABLE 2-3

Page 2 of 2

**SUMMARY OF DOSES RESULTING FROM RADIOACTIVE RELEASES
IN LIQUID WASTES (MREM/YR) [MAXIMUM COMBINATION OF PATHWAYS:
AQUATIC PLUS IRRIGATION (GOAT OR COW MILK CONSUMPTION)]**

THIRD QUARTER 2002

<u>AGE GROUP</u>	<u>WHOLE BODY</u>	<u>SKIN</u>	<u>BONE</u>	<u>GI TRACT</u>	<u>THYROID</u>	<u>LUNG</u>	<u>KIDNEY</u>	<u>LIVER</u>
ADULT	4.17E-5	4.17E-5	6.29E-5	2.43E-5	5.36E-7	7.67E-6	2.95E-5	6.74E-5
TEEN	2.48E-5	2.49E-5	6.46E-5	1.83E-5	8.16E-7	9.71E-6	2.98E-5	7.12E-5
CHILD	1.11E-5	1.11E-5	7.89E-5	7.27E-6	3.13E-7	7.99E-6	2.58E-5	6.14E-5
INFANT	1.14E-6	1.14E-6	1.10E-5	3.73E-7	1.35E-7	1.47E-6	3.65E-6	1.27E-5

FOURTH QUARTER 2002

<u>AGE GROUP</u>	<u>WHOLE BODY</u>	<u>SKIN</u>	<u>BONE</u>	<u>GI TRACT</u>	<u>THYROID</u>	<u>LUNG</u>	<u>KIDNEY</u>	<u>LIVER</u>
ADULT	2.42E-5	2.42E-5	4.18E-5	6.82E-6	3.70E-7	4.03E-6	1.55E-5	3.53E-5
TEEN	1.52E-5	1.54E-5	4.23E-5	5.46E-6	5.76E-7	5.16E-6	1.57E-5	3.73E-5
CHILD	8.69E-6	8.70E-6	5.23E-5	2.29E-6	1.78E-7	4.12E-6	1.35E-5	3.58E-5
INFANT	1.17E-6	1.17E-6	8.06E-6	1.85E-7	6.15E-8	7.51E-7	1.89E-6	6.59E-6

TABLE 2-4

FIRST QUARTER 2002		
POPULATION DOSE (50-MILE) FROM LIQUID EFFLUENTS (MAN-REM)		
EXPOSURE PATHWAY	TOTAL BODY	THYROID
AQUATIC		
DRINKING WATER	1.1E-07	1.2E-08
FISH CONSUMPTION	2.3E-04	3.2E-08
INVERTEBRATE CONSUMPTION	1.5E-07	3.6E-11
EXPOSURE TO CONTAMINATED SEDIMENT	9.7E-08	9.7E-08
SWIMMING AND BOATING	4.1E-10	4.1E-10
IRRIGATION AND LIVESTOCK WATERING		
LEAFY VEGETABLE CONSUMPTION	1.0E-09	1.9E-11
PRODUCT CONSUMPTION	5.2E-09	9.7E-11
MEAT CONSUMPTION	1.1E-08	7.2E-10
MILK CONSUMPTION	2.0E-07	7.1E-09
EXPOSURE TO CONTAMINATED SOIL	8.2E-09	8.2E-09
TOTAL	2.3E-04	1.6E-07
AVERAGE DOSE (MREM/PERSON)	1.1E-07	7.6E-11

TABLE 2-5

SECOND QUARTER 2002		
POPULATION DOSE (50-MILE) FROM LIQUID EFFLUENTS (MAN-REM)		
EXPOSURE PATHWAY	TOTAL BODY	THYROID
AQUATIC		
DRINKING WATER	2.7E-07	1.1E-08
FISH CONSUMPTION	7.1E-04	3.0E-08
INVERTEBRATE CONSUMPTION	5.2E-07	3.4E-11
EXPOSURE TO CONTAMINATED SEDIMENT	1.9E-07	1.9E-07
SWIMMING AND BOATING	7.8E-10	7.8E-10
IRRIGATION AND LIVESTOCK WATERING		
LEAFY VEGETABLE CONSUMPTION	2.7E-09	1.8E-11
PRODUCE CONSUMPTION	1.4E-08	9.2E-11
MEAT CONSUMPTION	2.8E-08	6.8E-10
MILK CONSUMPTION	6.0E-07	6.7E-09
EXPOSURE TO CONTAMINATED SOIL	1.6E-08	1.6E-08
TOTAL	7.1E-04	2.6E-07
AVERAGE DOSE (MREM/PERSON)	3.5E-07	1.3E-10

TABLE 2-6

THIRD QUARTER - 2002		
POPULATION DOSE (50-MILE) FROM LIQUID EFFLUENTS (MAN-REM)		
EXPOSURE PATHWAY	TOTAL BODY	THYROID
AQUATIC		
DRINKING WATER	7.1E-07	1.1E-07
FISH CONSUMPTION	2.6E-03	3.9E-07
INVERTEBRATE CONSUMPTION	1.9E-06	5.4E-10
EXPOSURE TO CONTAMINATED SEDIMENT	5.2E-07	5.2E-07
SWIMMING AND BOATING	2.8E-09	2.8E-09
IRRIGATION AND LIVESTOCK WATERING		
LEAFY VEGETABLE CONSUMPTION	6.4E-09	1.8E-10
PRODUCE CONSUMPTION	3.2E-08	9.1E-10
MEAT CONSUMPTION	9.6E-08	7.0E-09
MILK CONSUMPTION	2.2E-06	7.1E-08
EXPOSURE TO CONTAMINATED SOIL	4.4E-08	4.4E-08
TOTAL	2.6E-03	1.1E-06
AVERAGE DOSE (REM/PERSON)	1.3E-06	5.5E-10

TABLE 2-7

FOURTH QUARTER 2002		
POPULATION DOSE (50-MILE) FROM LIQUID EFFLUENTS (MAN-REM)		
EXPOSURE PATHWAY	TOTAL BODY	THYROID
AQUATIC		
DRINKING WATER	9.7E-07	4.3E-08
FISH CONSUMPTION	1.4E-03	1.4E-07
INVERTEBRATE CONSUMPTION	1.2E-06	1.8E-10
EXPOSURE TO CONTAMINATED SEDIMENT	3.9E-07	3.9E-07
SWIMMING AND BOATING	1.8E-09	1.8E-09
IRRIGATION AND LIVESTOCK WATERING		
LEAFY VEGETABLE CONSUMPTION	9.9E-09	7.2E-11
PRODUCE CONSUMPTION	4.9E-08	3.6E-10
MEAT CONSUMPTION	6.8E-08	2.7E-09
MILK CONSUMPTION	1.3E-06	2.7E-08
EXPOSURE TO CONTAMINATED SOIL	3.3E-08	3.3E-08
TOTAL	1.4E-03	6.4E-07
AVERAGE DOSE (REM/PERSON)	7.0E-07	3.1E-10

TABLE 2-8

BATCH RELEASES
FIRST, SECOND, THIRD, AND FOURTH QUARTERS 2002

DOSES FROM NOBLE GASES AT
SITE BOUNDARY AND RESIDENCE OF
HIGHEST CONCENTRATION

	<u>Site Boundary^[a]</u>	<u>Residence^[b]</u>
Beta Air Dose (mrad)	0.00E+00	0.00E+00
Gamma Air Dose (mrad)	0.00E+00	0.00E+00
Beta + Gamma Skin Dose (mrem)	-	0.00E+00
Gamma Total Body Dose (mrem)	-	0.00E+00

[a] All Sectors

[b] All Sectors

TABLE 2-9
CONTINUOUS RELEASES
FIRST, SECOND, THIRD, AND FOURTH QUARTERS 2002
DOSES FROM NOBLE GASES AT
SITE BOUNDARY AND RESIDENCE OF
HIGHEST CONCENTRATION

	Site	
	<u>Boundary</u> ^[a]	<u>Residence</u> ^[b]
<u>FIRST QUARTER 2002</u>		
Beta Air Dose (mrad)	2.74E-03	2.74E-03
Gamma Air Dose (mrad)	2.42E-05	1.69E-05
Beta + Gamma Skin Dose (mrem)	-	1.90E-03
Gamma Total Body Dose (mrem)	-	1.58E-05
<u>SECOND QUARTER 2002</u>		
Beta Air Dose (mrad)	3.58E-03	3.58E-03
Gamma Air Dose (mrad)	3.15E-05	2.21E-05
Beta + Gamma Skin Dose (mrem)	-	2.48E-03
Gamma Total Body Dose (mrem)	-	2.07E-05
<u>THIRD QUARTER 2002</u>		
Beta Air Dose (mrad)	9.75E-03	9.75E-03
Gamma Air Dose (mrad)	8.60E-05	6.02E-05
Beta + Gamma Skin Dose (mrem)	-	6.76E-03
Gamma Total Body Dose (mrem)	-	6.68E-05
<u>FOURTH QUARTER 2002</u>		
Beta Air Dose (mrad)	1.76E-03	1.76E-03
Gamma Air Dose (mrad)	1.56E-05	1.09E-05
Beta + Gamma Skin Dose (mrem)	-	1.22E-03
Gamma Total Body Dose (mrem)	-	1.02E-05

[a] N Sector at 663 meters.

[b] N Sector at 663 meters.

TABLE 2-10

BATCH + CONTINUOUS RELEASES
FIRST, SECOND, THIRD, AND FOURTH QUARTERS 2002

DOSES FROM NOBLE GASES AT
SITE BOUNDARY AND RESIDENCE OF
HIGHEST CONCENTRATION

	<u>Site Boundary^[a]</u>	<u>Residence^[b]</u>
<u>FIRST QUARTER 2002</u>		
Beta Air Dose (mrad)	2.74E-03	2.74E-03
Gamma Air Dose (mrad)	2.42E-05	1.69E-05
Beta + Gamma Skin Dose (mrem)	-	1.90E-03
Gamma Total Body Dose (mrem)	-	1.58E-05
<u>SECOND QUARTER 2002</u>		
Beta Air Dose (mrad)	3.58E-03	3.58E-03
Gamma Air Dose (mrad)	3.15E-05	2.21E-05
Beta + Gamma Skin Dose (mrem)	-	2.48E-03
Gamma Total Body Dose (mrem)	-	2.07E-05
<u>THIRD QUARTER 2002</u>		
Beta Air Dose (mrad)	9.75E-03	9.75E-03
Gamma Air Dose (mrad)	8.60E-05	6.02E-05
Beta + Gamma Skin Dose (mrem)	-	6.76E-03
Gamma Total Body Dose (mrem)	-	6.68E-05
<u>FOURTH QUARTER 2002</u>		
Beta Air Dose (mrad)	1.76E-03	1.76E-03
Gamma Air Dose (mrad)	1.56E-05	1.09E-05
Beta + Gamma Skin Dose (mrem)	-	1.22E-03
Gamma Total Body Dose (mrem)	-	1.02E-05

[a] N Sector at 663 meters.

[b] N Sector at 663 meters.

TABLE 2-11

1 QUARTER 2002 BATCH RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
<hr/>								
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
<hr/>								
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
<hr/>								
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
<hr/>								
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-12

1 QUARTER 2002 CONTINUOUS RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MRSEN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00	6.34E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.75E-04						
PRODUCE CONSUMPTION	0.00E+00	9.48E-04						
TOTAL	0.00E+00	1.76E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00	6.34E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.75E-04						
PRODUCE CONSUMPTION	0.00E+00	9.48E-04						
MEAT CONSUMPTION	0.00E+00	1.80E-04						
TOTAL	0.00E+00	1.94E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00	6.34E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.75E-04						
PRODUCE CONSUMPTION	0.00E+00	9.48E-04						
MEAT CONSUMPTION	0.00E+00	1.80E-04						
COW MILK CONSUMPTION	0.00E+00	4.24E-04						
TOTAL	0.00E+00	2.36E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00	6.34E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.75E-04						
PRODUCE CONSUMPTION	0.00E+00	9.48E-04						
MEAT CONSUMPTION	0.00E+00	1.80E-04						
GOAT MILK CONSUMPTION	0.00E+00	8.65E-04						
TOTAL	0.00E+00	2.80E-03						

TABLE 2-13

1 QUARTER 2002 BATCH + CONTINUOUS RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(RE/MEM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.34E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.75E-04						
PRODUCE CONSUMPTION	0.00E+00	9.48E-04						
TOTAL	0.00E+00	1.76E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.34E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.75E-04						
PRODUCE CONSUMPTION	0.00E+00	9.48E-04						
MEAT CONSUMPTION	0.00E+00	1.80E-04						
TOTAL	0.00E+00	1.94E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.34E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.75E-04						
PRODUCE CONSUMPTION	0.00E+00	9.48E-04						
MEAT CONSUMPTION	0.00E+00	1.80E-04						
COW MILK CONSUMPTION	0.00E+00	4.24E-04						
TOTAL	0.00E+00	2.36E-03						
MILK GOAT								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.34E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.75E-04						
PRODUCE CONSUMPTION	0.00E+00	9.48E-04						
MEAT CONSUMPTION	0.00E+00	1.80E-04						
GOAT MILK CONSUMPTION	0.00E+00	8.65E-04						
TOTAL	0.00E+00	2.80E-03						

TABLE 2-14

1 QUARTER 2002 BATCH RELEASES

TEEN

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(REM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LIX	SKIN
<hr/>								
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
<hr/>								

TABLE 2-15

1 QUARTER 2002 CONTINUOUS RELEASES

TEEN

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	6.38E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.16E-04						
PRODUCE CONSUMPTION	0.00E+00	1.23E-03						
TOTAL	0.00E+00	1.99E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	6.38E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.16E-04						
PRODUCE CONSUMPTION	0.00E+00	1.23E-03						
MEAT CONSUMPTION	0.00E+00	1.07E-04						
TOTAL	0.00E+00	2.10E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	6.38E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.16E-04						
PRODUCE CONSUMPTION	0.00E+00	1.23E-03						
MEAT CONSUMPTION	0.00E+00	1.07E-04						
COW MILK CONSUMPTION	0.00E+00	5.52E-04						
TOTAL	0.00E+00	2.65E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	6.38E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.16E-04						
PRODUCE CONSUMPTION	0.00E+00	1.23E-03						
MEAT CONSUMPTION	0.00E+00	1.07E-04						
GOAT MILK CONSUMPTION	0.00E+00	1.13E-03						
TOTAL	0.00E+00	3.22E-03						

TABLE 2-16

1 QUARTER 2002 BATCH + CONTINUOUS RELEASES

TREN

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.38E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.16E-04						
PRODUCE CONSUMPTION	0.00E+00	1.23E-03						
TOTAL	0.00E+00	1.99E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.38E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.16E-04						
PRODUCE CONSUMPTION	0.00E+00	1.23E-03						
MEAT CONSUMPTION	0.00E+00	1.07E-04						
TOTAL	0.00E+00	2.10E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.38E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.16E-04						
PRODUCE CONSUMPTION	0.00E+00	1.23E-03						
MEAT CONSUMPTION	0.00E+00	1.07E-04						
COW MILK CONSUMPTION	0.00E+00	5.52E-04						
TOTAL	0.00E+00	2.65E-03						
MILK GOAT								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.38E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.16E-04						
PRODUCE CONSUMPTION	0.00E+00	1.23E-03						
MEAT CONSUMPTION	0.00E+00	1.07E-04						
GOAT MILK CONSUMPTION	0.00E+00	1.13E-03						
TOTAL	0.00E+00	3.22E-03						

TABLE 2-17

1 QUARTER 2002 BATCH RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-18

1 QUARTER 2002 CONTINUOUS RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MRREN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR EXPOSURE TO SOIL	0.00E+00	5.64E-04						
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00	1.38E-04						
TOTAL	0.00E+00	2.69E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.64E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.38E-04						
PRODUCE CONSUMPTION	0.00E+00	1.99E-03						
MEAT CONSUMPTION	0.00E+00	1.30E-04						
TOTAL	0.00E+00	2.82E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.64E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.38E-04						
PRODUCE CONSUMPTION	0.00E+00	1.99E-03						
MEAT CONSUMPTION	0.00E+00	1.30E-04						
COW MILK CONSUMPTION	0.00E+00	8.73E-04						
TOTAL	0.00E+00	3.69E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.64E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.38E-04						
PRODUCE CONSUMPTION	0.00E+00	1.99E-03						
MEAT CONSUMPTION	0.00E+00	1.30E-04						
GOAT MILK CONSUMPTION	0.00E+00	1.78E-03						
TOTAL	0.00E+00	4.60E-03						

TABLE 2-19

1 QUARTER 2002 BATCH + CONTINUOUS RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY					GI-LI	SKIN
			THYROID	KIDNEY	LUNG				
GARDEN									
MAXIMUM LOCATION									
AIR INHALATION	0.00E+00	5.64E-04							
EXPOSURE TO SOIL	0.00E+00								
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.38E-04							
PRODUCE CONSUMPTION	0.00E+00	1.99E-03							
TOTAL	0.00E+00	2.69E-03							
MEAT ANIMAL									
MAXIMUM LOCATION									
AIR INHALATION	0.00E+00	5.64E-04							
EXPOSURE TO SOIL	0.00E+00								
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.38E-04							
PRODUCE CONSUMPTION	0.00E+00	1.99E-03							
MEAT CONSUMPTION	0.00E+00	1.30E-04							
TOTAL	0.00E+00	2.82E-03							
MILK COW									
MAXIMUM LOCATION									
AIR INHALATION	0.00E+00	5.64E-04							
EXPOSURE TO SOIL	0.00E+00								
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.38E-04							
PRODUCE CONSUMPTION	0.00E+00	1.99E-03							
MEAT CONSUMPTION	0.00E+00	1.30E-04							
COW MILK CONSUMPTION	0.00E+00	8.73E-04							
TOTAL	0.00E+00	3.69E-03							
MILK GOAT									
MAXIMUM LOCATION									
AIR INHALATION	0.00E+00	5.64E-04							
EXPOSURE TO SOIL	0.00E+00								
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.38E-04							
PRODUCE CONSUMPTION	0.00E+00	1.99E-03							
MEAT CONSUMPTION	0.00E+00	1.30E-04							
GOAT MILK CONSUMPTION	0.00E+00	1.78E-03							
TOTAL	0.00E+00	4.60E-03							

TABLE 2-20

1 QUARTER 2002 BATCH RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-21

1 QUARTER 2002 CONTINUOUS RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	3.24E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	3.24E-04						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	3.24E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	3.24E-04						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	3.24E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00	1.32E-03						
TOTAL	0.00E+00	1.65E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	3.24E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00	2.70E-03						
TOTAL	0.00E+00	3.03E-03						

TABLE 2-22

1 QUARTER 2002 BATCH + CONTINUOUS RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	3.24E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	3.24E-04						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	3.24E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00	1.32E-03						
TOTAL	0.00E+00	1.65E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	3.24E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00	2.70E-03						
TOTAL	0.00E+00	3.03E-03						

TABLE 2-23

2 QUARTER 2002 BATCH RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-24

2 QUARTER 2002 CONTINUOUS RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.00E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.77E-04						
PRODUCE CONSUMPTION	0.00E+00	1.50E-03						
TOTAL	0.00E+00	2.78E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.00E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.77E-04						
PRODUCE CONSUMPTION	0.00E+00	1.50E-03						
MEAT CONSUMPTION	0.00E+00	2.85E-04						
TOTAL	0.00E+00	3.07E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.00E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.77E-04						
PRODUCE CONSUMPTION	0.00E+00	1.50E-03						
MEAT CONSUMPTION	0.00E+00	2.85E-04						
COW MILK CONSUMPTION	0.00E+00	6.71E-04						
TOTAL	0.00E+00	3.74E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.00E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.77E-04						
PRODUCE CONSUMPTION	0.00E+00	1.50E-03						
MEAT CONSUMPTION	0.00E+00	2.85E-04						
GOAT MILK CONSUMPTION	0.00E+00	1.37E-03						
TOTAL	0.00E+00	4.44E-03						

TABLE 2-25

2 QUARTER 2002 BATCH + CONTINUOUS RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.00E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.77E-04						
PRODUCE CONSUMPTION	0.00E+00	1.50E-03						
TOTAL	0.00E+00	2.78E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.00E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.77E-04						
PRODUCE CONSUMPTION	0.00E+00	1.50E-03						
MEAT CONSUMPTION	0.00E+00	2.85E-04						
TOTAL	0.00E+00	3.07E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.00E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.77E-04						
PRODUCE CONSUMPTION	0.00E+00	1.50E-03						
MEAT CONSUMPTION	0.00E+00	2.85E-04						
COW MILK CONSUMPTION	0.00E+00	6.71E-04						
TOTAL	0.00E+00	3.74E-03						
MILK GOAT								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.00E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.77E-04						
PRODUCE CONSUMPTION	0.00E+00	1.50E-03						
MEAT CONSUMPTION	0.00E+00	2.85E-04						
GOAT MILK CONSUMPTION	0.00E+00	1.37E-03						
TOTAL	0.00E+00	4.44E-03						

TABLE 2-26

2 QUARTER 2002 BATCH RELEASES

TEEN

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MRSEN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-27

2 QUARTER 2002 CONTINUOUS RELEASES

TEEN

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LILI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.01E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.84E-04						
PRODUCE CONSUMPTION	0.00E+00	1.95E-03						
TOTAL	0.00E+00	3.15E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.01E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.84E-04						
PRODUCE CONSUMPTION	0.00E+00	1.95E-03						
MEAT CONSUMPTION	0.00E+00	1.70E-04						
TOTAL	0.00E+00	3.32E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.01E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.84E-04						
PRODUCE CONSUMPTION	0.00E+00	1.95E-03						
MEAT CONSUMPTION	0.00E+00	1.70E-04						
COW MILK CONSUMPTION	0.00E+00	8.74E-04						
TOTAL	0.00E+00	4.19E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.01E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.84E-04						
PRODUCE CONSUMPTION	0.00E+00	1.95E-03						
MEAT CONSUMPTION	0.00E+00	1.70E-04						
GOAT MILK CONSUMPTION	0.00E+00	1.78E-03						
TOTAL	0.00E+00	5.10E-03						

TABLE 2-28

2 QUARTER 2002 BATCH + CONTINUOUS RELEASES

TEEN

DOSSES FROM GASEOUS-EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(NREN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BCDY	THYROID	KIDNEY	LUNG	GI-LLX	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.01E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.84E-04						
PRODUCE CONSUMPTION	0.00E+00	1.95E-03						
TOTAL	0.00E+00	3.15E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.01E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.84E-04						
PRODUCE CONSUMPTION	0.00E+00	1.95E-03						
MEAT CONSUMPTION	0.00E+00	1.70E-04						
COW MILK CONSUMPTION	0.00E+00	8.74E-04						
TOTAL	0.00E+00	3.32E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.01E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.84E-04						
PRODUCE CONSUMPTION	0.00E+00	1.95E-03						
MEAT CONSUMPTION	0.00E+00	1.70E-04						
COW MILK CONSUMPTION	0.00E+00	1.78E-03						
TOTAL	0.00E+00	5.10E-03						

TABLE 2-29

2 QUARTER 2002 BATCH RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GILLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-30

2 QUARTER 2002 CONTINUOUS RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(REGEN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
<hr/>								
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	8.92E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.18E-04						
PRODUCE CONSUMPTION	0.00E+00	3.14E-03						
TOTAL	0.00E+00	4.25E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	8.92E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.18E-04						
PRODUCE CONSUMPTION	0.00E+00	3.14E-03						
MEAT CONSUMPTION	0.00E+00	2.05E-04						
COW MILK CONSUMPTION	0.00E+00	1.38E-03						
TOTAL	0.00E+00	4.46E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	8.92E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.18E-04						
PRODUCE CONSUMPTION	0.00E+00	3.14E-03						
MEAT CONSUMPTION	0.00E+00	2.05E-04						
COW MILK CONSUMPTION	0.00E+00	1.38E-03						
TOTAL	0.00E+00	5.84E-03						
<hr/>								
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	8.92E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.18E-04						
PRODUCE CONSUMPTION	0.00E+00	3.14E-03						
MEAT CONSUMPTION	0.00E+00	2.05E-04						
GOAT MILK CONSUMPTION	0.00E+00	2.82E-03						
TOTAL	0.00E+00	7.28E-03						

TABLE 2-31

2 QUARTER 2002 BATCH + CONTINUOUS RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	8.92E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.18E-04						
PRODUCE CONSUMPTION	0.00E+00	3.14E-03						
TOTAL	0.00E+00	4.25E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	8.92E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.18E-04						
PRODUCE CONSUMPTION	0.00E+00	3.14E-03						
MEAT CONSUMPTION	0.00E+00	2.05E-04						
TOTAL	0.00E+00	4.46E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	8.92E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.18E-04						
PRODUCE CONSUMPTION	0.00E+00	3.14E-03						
MEAT CONSUMPTION	0.00E+00	2.05E-04						
COW MILK CONSUMPTION	0.00E+00	1.38E-03						
TOTAL	0.00E+00	5.84E-03						
MILK GOAT								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	8.92E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.18E-04						
PRODUCE CONSUMPTION	0.00E+00	3.14E-03						
MEAT CONSUMPTION	0.00E+00	2.05E-04						
GOAT MILK CONSUMPTION	0.00E+00	2.82E-03						
TOTAL	0.00E+00	7.28E-03						

TABLE 2-32

B 2 QUARTER 2002 BATCH RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MEN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-33

2 QUARTER 2002 CONTINUOUS RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR EXPOSURE TO SOIL	0.00E+00	5.13E-04						
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	5.13E-04						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.13E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	5.13E-04						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.13E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00	2.10E-03						
TOTAL	0.00E+00	2.61E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.13E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00	4.28E-03						
TOTAL	0.00E+00	4.79E-03						

TABLE 2-34

2 QUARTER 2002 BATCH + CONTINUOUS RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	5.13E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	5.13E-04						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	5.13E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00	2.10E-03						
TOTAL	0.00E+00	2.61E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	5.13E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00	4.28E-03						
TOTAL	0.00E+00	4.79E-03						

TABLE 2-35

3 QUARTER 2002 BATCH RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MRME)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-36

3 QUARTER 2002 CONTINUOUS RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITES EXPOSURE LOCATIONS
(MREN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GX-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	3.39E-04						
PRODUCE CONSUMPTION	0.00E+00	1.84E-03						
TOTAL	0.00E+00	3.40E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	3.39E-04						
PRODUCE CONSUMPTION	0.00E+00	1.84E-03						
MEAT CONSUMPTION	0.00E+00	3.48E-04						
TOTAL	0.00E+00	3.75E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	3.39E-04						
PRODUCE CONSUMPTION	0.00E+00	1.84E-03						
MEAT CONSUMPTION	0.00E+00	3.48E-04						
COW MILK CONSUMPTION	0.00E+00	8.21E-04						
TOTAL	0.00E+00	4.57E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	3.39E-04						
PRODUCE CONSUMPTION	0.00E+00	1.84E-03						
MEAT CONSUMPTION	0.00E+00	3.48E-04						
GOAT MILK CONSUMPTION	0.00E+00	1.67E-03						
TOTAL	0.00E+00	5.42E-03						

TABLE 2-37

3 QUARTER 2002 BATCH + CONTINUOUS RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	3.39E-04						
PRODUCE CONSUMPTION	0.00E+00	1.84E-03						
TOTAL	0.00E+00	3.40E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	3.39E-04						
PRODUCE CONSUMPTION	0.00E+00	1.84E-03						
MEAT CONSUMPTION	0.00E+00	3.48E-04						
TOTAL	0.00E+00	3.75E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	3.39E-04						
PRODUCE CONSUMPTION	0.00E+00	1.84E-03						
MEAT CONSUMPTION	0.00E+00	3.48E-04						
COW MILK CONSUMPTION	0.00E+00	8.21E-04						
TOTAL	0.00E+00	4.57E-03						
MILK GOAT								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	3.39E-04						
PRODUCE CONSUMPTION	0.00E+00	1.84E-03						
MEAT CONSUMPTION	0.00E+00	3.48E-04						
GOAT MILK CONSUMPTION	0.00E+00	1.67E-03						
TOTAL	0.00E+00	5.42E-03						

TABLE 2-38

3 QUARTER 2002 BATCH RELEASES

TREN

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MEN)

EXPOSURE LOCATION AND PATHWAY	TOTAL							
	BONE	LIVER	BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-39

3 QUARTER 2002 CONTINUOUS RELEASES

TEEN

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.25E-04						
PRODUCE CONSUMPTION	0.00E+00	2.39E-03						
TOTAL	0.00E+00	3.85E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.25E-04						
PRODUCE CONSUMPTION	0.00E+00	2.39E-03						
MEAT CONSUMPTION	0.00E+00	2.08E-04						
TOTAL	0.00E+00	4.06E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.25E-04						
PRODUCE CONSUMPTION	0.00E+00	2.39E-03						
MEAT CONSUMPTION	0.00E+00	2.08E-04						
COW MILK CONSUMPTION	0.00E+00	1.07E-03						
TOTAL	0.00E+00	5.12E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.25E-04						
PRODUCE CONSUMPTION	0.00E+00	2.39E-03						
MEAT CONSUMPTION	0.00E+00	2.08E-04						
GOAT MILK CONSUMPTION	0.00E+00	2.18E-03						
TOTAL	0.00E+00	6.24E-03						

TABLE 2-40

3 QUARTER 2002 BATCH + CONTINUOUS RELEASES

TEEN

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(REM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLX	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.25E-04						
PRODUCE CONSUMPTION	0.00E+00	2.39E-03						
TOTAL	0.00E+00	3.85E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.25E-04						
PRODUCE CONSUMPTION	0.00E+00	2.39E-03						
MEAT CONSUMPTION	0.00E+00	2.08E-04						
COW MILK CONSUMPTION	0.00E+00	1.07E-03						
TOTAL	0.00E+00	5.12E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.23E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.25E-04						
PRODUCE CONSUMPTION	0.00E+00	2.39E-03						
MEAT CONSUMPTION	0.00E+00	2.08E-04						
COW MILK CONSUMPTION	0.00E+00	2.18E-03						
TOTAL	0.00E+00	6.24E-03						

TABLE 2-41

3 QUARTER 2002 BATCH RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(REMs)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-42

3 QUARTER 2002 CONTINUOUS RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.09E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.66E-04						
PRODUCE CONSUMPTION	0.00E+00	3.84E-03						
TOTAL	0.00E+00	5.20E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.09E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.66E-04						
PRODUCE CONSUMPTION	0.00E+00	3.84E-03						
MEAT CONSUMPTION	0.00E+00	2.51E-04						
TOTAL	0.00E+00	5.45E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.09E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.66E-04						
PRODUCE CONSUMPTION	0.00E+00	3.84E-03						
MEAT CONSUMPTION	0.00E+00	2.51E-04						
COW MILK CONSUMPTION	0.00E+00	1.69E-03						
TOTAL	0.00E+00	7.14E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	1.09E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.66E-04						
PRODUCE CONSUMPTION	0.00E+00	3.84E-03						
MEAT CONSUMPTION	0.00E+00	2.51E-04						
GOAT MILK CONSUMPTION	0.00E+00	3.45E-03						
TOTAL	0.00E+00	8.90E-03						

TABLE 2-43

3 QUARTER 2002 BATCH + CONTINUOUS RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MRME)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.09E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.66E-04						
PRODUCE CONSUMPTION	0.00E+00	3.84E-03						
TOTAL	0.00E+00	5.20E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.09E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.66E-04						
PRODUCE CONSUMPTION	0.00E+00	3.84E-03						
MEAT CONSUMPTION	0.00E+00	2.51E-04						
TOTAL	0.00E+00	5.45E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.09E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.66E-04						
PRODUCE CONSUMPTION	0.00E+00	3.84E-03						
MEAT CONSUMPTION	0.00E+00	2.51E-04						
COW MILK CONSUMPTION	0.00E+00	1.69E-03						
TOTAL	0.00E+00	7.14E-03						
MILK GOAT								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	1.09E-03						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	2.66E-04						
PRODUCE CONSUMPTION	0.00E+00	3.84E-03						
MEAT CONSUMPTION	0.00E+00	2.51E-04						
GOAT MILK CONSUMPTION	0.00E+00	3.45E-03						
TOTAL	0.00E+00	8.90E-03						

TABLE 2-44

3 QUARTER 2002 BATCH RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(REMN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
<hr/>								
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
<hr/>								

TABLE 2-45

3 QUARTER 2002 CONTINUOUS RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	6.27E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	6.27E-04						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	6.27E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	6.27E-04						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	6.27E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00	2.56E-03						
TOTAL	0.00E+00	3.19E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	6.27E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00	5.23E-03						
TOTAL	0.00E+00	5.85E-03						

TABLE 2-46

3 QUARTER 2002 BATCH + CONTINUOUS RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(REMN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.27E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	6.27E-04						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.27E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	6.27E-04						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.27E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00	2.56E-03						
TOTAL	0.00E+00	3.19E-03						
MILK GOAT								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	6.27E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00	5.23E-03						
TOTAL	0.00E+00	5.85E-03						

TABLE 2-47

4 QUARTER 2002 BATCH RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(REM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
EXPOSURE TO SOIL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LEAFY VEGETABLE CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PRODUCE CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EXPOSURE TO SOIL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LEAFY VEGETABLE CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PRODUCE CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MEAT CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EXPOSURE TO SOIL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LEAFY VEGETABLE CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PRODUCE CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MEAT CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
COW MILK CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EXPOSURE TO SOIL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LEAFY VEGETABLE CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PRODUCE CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MEAT CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GOAT MILK CONSUMPTION	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

TABLE 2-48

4 QUARTER 2002 CONTINUOUS RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
<hr/>								
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.61E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.55E-04						
PRODUCE CONSUMPTION	0.00E+00	8.39E-04						
TOTAL	0.00E+00	1.55E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.61E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.55E-04						
PRODUCE CONSUMPTION	0.00E+00	8.39E-04						
MEAT CONSUMPTION	0.00E+00	1.59E-04						
TOTAL	0.00E+00	1.71E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.61E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.55E-04						
PRODUCE CONSUMPTION	0.00E+00	8.39E-04						
MEAT CONSUMPTION	0.00E+00	1.59E-04						
COW MILK CONSUMPTION	0.00E+00	3.75E-04						
TOTAL	0.00E+00	2.09E-03						
<hr/>								
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.61E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.55E-04						
PRODUCE CONSUMPTION	0.00E+00	8.39E-04						
MEAT CONSUMPTION	0.00E+00	1.59E-04						
GOAT MILK CONSUMPTION	0.00E+00	7.65E-04						
TOTAL	0.00E+00	2.48E-03						

TABLE 2-49

4 QUARTER 2002 BATCH + CONTINUOUS RELEASES

ADULT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MRME)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	5.61E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.55E-04						
PRODUCE CONSUMPTION	0.00E+00	8.39E-04						
TOTAL	0.00E+00	1.55E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	5.61E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.55E-04						
PRODUCE CONSUMPTION	0.00E+00	8.39E-04						
MEAT CONSUMPTION	0.00E+00	1.59E-04						
TOTAL	0.00E+00	1.71E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	5.61E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.55E-04						
PRODUCE CONSUMPTION	0.00E+00	8.39E-04						
MEAT CONSUMPTION	0.00E+00	1.59E-04						
COW MILK CONSUMPTION	0.00E+00	3.75E-04						
TOTAL	0.00E+00	2.09E-03						
MILK GOAT								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	5.61E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.55E-04						
PRODUCE CONSUMPTION	0.00E+00	8.39E-04						
MEAT CONSUMPTION	0.00E+00	1.59E-04						
GOAT MILK CONSUMPTION	0.00E+00	7.65E-04						
TOTAL	0.00E+00	2.48E-03						

TABLE 2-50

4 QUARTER 2002 BATCH RELEASES

TEEN

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-51

4 QUARTER 2002 CONTINUOUS RELEASES

TEEN

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MRME)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.64E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.03E-04						
PRODUCE CONSUMPTION	0.00E+00	1.09E-03						
TOTAL	0.00E+00	1.76E-03						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.64E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.03E-04						
PRODUCE CONSUMPTION	0.00E+00	1.09E-03						
MEAT CONSUMPTION	0.00E+00	9.50E-05						
TOTAL	0.00E+00	1.85E-03						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.64E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.03E-04						
PRODUCE CONSUMPTION	0.00E+00	1.09E-03						
MEAT CONSUMPTION	0.00E+00	9.50E-05						
COW MILK CONSUMPTION	0.00E+00	4.89E-04						
TOTAL	0.00E+00	2.34E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	5.64E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.03E-04						
PRODUCE CONSUMPTION	0.00E+00	1.09E-03						
MEAT CONSUMPTION	0.00E+00	9.50E-05						
GOAT MILK CONSUMPTION	0.00E+00	9.97E-04						
TOTAL	0.00E+00	2.85E-03						

TABLE 2-52

4 QUARTER 2002 BATCH + CONTINUOUS RELEASES

TEN

DOSES FROM GASBOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MRSEN)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LI-LI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	5.64E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.03E-04						
PRODUCE CONSUMPTION	0.00E+00	1.09E-03						
TOTAL	0.00E+00	1.76E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	5.64E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.03E-04						
PRODUCE CONSUMPTION	0.00E+00	1.09E-03						
MEAT CONSUMPTION	0.00E+00	9.50E-05						
COW MILK CONSUMPTION	0.00E+00	4.89E-04						
TOTAL	0.00E+00	2.34E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	5.64E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.03E-04						
PRODUCE CONSUMPTION	0.00E+00	1.09E-03						
MEAT CONSUMPTION	0.00E+00	9.50E-05						
COW MILK CONSUMPTION	0.00E+00	9.97E-04						
TOTAL	0.00E+00	2.85E-03						

TABLE 2-53

4 QUARTER 2002 BATCH RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-54

4 QUARTER 2002 CONTINUOUS RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MRSEM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LIT	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	4.99E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.22E-04						
PRODUCE CONSUMPTION	0.00E+00	1.76E-03						
TOTAL	0.00E+00	2.38E-03						
MEAT ANIMAL (NORTH SECTOR, AT 663. METERS)								
AIR INHALATION	0.00E+00	4.99E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.22E-04						
PRODUCE CONSUMPTION	0.00E+00	1.76E-03						
MEAT CONSUMPTION	0.00E+00	1.15E-04						
TOTAL	0.00E+00	2.49E-03						
MILK COW (NORTH SECTOR, AT 663. METERS)								
AIR INHALATION	0.00E+00	4.99E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.22E-04						
PRODUCE CONSUMPTION	0.00E+00	1.76E-03						
MEAT CONSUMPTION	0.00E+00	1.15E-04						
COW MILK CONSUMPTION	0.00E+00	7.72E-04						
TOTAL	0.00E+00	3.27E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	4.99E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.22E-04						
PRODUCE CONSUMPTION	0.00E+00	1.76E-03						
MEAT CONSUMPTION	0.00E+00	1.15E-04						
GOAT MILK CONSUMPTION	0.00E+00	1.58E-03						
TOTAL	0.00E+00	4.07E-03						

TABLE 2-55

4 QUARTER 2002 BATCH + CONTINUOUS RELEASES

CHILD

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	4.99E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.22E-04						
PRODUCE CONSUMPTION	0.00E+00	1.76E-03						
TOTAL	0.00E+00	2.38E-03						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	4.99E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.22E-04						
PRODUCE CONSUMPTION	0.00E+00	1.76E-03						
MEAT CONSUMPTION	0.00E+00	1.15E-04						
TOTAL	0.00E+00	2.49E-03						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	4.99E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.22E-04						
PRODUCE CONSUMPTION	0.00E+00	1.76E-03						
MEAT CONSUMPTION	0.00E+00	1.15E-04						
COW MILK CONSUMPTION	0.00E+00	7.72E-04						
TOTAL	0.00E+00	3.27E-03						
MILK GOAT								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	4.99E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00	1.22E-04						
PRODUCE CONSUMPTION	0.00E+00	1.76E-03						
MEAT CONSUMPTION	0.00E+00	1.15E-04						
GOAT MILK CONSUMPTION	0.00E+00	1.58E-03						
TOTAL	0.00E+00	4.07E-03						

TABLE 2-56

4 QUARTER 2002 BATCH RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION								
AIR INHALATION	0.00E+00							
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00							
TOTAL	0.00E+00							

TABLE 2-57

4 QUARTER 2002 CONTINUOUS RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(MREM)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LLI	SKIN
GARDEN (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	2.87E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	2.87E-04						
MEAT ANIMAL (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	2.87E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	2.87E-04						
MILK COW (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	2.87E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00	1.17E-03						
TOTAL	0.00E+00	1.46E-03						
MILK GOAT (NORTH SECTOR AT 663. METERS)								
AIR INHALATION	0.00E+00	2.87E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00	2.39E-03						
TOTAL	0.00E+00	2.68E-03						

TABLE 2-58

§ 4 QUARTER 2002 BATCH + CONTINUOUS RELEASES

INFANT

DOSES FROM GASEOUS EFFLUENTS (EXCLUDING
NOBLE GASES) AT MAXIMUM OFFSITE EXPOSURE LOCATIONS
(REMs)

EXPOSURE LOCATION AND PATHWAY	BONE	LIVER	TOTAL BODY	THYROID	KIDNEY	LUNG	GI-LI	SKIN
GARDEN								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	2.87E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
TOTAL	0.00E+00	2.87E-04						
MEAT ANIMAL								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	2.87E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
MILK CONSUMPTION	0.00E+00	1.17E-03						
TOTAL	0.00E+00	2.87E-04						
MILK COW								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	2.87E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
COW MILK CONSUMPTION	0.00E+00	1.17E-03						
TOTAL	0.00E+00	1.46E-03						
MILK GOAT								
MAXIMUM LOCATION								
AIR INHALATION	0.00E+00	2.87E-04						
EXPOSURE TO SOIL	0.00E+00							
LEAFY VEGETABLE CONSUMPTION	0.00E+00							
PRODUCE CONSUMPTION	0.00E+00							
MEAT CONSUMPTION	0.00E+00							
GOAT MILK CONSUMPTION	0.00E+00	2.39E-03						
TOTAL	0.00E+00	2.68E-03						

TABLE 2-59

FIRST QUARTER 2002
BATCH + CONTINUOUS RELEASES

POPULATION DOSE (50-MILE) FROM
GASEOUS EFFLUENTS
(MAN-REM)

EXPOSURE PATHWAY	TOTAL BODY	THYROID
AIR SUBMERSION	9.3E-05	9.3E-05
AIR INHALATION	3.8E-03	3.8E-03
EXPOSURE TO SOIL	0.0E+00	0.0E+00
LEAFY VEGETABLE CONSUMPTION	2.5E-05	2.5E-05
PRODUCE CONSUMPTION	1.4E-04	1.4E-04
MEAT CONSUMPTION	2.0E-04	2.0E-04
MILK CONSUMPTION	2.0E-03	2.1E-03
TOTAL	6.3E-03	6.3E-03
AVERAGE DOSE (MREM/PERSON)	3.1E-06	3.1E-06

TABLE 2-60

SECOND QUARTER 2002
BATCH + CONTINUOUS RELEASES

POPULATION DOSE (50-MILE) FROM
GASEOUS EFFLUENTS
(MAN-REM)

EXPOSURE PATHWAY	TOTAL BODY	THYROID
AIR SUBMERSTION	1.2E-04	1.2E-04
AIR INHALATION	6.1E-03	6.0E-03
EXPOSURE TO SOIL	0.0E+00	0.0E+00
LEAFY VEGETABLE CONSUMPTION	4.0E-05	4.0E-05
PRODUCE CONSUMPTION	2.1E-04	2.1E-04
MEAT CONSUMPTION	3.2E-04	3.2E-04
MILK CONSUMPTION	3.2E-03	3.3E-03
TOTAL	9.9E-03	1.0E-02
AVERAGE DOSE (MREM/PERSON)	4.8E-06	4.9E-06

TABLE 2-61

THIRD QUARTER 2002
BATCH + CONTINUOUS RELEASES

POPULATION DOSE (50-MILE) FROM
GASEOUS EFFLUENTS
(MAN-REM)

EXPOSURE PATHWAY	TOTAL BODY	THYROID
AIR SUBMERSION	3.3E-02	3.3E-02
AIR INHALATION	7.5E-03	7.4E-03
EXPOSURE TO SOIL	0.0E+00	0.0E+00
LEAFY VEGETABLE CONSUMPTION	4.9E-05	4.9E-05
PRODUCE CONSUMPTION	2.6E-04	2.6E-04
MEAT CONSUMPTION	3.9E-04	3.9E-04
MILK CONSUMPTION	3.9E-03	4.0E-03
TOTAL	4.5E-02	4.5E-02
AVERAGE DOSE (MREM/PERSON)	2.2E-05	2.2E-05

TABLE 2-62

FOURTH QUARTER 2002
BATCH + CONTINUOUS RELEASES

POPULATION DOSE (50-MILE) FROM
GASEOUS EFFLUENTS
(MAN-REM)

EXPOSURE PATHWAY	TOTAL BODY	THYROID
AIR SUBMERSION	6.0E-05	6.0E-05
AIR INHALATION	3.4E-03	3.4E-03
EXPOSURE TO SOIL	0.0E+00	0.0E+00
LEAFY VEGETABLE CONSUMPTION	2.2E-05	2.2E-05
PRODUCE CONSUMPTION	1.2E-04	1.2E-04
MEAT CONSUMPTION	1.8E-04	1.8E-04
MILK CONSUMPTION	1.8E-03	1.8E-03
TOTAL	5.5E-03	5.6E-03
AVERAGE DOSE (MRM/PERSON)	2.7E-06	2.7E-06

3. METEOROLOGICAL DATA

Meteorological models and assumptions used in performing the analyses are presented in PGE-1021, "Offsite Dose Calculation Manual."

4. CHANGES TO THE OFFSITE DOSE CALCULATION MANUAL (ODCM)

Requirement

The Offsite Dose Calculation Manual is no longer required by Trojan Facility Operating License NPF-1, Appendix A, Permanently Defueled Technical Specifications, to be submitted as part of, or concurrent with, the Annual Radioactive Effluent Release Report. The ODCM is submitted with, or as part of, the Radiological Environmental Monitoring Report in accordance with Technical Specification 5.7.2.3.2.

5. ASSESSMENT OF DOSES WITHIN THE UNRESTRICTED AREA BOUNDARY

An assessment of doses to individuals utilizing controlled areas within the Trojan Nuclear Plant Site Exclusion Area Boundary was performed for 2002. Specific locations considered included occupational areas outside the restricted area boundary and recreational (i.e., public access) areas located at the site. The methodology contained in Appendix D of PGE-1021, "Offsite Dose Calculation Manual (ODCM)," was followed. Occupancies of 2,000 hours per year for occupational locations, 1,530 hours per year for recreational locations, and 2,496 hours per year for the park host were assumed. Recreational activities (daytime only) are hiking, picnicking, swimming, fishing, and nature observation. Location directions and downwind distances are tabulated below:

TABLE 5-1
ONSITE DOSE LOCATIONS CONSIDERED

<u>SECTOR</u>	<u>DISTANCE (meters)</u>	<u>LOCATION</u>	<u>ASSUMED OCCUPANCY (hours/year)</u>	<u>OCCUPANCY FACTOR (hours/8760)</u>
SSE	286	South Cooling Tower	1530	0.17
S	414	Sewage Plant	2000	0.23
SSW	305	Park	1530	0.17
SW	122	Administration Bldg.	2000	0.23
WSW	686	Visitor Center	1530	0.17
W	398	Warehouse	2000	0.23
WNW	300	Trojan North Bldg.	2000	0.23
SSW	1150	Park Host	2496	0.28

The methodology described in Appendix D of the ODCM allows for the use of a correction factor when performing an assessment of doses to individuals within the Unrestricted Area boundary. The correction factor is the highest ratio of the gamma air dose at a location within the Unrestricted Area boundary to the gamma air dose at the site boundary. Based on historical data, the highest correction factor for continuous releases is equal to 4.0. The gamma air dose for all locations within the Unrestricted Area boundary was determined by multiplying the gamma air dose at the site boundary by 4.0. This same methodology was also used to determine the beta air dose for all locations listed in Table 5-1.

The gamma and beta air dose within the Unrestricted Area boundary is given in Table 5-2.

TABLE 5-2
GAMMA AND BETA AIR DOSE

<u>Quarter</u>	<u>Gamma Air Dose (mrad)</u>	<u>Beta Air Dose (mrad)</u>
First	9.68E-05	1.10E-02
Second	1.26E-04	1.43E-02
Third	3.44E-04	3.90E-02
Fourth	6.24E-05	7.04E-03

6. DIRECT RADIATION DOSES FROM THE FACILITY

Controlled/Unrestricted Area Thermoluminescent Dosimeter (TLD) measurements are used to assess the impact of operational activities of the Trojan Nuclear Plant on ambient radiation levels. For sources of direct radiation from the facility, TLD measurements indicate that total body doses to individuals in both Unrestricted Areas and Controlled Areas are zero.