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April 29, 2011

10 CFR 50.36a

LTR: BYRON 2011-0067
File: 1.10.0101
2.12.1522

United States Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Byron Station, Units 1 and 2
Facility Operating License Nos. NPF-37 and NPF-66
NRC Docket Nos. STN 50-454 and STN 50-455

Subject: 2010 Annual Radioactive Effluent Release Report

Enclosed is the Annual Radioactive Effluent Release Report for Byron Station. This report is being submitted in accordance with 10 CFR 50.36a(2), "Technical specifications on effluents from nuclear power reactors," and includes a summary of radiological liquid and gaseous effluents and solid waste released from the site from January 2010, through December 2010. There was no ODCM revision made in 2010, therefore a submission of the current ODCM (Rev 7, February 2011) is not required.

If you have any questions regarding this information, please contact David T. Gudger, Regulatory Assurance Manager, at (815) 406-2800.

Respectfully,

Timothy J. Tulon
Site Vice President
Byron Nuclear Generating Station

TJT/JG/TH/cy

Attachments:

- Annual Radioactive Effluent Release Report

BYRON NUCLEAR POWER STATION

ANNUAL RADIOLOGICAL EFFLUENT RELEASE REPORT (ARERR)

2010

BYRON NUCLEAR POWER STATION
UNIT 1/2 DOCKET NUMBER STN-50-454/455
RADIOACTIVE EFFLUENT RELEASE REPORT
January 2010 - December 2010
Supplemental Information

1. Regulatory Limits

   a. Fission and activation products:

Tech Spec Whole Body	=	500 mrem/year
Skin	=	3000 mrem/year
10CFR50 Gamma	=	5 mrad/quarter; 10 mrad/year
Beta	=	10 mrad/quarter; 20 mrad/year

   b. Iodine: (summed with particulate, see below)

   c. Particulates with half-lives > 8 days:

Tech Spec Organ	=	1500 mrem/year
10CFR50 Organ	=	7.5 mrem/quarter; 15 mrem/year

   d. Liquid Effluents:

10CFR50 Whole Body	=	1.5 mrem/quarter; 3 mrem/year
Organ	=	5 mrem/quarter; 10 mrem/year

2. Maximum Permissible Concentration

   a. Fission and Activation Products: 10CFR20 Appendix B Table 2
   b. Iodine: 10CFR20 Appendix B Table 2
   c. Particulates: 10CFR20 Appendix B Table 2
   d. Liquid Effluents: 10 X 10CFR20 Appendix B Table 2

3. Average Energy: This item is not applicable. Release rates are calculated using an isotopic mix rather than average energy.

4. Measurements and Approximations of Total Radioactivity

   a. Fission and activation products: Prior to release, the isotopic content is determined. Released activity is calculated using volume of release, which is determined by the change in tank or containment pressure. Additional methods of calculation utilize historical data and assign an isotopic mix, which is representative of normal vent stack isotopics.

   b. Particulate, tritium and iodine sampling media for the plant vent stacks are collected and isotopically analyzed weekly.

   c. Liquid effluents: Isotopic analysis is performed on each batch release prior to its release. Total release activity is calculated using volume of release. Total tritium activity released is calculated from the highest of a monthly circulating water blowdown composite activity or a sum of the input composite activities.

d. Analysis results that are less than the lower limit of detection (<LLD) are reported in units of uCi/cc or uCi/ml unless otherwise noted. All LLD values are listed in Attachment A.

5. Batch Releases:

a. Liquid:

1. Number of batch releases = 80
2. Total time period for batch releases = 12,213 minutes
3. Maximum time period for a batch release = 533 minutes
4. Average time period for a batch release = 153 minutes
5. Minimum time period for a batch release = 46 minutes
6. Average stream flow during periods of release of effluent into a flowing stream = 274 m^3/sec, based on information from the U.S. Geological Survey Byron Gauging Station.

b. Gaseous:

1. Number of batch releases = 347
2. Total time period for batch releases = 31,726 minutes
3. Maximum time period for a batch release = 3,139 minutes
4. Average time period for batch releases = 91 minutes
5. Minimum time period for a batch release = 4 minutes

6. Abnormal Releases:

a. Liquid - None

b. Gaseous – None

7. 2010 Radiological Groundwater Protection Program (RGPP) Results Summary:

In 2010, thirteen (13) Radiological Groundwater Protection Program (RGPP) monitoring wells were sampled. The samples were obtained in May and October and analyzed for tritium. In addition, a baseline study of hard-to-detect radioisotopes was performed in accordance with Nuclear Energy Institute (NEI) 07-07, Groundwater Protection Initiative, for the samples obtained in May. Of these samples, two wells contained levels of tritium above the lower limit of detection (LLD) of 200 pCi/L. They were: AR-4 (1250 pCi/L in May, 1170 pCi/L in October) and AR-11 (1120 pCi/L in May, 947 pCi/L in October). Both of these wells are near the Circulating Water Blowdown piping, where historical leakage through vacuum breakers was known to have occurred. Well AR-4 has shown an overall steady decrease in tritium concentration since first sampled in 2006. Well AR-11 has also shown an overall decrease in tritium since 2006, and a slight decrease from 2008. The dose consequence from tritium present in these sample wells is negligible.

8. 2009 Errata

The 2009 ARERR contains two typographical errors on Page 31 of 94. In the Effluent Waste Disposal Report, Table 1A, Gaseous Effluents – Summation of all Releases, the total release (Ci) of fission and activation gases for the 3rd and 4th quarter of 2009 are listed as 2.33E-02 and 1.07E-02, respectively. The correct values are 2.33E-01 and 1.07E-01, respectively.

9. 2002-2009 Errata

Portions of the Annual Radiological Effluent Reports from 2002-2009 were over-reporting quarterly and annual dose data. Each year, reports entitled "40CFR190 Uranium Fuel Cycle Dose Report" were being generated to provide quarterly and annual dose summaries. These reports were being generated twice – once each for Unit 1 and Unit 2. It was recently understood that these reports automatically sum the dose from both units, thus reports on a per-unit basis are not appropriate. As a result, the 40CFR190 reports contained within the 2002-2009 ARERRs were over-reporting associated dose estimates by a factor of two. Thus, the 40CFR190 dose estimates reported between 2002 and 2009 should have been a total from both Unit 1 and Unit 2, and should have been exactly half of the total dose after adding Unit 1 and Unit 2 dose together. The error occurred due a misinterpretation of the reports provided by new dose calculation software introduced in 2002. The error continued to be carried forward in subsequent years through program responsibility changes and employee turnover.

10. Carbon-14

Improvements in nuclear power plant effluent management practices have resulted in a decrease in the concentration and a change in the distribution of gaseous radionuclides released to the environment. In Pressurized Water Reactors (PWR) such as Byron, Carbon-14 (C-14) is produced in the reactor and released with gaseous effluents through the plant vent stacks independent of most effluent treatment practices. At many plants, C-14 may not have been a principal radionuclide until recent improvements in the amounts of radiological effluents released. The latest revision of Regulatory Guide 1.21 defines a "principal nuclide" as any radionuclide whose concentration exceeds 1% of the total release, stating that the released quantity must be included in the annual radioactivity discharge report. Regulatory Guide 1.21 indicates that the C-14 discharge can be estimated by sample measurements or by use of a normalized C-14 source term and scaling factors based on power generation. The NRC has provided direction to all U.S. nuclear stations where C-14 meets the criteria of a principal nuclide that C-14 must be reported beginning in 2010. At Byron, as well as most U.S. nuclear plants, C-14 is a principal radionuclide, and is therefore being included in the report for 2010. Byron C-14 release (4.45 curies per unit) was conservatively estimated based on Electric Power Research Institute (EPRI) Technical Report 1021106 and added to gaseous effluents as a continuous release through the plant vent stacks. As a result, the organ dose to the maximum exposed individual increases substantially, but the resultant annual dose remains below 1 mrem per year against an annual regulatory limit of 15 mrem per year organ dose. The C-14 release and dose data can be viewed in the attached reports.

SUMMARY

Calculations based on gaseous and liquid effluents and meteorological data indicate that public dose due to radioactive material attributable to Byron Station during the period does not exceed any regulatory or Offsite Dose Calculation Manual (ODCM) limits.

The Total Effective Dose Equivalent (TEDE) due to licensed activities at Byron Station calculated for the maximum exposed individual for the period is 2.60E-01 mrem. The annual limit on TEDE is 100 mrem.

The assessment of radiation doses to the public is performed in accordance with the ODCM. The results of these analyses confirm that the station is operating in compliance with 10CFR50 Appendix I, 10CFR20 and 40CFR190.

There were no additional operational controls implemented in 2010 that affected radiological effluents.

There were no measurements which exceeded the reporting levels, including any that would not have been attributable to station effluents.

The results of the current radiological environmental monitoring program are approximately the same as those found during the pre-operational studies conducted at Byron Station.

RELEASES

Gaseous Effluents to the Atmosphere

A total of 7.88E-01 curies of fission and activation gases were released with a maximum average quarterly release rate of 3.92E-02 µCi/sec.

A total of 6.98E-06 curies of 1-131 were released during the year with a maximum average quarterly release rate of 8.88E-07 µCi/sec.

A total of 7.90E-05 curies were released as airborne particulate matter with a maximum average quarterly release rate of 3.97E-06 µCi/sec.

Gross alpha-emitting radionuclides were below detectable limits.

A total of 8.91E+00 curies of other (C-14, Br-82) radioisotopes were released with a maximum average quarterly release rate of 2.82E-01 µCi/sec.

A total of 6.16E+01 curies of tritium were released with a maximum average quarterly release rate of 2.39E+00 µCi/sec.

Liquids Released to Rock River

A total of 2.82E+10 liters of radioactive liquid wastes containing 1.10E-02 curies of fission and activation products were discharged with a maximum quarterly average concentration of 1.23E-09 µCi/ml.

A total of 2.04E+03 curies of tritium were discharged with a maximum quarterly average concentration of 2.30E-04 uCi/ml.

A total of 1.07E-03 curies of dissolved and entrained gases were discharged with a maximum quarterly average concentration of 3.24E-10 uCi/ml.

DOSE TO MAN

GASEOUS EFFLUENT PATHWAYS

Noble Gas - Gamma Dose Rates

Offsite Gamma air and whole body dose rates for the period were calculated based on measured release rates, isotopic composition of the noble gases, and average meteorological data. Based on measured effluents and average meteorological data, the maximum gamma air dose was 4.58E-05 mrad and 9.07E-6 mrad based on concurrent meteorological data.

Noble Gas - Beta Air and Skin Dose Rates

The range of beta particles in air is relatively small (on the order of a few meters or less). Consequently, plumes of gaseous effluents may be considered "semi-infinite" for the purpose of calculating the dose from beta radiation incident on the skin. However, the actual dose to sensitive skin tissues is difficult to calculate due to the effect of the beta particle energies, thickness of inert skin, and clothing covering sensitive tissues. For purposes of this report the skin is taken to have a thickness of 7.0 mg/cm^2 and an occupancy factor of 1.0 is used. The skin dose based on concurrent meteorological data for the year was 1.13E-05 mrem.

The maximum offsite beta air dose for the year based on measured effluents and average meteorological data was 1.37E-05 mrad, and 1.10E-05 mrad based on concurrent meteorological data.

Radioactive Iodine & Particulate

The human thyroid exhibits a significant capacity to concentrate ingested or inhaled iodine. I-131 released during routine operation of the station may be made available to man resulting in dose to the thyroid. C-14 is also included in this category. C-14 exhibits a capacity to concentrate in bone. C-14 is released in gaseous form and is absorbed into vegetation through photosynthesis. The principal pathways of interest for C-14 are the consumption of vegetation by humans and milk from which animals have ingested C-14 through the consumption of vegetation. With the requirement to report C-14 dose in 2010 and the addition of C-14 to plant effluents, human dose in this category is primarily driven by the release of C-14 from the plant.

The hypothetical dose to the maximum exposed individual living near the station via ingestion of milk and vegetation was calculated. The source of milk and vegetation was assumed to be at the nearest site boundary with the cows pastured and vegetation grown from May through October. The maximum organ dose from radioactive iodine and particulate (including C-14) to any organ was 7.26E-01 mrem (child/bone) based on measured effluents and average meteorological data, and 7.53E-01 mrem (child/bone) based on concurrent meteorological data. The maximum dose from radioactive iodine and particulate (including C-14) to the whole body was 1.49E-01 mrem (child) based on measured effluents and average meteorological data, and 1.55E-01 mrem (child) based on concurrent meteorological data.

Gaseous Total Dose

The maximum total dose from gaseous releases to any organ was 7.26E-01 mrem (child/bone). The maximum total dose from gaseous releases to the whole body was 1.49E-01 mrem (child).

LIQUID EFFLUENT PATHWAYS

The principal pathways through the aquatic environment for potential doses to man from liquid waste are ingestion of potable water and eating aquatic foods. Liquid dose was calculated based on the ingestion of potable water and sport fish. It should be noted, however, there are currently no communities within 10 km downstream of the plant using the Rock River for drinking water. NRC-developed equations are used to calculate the doses to the whole body, bone, liver, thyroid, kidney, lung, lower GI tract, and skin. Specific parameters for use in the equations are given in the Exelon Offsite Dose Calculation Manual (ODCM).

The maximum dose from liquid releases to any organ was 1.59E-1 mrem (adult/gilli). The maximum dose from liquid releases to the whole body was 1.32E-01 mrem (adult).

GASEOUS + LIQUID TOTAL DOSE

The maximum total dose to any organ via both gaseous and liquid effluents is 7.29E-1 mrem (child/bone). The maximum dose to the whole body via both gaseous and liquid effluents is 2.60E-1 mrem (child).

Dose Limits to Members of the Public

Byron Station did not exceed any of the dose limits as shown below based on concurrent or historical meteorological data.

- The RETS limits on dose or dose commitment to a member of the public due to radioactive materials in liquid effluents from each reactor is 1.5 mrem to the whole body or 5 mrem to any organ during any calendar quarter and 3 mrem to the whole body or 10 mrem to any organ during a calendar year.

- The RETS limits on air dose due to noble gases released in gaseous effluents to a member of the public from each reactor is 5 mrad for gamma radiation or 10 mrad for beta radiation during any calendar quarter and 10 mrad for gamma radiation or 20 mrad for beta radiation during a calendar year.

- The RETS limits on dose to a member of the public due to radioactive iodine & particulate with half-lives greater than eight days in gaseous effluents released from each reactor is 7.5 mrem to any organ during any calendar quarter and 15 mrem to any organ during a calendar year.

- The 10CFR20 limit on Total Effective Dose Equivalent to individual members of the public is 100 mrem.

SITE METEOROLOGY

Detailed records of the site meteorological measurements taken during each calendar quarter of the year are maintained by the meteorological vendor, retained on site, and are available upon request. The data are presented as cumulative joint frequency distributions of the wind direction for the 250' level and wind speed class by atmospheric stability class determined from the temperature difference between the 250' and 30' levels. Data recovery for all measurements on the meteorological tower was 99.9% during 2010.

SOLID RADIOACTIVE WASTE FOR BURIAL 1ST QUARTER 2010

DATE	DISPOSITION OF MATERIAL (DESCRIPTION, CLASS, TYPE AND SOLIDIFYING AGENT)	MODE OF TRANSPORT	DESTINATION	VOLUME (m^3) PER SHIPMENT	CURIES* PER SHIPMENT
2/2/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX (2), NONE	EXCLUSIVE-USE	Oak Ridge, TN	3.82E+01	1.35E-02
2/3/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX (2), NONE	EXCLUSIVE-USE	Kingston, TN	1.42E+01	1.76E-02
3/9/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, CLASS A, GENERAL DESIGN PACKAGE (GDP), CASK, NONE	EXCLUSIVE-USE	Clive, UT	4.67E+00	3.73E+00
3/17/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, CLASS A, GENERAL DESIGN PACKAGE (GDP), CASK, NONE	EXCLUSIVE-USE	Clive, UT	4.67E+00	1.09E+01
3/31/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX (2), NONE	EXCLUSIVE-USE	Kingston, TN	1.28E+01	5.85E+00
Quarterly Totals		Number of Shipments:	5	7.45E+01	2.05E+01
* Calculated using measured ratios				CUBIC M	CURIES

SOLID RADIOACTIVE WASTE FOR BURIAL 2ND QUARTER 2010

DATE	DISPOSITION OF MATERIAL (DESCRIPTION, CLASS, TYPE AND SOLIDIFYING AGENT)	MODE OF TRANSPORT	DESTINATION	VOLUME (m^3) PER SHIPMENT	CURIES* PER SHIPMENT
4/1/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX (2), NONE	EXCLUSIVE-USE	Oak Ridge, TN	1.93E+01	1.20E-01
4/8/10	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE LIMITED QUANTITY OF MATERIAL, 7, UN2910, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX(6), NONE	EXCLUSIVE-USE	Kingston, TN	1.24E+00	4.45E-03
5/18/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX (2), NONE	EXCLUSIVE-USE	Oak Ridge, TN	6.42E+01	3.89E-02
5/27/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX (2), NONE	EXCLUSIVE-USE	Oak Ridge, TN	5.61E+01	1.84E-02
5/28/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX (1), NONE RADIOACTIVE MATERIAL, EXCEPTED PACKAGE LIMITED QUANTITY OF MATERIAL, 7, UN2910, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX(1), NONE	EXCLUSIVE-USE	Oak Ridge, TN	5.78E+01	1.99E-02
6/29/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, CLASS A, GENERAL DESIGN PACKAGE (GDP), CASK, NONE	EXCLUSIVE-USE	Clive, UT	4.39E+00	4.10E+00
Quarterly Totals		Number of Shipments:	6	2.03E+02	4.30E+00
* Calculated using measured ratios				CUBIC M	CURIES

SOLID RADIOACTIVE WASTE FOR BURIAL 3RD QUARTER 2010

DATE	DISPOSITION OF MATERIAL (DESCRIPTION, CLASS, TYPE AND SOLIDIFYING AGENT)	MODE OF TRANSPORT	DESTINATION	VOLUME (m^3) PER SHIPMENT	CURIES* PER SHIPMENT
9/1/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX(1), NONE	EXCLUSIVE-USE	Oak Ridge, TN	2.43E+01	7.70E-02
9/1/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX(1), NONE RADIOACTIVE MATERIAL, EXCEPTED PACKAGE-LIMITED QUANTITY OF MATERIAL, 7, UN2910, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX(2), NONE	EXCLUSIVE-USE	Oak Ridge, TN	3.62E+01	1.17E-02
9/15/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, CLASS A, GENERAL DESIGN PACKAGE (GDP), CASK, NONE	EXCLUSIVE-USE	Clive, UT	4.53E+00	4.03E+00
Quarterly Totals		Number of Shipments:	3	6.50E+01	4.12E+00
* Calculated using measured ratios				CUBIC M	CURIES

SOLID RADIOACTIVE WASTE FOR BURIAL 4TH QUARTER 2010

DATE	DISPOSITION OF MATERIAL (DESCRIPTION, CLASS, TYPE AND SOLIDIFYING AGENT)	MODE OF TRANSPORT	DESTINATION	VOLUME(m^3) PER SHIPMENT	CURIES* PER SHIPMENT
10/18/10	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE LIMITED QUANTITY OF MATERIAL, 7, UN2910, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX(5), NONE	EXCLUSIVE-USE	Kingston, TN	8.84E+00	3.90E-04
11/17/10	RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-II), 7, UN3321, FISSILE EXCEPTED, CLASS A, GENERAL DESIGN PACKAGE (GDP), 20' METAL BOX(2), NONE	EXCLUSIVE-USE	Oak Ridge, TN	4.39E+01	2.21E-02
Quarterly Totals		Number of Shipments:	2	5.27E+01	2.25E-02
* Calculated using measured ratios				CUBIC M	CURIES

Process Control Program (PCP) for Radioactive Wastes

There were no changes made to RW-AA-100, Process Control Program (PCP) for Radioactive Waste, in 2010.

Error Analysis

The following is an estimate of the errors associated with effluent monitoring and analysis. The estimate is calculated using the square root of the sum of the squares methodology.

1. Gaseous Effluents

   Qme=3.33%
   RM=N/A
   ECe=5%
   Stdcse/Smplcse=5%
   qme=N/A
   Total error = 7.8%

2. Liquid Effluents

   Qme=3.33%
   RM=N/A
   ECe=N/A
   Stdcse/Smplcse=5%
   qme=2.22%
   Total error = 6.4%

3. Waste Resin

   Qme=10.0%
   RM=N/A
   ECe=5%
   Stdcse/Smplcse=5%
   qme=1.0%
   Total error = 12.3%

4. DAW, Mechanical Filters, and Contaminated Metal

   Qme=10.0%
   RM=N/A
   ECe=N/A
   Stdcse/Smplcse=5%
   qme=N/A

   Instrument calibration error = 10%
   Total error = 11.2%

Qme = the process quantity measurement error associated with the release point (e.g. flow, level measurements)

RM = error associated with the radiation monitor used in quantifying releases through the release point

ECe = error associated with the collection efficiency of the sample media

Stdcse = one-sigma counting error associated with the counting instrument of interest

Smplcse = one-sigma counting error associated with a sample of a given geometry that is used for the release point of interest

qme = sample quantity measurement error associated with the sample of interest

Miscellaneous Information

A. As required by Technical Specification 5.6.2, meteorological and environmental impact information is reported in the 2010 Annual Radiological Environmental Operating Report (AREOR) or is retained on file to be provided upon request.

B. No limits were exceeded in liquid hold up tanks as stated in Technical Specification 5.5.12 or in waste gas decay tanks as stated in Technical Specification 5.5.12 during 2010.

C. There were no irradiated fuel shipments during the 2010 reporting period. Independent Spent Fuel Storage Installation (ISFSI) campaign began in 2010. Spent fuel was removed from the Spent Fuel Pool (SFP) and transferred into above-ground storage casks. A total of six (6) casks, each containing 32 fuel bundles, were moved from the pool to an outdoor storage pad. The moves began in August and were complete in December, 2010. Additional TLDs were placed at the site boundary nearest to the pad and in between the storage pad and the nearest resident to measure any potential off site dose from the storage pad. Data from the TLDs, when compared to the existing environmental TLDs, showed no statistical difference. Therefore, there is currently no off site dose contribution from the ISFSI facility.

D. There were no REMP sample results that exceeded any technical specification limits or analytical results investigation levels during the 2010 reporting period. REMP composite surface water samples from point BY-12, Rock River downstream of the plant liquid effluent discharge, showed tritium results of 2,180 pCi/L (1st Quarter), 2,050 pCi/L (2nd Quarter), and 3,830 pCi/L (4th Quarter), against a detection limit of 200 pCi/L. These positive sample results can be attributed to one or more weekly samples being obtained shortly after a permitted liquid discharge, and are not unexpected. The results are well below the reportable limit of 30,000 pCi/L, and there are no communities using the Rock River for drinking water within 10 km downstream of the station. REMP semi-annual sediment sample from point BY-12 during June 2010, Rock River downstream of the plant liquid effluent discharge, showed a Cs-137 result of 181 pCi/L against a detection limit of 180 pCi/L. There was no Cs-137 present in any of the liquid release tanks discharged in 2010. Cs-137 can be present in local sediment/soil samples as a result of fallout from weapons testing and/or the Chernobyl accident. The positive result is very close to the detection limit and is not attributed to plant effluents.

E. There were no elevated releases during the 2010 reporting period. All releases are considered vent (mixed mode) or ground level releases.

F. There was one liquid effluent radiation release monitor that exceeded its inoperability time limit as stated in TRM TLCO 3.11.a. The 0RE-PR001, Radwaste Release Tank Monitor, was declared inoperable on 12/27/10, and exceeded its 14-day inoperability time limit in 2011. A detailed description of the condition will be included in the 2011 report. There were no radiation release monitors that exceeded inoperability time limits during 2010 as stated in TRM TLCO 3.11.b, or Technical Specification 5.5.12.

G. There were no unplanned or abnormal releases of radioactivity from the site to unrestricted areas during the 2010 reporting period.

H. There were no revisions made to the Off Site Dose Calculation Manual (ODCM) in 2010.

I. Attached are offsite dose calculation reports for January through December of 2010.

The following are the maximum annual calculated cumulative offsite doses resulting from Byron airborne releases in 2010 based on concurrent meteorological data:

Unit 1:

Dose	*Maximum Value*	*Sector Affected*
gamma air [1]	4.080×10^{-6} mrad	South-Southeast
beta air [2]	5.300×10^{-6} mrad	South-Southeast
whole body [3]	7.675×10^{-2} mrem	South-Southeast
skin [4]	5.230×10^{-6} mrem	South-Southeast
organ [5] (child-bone)	3.767×10^{-1} mrem	South-Southeast

Unit 1 Compliance Status

10 CFR 50 Appendix I	**Yearly Objective**		**% of Appendix I**
gamma air	10.0	mrad	0.00
beta air	20.0	mrad	0.00
whole body	5.0	mrem	1.54
skin	15.0	mrem	0.00
organ	15.0	mrem	2.51

Unit 2:

Dose	*Maximum Value*	*Sector Affected*
gamma air [1]	4.870×10^{-6} mrad	South-Southeast
beta air [2]	5.730×10^{-6} mrad	South-Southeast
whole body [3]	7.812×10^{-2} mrem	South-Southeast
skin [4]	6.090×10^{-6} mrem	South-Southeast
organ [5] (child-bone)	3.762×10^{-1} mrem	South-Southeast

Unit 2 Compliance Status

10 CFR 50 Appendix I	**Yearly Objective**		**% of Appendix I**
gamma air	10.0	mrad	0.00
beta air	20.0	mrad	0.00
whole body	5.0	mrem	1.56
skin	15.0	mrem	0.00
organ	15.0	mrem	2.51

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(1) Gamma Air Dose - GASPAR II, NUREG-0597
(2) Beta Air Dose - GASPAR II, NUREG-0597
(3) Whole Body Dose - GASPAR II, NUREG-0597
(4) Skin Dose - GASPAR II, NUREG-0597
(5) Inhalation and Food Pathways Dose - GASPAR II, NUREG-0597

Data recovery: 99.9%

EFFLUENT AND WASTE DISPOSAL REPORT
SUPPLEMENTAL INFORMATION
GASEOUS EFFLUENTS - BATCH MODE
Unit 1

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Number of releases		49	52	45	50	196
Total release time	minutes	4.52E+03	4.66E+03	4.93E+03	4.45E+03	1.86E+04
Maximum release time	minutes	4.37E+02	3.18E+02	1.61E+03	3.43E+02	1.61E+03
Average release time	minutes	9.22E+01	8.97E+01	1.09E+02	8.89E+01	9.47E+01
Minimum release time	minutes	4.00E+00	2.90E+01	3.00E+01	2.30E+01	4.00E+00

EFFLUENT AND WASTE DISPOSAL REPORT
SUPPLEMENTAL INFORMATION
GASEOUS EFFLUENTS - BATCH MODE
Unit 2

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Number of releases		38	38	37	38	151
Total release time	minutes	1.93E+03	6.92E+03	1.69E+03	2.64E+03	1.32E+04
Maximum release time	minutes	7.10E+01	3.14E+03	8.40E+01	1.30E+02	3.14E+03
Average release time	minutes	5.07E+01	1.82E+02	4.56E+01	6.94E+01	8.72E+01
Minimum release time	minutes	2.50E+01	3.00E+01	1.90E+01	2.00E+01	1.90E+01

EFFLUENT AND WASTE DISPOSAL REPORT
SUPPLEMENTAL INFORMATION
LIQUID EFFLUENTS - BATCH MODE
Unit 1 & 2

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Number of releases		16	28	23	13	80
Total release time	minutes	4.14E+03	3.78E+03	1.45E+03	2.84E+03	1.22E+04
Maximum release time	minutes	4.74E+02	3.90E+02	1.94E+02	5.33E+02	5.33E+02
Average release time	minutes	2.59E+02	1.35E+02	6.30E+01	2.19E+02	1.53E+02
Minimum release time	minutes	5.30E+01	4.60E+01	4.70E+01	5.30E+01	4.60E+01
Avg. dil. water flow	gpm	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1A
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES
Unit 1

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
1. Total Release	Ci	4.34E-02	8.69E-02	1.61E-01	9.18E-02	3.83E-01
2. Avg. Release Rate	uCi/sec	5.58E-03	1.10E-02	2.03E-02	1.15E-02	1.21E-02
Iodine-131						
1. Total Release	Ci	(1)	4.42E-06	(1)	(1)	4.42E-06
2. Avg. Release Rate	uCi/sec	(1)	5.62E-07	(1)	(1)	1.40E-07
Particulates Half Life >= 8 days						
1. Total Release	Ci	1.22E-05	7.60E-06	2.85E-06	(1)	2.26E-05
2. Avg. Release Rate	uCi/sec	1.57E-06	9.67E-07	3.59E-07	(1)	7.18E-07
Others						
1. Total Release	Ci	1.10E+00	1.11E+00	1.12E+00	1.12E+00	4.46E+00
2. Avg. Release Rate	uCi/sec	1.41E-01	1.41E-01	1.41E-01	1.41E-01	1.41E-01
Tritium						
1. Total Release	Ci	7.21E+00	7.36E+00	1.77E+00	3.59E+00	1.99E+01
2. Avg. Release Rate	uCi/sec	9.27E-01	9.36E-01	2.23E-01	4.52E-01	6.32E-01
Gross Alpha						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Release Rate	uCi/sec	(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1C
GASEOUS EFFLUENTS - GROUND RELEASES - CONTINUOUS MODE
Unit 1

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
XE-133	Ci	3.57E-02	6.72E-02	1.41E-01	7.43E-02	3.18E-01
Totals for Period...	Ci	3.57E-02	6.72E-02	1.41E-01	7.43E-02	3.18E-01
Iodines						
I-131	Ci	(1)	4.42E-06	(1)	(1)	4.42E-06
Totals for Period...	Ci	(1)	4.42E-06	(1)	(1)	4.42E-06
Particulates Half Life >= 8 days						
CO-60	Ci	1.22E-05	7.60E-06	2.85E-06	(1)	2.26E-05
Totals for Period...	Ci	1.22E-05	7.60E-06	2.85E-06	(1)	2.26E-05
Others						
BR-82	Ci	(1)	(1)	(1)	1.03E-06	1.03E-06
C-14	Ci	1.10E+00	1.11E+00	1.12E+00	1.12E+00	4.46E+00
Totals for Period...	Ci	1.10E+00	1.11E+00	1.12E+00	1.12E+00	4.46E+00
Tritium						
H-3	Ci	7.14E+00	7.22E+00	1.57E+00	3.42E+00	1.94E+01
Totals for Period...	Ci	7.14E+00	7.22E+00	1.57E+00	3.42E+00	1.94E+01
Gross Alpha						
Gross Alpha	Ci	(1)	(1)	(1)	(1)	(1)
Totals for Period...	Ci	(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1C
GASEOUS EFFLUENTS - GROUND RELEASES - BATCH MODE
Unit 1

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
AR-41	Ci	5.43E-03	4.36E-03	4.92E-03	1.01E-02	2.48E-02
KR-85M	Ci	3.98E-04	8.01E-06	(1)	(1)	4.06E-04
XE-133	Ci	1.87E-03	1.38E-02	1.51E-02	5.72E-03	3.64E-02
XE-133M	Ci	1.01E-05	2.03E-04	(1)	1.65E-03	1.87E-03
XE-135	Ci	1.95E-05	1.35E-03	(1)	3.25E-06	1.37E-03
Totals for Period...	Ci	7.73E-03	1.97E-02	2.00E-02	1.75E-02	6.48E-02
Iodines	Ci	(1)	(1)	(1)	(1)	(1)
Totals for Period...	Ci	(1)	(1)	(1)	(1)	(1)
Particulates						
Half Life >= 8 days	Ci	(1)	(1)	(1)	(1)	(1)
Totals for Period...	Ci	(1)	(1)	(1)	(1)	(1)
Others	Ci	(1)	(1)	(1)	(1)	(1)
Totals for Period...	Ci	(1)	(1)	(1)	(1)	(1)
Tritium	Ci	7.05E-02	1.39E-01	2.03E-01	1.66E-01	5.78E-01
Totals for Period...	Ci	7.05E-02	1.39E-01	2.03E-01	1.66E-01	5.78E-01
Gross Alpha	Ci	(1)	(1)	(1)	(1)	(1)
Totals for Period...	Ci	(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1A
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES
Unit 2

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
1. Total Release	Ci	8.26E-02	8.79E-02	1.50E-01	8.49E-02	4.05E-01
2. Avg. Release Rate	uCi/sec	1.06E-02	1.12E-02	1.89E-02	1.07E-02	1.28E-02
Iodine-131						
1. Total Release	Ci	(1)	2.56E-06	(1)	(1)	2.56E-06
2. Avg. Release Rate	uCi/sec	(1)	3.26E-07	(1)	(1)	8.13E-08
Particulates Half Life >= 8 days						
1. Total Release	Ci	4.67E-07	1.00E-05	1.43E-05	3.16E-05	5.64E-05
2. Avg. Release Rate	uCi/sec	6.01E-08	1.28E-06	1.80E-06	3.97E-06	1.79E-06
Others						
1. Total Release	Ci	1.10E+00	1.11E+00	1.12E+00	1.12E+00	4.45E+00
2. Avg. Release Rate	uCi/sec	1.41E-01	1.41E-01	1.41E-01	1.41E-01	1.41E-01
Tritium						
1. Total Release	Ci	1.13E+01	5.84E+00	1.17E+01	1.29E+01	4.17E+01
2. Avg. Release Rate	uCi/sec	1.46E+00	7.43E-01	1.47E+00	1.62E+00	1.32E+00
Gross Alpha						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Release Rate	uCi/sec	(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1C
GASEOUS EFFLUENTS - GROUND RELEASES - CONTINUOUS MODE
Unit 2

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
XE-133	Ci	6.86E-02	6.72E-02	1.41E-01	7.43E-02	3.51E-01
Totals for Period...	Ci	6.86E-02	6.72E-02	1.41E-01	7.43E-02	3.51E-01
Iodines						
I-131	Ci	(1)	2.56E-06	(1)	(1)	2.56E-06
I-132	Ci	(1)	1.66E-04	(1)	(1)	1.66E-04
Totals for Period...	Ci	(1)	1.68E-04	(1)	(1)	1.68E-04
Particulates Half Life >= 8 days						
CO-57	Ci	4.67E-07	(1)	(1)	(1)	4.67E-07
CO-58	Ci	(1)	3.04E-07	(1)	(1)	3.04E-07
CO-60	Ci	(1)	9.74E-06	1.43E-05	3.16E-05	5.57E-05
Totals for Period...	Ci	4.67E-07	1.00E-05	1.43E-05	3.16E-05	5.64E-05
Others						
C-14	Ci	1.10E+00	1.11E+00	1.12E+00	1.12E+00	4.45E+00
Totals for Period...	Ci	1.10E+00	1.11E+00	1.12E+00	1.12E+00	4.45E+00
Tritium						
H-3	Ci	1.12E+01	5.69E+00	1.16E+01	1.27E+01	4.12E+01
Totals for Period...	Ci	1.12E+01	5.69E+00	1.16E+01	1.27E+01	4.12E+01
Gross Alpha						
Gross Alpha	Ci	(1)	(1)	(1)	(1)	(1)
Totals for Period...	Ci	(1)	(1)	(1)	(1)	(1)

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 1C
GASEOUS EFFLUENTS - GROUND RELEASES - BATCH MODE
Unit 2

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Gases						
AR-41	Ci	1.07E-02	7.23E-03	7.28E-03	4.89E-03	3.01E-02
KR-85M	Ci	(1)	7.99E-06	(1)	(1)	7.99E-06
KR-88	Ci	(1)	(1)	1.00E-03	(1)	1.00E-03
XE-133	Ci	3.30E-03	1.19E-02	6.18E-04	3.71E-03	1.95E-02
XE-133M	Ci	1.00E-05	2.03E-04	(1)	1.96E-03	2.17E-03
XE-135	Ci	1.95E-05	1.34E-03	(1)	3.25E-06	1.37E-03
Totals for Period...	Ci	1.40E-02	2.07E-02	8.90E-03	1.06E-02	5.41E-02
Iodines	Ci	(1)	(1)	(1)	(1)	(1)
Totals for Period...	Ci	(1)	(1)	(1)	(1)	(1)
Particulates Half Life >= 8 days	Ci	(1)	(1)	(1)	(1)	(1)
Totals for Period...	Ci	(1)	(1)	(1)	(1)	(1)
Others	Ci	(1)	(1)	(1)	(1)	(1)
Totals for Period...	Ci	(1)	(1)	(1)	(1)	(1)
Tritium H-3	Ci	1.29E-01	1.49E-01	1.03E-01	1.51E-01	5.32E-01
Totals for Period...	Ci	1.29E-01	1.49E-01	1.03E-01	1.51E-01	5.32E-01
Gross Alpha	Ci	(1)	(1)	(1)	(1)	(1)
Totals for Period...	Ci	(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES
Unit 1

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
1. Total Release	Ci	2.05E-03	1.67E-03	1.32E-03	4.77E-04	5.52E-03
2. Avg. Diluted Conc.	uCi/ml	6.13E-10	5.38E-10	3.41E-10	1.25E-10	3.91E-10
Tritium						
1. Total Release	Ci	3.83E+02	3.25E+02	5.88E+01	2.52E+02	1.02E+03
2. Avg. Diluted Conc.	uCi/ml	1.15E-04	1.04E-04	1.52E-05	6.61E-05	7.20E-05
Dissolved and Entrained Gases						
1. Total Release	Ci	1.50E-05	5.05E-04	(1)	1.32E-05	5.33E-04
2. Avg. Diluted Conc.	uCi/ml	4.50E-12	1.62E-10	(1)	3.46E-12	3.77E-11
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	uCi/ml	(1)	(1)	(1)	(1)	(1)
Volume of liquid waste	liters	3.34E+09	3.11E+09	3.87E+09	3.80E+09	1.41E+10

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A - Release Tank
LIQUID EFFLUENTS - SUMMATION BY RELEASE POINT
Unit 1

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
1. Total Release	Ci	2.05E-03	1.67E-03	1.32E-03	4.77E-04	5.52E-03
2. Avg. Diluted Conc.	uCi/ml	3.11E-06	1.44E-06	1.38E-06	8.62E-07	1.66E-06
Tritium						
1. Total Release	Ci	3.35E+02	2.76E+02	5.09E+01	2.23E+02	8.85E+02
2. Avg. Diluted Conc.	uCi/ml	5.09E-01	2.38E-01	5.30E-02	4.04E-01	2.66E-01
Dissolved and Entrained Gases						
1. Total Release	Ci	1.50E-05	5.05E-04	(1)	1.32E-05	5.33E-04
2. Avg. Diluted Conc.	uCi/ml	2.28E-08	4.36E-07	(1)	2.38E-08	1.60E-07
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	uCi/ml	(1)	(1)	(1)	(1)	(1)
Volume of liquid waste	liters	6.58E+05	1.16E+06	9.60E+05	5.53E+05	3.33E+06

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A - Circulating Water Blowdown
LIQUID EFFLUENTS - SUMMATION BY RELEASE POINT
Unit 1

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	uCi/ml	(1)	(1)	(1)	(1)	(1)
Tritium						
1. Total Release	Ci	4.76E+01	4.86E+01	7.87E+00	2.81E+01	1.32E+02
2. Avg. Diluted Conc.	uCi/ml	1.42E-05	1.56E-05	2.03E-06	7.40E-06	9.36E-06
Dissolved and Entrained Gases						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	uCi/ml	(1)	(1)	(1)	(1)	(1)
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	uCi/ml	(1)	(1)	(1)	(1)	(1)
Volume of liquid waste	liters	3.34E+09	3.11E+09	3.87E+09	3.80E+09	1.41E+10

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2B
LIQUID EFFLUENTS - CONTINUOUS MODE
Unit 1

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products	Ci	(1)	(1)	(1)	(1)	(1)
Tritium H-3	Ci	4.76E+01	4.86E+01	7.87E+00	2.81E+01	1.32E+02
Totals for Period...	Ci	4.76E+01	4.86E+01	7.87E+00	2.81E+01	1.32E+02
Dissolved and Entrained Gases	Ci	(1)	(1)	(1)	(1)	(1)
Gross Alpha Radioactivity	Ci	(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2B
LIQUID EFFLUENTS - BATCH MODE
Unit 1

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
CO-57	Ci	6.85E-06	(1)	2.52E-06	1.41E-06	1.08E-05
CO-58	Ci	1.20E-03	9.37E-04	1.18E-03	1.66E-04	3.47E-03
CO-60	Ci	1.75E-04	1.75E-04	1.32E-04	2.82E-04	7.65E-04
CR-51	Ci	(1)	1.18E-04	(1)	(1)	1.18E-04
FE-59	Ci	(1)	3.95E-05	(1)	(1)	3.95E-05
I-132	Ci	(1)	4.07E-06	(1)	(1)	4.07E-06
MN-54	Ci	(1)	1.51E-06	3.36E-06	1.11E-05	1.60E-05
NB-95	Ci	(1)	8.23E-06	(1)	(1)	8.23E-06
SB-125	Ci	(1)	5.84E-05	6.27E-06	1.60E-05	8.07E-05
SR-85	Ci	(1)	2.15E-06	(1)	(1)	2.15E-06
TE-123M	Ci	1.14E-05	3.00E-06	2.21E-06	(1)	1.67E-05
TE-125M	Ci	6.59E-04	3.22E-04	(1)	(1)	9.81E-04
TE-132	Ci	(1)	3.28E-06	(1)	(1)	3.28E-06
Totals for Period...	Ci	2.05E-03	1.67E-03	1.32E-03	4.77E-04	5.52E-03
Tritium						
H-3	Ci	3.35E+02	2.76E+02	5.09E+01	2.23E+02	8.85E+02
Totals for Period...	Ci	3.35E+02	2.76E+02	5.09E+01	2.23E+02	8.85E+02
Dissolved and Entrained Gases						
KR-85	Ci	(1)	4.96E-04	(1)	(1)	4.96E-04
XE-133	Ci	1.50E-05	8.55E-06	(1)	1.32E-05	3.67E-05
Totals for Period...	Ci	1.50E-05	5.05E-04	(1)	1.32E-05	5.33E-04
Gross Alpha Radioactivity						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES
Unit 2

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
1. Total Release	Ci	2.05E-03	1.67E-03	1.32E-03	4.77E-04	5.52E-03
2. Avg. Diluted Conc.	uCi/ml	6.13E-10	5.38E-10	3.41E-10	1.25E-10	3.91E-10
Tritium						
1. Total Release	Ci	3.83E+02	3.25E+02	5.88E+01	2.52E+02	1.02E+03
2. Avg. Diluted Conc.	uCi/ml	1.15E-04	1.04E-04	1.52E-05	6.61E-05	7.20E-05
Dissolved and Entrained Gases						
1. Total Release	Ci	1.50E-05	5.05E-04	(1)	1.32E-05	5.33E-04
2. Avg. Diluted Conc.	uCi/ml	4.50E-12	1.62E-10	(1)	3.46E-12	3.77E-11
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	uCi/ml	(1)	(1)	(1)	(1)	(1)
Volume of liquid waste	liters	3.34E+09	3.11E+09	3.87E+09	3.80E+09	1.41E+10

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A - Release Tank
LIQUID EFFLUENTS - SUMMATION BY RELEASE POINT
Unit 2

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
1. Total Release	Ci	2.05E-03	1.67E-03	1.32E-03	4.77E-04	5.52E-03
2. Avg. Diluted Conc.	uCi/ml	3.11E-06	1.44E-06	1.38E-06	8.62E-07	1.66E-06
Tritium						
1. Total Release	Ci	3.35E+02	2.76E+02	5.09E+01	2.23E+02	8.85E+02
2. Avg. Diluted Conc.	uCi/ml	5.09E-01	2.38E-01	5.30E-02	4.04E-01	2.66E-01
Dissolved and Entrained Gases						
1. Total Release	Ci	1.50E-05	5.05E-04	(1)	1.32E-05	5.33E-04
2. Avg. Diluted Conc.	uCi/ml	2.28E-08	4.36E-07	(1)	2.38E-08	1.60E-07
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	uCi/ml	(1)	(1)	(1)	(1)	(1)
Volume of liquid waste	liters	6.58E+05	1.16E+06	9.60E+05	5.53E+05	3.33E+06

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2A - Circulating Water Blowdown
LIQUID EFFLUENTS - SUMMATION BY RELEASE POINT
Unit 2

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	uCi/ml	(1)	(1)	(1)	(1)	(1)
Tritium						
1. Total Release	Ci	4.76E+01	4.86E+01	7.87E+00	2.81E+01	1.32E+02
2. Avg. Diluted Conc.	uCi/ml	1.42E-05	1.56E-05	2.03E-06	7.40E-06	9.36E-06
Dissolved and Entrained Gases						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	uCi/ml	(1)	(1)	(1)	(1)	(1)
Gross Alpha Radioactivity						
1. Total Release	Ci	(1)	(1)	(1)	(1)	(1)
2. Avg. Diluted Conc.	uCi/ml	(1)	(1)	(1)	(1)	(1)
Volume of liquid waste	liters	3.34E+09	3.11E+09	3.87E+09	3.80E+09	1.41E+10

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2B
LIQUID EFFLUENTS - CONTINUOUS MODE
Unit 2

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
	Ci	(1)	(1)	(1)	(1)	(1)
Tritium						
H-3	Ci	4.76E+01	4.86E+01	7.87E+00	2.81E+01	1.32E+02
Totals for Period...	Ci	4.76E+01	4.86E+01	7.87E+00	2.81E+01	1.32E+02
Dissolved and Entrained Gases						
	Ci	(1)	(1)	(1)	(1)	(1)
Gross Alpha Radioactivity						
	Ci	(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

EFFLUENT AND WASTE DISPOSAL REPORT
TABLE 2B
LIQUID EFFLUENTS - BATCH MODE
Unit 2

REPORT FOR 2010	Units	QTR 1	QTR 2	QTR 3	QTR 4	YEAR
Fission and Activation Products						
CO-57	Ci	6.85E-06	(1)	2.52E-06	1.41E-06	1.08E-05
CO-58	Ci	1.20E-03	9.37E-04	1.18E-03	1.66E-04	3.47E-03
CO-60	Ci	1.75E-04	1.75E-04	1.32E-04	2.82E-04	7.65E-04
CR-51	Ci	(1)	1.18E-04	(1)	(1)	1.18E-04
FE-59	Ci	(1)	3.95E-05	(1)	(1)	3.95E-05
I-132	Ci	(1)	4.07E-06	(1)	(1)	4.07E-06
MN-54	Ci	(1)	1.51E-06	3.36E-06	1.11E-05	1.60E-05
NB-95	Ci	(1)	8.23E-06	(1)	(1)	8.23E-06
SB-125	Ci	(1)	5.84E-05	6.27E-06	1.60E-05	8.07E-05
SR-85	Ci	(1)	2.15E-06	(1)	(1)	2.15E-06
TE-123M	Ci	1.14E-05	3.00E-06	2.21E-06	(1)	1.67E-05
TE-125M	Ci	6.59E-04	3.22E-04	(1)	(1)	9.81E-04
TE-132	Ci	(1)	3.28E-06	(1)	(1)	3.28E-06
Totals for Period...	Ci	2.05E-03	1.67E-03	1.32E-03	4.77E-04	5.52E-03
Tritium						
H-3	Ci	3.35E+02	2.76E+02	5.09E+01	2.23E+02	8.85E+02
Totals for Period...	Ci	3.35E+02	2.76E+02	5.09E+01	2.23E+02	8.85E+02
Dissolved and Entrained Gases						
KR-85	Ci	(1)	4.96E-04	(1)	(1)	4.96E-04
XE-133	Ci	1.50E-05	8.55E-06	(1)	1.32E-05	3.67E-05
Totals for Period...	Ci	1.50E-05	5.05E-04	(1)	1.32E-05	5.33E-04
Gross Alpha Radioactivity						
** No Nuclide Activities **		(1)	(1)	(1)	(1)	(1)

(1) Less than minimum detectable activity which meets the lower limit of detection (LLD) requirements of TRM Section 3.11

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

LIQUID DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2
Liquid Receptor

=== PERIOD DOSE BY ORGAN AND AGE GROUP (mrem) ========== QUARTER 1 ==========

Agegrp	Bone	Liver	Thyroid	Kidney	Lung	GI-LLI	Skin	TB
ADULT	1.05E-03	3.76E-02	3.74E-02	4.14E-02	3.71E-02	4.31E-02	0.00E+00	3.75E-02
TEEN	1.14E-03	2.83E-02	2.82E-02	2.78E-02	2.78E-02	3.25E-02	0.00E+00	2.82E-02
CHILD	1.46E-03	3.15E-02	3.14E-02	3.10E-02	3.10E-02	3.29E-02	0.00E+00	3.15E-02
INFANT	3.57E-06	1.38E-02	1.38E-02	1.38E-02	1.38E-02	1.38E-02	0.00E+00	1.38E-02

=== SITE DOSE LIMIT ANALYSIS ========== QUARTER 1 ==========

Quartr - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
Qtr 1 - Admin. Any Organ	ADULT	GILLI	4.31E-02	3.75E+00	1.15E+00
Qtr 1 - Admin. Total Body	ADULT	TBODY	3.75E-02	1.13E+00	3.33E+00
Qtr 1 - T.Spc. Any Organ	ADULT	GILLI	4.31E-02	5.00E+00	8.63E-01

Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	8.60E+01
CO-58	3.11E+00
CO-60	1.21E+00
TE-125M	9.68E+00

Qtr 1 - T.Spc. Total Body	ADULT	TBODY	3.75E-02	1.50E+00	2.50E+00

Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.91E+01
CO-58	3.97E-01
CO-60	1.64E-01
TE-125M	3.74E-01

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

LIQUID DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2
Liquid Receptor

=== PERIOD DOSE BY ORGAN AND AGE GROUP (mrem) ========== QUARTER 2 ==========

Agegrp	Bone	Liver	Thyroid	Kidney	Lung	GI-LLI	Skin	TB
ADULT	6.75E-04	3.84E-02	3.81E-02	4.06E-02	3.80E-02	5.24E-02	0.00E+00	3.83E-02
TEEN	7.33E-04	2.89E-02	2.87E-02	2.85E-02	2.85E-02	3.89E-02	0.00E+00	2.88E-02
CHILD	9.39E-04	3.21E-02	3.20E-02	3.18E-02	3.18E-02	3.56E-02	0.00E+00	3.21E-02
INFANT	2.54E-06	1.41E-02	1.41E-02	1.41E-02	1.41E-02	1.41E-02	0.00E+00	1.41E-02

=== SITE DOSE LIMIT ANALYSIS ========== QUARTER 2 ==========

Quartr - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
Qtr 2 - Admin. Any Organ	ADULT	GILLI	5.24E-02	3.75E+00	1.40E+00
Qtr 2 - Admin. Total Body	ADULT	TBODY	3.83E-02	1.13E+00	3.40E+00
Qtr 2 - T.Spc. Any Organ	ADULT	GILLI	5.24E-02	5.00E+00	1.05E+00

Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	7.24E+01
CR-51	5.56E-02
MN-54	2.97E-02
FE-59	4.72E-01
CO-58	2.50E+00
CO-60	1.24E+00
NB-95	1.81E+01
TE-125M	4.83E+00
TE-132	3.55E-01
I-132	2.23E-05

Qtr 2 - T.Spc. Total Body	ADULT	TBODY	3.83E-02	1.50E+00	2.55E+00

Critical Pathway: Fresh Water Fish - Sport (FFSP)

Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.91E+01
CR-51	3.03E-04
MN-54	2.54E-03
FE-59	7.43E-02
CO-58	3.78E-01
CO-60	2.00E-01
NB-95	2.20E-03
TE-125M	2.22E-01

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

LIQUID DOSE SUMMARY

Unit 1 & 2

Nuclide	Percentage
TE-132	9.65E-03
I-132	5.69E-05

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

LIQUID DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2
Liquid Receptor

=== PERIOD DOSE BY ORGAN AND AGE GROUP (mrem) ========== QUARTER 3 ==========

Agegrp	Bone	Liver	Thyroid	Kidney	Lung	GI-LLI	Skin	TB
ADULT	0.00E+00	1.48E-02	1.45E-02	1.45E-02	1.45E-02	1.90E-02	0.00E+00	1.50E-02
TEEN	0.00E+00	1.11E-02	1.09E-02	1.09E-02	1.09E-02	1.40E-02	0.00E+00	1.14E-02
CHILD	0.00E+00	1.23E-02	1.21E-02	1.21E-02	1.21E-02	1.32E-02	0.00E+00	1.27E-02
INFANT	0.00E+00	5.38E-03	5.38E-03	5.38E-03	5.38E-03	5.39E-03	0.00E+00	5.39E-03

=== SITE DOSE LIMIT ANALYSIS ========== QUARTER 3 ==========

Quartr - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
Qtr 3 - Admin. Any Organ	ADULT	GILLI	1.90E-02	3.75E+00	5.07E-01
Qtr 3 - Admin. Total Body	ADULT	TBODY	1.50E-02	1.13E+00	1.34E+00
Qtr 3 - T.Spc. Any Organ	ADULT	GILLI	1.90E-02	5.00E+00	3.80E-01

Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	7.63E+01
MN-54	3.77E-01
CO-58	1.79E+01
CO-60	5.37E+00

Qtr 3 - T.Spc. Total Body	ADULT	TBODY	1.50E-02	1.50E+00	1.00E+00
Critical Pathway:				Fresh	

Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.67E+01
MN-54	2.98E-02
CO-58	2.51E+00
CO-60	7.98E-01

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

LIQUID DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2
Liquid Receptor

=== PERIOD DOSE BY ORGAN AND AGE GROUP (mrem) ========== QUARTER 4 ==========

Agegrp	Bone	Liver	Thyroid	Kidney	Lung	GI-LLI	Skin	TB
ADULT	0.00E+00	3.37E-02	3.36E-02	3.36E-02	3.36E-02	3.51E-02	0.00E+00	3.38E-02
TEEN	0.00E+00	2.53E-02	2.52E-02	2.52E-02	2.52E-02	2.63E-02	0.00E+00	2.54E-02
CHILD	0.00E+00	2.82E-02	2.81E-02	2.81E-02	2.81E-02	2.84E-02	0.00E+00	2.83E-02
INFANT	0.00E+00	1.25E-02	1.24E-02	1.24E-02	1.24E-02	1.25E-02	0.00E+00	1.25E-02

=== SITE DOSE LIMIT ANALYSIS ========== QUARTER 4 ==========

Quartr - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
Qtr 4 - Admin. Any Organ	ADULT	GILLI	3.51E-02	3.75E+00	9.36E-01
Qtr 4 - Admin. Total Body	ADULT	TBODY	3.38E-02	1.13E+00	3.00E+00
Qtr 4 - T.Spc. Any Organ	ADULT	GILLI	3.51E-02	5.00E+00	7.02E-01

Critical Pathway: Fresh Water Fish - Sport (FFSP)

Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.57E+01
MN-54	3.56E-01
CO-58	7.23E-01
CO-60	3.27E+00

Qtr 4 - T.Spc. Total Body	ADULT	TBODY	3.38E-02	1.50E+00	2.25E+00

Critical Pathway: Fresh Water Fish - Sport (FFSP)

Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.95E+01
MN-54	2.30E-02
CO-58	8.31E-02
CO-60	3.99E-01

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

LIQUID DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2
Liquid Receptor

=== PERIOD DOSE BY ORGAN AND AGE GROUP (mrem) ========== ANNUAL 2010 =========

Agegrp	Bone	Liver	Thyroid	Kidney	Lung	GI-LLI	Skin	TB
ADULT	2.13E-03	1.32E-01	1.32E-01	1.40E-01	1.31E-01	1.59E-01	0.00E+00	1.32E-01
TEEN	2.31E-03	9.97E-02	9.89E-02	9.84E-02	9.83E-02	1.18E-01	0.00E+00	9.96E-02
CHILD	2.97E-03	1.11E-01	1.10E-01	1.10E-01	1.10E-01	1.17E-01	0.00E+00	1.11E-01
INFANT	7.51E-06	4.86E-02	4.86E-02	4.86E-02	4.86E-02	4.86E-02	0.00E+00	4.86E-02

=== SITE DOSE LIMIT ANALYSIS ========== ANNUAL 2010 =========

Annual - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
2010 - Admin. Any Organ	ADULT	GILLI	1.59E-01	7.50E+00	2.11E+00
2010 - Admin. Total Body	ADULT	TBODY	1.32E-01	2.25E+00	5.88E+00
2010 - T.Spc. Any Organ	ADULT	GILLI	1.59E-01	1.00E+01	1.59E+00

Critical Pathway: Fresh Water Fish - Sport (FFSP)

Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	8.26E+01
CR-51	1.98E-02
MN-54	1.12E-01
FE-59	1.68E-01
CO-58	3.29E+00
CO-60	1.93E+00
NB-95	6.46E+00
TE-125M	5.25E+00
TE-132	1.26E-01
I-132	7.95E-06

2010 - T.Spc. Total Body	ADULT	TBODY	1.32E-01	3.00E+00	4.41E+00

Critical Pathway: Fresh Water Fish - Sport (FFSP)

Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.90E+01
CR-51	9.44E-05
MN-54	8.33E-03
FE-59	2.31E-02
CO-58	4.37E-01
CO-60	2.72E-01
NB-95	6.86E-04
TE-125M	2.11E-01

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LIQUID DOSE SUMMARY

Unit 1 & 2

Nuclide	Percentage
TE-132	3.01E-03
I-132	1.77E-05

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GASEOUS DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== I&P DOSE LIMIT ANALYSIS ========== QUARTER 1 ==========

Quartr - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
Qtr 1 - Admin. Any Organ	CHILD	BONE	1.79E-01	5.63E+00	3.18E+00
Qtr 1 - Admin. Total Body	CHILD	TBODY	3.68E-02	5.25E+00	7.02E-01
Qtr 1 - T.Spc. Any Organ	CHILD	BONE	1.79E-01	7.50E+00	2.39E+00

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	0.00E+00
C-14	1.00E+02
CO-60	1.99E-02

Qtr 1 - T.Spc. Total Body	CHILD	TBODY	3.68E-02	7.50E+00	4.91E-01

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	2.84E+00
C-14	9.71E+01
CO-60	1.02E-01

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GASEOUS DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== NG DOSE LIMIT ANALYSIS ========== QUARTER 1 ==========

Quartr - Limit	Dose (mrad)	Limit (mrad)	Max % of Limit
Qtr 1 - Admin. Gamma	1.10E-05	3.75E+00	2.92E-04
Qtr 1 - Admin. Beta	2.41E-06	7.50E+00	3.21E-05
Qtr 1 - T.Spc. Gamma	1.10E-05	5.00E+00	2.19E-04

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	7.92E+01
KR-85M	2.59E-01
XE-135	3.96E-02
XE-133M	3.47E-03
XE-133	2.04E+01

Qtr 1 - T.Spc. Beta	2.41E-06	1.00E+01	2.41E-05

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	3.13E+01
KR-85M	4.65E-01
XE-135	5.69E-02
XE-133M	1.76E-02
XE-133	6.81E+01

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

GASEOUS DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== I&P DOSE LIMIT ANALYSIS ========== QUARTER 2 ==========

Quartr - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
Qtr 2 - Admin. Any Organ	CHILD	BONE	1.81E-01	5.63E+00	3.22E+00
Qtr 2 - Admin. Total Body	CHILD	TBODY	3.70E-02	5.25E+00	7.04E-01
Qtr 2 - T.Spc. Any Organ	CHILD	BONE	1.81E-01	7.50E+00	2.41E+00

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	0.00E+00
C-14	1.00E+02
CO-58	7.61E-06
CO-60	2.80E-02
I-131	6.83E-04
I-132	1.64E-05

Qtr 2 - T.Spc. Total Body	CHILD	TBODY	3.70E-02	7.50E+00	4.93E-01

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	2.02E+00
C-14	9.78E+01
CO-58	6.52E-05
CO-60	1.45E-01
I-131	1.93E-03
I-132	7.85E-05

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GASEOUS DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== NG DOSE LIMIT ANALYSIS ========== QUARTER 2 ==========

Quartr - Limit	Dose (mrad)	Limit (mrad)	Max % of Limit
Qtr 2 - Admin. Gamma	9.84E-06	3.75E+00	2.62E-04
Qtr 2 - Admin. Beta	3.04E-06	7.50E+00	4.06E-05
Qtr 2 - T.Spc. Gamma	9.84E-06	5.00E+00	1.97E-04

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	6.35E+01
KR-85M	1.16E-02
XE-135	3.04E+00
XE-133M	7.83E-02
XE-133	3.33E+01

Qtr 2 - T.Spc. Beta	3.04E-06	1.00E+01	3.04E-05

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	1.78E+01
KR-85M	1.48E-02
XE-135	3.10E+00
XE-133M	2.82E-01
XE-133	7.88E+01

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GASEOUS DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== I&P DOSE LIMIT ANALYSIS ========== QUARTER 3 ==========

Quartr - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
Qtr 3 - Admin. Any Organ	CHILD	BONE	1.83E-01	5.63E+00	3.25E+00
Qtr 3 - Admin. Total Body	CHILD	TBODY	3.74E-02	5.25E+00	7.12E-01
Qtr 3 - T.Spc. Any Organ	CHILD	BONE	1.83E-01	7.50E+00	2.44E+00

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	0.00E+00
C-14	1.00E+02
CO-60	2.75E-02

Qtr 3 - T.Spc. Total Body	CHILD	TBODY	3.74E-02	7.50E+00	4.98E-01

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	2.03E+00
C-14	9.78E+01
CO-60	1.42E-01

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

GASEOUS DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== NG DOSE LIMIT ANALYSIS ========== QUARTER 3 ==========

Quartr - Limit	Dose (mrad)	Limit (mrad)	Max % of Limit
Qtr 3 - Admin. Gamma	1.36E-05	3.75E+00	3.62E-04
Qtr 3 - Admin. Beta	5.06E-06	7.50E+00	6.75E-05
Qtr 3 - T.Spc. Gamma	1.36E-05	5.00E+00	2.71E-04

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	4.86E+01
KR-88	6.53E+00
XE-133	4.49E+01

Qtr 3 - T.Spc. Beta	5.06E-06	1.00E+01	5.06E-05

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	1.13E+01
KR-88	8.28E-01
XE-133	8.79E+01

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

GASEOUS DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== I&P DOSE LIMIT ANALYSIS ========== QUARTER 4 ==========

Quartr - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
Qtr 4 - Admin. Any Organ	CHILD	BONE	1.83E-01	5.63E+00	3.25E+00
Qtr 4 - Admin. Total Body	CHILD	TBODY	3.76E-02	5.25E+00	7.16E-01
Qtr 4 - T.Spc. Any Organ	CHILD	BONE	1.83E-01	7.50E+00	2.44E+00

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	0.00E+00
C-14	9.99E+01
CO-60	5.05E-02

Qtr 4 - T.Spc. Total Body	CHILD	TBODY	3.76E-02	7.50E+00	5.01E-01

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	2.48E+00
C-14	9.73E+01
CO-60	2.60E-01

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

GASEOUS DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== NG DOSE LIMIT ANALYSIS ========== QUARTER 4 ==========

Quartr - Limit	Dose (mrad)	Limit (mrad)	Max % of Limit
Qtr 4 - Admin. Gamma	1.14E-05	3.75E+00	3.04E-04
Qtr 4 - Admin. Beta	3.15E-06	7.50E+00	4.19E-05
Qtr 4 - T.Spc. Gamma	1.14E-05	5.00E+00	2.28E-04

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	7.10E+01
XE-135	6.34E-03
XE-133M	6.00E-01
XE-133	2.84E+01

Qtr 4 - T.Spc. Beta	3.15E-06	1.00E+01	3.15E-05

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	2.23E+01
XE-135	7.24E-03
XE-133M	2.42E+00
XE-133	7.52E+01

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

GASEOUS DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== I&P DOSE LIMIT ANALYSIS ========== ANNUAL 2010 =========

Annual - Limit	Age Group	Organ	Dose (mrem)	Limit (mrem)	Max % of Limit
2010 - Admin. Any Organ	CHILD	BONE	7.26E-01	1.13E+01	6.45E+00
2010 - Admin. Total Body	CHILD	TBODY	1.49E-01	1.05E+01	1.42E+00
2010 - T.Spc. Any Organ	CHILD	BONE	7.26E-01	1.50E+01	4.84E+00

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	0.00E+00
C-14	1.00E+02
CO-58	1.90E-06
CO-60	3.15E-02
I-131	1.70E-04
I-132	4.08E-06

2010 - T.Spc. Total Body	CHILD	TBODY	1.49E-01	1.50E+01	9.92E-01

Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA
Critical Pathway: Vegetation
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	2.34E+00
C-14	9.75E+01
CO-58	1.62E-05
CO-60	1.63E-01
I-131	4.79E-04
I-132	1.95E-05

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

GASEOUS DOSE SUMMARY

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== NG DOSE LIMIT ANALYSIS ========== ANNUAL 2010 =========

Annual - Limit	Dose (mrad)	Limit (mrad)	Max % of Limit
2010 - Admin. Gamma	4.58E-05	7.50E+00	6.10E-04
2010 - Admin. Beta	1.37E-05	1.50E+01	9.10E-05
2010 - T.Spc. Gamma	4.58E-05	1.00E+01	4.58E-04

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	6.47E+01
KR-85M	6.46E-02
XE-135	6.65E-01
XE-133M	1.67E-01
KR-88	1.93E+00
XE-133	3.24E+01

2010 - T.Spc. Beta	1.37E-05	2.00E+01	6.83E-05

Receptor: 4 Composite Crit. Receptor - NG
Distance: 0.00 (meters) Compass Point: NA

Nuclide	Percentage
AR-41	1.88E+01
KR-85M	8.52E-02
XE-135	7.02E-01
XE-133M	6.23E-01
KR-88	3.07E-01
XE-133	7.95E+01

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

Unit 1 & 2

Report for: 2010
Unit Range - From: 1 To: 2

=== MAXIMUM DOSE ANALYSIS ========== ANNUAL 2010 =========

Dose Type	Age Group	Organ	Dose (mrem)
Any Organ	CHILD	BONE	7.29E-01

Liquid Receptor: 0 Liquid Receptor
Gaseous Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA

Liquid Dose: 2.97E-03 % of Total: 4.07E-01
Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	0.00E+00
CR-51	0.00E+00
MN-54	0.00E+00
FE-59	1.44E+00
CO-58	0.00E+00
CO-60	0.00E+00
NB-95	1.22E-01
TE-125M	9.82E+01
TE-132	2.91E-01
I-132	1.12E-03

Gaseous Dose: 7.26E-01 % of Total: 9.95E+01
Critical Pathway: Vegetation (VEG)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	0.00E+00
C-14	1.00E+02
CO-58	1.90E-06
CO-60	3.15E-02
I-131	1.70E-04
I-132	4.08E-06

40CFR190 URANIUM FUEL CYCLE DOSE REPORT

Unit 1 & 2

=== MAXIMUM DOSE ANALYSIS ========== ANNUAL 2010 =========

Dose Type	Age Group	Organ	Dose (mrem)
Total Body	CHILD	TBODY	2.60E-01

Liquid Receptor: 0 Liquid Receptor
Gaseous Receptor: 5 Composite Crit. Receptor - IP
Distance: 0.00 (meters) Compass Point: NA

Liquid Dose: 1.11E-01 % of Total: 4.27E+01
Critical Pathway: Fresh Water Fish - Sport (FFSP)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	9.87E+01
CR-51	1.24E-04
MN-54	1.07E-02
FE-59	3.09E-02
CO-58	5.68E-01
CO-60	3.54E-01
NB-95	9.04E-04
TE-125M	3.50E-01
TE-132	4.16E-03
I-132	2.53E-05

Gaseous Dose: 1.49E-01 % of Total: 5.72E+01
Critical Pathway: Vegetation (VEG)
Major Contributors (0% or greater to total)

Nuclide	Percentage
H-3	2.34E+00
C-14	9.75E+01
CO-58	1.62E-05
CO-60	1.63E-01
I-131	4.79E-04
I-132	1.95E-05

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1

=== RELEASE DATA ==========

Total Release Duration (minutes)	1.115E+06
Total Release Volume (cf)	1.089E+11
Average Release Flowrate (cfm)	9.768E+04
Average Period Flowrate (cfm)	2.072E+05

=== NUCLIDE DATA ==========

Nuclide	uCi	Average uCi/cc	EC Ratio	EC
AR-41	2.48E+04	8.06E-12	8.06E-04	1.00E-08
KR-85M	4.06E+02	1.32E-13	1.32E-06	1.00E-07
XE-133M	1.86E+03	6.04E-13	1.01E-06	6.00E-07
XE-133	3.55E+05	1.15E-10	2.30E-04	5.00E-07
XE-135	1.37E+03	4.43E-13	6.33E-06	7.00E-08
F&AG	3.83E+05	1.24E-10	1.04E-03	
I-131	4.42E+00	1.43E-15	7.16E-06	2.00E-10
Iodine	4.42E+00	1.43E-15	7.16E-06	
BR-82	1.03E+00	3.35E-16	6.71E-08	5.00E-09
C-14	4.46E+06	1.45E-09	4.82E-01	3.00E-09
Other	4.46E+06	1.45E-09	4.82E-01	
H-3	1.99E+07	6.46E-09	6.46E-02	1.00E-07
H-3	1.99E+07	6.46E-09	6.46E-02	
CO-60	2.26E+01	7.34E-15	1.47E-04	5.00E-11
P>=8	2.26E+01	7.34E-15	1.47E-04	
Total	2.48E+07	8.03E-09	5.48E-01	

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1

=== MAXIMUM I&P DOSE FOR PERIOD ===

Limit Type	Organ Type	Age Group	Organ	Dose (mrem)	Limit Period	Limit (mrem)	Percent of Limit
Admin	Any Organ	CHILD	BONE	3.63E-01	31-day	2.25E-01	1.61E+02
					Quarter	5.63E+00	6.46E+00
					Annual	1.13E+01	3.23E+00
T.Spec	Any Organ	CHILD	BONE	3.63E-01	31-day	3.00E-01	1.21E+02
					Quarter	7.50E+00	4.84E+00
					Annual	1.50E+01	2.42E+00

Receptor.....: 5 Composite Crit. Receptor - IP
Distance (meters).....: 0.0
Compass Point.....: 0.0
Critical Pathway.....: 2 Vegetation (VEG)
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	0.00E+00
C-14	1.00E+02
CO-60	1.82E-02
I-131	2.15E-04

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1

=== PERIOD ORGAN DOSE BY AGE GROUP AND PATHWAY (mrem) ==========

Age/Path	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
AGPD	6.61E-05	6.61E-05	6.61E-05	6.61E-05	6.61E-05	6.61E-05	0.00E+00	6.61E-05
AINHL	1.65E-03	5.14E-04	5.14E-04	5.14E-04	5.15E-04	5.14E-04	0.00E+00	5.14E-04
AVEG	5.70E-02	1.17E-02	1.18E-02	1.17E-02	1.17E-02	1.17E-02	0.00E+00	1.17E-02
ACMEAT	2.12E-02	4.28E-03	4.29E-03	4.28E-03	4.28E-03	4.29E-03	0.00E+00	4.28E-03
ACMILK	2.31E-02	4.74E-03	4.81E-03	4.74E-03	4.74E-03	4.74E-03	0.00E+00	4.74E-03
TGPD	6.61E-05	6.61E-05	6.61E-05	6.61E-05	6.61E-05	6.61E-05	0.00E+00	6.61E-05
TINHL	1.65E-03	5.15E-04	5.16E-04	5.15E-04	5.18E-04	5.15E-04	0.00E+00	2.06E-04
TVEG	9.21E-02	1.89E-02	1.89E-02	1.89E-02	1.89E-02	1.89E-02	0.00E+00	1.89E-02
TCMEAT	1.79E-02	3.60E-03	3.60E-03	3.60E-03	3.60E-03	3.60E-03	0.00E+00	3.60E-03
TCMILK	4.26E-02	8.68E-03	8.79E-03	8.68E-03	8.68E-03	8.68E-03	0.00E+00	8.68E-03
CGPD	6.61E-05	6.61E-05	6.61E-05	6.61E-05	6.61E-05	6.61E-05	0.00E+00	6.61E-05
CINHL	2.28E-03	6.10E-04	6.11E-04	6.10E-04	6.12E-04	6.10E-04	0.00E+00	6.10E-04
CVEG	2.22E-01	4.52E-02	4.52E-02	4.52E-02	4.52E-02	4.52E-02	0.00E+00	4.52E-02
CCMEAT	3.36E-02	6.77E-03	6.78E-03	6.77E-03	6.77E-03	6.77E-03	0.00E+00	6.77E-03
CCMILK	1.05E-01	2.12E-02	2.14E-02	2.12E-02	2.12E-02	2.12E-02	0.00E+00	2.12E-02
IGPD	6.61E-05	6.61E-05	6.61E-05	6.61E-05	6.61E-05	6.61E-05	0.00E+00	6.61E-05
IINHL	1.68E-03	4.42E-04	4.43E-04	4.42E-04	4.43E-04	4.42E-04	0.00E+00	4.42E-04
ICMILK	2.05E-01	4.42E-02	4.47E-02	4.42E-02	4.42E-02	4.42E-02	0.00E+00	4.42E-02
TOTALS								
ADULT	1.03E-01	2.13E-02	2.14E-02	2.13E-02	2.13E-02	2.14E-02	0.00E+00	2.13E-02
TEEN	1.54E-01	3.18E-02	3.19E-02	3.18E-02	3.18E-02	3.18E-02	0.00E+00	3.15E-02
CHILD	3.63E-01	7.38E-02	7.41E-02	7.38E-02	7.38E-02	7.38E-02	0.00E+00	7.38E-02
INFANT	2.07E-01	4.47E-02	4.52E-02	4.47E-02	4.47E-02	4.47E-02	0.00E+00	4.47E-02

=== AGE GROUP / PATHWAY DESCRIPTIONS ==========

Abbreviation	Age Group	Pathway
AGPD	ADULT	Ground Plane Deposition (GPD)
AINHL	ADULT	Inhalation (INHL)
AVEG	ADULT	Vegetation (VEG)
ACMEAT	ADULT	Grs/Cow/Meat (CMEAT)
ACMILK	ADULT	Grs/Cow/Milk (CMILK)
TGPD	TEEN	Ground Plane Deposition (GPD)
TINHL	TEEN	Inhalation (INHL)
TVEG	TEEN	Vegetation (VEG)
TCMEAT	TEEN	Grs/Cow/Meat (CMEAT)
TCMILK	TEEN	Grs/Cow/Milk (CMILK)
CGPD	CHILD	Ground Plane Deposition (GPD)
CINHL	CHILD	Inhalation (INHL)

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1

=== AGE GROUP / PATHWAY DESCRIPTIONS ==========

Abbreviation	Age Group	Pathway
CVEG	CHILD	Vegetation (VEG)
CCMEAT	CHILD	Grs/Cow/Meat (CMEAT)
CCMILK	CHILD	Grs/Cow/Milk (CMILK)
IGPD	INFANT	Ground Plane Deposition (GPD)
IINHL	INFANT	Inhalation (INHL)
ICMILK	INFANT	Grs/Cow/Milk (CMILK)

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1

=== MAXIMUM NG DOSE FOR PERIOD ===

Limit Type	Dose Type	Dose (mrad)	Limit Period	Limit (mrad)	Percent of Limit
Admin	Gamma	2.09E-05	31-day	1.50E-01	1.39E-02
			Quarter	3.75E+00	5.57E-04
			Annual	7.50E+00	2.78E-04
Admin	Beta	6.57E-06	31-day	3.00E-01	2.19E-03
			Quarter	7.50E+00	8.76E-05
			Annual	1.50E+01	4.38E-05
T.Spec	Gamma	2.09E-05	31-day	2.00E-01	1.04E-02
			Quarter	5.00E+00	4.18E-04
			Annual	1.00E+01	2.09E-04

Receptor.....: 4 Composite Crit. Receptor - NG
Distance (meters).....: 0.0
Compass Point.....: 0.0
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
AR-41	6.42E+01
KR-85M	1.39E-01
XE-133M	1.69E-01
XE-133	3.48E+01
XE-135	7.29E-01

T.Spec	Beta	6.57E-06	31-day	4.00E-01	1.64E-03
			Quarter	1.00E+01	6.57E-05
			Annual	2.00E+01	3.28E-05

Receptor.....: 4 Composite Crit. Receptor - NG
Distance (meters).....: 0.0
Compass Point.....: 0.0
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
AR-41	1.77E+01
KR-85M	1.74E-01
XE-133M	5.99E-01
XE-133	8.08E+01

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 1

Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
XE-135	7.30E-01

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2

=== RELEASE DATA ==========

Total Release Duration (minutes)	1.124E+06
Total Release Volume (cf)	1.515E+11
Average Release Flowrate (cfm)	1.348E+05
Average Period Flowrate (cfm)	2.882E+05

=== NUCLIDE DATA ==========

Nuclide	uCi	Average uCi/cc	EC Ratio	EC
AR-41	3.01E+04	7.01E-12	7.01E-04	1.00E-08
KR-85M	7.99E+00	1.86E-15	1.86E-08	1.00E-07
KR-88	1.00E+03	2.34E-13	2.60E-05	9.00E-09
XE-133M	2.17E+03	5.06E-13	8.44E-07	6.00E-07
XE-133	3.70E+05	8.64E-11	1.73E-04	5.00E-07
XE-135	1.37E+03	3.19E-13	4.55E-06	7.00E-08
F&AG	4.05E+05	9.44E-11	9.05E-04	
I-131	2.56E+00	5.98E-16	2.99E-06	2.00E-10
I-132	1.66E+02	3.86E-14	1.93E-06	2.00E-08
Iodine	1.68E+02	3.92E-14	4.92E-06	
C-14	4.45E+06	1.04E-09	3.45E-01	3.00E-09
Other	4.45E+06	1.04E-09	3.45E-01	
H-3	4.17E+07	9.73E-09	9.73E-02	1.00E-07
H-3	4.17E+07	9.73E-09	9.73E-02	
CO-57	4.67E-01	1.09E-16	1.21E-07	9.00E-10
CO-58	3.04E-01	7.08E-17	7.08E-08	1.00E-09
CO-60	5.57E+01	1.30E-14	2.59E-04	5.00E-11
P>=8	5.64E+01	1.32E-14	2.60E-04	
Total	4.66E+07	1.09E-08	4.44E-01	

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2

=== MAXIMUM I&P DOSE FOR PERIOD ===

Limit Type	Organ Type	Age Group	Organ	Dose (mrem)	Limit Period	Limit (mrem)	Percent of Limit
Admin	Any Organ	CHILD	BONE	3.62E-01	31-day	2.25E-01	1.61E+02
					Quarter	5.63E+00	6.44E+00
					Annual	1.13E+01	3.22E+00
T.Spec	Any Organ	CHILD	BONE	3.62E-01	31-day	3.00E-01	1.21E+02
					Quarter	7.50E+00	4.83E+00
					Annual	1.50E+01	2.42E+00

Receptor.....: 5 Composite Crit. Receptor - IP
Distance (meters).....: 0.0
Compass Point.....: 0.0
Critical Pathway.....: 2 Vegetation (VEG)
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	0.00E+00
C-14	1.00E+02
CO-58	3.80E-06
CO-60	4.49E-02
I-131	1.25E-04
I-132	8.17E-06

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2

=== PERIOD ORGAN DOSE BY AGE GROUP AND PATHWAY (mrem) ==========

Age/Path	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
AGPD	1.63E-04	1.63E-04	1.63E-04	1.63E-04	1.63E-04	1.63E-04	0.00E+00	1.63E-04
AINHL	1.65E-03	7.36E-04	7.37E-04	7.36E-04	7.41E-04	7.36E-04	0.00E+00	7.36E-04
AVEG	5.68E-02	1.21E-02	1.21E-02	1.21E-02	1.21E-02	1.21E-02	0.00E+00	1.21E-02
ACMEAT	2.11E-02	4.33E-03	4.33E-03	4.33E-03	4.33E-03	4.34E-03	0.00E+00	4.33E-03
ACMILK	2.30E-02	4.86E-03	4.90E-03	4.86E-03	4.86E-03	4.86E-03	0.00E+00	4.86E-03
TGPD	1.63E-04	1.63E-04	1.63E-04	1.63E-04	1.63E-04	1.63E-04	0.00E+00	1.63E-04
TINHL	1.65E-03	7.40E-04	7.41E-04	7.40E-04	7.47E-04	7.40E-04	0.00E+00	4.31E-04
TVEG	9.19E-02	1.93E-02	1.93E-02	1.93E-02	1.93E-02	1.93E-02	0.00E+00	1.93E-02
TCMEAT	1.78E-02	3.63E-03	3.63E-03	3.63E-03	3.63E-03	3.63E-03	0.00E+00	3.63E-03
TCMILK	4.25E-02	8.83E-03	8.90E-03	8.83E-03	8.83E-03	8.83E-03	0.00E+00	8.83E-03
CGPD	1.63E-04	1.63E-04	1.63E-04	1.63E-04	1.63E-04	1.63E-04	0.00E+00	1.63E-04
CINHL	2.28E-03	8.07E-04	8.08E-04	8.07E-04	8.13E-04	8.07E-04	0.00E+00	8.07E-04
CVEG	2.22E-01	4.58E-02	4.58E-02	4.58E-02	4.58E-02	4.58E-02	0.00E+00	4.58E-02
CCMEAT	3.35E-02	6.80E-03	6.80E-03	6.80E-03	6.80E-03	6.80E-03	0.00E+00	6.80E-03
CCMILK	1.05E-01	2.14E-02	2.15E-02	2.14E-02	2.14E-02	2.14E-02	0.00E+00	2.14E-02
IGPD	1.63E-04	1.63E-04	1.63E-04	1.63E-04	1.63E-04	1.63E-04	0.00E+00	1.63E-04
IINHL	1.68E-03	5.56E-04	5.56E-04	5.56E-04	5.59E-04	5.56E-04	0.00E+00	5.56E-04
ICMILK	2.05E-01	4.45E-02	4.48E-02	4.45E-02	4.45E-02	4.45E-02	0.00E+00	4.45E-02
TOTALS								
ADULT	1.03E-01	2.22E-02	2.23E-02	2.22E-02	2.22E-02	2.22E-02	0.00E+00	2.22E-02
TEEN	1.54E-01	3.27E-02	3.28E-02	3.27E-02	3.27E-02	3.27E-02	0.00E+00	3.24E-02
CHILD	3.62E-01	7.49E-02	7.51E-02	7.49E-02	7.49E-02	7.50E-02	0.00E+00	7.49E-02
INFANT	2.07E-01	4.52E-02	4.55E-02	4.52E-02	4.52E-02	4.52E-02	0.00E+00	4.52E-02

=== AGE GROUP / PATHWAY DESCRIPTIONS ==========

Abbreviation	Age Group	Pathway
AGPD	ADULT	Ground Plane Deposition (GPD)
AINHL	ADULT	Inhalation (INHL)
AVEG	ADULT	Vegetation (VEG)
ACMEAT	ADULT	Grs/Cow/Meat (CMEAT)
ACMILK	ADULT	Grs/Cow/Milk (CMILK)
TGPD	TEEN	Ground Plane Deposition (GPD)
TINHL	TEEN	Inhalation (INHL)
TVEG	TEEN	Vegetation (VEG)
TCMEAT	TEEN	Grs/Cow/Meat (CMEAT)
TCMILK	TEEN	Grs/Cow/Milk (CMILK)
CGPD	CHILD	Ground Plane Deposition (GPD)
CINHL	CHILD	Inhalation (INHL)

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2

=== AGE GROUP / PATHWAY DESCRIPTIONS ==========

Abbreviation	Age Group	Pathway
CVEG	CHILD	Vegetation (VEG)
CCMEAT	CHILD	Grs/Cow/Meat (CMEAT)
CCMILK	CHILD	Grs/Cow/Milk (CMILK)
IGPD	INFANT	Ground Plane Deposition (GPD)
IINHL	INFANT	Inhalation (INHL)
ICMILK	INFANT	Grs/Cow/Milk (CMILK)

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2

=== MAXIMUM NG DOSE FOR PERIOD ==========

Limit Type	Dose Type	Dose (mrad)	Limit Period	Limit (mrad)	Percent of Limit
Admin	Gamma	2.49E-05	31-day	1.50E-01	1.66E-02
			Quarter	3.75E+00	6.64E-04
			Annual	7.50E+00	3.32E-04
Admin	Beta	7.09E-06	31-day	3.00E-01	2.36E-03
			Quarter	7.50E+00	9.45E-05
			Annual	1.50E+01	4.73E-05
T.Spec	Gamma	2.49E-05	31-day	2.00E-01	1.24E-02
			Quarter	5.00E+00	4.98E-04
			Annual	1.00E+01	2.49E-04

Receptor.....: 4 Composite Crit. Receptor - NG
Distance (meters).....: 0.0
Compass Point.....: 0.0
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
AR-41	6.52E+01
KR-85M	2.29E-03
KR-88	3.56E+00
XE-133M	1.65E-01
XE-133	3.05E+01
XE-135	6.12E-01

T.Spec	Beta	7.09E-06	31-day	4.00E-01	1.77E-03
			Quarter	1.00E+01	7.09E-05
			Annual	2.00E+01	3.54E-05

Receptor.....: 4 Composite Crit. Receptor - NG
Distance (meters).....: 0.0
Compass Point.....: 0.0
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
AR-41	1.98E+01
KR-85M	3.17E-03
KR-88	5.92E-01

GASEOUS RELEASE AND DOSE SUMMARY REPORT - BY UNIT
(Composite Critical Receptor - Limited Analysis)

Release ID.....: 1 All Gas Release Types
Period Start Date....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (min): 5.256E+05
Coefficient Type.....: Historical
Unit.....: 2

Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
XE-133M	6.47E-01
XE-133	7.82E+01
XE-135	6.77E-01

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Releases
Period Start Date.....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (mins): 5.256E+05
Unit.....: 1

=== MULTIPLE RELEASE POINT MESSAGE ==========
Undiluted and Diluted Flowrate(s) and Concentration(s) cannot be combined.

=== RELEASE DATA ==========
Total Release Duration (minutes)..... 5.378E+05
Total Undiluted Volume Released (gallons)..... NA
Average Undiluted Flowrate (gpm)..... NA

Total Dilution Volume (gallons)..... NA
Average Dilution Flowrate (gpm)..... NA

=== NUCLIDE DATA ==========

Nuclide	uCi
CO-57	1.08E+01
SB-125	8.07E+01
TE-123M	1.67E+01
CR-51	1.18E+02
MN-54	1.60E+01
FE-59	3.95E+01
CO-58	3.47E+03
CO-60	7.65E+02
NB-95	8.23E+00
TE-125M	9.81E+02
TE-132	3.28E+00
I-132	4.07E+00
---	---
Gamma	5.52E+03
KR-85	4.96E+02
XE-133	3.67E+01
---	---
D&EG	5.33E+02
SR-85	2.15E+00
H-3	1.02E+09
---	---
Beta	1.02E+09
---	---
Total	1.02E+09

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Releases
Period Start Date.....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (mins): 5.256E+05
Unit.....: 1
Receptor.....: 0 Liquid Receptor

=== PERMIT ORGAN DOSE BY AGE GROUP AND PATHWAY (mrem) ==========

Age/Path	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
APWtr	9.71E-07	1.84E-02	1.84E-02	1.84E-02	1.84E-02	1.85E-02	0.00E+00	1.84E-02
AFWFSp	1.07E-03	4.81E-02	4.78E-02	5.18E-02	4.75E-02	6.13E-02	0.00E+00	4.81E-02
TPWtr	9.66E-07	1.30E-02	1.30E-02	1.30E-02	1.30E-02	1.30E-02	0.00E+00	1.30E-02
TFWFSp	1.16E-03	3.72E-02	3.68E-02	3.65E-02	3.65E-02	4.65E-02	0.00E+00	3.71E-02
CPWtr	2.87E-06	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	0.00E+00	2.50E-02
CFWFSp	1.49E-03	3.08E-02	3.06E-02	3.02E-02	3.02E-02	3.40E-02	0.00E+00	3.09E-02
IPWtr	3.77E-06	2.45E-02	2.45E-02	2.45E-02	2.45E-02	2.45E-02	0.00E+00	2.45E-02
TOTALS								
ADULT	1.07E-03	6.66E-02	6.62E-02	7.02E-02	6.59E-02	7.97E-02	0.00E+00	6.66E-02
TEEN	1.16E-03	5.01E-02	4.98E-02	4.95E-02	4.95E-02	5.95E-02	0.00E+00	5.01E-02
CHILD	1.49E-03	5.58E-02	5.56E-02	5.52E-02	5.52E-02	5.89E-02	0.00E+00	5.59E-02
INFANT	3.77E-06	2.45E-02	2.45E-02	2.45E-02	2.45E-02	2.45E-02	0.00E+00	2.45E-02

=== AGE GROUP / PATHWAY DESCRIPTIONS ==========

Abbreviation	Age Group	Pathway
APWtr	ADULT	Potable Water (PWtr)
AFWFSp	ADULT	Fresh Water Fish - Sport (FFSP)
TPWtr	TEEN	Potable Water (PWtr)
TFWFSp	TEEN	Fresh Water Fish - Sport (FFSP)
CPWtr	CHILD	Potable Water (PWtr)
CFWFSp	CHILD	Fresh Water Fish - Sport (FFSP)
IPWtr	INFANT	Potable Water (PWtr)

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Releases
Period Start Date.....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (mins): 5.256E+05
Unit.....: 1
Receptor.....: 0 Liquid Receptor

=== PERMIT ORGAN DOSE BY AGE GROUP AND NUCLIDE (mrem) ==========

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
ADULT								
H-3	0.00E+00	6.59E-02	6.59E-02	6.59E-02	6.59E-02	6.59E-02	0.00E+00	6.59E-02
CR-51	0.00E+00	0.00E+00	3.75E-08	1.38E-08	8.32E-08	1.58E-05	0.00E+00	6.27E-08
MN-54	0.00E+00	2.90E-05	0.00E+00	8.63E-06	0.00E+00	8.89E-05	0.00E+00	5.54E-06
FE-59	1.71E-05	4.01E-05	0.00E+00	0.00E+00	1.12E-05	1.34E-04	0.00E+00	1.54E-05
CO-58	0.00E+00	1.29E-04	0.00E+00	0.00E+00	0.00E+00	2.62E-03	0.00E+00	2.90E-04
CO-60	0.00E+00	8.19E-05	0.00E+00	0.00E+00	0.00E+00	1.54E-03	0.00E+00	1.81E-04
NB-95	1.53E-06	8.49E-07	0.00E+00	8.39E-07	0.00E+00	5.15E-03	0.00E+00	4.56E-07
TE-125M	1.05E-03	3.79E-04	3.15E-04	4.26E-03	0.00E+00	4.18E-03	0.00E+00	1.40E-04
TE-132	3.29E-06	2.13E-06	2.35E-06	2.05E-05	0.00E+00	1.01E-04	0.00E+00	2.00E-06
I-132	1.26E-08	3.37E-08	1.18E-06	5.37E-08	0.00E+00	6.33E-09	0.00E+00	1.18E-08
TEEN								
H-3	0.00E+00	4.95E-02	4.95E-02	4.95E-02	4.95E-02	4.95E-02	0.00E+00	4.95E-02
CR-51	0.00E+00	0.00E+00	3.59E-08	1.42E-08	9.23E-08	1.09E-05	0.00E+00	6.47E-08
MN-54	0.00E+00	2.85E-05	0.00E+00	8.51E-06	0.00E+00	5.85E-05	0.00E+00	5.66E-06
FE-59	1.76E-05	4.11E-05	0.00E+00	0.00E+00	1.29E-05	9.71E-05	0.00E+00	1.59E-05
CO-58	0.00E+00	1.29E-04	0.00E+00	0.00E+00	0.00E+00	1.77E-03	0.00E+00	2.96E-04
CO-60	0.00E+00	8.19E-05	0.00E+00	0.00E+00	0.00E+00	1.07E-03	0.00E+00	1.84E-04
NB-95	1.54E-06	8.52E-07	0.00E+00	8.26E-07	0.00E+00	3.64E-03	0.00E+00	4.69E-07
TE-125M	1.14E-03	4.10E-04	3.18E-04	0.00E+00	0.00E+00	3.36E-03	0.00E+00	1.52E-04
TE-132	3.47E-06	2.20E-06	2.32E-06	2.11E-05	0.00E+00	6.97E-05	0.00E+00	2.07E-06
I-132	1.32E-08	3.44E-08	1.16E-06	5.43E-08	0.00E+00	1.50E-08	0.00E+00	1.24E-08
CHILD								
H-3	0.00E+00	5.51E-02	5.51E-02	5.51E-02	5.51E-02	5.51E-02	0.00E+00	5.51E-02
CR-51	0.00E+00	0.00E+00	3.84E-08	1.05E-08	7.00E-08	3.66E-06	0.00E+00	6.91E-08
MN-54	0.00E+00	2.23E-05	0.00E+00	6.26E-06	0.00E+00	1.87E-05	0.00E+00	5.95E-06
FE-59	2.14E-05	3.47E-05	0.00E+00	0.00E+00	1.00E-05	3.61E-05	0.00E+00	1.73E-05
CO-58	0.00E+00	1.04E-04	0.00E+00	0.00E+00	0.00E+00	6.04E-04	0.00E+00	3.17E-04
CO-60	0.00E+00	6.71E-05	0.00E+00	0.00E+00	0.00E+00	3.71E-04	0.00E+00	1.98E-04
NB-95	1.81E-06	7.06E-07	0.00E+00	6.63E-07	0.00E+00	1.31E-03	0.00E+00	5.04E-07
TE-125M	1.46E-03	3.97E-04	4.11E-04	0.00E+00	0.00E+00	1.41E-03	0.00E+00	1.95E-04
TE-132	4.34E-06	1.92E-06	2.80E-06	1.78E-05	0.00E+00	1.93E-05	0.00E+00	2.32E-06
I-132	1.67E-08	3.07E-08	1.43E-06	4.70E-08	0.00E+00	3.62E-08	0.00E+00	1.41E-08
INFANT								
H-3	0.00E+00	2.45E-02	2.45E-02	2.45E-02	2.45E-02	2.45E-02	0.00E+00	2.45E-02
CR-51	0.00E+00	0.00E+00	1.70E-10	3.72E-11	3.31E-10	7.60E-09	0.00E+00	2.61E-10
MN-54	0.00E+00	4.96E-08	0.00E+00	1.10E-08	0.00E+00	1.82E-08	0.00E+00	1.12E-08

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Releases
Period Start Date.....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (mins): 5.256E+05

=== PERMIT ORGAN DOSE BY AGE GROUP AND NUCLIDE (mrem) ==========

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
FE-59	1.90E-07	3.32E-07	0.00E+00	0.00E+00	9.80E-08	1.58E-07	0.00E+00	1.31E-07
CO-58	0.00E+00	1.95E-06	0.00E+00	0.00E+00	0.00E+00	4.87E-06	0.00E+00	4.87E-06
CO-60	0.00E+00	1.29E-06	0.00E+00	0.00E+00	0.00E+00	3.07E-06	0.00E+00	3.05E-06
NB-95	5.40E-11	2.22E-11	0.00E+00	1.59E-11	0.00E+00	1.88E-08	0.00E+00	1.28E-11
TE-125M	3.57E-06	1.19E-06	1.20E-06	0.00E+00	0.00E+00	1.70E-06	0.00E+00	4.83E-07
TE-132	1.07E-08	5.28E-09	7.79E-09	3.30E-08	0.00E+00	1.95E-08	0.00E+00	4.93E-09
I-132	1.05E-09	2.14E-09	1.00E-07	2.39E-09	0.00E+00	1.73E-09	0.00E+00	7.62E-10

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Releases
Period Start Date.....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (mins): 5.256E+05
Unit.....: 1
Receptor.....: 0 Liquid Receptor

=== MAXIMUM DOSE FOR PERIOD ==========

Limit Type	Organ Type	Age Group	Organ	Dose (mrem)	Limit Period	Limit (mrem)	Percent of Limit
Admin	Any Organ	ADULT	GILLI	7.97E-02	31-day	1.50E-01	5.32E+01
					Quarter	3.75E+00	2.13E+00
					Annual	7.50E+00	1.06E+00
Admin	Tot Body	ADULT	TBODY	6.66E-02	31-day	4.50E-02	1.48E+02
					Quarter	1.13E+00	5.92E+00
					Annual	2.25E+00	2.96E+00
T.Spec	Any Organ	ADULT	GILLI	7.97E-02	31-day	2.00E-01	3.99E+01
					Quarter	5.00E+00	1.59E+00
					Annual	1.00E+01	7.97E-01

Critical Pathway.....: 1 Fresh Water Fish - Sport (FFSP
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	8.27E+01
CR-51	1.98E-02
MN-54	1.11E-01
FE-59	1.68E-01
CO-58	3.29E+00
CO-60	1.93E+00
NB-95	6.46E+00
TE-125M	5.24E+00
TE-132	1.26E-01
I-132	7.94E-06

T.Spec	Tot Body	ADULT	TBODY	6.66E-02	31-day	6.00E-02	1.11E+02
					Quarter	1.50E+00	4.44E+00
					Annual	3.00E+00	2.22E+00

Critical Pathway.....: 1 Fresh Water Fish - Sport (FFSP
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	9.90E+01
CR-51	9.43E-05
MN-54	8.32E-03

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Releases
Period Start Date.....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (mins): 5.256E+05

Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
FE-59	2.31E-02
CO-58	4.36E-01
CO-60	2.71E-01
NB-95	6.86E-04
TE-125M	2.11E-01
TE-132	3.00E-03
I-132	1.77E-05

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Releases
Period Start Date.....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (mins): 5.256E+05
Unit.....: 2

=== MULTIPLE RELEASE POINT MESSAGE ==========
Undiluted and Diluted Flowrate(s) and Concentration(s) cannot be combined.

=== RELEASE DATA ==========
Total Release Duration (minutes)..... 5.378E+05
Total Undiluted Volume Released (gallons)..... NA
Average Undiluted Flowrate (gpm)..... NA

Total Dilution Volume (gallons)..... NA
Average Dilution Flowrate (gpm)..... NA

=== NUCLIDE DATA ==========

Nuclide	uCi
CO-57	1.08E+01
SB-125	8.07E+01
TE-123M	1.67E+01
CR-51	1.18E+02
MN-54	1.60E+01
FE-59	3.95E+01
CO-58	3.47E+03
CO-60	7.65E+02
NB-95	8.23E+00
TE-125M	9.81E+02
TE-132	3.28E+00
I-132	4.07E+00
Gamma	5.52E+03
KR-85	4.96E+02
XE-133	3.67E+01
D&EG	5.33E+02
SR-85	2.15E+00
H-3	1.02E+09
Beta	1.02E+09
Total	1.02E+09

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Releases
Period Start Date.....: 01/01/2010 00:00
Period End Date.....: 01/01/2011 00:00
Period Duration (mins): 5.256E+05
Unit.....: 2
Receptor.....: 0 Liquid Receptor

=== PERMIT ORGAN DOSE BY AGE GROUP AND PATHWAY (mrem) ==========

Age/Path	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
APWtr	9.71E-07	1.84E-02	1.84E-02	1.84E-02	1.84E-02	1.85E-02	0.00E+00	1.84E-02
AFWFSp	1.07E-03	4.81E-02	4.78E-02	5.18E-02	4.75E-02	6.13E-02	0.00E+00	4.81E-02
TPWtr	9.66E-07	1.30E-02	1.30E-02	1.30E-02	1.30E-02	1.30E-02	0.00E+00	1.30E-02
TFWFSp	1.16E-03	3.72E-02	3.68E-02	3.65E-02	3.65E-02	4.65E-02	0.00E+00	3.71E-02
CPWtr	2.87E-06	2.50E-02	2.50E-02	2.50E-02	2.50E-02	2.50E-02	0.00E+00	2.50E-02
CFWFSp	1.49E-03	3.08E-02	3.06E-02	3.02E-02	3.02E-02	3.40E-02	0.00E+00	3.09E-02
IPWtr	3.77E-06	2.45E-02	2.45E-02	2.45E-02	2.45E-02	2.45E-02	0.00E+00	2.45E-02
TOTALS								
ADULT	1.07E-03	6.66E-02	6.62E-02	7.02E-02	6.59E-02	7.97E-02	0.00E+00	6.66E-02
TEEN	1.16E-03	5.01E-02	4.98E-02	4.95E-02	4.95E-02	5.95E-02	0.00E+00	5.01E-02
CHILD	1.49E-03	5.58E-02	5.56E-02	5.52E-02	5.52E-02	5.89E-02	0.00E+00	5.59E-02
INFANT	3.77E-06	2.45E-02	2.45E-02	2.45E-02	2.45E-02	2.45E-02	0.00E+00	2.45E-02

=== AGE GROUP / PATHWAY DESCRIPTIONS ==========

Abbreviation	Age Group	Pathway
APWtr	ADULT	Potable Water (PWtr)
AFWFSp	ADULT	Fresh Water Fish - Sport (FFSP)
TPWtr	TEEN	Potable Water (PWtr)
TFWFSp	TEEN	Fresh Water Fish - Sport (FFSP)
CPWtr	CHILD	Potable Water (PWtr)
CFWFSp	CHILD	Fresh Water Fish - Sport (FFSP)
IPWtr	INFANT	Potable Water (PWtr)

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

Release ID.....: 1 All Liquid Releases
Period Start Date.....: 01/01/2010 00:00
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Period Duration (mins): 5.256E+05
Unit.....: 2
Receptor.....: 0 Liquid Receptor

=== PERMIT ORGAN DOSE BY AGE GROUP AND NUCLIDE (mrem) ==========

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
ADULT								
H-3	0.00E+00	6.59E-02	6.59E-02	6.59E-02	6.59E-02	6.59E-02	0.00E+00	6.59E-02
CR-51	0.00E+00	0.00E+00	3.75E-08	1.38E-08	8.32E-08	1.58E-05	0.00E+00	6.27E-08
MN-54	0.00E+00	2.90E-05	0.00E+00	8.63E-06	0.00E+00	8.89E-05	0.00E+00	5.54E-06
FE-59	1.71E-05	4.01E-05	0.00E+00	0.00E+00	1.12E-05	1.34E-04	0.00E+00	1.54E-05
CO-58	0.00E+00	1.29E-04	0.00E+00	0.00E+00	0.00E+00	2.62E-03	0.00E+00	2.90E-04
CO-60	0.00E+00	8.19E-05	0.00E+00	0.00E+00	0.00E+00	1.54E-03	0.00E+00	1.81E-04
NB-95	1.53E-06	8.49E-07	0.00E+00	8.39E-07	0.00E+00	5.15E-03	0.00E+00	4.56E-07
TE-125M	1.05E-03	3.79E-04	3.15E-04	4.26E-03	0.00E+00	4.18E-03	0.00E+00	1.40E-04
TE-132	3.29E-06	2.13E-06	2.35E-06	2.05E-05	0.00E+00	1.01E-04	0.00E+00	2.00E-06
I-132	1.26E-08	3.37E-08	1.18E-06	5.37E-08	0.00E+00	6.33E-09	0.00E+00	1.18E-08
TEEN								
H-3	0.00E+00	4.95E-02	4.95E-02	4.95E-02	4.95E-02	4.95E-02	0.00E+00	4.95E-02
CR-51	0.00E+00	0.00E+00	3.59E-08	1.42E-08	9.23E-08	1.09E-05	0.00E+00	6.47E-08
MN-54	0.00E+00	2.85E-05	0.00E+00	8.51E-06	0.00E+00	5.85E-05	0.00E+00	5.66E-06
FE-59	1.76E-05	4.11E-05	0.00E+00	0.00E+00	1.29E-05	9.71E-05	0.00E+00	1.59E-05
CO-58	0.00E+00	1.29E-04	0.00E+00	0.00E+00	0.00E+00	1.77E-03	0.00E+00	2.96E-04
CO-60	0.00E+00	8.19E-05	0.00E+00	0.00E+00	0.00E+00	1.07E-03	0.00E+00	1.84E-04
NB-95	1.54E-06	8.52E-07	0.00E+00	8.26E-07	0.00E+00	3.64E-03	0.00E+00	4.69E-07
TE-125M	1.14E-03	4.10E-04	3.18E-04	0.00E+00	0.00E+00	3.36E-03	0.00E+00	1.52E-04
TE-132	3.47E-06	2.20E-06	2.32E-06	2.11E-05	0.00E+00	6.97E-05	0.00E+00	2.07E-06
I-132	1.32E-08	3.44E-08	1.16E-06	5.43E-08	0.00E+00	1.50E-08	0.00E+00	1.24E-08
CHILD								
H-3	0.00E+00	5.51E-02	5.51E-02	5.51E-02	5.51E-02	5.51E-02	0.00E+00	5.51E-02
CR-51	0.00E+00	0.00E+00	3.84E-08	1.05E-08	7.00E-08	3.66E-06	0.00E+00	6.91E-08
MN-54	0.00E+00	2.23E-05	0.00E+00	6.26E-06	0.00E+00	1.87E-05	0.00E+00	5.95E-06
FE-59	2.14E-05	3.47E-05	0.00E+00	0.00E+00	1.00E-05	3.61E-05	0.00E+00	1.73E-05
CO-58	0.00E+00	1.04E-04	0.00E+00	0.00E+00	0.00E+00	6.04E-04	0.00E+00	3.17E-04
CO-60	0.00E+00	6.71E-05	0.00E+00	0.00E+00	0.00E+00	3.71E-04	0.00E+00	1.98E-04
NB-95	1.81E-06	7.06E-07	0.00E+00	6.63E-07	0.00E+00	1.31E-03	0.00E+00	5.04E-07
TE-125M	1.46E-03	3.97E-04	4.11E-04	0.00E+00	0.00E+00	1.41E-03	0.00E+00	1.95E-04
TE-132	4.34E-06	1.92E-06	2.80E-06	1.78E-05	0.00E+00	1.93E-05	0.00E+00	2.32E-06
I-132	1.67E-08	3.07E-08	1.43E-06	4.70E-08	0.00E+00	3.62E-08	0.00E+00	1.41E-08
INFANT								
H-3	0.00E+00	2.45E-02	2.45E-02	2.45E-02	2.45E-02	2.45E-02	0.00E+00	2.45E-02
CR-51	0.00E+00	0.00E+00	1.70E-10	3.72E-11	3.31E-10	7.60E-09	0.00E+00	2.61E-10
MN-54	0.00E+00	4.96E-08	0.00E+00	1.10E-08	0.00E+00	1.82E-08	0.00E+00	1.12E-08

LIQUID RELEASE AND DOSE SUMMARY REPORT
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=== PERMIT ORGAN DOSE BY AGE GROUP AND NUCLIDE (mrem) ==========

Agegroup	Bone	Liver	Thyroid	Kidney	Lung	GI-Lli	Skin	TB
FE-59	1.90E-07	3.32E-07	0.00E+00	0.00E+00	9.80E-08	1.58E-07	0.00E+00	1.31E-07
CO-58	0.00E+00	1.95E-06	0.00E+00	0.00E+00	0.00E+00	4.87E-06	0.00E+00	4.87E-06
CO-60	0.00E+00	1.29E-06	0.00E+00	0.00E+00	0.00E+00	3.07E-06	0.00E+00	3.05E-06
NB-95	5.40E-11	2.22E-11	0.00E+00	1.59E-11	0.00E+00	1.88E-08	0.00E+00	1.28E-11
TE-125M	3.57E-06	1.19E-06	1.20E-06	0.00E+00	0.00E+00	1.70E-06	0.00E+00	4.83E-07
TE-132	1.07E-08	5.28E-09	7.79E-09	3.30E-08	0.00E+00	1.95E-08	0.00E+00	4.93E-09
I-132	1.05E-09	2.14E-09	1.00E-07	2.39E-09	0.00E+00	1.73E-09	0.00E+00	7.62E-10

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Receptor.....: 0 Liquid Receptor

=== MAXIMUM DOSE FOR PERIOD ==========

Limit Type	Organ Type	Age Group	Organ	Dose (mrem)	Limit Period	Limit (mrem)	Percent of Limit
Admin	Any Organ	ADULT	GILLI	7.97E-02	31-day	1.50E-01	5.32E+01
					Quarter	3.75E+00	2.13E+00
					Annual	7.50E+00	1.06E+00
Admin	Tot Body	ADULT	TBODY	6.66E-02	31-day	4.50E-02	1.48E+02
					Quarter	1.13E+00	5.92E+00
					Annual	2.25E+00	2.96E+00
T.Spec	Any Organ	ADULT	GILLI	7.97E-02	31-day	2.00E-01	3.99E+01
					Quarter	5.00E+00	1.59E+00
					Annual	1.00E+01	7.97E-01

Critical Pathway.....: 1 Fresh Water Fish - Sport (FFSP
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	8.27E+01
CR-51	1.98E-02
MN-54	1.11E-01
FE-59	1.68E-01
CO-58	3.29E+00
CO-60	1.93E+00
NB-95	6.46E+00
TE-125M	5.24E+00
TE-132	1.26E-01
I-132	7.94E-06

T.Spec	Tot Body	ADULT	TBODY	6.66E-02	31-day	6.00E-02	1.11E+02
					Quarter	1.50E+00	4.44E+00
					Annual	3.00E+00	2.22E+00

Critical Pathway.....: 1 Fresh Water Fish - Sport (FFSP
Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
H-3	9.90E+01
CR-51	9.43E-05
MN-54	8.32E-03

LIQUID RELEASE AND DOSE SUMMARY REPORT
------ (PERIOD BASIS - BY UNIT) ------

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Period End Date.....: 01/01/2011 00:00
Period Duration (mins): 5.256E+05

Major Contributors.....: 0.0 % or greater to total

Nuclide	Percentage
FE-59	2.31E-02
CO-58	4.36E-01
CO-60	2.71E-01
NB-95	6.86E-04
TE-125M	2.11E-01
TE-132	3.00E-03
I-132	1.77E-05