

L-2015-052
ENCLOSURE

ENCLOSURE 1

COMBINED ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
(58 PAGES)

**FLORIDA POWER & LIGHT COMPANY - ST. LUCIE UNITS 1 AND 2
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY 1, 2014 THROUGH DECEMBER 31, 2014**

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1.0 PROGRAM DESCRIPTION

Regulatory Limits

The Offsite Dose Calculation Manual (ODCM) Radiological Effluent Control limits applicable to the release of radioactive material in liquid and gaseous effluents are described in the following sections.

Fission and Activation Gases (Noble Gases)

The dose rate due to radioactive materials released in gaseous effluents from the site to areas at and beyond the site boundary shall be limited to less than or equal to 500 mrem/yr to the whole body and less than or equal to 3000 mrem/yr to the skin.

The air dose due to noble gases released in gaseous effluents, from each unit, to areas at and beyond the site boundary shall be limited to the following:

- a. During any calendar quarter: Less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation, and
- b. During any calendar year: Less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.

Iodine-131, Iodine-133, Tritium, Carbon-14, and Radioactive Material in Particulate Form

The dose rate due to iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives greater than 8 days, released in gaseous effluents from the site to areas at and beyond the site boundary, shall be limited to less than or equal to 1500 mrem/yr to any organ.

The dose to a MEMBER OF THE PUBLIC from iodine-131, iodine-133, tritium, carbon-14, and all radionuclides in particulate form with half lives greater than 8 days in gaseous effluents released, from each unit, to areas at and beyond the site boundary, shall be limited to the following:

- a. During any calendar quarter: Less than or equal to 7.5 mrem to any organ, and
- b. During any calendar year: Less than or equal to 15 mrem to any organ.

Liquid Effluents

The concentration of radioactive material released in liquid effluents to unrestricted areas shall be limited to 10 times the concentrations specified in 10 CFR Part 20, Appendix B, Table 2, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to 2.0E-4 μ Ci/ml total activity.

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The dose or dose commitment to a MEMBER OF THE PUBLIC from radioactive materials in liquid effluents released, from each unit, to unrestricted areas shall be limited:

- a. During any calendar quarter to less than or equal to 1.5 mrems to the whole body and to less than or equal to 5 mrem to any organ, and
- b. During any calendar year to less than or equal to 3 mrem to the whole body and to less than or equal to 10 mrem to any organ.

Total Dose

The annual (calendar year) dose or dose commitment to any MEMBER OF THE PUBLIC due to releases of radioactivity and to radiation from uranium fuel cycle sources shall be limited to less than or equal to 25 mrem to the whole body or any organ, except the thyroid, which shall be limited to less than or equal to 75 mrem.

Effluent Concentration Limits

Gaseous Effluents

For gaseous effluents, effluent concentration limits (ECL) values are not directly used in release rate calculations since the applicable limits are expressed in terms of dose rate at the site boundary.

Liquid Effluents

The values specified in 10 CFR Part 20, Appendix B, Table 2, Column 2 are used as the ECL for liquid radioactive effluents released to unrestricted areas. A value of 2.0E-04 µCi/ml is used as the ECL for dissolved and entrained noble gases in liquid effluents.

Measurements and Approximations of Total Radioactivity

Measurements of total radioactivity in liquid and gaseous radioactive effluents were accomplished in accordance with the sampling and analysis requirements of Tables 4.11-1 and 4.11-2, respectively, of the St. Lucie ODCM. Estimates of errors are in accordance with Methodology Section 4.0.4, of the ODCM.

The estimate of errors associated with values reported are as follows:

<u>Error Topic</u>	<u>LIQUID</u>		<u>GASEOUS</u>	
	<u>Avg. %</u>	<u>Max. %</u>	<u>Avg. %</u>	<u>Max. %</u>
Release Point Mixing	2	5	NA	NA
Sampling	1	5	2	5
Sample Preparation	1	5	1	5
Sample Analysis	3	10	3	10
Release Volume	2	5	4	15
Total %	9	30	10	35

(above values are examples only)

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The predictability of error for radioactive releases can only be applied to nuclides that are predominant in sample spectrums. Nuclides that are near background relative to the predominant nuclides in a given sample could easily have errors greater than the above listed maximums.

Liquid Radioactive Effluents

Each batch release was sampled and analyzed for gamma emitting radionuclides using gamma spectroscopy, prior to release. Composite samples were analyzed monthly for tritium and gross alpha radioactivity in the onsite laboratory using liquid scintillation and air ion chamber counting techniques, respectively. Composite samples were analyzed quarterly for Sr-89, Sr-90, Fe-55, Ni-63 and C-14 by a contract laboratory. The results of the composite analyses from the previous month or quarter were used to estimate the quantities of these radionuclides in liquid effluents during the current month or quarter.

The total radioactivity in liquid effluent releases was determined from the measured and estimated concentrations of each radionuclide present and the total volume of the effluent released during periods of discharge.

Gaseous Radioactive Effluents

Each gaseous batch was sampled and analyzed for radioactivity prior to release. For releases from Gas Decay Tanks, noble gas grab samples were analyzed for gamma emitting radionuclides using gamma spectroscopy. For releases from the Containment Buildings, samples were taken of noble gas and tritium grab samples and analyzed for gamma emitting radionuclides prior to each release. The results of the analyses and the total volume of effluent released were used to determine the total amount of radioactivity released in the batch mode.

For continuous effluent release pathways, noble gas and tritium grab samples were collected and analyzed weekly for gamma emitting radionuclides by gamma spectroscopy and liquid scintillation counting techniques, respectively. Continuous release pathways were continuously sampled using radioiodine absorbers and particulate filters. The radioiodine absorbers and particulate filters were analyzed weekly for gamma emitting radionuclides using gamma spectroscopy. Results of the noble gas and tritium grab samples, radioiodine adsorber and particulate filter analyses from the current week and the average effluent flow rate for the previous week were used to determine the total amount of radioactivity released in the continuous mode. Monthly composites of particulate filters were analyzed for gross alpha activity in the onsite laboratory using the air ion chamber counting technique. Quarterly composites of particulate filters were analyzed for Sr-89 and Sr-90 by a contract laboratory.

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Meteorological Monitoring Program

In accordance with ODCM Administrative Control 3.11.2.6.b., a summary of hourly meteorological data, collected during 2014, is retained onsite. This data is available for review by the NRC upon request. During 2014, the goal of >90% joint data recovery was met. Actual meteorological data collected during the year was used for the offsite dose calculations in this report.

Carbon-14 Dose Estimation

The estimate of Carbon-14 (C-14) released from the St. Lucie Nuclear Plant was derived from the EPRI document, "Estimation of Carbon-14 in Nuclear Power Plant Gaseous Effluents," Report 1021106, issued December 2010.

The site specific source term values used in the St. Lucie calculations were taken from the PWR Section, Page 4-28 of the report, and employed the proxy generation rate values for a Combustion Engineering reactor. The actual 2014 operating data for the units was employed for the calculations to derive the total curies released for each unit.

The total amount of C-14 released in 2014 for Unit 1 was 11.53 Ci, and the total amount of C-14 released in 2014 for Unit 2 was 9.30 Ci.

The highest calculated dose exposure pathway from C-14 is "Bone Dose" to a "Child" from consumption of garden produce. A "Child" consuming vegetables and produce from the garden located at 2.0 miles in the WSW direction from the plant would have received a total combined "Bone Dose," including C-14, of 1.58E-01 mrem/yr.

Using the same release values, the dose to a visitor on site (Adult Lifeguard) is found to be 4.89E-01 mrem/yr, Total Body dose. See Table 3.4, Dose Assessments, for more detail.

This is a fraction of the 1 mrem annual whole body dose received by the average US citizen from natural occurring Carbon-14, primarily generated through cosmogenesis in the terrestrial biosphere. (Reference National Council of Radiation Protection Report 45, Natural Background Radiation in the United States.)

All C-14 dose calculations are based on Regulatory Guide 1.109 values.

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2.0 SUPPLEMENTAL INFORMATION

2.1 Abnormal Releases or Abnormal Discharges

There were two abnormal (unplanned) releases or discharges from the site during the report period. No radioactivity or isotopes were released and neither release nor discharge had an impact to dose to the public.

- On January 9, 2014, the St. Lucie Nuclear Plant performed an abnormal and unplanned emergency release from the Unit 1 Condensate Pump Pit to the intake canal to lower water levels in the condensate pit. The St. Lucie Nuclear Plant had declared an Unusual Event on January 9, 2014, due to significant rain which created rapidly rising water levels and the potential to exceed site storm drain capacity. The degraded conduit failure was determined to be a reportable event in accordance with 50.73(a)(2)(ii) and the NRC was notified. The Unusual Event was terminated on January 15, 2014, after water was consistently draining and actions were completed to ensure the site storm drain system was fully functional.

A blockage occurred in one area of our storm drain system later found to be from excess debris buildup which resulted in rising water in the 1B condensate pump pit. The area had numerous electrical components which subsequently became submerged. This condition posed a significant safety issue to our site employees and potential damage to the site equipment. To mitigate the safety issue, rain water was pumped from the 1B condensate pump pit to the intake canal, which resulted in an unanticipated bypass of our permitted outfall I-008 at the South Settling Basin. The total estimated discharge of 60,000 gallons lasted for approximately 35-45 minutes. Once the storm drain blockage was corrected the remainder of water in the condensate pump pit was discharged through our permitted South Settling Basin outfall, I-008.

No radioactivity or isotopes were released as a result of the abnormal release from the Unit 1 condensate pump pit to the intake canal. Two independent condensate pit water samples were obtained and analyzed similar to Site South Settling Basin permitting requirements procedurally directed in the ODCM and site procedures. No radioactive activity (gamma, tritium, alpha, hard to detect isotopes) was detected for the release.

To prevent recurrence of the event, dredging and hardening of the storm drain system and barriers was completed to prevent future storm drain blockage. Also, a revision was completed in May, 2014, to the ODCM to incorporate guidance for a rapid method to release water from site retention ponds either prior to or during severe weather events and emergency conditions. This revision allows early initiation of South Settling Basin releases with prior upper management approval and eliminates the risk of sampling and analysis permitting delays which could prevent the start of the permitted release during emergency storm flooding risk conditions.

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- On October 6, 2014, Unit 1 Fuel Handling Building ventilation equipment was not completely shutdown when the Fuel Handling Building Radiation Monitor, RSC-26-4, was declared inoperable. The Fuel Handling Building Radiation Monitor had been declared inoperable on October 6, 2014, at 07:45 to start the project for replacement of the radiation monitor with a new Mirion MGPI radiation monitor. Fuel Handling Building Ventilation fans HVS-6 , HVE-16A and HVE-16B were secured just prior to declaring the radiation monitor inoperable, but ventilation equipment HVE-17, HVS-7 and HVE-15 were inadvertently not secured as required and were left running. The ODCM requirement for compensatory gas grab samples every 8 hours and continuous sampling for iodine and particulates were not performed. The Operating crew was under the assumption that all fans had been secured and that compensatory grab samples would not be required. Ventilation fans HVS-7, HVE-15 and HVE-17 were secured upon discovery of fan operation on October 7, 2014, at 00:01. On October 6, 2014, the compensatory eight hour gas grab sample was not completed prior to 15:45 and 23:45 and continuous sampling for iodine and particulate was not performed after 07:45 as required by the ODCM.

A total of 6.10E6 cubic feet of Unit 1 Fuel Handling Building Exhaust was released through ventilation exhaust fan HVS-17 for the total 16 hour and 16 minute duration. No radioactivity or isotopes are estimated to have been released and there was no calculated dose impact to the public. No radioactivity was detected on the Unit 1 Fuel Handling Building particulate filter and iodine cartridge samples collected and analyzed for the continuous gaseous permit closed out on October 6, 2014, at 07:45 prior to declaring the monitor inoperable. Also, no radioactivity (gamma, tritium, alpha, hard to detect isotopes) was detected for the previous two week continuous permits closed out on September 30, 2014 and September 22, 2014.

To prevent recurrence of the event, procedural guidance was improved for securing Fuel Pool and Fuel Handling Ventilation on Unit 1 and 2. Notes and Precautions were added throughout site procedures 1-NOP-25.08 and 2-NOP-25.08, Fuel Handling Building Ventilation, to better delineate which sections or fans must be secured in the event the Fuel Handling Building Exhaust Radiation Monitor is removed from service. Procedural guidance was clarified to secure all Fuel Handling Building Ventilation or comply with ODCM compensatory sampling guidance.

2.2 Non-Routine Planned Discharges

No non-routine planned discharges were made during the report period.

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2.3 Radioactive Waste Treatment System Changes

No changes were made to the waste treatment system during the report period. One modification was completed during the report period for replacement of the two 40,000 gallon Waste Monitor Tanks used for discharge of radioactive liquid releases to the public. This was a like for like replacement and no changes were made to the tank volume or associated pumps, valves, or liquid radioactive waste discharge monitor.

2.4 Annual Land Use Census Changes

There were no changes to the Land Use Census during the report period.

2.5 Effluent Monitoring System Inoperability

There were four instances of effluent monitors out of service for greater than 30 days during the report period.

- Steam Generator Blowdown Treatment Facility (SGBTF) Radiation Monitor (RM-45-1) was out of service for greater than thirty days. The SGBTF and associated radiation monitor, RM-45-1, lost power on December 12, 2013, due to an electrical fault on the 1B9 Motor Control Center and fire related to troubleshooting of SGBTF Fan, HVE-41A. As a result of the fire, RM-45-1 was de-energized and declared inoperable. Due to the loss of power, SGBTF ventilation had been secured and no release was in progress.

Alternate monitoring of the SGBTF using the portable Eberline Particulate, Iodine, Noble Gas (PING) Radiation Monitor was placed in-service and continuous sampling of iodine and particulate was established within 72 hours of loss of the radiation monitor as required by Site Technical Specification and ODCM requirements.

RM-45-1 (SGBTF Radiation Monitor) was repowered and returned to service on February 24, 2014 and the SGBTF ventilation remained secured.

- SGBTF Radiation Monitor (RM-45-1) was out of service for greater than 30 days. Power was secured to RM-45-1 on July 16, 2014, to complete a clearance order to return the SGBTF 1B9 Motor Control Center (MCC) back to normal operation and service following completion of repairs. Power restoration efforts to the SGBTF MCC were delayed due to electrical equipment issues and problems which delayed restoring power to RM-45-1 and placing the radiation monitor back in-service prior to the 30-day period. Due to the loss of power to the 1B9 MCC, SGBTF ventilation had been secured and no release was in progress.

Alternate monitoring of the SGBTF using the portable Eberline Particulate, Iodine, Noble Gas (PING) Radiation Monitor was placed in service and continuous sampling of iodine and particulate was established

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within 72 hours as required by Site Technical Specification and ODCM requirements.

RM-45-1 (SGBTF Radiation Monitor) was declared back in service on Aug. 22, 2015 following power restoration to the SGBTF.

- Liquid Radioactive Waste Discharge Monitor (RE-6627) was out of service for greater than thirty days. RE-6627 was removed from service on June 30, 2014, due to a clearance to change the electrical conduit size on Penetration 19 from 4 inches to 2 inches. This work was completed to harden the penetration in support of the project for flood sealing conduits as part of Storm Water Mitigation Efforts. Delays in restoring power were due to radiation monitor electrical reconnection problems and lead to the radiation monitor being out of service for greater than thirty days. RE-6627 was returned to service on August 17, 2014.
- Unit 1 Fuel Handling Building Radiation Monitor (RSC-26-4) was out of service for greater than thirty days. RSC 26-4 was removed from service on October 6, 2014, for replacement with the new Mirion MGPI radiation monitor. Applicability to the minimum channel operability requirement of the ODCM applies only at times while making release via this pathway. Unit 1 Fuel Handling Building ventilation has been secured since October 7, 2014, for the remainder of the report period as per ODCM procedural requirements. Replacement of the monitor is in progress but has not been completed as of the end of the report period.

2.6 Offsite Dose Calculation Manual Changes

Two revisions were made to the St. Lucie Site ODCM during the report period.

- A revision was completed in May 2014 to incorporate guidance for a rapid method to release water from site retention ponds either prior to or during severe weather events and emergency conditions. This revision allows early initiation of South Settling Basin releases from the permitted outfall I-008 with prior upper management approval. The revision eliminates the risk of sampling, analysis, and permitting delays which could prevent the start of the permitted release during emergency storm flooding risk conditions.
- A revision was completed in December 2014 to incorporate the following four changes:
 - Revision of ODCM procedural requirements for placing the new Unit 1 Mirion MGPI Fuel Handling Building Radiation Monitor in service.
 - Clarification of ODCM procedural guidance for compensatory sampling of gaseous process radiation monitors related to loss of

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control room annunciation and use of alternate radiation monitoring.

- Removal of the goat from ODCM, Figure 1-2, St. Lucie Nuclear Environmental Radiological Environmental Monitoring Program (REMP) Sample Locations (10 Miles). The goat is no longer located at the REMP environmental sample location.
- Addition of improved ODCM procedural guidance for conducting St. Lucie Nuclear Site REMP Program Supplemental Sampling.

2.7 Process Control Program Changes

A revision to the Process Control Program was made in August, 2014, that incorporated the following changes:

- Changed the position titles from Health Physics Supervisor to Radiation Protection Manager.
- Changed the Facility Review Group title to Onsite Review Group.
- Added the reference to vendor procedure CS-OP-PR-008-161049, "Setup, Operation, and Dewatering Using Energy Solutions Self-Engaged Dewatering System Fill Head at St. Lucie."
- Removed reference to deleted Technical Specification section 6.10.2.q.
- Changed the procedure reference for record retention from QI-17-PSL-1, "Quality Assurance Records" to RM-AA-100-1000, "Processing Quality Assurance Records."
- Changed the procedure reference from HP-40, "Shipment of Radioactive Materials" to RP-AA-108-1002, "Radioactive Shipping Procedure."
- Removed reference to the Barnwell disposal facility.
- Removed the requirement to list the container types in the Annual Radioactive Effluent Release Report.
- Added the words "as applicable" when discussing the solidification agent use.

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2.8 Corrections to Previous Reports

There were no corrections to previous reports during the report period.

2.9 Other

Eleven batch releases were made from the South Settling Basin to the Intake Canal during the report period to lower the water level from periods of higher than normal rainfall. All eleven releases were analyzed according to the ODCM and site procedural requirements and were found to have no detectable gamma, tritium, alpha or hard to detect isotopes. The releases are listed below:

<u>Release start date</u>	<u>Volume of release</u>
January 9	1.70E7 gallons
January 29	7.75E6 gallons
February 13	6.36E6 gallons
March 6	6.22E6 gallons
May 15	4.43E6 gallons
June 5	1.81E6 gallons
June 19	9.40E5 gallons
July 1	1.17E6 gallons
July 23	1.42E6 gallons
July 31	6.62E6 gallons
September 29	4.39E4 gallons

2.10 Groundwater Protection Program (next 2 pages)

- No limits were exceeded for the analyzed St. Lucie Nuclear Site Groundwater Protection Program for the report period.
- St. Lucie Nuclear Site Groundwater Protection Program results for the report period are contained in the following tables.

2014 PSL Ground Water Well Results for Annual Report

Sentinel Well ID	H3 Jan 2014	H3 Feb 2014	H3 Mar 2014	H3 Apr 2014	H3 May 2014	H3 June 2014	H3 July 2014	H3 Aug 2014	H3 Sept 2014	H3 OCT 2014	H3 NOV 2014	H3 Dec 2014
Diesel Unit 1 & 2	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
MW-3		709			1040		571	703	706	946	592	802
MW-4		427			621			743			614	
MW-5		<MDC			<MDC			<MDC			<MDC	
MW-6		1340			1190			1780			1460	
MW-7		<MDC			<MDC			342			348	
MW-15		3530			535	363	398	413	220		475	
MW-16		232			285			479			413	
MW-17		1560			1100			281			355	
MW-18D		909			1390			1180			793	
MW-19		<MDC			<MDC			<MDC			<MDC	
MW-22D		188			369			<MDC			<MDC	
MW-26		<MDC			<MDC			<MDC			<MDC	
RW-2		310			541			392			291	
RW-4		<MDC			<MDC			<MDC			<MDC	
RW-5		<MDC			<MDC			<MDC			<MDC	
MW-30		539			295			378			269	
MW-31		277			400			406			268	
MW-32		360			460			643			355	
MW-33		1390			1140			1160			1090	

Monitor Well ID	H3 Jan 2014	H3 Feb 2014	H3 Mar 2014	H3 Apr 2014	H3 May 2014	H3 June 2014	H3 July 2014	H3 Aug 2014	H3 Sept 2014	H3 OCT 2014	H3 NOV 2014	H3 Dec 2014
TLO Wells	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
Unit 1-MW001		<MDC			<MDC			<MDC			417	
Unit 1-MW002		<MDC			<MDC			<MDC			228	
Unit 1-MW003		<MDC			<MDC			<MDC			304	
Unit 1-MW004		444			450			<MDC			246	
Unit 1-MW005		647			757			558			1620	
Unit 2-MW001		<MDC			<MDC			<MDC			<MDC	
Unit 2-MW002		527			529			1920		<MDC	622	1010
Unit 2-MW003		582			410			782			379	
Unit 2-MW004		645			610			746			870	

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3.0 TABLES

3.1 Gaseous Effluents & Liquid Effluents (Enclosure 1, 22 pages)

3.2 Solid Waste Storage and Shipments (Enclosure 1, 6 pages)

3.3 Dose Assessments (Enclosure 1, 15 pages)

3.4 Visitor Dose (Enclosure 1, 1 page)

Reg. Guide 1.21, Table 5A and 5B - Liquid and Gas Batch Release Summary

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

A. Liquid Batch Release Totals	Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year Totals
1. Number of Batch Releases		33	12	16	9	70
2. Total duration of batch releases	min	2.22E+04	1.07E+04	1.78E+04	3.87E+03	5.46E+04
3. Maximum batch release duration	min	2.47E+03	4.79E+03	8.64E+03	6.70E+02	8.64E+03
4. Average batch release duration	min	6.74E+02	8.88E+02	1.11E+03	4.30E+02	7.80E+02
5. Minimum batch release duration	min	2.75E+02	2.75E+02	3.90E+02	2.21E+02	2.21E+02
B. Gas Batch Release Totals	Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year Totals
1. Number of Batch Releases		49	74	72	69	264
2. Total duration of batch releases	min	1.45E+04	1.75E+04	2.71E+04	2.49E+04	8.40E+04
3. Maximum batch release duration	min	6.45E+02	5.61E+02	1.11E+04	6.75E+03	1.11E+04
4. Average batch release duration	min	2.97E+02	2.37E+02	3.76E+02	3.60E+02	3.18E+02
5. Minimum batch release duration	min	2.00E+01	7.00E+00	2.30E+01	1.80E+01	7.00E+00

Reg. Guide 1.21, Table 6A and 6B - Liquid and Gas Abnormal Release Summary

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

A. Liquid Abnormal Release Totals	Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year Totals
1. Number of Abnormal Releases		0	0	0	0	0
2. Total Activity of abnormal releases	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
B. Gas Abnormal Release Totals	Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year Totals
1. Number of Abnormal Releases		0	0	0	0	0
2. Total Activity of abnormal releases	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Reg. Guide 1.21, Table 1A, Gaseous Effluents - Summation of All Releases

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Total Release	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual	Uncertainty
A. Fission and Activation Gases							
1. Total Release	Ci	1.61E+01	9.26E-01	5.22E+00	9.68E-01	2.32E+01	
2. Average Release Rate for Period	uCi/s	2.07E+00	1.18E-01	6.57E-01	1.22E-01	7.36E-01	
3. Percent of Limit	%						
B. Iodines and Halogens							
1. Total Release	Ci	8.95E-04	3.84E-06	0.00E+00	1.25E-06	9.00E-04	
2. Average Release Rate for Period	uCi/s	1.15E-04	4.88E-07	0.00E+00	1.57E-07	2.85E-05	
3. Percent of Limit	%						
C. Particulates							
1. Total Release	Ci	1.01E-07	1.05E-06	0.00E+00	0.00E+00	1.15E-06	
2. Average Release Rate for Period	uCi/s	1.30E-08	1.34E-07	0.00E+00	0.00E+00	3.65E-08	
3. Percent of Limit	%						
D. Tritium							
1. Total Release	Ci	4.28E+00	3.57E+00	2.55E+01	1.19E+01	4.52E+01	
2. Average Release Rate for Period	uCi/s	5.51E-01	4.54E-01	3.20E+00	1.49E+00	1.43E+00	
3. Percent of Limit	%						
E. Gross Alpha							
1. Total Release	Ci	0.00E+00	2.75E-09	3.70E-08	5.97E-08	9.95E-08	
F. Carbon-14							
1. Total Release	Ci	4.77E+00	4.99E+00	5.47E+00	5.61E+00	2.08E+01	
2. Average Release Rate for Period	uCi/s	6.13E-01	6.35E-01	6.88E-01	7.06E-01	6.61E-01	
3. Percent of Limit	%						

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Continuous Mode

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Continuous Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
Ar-41	Ci	0.00E+00	0.00E+00	1.71E+00	0.00E+00	1.71E+00
Xe-133	Ci	6.65E-01	0.00E+00	0.00E+00	0.00E+00	6.65E-01
Total For Period	Ci	6.65E-01	0.00E+00	1.71E+00	0.00E+00	2.37E+00
B. Iodines and Halogens						
I-131	Ci	8.71E-04	3.84E-06	0.00E+00	1.25E-06	8.76E-04
I-133	Ci	2.35E-05	0.00E+00	0.00E+00	0.00E+00	2.35E-05
Total For Period	Ci	8.95E-04	3.84E-06	0.00E+00	1.25E-06	9.00E-04
C. Particulates						
Cs-137	Ci	1.01E-07	1.05E-06	0.00E+00	0.00E+00	1.15E-06
D. Tritium						
H-3	Ci	2.88E+00	3.31E+00	2.48E+01	1.16E+01	4.25E+01
E. Gross Alpha						
G-Alpha	Ci	0.00E+00	2.75E-09	3.70E-08	5.97E-08	9.95E-08
F. Carbon-14						
C-14	Ci	4.77E+00	4.99E+00	5.47E+00	5.61E+00	2.08E+01

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Batch Mode

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
Ar-41	Ci	6.90E-01	7.34E-01	3.08E+00	8.26E-01	5.33E+00
Kr-85m	Ci	0.00E+00	0.00E+00	0.00E+00	5.26E-05	5.26E-05
Kr-85	Ci	1.90E-01	1.35E-01	0.00E+00	0.00E+00	3.25E-01
Kr-87	Ci	0.00E+00	1.78E-04	0.00E+00	1.26E-04	3.05E-04
Kr-89	Ci	0.00E+00	0.00E+00	1.08E-02	0.00E+00	1.08E-02
Xe-131m	Ci	1.19E-02	5.78E-03	0.00E+00	0.00E+00	1.77E-02
Xe-133m	Ci	1.49E-01	4.46E-04	3.05E-03	7.61E-04	1.53E-01
Xe-133	Ci	1.44E+01	5.07E-02	4.08E-01	1.36E-01	1.50E+01
Xe-135m	Ci	0.00E+00	2.45E-04	0.00E+00	4.13E-04	6.58E-04
Xe-135	Ci	8.47E-03	3.57E-04	1.25E-02	2.18E-03	2.35E-02
Xe-138	Ci	0.00E+00	0.00E+00	4.73E-04	2.33E-03	2.80E-03
Total For Period	Ci	1.54E+01	9.26E-01	3.51E+00	9.68E-01	2.09E+01
B. Iodines and Halogens						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C. Particulates						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
D. Tritium						
H-3	Ci	1.40E+00	2.61E-01	6.77E-01	2.87E-01	2.62E+00
E. Gross Alpha						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Batch Mode

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
F. Carbon-14						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 1A, Gaseous Effluents - Summation of All Releases

Unit: PSL1

Starting: 1-Jan-2014 Ending: 31-Dec-2014

<u>Total Release</u>	<u>Units</u>	<u>1ST Quarter</u>	<u>2ND Quarter</u>	<u>3RD Quarter</u>	<u>4TH Quarter</u>	<u>Annual</u>	<u>Uncertainty</u>
A. Fission and Activation Gases							
1. Total Release	Ci	4.37E-01	5.19E-01	3.48E-01	4.51E-01	1.75E+00	
2. Average Release Rate for Period	uCi/s	5.62E-02	6.60E-02	4.37E-02	5.68E-02	5.56E-02	
3. Percent of Limit	%						
B. Iodines and Halogens							
1. Total Release	Ci	1.29E-06	1.11E-06	0.00E+00	0.00E+00	2.41E-06	
2. Average Release Rate for Period	uCi/s	1.66E-07	1.42E-07	0.00E+00	0.00E+00	7.63E-08	
3. Percent of Limit	%						
C. Particulates							
1. Total Release	Ci	0.00E+00	1.05E-06	0.00E+00	0.00E+00	1.05E-06	
2. Average Release Rate for Period	uCi/s	0.00E+00	1.34E-07	0.00E+00	0.00E+00	3.33E-08	
3. Percent of Limit	%						
D. Tritium							
1. Total Release	Ci	4.71E-02	3.52E+00	2.50E+01	5.93E+00	3.45E+01	
2. Average Release Rate for Period	uCi/s	6.05E-03	4.48E-01	3.14E+00	7.47E-01	1.09E+00	
3. Percent of Limit	%						
E. Gross Alpha							
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
F. Carbon-14							
1. Total Release	Ci	2.85E+00	2.87E+00	2.90E+00	2.92E+00	1.15E+01	
2. Average Release Rate for Period	uCi/s	3.67E-01	3.65E-01	3.64E-01	3.67E-01	3.66E-01	
3. Percent of Limit	%						

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Continuous Mode

Unit: PSL1

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Continuous Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
B. Iodines and Halogens						
I-131	Ci	1.29E-06	1.11E-06	0.00E+00	0.00E+00	2.41E-06
C. Particulates						
Cs-137	Ci	0.00E+00	1.05E-06	0.00E+00	0.00E+00	1.05E-06
D. Tritium						
H-3	Ci	0.00E+00	3.31E+00	2.48E+01	5.77E+00	3.39E+01
E. Gross Alpha						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
F. Carbon-14						
C-14	Ci	2.85E+00	2.87E+00	2.90E+00	2.92E+00	1.15E+01

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Batch Mode

Unit: PSL1

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Batch Mode				Annual
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	
A. Fission and Activation Gases						
Ar-41	Ci	4.35E-01	4.88E-01	3.16E-01	4.23E-01	1.66E+00
Kr-85m	Ci	0.00E+00	0.00E+00	0.00E+00	5.26E-05	5.26E-05
Kr-87	Ci	0.00E+00	1.78E-04	0.00E+00	1.26E-04	3.05E-04
Xe-133m	Ci	0.00E+00	4.46E-04	2.42E-04	0.00E+00	6.88E-04
Xe-133	Ci	2.00E-03	3.02E-02	3.14E-02	2.82E-02	9.17E-02
Xe-135m	Ci	0.00E+00	2.45E-04	0.00E+00	0.00E+00	2.45E-04
Xe-135	Ci	0.00E+00	3.57E-04	2.17E-04	8.95E-05	6.64E-04
Total For Period	Ci	4.37E-01	5.19E-01	3.48E-01	4.51E-01	1.75E+00
B. Iodines and Halogens						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C. Particulates						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
D. Tritium						
H-3	Ci	4.71E-02	2.15E-01	2.00E-01	1.64E-01	6.27E-01
E. Gross Alpha						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
F. Carbon-14						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 1A, Gaseous Effluents - Summation of All Releases

Unit: PSL2

Starting: 1-Jan-2014 Ending: 31-Dec-2014

<u>Total Release</u>	<u>Units</u>	<u>1ST Quarter</u>	<u>2ND Quarter</u>	<u>3RD Quarter</u>	<u>4TH Quarter</u>	<u>Annual</u>	<u>Uncertainty</u>
A. Fission and Activation Gases							
1. Total Release	Ci	1.57E+01	4.07E-01	4.87E+00	5.16E-01	2.15E+01	
2. Average Release Rate for Period	uCi/s	2.02E+00	5.18E-02	6.13E-01	6.50E-02	6.81E-01	
3. Percent of Limit	%						
B. Iodines and Halogens							
1. Total Release	Ci	8.93E-04	2.73E-06	0.00E+00	1.25E-06	8.97E-04	
2. Average Release Rate for Period	uCi/s	1.15E-04	3.47E-07	0.00E+00	1.57E-07	2.85E-05	
3. Percent of Limit	%						
C. Particulates							
1. Total Release	Ci	1.01E-07	0.00E+00	0.00E+00	0.00E+00	1.01E-07	
2. Average Release Rate for Period	uCi/s	1.30E-08	0.00E+00	0.00E+00	0.00E+00	3.20E-09	
3. Percent of Limit	%						
D. Tritium							
1. Total Release	Ci	4.23E+00	4.58E-02	4.84E-01	5.92E+00	1.07E+01	
2. Average Release Rate for Period	uCi/s	5.45E-01	5.82E-03	6.09E-02	7.45E-01	3.39E-01	
3. Percent of Limit	%						
E. Gross Alpha							
1. Total Release	Ci	0.00E+00	2.75E-09	3.70E-08	5.97E-08	9.95E-08	
F. Carbon-14							
1. Total Release	Ci	1.92E+00	2.12E+00	2.57E+00	2.69E+00	9.30E+00	
2. Average Release Rate for Period	uCi/s	2.47E-01	2.69E-01	3.24E-01	3.39E-01	2.95E-01	
3. Percent of Limit	%						

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Continuous Mode

Unit: PSL2

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Continuous Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
Ar-41	Ci	0.00E+00	0.00E+00	1.71E+00	0.00E+00	1.71E+00
Xe-133	Ci	6.65E-01	0.00E+00	0.00E+00	0.00E+00	6.65E-01
Total For Period	Ci	6.65E-01	0.00E+00	1.71E+00	0.00E+00	2.37E+00
B. Iodines and Halogens						
I-131	Ci	8.70E-04	2.73E-06	0.00E+00	1.25E-06	8.74E-04
I-133	Ci	2.35E-05	0.00E+00	0.00E+00	0.00E+00	2.35E-05
Total For Period	Ci	8.93E-04	2.73E-06	0.00E+00	1.25E-06	8.97E-04
C. Particulates						
Cs-137	Ci	1.01E-07	0.00E+00	0.00E+00	0.00E+00	1.01E-07
D. Tritium						
H-3	Ci	2.88E+00	0.00E+00	7.18E-03	5.80E+00	8.69E+00
E. Gross Alpha						
G-Alpha	Ci	0.00E+00	2.75E-09	3.70E-08	5.97E-08	9.95E-08
F. Carbon-14						
C-14	Ci	1.92E+00	2.12E+00	2.57E+00	2.69E+00	9.30E+00

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Batch Mode

Unit: PSL2

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
Ar-41	Ci	2.55E-01	2.46E-01	2.76E+00	4.03E-01	3.67E+00
Kr-85	Ci	1.90E-01	1.35E-01	0.00E+00	0.00E+00	3.25E-01
Kr-89	Ci	0.00E+00	0.00E+00	1.08E-02	0.00E+00	1.08E-02
Xe-131m	Ci	1.19E-02	5.78E-03	0.00E+00	0.00E+00	1.77E-02
Xe-133m	Ci	1.49E-01	0.00E+00	2.81E-03	7.61E-04	1.53E-01
Xe-133	Ci	1.44E+01	2.05E-02	3.76E-01	1.08E-01	1.49E+01
Xe-135m	Ci	0.00E+00	0.00E+00	0.00E+00	4.13E-04	4.13E-04
Xe-135	Ci	8.47E-03	0.00E+00	1.23E-02	2.09E-03	2.29E-02
Xe-138	Ci	0.00E+00	0.00E+00	4.73E-04	2.33E-03	2.80E-03
Total For Period	Ci	1.50E+01	4.07E-01	3.16E+00	5.16E-01	1.91E+01
B. Iodines and Halogens						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C. Particulates						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
D. Tritium						
H-3	Ci	1.35E+00	4.58E-02	4.77E-01	1.23E-01	2.00E+00
E. Gross Alpha						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
F. Carbon-14						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 2A, Liquid Effluents - Summation of All Releases

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

<u>Total Release</u>	<u>Units</u>	<u>1ST Quarter</u>	<u>2ND Quarter</u>	<u>3RD Quarter</u>	<u>4TH Quarter</u>	<u>Annual</u>	<u>Uncertainty</u>
A. Fission and Activation Products							
1. Total Release	Ci	2.65E-02	2.04E-03	3.72E-03	2.65E-02	5.88E-02	
2. Average Concentration	uCi/mL	2.13E-10	6.05E-11	5.60E-11	1.78E-09	2.46E-10	
3. Percent of Limit	%						
B. Tritium							
1. Total Release	Ci	1.16E+02	2.08E+01	9.87E+01	1.18E+02	3.54E+02	
2. Average Concentration	uCi/mL	9.29E-07	6.19E-07	1.49E-06	7.97E-06	1.48E-06	
3. Percent of Limit	%						
C. Dissolved and Entrained Gases							
1. Total Release	Ci	2.69E-01	1.62E-04	1.25E-05	8.08E-05	2.69E-01	
2. Average Concentration	uCi/mL	2.16E-09	4.81E-12	1.88E-13	5.44E-12	1.13E-09	
3. Percent of Limit	%						
D. Gross Alpha Activity							
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
2. Average Concentration	uCi/mL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
E. Primary Liquid Release Volume							
1. Total Release	Liters	1.44E+08	2.78E+07	3.59E+07	6.25E+05	2.08E+08	
F. Dilution Volume							
1. Total Release	Liters	1.24E+11	3.37E+10	6.64E+10	1.49E+10	2.39E+11	
G. Average Stream Flow							
1. Total Release	m ³ /s	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

Reg. Guide 1.21, Table 2A, Liquid Effluents - Summation of All Releases

Unit: PSL1

Starting: 1-Jan-2014 Ending: 31-Dec-2014

<u>Total Release</u>	<u>Units</u>	<u>1ST Quarter</u>	<u>2ND Quarter</u>	<u>3RD Quarter</u>	<u>4TH Quarter</u>	<u>Annual</u>	<u>Uncertainty</u>
A. Fission and Activation Products							
1. Total Release	Ci	1.33E-02	1.02E-03	1.86E-03	1.32E-02	2.94E-02	
2. Average Concentration	uCi/mL	2.13E-10	6.05E-11	5.60E-11	1.78E-09	2.46E-10	
3. Percent of Limit	%						
B. Tritium							
1. Total Release	Ci	5.78E+01	1.04E+01	4.93E+01	5.92E+01	1.77E+02	
2. Average Concentration	uCi/mL	9.29E-07	6.19E-07	1.49E-06	7.97E-06	1.48E-06	
3. Percent of Limit	%						
C. Dissolved and Entrained Gases							
1. Total Release	Ci	1.34E-01	8.10E-05	6.24E-06	4.04E-05	1.35E-01	
2. Average Concentration	uCi/mL	2.16E-09	4.81E-12	1.88E-13	5.44E-12	1.13E-09	
3. Percent of Limit	%						
D. Gross Alpha Activity							
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
2. Average Concentration	uCi/mL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
E. Primary Liquid Release Volume							
1. Total Release	Liters	7.18E+07	1.39E+07	1.80E+07	3.13E+05	1.04E+08	
F. Dilution Volume							
1. Total Release	Liters	6.22E+10	1.68E+10	3.32E+10	7.43E+09	1.19E+11	
G. Average Stream Flow							
1. Total Release	m ³ /s	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

Reg. Guide 1.21, Table 2A, Liquid Effluents - Summation of All Releases

Unit: PSL2

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Total Release	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual	Uncertainty
A. Fission and Activation Products							
1. Total Release	Ci	1.33E-02	1.02E-03	1.86E-03	1.32E-02	2.94E-02	
2. Average Concentration	uCi/mL	2.13E-10	6.05E-11	5.60E-11	1.78E-09	2.46E-10	
3. Percent of Limit	%						
B. Tritium							
1. Total Release	Ci	5.78E+01	1.04E+01	4.93E+01	5.92E+01	1.77E+02	
2. Average Concentration	uCi/mL	9.29E-07	6.19E-07	1.49E-06	7.97E-06	1.48E-06	
3. Percent of Limit	%						
C. Dissolved and Entrained Gases							
1. Total Release	Ci	1.34E-01	8.10E-05	6.24E-06	4.04E-05	1.35E-01	
2. Average Concentration	uCi/mL	2.16E-09	4.81E-12	1.88E-13	5.44E-12	1.13E-09	
3. Percent of Limit	%						
D. Gross Alpha Activity							
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
2. Average Concentration	uCi/mL	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
E. Primary Liquid Release Volume							
1. Total Release	Liters	7.18E+07	1.39E+07	1.80E+07	3.13E+05	1.04E+08	
F. Dilution Volume							
1. Total Release	Liters	6.22E+10	1.68E+10	3.32E+10	7.43E+09	1.19E+11	
G. Average Stream Flow							
1. Total Release	m ³ /s	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

Reg. Guide 1.21, Table 2B, Liquid Effluents - Continuous Mode

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Continuous Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Products						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
B. Tritium						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
C. Dissolved and Entrained Gases						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
D. Gross Alpha Activity						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 2B, Liquid Effluents - Batch Mode

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Batch Mode				Annual
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	
A. Fission and Activation Products						
C-14	Ci	2.14E-02	6.52E-04	1.63E-03	2.28E-02	4.65E-02
Na-24	Ci	0.00E+00	0.00E+00	0.00E+00	1.87E-05	1.87E-05
Cr-51	Ci	5.89E-04	7.81E-05	3.82E-05	1.03E-04	8.08E-04
Mn-54	Ci	1.35E-04	2.39E-05	7.18E-05	1.63E-04	3.94E-04
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	9.26E-04	9.26E-04
Fe-59	Ci	1.60E-05	0.00E+00	3.62E-06	4.43E-06	2.40E-05
Co-57	Ci	0.00E+00	2.17E-06	0.00E+00	8.82E-07	3.05E-06
Co-58	Ci	1.12E-03	5.41E-04	6.64E-04	1.09E-03	3.41E-03
Co-60	Ci	1.57E-03	2.24E-04	6.46E-04	5.75E-04	3.02E-03
Zn-65	Ci	1.50E-05	9.18E-06	3.54E-05	5.94E-05	1.19E-04
Sr-91	Ci	1.02E-05	0.00E+00	0.00E+00	0.00E+00	1.02E-05
Zr-95	Ci	4.67E-05	5.33E-06	5.27E-05	2.68E-05	1.32E-04
Nb-95	Ci	1.62E-04	1.13E-05	1.13E-04	7.11E-05	3.57E-04
Nb-97	Ci	3.36E-04	7.46E-05	1.69E-04	1.11E-04	6.90E-04
Tc-99m	Ci	0.00E+00	0.00E+00	3.28E-06	1.77E-05	2.10E-05
Ru-103	Ci	1.70E-06	0.00E+00	0.00E+00	0.00E+00	1.70E-06
Ag-110m	Ci	2.59E-04	5.71E-05	1.48E-04	9.10E-05	5.55E-04
Sb-122	Ci	0.00E+00	1.94E-06	0.00E+00	2.13E-06	4.07E-06
Sb-124	Ci	2.61E-05	1.73E-05	2.40E-05	7.78E-06	7.52E-05
Sb-125	Ci	1.10E-04	5.40E-05	8.85E-05	1.28E-04	3.80E-04
Te-123m	Ci	3.72E-04	1.45E-04	5.67E-06	0.00E+00	5.23E-04
Te-129m	Ci	1.29E-04	1.26E-04	0.00E+00	4.09E-05	2.97E-04
Te-132	Ci	4.65E-05	2.07E-06	0.00E+00	0.00E+00	4.86E-05
I-130	Ci	0.00E+00	0.00E+00	3.17E-06	0.00E+00	3.17E-06
I-131	Ci	1.08E-04	0.00E+00	0.00E+00	1.96E-05	1.28E-04
I-132	Ci	4.99E-05	0.00E+00	0.00E+00	0.00E+00	4.99E-05

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 2B, Liquid Effluents - Batch Mode

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
I-133	Ci	6.70E-06	0.00E+00	0.00E+00	2.87E-05	3.54E-05
I-134	Ci	3.95E-06	0.00E+00	0.00E+00	0.00E+00	3.95E-06
Cs-137	Ci	3.03E-05	1.24E-05	1.05E-05	7.16E-06	6.04E-05
Cs-138	Ci	0.00E+00	0.00E+00	0.00E+00	1.49E-04	1.49E-04
Ba-140	Ci	1.37E-05	0.00E+00	0.00E+00	4.21E-06	1.79E-05
La-140	Ci	4.50E-06	0.00E+00	1.05E-05	0.00E+00	1.50E-05
Total For Period	Ci	2.65E-02	2.04E-03	3.72E-03	2.65E-02	5.88E-02
B. Tritium						
H-3	Ci	1.16E+02	2.08E+01	9.87E+01	1.18E+02	3.54E+02
C. Dissolved and Entrained Gases						
Ar-41	Ci	0.00E+00	0.00E+00	0.00E+00	1.24E-05	1.24E-05
Xe-131m	Ci	3.58E-03	0.00E+00	0.00E+00	0.00E+00	3.58E-03
Xe-133m	Ci	1.45E-03	0.00E+00	0.00E+00	0.00E+00	1.45E-03
Xe-133	Ci	2.64E-01	1.62E-04	1.25E-05	6.56E-05	2.64E-01
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	2.89E-06	2.89E-06
Total For Period	Ci	2.69E-01	1.62E-04	1.25E-05	8.08E-05	2.69E-01
D. Gross Alpha Activity						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 2B, Liquid Effluents - Batch Mode

Unit: PSL1

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Batch Mode				Annual
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	
A. Fission and Activation Products						
C-14	Ci	1.07E-02	3.26E-04	8.17E-04	1.14E-02	2.32E-02
Na-24	Ci	0.00E+00	0.00E+00	0.00E+00	9.37E-06	9.37E-06
Cr-51	Ci	2.94E-04	3.91E-05	1.91E-05	5.14E-05	4.04E-04
Mn-54	Ci	6.77E-05	1.20E-05	3.59E-05	8.14E-05	1.97E-04
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	4.63E-04	4.63E-04
Fe-59	Ci	8.00E-06	0.00E+00	1.81E-06	2.22E-06	1.20E-05
Co-57	Ci	0.00E+00	1.09E-06	0.00E+00	4.41E-07	1.53E-06
Co-58	Ci	5.60E-04	2.70E-04	3.32E-04	5.45E-04	1.71E-03
Co-60	Ci	7.85E-04	1.12E-04	3.23E-04	2.88E-04	1.51E-03
Zn-65	Ci	7.52E-06	4.59E-06	1.77E-05	2.97E-05	5.95E-05
Sr-91	Ci	5.11E-06	0.00E+00	0.00E+00	0.00E+00	5.11E-06
Zr-95	Ci	2.34E-05	2.66E-06	2.64E-05	1.34E-05	6.58E-05
Nb-95	Ci	8.09E-05	5.63E-06	5.66E-05	3.55E-05	1.79E-04
Nb-97	Ci	1.68E-04	3.73E-05	8.45E-05	5.55E-05	3.45E-04
Tc-99m	Ci	0.00E+00	0.00E+00	1.64E-06	8.86E-06	1.05E-05
Ru-103	Ci	8.50E-07	0.00E+00	0.00E+00	0.00E+00	8.50E-07
Ag-110m	Ci	1.29E-04	2.86E-05	7.39E-05	4.55E-05	2.77E-04
Sb-122	Ci	0.00E+00	9.70E-07	0.00E+00	1.07E-06	2.04E-06
Sb-124	Ci	1.31E-05	8.63E-06	1.20E-05	3.89E-06	3.76E-05
Sb-125	Ci	5.48E-05	2.70E-05	4.42E-05	6.40E-05	1.90E-04
Te-123m	Ci	1.86E-04	7.25E-05	2.84E-06	0.00E+00	2.61E-04
Te-129m	Ci	6.47E-05	6.32E-05	0.00E+00	2.04E-05	1.48E-04
Te-132	Ci	2.33E-05	1.04E-06	0.00E+00	0.00E+00	2.43E-05
I-130	Ci	0.00E+00	0.00E+00	1.59E-06	0.00E+00	1.59E-06
I-131	Ci	5.39E-05	0.00E+00	0.00E+00	9.82E-06	6.38E-05
I-132	Ci	2.50E-05	0.00E+00	0.00E+00	0.00E+00	2.50E-05

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 2B, Liquid Effluents - Batch Mode

Unit: PSL1

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
I-133	Ci	3.35E-06	0.00E+00	0.00E+00	1.44E-05	1.77E-05
I-134	Ci	1.98E-06	0.00E+00	0.00E+00	0.00E+00	1.98E-06
Cs-137	Ci	1.52E-05	6.22E-06	5.24E-06	3.58E-06	3.02E-05
Cs-138	Ci	0.00E+00	0.00E+00	0.00E+00	7.46E-05	7.46E-05
Ba-140	Ci	6.83E-06	0.00E+00	0.00E+00	2.10E-06	8.94E-06
La-140	Ci	2.25E-06	0.00E+00	5.24E-06	0.00E+00	7.49E-06
Total For Period	Ci	1.33E-02	1.02E-03	1.86E-03	1.32E-02	2.94E-02
B. Tritium						
H-3	Ci	5.78E+01	1.04E+01	4.93E+01	5.92E+01	1.77E+02
C. Dissolved and Entrained Gases						
Ar-41	Ci	0.00E+00	0.00E+00	0.00E+00	6.19E-06	6.19E-06
Xe-131m	Ci	1.79E-03	0.00E+00	0.00E+00	0.00E+00	1.79E-03
Xe-133m	Ci	7.27E-04	0.00E+00	0.00E+00	0.00E+00	7.27E-04
Xe-133	Ci	1.32E-01	8.10E-05	6.24E-06	3.28E-05	1.32E-01
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	1.45E-06	1.45E-06
Total For Period	Ci	1.34E-01	8.10E-05	6.24E-06	4.04E-05	1.35E-01
D. Gross Alpha Activity						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 2B, Liquid Effluents - Batch Mode

Unit: PSL2

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Products						
C-14	Ci	1.07E-02	3.26E-04	8.17E-04	1.14E-02	2.32E-02
Na-24	Ci	0.00E+00	0.00E+00	0.00E+00	9.37E-06	9.37E-06
Cr-51	Ci	2.94E-04	3.91E-05	1.91E-05	5.14E-05	4.04E-04
Mn-54	Ci	6.77E-05	1.20E-05	3.59E-05	8.14E-05	1.97E-04
Fe-55	Ci	0.00E+00	0.00E+00	0.00E+00	4.63E-04	4.63E-04
Fe-59	Ci	8.00E-06	0.00E+00	1.81E-06	2.22E-06	1.20E-05
Co-57	Ci	0.00E+00	1.09E-06	0.00E+00	4.41E-07	1.53E-06
Co-58	Ci	5.60E-04	2.70E-04	3.32E-04	5.45E-04	1.71E-03
Co-60	Ci	7.85E-04	1.12E-04	3.23E-04	2.88E-04	1.51E-03
Zn-65	Ci	7.52E-06	4.59E-06	1.77E-05	2.97E-05	5.95E-05
Sr-91	Ci	5.11E-06	0.00E+00	0.00E+00	0.00E+00	5.11E-06
Zr-95	Ci	2.34E-05	2.66E-06	2.64E-05	1.34E-05	6.58E-05
Nb-95	Ci	8.09E-05	5.63E-06	5.66E-05	3.55E-05	1.79E-04
Nb-97	Ci	1.68E-04	3.73E-05	8.45E-05	5.55E-05	3.45E-04
Tc-99m	Ci	0.00E+00	0.00E+00	1.64E-06	8.86E-06	1.05E-05
Ru-103	Ci	8.50E-07	0.00E+00	0.00E+00	0.00E+00	8.50E-07
Ag-110m	Ci	1.29E-04	2.86E-05	7.39E-05	4.55E-05	2.77E-04
Sb-122	Ci	0.00E+00	9.70E-07	0.00E+00	1.07E-06	2.04E-06
Sb-124	Ci	1.31E-05	8.63E-06	1.20E-05	3.89E-06	3.76E-05
Sb-125	Ci	5.48E-05	2.70E-05	4.42E-05	6.40E-05	1.90E-04
Te-123m	Ci	1.86E-04	7.25E-05	2.84E-06	0.00E+00	2.61E-04
Te-129m	Ci	6.47E-05	6.32E-05	0.00E+00	2.04E-05	1.48E-04
Te-132	Ci	2.33E-05	1.04E-06	0.00E+00	0.00E+00	2.43E-05
I-130	Ci	0.00E+00	0.00E+00	1.59E-06	0.00E+00	1.59E-06
I-131	Ci	5.39E-05	0.00E+00	0.00E+00	9.82E-06	6.38E-05
I-132	Ci	2.50E-05	0.00E+00	0.00E+00	0.00E+00	2.50E-05

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

Reg. Guide 1.21, Table 2B, Liquid Effluents - Batch Mode

Unit: PSL2

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
I-133	Ci	3.35E-06	0.00E+00	0.00E+00	1.44E-05	1.77E-05
I-134	Ci	1.98E-06	0.00E+00	0.00E+00	0.00E+00	1.98E-06
Cs-137	Ci	1.52E-05	6.22E-06	5.24E-06	3.58E-06	3.02E-05
Cs-138	Ci	0.00E+00	0.00E+00	0.00E+00	7.46E-05	7.46E-05
Ba-140	Ci	6.83E-06	0.00E+00	0.00E+00	2.10E-06	8.94E-06
La-140	Ci	2.25E-06	0.00E+00	5.24E-06	0.00E+00	7.49E-06
Total For Period	Ci	1.33E-02	1.02E-03	1.86E-03	1.32E-02	2.94E-02
B. Tritium						
H-3	Ci	5.78E+01	1.04E+01	4.93E+01	5.92E+01	1.77E+02
C. Dissolved and Entrained Gases						
Ar-41	Ci	0.00E+00	0.00E+00	0.00E+00	6.19E-06	6.19E-06
Xe-131m	Ci	1.79E-03	0.00E+00	0.00E+00	0.00E+00	1.79E-03
Xe-133m	Ci	7.27E-04	0.00E+00	0.00E+00	0.00E+00	7.27E-04
Xe-133	Ci	1.32E-01	8.10E-05	6.24E-06	3.28E-05	1.32E-01
Xe-135	Ci	0.00E+00	0.00E+00	0.00E+00	1.45E-06	1.45E-06
Total For Period	Ci	1.34E-01	8.10E-05	6.24E-06	4.04E-05	1.35E-01
D. Gross Alpha Activity						
No Nuclides Found	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

If Not Detected, Nuclide is Not Reported. Zeroes in this table indicates that no radioactivity was present at detectable levels.

NRC Regulatory Guide 1.21 Reports

Report Date : 2/24/2015

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
 During Period From 01/01/2014 to 12/31/2014 Percent Cutoff: 1

Waste Stream: Resins, Filters, and Evap Bottoms (container types listed below)

General Design Cask

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft ³	M ³		
A	4.50E+02	1.27E+01	1.26E+01	+/- 25%
B	0.00E+00	0.00E+00	0.00E+00	+/- 25%
C	0.00E+00	0.00E+00	0.00E+00	+/- 25%
All	4.50E+02	1.27E+01	1.26E+01	+/- 25%

Waste Stream: Dry Active Waste (container types listed below)

48' Sealand Overpack

20' Sealand

40' Sealand

Waste Class	Volume		Curies Shipped	%Error (Ci)
	Ft ³	M ³		
A	5.39E+04	1.53E+03	2.21E+00	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	5.39E+04	1.53E+03	2.21E+00	+/-25%

Waste Stream: Irradiated Components

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft ³	M ³		
A	0.00E+00	0.00E+00	0.00E+00	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	0.00E+00	0.00E+00	0.00E+00	+/-25%

NRC Regulatory Guide 1.21 Reports

Report Date : 2/24/2015

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
 During Period From 01/01/2014 to 12/31/2014 Percent Cutoff: 1

Waste Stream: Other Waste (container types listed below)

20' Shielded Sealand General Design Tank

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft ³	M ³		
A	1.68E+03	4.76E+01	2.59E-01	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	1.68E+03	4.76E+01	2.59E-01	+/-25%

Waste Stream: Sum of All 4 Categories (container types listed below)

48' Sealand Overpack 20' Sealand 40' Sealand
 General Design Cask 20' Shielded Sealand General Design Tank

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft ³	M ³		
A	5.60E+04	1.59E+03	1.50E+01	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	5.60E+04	1.59E+03	1.50E+01	+/-25%

NRC Regulatory Guide 1.21 Reports

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Report Date : 2/24/2015

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2014 to 12/31/2014

Number of Shipments	Mode of Transportation	Destination
1	CAST Transportation	EnergySolutions Bear Creek
14	Hittman Transport (TN)	EnergySolutions Bear Creek
12	Landstar	EnergySolutions Bear Creek
2	Southern Pines Trucking	EnergySolutions Bear Creek
1	Tri-State Motor Transit	EnergySolutions Bear Creek
2	Hittman Transport (SC)	EnergySolutions LLC.
1	Hittman Transport (TN)	EnergySolutions LLC.

NRC Regulatory Guide 1.21 Reports

Report Date : 2/24/2015

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
 During Period From 01/01/2014 to 12/31/2014 Percent Cutoff: 1

Resins, Filters, and Evap Bottoms		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	42.732%	5.37E+00
C-14	2.198%	2.76E-01
Mn-54	1.366%	1.72E-01
Fe-55	15.019%	1.89E+00
Co-58	10.761%	1.35E+00
Co-60	10.228%	1.29E+00
Ni-63	13.734%	1.73E+00
Sb-125	1.633%	2.05E-01
Resins, Filters, and Evap Bottoms		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	42.732%	5.37E+00
C-14	2.198%	2.76E-01
Mn-54	1.366%	1.72E-01
Fe-55	15.019%	1.89E+00
Co-58	10.761%	1.35E+00
Co-60	10.228%	1.29E+00
Ni-63	13.734%	1.73E+00
Sb-125	1.633%	2.05E-01
Dry Active Waste		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	47.773%	1.06E+00
Cr-51	2.328%	5.14E-02
Fe-55	17.590%	3.89E-01
Co-58	2.531%	5.59E-02
Co-60	10.029%	2.22E-01
Ni-63	6.918%	1.53E-01
Zr-95	2.432%	5.37E-02
Nb-95	4.289%	9.47E-02
Ag-110m	3.606%	7.97E-02
Dry Active Waste		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	47.773%	1.06E+00
Cr-51	2.328%	5.14E-02
Fe-55	17.590%	3.89E-01
Co-58	2.531%	5.59E-02
Co-60	10.029%	2.22E-01
Ni-63	6.918%	1.53E-01
Zr-95	2.432%	5.37E-02
Nb-95	4.289%	9.47E-02
Ag-110m	3.606%	7.97E-02

NRC Regulatory Guide 1.21 Reports

Report Date : 2/24/2015

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
 During Period From 01/01/2014 to 12/31/2014 Percent Cutoff: 1

Other Waste		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	9.984%	2.58E-02
Cr-51	4.612%	1.19E-02
Mn-54	1.339%	3.47E-03
Fe-55	29.497%	7.64E-02
Co-58	4.540%	1.18E-02
Co-60	16.773%	4.34E-02
Ni-63	11.539%	2.99E-02
Zr-95	4.395%	1.14E-02
Nb-95	8.226%	2.13E-02
Ag-110m	6.144%	1.59E-02
Other Waste		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	9.984%	2.58E-02
Cr-51	4.612%	1.19E-02
Mn-54	1.339%	3.47E-03
Fe-55	29.497%	7.64E-02
Co-58	4.540%	1.18E-02
Co-60	16.773%	4.34E-02
Ni-63	11.539%	2.99E-02
Zr-95	4.395%	1.14E-02
Nb-95	8.226%	2.13E-02
Ag-110m	6.144%	1.59E-02
Sum of All 4 Categories		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	42.909%	6.45E+00
C-14	1.901%	2.86E-01
Mn-54	1.281%	1.93E-01
Fe-55	15.646%	2.35E+00
Co-58	9.445%	1.42E+00
Co-60	10.312%	1.55E+00
Ni-63	12.695%	1.91E+00
Sb-125	1.455%	2.19E-01
Sum of All 4 Categories		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	42.909%	6.45E+00
C-14	1.901%	2.86E-01
Mn-54	1.281%	1.93E-01
Fe-55	15.646%	2.35E+00
Co-58	9.445%	1.42E+00
Co-60	10.312%	1.55E+00
Ni-63	12.695%	1.91E+00
Sb-125	1.455%	2.19E-01

NRC Regulatory Guide 1.21 Reports

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Report Date : 2/24/2015

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2014 to 12/31/2014

Manifest Number	Date Shipped	Waste Volume Used	Burial volume Used
FPL/PSL 14-112	10/10/2014	Yes	
FPL/PSL 14-108	9/22/2014	Yes	
FPL/PSL 14-106	9/17/2014	Yes	
FPL/PSL 14-107	9/15/2014	Yes	
FPL/PSL 14-104	9/10/2014	Yes	
FPL/PSL 14-102	9/8/2014	Yes	
FPL/PSL 14-103	9/8/2014	Yes	
FPL/PSL 14-095	9/3/2014	Yes	
FPL/PSL 14-096	9/3/2014	Yes	
FPL/PSL 14-098	9/3/2014	Yes	
FPL/PSL 14-097	9/3/2014	Yes	
FPL/PSL 14-094	8/27/2014	Yes	
FPL/PSL 14-093	8/27/2014	Yes	
FPL/PSL 14-088	8/11/2014	Yes	
FPL/PSL 14-089	8/11/2014	Yes	
FPL/PSL 14-084	8/6/2014	Yes	
FPL/PSL 14-083	8/6/2014	Yes	
FPL/PSL 14-082	8/4/2014	Yes	
FPL/PSL 14-081	8/4/2014	Yes	
FPL/PSL 14-077	7/28/2014	Yes	
FPL/PSL 14-078	7/28/2014	Yes	
FPL/PSL 14-075	7/23/2014	Yes	
FPL/PSL 14-074	7/21/2014	Yes	
FPL/PSL 14-073	7/21/2014	Yes	
FPL/PSL 14-070	7/16/2014	Yes	
FPL/PSL 14-071	7/16/2014	Yes	
FPL/PSL 14-069	7/14/2014	Yes	
FPL/PSL 14-068	7/14/2014	Yes	
FPL/PSL 14-067	7/9/2014	Yes	
FPL/PSL 14-066	7/9/2014	Yes	
FPL/PSL 14-064	7/9/2014	Yes	
FPL/PSL 14-058	5/28/2014	Yes	
FPL/PSL 14-038	3/28/2014	Yes	

Reg. Guide 1.21, App B, Sec E3 - Doses due to Radioiodines, Tritium, and Particulates in Gaseous Releases

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Organ Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	1.60E-01	1.67E-01	1.83E-01	1.88E-01	6.99E-01
Limit	mRem					
Percent of Limit	%					
Liver	mRem	1.61E-01	1.68E-01	1.90E-01	1.91E-01	7.10E-01
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	1.61E-01	1.68E-01	1.90E-01	1.91E-01	7.10E-01
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	4.07E-01	1.69E-01	1.90E-01	1.91E-01	9.57E-01
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	1.96E-02	2.02E-02	2.46E-02	2.36E-02	8.80E-02
Limit	mRem					
Percent of Limit	%					
Lung	mRem	1.61E-01	1.68E-01	1.90E-01	1.91E-01	7.09E-01
Limit	mRem					
Percent of Limit	%					
GI-Li	mRem	1.61E-01	1.68E-01	1.90E-01	1.91E-01	7.09E-01
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2014

Site/Unit/Discharge Point: Site

Site Boundary NNG Doserate Summary - Note: All Doses in mRem/yr

<u>Receptor</u>	<u>Agegroup</u>	<u>Bone</u>	<u>Liver</u>	<u>Total Body</u>	<u>Thyroid</u>	<u>Kidney</u>	<u>Lung</u>	<u>GI-Lli</u>	<u>Skin</u>
NW Site Boundary - In	Infant	6.985E-01	7.100E-01	7.096E-01	9.572E-01	8.804E-02	7.091E-01	7.092E-01	0.000E+00
WNW Site Boundary - I	Infant	5.970E-06	5.970E-06	5.970E-06	5.970E-06	5.970E-06	5.970E-06	5.970E-06	0.000E+00
Maximum Doserate by Organ:		6.985E-01	7.100E-01	7.096E-01	9.572E-01	8.804E-02	7.091E-01	7.092E-01	0.000E+00

Maximum Organ Doserate (mRem/yr): 9.572E-01

Maximum Total Body Doserate (mRem/yr): 7.096E-01

Site Boundary NG Doserate Summary

<u>Gas Receptor Location</u>	<u>Gamma (mRad/yr)</u>	<u>Beta (mRad/yr)</u>	<u>Total Body (mRem/yr)</u>	<u>Skin (mRem/yr)</u>
NW Site Boundary	3.616E-03	2.059E-03	3.404E-03	5.219E-03
WNW Site Boundary	3.115E-03	1.774E-03	2.932E-03	4.496E-03
Maximum NG Dose Rate:	3.616E-03	2.059E-03	3.404E-03	5.219E-03

Reg. Guide 1.21, App B, Sec E3 - Doses due to Radioiodines, Tritium, and Particulates in Gaseous Releases

Unit: PSL1

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Organ Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	9.55E-02	9.62E-02	9.70E-02	9.78E-02	3.86E-01
Limit	mRem					
Percent of Limit	%					
Liver	mRem	9.54E-02	9.70E-02	1.04E-01	9.92E-02	3.95E-01
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	9.54E-02	9.70E-02	1.04E-01	9.92E-02	3.95E-01
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	9.57E-02	9.73E-02	1.04E-01	9.92E-02	3.96E-01
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	1.13E-02	1.18E-02	1.44E-02	1.23E-02	4.97E-02
Limit	mRem					
Percent of Limit	%					
Lung	mRem	9.54E-02	9.70E-02	1.04E-01	9.92E-02	3.95E-01
Limit	mRem					
Percent of Limit	%					
GI-LI	mRem	9.54E-02	9.70E-02	1.04E-01	9.92E-02	3.95E-01
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2014

Site/Unit/Discharge Point: PSL1

Site Boundary NNG Doserate Summary - Note: All Doses in mRem/yr

Receptor	Agegroup	Bone	Liver	Total Body	Thyroid	Kidney	Lung	GI-Lli	Skin
NW Site Boundary - In	Infant	3.865E-01	3.952E-01	3.952E-01	3.959E-01	4.975E-02	3.952E-01	3.952E-01	0.000E+00
WNW Site Boundary - I	Infant	3.297E-07	3.297E-07	3.297E-07	3.297E-07	3.297E-07	3.297E-07	3.297E-07	0.000E+00
Maximum Doserate by Organ:		3.865E-01	3.952E-01	3.952E-01	3.959E-01	4.975E-02	3.952E-01	3.952E-01	0.000E+00

Maximum Organ Doserate (mRem/yr): 3.959E-01

Maximum Total Body Doserate (mRem/yr): 3.952E-01

Site Boundary NG Doserate Summary

Gas Receptor Location	Gamma (mRad/yr)	Beta (mRad/yr)	Total Body (mRem/yr)	Skin (mRem/yr)
NW Site Boundary	7.857E-04	2.816E-04	7.466E-04	1.093E-03
WNW Site Boundary	6.768E-04	2.426E-04	6.432E-04	9.412E-04
Maximum NG Dose Rate:	7.857E-04	2.816E-04	7.466E-04	1.093E-03

Reg. Guide 1.21, App B, Sec E3 - Doses due to Radioiodines, Tritium, and Particulates in Gaseous Releases

Unit: PSL2

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Organ Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	6.49E-02	7.09E-02	8.62E-02	9.01E-02	3.12E-01
Limit	mRem					
Percent of Limit	%					
Liver	mRem	6.61E-02	7.09E-02	8.62E-02	9.16E-02	3.15E-01
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	6.57E-02	7.09E-02	8.62E-02	9.16E-02	3.14E-01
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	3.11E-01	7.16E-02	8.62E-02	9.19E-02	5.61E-01
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	8.29E-03	8.40E-03	1.03E-02	1.14E-02	3.83E-02
Limit	mRem					
Percent of Limit	%					
Lung	mRem	6.53E-02	7.08E-02	8.62E-02	9.16E-02	3.14E-01
Limit	mRem					
Percent of Limit	%					
GI-Li	mRem	6.53E-02	7.08E-02	8.62E-02	9.16E-02	3.14E-01
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2014

Site/Unit/Discharge Point: PSL2

Site Boundary NNG Doserate Summary - Note: All Doses in mRem/yr

<u>Receptor</u>	<u>Agegroup</u>	<u>Bone</u>	<u>Liver</u>	<u>Total Body</u>	<u>Thyroid</u>	<u>Kidney</u>	<u>Lung</u>	<u>GI-Li</u>	<u>Skin</u>
NW Site Boundary - In	Infant	3.121E-01	3.147E-01	3.144E-01	5.613E-01	3.829E-02	3.139E-01	3.140E-01	0.000E+00
WNW Site Boundary - I	Infant	5.641E-06	5.641E-06	5.641E-06	5.641E-06	5.641E-06	5.641E-06	5.641E-06	0.000E+00
Maximum Doserate by Organ:		3.121E-01	3.147E-01	3.144E-01	5.613E-01	3.829E-02	3.139E-01	3.140E-01	0.000E+00

Maximum Organ Doserate (mRem/yr): 5.613E-01

Maximum Total Body Doserate (mRem/yr): 3.144E-01

Site Boundary NG Doserate Summary

<u>Gas Receptor Location</u>	<u>Gamma (mRad/yr)</u>	<u>Beta (mRad/yr)</u>	<u>Total Body (mRem/yr)</u>	<u>Skin (mRem/yr)</u>
NW Site Boundary	2.830E-03	1.777E-03	2.657E-03	4.127E-03
WNW Site Boundary	2.438E-03	1.531E-03	2.289E-03	3.555E-03
Maximum NG Dose Rate:	2.830E-03	1.777E-03	2.657E-03	4.127E-03

Reg. Guide 1.21, App B, Sec E2 - Air Doses Due To Gaseous Releases

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

NG Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Gamma Air	mRad	5.99E-04	3.47E-04	2.28E-03	3.94E-04	3.62E-03
Limit	mRad					
Percent of Limit	%					
Beta Air	mRad	9.49E-04	1.39E-04	8.26E-04	1.46E-04	2.06E-03
Limit	mRad					
Percent of Limit	%					
NG Total Body	mRem	5.37E-04	3.30E-04	2.16E-03	3.74E-04	3.40E-03
Limit	mRem					
Percent of Limit	%					
NG Skin	mRem	1.01E-03	4.93E-04	3.17E-03	5.49E-04	5.22E-03
Limit	mRem					
Percent of Limit	%					

Reg. Guide 1.21, App B, Sec E2 - Air Doses Due To Gaseous Releases

Unit: PSL1

Starting: 1-Jan-2014 Ending: 31-Dec-2014

NG Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Gamma Air	mRad	2.05E-04	2.31E-04	1.50E-04	2.00E-04	7.86E-04
Limit	mRad					
Percent of Limit	%					
Beta Air	mRad	7.24E-05	8.29E-05	5.43E-05	7.20E-05	2.82E-04
Limit	mRad					
Percent of Limit	%					
NG Total Body	mRem	1.95E-04	2.19E-04	1.42E-04	1.90E-04	7.47E-04
Limit	mRem					
Percent of Limit	%					
NG Skin	mRem	2.85E-04	3.21E-04	2.08E-04	2.78E-04	1.09E-03
Limit	mRem					
Percent of Limit	%					

Reg. Guide 1.21, App B, Sec E2 - Air Doses Due To Gaseous Releases

Unit: PSL2

Starting: 1-Jan-2014 Ending: 31-Dec-2014

NG Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Gamma Air	mRad	3.94E-04	1.17E-04	2.13E-03	1.93E-04	2.83E-03
Limit	mRad					
Percent of Limit	%					
Beta Air	mRad	8.76E-04	5.57E-05	7.71E-04	7.37E-05	1.78E-03
Limit	mRad					
Percent of Limit	%					
NG Total Body	mRem	3.42E-04	1.11E-04	2.02E-03	1.84E-04	2.66E-03
Limit	mRem					
Percent of Limit	%					
NG Skin	mRem	7.23E-04	1.72E-04	2.96E-03	2.70E-04	4.13E-03
Limit	mRem					
Percent of Limit	%					

Reg. Guide 1.21, App B, Sec E1 - Doses to a member of the public due to Liquid Releases

Unit: Site

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Ogan Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	1.81E-03	6.54E-05	1.60E-04	2.74E-03	4.38E-03
Limit	mRem					
Percent of Limit	%					
Liver	mRem	2.31E-03	2.05E-04	7.07E-04	8.48E-03	1.15E-02
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	2.38E-03	1.84E-04	6.02E-04	3.55E-03	6.41E-03
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	2.39E-03	1.27E-04	4.37E-04	1.94E-03	4.86E-03
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	1.73E-03	1.92E-04	6.69E-04	1.71E-03	4.31E-03
Limit	mRem					
Percent of Limit	%					
Lung	mRem	2.20E-03	1.42E-04	4.64E-04	9.09E-03	1.16E-02
Limit	mRem					
Percent of Limit	%					
GI-LI	mRem	9.29E-03	1.01E-03	3.90E-03	6.76E-03	2.10E-02
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2014

Site/Unit/Discharge Point: Site

Liquid Dose Summary - Note: All Doses in mRem

<u>Receptor</u>	<u>Agegroup</u>	<u>Bone</u>	<u>Liver</u>	<u>Total Body</u>	<u>Thyroid</u>	<u>Kidney</u>	<u>Lung</u>	<u>GI-Li</u>	<u>Skin</u>
Liquid Receptor - Teenager	Teenager	4.383E-03	1.146E-02	6.411E-03	4.278E-03	4.305E-03	1.159E-02	2.095E-02	0.000E+00
Liquid Receptor - Child	Child	4.233E-03	7.936E-03	5.848E-03	4.860E-03	1.872E-03	7.938E-03	1.130E-02	0.000E+00

Maximum Dose by Organ: 4.383E-03 1.146E-02 6.411E-03 4.860E-03 4.305E-03 1.159E-02 2.095E-02 0.000E+00

Maximum Organ Dose (mRem): 2.095E-02

Maximum Total Body Dose (mRem): 6.411E-03

Reg. Guide 1.21, App B, Sec E1 - Doses to a member of the public due to Liquid Releases

Unit: PSL1

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Ogan Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	9.03E-04	3.27E-05	8.01E-05	1.37E-03	2.19E-03
Limit	mRem					
Percent of Limit	%					
Liver	mRem	1.15E-03	1.03E-04	3.53E-04	4.24E-03	5.73E-03
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	1.19E-03	9.21E-05	3.01E-04	1.78E-03	3.21E-03
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	1.20E-03	6.33E-05	2.18E-04	9.71E-04	2.43E-03
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	8.67E-04	9.60E-05	3.35E-04	8.55E-04	2.15E-03
Limit	mRem					
Percent of Limit	%					
Lung	mRem	1.10E-03	7.08E-05	2.32E-04	4.54E-03	5.79E-03
Limit	mRem					
Percent of Limit	%					
GI-Li	mRem	4.64E-03	5.04E-04	1.95E-03	3.38E-03	1.05E-02
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2014

Site/Unit/Discharge Point: PSL1

Liquid Dose Summary - Note: All Doses in mRem

<u>Receptor</u>	<u>Agegroup</u>	<u>Bone</u>	<u>Liver</u>	<u>Total Body</u>	<u>Thyroid</u>	<u>Kidney</u>	<u>Lung</u>	<u>GI-Li</u>	<u>Skin</u>
Liquid Receptor - Teenager	Teenager	2.192E-03	5.731E-03	3.205E-03	2.139E-03	2.153E-03	5.795E-03	1.048E-02	0.000E+00
Liquid Receptor - Child	Child	2.116E-03	3.968E-03	2.924E-03	2.430E-03	9.361E-04	3.969E-03	5.648E-03	0.000E+00
Maximum Dose by Organ:		2.192E-03	5.731E-03	3.205E-03	2.430E-03	2.153E-03	5.795E-03	1.048E-02	0.000E+00

Maximum Organ Dose (mRem): 1.048E-02

Maximum Total Body Dose (mRem): 3.205E-03

Reg. Guide 1.21, App B, Sec E1 - Doses to a member of the public due to Liquid Releases

Unit: PSL2

Starting: 1-Jan-2014 Ending: 31-Dec-2014

Ogan Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	9.03E-04	3.27E-05	8.01E-05	1.37E-03	2.19E-03
Limit	mRem					
Percent of Limit	%					
Liver	mRem	1.15E-03	1.03E-04	3.53E-04	4.24E-03	5.73E-03
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	1.19E-03	9.21E-05	3.01E-04	1.78E-03	3.21E-03
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	1.20E-03	6.33E-05	2.18E-04	9.71E-04	2.43E-03
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	8.67E-04	9.60E-05	3.35E-04	8.55E-04	2.15E-03
Limit	mRem					
Percent of Limit	%					
Lung	mRem	1.10E-03	7.08E-05	2.32E-04	4.54E-03	5.79E-03
Limit	mRem					
Percent of Limit	%					
GI-Li	mRem	4.64E-03	5.04E-04	1.95E-03	3.38E-03	1.05E-02
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2014

Site/Unit/Discharge Point: PSL2

Liquid Dose Summary - Note: All Doses in mRem

<u>Receptor</u>	<u>Agegroup</u>	<u>Bone</u>	<u>Liver</u>	<u>Total Body</u>	<u>Thyroid</u>	<u>Kidney</u>	<u>Lung</u>	<u>GI-Lli</u>	<u>Skin</u>
Liquid Receptor - Teenager	Teenager	2.192E-03	5.731E-03	3.205E-03	2.139E-03	2.153E-03	5.795E-03	1.048E-02	0.000E+00
Liquid Receptor - Child	Child	2.116E-03	3.968E-03	2.924E-03	2.430E-03	9.361E-04	3.969E-03	5.648E-03	0.000E+00

Maximum Dose by Organ:	2.192E-03	5.731E-03	3.205E-03	2.430E-03	2.153E-03	5.795E-03	1.048E-02	0.000E+00
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Maximum Organ Dose (mRem): 1.048E-02

Maximum Total Body Dose (mRem): 3.205E-03

**FLORIDA POWER & LIGHT COMPANY - ST. LUCIE UNITS 1 AND 2
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY 1, 2014 THROUGH DECEMBER 31, 2014**

3.4 Visitor Dose

Dose to a Member of the Public from Activities Inside the Site Boundary
Assessment of radiation dose from radioactive effluents to MEMBERS OF THE PUBLIC due to their activities inside the SITE BOUNDARY assumes the VISITOR to be a lifeguard at the Walton Rocks Beach recreation area. The visitor is assumed to be onsite for 6 hours per day for 312 days per year at a distance of 1 mile in the South East Sector. The VISITOR received exposure from each of the two reactors on the site. Actual Met Data was used to calculate Visitor Dose for Calendar Year 2014.

VISITOR DOSE RESULTS FOR CALENDAR YEAR 2014 was:

Noble Gas Dose	mrad
Gamma Air Dose	2.32E-03
Beta Air Dose	1.32E-03

Gas, Particulate, Iodine, Carbon Dose	mrem
Bone	4.82E-01
Liver	4.90E-01
Thyroid	6.61E-01
Kidney	6.08E-02
Lung	4.89E-01
GI-LLI	4.89E-01
Total Body	4.89E-01