



February 28, 2014

L-2014-053
10 CFR 50.36
10 CFR 50.36a

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

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
2013 Annual Radioactive Effluent Release Report

Pursuant to 10 CFR 50.36a(a)(2) and Technical Specification (TS) 6.9.1.7, enclosed is the 2013 Annual Radioactive Effluent Release Report for St. Lucie Units 1 and 2. The report provides information for the 12-month period beginning January 1, 2013 and ending December 31, 2013.

Enclosure 1 includes the Combined Annual Radioactive Effluent Release Report.
Enclosure 2 is a copy of *C-200, Offsite Dose Calculation Manual (ODCM), Revision 41*.
Enclosure 3 is a copy of the marked up pages from Revisions 39, 40 and 41 of the ODCM.

Please contact us with any questions regarding this submittal.

Sincerely,

A handwritten signature in black ink, appearing to read 'ES Katzman', is written over the typed name.

Eric S. Katzman
Licensing Manager
St. Lucie Plant

ESK/tlt

Enclosures

A009
TE48
NKR

**FLORIDA POWER & LIGHT COMPANY
ST. LUCIE UNITS 1 AND 2
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY 1, 2013 THROUGH DECEMBER 31, 2013**

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1.0 PROGRAM DESCRIPTION

Regulatory Limits

The 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.

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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 $2.0\text{E-}4$ $\mu\text{Ci/ml}$ total activity. 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 mrem 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 $2.0\text{E-}04$ $\mu\text{Ci/ml}$ 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 4.4, of the ODCM.

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The estimate of errors associated with values reported is 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)

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.

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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 adsorbers and particulate filters. The radioiodine adsorbers 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.

Meteorological Monitoring Program

In accordance with ODCM Administrative Control 3.11.2.6.b., a summary of hourly meteorological data, collected during 2013, is retained onsite. This data is available for review by the NRC upon request. During 2013, 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 Section 4-28 of the report, and employed the proxy generation rate values for a Combustion Engineering reactor. The actual 2013 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 2013 for Unit 1 was 9.17 Ci, and the total amount of C-14 released in 2013 for Unit 2 was 11.32 Ci. The highest calculated dose is found to be "Bone Dose" to a "Child" through "Inhalation". The total combined dose from C-14 through this pathway is 1.55E-01 mrem/yr.

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Additionally, a "Child" consuming vegetables 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 $1.55\text{E-}1$ mrem/yr.

Using the same release values, the dose to a visitor on site (Adult Lifeguard) is found to be $4.17\text{E-}01$ mrem/yr, Total Body dose.

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

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.)

2.0 SUPPLEMENTAL INFORMATION

2.1 Abnormal Releases or Abnormal Discharges

There were no abnormal (unplanned) releases or discharges from the site during the report period.

2.2 Non-Routine Planned Discharges

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

2.3 Radioactive Waste Treatment System Changes

No changes were made to the waste treatment system during the report period.

2.4 Annual Land Use Census Changes

There were two changes to the Land Use Census during 2013. Two gardens located in the West Northwest (WNW) sector at 4.0 and 4.2 miles from the plant site were identified during the Land Use Census. The garden located 4.0 miles from the plant is approximately 25' x 30' and grows sweet potatoes, lettuce, cabbage and greens. The garden located 4.2 miles from the plant is approximately 15' x 50' and grows tomatoes, lettuce and cabbage.

2.5 Effluent Monitoring System Inoperability

There were no effluent monitors out of service for greater than 30 days.

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2.6 Offsite Dose Calculation Manual Changes

Three revisions were made to the St. Lucie ODCM during the report period. The first revision was an administrative change to clarify the sample collection frequency for crustacean, fish and broad leaf vegetation.

The second and third revisions were to update procedure reference numbers, and did not change the intent of the procedure.

2.7 Process Control Program Changes

There were no changes to the Process Control Program during the report period.

2.8 Corrections to Previous Reports

None

2.9 Other

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

<u>Release start date</u>	<u>Volume of release</u>
May 23	3.24E4 gallons
June 6	3.30E6 gallons
September 12	3.19E6 gallons
September 24	1.42E6 gallons
November 21	9.09E6 gallons
December 6	3.19E6 gallons

2.10 Groundwater Protection Program (next 2 pages)

2013 PSL Ground Water Well Results for Annual Report

Sentinel Well ID	H3 Jan 2013	H3 Feb 2013	H3 Mar 2013	H3 Apr 2013	H3 May 2013	H3 June 2013	H3 July 2013	H3 Aug 2013	H3 Sept 2013	H3 OCT 2013	H3 NOV 2013	H3 Dec 2013
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		633			392			524			681	
MW-4	635	482	423	370	540			798			711	
MW-5		<MDC			<MDC			<MDC			<MDC	
MW-6	1710	1690	1830	1920	1520			1640			1450	
MW-7		<MDC			<MDC			<MDC			283	
MW-15		3050		1220	923			571			517	
MW-16		285			300			414			347	
MW-17	1110	1060	1230	2000	833			1680			726	
MW-18D	1400	1900	1350	1120	1010			832			688	
MW-19		<MDC			<MDC			<MDC			<MDC	
MW-22D		<MDC			459			403			213	
MW-26		<MDC			<MDC			<MDC			<MDC	
RW-2	392	498	440	272	419			201			338	
RW-4	<MDC	<MDC			<MDC			<MDC			<MDC	
RW-5		<MDC			<MDC			<MDC			<MDC	
MW-30		427			290			362			328	
MW-31		257			369			389			488	
MW-32		315			256			381			392	
MW-33	1100	1210	1130	1420	1030			1540			1410	

Monitor Well ID	H3 Jan 2013	H3 Feb 2013	H3 Mar 2013	H3 Apr 2013	H3 May 2013	H3 June 2013 3	H3 July 2013	H3 Aug 2013	H3 Sept 2013	H3 OCT 2013	H3 NOV 2013	H3 Dec 2013
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	557	468	302	<MDC	214			250			<MDC	
Unit 1-MW002	722	358	341	193	316			300			212	
Unit 1-MW003		176			<MDC			<MDC			230	
Unit 1-MW004		368			428			506			290	
Unit 1-MW005	822	789	2670	3080	1050			1210			539	
Unit 2-MW001	924	1200	1520	616	651			725			<MDC	
Unit 2-MW002	<MDC	<MDC	522		553			885			632	
Unit 2-MW003	506	417	607	538	446			461			689	
Unit 2-MW004	727	728	813	869	752			962			759	

2013 PSL Ground Water Well Results for Annual Report

Monitor Well ID	H3 Jan 2013	H3 Feb 2013	H3 Mar 2013	H3 Apr 2013	H3 May 2013	H3 June201 3	H3 July 2013	H3 Aug 2013	H3 Sept 2013	H3 OCT 2013	H3 NOV 2013	H3 Dec 2013
Mixed Plume	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
(S)-MW-1		<MDC			<MDC			<MDC			<MDC	
(S)-MW-2						Inactive Well						
(S)-MW-3						Inactive Well						
(S)-MW-4		449			489			446			426	
(S)-MW-5						Inactive Well						
(S)-MW-6		414			321			270			189	
(S)-MW-7A		<MDC			<MDC			<MDC			<MDC	
(S)-MW-10						Inactive Well						
(S)-MW-11		352			299			398			197	
(S)-MW-13D						Inactive Well						
(S)-MW-14						Inactive Well						
(S)-MW-15D		<MDC			<MDC			<MDC			<MDC	
(S)-MW-16		<MDC			<MDC			<MDC			<MDC	
(S)-MW-16i		<MDC			<MDC			<MDC			289	
(S)-MW-17		<MDC			<MDC			<MDC			<MDC	
(S)-MW-18		<MDC			<MDC			255			<MDC	
(S)-MW-19		<MDC			<MDC			<MDC			304	

Monitor Well ID	H3 Jan 2013	H3 Feb 2013	H3 Mar 2013	H3 Apr 2013	H3 May 2013	H3 June201 3	H3 July 2013	H3 Aug 2013	H3 Sept 2013	H3 OCT 2013	H3 NOV 2013	H3 Dec 2013
Neutralization Basin	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l	pCi/l
PSLED - 2				<MDC								
NB-MW-1				239								
NB-MW-2				<MDC								

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3.0 TABLES

3.1 Gaseous Effluents & Liquid Effluents (Enclosure 1, 24 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-2013 Ending: 31-Dec-2013

A. Liquid Batch Release Totals		Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year Totals
1. Number of Batch Releases			7	14	19	37	77
2. Total duration of batch releases	min		4.17E+03	8.12E+03	1.06E+04	2.91E+04	5.20E+04
3. Maximum batch release duration	min		7.10E+02	1.44E+03	8.75E+02	2.29E+03	2.29E+03
4. Average batch release duration	min		5.96E+02	5.80E+02	5.59E+02	7.86E+02	6.75E+02
5. Minimum batch release duration	min		5.05E+02	3.60E+02	2.95E+02	4.20E+02	2.95E+02
B. Gas Batch Release Totals		Units	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year Totals
1. Number of Batch Releases			61	62	57	48	228
2. Total duration of batch releases	min		1.20E+04	1.34E+04	1.29E+04	1.13E+04	4.96E+04
3. Maximum batch release duration	min		4.78E+02	7.47E+02	6.77E+02	7.20E+02	7.47E+02
4. Average batch release duration	min		1.96E+02	2.16E+02	2.27E+02	2.36E+02	2.18E+02
5. Minimum batch release duration	min		1.50E+01	1.70E+01	1.20E+01	1.00E+01	1.00E+01

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

Unit: Site

Starting: 1-Jan-2013 Ending: 31-Dec-2013

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-2013 Ending: 31-Dec-2013

Total Release	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual	Uncertainty
A. Fission and Activation Gases							
1. Total Release	Ci	2.10E+00	3.17E+00	1.10E+00	8.57E-01	7.23E+00	
2. Average Release Rate for Period	uCi/s	2.70E-01	4.03E-01	1.39E-01	1.08E-01	2.29E-01	
3. Percent of Limit	%						
B. Iodines and Halogens							
1. Total Release	Ci	0.00E+00	1.65E-08	0.00E+00	1.73E-05	1.73E-05	
2. Average Release Rate for Period	uCi/s	0.00E+00	2.09E-09	0.00E+00	2.17E-06	5.48E-07	
3. Percent of Limit	%						
C. Particulates							
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	1.43E-06	1.43E-06	
2. Average Release Rate for Period	uCi/s	0.00E+00	0.00E+00	0.00E+00	1.80E-07	4.53E-08	
3. Percent of Limit	%						
D. Tritium							
1. Total Release	Ci	1.73E+01	1.01E+01	6.35E-01	8.71E+00	3.68E+01	
2. Average Release Rate for Period	uCi/s	2.23E+00	1.29E+00	7.99E-02	1.10E+00	1.17E+00	
3. Percent of Limit	%						
E. Gross Alpha							
1. Total Release	Ci	1.14E-07	5.28E-09	1.37E-07	2.97E-08	2.86E-07	
F. Carbon-14							
1. Total Release	Ci	5.04E+00	5.55E+00	5.79E+00	4.07E+00	2.05E+01	
2. Average Release Rate for Period	uCi/s	6.49E-01	7.06E-01	7.28E-01	5.12E-01	6.48E-01	
3. Percent of Limit	%						

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

Unit: Site

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Nuclides Released	Units	Continuous Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
Xe-131m	Ci	0.00E+00	2.48E+00	0.00E+00	0.00E+00	2.48E+00
Xe-133	Ci	1.60E+00	0.00E+00	0.00E+00	0.00E+00	1.60E+00
Xe-135	Ci	0.00E+00	7.58E-02	0.00E+00	0.00E+00	7.58E-02
Total For Period	Ci	1.60E+00	2.56E+00	0.00E+00	0.00E+00	4.16E+00
B. Iodines and Halogens						
I-131	Ci	0.00E+00	1.65E-08	0.00E+00	5.95E-06	5.96E-06
I-133	Ci	0.00E+00	0.00E+00	0.00E+00	1.13E-05	1.13E-05
Total For Period	Ci	0.00E+00	1.65E-08	0.00E+00	1.73E-05	1.73E-05
C. Particulates						
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	1.43E-06	1.43E-06
D. Tritium						
H-3	Ci	1.72E+01	9.97E+00	0.00E+00	8.65E+00	3.58E+01
E. Gross Alpha						
G-Alpha	Ci	1.14E-07	5.28E-09	1.37E-07	2.97E-08	2.86E-07
F. Carbon-14						
C-14	Ci	5.04E+00	5.55E+00	5.79E+00	4.07E+00	2.05E+01

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

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Batch Mode**Unit: Site****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
Ar-41	Ci	4.07E-01	4.97E-01	5.13E-01	5.76E-01	1.99E+00
Kr-85m	Ci	3.91E-05	2.18E-04	0.00E+00	0.00E+00	2.57E-04
Kr-85	Ci	2.61E-02	0.00E+00	0.00E+00	0.00E+00	2.61E-02
Kr-87	Ci	1.37E-04	6.29E-04	3.57E-05	0.00E+00	8.02E-04
Kr-88	Ci	0.00E+00	6.98E-05	0.00E+00	0.00E+00	6.98E-05
Xe-131m	Ci	6.52E-04	1.81E-04	0.00E+00	1.87E-03	2.70E-03
Xe-133m	Ci	2.69E-03	3.66E-04	0.00E+00	4.48E-04	3.50E-03
Xe-133	Ci	4.97E-02	6.98E-02	5.60E-01	2.77E-01	9.57E-01
Xe-135m	Ci	9.28E-04	1.65E-04	0.00E+00	0.00E+00	1.09E-03
Xe-135	Ci	3.39E-03	1.74E-02	2.89E-02	1.69E-03	5.13E-02
Xe-137	Ci	9.42E-03	2.83E-02	0.00E+00	0.00E+00	3.78E-02
Xe-138	Ci	0.00E+00	5.87E-04	0.00E+00	0.00E+00	5.87E-04
Total For Period	Ci	5.00E-01	6.14E-01	1.10E+00	8.57E-01	3.07E+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	1.60E-01	1.44E-01	6.35E-01	5.91E-02	9.99E-01
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.

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Batch Mode**Unit: Site****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

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.

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

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

Unit: PSL1

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Total Release	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual	Uncertainty
A. Fission and Activation Gases							
1. Total Release	Ci	1.93E+00	4.29E-01	9.19E-01	5.60E-01	3.84E+00	
2. Average Release Rate for Period	uCi/s	2.48E-01	5.46E-02	1.16E-01	7.05E-02	1.22E-01	
3. Percent of Limit	%						
B. Iodines and Halogens							
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	1.02E-06	1.02E-06	
2. Average Release Rate for Period	uCi/s	0.00E+00	0.00E+00	0.00E+00	1.28E-07	3.23E-08	
3. Percent of Limit	%						
C. Particulates							
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
2. Average Release Rate for Period	uCi/s	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
3. Percent of Limit	%						
D. Tritium							
1. Total Release	Ci	1.66E+01	9.52E+00	4.31E-01	2.94E+00	2.95E+01	
2. Average Release Rate for Period	uCi/s	2.14E+00	1.21E+00	5.43E-02	3.70E-01	9.36E-01	
3. Percent of Limit	%						
E. Gross Alpha							
1. Total Release	Ci	2.64E-08	4.84E-09	3.15E-08	5.34E-09	6.81E-08	
F. Carbon-14							
1. Total Release	Ci	2.21E+00	2.84E+00	2.87E+00	1.23E+00	9.16E+00	
2. Average Release Rate for Period	uCi/s	2.84E-01	3.62E-01	3.61E-01	1.55E-01	2.90E-01	
3. Percent of Limit	%						

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

Unit: PSL1

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Nuclides Released	Units	Continuous Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
Xe-133	Ci	1.60E+00	0.00E+00	0.00E+00	0.00E+00	1.60E+00
B. Iodines and Halogens						
I-131	Ci	0.00E+00	0.00E+00	0.00E+00	1.02E-06	1.02E-06
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	1.65E+01	9.41E+00	0.00E+00	2.91E+00	2.88E+01
E. Gross Alpha						
G-Alpha	Ci	2.64E-08	4.84E-09	3.15E-08	5.34E-09	6.81E-08
F. Carbon-14						
C-14	Ci	2.21E+00	2.84E+00	2.87E+00	1.23E+00	9.16E+00

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

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Batch Mode**Unit: PSL1****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
Ar-41	Ci	2.66E-01	3.56E-01	3.62E-01	4.47E-01	1.43E+00
Kr-85m	Ci	3.33E-05	1.62E-04	0.00E+00	0.00E+00	1.95E-04
Kr-85	Ci	2.61E-02	0.00E+00	0.00E+00	0.00E+00	2.61E-02
Kr-87	Ci	1.28E-04	4.98E-04	0.00E+00	0.00E+00	6.27E-04
Xe-131m	Ci	6.52E-04	1.81E-04	0.00E+00	1.87E-03	2.70E-03
Xe-133m	Ci	2.69E-03	3.66E-04	0.00E+00	4.48E-04	3.50E-03
Xe-133	Ci	3.13E-02	4.28E-02	5.28E-01	1.11E-01	7.13E-01
Xe-135m	Ci	4.68E-04	1.65E-04	0.00E+00	0.00E+00	6.32E-04
Xe-135	Ci	2.99E-03	1.66E-02	2.86E-02	6.12E-05	4.83E-02
Xe-137	Ci	0.00E+00	1.24E-02	0.00E+00	0.00E+00	1.24E-02
Xe-138	Ci	0.00E+00	5.87E-04	0.00E+00	0.00E+00	5.87E-04
Total For Period	Ci	3.30E-01	4.29E-01	9.19E-01	5.60E-01	2.24E+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	1.38E-01	1.08E-01	4.31E-01	3.44E-02	7.12E-01
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.

User: Al Locke

[Server]: PLSA37 [Database]: NEPSOEMP

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Batch Mode**Unit: PSL1****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

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.

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

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

Unit: PSL2

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Total Release	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual	Uncertainty
A. Fission and Activation Gases							
1. Total Release	Ci	1.69E-01	2.74E+00	1.83E-01	2.96E-01	3.39E+00	
2. Average Release Rate for Period	uCi/s	2.18E-02	3.49E-01	2.31E-02	3.73E-02	1.08E-01	
3. Percent of Limit	%						
B. Iodines and Halogens							
1. Total Release	Ci	0.00E+00	1.65E-08	0.00E+00	1.63E-05	1.63E-05	
2. Average Release Rate for Period	uCi/s	0.00E+00	2.09E-09	0.00E+00	2.05E-06	5.16E-07	
3. Percent of Limit	%						
C. Particulates							
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00	1.43E-06	1.43E-06	
2. Average Release Rate for Period	uCi/s	0.00E+00	0.00E+00	0.00E+00	1.80E-07	4.53E-08	
3. Percent of Limit	%						
D. Tritium							
1. Total Release	Ci	6.90E-01	5.93E-01	2.04E-01	5.77E+00	7.26E+00	
2. Average Release Rate for Period	uCi/s	8.88E-02	7.55E-02	2.56E-02	7.26E-01	2.30E-01	
3. Percent of Limit	%						
E. Gross Alpha							
1. Total Release	Ci	8.76E-08	4.45E-10	1.06E-07	2.43E-08	2.18E-07	
F. Carbon-14							
1. Total Release	Ci	2.84E+00	2.71E+00	2.92E+00	2.84E+00	1.13E+01	
2. Average Release Rate for Period	uCi/s	3.65E-01	3.44E-01	3.67E-01	3.57E-01	3.58E-01	
3. Percent of Limit	%						

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

Unit: PSL2

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Nuclides Released	Units	Continuous Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
Xe-131m	Ci	0.00E+00	2.48E+00	0.00E+00	0.00E+00	2.48E+00
Xe-135	Ci	0.00E+00	7.58E-02	0.00E+00	0.00E+00	7.58E-02
Total For Period	Ci	0.00E+00	2.56E+00	0.00E+00	0.00E+00	2.56E+00
B. Iodines and Halogens						
I-131	Ci	0.00E+00	1.65E-08	0.00E+00	4.93E-06	4.94E-06
I-133	Ci	0.00E+00	0.00E+00	0.00E+00	1.13E-05	1.13E-05
Total For Period	Ci	0.00E+00	1.65E-08	0.00E+00	1.63E-05	1.63E-05
C. Particulates						
Co-60	Ci	0.00E+00	0.00E+00	0.00E+00	1.43E-06	1.43E-06
D. Tritium						
H-3	Ci	6.68E-01	5.57E-01	0.00E+00	5.74E+00	6.97E+00
E. Gross Alpha						
G-Alpha	Ci	8.76E-08	4.45E-10	1.06E-07	2.43E-08	2.18E-07
F. Carbon-14						
C-14	Ci	2.84E+00	2.71E+00	2.92E+00	2.84E+00	1.13E+01

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

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

Reg. Guide 1.21, Table 1B, Gaseous Effluents - Ground Level Release - Batch Mode**Unit: PSL2****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Gases						
Ar-41	Ci	1.41E-01	1.41E-01	1.50E-01	1.29E-01	5.61E-01
Kr-85m	Ci	5.80E-06	5.65E-05	0.00E+00	0.00E+00	6.23E-05
Kr-87	Ci	8.45E-06	1.31E-04	3.57E-05	0.00E+00	1.75E-04
Kr-88	Ci	0.00E+00	6.98E-05	0.00E+00	0.00E+00	6.98E-05
Xe-133	Ci	1.85E-02	2.71E-02	3.27E-02	1.66E-01	2.44E-01
Xe-135m	Ci	4.60E-04	0.00E+00	0.00E+00	0.00E+00	4.60E-04
Xe-135	Ci	4.08E-04	7.93E-04	2.54E-04	1.63E-03	3.09E-03
Xe-137	Ci	9.42E-03	1.59E-02	0.00E+00	0.00E+00	2.54E-02
Total For Period	Ci	1.69E-01	1.85E-01	1.83E-01	2.96E-01	8.34E-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	2.19E-02	3.61E-02	2.04E-01	2.48E-02	2.87E-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.

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

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

Unit: Site

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Total Release	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual	Uncertainty
A. Fission and Activation Products							
1. Total Release	Ci	5.51E-03	2.11E-03	7.45E-03	2.62E-02	4.13E-02	
2. Average Concentration	uCi/mL	3.40E-10	7.84E-11	1.86E-10	2.80E-10	2.33E-10	
3. Percent of Limit	%						
B. Tritium							
1. Total Release	Ci	5.01E+01	6.91E+01	1.53E+02	2.72E+02	5.44E+02	
2. Average Concentration	uCi/mL	3.09E-06	2.57E-06	3.81E-06	2.90E-06	3.07E-06	
3. Percent of Limit	%						
C. Dissolved and Entrained Gases							
1. Total Release	Ci	1.15E-04	1.54E-04	5.11E-04	1.28E-02	1.36E-02	
2. Average Concentration	uCi/mL	7.08E-12	5.72E-12	1.28E-11	1.36E-10	7.66E-11	
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	6.34E+05	1.85E+07	1.49E+06	3.08E+06	2.37E+07	
F. Dilution Volume							
1. Total Release	Liters	1.62E+10	2.68E+10	4.01E+10	9.39E+10	1.77E+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-2013 Ending: 31-Dec-2013

Total Release	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual	Uncertainty
A. Fission and Activation Products							
1. Total Release	Ci	2.76E-03	1.05E-03	3.73E-03	1.31E-02	2.07E-02	
2. Average Concentration	uCi/mL	3.40E-10	7.84E-11	1.86E-10	2.80E-10	2.33E-10	
3. Percent of Limit	%						
B. Tritium							
1. Total Release	Ci	2.51E+01	3.45E+01	7.64E+01	1.36E+02	2.72E+02	
2. Average Concentration	uCi/mL	3.09E-06	2.57E-06	3.81E-06	2.90E-06	3.07E-06	
3. Percent of Limit	%						
C. Dissolved and Entrained Gases							
1. Total Release	Ci	5.74E-05	7.68E-05	2.56E-04	6.39E-03	6.78E-03	
2. Average Concentration	uCi/mL	7.08E-12	5.72E-12	1.28E-11	1.36E-10	7.66E-11	
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	3.17E+05	9.27E+06	7.43E+05	1.54E+06	1.19E+07	
F. Dilution Volume							
1. Total Release	Liters	8.10E+09	1.34E+10	2.00E+10	4.70E+10	8.85E+10	
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-2013 Ending: 31-Dec-2013

Total Release	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual	Uncertainty
A. Fission and Activation Products							
1. Total Release	Ci	2.76E-03	1.05E-03	3.73E-03	1.31E-02	2.07E-02	
2. Average Concentration	uCi/mL	3.40E-10	7.84E-11	1.86E-10	2.80E-10	2.33E-10	
3. Percent of Limit	%						
B. Tritium							
1. Total Release	Ci	2.51E+01	3.45E+01	7.64E+01	1.36E+02	2.72E+02	
2. Average Concentration	uCi/mL	3.09E-06	2.57E-06	3.81E-06	2.90E-06	3.07E-06	
3. Percent of Limit	%						
C. Dissolved and Entrained Gases							
1. Total Release	Ci	5.74E-05	7.68E-05	2.56E-04	6.39E-03	6.78E-03	
2. Average Concentration	uCi/mL	7.08E-12	5.72E-12	1.28E-11	1.36E-10	7.66E-11	
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	3.17E+05	9.27E+06	7.43E+05	1.54E+06	1.19E+07	
F. Dilution Volume							
1. Total Release	Liters	8.10E+09	1.34E+10	2.00E+10	4.70E+10	8.85E+10	
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 - Batch Mode**Unit: PSL1****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Products						
C-14	Ci	8.12E-04	0.00E+00	1.41E-03	1.01E-02	1.23E-02
Cr-51	Ci	0.00E+00	6.48E-05	0.00E+00	1.41E-04	2.05E-04
Mn-54	Ci	2.32E-05	2.92E-05	3.09E-05	3.78E-05	1.21E-04
Fe-55	Ci	1.35E-03	0.00E+00	0.00E+00	0.00E+00	1.35E-03
Fe-59	Ci	1.41E-05	6.87E-06	1.89E-06	6.81E-06	2.97E-05
Co-57	Ci	0.00E+00	1.36E-06	1.04E-06	0.00E+00	2.41E-06
Co-58	Ci	1.49E-04	2.71E-04	2.08E-04	7.39E-04	1.37E-03
Co-60	Ci	1.88E-04	2.45E-04	4.17E-04	4.54E-04	1.30E-03
Zn-65	Ci	8.87E-06	1.37E-06	6.36E-06	1.44E-05	3.10E-05
Sr-91	Ci	0.00E+00	0.00E+00	8.63E-06	3.08E-06	1.17E-05
Zr-95	Ci	2.04E-05	2.04E-05	1.23E-05	5.53E-05	1.08E-04
Zr-97	Ci	0.00E+00	0.00E+00	0.00E+00	3.76E-05	3.76E-05
Nb-95	Ci	3.91E-05	4.93E-05	1.76E-05	1.15E-04	2.21E-04
Nb-97	Ci	3.45E-05	6.76E-05	8.07E-04	4.54E-04	1.36E-03
Tc-99m	Ci	0.00E+00	1.26E-06	0.00E+00	0.00E+00	1.26E-06
Ru-103	Ci	0.00E+00	0.00E+00	0.00E+00	6.23E-07	6.23E-07
Ag-110m	Ci	3.62E-05	6.51E-05	6.05E-04	3.52E-04	1.06E-03
Sn-113	Ci	0.00E+00	0.00E+00	0.00E+00	2.78E-06	2.78E-06
Sb-124	Ci	0.00E+00	6.19E-06	3.36E-06	6.98E-05	7.93E-05
Sb-125	Ci	5.43E-05	7.69E-05	1.54E-04	2.42E-04	5.27E-04
Te-129m	Ci	0.00E+00	1.32E-04	0.00E+00	1.36E-04	2.69E-04
Te-132	Ci	0.00E+00	0.00E+00	0.00E+00	8.58E-05	8.58E-05
I-130	Ci	0.00E+00	2.14E-06	0.00E+00	0.00E+00	2.14E-06
I-131	Ci	2.45E-06	1.78E-06	4.37E-06	5.41E-06	1.40E-05
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	7.59E-05	7.59E-05
I-133	Ci	2.57E-06	0.00E+00	3.60E-06	3.28E-06	9.45E-06

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

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

Reg. Guide 1.21, Table 2B, Liquid Effluents - Batch Mode**Unit: PSL1****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
I-134	Ci	0.00E+00	0.00E+00	3.45E-06	0.00E+00	3.45E-06
I-135	Ci	0.00E+00	0.00E+00	3.42E-06	3.99E-06	7.41E-06
Cs-136	Ci	0.00E+00	4.91E-06	1.36E-06	1.34E-06	7.61E-06
Cs-137	Ci	7.52E-06	0.00E+00	0.00E+00	5.25E-06	1.28E-05
Cs-138	Ci	0.00E+00	0.00E+00	1.43E-05	0.00E+00	1.43E-05
Ba-140	Ci	1.23E-05	0.00E+00	0.00E+00	7.15E-06	1.95E-05
La-140	Ci	0.00E+00	0.00E+00	8.72E-06	4.70E-06	1.34E-05
W-187	Ci	0.00E+00	4.75E-06	0.00E+00	0.00E+00	4.75E-06
Total For Period	Ci	2.76E-03	1.05E-03	3.73E-03	1.31E-02	2.07E-02
B. Tritium						
H-3	Ci	2.51E+01	3.45E+01	7.64E+01	1.36E+02	2.72E+02
C. Dissolved and Entrained Gases						
Ar-41	Ci	0.00E+00	0.00E+00	1.89E-06	0.00E+00	1.89E-06
Kr-87	Ci	0.00E+00	0.00E+00	0.00E+00	8.66E-07	8.66E-07
Xe-131m	Ci	0.00E+00	0.00E+00	0.00E+00	6.52E-05	6.52E-05
Xe-133m	Ci	0.00E+00	0.00E+00	0.00E+00	1.94E-05	1.94E-05
Xe-133	Ci	4.59E-05	6.55E-05	1.94E-04	6.29E-03	6.60E-03
Xe-135	Ci	1.14E-05	1.13E-05	5.95E-05	1.49E-05	9.71E-05
Total For Period	Ci	5.74E-05	7.68E-05	2.56E-04	6.39E-03	6.78E-03
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.

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

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

Unit: PSL2

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Total Release	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual	Uncertainty
A. Fission and Activation Products							
1. Total Release	Ci	2.76E-03	1.05E-03	3.73E-03	1.31E-02	2.07E-02	
2. Average Concentration	uCi/mL	3.40E-10	7.84E-11	1.86E-10	2.80E-10	2.33E-10	
3. Percent of Limit	%						
B. Tritium							
1. Total Release	Ci	2.51E+01	3.45E+01	7.64E+01	1.36E+02	2.72E+02	
2. Average Concentration	uCi/mL	3.09E-06	2.57E-06	3.81E-06	2.90E-06	3.07E-06	
3. Percent of Limit	%						
C. Dissolved and Entrained Gases							
1. Total Release	Ci	5.74E-05	7.68E-05	2.56E-04	6.39E-03	6.78E-03	
2. Average Concentration	uCi/mL	7.08E-12	5.72E-12	1.28E-11	1.36E-10	7.66E-11	
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	3.17E+05	9.27E+06	7.43E+05	1.54E+06	1.19E+07	
F. Dilution Volume							
1. Total Release	Liters	8.10E+09	1.34E+10	2.00E+10	4.70E+10	8.85E+10	
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 - Batch Mode**Unit: PSL2****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Products						
C-14	Ci	8.12E-04	0.00E+00	1.41E-03	1.01E-02	1.23E-02
Cr-51	Ci	0.00E+00	6.48E-05	0.00E+00	1.41E-04	2.05E-04
Mn-54	Ci	2.32E-05	2.92E-05	3.09E-05	3.78E-05	1.21E-04
Fe-55	Ci	1.35E-03	0.00E+00	0.00E+00	0.00E+00	1.35E-03
Fe-59	Ci	1.41E-05	6.87E-06	1.89E-06	6.81E-06	2.97E-05
Co-57	Ci	0.00E+00	1.36E-06	1.04E-06	0.00E+00	2.41E-06
Co-58	Ci	1.49E-04	2.71E-04	2.08E-04	7.39E-04	1.37E-03
Co-60	Ci	1.88E-04	2.45E-04	4.17E-04	4.54E-04	1.30E-03
Zn-65	Ci	8.87E-06	1.37E-06	6.36E-06	1.44E-05	3.10E-05
Sr-91	Ci	0.00E+00	0.00E+00	8.63E-06	3.08E-06	1.17E-05
Zr-95	Ci	2.04E-05	2.04E-05	1.23E-05	5.53E-05	1.08E-04
Zr-97	Ci	0.00E+00	0.00E+00	0.00E+00	3.76E-05	3.76E-05
Nb-95	Ci	3.91E-05	4.93E-05	1.76E-05	1.15E-04	2.21E-04
Nb-97	Ci	3.45E-05	6.76E-05	8.07E-04	4.54E-04	1.36E-03
Tc-99m	Ci	0.00E+00	1.26E-06	0.00E+00	0.00E+00	1.26E-06
Ru-103	Ci	0.00E+00	0.00E+00	0.00E+00	6.23E-07	6.23E-07
Ag-110m	Ci	3.62E-05	6.51E-05	6.05E-04	3.52E-04	1.06E-03
Sn-113	Ci	0.00E+00	0.00E+00	0.00E+00	2.78E-06	2.78E-06
Sb-124	Ci	0.00E+00	6.19E-06	3.36E-06	6.98E-05	7.93E-05
Sb-125	Ci	5.43E-05	7.69E-05	1.54E-04	2.42E-04	5.27E-04
Te-129m	Ci	0.00E+00	1.32E-04	0.00E+00	1.36E-04	2.69E-04
Te-132	Ci	0.00E+00	0.00E+00	0.00E+00	8.58E-05	8.58E-05
I-130	Ci	0.00E+00	2.14E-06	0.00E+00	0.00E+00	2.14E-06
I-131	Ci	2.45E-06	1.78E-06	4.37E-06	5.41E-06	1.40E-05
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	7.59E-05	7.59E-05
I-133	Ci	2.57E-06	0.00E+00	3.60E-06	3.28E-06	9.45E-06

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

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

Reg. Guide 1.21, Table 2B, Liquid Effluents - Batch Mode**Unit: PSL2****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
I-134	Ci	0.00E+00	0.00E+00	3.45E-06	0.00E+00	3.45E-06
I-135	Ci	0.00E+00	0.00E+00	3.42E-06	3.99E-06	7.41E-06
Cs-136	Ci	0.00E+00	4.91E-06	1.36E-06	1.34E-06	7.61E-06
Cs-137	Ci	7.52E-06	0.00E+00	0.00E+00	5.25E-06	1.28E-05
Cs-138	Ci	0.00E+00	0.00E+00	1.43E-05	0.00E+00	1.43E-05
Ba-140	Ci	1.23E-05	0.00E+00	0.00E+00	7.15E-06	1.95E-05
La-140	Ci	0.00E+00	0.00E+00	8.72E-06	4.70E-06	1.34E-05
W-187	Ci	0.00E+00	4.75E-06	0.00E+00	0.00E+00	4.75E-06
Total For Period	Ci	2.76E-03	1.05E-03	3.73E-03	1.31E-02	2.07E-02
B. Tritium						
H-3	Ci	2.51E+01	3.45E+01	7.64E+01	1.36E+02	2.72E+02
C. Dissolved and Entrained Gases						
Ar-41	Ci	0.00E+00	0.00E+00	1.89E-06	0.00E+00	1.89E-06
Kr-87	Ci	0.00E+00	0.00E+00	0.00E+00	8.66E-07	8.66E-07
Xe-131m	Ci	0.00E+00	0.00E+00	0.00E+00	6.52E-05	6.52E-05
Xe-133m	Ci	0.00E+00	0.00E+00	0.00E+00	1.94E-05	1.94E-05
Xe-133	Ci	4.59E-05	6.55E-05	1.94E-04	6.29E-03	6.60E-03
Xe-135	Ci	1.14E-05	1.13E-05	5.95E-05	1.49E-05	9.71E-05
Total For Period	Ci	5.74E-05	7.68E-05	2.56E-04	6.39E-03	6.78E-03
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.

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

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

Unit: Site

Starting: 1-Jan-2013 Ending: 31-Dec-2013

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.

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

Reg. Guide 1.21, Table 2B, Liquid Effluents - Batch Mode**Unit: Site****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
A. Fission and Activation Products						
C-14	Ci	1.62E-03	0.00E+00	2.83E-03	2.01E-02	2.46E-02
Cr-51	Ci	0.00E+00	1.30E-04	0.00E+00	2.81E-04	4.11E-04
Mn-54	Ci	4.65E-05	5.84E-05	6.19E-05	7.57E-05	2.42E-04
Fe-55	Ci	2.70E-03	0.00E+00	0.00E+00	0.00E+00	2.70E-03
Fe-59	Ci	2.82E-05	1.37E-05	3.77E-06	1.36E-05	5.94E-05
Co-57	Ci	0.00E+00	2.73E-06	2.09E-06	0.00E+00	4.82E-06
Co-58	Ci	2.97E-04	5.42E-04	4.17E-04	1.48E-03	2.73E-03
Co-60	Ci	3.77E-04	4.90E-04	8.35E-04	9.08E-04	2.61E-03
Zn-65	Ci	1.77E-05	2.75E-06	1.27E-05	2.88E-05	6.20E-05
Sr-91	Ci	0.00E+00	0.00E+00	1.73E-05	6.17E-06	2.34E-05
Zr-95	Ci	4.08E-05	4.09E-05	2.45E-05	1.11E-04	2.17E-04
Zr-97	Ci	0.00E+00	0.00E+00	0.00E+00	7.53E-05	7.53E-05
Nb-95	Ci	7.82E-05	9.85E-05	3.53E-05	2.30E-04	4.42E-04
Nb-97	Ci	6.90E-05	1.35E-04	1.61E-03	9.07E-04	2.73E-03
Tc-99m	Ci	0.00E+00	2.53E-06	0.00E+00	0.00E+00	2.53E-06
Ru-103	Ci	0.00E+00	0.00E+00	0.00E+00	1.25E-06	1.25E-06
Ag-110m	Ci	7.25E-05	1.30E-04	1.21E-03	7.04E-04	2.12E-03
Sn-113	Ci	0.00E+00	0.00E+00	0.00E+00	5.55E-06	5.55E-06
Sb-124	Ci	0.00E+00	1.24E-05	6.71E-06	1.40E-04	1.59E-04
Sb-125	Ci	1.09E-04	1.54E-04	3.08E-04	4.83E-04	1.05E-03
Te-129m	Ci	0.00E+00	2.65E-04	0.00E+00	2.73E-04	5.38E-04
Te-132	Ci	0.00E+00	0.00E+00	0.00E+00	1.72E-04	1.72E-04
I-130	Ci	0.00E+00	4.29E-06	0.00E+00	0.00E+00	4.29E-06
I-131	Ci	4.90E-06	3.56E-06	8.74E-06	1.08E-05	2.80E-05
I-132	Ci	0.00E+00	0.00E+00	0.00E+00	1.52E-04	1.52E-04
I-133	Ci	5.15E-06	0.00E+00	7.21E-06	6.56E-06	1.89E-05

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

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

Reg. Guide 1.21, Table 2B, Liquid Effluents - Batch Mode**Unit: Site****Starting: 1-Jan-2013 Ending: 31-Dec-2013**

Nuclides Released	Units	Batch Mode				
		1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
I-134	Ci	0.00E+00	0.00E+00	6.90E-06	0.00E+00	6.90E-06
I-135	Ci	0.00E+00	0.00E+00	6.84E-06	7.97E-06	1.48E-05
Cs-136	Ci	0.00E+00	9.82E-06	2.73E-06	2.68E-06	1.52E-05
Cs-137	Ci	1.50E-05	0.00E+00	0.00E+00	1.05E-05	2.55E-05
Cs-138	Ci	0.00E+00	0.00E+00	2.87E-05	0.00E+00	2.87E-05
Ba-140	Ci	2.47E-05	0.00E+00	0.00E+00	1.43E-05	3.90E-05
La-140	Ci	0.00E+00	0.00E+00	1.74E-05	9.40E-06	2.68E-05
W-187	Ci	0.00E+00	9.51E-06	0.00E+00	0.00E+00	9.51E-06
Total For Period	Ci	5.51E-03	2.11E-03	7.45E-03	2.62E-02	4.13E-02
B. Tritium						
H-3	Ci	5.01E+01	6.91E+01	1.53E+02	2.72E+02	5.44E+02
C. Dissolved and Entrained Gases						
Ar-41	Ci	0.00E+00	0.00E+00	3.79E-06	0.00E+00	3.79E-06
Kr-87	Ci	0.00E+00	0.00E+00	0.00E+00	1.73E-06	1.73E-06
Xe-131m	Ci	0.00E+00	0.00E+00	0.00E+00	1.30E-04	1.30E-04
Xe-133m	Ci	0.00E+00	0.00E+00	0.00E+00	3.87E-05	3.87E-05
Xe-133	Ci	9.19E-05	1.31E-04	3.89E-04	1.26E-02	1.32E-02
Xe-135	Ci	2.29E-05	2.26E-05	1.19E-04	2.97E-05	1.94E-04
Total For Period	Ci	1.15E-04	1.54E-04	5.11E-04	1.28E-02	1.36E-02
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.

User: Al Locke

[Server]: PSLSA37 [Database]: NEPSOEMP

NRC Regulatory Guide 1.21 Reports

Page 1

Report Date : 2/11/2014

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2013 to 12/31/2013 Percent Cutoff: 1

Waste Stream : Resins, Filters, and Evap Bottoms

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft^3	M^3		
A	2.92E+02	8.27E+00	1.14E+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	2.92E+02	8.27E+00	1.14E+01	+/- 25%

Waste Stream : Dry Active Waste
DAW 48' Equip DAW 20' Sealand

Waste Class	Volume		Curies Shipped	%Error (Ci)
	Ft^3	M^3		
A	2.05E+04	5.81E+02	1.11E+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	2.05E+04	5.81E+02	1.11E+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%

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Report Date : 2/11/2014

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2013 to 12/31/2013 Percent Cutoff: 1

Waste Stream : Other Waste

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%

Waste Stream : Sum of All 4 Categories
DAW 48' Equip DAW 20' Sealand

Waste Class	Volume		Curies Shipped	% Error (Ci)
	Ft^3	M^3		
A	2.08E+04	5.89E+02	1.25E+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	2.08E+04	5.89E+02	1.25E+01	+/-25%

-Combined Waste Type Shipment, Major Volume Waste Type Shown

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Report Date : 2/11/2014

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2013 to 12/31/2013

Number of Shipments	Mode of Transportation	Destination
11	Hittman Transport (TN)	EnergySolutions Bear Creek
2	Hittman Transport (SC)	EnergySolutions LLC.

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Report Date : 2/11/2014

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2013 to 12/31/2013 Percent Cutoff: 1

Resins, Filters, and Evap Bottom		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	10.030%	1.14E+00
C-14	2.922%	3.32E-01
Mn-54	2.670%	3.04E-01
Fe-55	22.869%	2.60E+00
Co-58	14.913%	1.70E+00
Co-60	13.896%	1.58E+00
Ni-63	25.629%	2.91E+00
Zn-65	1.096%	1.25E-01
Ag-110m	1.605%	1.82E-01
Sb-125	2.891%	3.29E-01
Resins, Filters, and Evap Bottom		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	10.030%	1.14E+00
C-14	2.922%	3.32E-01
Mn-54	2.670%	3.04E-01
Fe-55	22.869%	2.60E+00
Co-58	14.913%	1.70E+00
Co-60	13.896%	1.58E+00
Ni-63	25.629%	2.91E+00
Zn-65	1.096%	1.25E-01
Ag-110m	1.605%	1.82E-01
Sb-125	2.891%	3.29E-01
Dry Active Waste		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	53.082%	5.90E-01
Fe-55	17.451%	1.94E-01
Co-58	6.393%	7.10E-02
Co-60	6.881%	7.64E-02
Ni-63	9.693%	1.08E-01
Cs-137	1.601%	1.78E-02
Dry Active Waste		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	53.082%	5.90E-01
Fe-55	17.451%	1.94E-01
Co-58	6.393%	7.10E-02
Co-60	6.881%	7.64E-02
Ni-63	9.693%	1.08E-01
Cs-137	1.601%	1.78E-02
Sum of All 4 Categories		
Waste Class A		

NRC Regulatory Guide 1.21 Reports

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Report Date : 2/11/2014

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2013 to 12/31/2013 Percent Cutoff: 1

Nuclide Name	Percent Abundance	Curies
H-3	13.862%	1.73E+00
C-14	2.666%	3.33E-01
Mn-54	2.502%	3.12E-01
Fe-55	22.387%	2.79E+00
Co-58	14.154%	1.77E+00
Co-60	13.271%	1.66E+00
Ni-63	24.211%	3.02E+00
Zn-65	1.007%	1.26E-01
Ag-110m	1.503%	1.88E-01
Sb-125	2.675%	3.34E-01
Sum of All 4 Categories		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	13.862%	1.73E+00
C-14	2.666%	3.33E-01
Mn-54	2.502%	3.12E-01
Fe-55	22.387%	2.79E+00
Co-58	14.154%	1.77E+00
Co-60	13.271%	1.66E+00
Ni-63	24.211%	3.02E+00
Zn-65	1.007%	1.26E-01
Ag-110m	1.503%	1.88E-01
Sb-125	2.675%	3.34E-01

NRC Regulatory Guide 1.21 Reports

Page 1

Report Date : 2/11/2014

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2013 to 12/31/2013

Manifest Number	Date Shipped	Waste Volume Used	Burial volume Used
FPL/PSL 13-058	10/10/2013	Yes	
FPL/PSL 13-046	7/26/2013	Yes	
FPL/PSL 13-044	7/24/2013	Yes	
FPL/PSL 13-043	7/23/2013	Yes	
FPL/PSL 13-038	7/11/2013	Yes	
FPL/PSL 13-036	7/10/2013	Yes	
FPS/PSL 13-031	6/13/2013	Yes	
FPL/PSL 13-025	5/22/2013	Yes	
FPL/PSL 13-026	5/22/2013	Yes	
FPL/PSL-13-018	5/13/2013	Yes	
FPL/PSL 13-016	4/25/2013	Yes	
FPL/PSL 13-013	4/10/2013	Yes	
FPL/PSL 13-012	4/10/2013	Yes	

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

Unit: Site

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Organ Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	1.69E-01	1.86E-01	1.94E-01	1.36E-01	6.85E-01
Limit	mRem					
Percent of Limit	%					
Liver	mRem	1.73E-01	1.88E-01	1.94E-01	1.38E-01	6.94E-01
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	1.73E-01	1.88E-01	1.94E-01	1.38E-01	6.94E-01
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	1.73E-01	1.88E-01	1.94E-01	1.40E-01	6.96E-01
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	2.20E-02	2.32E-02	2.30E-02	1.71E-02	8.53E-02
Limit	mRem					
Percent of Limit	%					
Lung	mRem	1.73E-01	1.88E-01	1.94E-01	1.38E-01	6.94E-01
Limit	mRem					
Percent of Limit	%					
GI-Lli	mRem	1.73E-01	1.88E-01	1.94E-01	1.38E-01	6.94E-01
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2013

Site/Unit/Discharge Point: Site

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	6.849E-01	6.939E-01	6.939E-01	6.956E-01	8.533E-02	6.939E-01	6.939E-01	0.000E+00
WNW Site Boundary - I	Infant	1.681E-06	1.681E-06	1.681E-06	1.681E-06	1.681E-06	1.681E-06	1.681E-06	0.000E+00
Maximum Doserate by Organ:		6.849E-01	6.939E-01	6.939E-01	6.956E-01	8.533E-02	6.939E-01	6.939E-01	0.000E+00

Maximum Organ Doserate (mRem/yr): 6.956E-01

Maximum Total Body Doserate (mRem/yr): 6.939E-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	2.353E-03	1.325E-03	2.216E-03	3.456E-03
WNW Site Boundary	8.799E-04	5.610E-04	8.254E-04	1.321E-03
Maximum NG Dose Rate:	2.353E-03	1.325E-03	2.216E-03	3.456E-03

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

Unit: PSL1

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Organ Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	7.40E-02	9.52E-02	9.62E-02	4.12E-02	3.07E-01
Limit	mRem					
Percent of Limit	%					
Liver	mRem	7.83E-02	9.77E-02	9.62E-02	4.19E-02	3.14E-01
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	7.83E-02	9.77E-02	9.62E-02	4.19E-02	3.14E-01
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	7.83E-02	9.77E-02	9.62E-02	4.22E-02	3.14E-01
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	1.07E-02	1.24E-02	1.14E-02	5.22E-03	3.97E-02
Limit	mRem					
Percent of Limit	%					
Lung	mRem	7.83E-02	9.77E-02	9.62E-02	4.19E-02	3.14E-01
Limit	mRem					
Percent of Limit	%					
GI-Li	mRem	7.83E-02	9.77E-02	9.62E-02	4.19E-02	3.14E-01
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2013

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-LI	Skin
NW Site Boundary - In	Infant	3.066E-01	3.141E-01	3.141E-01	3.144E-01	3.972E-02	3.141E-01	3.141E-01	0.000E+00
WNW Site Boundary - I	Infant	6.509E-09	6.509E-09	6.509E-09	6.509E-09	6.509E-09	6.509E-09	6.509E-09	0.000E+00
Maximum Doserate by Organ:		3.066E-01	3.141E-01	3.141E-01	3.144E-01	3.972E-02	3.141E-01	3.141E-01	0.000E+00

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

Maximum Total Body Doserate (mRem/yr): 3.141E-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	1.692E-03	8.878E-04	1.597E-03	2.437E-03
WNW Site Boundary	6.226E-04	3.263E-04	5.876E-04	8.967E-04
Maximum NG Dose Rate:	1.692E-03	8.878E-04	1.597E-03	2.437E-03

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

Unit: PSL2

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Organ Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	9.49E-02	9.06E-02	9.76E-02	9.51E-02	3.78E-01
Limit	mRem					
Percent of Limit	%					
Liver	mRem	9.50E-02	9.07E-02	9.76E-02	9.65E-02	3.80E-01
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	9.50E-02	9.07E-02	9.76E-02	9.65E-02	3.80E-01
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	9.50E-02	9.07E-02	9.76E-02	9.79E-02	3.81E-01
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	1.13E-02	1.08E-02	1.16E-02	1.19E-02	4.56E-02
Limit	mRem					
Percent of Limit	%					
Lung	mRem	9.50E-02	9.07E-02	9.76E-02	9.65E-02	3.80E-01
Limit	mRem					
Percent of Limit	%					
GI-Li	mRem	9.50E-02	9.07E-02	9.76E-02	9.65E-02	3.80E-01
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2013

Site/Unit/Discharge Point: PSL2

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	3.783E-01	3.798E-01	3.798E-01	3.812E-01	4.561E-02	3.798E-01	3.798E-01	0.000E+00
WNW Site Boundary - I	Infant	1.675E-06	1.675E-06	1.675E-06	1.675E-06	1.675E-06	1.675E-06	1.675E-06	0.000E+00
Maximum Doserate by Organ:		3.783E-01	3.798E-01	3.798E-01	3.812E-01	4.561E-02	3.798E-01	3.798E-01	0.000E+00

Maximum Organ Doserate (mRem/yr): 3.812E-01

Maximum Total Body Doserate (mRem/yr): 3.798E-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	6.609E-04	4.372E-04	6.197E-04	1.019E-03
WNW Site Boundary	2.572E-04	2.347E-04	2.378E-04	4.239E-04
Maximum NG Dose Rate:	6.609E-04	4.372E-04	6.197E-04	1.019E-03

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

Unit: Site

Starting: 1-Jan-2013 Ending: 31-Dec-2013

NG Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Gamma Air	mRad	5.24E-04	5.91E-04	5.88E-04	6.50E-04	2.35E-03
Limit	mRad					
Percent of Limit	%					
Beta Air	mRad	3.88E-04	4.01E-04	2.75E-04	2.61E-04	1.32E-03
Limit	mRad					
Percent of Limit	%					
NG Total Body	mRem	4.89E-04	5.54E-04	5.56E-04	6.17E-04	2.22E-03
Limit	mRem					
Percent of Limit	%					
NG Skin	mRem	7.86E-04	9.25E-04	8.35E-04	9.11E-04	3.46E-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-2013 Ending: 31-Dec-2013

NG Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Gamma Air	mRad	3.65E-04	4.03E-04	4.24E-04	5.00E-04	1.69E-03
Limit	mRad					
Percent of Limit	%					
Beta Air	mRad	3.16E-04	1.69E-04	2.14E-04	1.89E-04	8.88E-04
Limit	mRad					
Percent of Limit	%					
NG Total Body	mRem	3.39E-04	3.83E-04	4.00E-04	4.75E-04	1.60E-03
Limit	mRem					
Percent of Limit	%					
NG Skin	mRem	5.51E-04	5.82E-04	6.06E-04	6.97E-04	2.44E-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-2013 Ending: 31-Dec-2013

NG Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Gamma Air	mRad	1.59E-04	1.88E-04	1.64E-04	1.50E-04	6.61E-04
Limit	mRad					
Percent of Limit	%					
Beta Air	mRad	7.18E-05	2.32E-04	6.14E-05	7.16E-05	4.37E-04
Limit	mRad					
Percent of Limit	%					
NG Total Body	mRem	1.51E-04	1.71E-04	1.56E-04	1.42E-04	6.20E-04
Limit	mRem					
Percent of Limit	%					
NG Skin	mRem	2.34E-04	3.44E-04	2.29E-04	2.13E-04	1.02E-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-2013 Ending: 31-Dec-2013

Ogan Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	4.48E-03	2.98E-05	2.28E-04	2.48E-03	6.78E-03
Limit	mRem					
Percent of Limit	%					
Liver	mRem	1.99E-02	3.52E-04	9.08E-04	4.28E-03	2.55E-02
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	5.52E-03	3.38E-04	8.78E-04	4.14E-03	1.08E-02
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	2.93E-04	2.76E-04	7.68E-04	3.86E-03	5.09E-03
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	4.17E-04	3.71E-04	9.78E-04	4.01E-03	5.77E-03
Limit	mRem					
Percent of Limit	%					
Lung	mRem	2.28E-02	3.31E-04	8.62E-04	3.95E-03	2.78E-02
Limit	mRem					
Percent of Limit	%					
GI-Li	mRem	1.06E-02	3.19E-03	1.16E-02	2.08E-02	4.61E-02
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2013

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	6.781E-03	2.546E-02	1.077E-02	4.946E-03	5.772E-03	2.783E-02	4.612E-02	0.000E+00
Liquid Receptor - Child	Child	4.776E-03	1.415E-02	7.831E-03	5.092E-03	2.510E-03	1.516E-02	2.211E-02	0.000E+00
Maximum Dose by Organ:		6.781E-03	2.546E-02	1.077E-02	5.092E-03	5.772E-03	2.783E-02	4.612E-02	0.000E+00

Maximum Organ Dose (mRem): 4.612E-02

Maximum Total Body Dose (mRem): 1.077E-02

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

Unit: PSL1

Starting: 1-Jan-2013 Ending: 31-Dec-2013

Ogan Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	2.24E-03	1.49E-05	1.14E-04	1.24E-03	3.39E-03
Limit	mRem					
Percent of Limit	%					
Liver	mRem	9.96E-03	1.76E-04	4.54E-04	2.14E-03	1.27E-02
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	2.76E-03	1.69E-04	4.39E-04	2.07E-03	5.38E-03
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	1.47E-04	1.38E-04	3.84E-04	1.93E-03	2.55E-03
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	2.09E-04	1.85E-04	4.89E-04	2.00E-03	2.89E-03
Limit	mRem					
Percent of Limit	%					
Lung	mRem	1.14E-02	1.65E-04	4.31E-04	1.97E-03	1.39E-02
Limit	mRem					
Percent of Limit	%					
GI-Li	mRem	5.28E-03	1.59E-03	5.80E-03	1.04E-02	2.31E-02
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2013

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-Lli</u>	<u>Skin</u>
Liquid Receptor - Teenager	Teenager	3.391E-03	1.273E-02	5.384E-03	2.473E-03	2.886E-03	1.391E-02	2.306E-02	0.000E+00
Liquid Receptor - Child	Child	2.388E-03	7.076E-03	3.915E-03	2.546E-03	1.255E-03	7.578E-03	1.105E-02	0.000E+00
Maximum Dose by Organ:		3.391E-03	1.273E-02	5.384E-03	2.546E-03	2.886E-03	1.391E-02	2.306E-02	0.000E+00

Maximum Organ Dose (mRem): 2.306E-02

Maximum Total Body Dose (mRem): 5.384E-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-2013 Ending: 31-Dec-2013

Ogan Dose	Units	1ST Quarter	2ND Quarter	3RD Quarter	4TH Quarter	Annual
Bone	mRem	2.24E-03	1.49E-05	1.14E-04	1.24E-03	3.39E-03
Limit	mRem					
Percent of Limit	%					
Liver	mRem	9.96E-03	1.76E-04	4.54E-04	2.14E-03	1.27E-02
Limit	mRem					
Percent of Limit	%					
Total Body	mRem	2.76E-03	1.69E-04	4.39E-04	2.07E-03	5.38E-03
Limit	mRem					
Percent of Limit	%					
Thyroid	mRem	1.47E-04	1.38E-04	3.84E-04	1.93E-03	2.55E-03
Limit	mRem					
Percent of Limit	%					
Kidney	mRem	2.09E-04	1.85E-04	4.89E-04	2.00E-03	2.89E-03
Limit	mRem					
Percent of Limit	%					
Lung	mRem	1.14E-02	1.65E-04	4.31E-04	1.97E-03	1.39E-02
Limit	mRem					
Percent of Limit	%					
GI-LI	mRem	5.28E-03	1.59E-03	5.80E-03	1.04E-02	2.31E-02
Limit	mRem					
Percent of Limit	%					

Period: Ann, 2013

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	3.391E-03	1.273E-02	5.384E-03	2.473E-03	2.886E-03	1.391E-02	2.306E-02	0.000E+00
Liquid Receptor - Child	Child	2.388E-03	7.076E-03	3.915E-03	2.546E-03	1.255E-03	7.578E-03	1.105E-02	0.000E+00
Maximum Dose by Organ:		3.391E-03	1.273E-02	5.384E-03	2.546E-03	2.886E-03	1.391E-02	2.306E-02	0.000E+00

Maximum Organ Dose (mRem): 2.306E-02

Maximum Total Body Dose (mRem): 5.384E-03

**FLORIDA POWER & LIGHT COMPANY
ST. LUCIE UNITS 1 AND 2
ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
JANUARY 1, 2013 THROUGH DECEMBER 31, 2013**

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 1.6 kilometers 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 2013.

VISITOR DOSE RESULTS FOR CALENDAR YEAR 2013 were:

Noble Gas Dose	mrad
Gamma Air Dose	1.36E-03
Beta Air Dose	7.68E-04

Gas, Particulate, Iodine, Carbon Dose	mrem
Bone	4.11E-01
Liver	4.17E-01
Thyroid	4.17E-01
Kidney	5.12E-02
Lung	4.17E-01
GI-LLI	4.17E-01
Total Body	4.17E-01