

LaSalle Sation

2601 North 21st Road Marseilles, IL 61341

815 415 2000 www.exeloncorp.com

RA15-023

10 CFR 50.36a

April 30, 2015

U. S. Nuclear Regulatory Commission Attention: Document Control Desk Washington, D.C. 20555

> LaSalle County Station, Units 1 and 2 Facility Operating License Nos. NPF-11 and NPF-18 NRC Docket Nos. 50-373 and 50-374

Subject: 2014 Annual Radioactive Effluent Release Report

Enclosed is the Exelon Generation Company, LLC, 2014 Annual Radioactive Effluent Release Report for LaSalle County Station, submitted in accordance with 10 CFR 50.36a "Technical specifications on effluents from nuclear power reactors," paragraph (a)(2), and Technical Specification 5.6.3 "Radioactive Effluent Release Report."

Should you have any questions concerning this letter, please contact Mr. Guy V. Ford, Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

Peter J. Karaba Site Vice President LaSalle County Station

Attachment: 2014 Effluent and Waste Disposal Annual Report

cc: Regional Administrator - NRC Region III NRC Senior Resident Inspector - LaSalle County Station

# LASALLE COUNTY NUCLEAR POWER STATION ANNUAL RADIOLOGICAL EFFLUENT RELEASE REPORT (ARERR)

2014

### 1. Regulatory Limits

#### a. Gaseous Effluents

- 1) The air dose due to noble gases released in gaseous effluents, from each reactor unit, from the site 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.
- 2) The dose to an individual from radioiodines and radioactive materials in particulate form, and radionuclides, other than noble gases, with half-lives greater than eight days in gaseous effluents released, from each reactor unit, from the site 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.
- b. Liquid Effluents
  - 1) The dose or dose commitment to an individual from radioactive materials in liquid effluents released, from each reactor unit, from the site shall be limited:
    - a) During any calendar quarter: Less than or equal to 1.5 mRem to the total body and to less than or equal to 5 mRem to any organ, and
    - b) During any calendar year: Less than or equal to 3 mRem to the total body and to less than or equal to 10 mRem to any organ.
- c. Total Dose
  - The dose or dose commitment to any member of the public, due to releases or radioactivity and radiation, from uranium fuel cycle sources shall be limited to less than or equal to 25 mRem to the body or any organ (except the thyroid, which shall be limited to less than or equal to 75 mRem) over 12 consecutive months.
- 2. Allowable Concentrations
  - a. Gaseous Effluents
    - 1) The dose rate due to radioactive materials released in gaseous effluents from the site shall be limited to the following:
      - a) For noble gases: Less than or equal to 500 mRem/year to the total body and less than or equal to 3000 mRem/year to the skin, and
      - b) For all radioiodines and for all radioactive materials in particulate form, and radionuclides, other than noble gases, with half-lives greater than eight days: Less than or equal to 1500 mRem/year to any organ via the inhalation pathway.

### b. Liquid Effluents

 The concentration of radioactive material released from the site shall be limited to ten (10) times the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the concentration shall be limited to the following:

Nuclide	DWC
	(µCi/mL)
Kr-85m	2.00E-04
Kr-85	5.00E-04
Kr-87	4.00E-05
Kr-88	9.00E-05
Xe-131m	7.00E-04
Xe-133m	5.00E-04
Xe-133	6.00E-04
Xe-135m	2.00E-04
Xe-135	2.00E-04
Ar-41	7.00E-05

### 3. Average Energy

- 1) Not applicable average energy is no longer used to determine dose to the public.
- 4. Measurements and Approximations of Total Radioactivity
  - a. Gaseous Effluents
    - 1) The Containment Vent and Purge System is sampled by grab sample, which is analyzed for principal gamma emitters and H-3.
    - 2) The Main Vent Stack (Station Vent Stack) is sampled by grab sample, which is analyzed for principal gamma emitters and H-3.
    - 3) Standby Gas Treatment (SBGT) System is sampled by grab sample, which is analyzed for principal gamma emitters.
    - 4) All release types as listed in 4.a.1) and 4.a.2) above are sampled at the Station Vent Stack (SVS) Wide Range Gas Monitor (WRGM), and those listed in 4.a.3) above are sampled at the Standby Gas Treatment (SBGT) System WRGM whenever there is flow. These effluents are continuously sampled by charcoal cartridge and particulate filter paper, which are analyzed for iodines and principal gamma emitters. Particulate filter papers are composited and analyzed for gross alpha, Sr-89 and Sr-90. Noble gases, gross beta and gamma are continuously monitored by noble gas monitors for the SVS and the SBGT System.
    - 5) The LaSalle County Station estimate of 16.75 Ci/Unit/year of C-14 (as total C-14 released) is based upon a normalized C-14 production rate of 5.1 Ci/GWt-yr, a gaseous release fraction of 0.99, a reactor power rating of 3546 MWt (per Unit) and equivalent full power operation of 341.5 days (per Unit).
  - b. Liquid Effluents
    - 1) Batch waste release tanks are sampled each batch for principal gamma emitters, I-131, dissolved and entrained noble gases, H-3, gross alpha, Sr-89, Sr-90 and Fe-55.

- 2) Continuous releases are sampled continuously in proportion to the rate of flow of the effluent stream and by grab sample. Samples are analyzed for principal gamma emitters, I-131, dissolved and entrained noble gases, H-3, gross alpha, Sr-89, Sr-90 and Fe-55.
- 5. Batch Releases
  - a. Gaseous

		1)	Number of batch releases:	None
		2)	Total time period for batch releases:	N/A
		3)	Maximum time period for a batch release:	N/A
		4)	Average time period for batch releases:	N/A
		5)	Minimum time period for a batch release:	N/A
	b.	Liq	uid	
		1)	Number of batch releases:	None
		2)	Total time period for batch releases: Min.	N/A
		3)	Maximum time period for a batch release: Min.	N/A
		4)	Average time period for batch releases: Min.	N/A
		5)	Minimum time period for a batch release: Min.	N/A
		6)	Average stream flow during periods of release of effluent into a flowing stream: gpm	N/A
6.	Abr	orm	al Releases	
	a.	Gas	eous	
		1)	Number of releases:	None
		2)	Total activity released:	N/A
	b.	Liq	uid	
		1)	Number of releases:	None
		2)	Total activity released:	N/A

## 7. Process Control Program

Revision 9 of the Process Control Procedure, RW-AA-100 (Process Control Program for Radioactive Wastes) was cancelled prior to being implemented at LaSalle Station.

Revision 10 of the Process Control Procedure (RW-AA-100) was implemented at LaSalle Station on January 15, 2014. A copy of Revision 10 has been included as Appendix A to this report. A summary of the changes in Revision 10 are described below:

- a. Step 4.2.9.2. was modified to include WCS (Waste Control Specialists LLC) located in Andrews, TX as a storage/disposal facility and as a HIC (High Integrity Container) supplier.
- b. Step 4.2.13. was added to the document. The step states that "Concentration averaging may be PERFORMED to combine LLRW [Low Level Radioactive Wastes] having different concentrations to form a homogeneous mixture..." The mixture is required to be in conformance with the guidance provided in the NRC's Branch Technical Position on Concentration Averaging and Encapsulation, January 1995.
- c. Step 4.2.14. was added to the document. The step states that "Blending may be PERFORMED for routine LLRW such as resins and filter media..." The mixture is required to be in conformance with the guidance provided in the NRC's Branch Technical Position on Concentration Averaging and Encapsulation and further clarified in the NRC's Branch Technical Position on Blending of Low-Level Radioactive Waste, SECY-10-0043.
- d. Step 4.2.15. was added to the document. The step states that "Encapsulation may be PERFORMED for routine wastes such as filters, filter cartridges, or sealed sources centered in an encapsulated mass..." The encapsulated mass is required to be in conformance with the guidance provided in the NRC's Branch Technical Position on Concentration Averaging and Encapsulation, January 1995.
- e. Step 4.6.3.was modified to provide an itemized list that details the methodology for implementation of various process control procedures at LaSalle Station. Detail regarding the implementation of vendor dewatering procedures was also added.
- f. Definitions for Concentration Averaging (Step 2.11.), Encapsulation (Step 2.12.), and Blending (Step 2.13.) were added. These definitions were added to provide additional clarification for the terms used in several new Steps (4.2.13 through 4.2.15.) in the body of the procedure.
- g. Two (2) new references were added to the procedure and are listed below:
  - Step 6.2.7. Amendment No. 202 to Facility Operating License No. NPF-11 and Amendment No. 189 to Facility Operating License (FOL) No. NPF-18 for the LaSalle County Station (LSCS), Units 1 and 2
  - Step 6.2.8. NRC Branch Technical Position on Blending of Low-Level Radioactive Waste, SECY-10-0043
- h. Numerous minor wording and editorial changes were made throughout the document to correct grammatical errors and to improve the document's clarity.

The Plant Operating Review Committee (PORC) unanimously approved Revision 10 of RW-AA-100, Process Control Program for Radioactive Wastes.

There were no changes to the Process Control Program processing systems or components. There was no use of a solidification agent (e.g. cement, urea formaldehyde, etc.) during the processing of solid radioactive waste.

- 8. Effluent Monitoring Instrumentation time clocks and sample anomalies.
  - a. <u>Time clocks:</u>

The U2 Division 2 Residual Heat Removal Service Water Process Radiation Monitor exceeded the LaSalle Station ODCM 30 day time clock for inoperability on 12/26/14 @ 12:11. Once the 30 day

time clock expired, ODCM 12.2.1 Condition G.1 was entered. Condition G.1 states: "Explain why the inoperability was not corrected in a timely manner in the next Radioactive Effluent Release Report".

The U2 Division 2 (Div 2) Residual Heat Removal (RHR) Service Water Process Radiation Monitor (PRM) was declared inoperable (INOP) on 11/26/14 @ 12:11 due to loss of alarm function during the performance of LaSalle Station surveillance LIS-RH-205B, UNIT 2 RHR B SERVICE WATER EFFLUENT RADIATION MONITOR CALIBRATION. Following the declaration of the PRM inoperable, the appropriate ODCM time clocks were entered. ODCM REC 12.2.1 Condition E. requires grab samples be pulled for isotopic analysis once per 8 hours and analyzed for principal gamma emitters and I-131 when pump flow is present in the system. All appropriate ODCM sampling was performed during the PRM period of inoperability.

Following the declaration of the PRM INOP, work was progressing toward restoring the PRM to operable status. However, on 12/12/14 @ 11:45 a through wall leak was identified on the U2 Div 2 RHR Service Water piping. The leak was located at the point where the suction piping for the U2 Div 2 RHR Service Water PRM meets the U2 "B" RHR Heat Exchanger discharge piping.

Although the RHR Service Water leak had no impact on the function or operability of the PRM, it did delay PRM repair work. The PRM was isolated to allow the appropriate piping repair to be completed. Due to the time necessary to complete the piping repair and the time that has already elapsed, the 30 day ODCM time clock was exceeded on 12/26/14 @ 12:11. Following the repairs to the PRM alarm function (source check mechanism) and the appropriate piping repairs, the PRM was restored to operable status on 1/8/2015 @ 2040.

b. <u>Sample anomalies:</u>

There were no sampling anomalies affecting the measurement of effluents experienced during 2014.

9. Offsite Dose Calculation Manual Revisions.

There were no ODCM revisions issued during 2014.

10. Independent Spent Fuel Storage Installation (ISFSI).

An Independent Spent Fuel Storage Installation (ISFSI) campaign began in 2010 when used fuel was removed from the Spent Fuel Pool (SFP), placed into three (3) casks, and transferred to an outdoor concrete storage pad. Three (3) additional casks were placed on the pad in 2011. No casks were placed on the pad in 2012. Five (5) additional casks were placed on the pad in 2013. Five (5) additional casks were placed on the pad in 2013. Five (5) additional casks were placed on the pad in 2013. Five (5) additional casks were placed on the pad in 2014. The total number of casks currently stored on the ISFSI pad is sixteen (16). There were no radioactive effluents released from the LaSalle ISFSI during the first three months of 2015, during 2014, or during any previous year.

### LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) UNIT 1 AND UNIT 2 DOCKET NUMBERS 50-373 AND 50-374 GASEOUS EFFLUENTS SUMMATION OF ALL RELEASES

A. Fission & Activation Gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter4	Est. Total Error %
1. Total Release	Ci	9.98E+02	7.88E+02	1.16E+03	9.23E+02	2.50E+01
2. Average release rate for the period	μCi/sec	1.28E+02	1.00E+02	1.46E+02	1.16E+02	
3. Percent of ODCM limit	%	*	*	*	*	

B. lodine	T					
1. Total lodine – 131	Ci	6.41E-02	5.01E-02	3.28E-02	3.98E-02	1.50E+01
2. Average release rate for the period	μCi/sec	8.24E-03	6.37E-03	4.13E-03	5.00E-03	
3. Percent of ODCM limit	%	*	*	*	*	]

C. Particulates						
1. Particulates with half-lives > 8 days	Ci	1.04E-02	8.03E-03	8.86E-03	8.59E-03	3.50E+01
2. Average release rate for the period	μCi/sec	1.33E-03	1.02E-03	1.12E-03	1.08E-03	
3. Percent of ODCM limit	%	*	*	*	*	

D. Tritium	T					
1. Total Release	Ci	4.48E+00	2.40E+00	5.04E+00	6.25E+00	1.50E+01
2. Average release rate for the period	μCi/sec	5.76E-01	3.06E-01	6.35E-01	7.86E-01	
3. Percent of ODCM limit	%	*	*	*	*	

E. Gross Alpha						
1. Total Release	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td></lld<>	N/A
2. Average release rate for the period	μCi/sec	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td></td></lld<></td></lld<>	<lld< td=""><td></td></lld<>	
3. Percent of ODCM limit	%	*	*	*	*	

F. Carbon-14					
1. Total Release	Ci	8.38E+00	8.38E+00	8.38E+00	8.37E+00
2. Average release rate for the period	μCi/sec	1.08E+00	1.06E+00	1.05E+00	1.05E+00
3. Percent of ODCM limit	%	*	*	*	*

"\*" This information is contained in the Radiological Impact on Man section of the report.

"<" Indicates activity of sample is less than LLD given in  $\mu$ Ci/ml

## LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) GASEOUS EFFLUENTS ELEVATED RELEASE UNIT 1 AND UNIT 2

Nuclides Released			Continuo	ous Mode			Batch	Mode	
	Unit	Quarter	Quarter	Quarter 3	Quarter	Quarter 1	Quarter 2	Quarter 3	Quarter 4
		1	2	<b>&gt;</b>	4	-	<u> </u>	<b>`</b>	+
A. Fission gases			1	I			I T	1	I
Kr-85m	Ci	2.77E+02	2.27E+02	3.12E+02	2.73E+02	N/A	N/A	N/A	N/A
Kr-87	Ci	6.60E+00	7.41E+00	1.76E+01	4.92E+00	N/A	N/A	N/A	N/A
Kr-88	Ci	3.29E+02	2.80E+02	3.90E+02	3.41E+02	N/A	N/A	N/A	N/A
Xe-133m	Ci	<lld< td=""><td>2.61E-02</td><td>6.36E-01</td><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	2.61E-02	6.36E-01	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Xe-133	Ci	3.23E+02	2.54E+02	2.91E+02	2.82E+02	N/A	N/A	N/A	N/A
Xe-135	Ci	2.94E+01	9.72E+00	1.28E+02	1.46E+01	N/A	N/A	N/A	N/A
Xe-135m	Ci	8.05E+00	9.02E+00	2.22E+01	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Xe-138	Ci	2.46E+01	<lld< td=""><td>1.53E-01</td><td>7.23E+00</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	1.53E-01	7.23E+00	N/A	N/A	N/A	N/A
Ar-41	Ci	<lld< td=""><td>6.09E-03</td><td><lld< td=""><td>7.65E-03</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	6.09E-03	<lld< td=""><td>7.65E-03</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	7.65E-03	N/A	N/A	N/A	N/A
Total for Period	Ci	9.98E+02	7.88E+02	1.16E+03	9.23E+02	N/A	N/A	N/A	N/A
B. lodines									
1-131	Ci	6.41E-02	5.01E-02	3.28E-02	3.98E-02	N/A	N/A	N/A	N/A
1-132	Ci	1.10E-01	6.95E-02	7.27E-02	8.24E-02	N/A	N/A	N/A	N/A
I-133	Ci	2.26E-01	1.26E-01	1.13E-01	1.33E-01	N/A	N/A	N/A	N/A
1-134	Ci	1.37E-01	6.77E-02	7.62E-02	7.82E-02	N/A	N/A	N/A	N/A
1-135	Ci	2.18E-01	1.14E-01	1.23E-01	1.41E-01	N/A	N/A	N/A	N/A
Total for Period	Ci	7.55E-01	4.28E-01	4.18E-01	4.74E-01	N/A	N/A	N/A	N/A
Tot. I-131,I-133,I-135	Ci	5.08E-01	2.90E-01	2.69E-01	3.13E-01	N/A	N/A	N/A	N/A
C. Particulates									
Mn-54	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td>2.36E-05</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>2.36E-05</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>2.36E-05</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	2.36E-05	N/A	N/A	N/A	N/A
Co-58	Ci	<lld< td=""><td>9.85E-06</td><td>2.64E-05</td><td>3.12E-04</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	9.85E-06	2.64E-05	3.12E-04	N/A	N/A	N/A	N/A
Fe-59	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Co-60	Ci	2.68E-4	2.41E-04	4.36E-04	8.93E-04	N/A	N/A	N/A	N/A
Zn-65	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td>2.06E-04</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>2.06E-04</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>2.06E-04</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	2.06E-04	N/A	N/A	N/A	N/A
Sr-89	Ci	8.72E-04	7.02E-04	9.89E-04	2.38E-04	N/A	N/A	N/A	N/A
Sr-90	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Mo-99	Ci	<lld <lld< td=""><td>5.46E-05</td><td>4.75E-05</td><td>2.30E-04</td><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></lld 	5.46E-05	4.75E-05	2.30E-04	N/A	N/A	N/A	N/A
Ag-110m	Ci	1.36E-05	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Cs-134	Ci	<lld< td=""><td><lld <lld< td=""><td><lld <lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></lld </td></lld<></lld </td></lld<>	<lld <lld< td=""><td><lld <lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></lld </td></lld<></lld 	<lld <lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></lld 	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Cs-134 Cs-137	Ci	<lld< td=""><td><lld <lld< td=""><td><lld< td=""><td><lld <lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></lld </td></lld<></td></lld<></lld </td></lld<>	<lld <lld< td=""><td><lld< td=""><td><lld <lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></lld </td></lld<></td></lld<></lld 	<lld< td=""><td><lld <lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></lld </td></lld<>	<lld <lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></lld 	N/A	N/A	N/A	N/A
Ba-140	Ci	3.33E-03	2.64E-03	2.75E-03	2.45E-03	N/A	N/A	N/A	N/A
La-140	Ci	5.89E-03	4.38E-03	4.62E-03	4.24E-03	N/A	N/A	N/A	N/A
Ce-141	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Ce-144	Ci	<lld <lld< td=""><td><lld< td=""><td><lld< td=""><td><lld <lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></lld </td></lld<></td></lld<></td></lld<></lld 	<lld< td=""><td><lld< td=""><td><lld <lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></lld </td></lld<></td></lld<>	<lld< td=""><td><lld <lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></lld </td></lld<>	<lld <lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></lld 	N/A	N/A	N/A	N/A
Total for Period	Ci	1.04E-02	8.03E-03	8.86E-03	8.59E-03	N/A	N/A	N/A	N/A
		1.04L-02	0.000-00	0.000-00	0.032-00				
D. Tritium	Ci	4.405.05	0.405.00	- 04F 05	0.055.00	N17A	N1/A	N1/A	<u>κι/</u> Δ
H-3 Total for Period		4.48E+00	2.40E+00	5.04E+00	6.25E+00	N/A	<u>N/A</u>	N/A	<u>N/A</u>
E. Gross Alpha		ļ	(	r			1	1	
Gross Alpha Total for Period	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
F. Carbon-14		ļ					r	r	
C-14 Total for Period	Ci	8.38E+00	8.38E+00	8.38E+00	8.37E+00	N/A	N/A	N/A	N/A

### LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) LIQUID RELEASES UNIT 1 AND UNIT 2 SUMMATION OF ALL LIQUID RELEASES

A. Fission & Activation Products	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter4	Est. Total Error %
1. Total Release (not including tritium, gases & alpha)	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td></lld<>	N/A
2. Average diluted concentration during period	μCi/mL	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td></td></lld<></td></lld<>	<lld< td=""><td></td></lld<>	
3. Percent of applicable limit	%	*	*	*	*	
B. Tritium	Ī					
1. Total Release	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td></lld<>	N/A
2. Average diluted concentration during period	μCi/mL	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td></td></lld<></td></lld<>	<lld< td=""><td></td></lld<>	
3. Percent of applicable limit	%	*	*	*	*	
C. Dissolved & Entrained Gases	Ci	<lld< th=""><th><lld< th=""><th><lld< th=""><th><lld< th=""><th>N/A</th></lld<></th></lld<></th></lld<></th></lld<>	<lld< th=""><th><lld< th=""><th><lld< th=""><th>N/A</th></lld<></th></lld<></th></lld<>	<lld< th=""><th><lld< th=""><th>N/A</th></lld<></th></lld<>	<lld< th=""><th>N/A</th></lld<>	N/A
<ol> <li>Total Release</li> <li>Average diluted concentration during period</li> </ol>	Ci μCi/mL	<lld <lld< td=""><td><lld <lld< td=""><td><lld <lld< td=""><td><lld <lld< td=""><td>N/A</td></lld<></lld </td></lld<></lld </td></lld<></lld </td></lld<></lld 	<lld <lld< td=""><td><lld <lld< td=""><td><lld <lld< td=""><td>N/A</td></lld<></lld </td></lld<></lld </td></lld<></lld 	<lld <lld< td=""><td><lld <lld< td=""><td>N/A</td></lld<></lld </td></lld<></lld 	<lld <lld< td=""><td>N/A</td></lld<></lld 	N/A
3. Percent of applicable limit	%	*	*	*	*	
D. Gross Alpha Activity	-					
1. Total Release	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td></lld<>	N/A
2. Average release rate for the period	μCi/mL	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td></td></lld<></td></lld<>	<lld< td=""><td></td></lld<>	
3. Percent of ODCM limit	%	*	*	*	*	
E. Volume of Waste Released (prior to dilution)	Liters	0.00E+00	0.00E+00	0.00E+00	0.00E+00	Ī
F. Volume of Dilution Water Used During	Liters	0.00E+00	0.00E+00	0.00E+00	0.00E+00	Ī

"\*" This information is contained in the Radiological Impact on Man section of the report.

"<" Indicates activity of sample is less than LLD given in  $\mu$ Ci/ml

Period

# LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) LIQUID RELEASES UNIT 1 AND UNIT 2

Nuclides Released			Continuo	ous Mode			Batch	Mode	
A. Fission &	T	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter	Quarter
Activation Products	Unit	1	2	3	4	1	2	3	4
Mn-54	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Fe-55	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Co-58	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Fe-59	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Co-60	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Zn-65	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Sr-89	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Sr-90	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Mo-99	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
I-131	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Cs-134	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Cs-137	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Ce-141	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Ce-144	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Total for Period	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
B. H-3							•		
H-3 Total for Period	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
C. Dissolved & Entrained Gasses									
Kr-85m	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Kr-85	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Kr-87	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Kr-88	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Xe-131m	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Xe-133m	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Xe-133	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Xe-135m	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Xe-135	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Ar-41	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
Total for Period	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A
D. Gross Alpha									
Gross Alpha Total for Period	Ci	<lld< td=""><td><lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<></td></lld<>	<lld< td=""><td><lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<></td></lld<>	<lld< td=""><td>N/A</td><td>N/A</td><td>N/A</td><td>N/A</td></lld<>	N/A	N/A	N/A	N/A

### LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS FIRST QUARTER

A. Solid Waste Shipped Offsite for Burial or Disposal (Not irradiated fuel)

# 1. Types of Waste

Types of Waste	Total Quantity (m³)	Total Activity (Ci)	Period	Est. Total Error (%)
a. Spent resins, filter sludges, evaporator bottoms,	7.62E+00	4.80E+00	1Q14	+/-25%
etc.				
b. Dry compressible waste, contaminated equip, etc.	5.22E+02	3.55E-01	1Q14	+/-25%
c. Irradiated components, control rods, etc.	None	None	1Q14	N/A
d. Other (Oil, EHC fluid, sump waste, etc.)	7.27E+01	2.03E-01	1Q14	+/-25%

# 2. Estimate of major nuclide composition (by waste type)

	Percent	Shipment
	Abundance	Type(s)
Major Nuclide Composition	(≥1%)	
a. Spent resins, filter sludges, evaporator bottoms, etc.		
Mn-54	1.507%	LSA
Fe-55	26.012%	
Co-60	44.159%	
Zn-65	6.271%	
Cs-134	2.031%	
Cs-137	18.049%	
b. Dry compressible waste, contaminated equip, etc.		
Mn-54	1.261%	LSA
Fe-55	24.315%	
Co-60	71.586%	
Zn-65	1.062%	
c. Irradiated components, control rods, etc.		
None	N/A	N/A
d. Other (Oil, EHC fluid, sump waste etc.)		
H-3	7.969%	LSA
Mn-54	1.160%	
Fe-55		
Co-60	65.967%	

### LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS FIRST QUARTER

# 3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
9	Hittman Transport	EnergySolutions - Bear Creek
		Facility, Oak Ridge, TN
1	Hittman Transport	EnergySolutions, Clive Facility,
		Tooele County, UT
1	Interstate Ventures	Toxco Materials Management
		Center, Oak Ridge, TN

# B. Irradiated Fuel Shipments (disposition)

Numt	per of Shipments	Mode of Transportation	Destination
	None	N/A	N/A

# C. Changes to the Process Control Program

Revision 9 of the Process Control Procedure, RW-AA-100 (Process Control Program for Radioactive Wastes) was cancelled prior to being implemented at the Site.

Revision 10 of the Process Control Procedure (RW-AA-100) was implemented on January 15, 2014. A copy of Revision 10 has been included as Appendix A to this report. A summary of the changes in Revision 10 are described below:

- Step 4.2.9.2. was modified to include WCS (Waste Control Specialists LLC) located in Andrews, TX as a storage/disposal facility and as a HIC (High Integrity Container) supplier.
- Step 4.2.13. was added to the document. The step states that "Concentration averaging may be PERFORMED to combine LLRW [Low Level Radioactive Wastes] having different concentrations to form a homogeneous mixture..." The mixture is required to be in conformance with the guidance provided in the NRC's Branch Technical Position on Concentration Averaging and Encapsulation, January 1995.
- Step 4.2.14. was added to the document. The step states that "Blending may be PERFORMED for routine LLRW such as resins and filter media..." The mixture is required to be in conformance with the guidance provided in the NRC's Branch Technical Position on Concentration Averaging and Encapsulation and further clarified in the NRC's Branch Technical Position on Blending of Low-Level Radioactive Waste, SECY-10-0043.
- Step 4.2.15. was added to the document. The step states that "Encapsulation may be PERFORMED for routine wastes such as filters, filter cartridges, or sealed sources centered in an encapsulated mass..." The encapsulated mass is required to be in conformance with the guidance provided in the NRC's Branch Technical Position on Concentration Averaging and Encapsulation, January 1995.
- Step 4.6.3.was modified to provide an itemized list that details the methodology for implementation of various process control procedures at the Site. Detail regarding the implementation of vendor dewatering procedures was also added.
- Definitions for Concentration Averaging (Step 2.11.), Encapsulation (Step 2.12.), and Blending (Step 2.13.) were added. These definitions were added to provide additional clarification for the terms used in several new Steps (4.2.13 through 4.2.15.) in the body of the procedure.

## LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS FIRST QUARTER

- Two (2) new references were added to the procedure and are listed below:
  - Step 6.2.7. Amendment No. 202 to Facility Operating License No. NPF-11 and Amendment No. 189 to Facility Operating License (FOL) No. NPF-18 for the LaSalle County Station (LSCS), Units 1 and 2
  - Step 6.2.8. NRC Branch Technical Position on Blending of Low-Level Radioactive Waste, SECY-10-0043
- Numerous minor wording and editorial changes were made throughout the document to correct grammatical errors and to improve the document's clarity.

The Plant Operating Review Committee (PORC) unanimously approved Revision 10 of RW-AA-100, Process Control Program for Radioactive Wastes.

There were no changes to the Process Control Program processing systems or components during this period. There was no use of a solidification agent (e.g. cement, urea formaldehyde, etc.) during the processing of solid radioactive waste.

### LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS SECOND QUARTER

# A. Solid Waste Shipped Offsite for Burial or Disposal (Not irradiated fuel)

# 1. Types of Waste

Types of Waste	Total Quantity (m³)	Total Activity (Ci)	Period	Est. Total Error (%)
a. Spent resins, filter sludges, evaporator bottoms,	7.62E+00	1.71E+00	2Q14	+/-25%
etc.				
b. Dry compressible waste, contaminated equip, etc.	2.27E+02	3.86E-01	2Q14	+/-25%
c. Irradiated components, control rods, etc.	None	None	2Q14	N/A
d. Other (Oil, EHC fluid, sump waste, etc.)	7.45E+00	3.02E-02	2Q14	+/-25%

# 2. Estimate of major nuclide composition (by waste type)

		Percent Abundance	Shipment Type(s)
Major Nuclide Composition		(≥1%)	, 350(0)
a. Spent resins, filter sludges, evaporator bottoms, etc.			
	Mn-54	1.506%	LSA
	Fe-55	25.993%	
	Co-60	44.127%	
	Zn-65	6.267%	
	Cs-134	2.030%	
	Cs-137	18.036%	
b. Dry compressible waste, contaminated equip, etc.			
-	Mn-54	1.253%	LSA
	Fe-55	24.310%	
	Co-60	71.670%	
	Zn-65	1.053%	
c. Irradiated components, control rods, etc.			
	None	None	N/A
d. Other (Oil, EHC fluid, sump waste etc.)			
	H-3	87.466%	LSA
	Fe-55	3.052%	
	Co-60	8.981%	

### LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS SECOND QUARTER

# 3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
5	Hittman Transport	EnergySolutions - Bear Creek
		Facility, Oak Ridge, TN
1	Interstate Ventures	EnergySolutions - Bear Creek
		Facility, Oak Ridge, TN
1	Hittman Transport	EnergySolutions, Clive Facility,
		Tooele County, UT

# B. Irradiated Fuel Shipments (disposition)

Number of Shipments	Mode of Transportation	Destination
None	N/A	N/A

# C. Changes to the Process Control Program

There were no changes to the Process Control Program during this period. There was no use of a solidification agent (e.g. cement, urea formaldehyde, etc.) during the processing of solid radioactive waste.

## LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS THIRD QUARTER

- A. Solid Waste Shipped Offsite for Burial or Disposal (Not irradiated fuel)
- 1. Types of Waste

Types of Waste	Total Quantity (m <sup>3</sup> )	Total Activity (Ci)	Period	Est. Total Error (%)
a. Spent resins, filter sludges, evaporator bottoms, etc.	7.62E+00	3.82E+00	3Q14	+/-25%
b. Dry compressible waste, contaminated equip, etc.	None	None	3Q14	N/A
c. Irradiated components, control rods, etc.	None	None	3Q14	N/A
d. Other (Oil, EHC fluid, sump waste, etc.)	7.22E+00	4.57E-04	3Q14	+/-25%

2. Estimate of major nuclide composition (by waste type)

		Percent Abundance	Shipment Type(s)
Major Nuclide Composition		(≥1%)	
a. Spent resins, filter sludges, evaporator bottoms, etc.			
N	/In-54	1.385%	LSA
F	-e-55	25.902%	
C	Co-60	44.780%	
Z	Zn-65	5.578%	
Cs	s-134	1.999%	
Cs	s-137	18.593%	
b. Dry compressible waste, contaminated equip, etc.			
1	None	None	N/A
c. Irradiated components, control rods, etc.			
1	None	None	N/A
d. Other (Oil, EHC fluid, sump waste, etc.)			
	H-3	6.241%	LSA
N	/In-54	1.187%	
F	-e-55	22.833%	
C	Co-60	67.182%	
ΖΖ	Zn-65	1.002%	

# LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS THIRD QUARTER

# 3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
1	Interstate Ventures	EnergySolutions - Bear Creek
		Facility, Oak Ridge, TN
1	Hittman Transport	EnergySolutions, Clive Facility,
		Tooele County, UT

# B. Irradiated Fuel Shipments (disposition)

Number of Shipments	Mode of Transportation	Destination
None	N/A	N/A

C. Changes to the Process Control Program

There were no changes to the Process Control Program during this period. There was no use of a solidification agent (e.g. cement, urea formaldehyde, etc.) during the processing of solid radioactive waste.

### LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS FOURTH QUARTER

# A. Solid Waste Shipped Offsite for Burial or Disposal (Not irradiated fuel)

# 1. Types of Waste

Types of Waste	Total Quantity (m <sup>3</sup> )	Total Activity (Ci)	Period	Est. Total Error %
a. Spent resins, filter sludges, evaporator bottoms, etc.	None	None	4Q14	N/A
b. Dry compressible waste, contaminated equip, etc.	3.37E+02	2.03E+00	4Q14	+/-25%
c. Irradiated components, control rods, etc.	None	None	4Q14	N/A
d. Other (Oil, EHC fluid, sump waste, etc.)	3.74E+01	6.90E-02	4Q14	+/-25%

2. Estimate of major nuclide composition (by waste type)

Majar Nuelida Composition		Percent Abundance	Shipment Type(s)
Major Nuclide Composition		(≥1%)	
a. Spent resins, filter sludges, evaporator bottoms, etc.			
	None	None	N/A
b. Dry compressible waste, contaminated equip, etc.			
	Mn-54	1.237%	LSA
	Fe-55	24.281%	
	Co-60	71.782%	
	Zn-65	1.036%	
c. Irradiated components, control rods, etc.			
	None	None	N/A
d. Other (Oil, EHC fluid, sump waste, etc.)			
	H-3	78.207%	LSA
	Fe-55	5.307%	
	Co-60	15.617%	

### LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) SOLID WASTE AND IRRADIATED FUEL SHIPMENTS FOURTH QUARTER

# 3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
5	Hittman Transport	EnergySolutions - Bear Creek
		Facility, Oak Ridge, TN
4	Interstate Ventures	EnergySolutions - Bear Creek
		Facility, Oak Ridge, TN
1	Tri-State Motor Transit	EnergySolutions - Bear Creek
		Facility, Oak Ridge, TN

# B. Irradiated Fuel Shipments (disposition)

Number of Shipments	Mode of Transportation	Destination
None	N/A	N/A

# C. Changes to the Process Control Program

There were no changes to the Process Control Program during this period. There was no use of a solidification agent (e.g. cement, urea formaldehyde, etc.) during the processing of solid radioactive waste.

LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) RADIOLOGICAL IMPACT ON MAN MAXIMUM DOSES RESULTING FROM GASEOUS RELEASES AND COMPLIANCE STATUS

Infant Receptor	Quarterly Limit	Units	1st Quarter	% of Limit	2nd Quarter	% of Limit	3 <sup>rd</sup> Quarter	% of Limit	4th Quarter	% of Limit	Annual Limit	% of Limit
Gamma Air	5.00E+00	mRad	1.20E-02	0.24	9.77E-03	0.20	1.41E-02	0.28	1.19E-02	0.24	1.00E+01	0.48
Beta Air	1.00E+01	mRad	5.67E-04	0.006	4.41E-04	0.004	6.91E-04	0.007	5.24E-04	0.005	2.00E+01	0.01
NG Total Body	2.50E+00	mRem	8.00E-03	0.32	6.52E-03	0.26	9.42E-03	0.38	7.93E-03	0.32	5.00E+00	0.64
NG Skin	7.50E+00	mRem	1.35E-02	0.18	1.10E-02	0.15	1.59E-02	0.21	1.34E-02	0.18	1.50E+01	0.36
NNG Organ	7.50E+00	mRem	3.14E-01	4.18	2.43E-01	3.24	1.61E-01	2.15	1.95E-01	2.60	1.50E+01	6.08
	Quarterly	nito	1st	% of	2nd	% of	3 <sup>rd</sup>	% of	4th	% of	Annual	% of
Child Receptor	Limit	011112	Quarter	Limit	Quarter	Limit	Quarter	Limit	Quarter	Limit	Limit	Limit
Gamma Air	5.00E+00	mRad	1.20E-02	0.24	9.77E-03	0.20	1.41E-02	0.28	1.19E-02	0.24	1.00E+01	0.48
Beta Air	1.00E+01	mRad	5.67E-04	0.006	4.41E-04	0.004	6.91E-04	0.007	5.24E-04	0.005	2.00E+01	0.01
NG Total Body	2.50E+00	mRem	8.00E-03	0.32	6.52E-03	0.26	9.42E-03	0.38	7.93E-03	0.32	5.00E+00	0.64
NG Skin	7.50E+00	mRem	1.35E-02	0.18	1.10E-02	0.15	1.59E-02	0.21	1.34E-02	0.18	1.50E+01	0.36
NNG Organ	7.50E+00	mRem	1.29E-01	1.72	1.00E-01	1.34	6.66E-02	0.89	8.05E-02	1.07	1.50E+01	2.51
						,	Ţ					
Teenager	Quarterly	llnite	1st	% of	2nd	% of	3.4	% of	4th	% of	Annual	% of
Receptor	Limit		Quarter	Limit	Quarter	Limit	Quarter	Limit	Quarter	Limit	Limit	Limit
Gamma Air	5.00E+00	mRad	1.20E-02	0.24	9.77E-03	0.20	1.41E-02	0.28	1.19E-02	0.24	1.00E+01	0.48
Beta Air	1.00E+01	mRad	5.67E-04	0.006	4.41E-04	0.004	6.91E-04	0.007	5.24E-04	0.005	2.00E+01	0.01
NG Total Body	2.50E+00	mRem	8.00E-03	0.32	6.52E-03	0.26	9.42E-03	0.38	7.93E-03	0.32	5.00E+00	0.64
NG Skin	7.50E+00	mRem	1.35E-02	0.18	1.10E-02	0.15	1.59E-02	0.21	1.34E-02	0.18	1.50E+01	0.36
NNG Organ	7.50E+00	mRem	6.54E-02	0.87	5.07E-02	0.68	3.36E-02	0.45	4.07E-02	0.54	1.50E+01	1.27
				<b>7</b>		<b>1</b>	<b>o</b> rd	ì				ì
Adult Receptor	Limit	Units	Quarter	<sup>%</sup> or	Quarter	% or Limit	Quarter	% or Limit	4un Quarter	% or Limit	Limit	% or Limit
Gamma Air	5.00E+00	mRad	1.20E-02	0.24	9.77E-03	0.20	1.41E-02	0.28	1.19E-02	0.24	1.00E+01	0.48
Beta Air	1.00E+01	mRad	5.67E-04	0.006	4.41E-04	0.004	6.91E-04	0.007	5.24E-04	0.005	2.00E+01	0.01
NG Total Body	2.50E+00	mRem	8.00E-03	0.32	6.52E-03	0.26	9.42E-03	0.38	7.93E-03	0.32	5.00E+00	0.64
NG Skin	7.50E+00	mRem	1.35E-02	0.18	1.10E-02	0.15	1.59E-02	0.21	1.34E-02	0.18	1.50E+01	0.36
NNG Organ	7.50E+00	mRem	4.13E-02	0.55	3.20E-02	0.43	2.13E-02	0.28	2.57E-02	0.34	1.50E+01	0.80

The LaSalle County Nuclear Power Station maximum expected annual dose from Carbon-14 has been calculated using the maximum gross thermal capacity at full power operation. The resultant bounding doses are based upon site specific assumptions of source term.

MAXIMUM DOSES RESULTING FROM LIQUID RELEASES AND COMPLIANCE STATUS EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) LASALLE COUNTY NUCLEAR POWER STATION RADIOLOGICAL IMPACT ON MAN

Limit Limit % of Limit % of % of % of Limit 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 3.00E+00 4.00E+00 4.00E+00 3.00E+00 4.00E+00 4.00E+00 3.00E+00 4.00E+00 3.00E+00 4.00E+00 4.00E+00 4.00E+00 1.00E+01 1.00E+01 1.00E+01 1.00E+01 Annual Limit Annual Annual Annual Limit Limit Limit % of Limit % of Limit % of Limit % of 0.00 0.00 0.00 0.00 0.00 Limit 0.00 0.00 0.00E+00 Quarter Quarter Quarter Quarter 4th 4th 4th 4th Limit % of Limit % of Limit 0.00 % of Limit 0.00 0.00 % of 0.00 0.00 0.00 0.00 0.00E+00 Quarter Quarter Quarter Quarter з<sup>г</sup> З<sup>rd</sup> З<sup>гд</sup> з<sup>д</sup> Limit % of Limit Limit % of Limit % of % of 0.00 0.00 0.00 0.00 0.00 0.00 0.00E+00 Quarter Quarter Quarter Quarter 2nd 2nd 2nd 2nd Limit Limit % of Limit % of Limit % of 0.00 0.00 % of 0.00 0.00 0.00 0.00 0.00 0.00 0.00E+00 Quarter Quarter Quarter Quarter 1st 1st 1st 1st 40CFR141 compliance (nearest public drinking water) mRem Units Units Units Units 5.00E+00 Quarterly 1.50E+00 5.00E+00 Quarterly 1.50E+00 Quarterly 1.50E+00 5.00E+00 Quarterly 1.50E+00 5.00E+00 10CFR50 Appendix I compliance 10CFR50 Appendix I compliance 10CFR50 Appendix I compliance 10CFR50 Appendix I compliance Limit Limit Limit Limit Total Body Teenager Receptor Receptor Receptor Receptor Organ Organ Organ Organ Organ Organ Child Organ Adult Organ Infant

Page 21 of 78

# LASALLE COUNTY NUCLEAR POWER STATION EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT (2014) RADIOLOGICAL IMPACT ON MAN MAXIMUM DOSES RESULTING FROM RELEASES AND COMPLIANCE STATUS

# 10CFR20 / 40CFR190 Compliance

	1 <sup>st</sup> Quarter Dose (mRem)	2 <sup>nd</sup> Quarter Dose (mRem)	3 <sup>rd</sup> Quarter Dose (mRem)	4 <sup>th</sup> Quarter Dose (mRem)	Annual Dose (mRem)	Annual Limit (mRem/yr)	% Annual Limit
Unit 1							
						40CFR190 Compli	ance
U1 D <sup>Ex</sup>	8.25E-02	1.04E-01	1.06E-01	9.71E-02	3.90E-01	25	1.56
						10CFR20 Complia	nce
				0.005.04	F		<b></b>
U1 D <sup>Tot</sup>	3.96E-01	3.47E-01	2.68E-01	2.92E-01	1.30E+00	100	1.30
						40CFR190 Compli	ance
Bone	7.67E-03	7.46E-03	7.28E-03	7.38E-03	2.98E-02	25	0.12
Liver	2.46E-03	2.22E-03	1.99E-03	2.16E-03	8.83E-03	25	0.04
Thyroid	3.13E-01	2.43E-01	1.61E-01	1.95E-01	9.12E-01	75	1.22
Kidney	2.62E-03	2.35E-03	2.07E-03	2.25E-03	9.29E-03	25	0.04
Lung	1.48E-03	1.48E-03	1.49E-03	1.54E-03	6.00E-03	25	0.02
GI-LLI	1.53E-03	1.51E-03	1.52E-03	1.58E-03	6.13E-03	25	0.02
Unit 2							
						40CFR190 Complia	ance
U2 D <sup>Ex</sup>	9.71E-02	8.60E-02	8.43E-02	9.90E-02	3.66E-01	25	1.47
						10CFR20 Complia	nce
U2 D <sup>Tot</sup>	9.71E-02	8.60E-02	8.43E-02	9.90E-02	3.66E-01	100	0.37
						40CFR190 Complia	ance
Bone	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	25	0.00
Liver	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	25	0.00
Thyroid	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	75	0.00
Kidney	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	25	0.00
Lung	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	25	0.00
GI-LLI	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	25	0.00

#### LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Extremely Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

TT 1		Wind	Speed ()	in mpn)			
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	0	8	3	0	0	11
NNE	0	2	5	1	0	0	8
NE	0	0	5	1	0	0	6
ENE	0	0	0	2	0	0	2
Ε	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	2	0	8	0	10
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	6	0	1	7
WNW	0	0	0	1	3	0	4
NW	0	0	0	0	1	0	1
NNW	0	0	1	2	0	0	3
Variable	0	0	0	0	0	0	0
Total	0	2	21	16	12	1	52

### LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Moderately Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Tri à se al		Wind	Speed (i	n mph)			
Wind Direction	1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	4	2	0	0	6
NNE	0	0	2	1	0	0	3
NE	0	0	1	2	0	0	3
ENE	0	0	1	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	0	2	0	0	2
SE	0	0	1	2	1	0	4
SSE	0	0	0	1	0	0	1
S	0	0	6	3	0	0	9
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	1	0	0	2	3
W	0	0	0	1	1	1	3
WNW	0	0	0	0	1	0	1
NW	0	0	0	0	0	0	0
NNW	0	2	4	2	0	0	8
Variable	0	0	0	0	0	0	0
Total	0	2	20	16	3	3	44

### LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Slightly Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

#### Wind Speed (in mph)

· · · · ·		Wind	Speed ()	ln mph)			
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
Ν	0	0	3	5	0	0	8
NNE	0	0	10	7	0	0	17
NE	0	0	3	2	3	0	8
ENE	0	1	6	1	0	0	8
É	0	1	0	0	0	0	1
ESE	0	1	4	1	0	0	6
SE	0	0	5	0	2	0	7
SSE	0	0	2	5	0	0	7
S	0	3	1	1	1	1	7
SSW	0	1	6	0	0	0	7
SW	0	0	1	1	0	2	4
WSW	0	0	1	2	0	4	7
W	0	0	1	3	0	0	4
WNW	0	1	3	0	1	1	6
NW	0	0	2	0	1	0	3
NNW	0	0	4	2	0	0	6
Variable	0	0	0	0	0	0	0
Total	0	8	52	30	8	8	106

LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Neutral - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

		Wind	Speed ()	in mpn)			
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	8	26	18	9	0	61
NNE	0	7	7	0	0	0	14
NE	0	4	9	15	11	0	39
ENE	0	2	3	39	3	0	47
E	0	2	5	7	0	0	14
ESE	0	4	6	7	5	3	25
SE	1	3	13	13	3	0	33
SSE	1	5	18	4	4	1	33
S	0	4	18	15	17	0	54
SSW	1	4	13	10	7	0	35
SW	0	5	13	14	16	2	50
WSW	0	6	15	9	8	9	47
W	1	8	31	28	6	7	81
WNW	0	17	47	47	19	3	133
NW	0	7	52	25	10	1	95
NNW	0	8	20	59	5	5	97
Variable	0	0	0	0	0	0	0
Total	4	94	296	310	123	31	858

### LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Slightly Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

		WING	speed ()	un mpn)			
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
Ν	1	16	4	3	0	0	24
NNE	0	8	3	0	0	0	11
NE	0	2	0	2	0	0	4
ENE	0	1	17	1	0	0	19
E	0	0	18	3	0	0	21
ESE	1	3	4	2	1	0	11
SE	3	8	7	0	0	0	18
SSE	1	3	7	9	6	3	29
S	1	9	11	13	17	5	56
SSW	2	10	13	5	13	З	46
SW	1	7	10	7	11	8	44
WSW	1	6	23	19	1	0	50
W	1	7	44	13	13	3	81
WNW	0	13	40	61	43	21	178
NW	0	9	19	9	0	1	38
NNW	1	10	16	7	0	0	34
Variable	0	0	0	0	0	0	0
Total	13	112	236	154	105	44	664

#### LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Moderately Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

*** * *		Wind	Speed (1	in mph)			
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	2	3	0	0	0	0	5
NNE	0	1	0	0	0	0	1
NE	1	1	0	0	0	0	2
ENE	0	0	0	0	0	0	0
E	1	4	3	1	0	0	9
ESE	0	13	5	0	0	0	18
SE	0	4	6	0	0	0	10
SSE	3	8	7	0	1	0	19
S	1	8	8	12	0	0	29
SSW	0	6	12	19	3	0	40
SW	2	5	7	13	10	0	37
WSW	1	4	20	13	3	0	41
W	1	6	11	8	5	0	31
WNW	3	8	28	2	6	0	47
NW	1	3	8	0	0	0	12
NNW	0	1	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	16	75	116	68	28	0	303

#### LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Extremely Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

		Wind	speed ()	u mpn)			
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
Ν	0	1	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	2	0	0	0	0	2
ESE	0	2	1	1	0	0	4
SE	0	7	2	0	0	0	9
SSE	0	10	14	2	0	0	26
S	0	6	9	0	0	0	15
SSW	0	2	10	1	0	0	13
SW	0	5	4	1	0	0	10
WSW	1	4	9	5	0	0	19
W	0	6	4	0	0	0	10
WNW	1	4	5	0	0	0	10
NW	2	5	2	0	0	0	9
NNW	1	1	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	5	55	60	10	0	0	130

#### LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Extremely Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

	Wind Speed (in mph)							
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total	
N	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	0	0	
S	0	0	0	0	0	0	0	
SSW	0	0	0	0	0	0	0	
SW	0	0	0	0	0	0	0	
WSW	0	0	0	0	0	0	0	
W	0	0	0	0	0	0	0	
WNW	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	
Variable	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	
- calm in th	is stab	ility cl	lass	0				

### LaSalle County Generating Station

# Period of Record: January - March 2014 Stability Class - Moderately Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		Wind	Speed (:				
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
Ν	0	0	0	0	0	0	0
NNE	0	0	0	0	3	0	3
NE	0	0	0	0	1	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	0	0	4	0	4
urs of calm in th				0 e etabil	ity class	s: 0	

Hours of missing wind measurements in this stability class: 0 Hours of missing stability measurements in all stability classes: 3

LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Slightly Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		Wina					
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	1	1	0	2
NE	0	0	0	1	1	1	3
ENE	0	0	0	0	2	0	2
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	1	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	2	3	0	1	6
SSW	0	0	1	2	0	0	3
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	1	0	1
WNW	0	0	0	0	1	0	1
NW	0	0	0	0	0	2	2
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	3	8	6	4	21
of calm in th						0	

### LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Neutral - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

	wind Speed (in mpn)							
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total	
N	1	5	9	34	35	18	102	
NNE	0	4	12	12	13	4	45	
NE	0	3	5	15	19	22	64	
ENE	0	3	8	26	21	2	60	
E	0	1	1	7	6	0	15	
ESE	0	3	4	11	4	4	26	
SE	1	1	5	5	10	9	31	
SSE	0	0	13	12	11	6	42	
S	0	1	17	23	11	29	81	
SSW	0	1	8	16	7	19	51	
SW	l	3	8	17	6	28	63	
WSW	0	4	6	11	11	20	52	
W	1	2	6	41	21	22	93	
WNW	0	6	12	39	40	33	130	
NW	0	10	31	70	26	28	165	
NNW	1	5	16	26	38	8	94	
Variable	0	0	0	0	0	0	0	
Total	5	52	161	365	279	252	1114	

LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Slightly Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		wina Speed (in mpn)						
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total	
N	0	4	3	5	8	0	20	
NNE	0	6	5	2	2	0	15	
NE	0	1	9	4	0	0	14	
ENE	1	3	8	7	1	0	20	
Е	0	2	7	4	2	1	16	
ESE	0	2	4	3	6	5	20	
SE	0	2	5	5	4	4	20	
SSE	2	2	4	0	11	7	26	
S	1	3	8	5	12	54	83	
SSW	2	3	3	10	7	31	56	
SW	l	2	9	10	9	30	61	
WSW	0	3	6	14	9	20	52	
W	0	0	12	28	12	30	82	
WNW	0	0	7	22	48	85	162	
NW	0	2	9	23	18	15	67	
NNW	0	3	10	7	4	0	24	
Variable	0	0	0	0	0	0	0	
Total	7	38	109	149	153	282	738	

#### LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Moderately Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		Wind Speed (in mph)						
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total	
N	1	2	3	2	1	0	9	
NNE	2	0	3	1	1	0	7	
NE	0	1	1	1	0	0	3	
ENE	1	2	0	0	0	0	3	
Е	1	1	1	3	1	0	7	
ESE	0	1	1	1	2	1	6	
SE	0	1	2	4	2	0	9	
SSE	1	2	0	1	2	1	7	
S	0	3	2	12	3	8	28	
SSW	0	2	2	1	2	19	26	
SW	2	1	0	7	3	11	24	
WSW	1	0	1	2	7	10	21	
W	0	1	0	4	14	5	24	
WNW	2	0	1	4	2	2	11	
NW	1	1	1	3	14	0	20	
NNW	0	1	3	3	6	0	13	
Variable	0	0	0	0	0	0	0	
Total	12	19	21	49	60	57	218	

### LaSalle County Generating Station

Period of Record: January - March 2014 Stability Class - Extremely Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

	Wind Speed (in mph)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
N	0	1	1	2	2	0	6		
NNE	0	0	0	2	0	0	2		
NE	0	0	1	0	0	0	1		
ENE	0	0	0	0	0	0	0		
E	0	1	0	0	0	0	1		
ESE	0	1	0	0	0	0	1		
SE	0	1	3	0	0	0	4		
SSE	0	0	3	7	1	0	11		
S	0	1	1	9	3	2	16		
SSW	0	0	2	3	3	0	8		
SW	0	0	0	4	2	0	6		
WSW	0	0	0	0	0	0	0		
W	0	0	0	1	0	0	1		
WNW	0	0	0	0	0	0	0		
NW	0	0	0	1	0	0	1		
NNW	0	0	2	2	0	0	4		
Variable	0	0	0	0	0	0	0		
Total	0	5	13	31	11	2	62		

LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Extremely Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

	Wind Speed (in mpn)							
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total	
N	0	0	0	1	0	0	1	
NNE	0	0	0	0	0	0	0	
NE	0	0	1	3	0	0	4	
ENE	0	0	0	8	5	0	13	
E	0	0	0	4	1	0	5	
ESE	0	0	2	0	0	0	2	
SE	0	0	1	0	0	0	1	
SSE	0	0	0	0	0	0	0	
S	0	0	0	1	0	0	1	
SSW	0	0	0	0	5	0	5	
SW	0	0	0	1	0	0	1	
WSW	0	0	0	3	3	1	7	
W	0	0	1	0	3	0	4	
WNW	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	
Variable	0	0	0	0	0	0	0	
Total	0	0	5	21	17	1	44	
of columin th	ia atab	iliter al	244.	0				

### LaSalle County Generating Station

# Period of Record: April - June 2014 Stability Class - Moderately Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)									
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
N	0	0	0	1	0	0	1		
NNE	0	0	0	0	0	0	0		
NE	0	0	0	1	0	0	1		
ENE	0	0	0	2	0	0	2		
E	0	1	0	0	0	0	1		
ESE	0	0	0	0	0	0	0		
SE	0	1	2	0	0	0	3		
SSE	0	0	0	2	2	4	8		
S	0	0	1	5	0	1	7		
SSW	0	0	2	2	1	0	5		
SW	0	0	2	0	0	0	2		
WSW	0	0	5	4	2	0	11		
W	0	0	0	2	2	1	5		
WNW	0	0	2	2	0	0	4		
NW	0	0	0	0	0	0	0		
NNW	0	0	0	7	0	0	7		
Variable	0	0	0	0	0	0	0		
Total	0	2	14	28	7	6	57		

### LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Slightly Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

	wind Speed (in mpn)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
Ν	0	1	5	0	0	0	6		
NNE	0	0	2	0	0	0	2		
NE	0	0	3	2	0	0	5		
ENE	0	0	2	5	2	0	9		
E	0	2	0	0	4	1	7		
ESE	0	0	1	0	0	1	2		
SE	0	2	2	1	0	1	6		
SSE	0	1	2	1	4	2	10		
S	0	2	4	4	1	1	12		
SSW	0	0	13	5	1	0	19		
SW	0	1	13	3	1	0	18		
WSW	0	0	9	10	2	0	21		
W	0	0	10	8	0	4	22		
WNW	0	1	14	8	2	0	25		
NW	0	0	2	5	0	0	7		
NNW	0	1	7	12	0	0	20		
Variable	0	0	0	0	0	0	0		
Total	0	11	89	64	17	10	191		

LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Neutral - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

		Wind Speed (in mph)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total			
N	1	10	21	3	0	0	35			
NNE	0	17	24	2	0	0	43			
NE	0	17	27	23	0	0	67			
ENE	1	26	31	33	12	0	103			
E	0	17	28	8	20	6	79			
ESE	0	5	8	3	5	1	22			
SE	0	9	14	7	5	1	36			
SSE	1	6	23	24	3	5	62			
S	1	13	26	10	8	1	59			
SSW	0	2	35	13	8	0	58			
SW	1	15	20	21	5	2	64			
WSW	1	12	27	26	4	0	70			
W	1	10	17	17	5	3	53			
WNW	0	16	31	17	2	0	66			
NW	1	4	27	4	0	0	36			
NNW	1	14	36	22	2	0	75			
Variable	1	0	0	0	0	0	1			
Total	10	193	395	233	79	19	929			

### LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Slightly Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

	WING Speed (IN mpn)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
N	2	7	9	0	0	0	18		
NNE	0	11	3	0	0	0	14		
NE	1	8	25	8	0	0	42		
ENE	0	4	23	25	0	0	52		
E	0	13	33	26	7	1	80		
ESE	0	7	3	5	0	0	15		
SE	0	9	17	2	0	0	28		
SSE	1	8	12	13	2	1	37		
S	1	7	32	33	4	0	77		
SSW	2	8	36	12	4	0	62		
SW	2	3	17	7	3	0	32		
WSW	2	9	16	6	0	0	33		
W	1	9	14	4	5	3	36		
WNW	1	8	10	1	З	3	26		
NW	0	6	15	2	0	0	23		
NNW	1	5	12	3	0	0	21		
Variable	0	0	0	0	0	0	0		
Total	14	122	277	147	28	8	596		

LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Moderately Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

	wind Speed (in mpn)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
Ν	0	1	1	0	0	0	2		
NNE	0	2	0	0	0	0	2		
NE	0	2	0	0	0	0	2		
ENE	2	0	2	0	0	0	4		
E	1	20	15	2	0	0	38		
ESE	0	9	1	1	0	0	11		
SE	1	8	15	4	0	0	28		
SSE	0	7	11	1	0	0	19		
S	2	9	5	3	0	0	19		
SSW	0	8	11	6	1	0	26		
SW	2	6	3	0	0	0	11		
WSW	1	5	7	7	0	0	20		
W	3	8	7	0	0	0	18		
WNW	0	16	6	0	0	0	22		
NW	1	7	3	0	0	0	11		
NNW	0	3	0	0	0	0	3		
Variable	0	0	0	0	0	0	0		
Total	13	111	87	24	1	0	236		

### LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Extremely Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

		Wind	Speed ()	in mpn)			
Wind Direction	1-3	4 - 7		13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
E	0	4	0	0	0	0	4
ESE	0	8	1	0	0	0	9
SE	0	13	12	1	0	0	26
SSE	0	12	6	1	0	0	19
S	0	9	6	0	0	0	15
SSW	0	9	28	0	0	0	37
SW	0	1	1	0	0	0	2
WSW	1	3	0	0	0	0	4
W	0	4	1	0	0	0	5
WNW	0	5	0	0	0	0	5
NW	0	1	1	0	0	0	2
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	1	70	56	2	0	0	129

LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Extremely Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		wind speed (in mpn)							
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
N	0	0	0	0	0	0	0		
NNE	0	0	0	0	0	0	0		
NE	0	0	0	0	0	0	0		
ENE	0	0	0	0	1	1	2		
E	0	0	0	0	0	2	2		
ESE	0	0	0	0	0	0	0		
SE	0	0	0	0	0	0	0		
SSE	0	0	0	0	0	0	0		
S	0	0	0	0	0	0	0		
SSW	0	0	0	0	0	0	0		
SW	0	0	0	0	0	0	0		
WSW	0	0	0	0	0	1	1		
W	0	0	0	0	0	2	2		
WNW	0	0	0	0	0	0	0		
NW	0	0	0	0	0	0	0		
NNW	0	0	0	0	0	0	0		
Variable	0	0	0	0	0	0	0		
Total	0	0	0	0	1	6	7		
of calm in t of missing w				0 stabili	ty class	: 0			

### LaSalle County Generating Station

# Period of Record: April - June 2014 Stability Class - Moderately Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

	wind speed (in liph)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
Ν	0	0	0	0	0	0	0		
NNE	0	0	0	0	0	0	0		
NE	0	0	0	0	3	0	3		
ENE	0	0	0	2	0	3	5		
Ε	0	1.	0	0	0	1	2		
ESE	0	0	0	0	0	0	0		
SE	0	0	0	0	0	0	0		
SSE	0	0	0	0	0	0	0		
S	0	0	0	0	0	0	0		
SSW	0	0	0	0	1	1	2		
SW	0	0	0	0	0	0	0		
WSW	0	0	0	0	1	0	1		
W	0	0	0	0	0	0	0		
WNW	0	0	0	0	0	0	0		
NW	0	0	0	0	0	0	0		
NNW	0	0	0	0	0	0	0		
Variable	0	0	0	0	0	0	0		
Total	0	1	0	2	5	5	13		

LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Slightly Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

	Wind Speed (in mpn)							
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total	
N	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	
ENE	0	0	0	3	2	0	5	
Ε	0	0	0	0	2	1	3	
ESE	0	0	0	0	0	0	0	
SE	0	0	0	0	0	0	0	
SSE	0	0	0	0	0	3	3	
S	0	0	0	2	0	1	3	
SSW	0	0	0	1	0	3	4	
SW	0	0	0	0	1	0	1	
WSW	0	0	0	1	3	2	6	
W	0	0	0	1	0	6	7	
WNW	0	0	0	2	0	0	2	
NW	0	0	0	0	0	0	0	
NNW	0	0	0	1	0	0	1	
Variable	0	0	0	0	0	0	0	
Total	0	0	0	11	8	16	35	

### LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Neutral - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		Wind	Vind Speed (in mph)					
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total	
N	0	6	19	12	12	0	49	
NNE	0	8	14	22	4	2	50	
NE	1	9	12	29	18	3	72	
ENE	0	13	25	39	51	19	147	
Ε	0	9	25	19	12	21	86	
ESE	1	3	8	9	4	14	39	
SE	0	7	9	15	1	4	36	
SSE	0	0	13	22	10	17	62	
S	0	4	21	32	14	18	89	
SSW	0	4	12	34	17	23	90	
SW	1	9	16	33	21	8	88	
WSW	0	6	12	40	24	10	92	
W	1	4	15	33	24	14	91	
WNW	0	5	26	19	18	9	77	
NW	0	6	23	21	14	1	65	
NNW	0	3	13	36	27	4	83	
Variable	0	1	0	0	0	0	1	
Total	4	97	263	415	271	167	1217	

LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Slightly Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	1	7	6	4	1	19
NNE	0	5	4	2	1	0	12
NE	0	2	11	11	7	0	31
ENE	0	1	16	15	18	1	51
Е	0	1	18	18	15	21	73
ESE	0	0	5	13	7	6	31
SE	0	2	4	16	5	3	30
SSE	0	4	4	8	16	13	45
S	0	2	3	11	26	35	77
SSW	0	2	5	14	25	23	69
SW	0	1	3	16	18	9	47
WSW	0	7	4	12	19	1	43
W	0	4	6	6	11	8	35
WNW	1	1	7	18	11	3	41
NW	0	4	6	19	8	0	37
NNW	2	1	3	11	11	2	30
Variable	0	0	0	0	0	0	0
Total	3	38	106	196	202	126	671

### LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Moderately Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		Wina					
Wind Direction	1-3		8-12	13-18	19-24	> 24	Total
N	0	0	2	1	2	0	5
NNE	0	2	0	0	0	0	2
NE	0	1	0	1	0	0	2
ENE	0	1	0	0	0	0	1
Е	0	1	0	1	4	0	6
ESE	0	0	3	16	2	2	23
SE	0	0	3	10	2	5	20
SSE	0	0	8	4	4	16	32
S	0	2	5	16	11	5	39
SSW	0	0	2	2	6	13	23
SW	0	0	2	5	6	1	14
WSW	0	0	3	0	0	0	3
W	0	1	1	0	1	0	3
WNW	0	0	5	6	1	0	12
NW	0	0	2	10	3	0	15
NNW	2	0	0	4	З	0	9
Variable	0	0	0	0	0	0	0
Total	2	8	36	76	45	42	209

LaSalle County Generating Station

Period of Record: April - June 2014 Stability Class - Extremely Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		Wind					
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	2	1	0	0	3
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
Ε	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	1	3	0	0	4
SSE	0	0	1	1	1	1	4
S	0	0	4	1	0	1	6
SSW	0	1	0	0	2	3	6
SW	0	1	0	1	1	1	4
WSW	0	0	4	0	0	0	4
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	2	12	7	4	6	31

#### LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Extremely Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

		WIIId					
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	0	1	1	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
Е	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	1	1	0	0	2
SW	0	1	0	1	0	0	2
WSW	0	0	0	0	0	0	0
W	0	1	2	3	0	0	6
WNW	0	0	4	4	0	0	8
NW	0	0	0	1	0	0	1
NNW	0	0	0	1	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	3	8	12	0	0	23

### LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Moderately Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

		Wind	Speed (i	n mph)			
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
Ν	0	0	1	1	0	0	2
NNE	0	0	1	0	0	0	1
NE	0	0	1	0	0	0	1
ENE	0	0	2	1	0	0	3
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	1	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	1	1	0	0	2
SSW	0	2	2	1	0	0	5
SW	0	l	4	2	0	0	7
WSW	0	0	6	6	0	0	12
W	0	3	10	4	0	0	17
WNW	0	3	6	11	0	0	20
NW	0	0	0	2	0	0	2
NNW	0	0	0	1	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	9	35	30	0	0	74

### LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Slightly Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

		wind					
	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	0	3	1	0	0	4
NNE	0	1	4	0	0	0	5
NE	0	0	7	0	0	0	7
ENE	0	0	3	0	0	0	3
Ε	0	0	3	2	0	0	5
ESE	0	0	2	2	0	0	4
SE	0	0	3	0	0	0	3
SSE	0	1	4	3	0	0	8
S	0	6	8	1	0	0	15
SSW	0	12	16	1	0	0	29
SW	0	6	7	3	0	0	16
WSW	0	3	3	8	0	0	14
W	0	12	9	3	0	0	24
WNW	0	4	15	6	0	0	25
NW	0	1	12	3	0	0	16
NNW	0	0	2	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	46	101	33	0	0	180

# LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Neutral - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

# Wind Speed (in mph)

Wind			-				
Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	2	48	36	1	0	0	87
NNE	4	20	13	1	0	0	38
NE	7	16	19	5	0	0	47
ENE	0	16	38	1	0	0	55
E	3	17	18	3	0	0	41
ESE	2	11	9	3	0	0	25
SE	1	13	6	1	0	0	21
SSE	2	16	16	5	0	0	39
S	3	19	16	6	0	0	44
SSW	0	24	17	2	0	0	43
SW	4	24	20	10	2	0	60
WSW	4	18	8	10	0	0	40
W	3	22	16	8	1	0	50
WNW	0	11	39	13	5	0	68
NW	5	15	7	12	2	0	41
NNW	2	19	33	18	2	0	74
Variable	1	0	0	0	0	0	1
Total	43	309	311	99	12	0	774

# LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Slightly Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

	wind Speed (in mpn)									
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total			
N	2	17	4	0	0	0	23			
NNE	4	14	5	0	0	0	23			
NE	3	8	14	0	0	0	25			
ENE	1	2	21	1	0	0	25			
Е	1	17	19	0	0	0	37			
ESE	3	5	4	0	0	0	12			
SE	4	10	4	1	0	0	19			
SSE	6	14	17	0	0	0	37			
S	1	20	27	3	0	0	51			
SSW	3	11	25	0	0	0	39			
SW	2	9	18	7	1	0	37			
WSW	2	15	19	4	1	0	41			
W	2	13	12	2	0	0	29			
WNW	4	15	20	3	0	0	42			
NW	2	5	6	0	0	0	13			
NNW	1	12	3	0	0	0	16			
Variable	0	0	0	0	0	0	0			
Total	41	187	218	21	2	0	469			

#### LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Moderately Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph) Wind Direction 1-3 4-7 8-12 13-18 19-24 > 24 Total \_\_\_\_\_ \_\_\_\_ \_\_\_\_ \_\_\_\_ 0 10 0 0 0 0 10 Ν NNE 1 3 0 0 0 0 NE ENE Ε 26 17 ESE SE SSE 0 37 1 27 S SSW 14 10 SW WSW W 0 29 0 33 WNW 1 3 NW 

Total 37 215 69 0 0 321

Hours of calm in this stability class: 0 Hours of missing wind measurements in this stability class: 2 Hours of missing stability measurements in all stability classes: 0

NNW

Variable

### LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Extremely Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

		Wind					
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	1	0	0	0	0	2
E	2	15	4	0	0	0	21
ESE	2	35	0	0	0	0	37
SE	8	29	0	0	0	0	37
SSE	2	41	0	0	0	0	43
S	2	54	1	0	0	0	57
SSW	4	26	3	0	0	0	33
SW	2	30	0	0	0	0	32
WSW	4	22	3	0	0	0	29
W	1	29	1	0	0	0	31
WNW	2	11	0	0	0	0	13
NW	0	2	0	0	0	0	2
NNW	1	0	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	31	295	12	0	0	0	338

LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Extremely Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		Wind					
Wind Direction	1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
Е	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
of calm in th				0 s stabil	ity class	· 0	

# LaSalle County Generating Station

# Period of Record: July - September 2014 Stability Class - Moderately Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		Wind	Speed (1	in mph)			
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	2	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	1	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	0	1	2	0	3
Hours of calm in t Hours of missing t Hours of missing s	wind meas	urements	in this				0

### LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Slightly Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		WING					
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	0	0	2	2	0	4
NNE	0	0	0	1	0	0	l
NE	0	0	1	1	0	0	2
ENE	0	0	0	3	0	0	3
Ε	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	1	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	1	0	1	0	2
SSW	0	1	3	1	1	0	6
SW	0	0	1	1	0	0	2
WSW	0	0	0	0	0	0	0
W	0	0	4	7	1	0	12
WNW	0	0	4	10	2	0	16
NW	0	0	0	1	4	0	5
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	1	14	28	11	0	54

# LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Neutral - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

	wind speed (in mpn)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
Ν	1	28	28	33	6	0	96		
NNE	1	19	14	13	3	0	50		
NE	4	12	20	33	6	0	75		
ENE	0	12	31	22	0	0	65		
E	2	13	18	15	0	0	48		
ESE	1	7	12	8	0	0	28		
SE	5	11	5	7	0	1	29		
SSE	0	11	21	5	1	0	38		
S	0	16	21	10	11	4	62		
SSW	1	15	24	27	6	2	75		
SW	1	14	23	20	17	3	78		
WSW	2	13	19	21	9	0	64		
W	2	18	21	13	7	3	64		
WNW	1	10	37	28	15	7	98		
NW	1	12	18	28	27	9	95		
NNW	2	11	12	18	17	3	63		
Variable	0	1	0	0	0	0	1		
Total	24	223	324	301	125	32	1029		

LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Slightly Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

		Wind Speed (in mph)							
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
N	3	5	5	11	1	0	25		
NNE	3	2	6	10	3	0	24		
NE	1	6	9	12	1	0	29		
ENE	1	3	7	19	6	0	36		
E	0	5	4	14	16	0	39		
ESE	1	0	6	5	5	0	17		
SE	1	4	11	9	2	0	27		
SSE	0	5	5	14	5	1	30		
S	0	3	11	16	19	4	53		
SSW	5	2	14	20	22	7	70		
SW	0	5	15	11	22	6	59		
WSW	1	9	7	14	17	3	51		
W	4	4	12	7	5	4	36		
WNW	1	8	9	11	8	3	40		
NW	1	3	12	14	13	0	43		
NNW	1	6	7	7	1	0	22		
Variable	0	0	0	0	0	0	0		
Total	23	70	140	194	146	28	601		

### LaSalle County Generating Station

# Period of Record: July - September 2014 Stability Class - Moderately Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

	wina Speed (in mpn)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
N	0	1	2	4	0	0	7		
NNE	1	1	3	3	0	0	8		
NE	1	0	0	1	0	0	2		
ENE	0	1	1	0	0	0	2		
E	0	0	1	9	14	3	27		
ESE	0	1	11	10	6	0	28		
SE	1	3	16	15	0	0	35		
SSE	1	6	15	16	5	0	43		
S	0	11	26	17	10	3	67		
SSW	6	7	15	13	5	6	52		
SW	0	8	8	7	14	1	38		
WSW	1	5	15	3	1	0	25		
W	1	4	11	4	3	0	23		
WNW	0	9	8	12	2	0	31		
NW	0	0	5	16	4	0	25		
NNW	0	2	3	1	3	0	9		
Variable	0	0	0	0	0	0	0		
Total	12	59	140	131	67	13	422		

### LaSalle County Generating Station

Period of Record: July - September 2014 Stability Class - Extremely Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

	Wind Speed (in mph)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
N	0	0	0	0	0	0	0		
NNE	0	0	0	0	0	0	0		
NE	0	0	0	0	0	0	0		
ENE	0	0	0	0	0	0	0		
E	0	0	0	0	0	0	0		
ESE	0	0	0	3	0	0	3		
SE	0	0	3	14	2	0	19		
SSE	0	0	7	12	0	0	19		
S	1	1	3	6	2	0	13		
SSW	0	2	4	6	0	0	12		
SW	1	5	3	0	0	0	9		
WSW	0	3	7	0	0	0	10		
W	1	1	3	0	0	0	5		
WNW	0	0	1	0	0	0	1		
NW	0	2	1	0	0	0	3		
NNW	0	0	3	2	0	0	5		
Variable	0	0	0	0	0	0	0		
Total	3	14	35	43	4	0	99		

LaSalle County Generating Station

Period of Record: October - December2014 Stability Class - Extremely Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

# Wind Speed (in mph)

		Wind Speed (in mph)									
Wind Directior		4 - 7	8-12	13-18	19-24	> 24	Total				
Ν	0	0	0	0	0	0	0				
NNE	0	0	0	0	0	0	0				
NE	0	0	0	0	0	0	0				
ENE	0	0	0	0	0	0	0				
Е	0	0	0	0	0	0	0				
ESE	0	0	0	0	0	0	0				
SE	0	0	0	0	0	0	0				
SSE	0	0	0	0	0	0	0				
S	0	0	0	0	0	0	0				
SSW	0	0	0	1	0	0	1				
SW	0	0	0	1	0	0	1				
WSW	0	0	0	0	0	0	0				
W	0	0	0	0	0	0	0				
WNW	0	0	0	0	0	0	0				
NW	0	0	0	0	0	0	0				
NNW	0	0	0	0	0	0	0				
Variable	0	0	0	0	0	0	0				
Total	0	0	0	2	0	0	2				
Hours of calm in Hours of missing Hours of missing	wind measu	irements	in this	0 s stabili n all sta	ty class ability c	: 0 lasses:	5				

### LaSalle County Generating Station

# Period of Record: October - December2014 Stability Class - Moderately Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

### Wind Speed (in mph)

	Wind Speed (in mph)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
N	0	0	0	0	0	0	0		
NNE	0	0	0	0	0	0	0		
NE	0	0	0	0	0	0	0		
ENE	0	0	0	0	0	0	0		
E	0	0	0	0	0	0	0		
ESE	0	0	0	0	0	0	0		
SE	0	0	0	0	0	0	0		
SSE	0	0	0	0	0	0	0		
S	0	0	0	0	0	0	0		
SSW	0	0	0	4	0	0	4		
SW	0	0	0	5	0	0	5		
WSW	0	0	0	0	0	0	0		
W	0	0	0	1	1	0	2		
WNW	0	0	3	0	0	0	3		
NW	0	0	1	0	0	0	1		
NNW	0	0	0	0	0	0	0		
Variable	0	0	0	0	0	0	0		
Total	0	0	4	10	1	0	15		
calm in th				0	· · · · · · · · · · · · · · · · · · ·	0			

### LaSalle County Generating Station

Period of Record: October - December2014 Stability Class - Slightly Unstable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

# Wind Speed (in mph)

Wind		Wind Speed (in mph)								
Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total			
N	0	0	0	0	0	0	0			
NNE	0	1	0	0	0	0	1			
NE	0	0	0	0	0	0	0			
ENE	0	0	0	0	0	0	0			
E	0	0	0	0	0	0	0			
ESE	0	0	0	2	0	0	2			
SE	0	0	0	1	0	0	1			
SSE	0	0	0	0	0	1	1			
S	0	0	2	1	1	1	5			
SSW	0	0	2	4	2	0	8			
SW	0	0	1	5	0	0	6			
WSW	0	0	0	4	0	0	4			
W	0	4	0	8	1	0	13			
WNW	0	0	1	5	1	0	7			
NW	0	0	0	0	0	0	0			
NNW	0	0	0	0	0	0	0			
Variable	0	0	0	0	0	0	0			
Total	0	5	6	30	5	2	48			

### LaSalle County Generating Station

Period of Record: October - December2014 Stability Class - Neutral - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

# Wind Speed (in mph)

		Wind Speed (in mph)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total			
N	0	18	32	18	3	2	73			
NNE	2	12	15	0	0	0	29			
NE	0	5	4	0	0	0	9			
ENE	0	5	5	0	0	0	10			
E	0	8	10	0	0	0	18			
ESE	0	7	17	18	0	0	42			
SE	1	7	10	22	2	0	42			
SSE	0	9	19	17	1	0	46			
S	0	12	29	13	2	1	57			
SSW	1	10	22	16	2	0	51			
SW	2	12	31	14	4	0	63			
WSW	1	10	25	13	0	3	52			
W	2	12	27	48	24	5	118			
WNW	2	13	59	94	16	0	184			
NW	1	6	26	21	0	0	54			
NNW	1	15	68	29	13	8	134			
Variable	0	0	0	0	0	0	0			
Total	13	161	399	323	67	19	982			

### LaSalle County Generating Station

Period of Record: October - December2014 Stability Class - Slightly Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

### Wind Speed (in mph)

Wind Speed (in mph)							
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	1	19	3	1	0	0	24
NNE	0	21	4	0	0	0	25
NE	0	3	14	0	0	0	17
ENE	0	1	6	0	0	0	7
E	0	4	7	0	0	0	11
ESE	2	9	21	0	0	0	32
SE	1	12	19	3	0	0	35
SSE	5	21	18	12	0	0	56
S	2	9	34	34	2	0	81
SSW	3	10	30	47	2	0	92
SW	0	15	27	18	3	0	63
WSW	3	3	32	18	1	0	57
W	1	15	27	33	17	3	96
WNW	3	11	35	21	26	8	104
NW	1	10	16	0	0	0	27
NNW	0	20	7	4	0	0	31
Variable	0	0	0	0	0	0	0
Total	22	183	300	191	51	11	758

### LaSalle County Generating Station

Period of Record: October - December2014 Stability Class - Moderately Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

# Wind Speed (in mph)

	Wind Speed (in mph)								
Wind Direction	1-3	4 - 7		13-18	19-24	> 24	Total		
Ν	0	8	0	0	0	0	8		
NNE	4	5	0	0	0	0	9		
NE	1	0	0	0	0	0	1		
ENE	2	0	0	0	0	0	2		
E	3	6	7	0	0	0	16		
ESE	0	7	1	0	0	0	8		
SE	0	8	2	0	0	0	10		
SSE	1	6	8	2	0	0	17		
S	0	9	14	6	0	0	29		
SSW	0	15	27	4	0	0	46		
SW	1	12	8	3	0	0	24		
WSW	1	13	30	4	0	0	48		
W	1	29	21	0	0	0	51		
WNW	1	12	4	0	0	0	17		
NW	2	3	6	0	0	0	11		
NNW	2	1	2	0	0	0	5		
Variable	0	0	0	0	0	0	0		
Total	19	134	130	19	0	0	302		

# LaSalle County Generating Station

Period of Record: October - December2014 Stability Class - Extremely Stable - 200Ft-33Ft Delta-T (F) Winds Measured at 33 Feet

Wind Speed (in mph)

**! 3	wind Speed (in mpn)								
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total		
N	2	5	0	0	0	0	7		
NNE	0	0	0	0	0	0	0		
NE	0	0	0	0	0	0	0		
ENE	0	0	0	0	0	0	0		
E	0	5	3	0	0	0	8		
ESE	0	11	3	0	0	0	14		
SE	0	16	1	0	0	0	17		
SSE	0	3	1	0	0	0	4		
S	0	4	4	0	0	0	8		
SSW	0	9	3	0	0	0	12		
SW	0	7	1	0	0	0	8		
WSW	0	3	7	0	0	0	10		
W	0	1	5	0	0	0	6		
WNW	0	0	1	0	0	0	1		
NW	0	0	0	0	0	0	0		
NNW	1	0	0	0	0	0	1		
Variable	0	0	0	0	0	0	0		
Total	3	64	29	0	0	0	96		

#### LaSalle County Generating Station

#### Period of Record: October - December2014 Stability Class - Extremely Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

T.T	wind Speed (in mpn)						
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Hours of missing wind measurements in this stability class: 0 Hours of missing stability measurements in all stability classes: 5

#### LaSalle County Generating Station

#### Period of Record: October - December2014 Stability Class - Moderately Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

<i>.</i> -	wind Speed (in mpn)						
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
of calm in th					ity alaca	. 0	

#### LaSalle County Generating Station

#### Period of Record: October - December2014 Stability Class - Slightly Unstable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

Wind Direction N NNE NE	1-3  0 0	4 - 7  0	8-12  0	13-18	19-24	> 24	Tota
NNE		0	Ο				
	0		v	0	0	0	0
NE	~	0	0	0	0	0	0
	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0

Hours of missing wind measurements in this stability class: 0 Hours of missing stability measurements in all stability classes: 5

#### LaSalle County Generating Station

\*

Period of Record: October - December2014 Stability Class - Neutral - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

	Willd Speed (ill liph)							
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total	
N	0	4	23	34	16	12	89	
NNE	1	2	27	14	1	0	45	
NE	1	2	8	14	0	0	25	
ENE	1	3	12	3	0	0	19	
E	0	4	9	1	0	0	14	
ESE	0	4	7	21	5	1	38	
SE	0	7	2	14	18	6	47	
SSE	0	4	6	15	14	5	44	
S	0	4	19	34	21	12	90	
SSW	1	2	15	17	17	18	70	
SW	0	9	30	21	19	9	88	
WSW	1	6	7	26	12	2	54	
W	1	8	19	24	42	50	144	
WNW	2	4	17	76	82	56	237	
NW	3	7	22	39	42	8	121	
NNW	0	2	27	40	15	17	101	
Variable	0	0	0	0	0	0	0	
Total	11	72	250	393	304	196	1226	

#### LaSalle County Generating Station

#### Period of Record: October - December2014 Stability Class - Slightly Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

#### Wind Speed (in mph)

	Wind Speed (in mph)						
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total
N	0	5	12	3	1	0	21
NNE	0	2	6	13	0	0	21
NE	1	2	9	10	4	0	26
ENE	0	3	12	5	0	0	20
E	0	0	2	6	3	0	11
ESE	0	4	8	15	5	0	32
SE	0	1	5	9	9	3	27
SSE	0	1	10	10	18	4	43
S	0	3	5	18	28	37	91
SSW	2	3	10	22	35	63	135
SW	1	5	8	22	36	14	86
WSW	0	7	5	19	28	9	68
W	0	3	7	13	22	12	57
WNW	1	4	14	20	28	21	88
NW	2	2	11	8	6	0	29
NNW	1	5	7	6	5	1	25
Variable	0	0	0	0	0	0	0
Total	8	50	131	199	228	164	780

#### LaSalle County Generating Station

#### Period of Record: October - December2014 Stability Class - Moderately Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

	wind speed (in mpn)							
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total	
Ν	0	2	0	0	2	1	5	
NNE	1	0	0	1	1	0	3	
NE	0	1	1	4	0	0	6	
ENE	0	1	3	0	0	0	4	
E	0	1	2	0	1	2	6	
ESE	0	1	1	5	7	0	14	
SE	1	0	3	6	2	0	12	
SSE	0	1	1	6	0	0	8	
S	0	1	0	2	3	4	10	
SSW	0	2	4	2	3	0	11	
SW	1	0	3	5	3	6	18	
WSW	0	0	1	6	7	1	15	
W	0	0	1	14	5	4	24	
WNW	0	0	6	1	9	3	19	
NW	0	0	1	0	3	1	5	
NNW	0	0	1	0	3	2	6	
Variable	0	0	0	0	0	0	0	
Total	3	10	28	52	49	24	166	

#### LaSalle County Generating Station

Period of Record: October - December2014 Stability Class - Extremely Stable - 375Ft-33Ft Delta-T (F) Winds Measured at 375 Feet

Wind Speed (in mph)

T7	Wind Speed (in mph)							
Wind Direction	1-3	4 - 7	8-12	13-18	19-24	> 24	Total	
Ν	0	0	0	0	0	0	0	
NNE	0	0	0	0	0	0	0	
NE	0	0	0	0	0	0	0	
ENE	0	0	0	0	0	0	0	
E	0	0	0	0	0	0	0	
ESE	0	0	0	0	0	0	0	
SE	0	0	0	3	5	0	8	
SSE	0	0	0	2	3	3	8	
S	0	0	0	1	2	0	3	
SSW	0	0	1	0	1	0	2	
SW	0	0	1	1	2	0	4	
WSW	0	0	0	0	0	0	0	
W	0	0	0	0	0	0	0	
WNW	0	0	0	0	0	0	0	
NW	0	0	0	0	0	0	0	
NNW	0	0	0	0	0	0	0	
Variable	0	0	0	0	0	0	0	
Total	0	0	2	7	13	3	25	

Appendix A

## RW-AA-100

# PROCESS CONTROL PROGRAM FOR RADIOACTIVE WASTES

Revision 10



## PROCESS CONTROL PROGRAM FOR RADIOACTIVE WASTES

## 1. **PURPOSE**

- 1.1. The purpose of the Process Control Program (PCP) is to:
- 1.1.1. Establish the process and boundary conditions for the preparation of specific procedures for processing, sampling, analysis, packaging, storage, and shipment of solid radwaste in accordance with local, state, and federal requirements. **(CM-1)**
- 1.1.2. Establish parameters which will provide reasonable assurance that all Low Level Radioactive Wastes (LLRW), processed by the in-plant waste process systems on-site OR by on-site vendor supplied waste processing systems, meet the acceptance criteria to a Licensed Burial Facility, as required by 10CFR Part 20, 10CFR Part 61, 10CFR Part 71, 49CFR Parts 171-172, "Technical Position on Waste Form (Revision 1)" [1/91], "Low-Level Waste Licensing Branch Technical Position on Radioactive Waste Classification" [5/83], and the Station Technical Specifications, as applicable.
- 1.1.3. Provide reasonable assurance that waste placed in "on-site storage" meets the requirements as addressed within the Safety Analysis Reports for the low level radwaste storage facilities for dry and/or processed wet waste.

## 2. TERMS AND DEFINITIONS

- 2.1. **Process Control Program (PCP):** The program which contains the current formulas, sampling, analysis, tests, and determinations to be made to ensure that processing and packaging of solid radioactive waste based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure the waste meets the <u>stabilization criteria</u> specified in 10CFR Parts 20, 61 and 71, state regulations, and burial site requirements.
- 2.2. **Solidification:** Liquid waste processed to either an unstable or stable form per 10CFR61 requirements. Waste solidified does not have to meet the 300-year free standing monolith criteria. Approved formulas, samples and tests do not have to meet NRC approval for wastes solidified in a container meeting stability criteria (e.g. High Integrity Container).
- 2.3. **Stabilization:** Liquid waste processed to a "stable state" per 10CFR61 Requirements. Established formulas, samples, and tests shall be approved by the NRC in order to meet solidification "stabilization" criteria. This processing method is currently not available, because the NRC recognizes that waste packed in a High Integrity Container meets the 300-year stabilization criteria. In the event that this processing method becomes an acceptable method, then the NRC shall approve the stabilization formulas, samples, tests, etc.

- 2.4. Solidification Media: An approved media (e.g. Barnwell vinyl ester styrene, cement, bitumen) when waste containing nuclides with greater than 5-year half lives is solidified in a container with activity greater than 1 micro curie/cc. Waste solidified in a HIC is approved by the commission meeting the 10CFR61 stabilization criteria, including 1% free standing liquids by volume when the waste is packaged to a "stable" form and  $\leq 0.5\%$  when waste is packaged to an "unstable" form. The formulas, sampling, analysis, and test do not require NRC approval, because the HIC meets the stability criteria.
- 2.4.1. Solidification to an unstable or stable state is performed by vendors, when applicable. Liquid waste solidified to meet stabilization criteria (10CFR61 and 01-91 Branch Technical Requirements) shall have documentation available that demonstrates that the process is approved by the NRC or disposal facility.
- 2.5. **Dewatering:** The process of removing fluids from liquid waste streams to produce a waste form that meets the requirements of 10CFR Part 61 and applicable burial site criteria,  $\leq 0.5\%$  by volume when the waste is packaged to an "unstable" state, or  $\leq 1\%$  by volume when the waste is packaged to a "stable" form.
- 2.6. <u>**High Integrity Container (HIC):**</u> A disposable container that is approved to the Requirements of 10CFR61. The use of HIC's is an alternative to solidification or encapsulation in a steel container to meet burial stability. HIC's are used to package dewatered liquid wastes, (e.g. filter cartridges, filter media, resin, sludges, etc), or dry active waste.
- 2.7. Liquid Waste Processing Systems: In-plant or vendor supplied processing systems consisting of equipment utilized for evaporation, filtration, demineralization, dewatering, compression dewatering, solidification, or reverse osmosis (RO) for the treatment of liquid wastes (such as Floor Drains, Chemical Drains and Equipment Drain inputs).
- 2.8. Incineration, RVR, and/or Glass Vitrification of Liquid or Solid: Dry or wet waste processed via incineration and/or thermal processing where the volume is reduced by thermal means meets 10CFR61 requirements.
- 2.9. **Compaction:** When dry wastes such as paper, wood, plastic, cardboard, incinerator ash, and etc. are volume reduced through the use of a compactor.

## 2.10. **Waste Streams:** Consist of but are not limited to

- Filter media (powdered, bead resin and fiber),
- Filter cartridges,
- Pre-coat body feed material,
- Contaminated charcoal,
- Fuel pool activated hardware,
- Oil Dry absorbent material added to a container to absorb liquids
- Fuel Pool Crud
- Sump and tank sludges,
- High activity filter cartridges,
- Concentrated liquids,
- Contaminated waste oil,
- Dried sewage or wastewater plant waste,
- Dry Active Waste (DAW): Waste such as filters, air filters, low activity cartridge filters, paper, wood, glass, plastic, cardboard, hoses, cloth, and metals, etc, which have become contaminated as a consequence of normal operating, housekeeping and maintenance activities.
- Other radioactive waste generated from cleanup of inadvertent contamination.
- 2.11. **Concentration Averaging**: Concentration averaging is either: a) the mathematical averaging of waste concentrations, based on the size, geometry, type of radioactive emission, and observed dose rates, or b) the combining of radioactive components in a single container and how their radioactivity may be averaged over the volume of the container. Concentration averaging is subject to constraints identified in the NRC's Branch Technical Position on Concentration Averaging and Encapsulation and may also be constrained by Agreement States or Disposal Facilities.
- 2.12. **Encapsulation**: Encapsulation is the surrounding of a radioactive source or component with a nonradioactive material. Encapsulation involves a radioactive core surrounded by a non-radioactive matrix.
- 2.13. **Blending:** The intentional mixing of different, but miscible waste streams (such as resins, filter media, etc.) from different batches or systems for the purpose of operational efficiency or ALARA. Blending applies to LLRW streams only. The addition of non-radioactive materials or fillers is not considered blending.

## 3. **RESPONSIBILITIES**

3.1. Implementation of this Process Control Program (PCP) is described in procedures at each station and is the responsibility of the each site to implement.

## 4. MAIN BODY

## 4.1. Process Control Program Requirements

- 4.1.1. A change to this PCP (Radioactive Waste Treatment Systems) may be made provided that the change is reported as part of the annual radioactive effluent release report, Regulatory Guide 1.21, and is approved by the Plant Operations Review Committee (PORC).
- 4.1.2. Changes become effective upon acceptance per station requirements.
- 4.1.3. A solidification media, approved by the burial site, may be **REQUIRED when** liquid radwaste is solidified to a stable/unstable state.
- 4.1.4. **When** processing liquid radwaste to meet solidification stability using a vendor supplied solidification system:
  - 1. **If** the vendor has its own Quality Assurance (QA) Program, **then** the vendor shall **ADHERE** to its own QA Program and shall have **SUBMITTED** its process system topical report to the NRC or agreement state.
  - 2. If the vendor does <u>not</u> HAVE its own Quality Assurance Program, then the vendor shall ADHERE to an approved Quality Assurance Topical Report standard belonging to the Station or to another approved vendor.
- 4.1.5. The vendor processing system(s) is/are controlled per the following:
  - 1. A commercial vendor supplied processing system(s) may be **USED** for the processing of LLRW streams.
  - 2. Vendors that process liquid LLRW at the sites shall **MEET** applicable Quality Assurance Topical Report and Augmented Quality Requirements.
- 4.1.6. Vendor processing system(s) operated at the site shall be **OPERATED and CONTROLLED** in accordance with vendor approved procedures or station procedures based upon vendor approved documents.
- 4.1.7. All waste streams processed for burial or long term on-site storage shall **MEET** the waste classification and characteristics specified in 10CFR Part 61.55, Part 61.56, the 5-83 Branch Technical Position for waste classification, and the applicable burial site acceptance criteria (for any burial site operating at the time the waste was processed).
- 4.1.8. An Exelon Nuclear plant may store waste at another Exelon Nuclear plant, provided formal NRC approval has been **RECEIVED** for the transfer of waste.

## 4.2. <u>General Waste Processing Requirements</u>

- NOTE: On-site resin processing involves tank mixing and settling, transferring to the station or vendor processing system via resin water slurry or vacuuming into approved waste containers, and, when applicable, dewatering for burial.
- 4.2.1. Vendor resin beds may be **USED** for decontamination of plant systems, such as, SFP (Spent Fuel Pool), RWCU (reactor water cleanup), and SDC (Shut Down Cooling). These resins are **then PROCESSED** via the station or vendor processing system.
- 4.2.2. Various drains and sump discharges will be **COLLECTED** in tanks or suitable containers for processing treatment. Water from these tanks may be **SENT** through a filter, demineralizer, concentrator or vendor supplied processing systems.
- 4.2.3. Process waste (e.g. filter media, sludges, resin, etc) will be periodically **DISCHARGED** to the station or vendor processing system for onsite waste treatment **or PACKAGED** in containers for shipment to offsite vendor for volume reduction processing.
- 4.2.4. Process water (e.g. chemical, floor drain, equipment drain, etc.) may be **SENT** to either the site waste processing systems or vendor waste processing systems for further filtration, demineralization for plant re-use, or discharge.
- 4.2.5. All dewatering and solidification/stabilization will be **PERFORMED** by either utility site personnel or by on-site vendors **or** will be **PACKAGED** and **SHIPPED** to an off-site vendor low-level radwaste processing facility.
- 4.2.6. Dry Active Waste (DAW) will be **HANDLED and PROCESSED** per the following:
  - 1. DAW will be **COLLECTED and SURVEYED and** may be **SORTED** for compactable and non-compactable wastes.
  - 2. DAW may be packaged in containers to facilitate on-site pre-compaction and/or off-site vendor contract requirements.
  - 3. DAW items may be **SURVEYED** for release onsite or offsite when applicable.
  - Contaminated filter cartridges will be PLACED into a HIC or will be ENCAPSULATED in an in-situ liner for disposal or SHIPPED to an offsite waste processor in drums, boxes or steel liners per the vendor site criteria for processing and disposal.

- 4.2.7. Filtering devices using pre-coat media may be **USED** for the removal of suspended solids from liquid waste streams. The pre-coat material or cartridges from these devices may be routinely **REMOVED** from the filter vessel and discharged to a Filter Sludge Tank or Liner/HIC. Periodically, the filter sludge may be **DISCHARGED** to the vendor processing system for waste treatment onsite **or PACKAGED** in containers for shipment to offsite vendor for volume reduction processing.
- 4.2.8. Activated hardware stored in the Spent Fuel Pools will be **PROCESSED** periodically using remote handling equipment **and** may then be **PUT** into a container for shipment or storage in the pool or loading the processed activated hardware into the Dry Cask storage system.
- 4.2.9. High Integrity Containers (HIC):
  - 1. For disposal at Barnwell, vendors supplying HIC's to the station shall **PROVIDE** a copy of the HIC Certificate of Compliance, which details specific limitations on use of the HIC.
  - 2. For disposal at Clive or WCS, vendors supplying HIC's to the station shall **PROVIDE** a copy of the HIC Certificate of Conformance, which details specific limitations on use of the HIC.
  - 3. Vendors supplying HIC's to the station shall **PROVIDE** a handling procedure which establishes guidelines for the utilization of the HIC. These guidelines serve to protect the integrity of the HIC and ensure the HIC is handled in accordance with the requirements of the Certificate of Compliance or Certificate of Conformance.
- 4.2.10. Lubricants and oils contaminated as a consequence of normal operating and maintenance activities may be PROCESSED on-site (by incineration, for oils meeting 10CFR20.2004 and applicable state requirements, or by an approved vendor process) or SHIPPED offsite (for incineration or other acceptable processing method).
- 4.2.11. Former in-plant systems GE or Stock Drum Transfer Cart and Drum Storage Areas may be **USED** for higher dose DAW storage at Clinton, Dresden, Quad Cities, Braidwood and Byron.
- 4.2.12. Certain waste, including flowable solids from holding pond, oily waste separator, cooling tower basin and emergency spray pond, may be disposed of onsite under the provisions of a 10CFR20.2002 permit. Specific requirements associated with the disposal shall be incorporated into station implementing procedures. **(CM-2)**

- 4.2.13. Concentration averaging may be **PERFORMED** to combine LLRW having different concentrations of radionuclides to form a homogeneous mixture in accordance with the guidance in the NRC's Branch Technical Position on Concentration Averaging and Encapsulation-1995:
  - For homogeneous waste types such as resins and filter media, the concentration of the mixture for classification purposes may be based on either the highest radionuclide concentration in any of the individual waste types contributing to the mixture or the volumetric or weight-averaged nuclide concentrations in the mixture provided that the concentrations of the individual waste type contributors to the mixture are within a factor of 10 of the average concentration of the resulting mixture. (NOTE: a designed collection of homogeneous waste types (from different sources within a facility) is not considered 'mixing' and the concentration for classification purposes may be the average concentration of the combination).
  - For non-homogeneous waste types such as activated metals, cartridge filters or components incorporating radioactivity in their design, the concentration should be determined from the total weight or displaced volume (excluding major void spaces) of the component. Mixtures of components in a disposal container is permissible. Concentration averaging of a mixture of components of similar types can be performed in accordance with the NRC's Branch Technical Position on Concentration Averaging and Encapsulation and any State or Disposal Site specific requirements.
- 4.2.14. Blending may be **PERFORMED** for routine LLRW such as resins and filter media in accordance with the guidance in the NRC's Branch Technical Position on Concentration Averaging and Encapsulation as further clarified in SECY 2010-0043. The concentration of the mixture may be determined based on the total activity of all components in the mixture divided by the total volume or mass of the mixture. Reasonable effort should be made to mix blended LLRW so that activity is evenly distributed.
- 4.2.15. Encapsulation may be **PERFORMED** for routine wastes such as filters, filter cartridges, or sealed sources centered in an encapsulated mass, in accordance with the guidance in the NRC's Branch Technical Position on Concentration Averaging and Encapsulation. Classification may be based on the overall volume of the final solidified mass provided that;
  - The minimum solidified volume or mass should be reasonably difficult to move by hand.
  - The maximum solidified volume or mass used for determining concentration for any single discrete source should be no more than 0.2 m<sup>3</sup> or 500Kg (typically 55-gallon drum).
  - The maximum amount of gamma-emitting radioactivity or radioactive material is <0.02 mrem/hr on the surface of the encapsulation over a 500year decay period.

- The maximum amount of any radionuclide in a single encapsulation, when averaged over the waste and encapsulating media, does not exceed the maximum concentration limits for Class C waste.
- Written procedures should be established to ensure that the radiation source(s) is reasonably centered (or distributed) within the encapsulating media.
- All other disposal facility requirements for encapsulated material are met.
- 4.3. Burial Site Requirements
- 4.3.1. Waste sent directly to burial shall **COMPLY** with the applicable parts of 49CFR171-172, 10CFR61, 10CFR71, and the acceptance criteria for the applicable burial site.
- 4.4. Shipping and Inspection Requirements
- 4.4.1. All shipping/storage containers shall be **INSPECTED**, as required by station procedures, for compliance with applicable requirements (Department of Transportation (DOT), Nuclear Regulatory Commission (NRC), station, on-site storage, and/or burial site requirements) prior to use.
- 4.4.2. Containers of solidified liquid waste shall be **INSPECTED** for solidification quality and/or dewatering requirements per the burial site, offsite vendor acceptance, or station acceptance criteria, as applicable.
- 4.4.3. Shipments sent to an off site processor shall be **INSPECTED** to ensure that the applicable processor's waste acceptance criteria are being met.
- 4.4.4. Shipments sent for off site storage shall **MEET** the storage site's waste acceptance criteria.
- 4.5. Inspection and Corrective Action
- 4.5.1. Inspection results that indicate non-compliance with applicable NRC, State, vendor, or site requirements shall be IDENTIFIED and TRACKED through the Corrective Action Program.
- 4.5.2. Administrative controls for preventing unsatisfactory waste forms from being released for shipment are described in applicable station procedures. If the provisions of the Process Control Program are not satisfied, **then SUSPEND** shipments of defectively packaged radioactive waste from the site. (CM-1)
- 4.5.3. If freestanding water or solidification <u>not</u> meeting program requirements is observed, then samples of the particular series of batches shall be **TAKEN** to determine the cause. Additional samples shall be **TAKEN**, as warranted, to ensure that <u>no</u> freestanding water is present and solidification requirements are maintained.

## 4.6. Procedure and Process Reviews

- 4.6.1. The Exelon Nuclear Process Control Program and subsequent changes (other than editorial/minor changes) shall be **REVIEWED and APPROVED** in accordance with the station procedures, plant-specific Technical Specifications (Tech Spec), Technical Requirements Manual (T&RM), Operation Requirements Manual (ORM), as applicable, for the respective station and LS-AA-106. Changes to the Licensees Controlled Documents, UFSAR, ORM, or TRM are controlled by the provisions of 10CFR 50.59.
- 4.6.2. Any changes to the PCP shall be reviewed to determine if reportability is required in the Annual Radiological Effluent Release Report (ARERR). The Radwaste Specialist shall ensure correct information is **SUBMITTED** to the ODCM program owner prior to submittal of the ARERR.
- 4.6.3. Procedures shall be **IMPLEMENTED** as follows:
  - Station processes or other vendor waste processing/operating procedures shall be technically reviewed and approved per RM-AA-102-1006.
  - Procedures related to waste manifests, shipment inspections, and container activity determinations are **CONTROLLED** by Radiation Protection Standard Procedures (RP-AA-600 Series).
  - Site waste processing **IS CONTROLLED** by site operating procedures.
  - Liquid processed by vendor equipment shall be **PERFORMED** in accordance with vendor procedures.
  - The dewatering procedures implemented by Vendor for the purpose of compliance to the Process Control Program SHALL BE REVIEWED and APPROVED in accordance with the plant specific TRM or ORM (either Current Technical Specifications (CTS) or Improved Technical Specifications (ITS), as applicable for the respective stations).

### 4.7. Waste Types, Point of Generation, and Processing Method

Methods of processing and individual vendors may **CHANGE** due to changing financial and regulatory options. The table below is a representative sample. It is **<u>not</u>** intended be all encompassing.

WASTE STREAM	POINTS OF GENERATION	AVAILABLE WASTE PROCESSING METHODS		
Bead Resin	Systems - Fuel Pool, Condensate, Reactor Water Cleanup, Blowdown,	Dewatering, solidification to an unstable/stable state		
	Equipment Drain, Chemical and Volume Control Systems, Floor Drain,	Thermal Processing		
	Maximum Recycle, Blowdown, Boric Acid Recycling System, Vendor Supplied Processing Systems, and Portable Demin System	Free Release to a Land Fill		
Powdered Resin	Systems - (Condensate System, Floor Drain/Equipment Drain filtration, Fuel Pool)	Dewatering, solidification to an unstable/stable state Thermal Processing		
Concentrated Waste	Waste generated from Site Evaporators resulting typically from the	Solidification to an unstable/stable state		
	Floor Drain and Equipment Drain Systems	Thermal Processing		
Sludge	Sedimentation resulting from various sumps, condensers, tanks, cooling	Dewatering, solidification to an unstable/stable state		
	tower, emergency spray pond, holding pond, and oily waste separators	Thermal Processing		
		Evaporation on-site or at an offsite processor		
		On-site disposal per 10CFR20.2002 permit		
Filter cartridges	Systems - Floor/Equipment Drains, Fuel Pool; cartridge filters are typically	Dewatering, solidification to an unstable/stable state		
	generated from clean up activities within the fuel pool, torus, etc	Processed by a vendor for volume reduction		
Dry Active Waste	Paper, wood, plastic, rubber, glass,	Decon/Sorting for Free Release		
	metal, and etc. resulting from daily plant activities	Compaction/Super-compaction		
		Thermal Processing by Incineration or glass vitrification		
		Sorting for Free Release		
		Metal melting to an ingot		
Contaminated Oil	Oil contaminated with radioactive	Solidification unstable state		
	materials from any in-plant system.	Thermal Processing by Incineration		
		Free Release for recycling		
Drying Bed Sludge	Sewage Treatment and Waste Water Treatment Facilities	Free release to a landfill or burial		
Metals	See DAW	See DAW		
Irradiated Hardware	Fuel Pool, Reactor Components	Volume Reduction for packaging efficiencies		

•

## 5. **DOCUMENTATION**

- 5.1. Records of reviews performed shall be retained for the duration of the unit operating license. This documentation shall contain:
  - 1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change, and
  - 2. A determination which documents that the change will maintain the overall conformance of waste products to Federal (10CFR61 and the Branch Technical Position), State, or other applicable requirements, including applicable burial site criteria.

## 6. **REFERENCES**

- 6.1. <u>Technical Specifications:</u>
- 6.1.1. The details contained in Current Tech Specs (CTS) or Improved Technical Specifications (ITS), as applicable, in regard to the Process Control Program (PCP), are to be relocated to the Licensee Controlled Documents. Some facilities have elected to relocate these details into the Operational Requirements Manual (ORM). Relocation of the description of the PCP from the CTS or ITS does <u>not</u> affect the safe operation of the facility. Therefore, the relocation details are <u>not</u> required to be in the CTS or the ITS to provide adequate protection of the public health and safety.
- 6.2. Writers' References:
- 6.2.1. Code of Federal Regulations: 10 CFR Part 20, Part 61, Part 71, 49 CFR Parts 171-172
- 6.2.2. Low Level Waste Licensing Branch Technical Position on Radioactive Waste Classification, May 1983
- 6.2.3. Technical Position on Waste Form (Revision 1), January 1991
- 6.2.4. USNRC Branch Technical Position on Concentration Averaging and Encapsulation, January 1995
- 6.2.5. Regulatory Guide 1.21, Measuring Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants
- 6.2.6. I.E. Circular 80.18, 10CFR 50.59 Safety Evaluation for Changes to Radioactive Waste Treatment Systems
- 6.2.7. Amendment No. 202 to Facility Operating License No. NPF-11 and Amendment No. 189 to Facility Operating License (FOL) No. NPF-18 for the LaSalle County Station (LSCS), Units 1 and 2

- 6.2.8. NRC Branch Technical Position on Blending of Low-Level Radioactive Waste, SECY-10-0043
- 6.3. <u>Users' References:</u>
- 6.3.1. Quality Assurance Program (QATR)
- 6.3.2. LS-AA-106, Plant Operations Review Committee
- 6.3.3. RM-AA-102-1006, Processing Vendor Documents
- 6.3.4. RP-AA-600 Series, Radioactive Material/Waste Shipments
- 6.3.5. CY-AA-170-2000, Annual Radioactive Effluent Release Report
- 6.4. <u>Station Commitments:</u>
- 6.4.1. Peach Bottom

CM-1, T03819, Letter from G.A. Hunger, Jr., dated Sept. 29 1994, transmitting TSCR 93-16 (Improved Technical Specifications). (Step 1.1.1, 4.5.2)

6.4.2. Limerick

CM-2, T03896, 10CFR20.2002 permit granted to Limerick via letter dated July 10, 1996. (Step 4.2.12)

7. **ATTACHMENTS** - None