Exelon Generation®

T.S. 6.9.1.8
LG-14-067

April 30, 2013

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

Limerick Generating Station, Unit 1 and 2
Facility Operating License Nos. NPF-39 and NPF-85
NRC Docket Nos. 50-352 and 50-353 and 07200065

Subject: 2013 Annual Radioactive Effluent Release Report

In accordance with Section 6.9.1.8 of Limerick Generating Station (LGS) Technical Specifications and Section 6.2 of the Offsite Dose Calculation Manual, attached is the 2013 Annual Radioactive Effluent Release Report No. 39 for LGS.

In accordance with 10CFR72.44(d)(3) Limerick has reviewed DRL data from the ISFSI modules currently loaded. During the period of January 1, 2013 to December 31, 2013, there were no liquid or gaseous effluent releases from the ISFSI at Limerick.

There are no commitments contained in this letter.

If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,

Thomas. J. Dougherty
Vice President-LGS
Exelon Generation Company, LLC

Attachment: 2013 Annual Radioactive Effluent Release Report No. 39 for LGS

cc: W. Dean, Administrator, Region I, USNRC (w/Attachments)
E. DiPaolo, LGS USNRC Senior Resident Inspector (w/Attachment 1 only)
R. Nimitz, Inspector Region I, USNRC (w/Attachments)
USNRC Spent Fuel Project Office, Washington, DC (w/Attachments)
E. Thorton-Jones-US EPA, Office of Radiation and Indoor Air, Radiation Protection Division, Center of Waste Management, 1200 Pennsylvania Ave. MC 6608J, Washington, D.C.20460 (w/Attachments)

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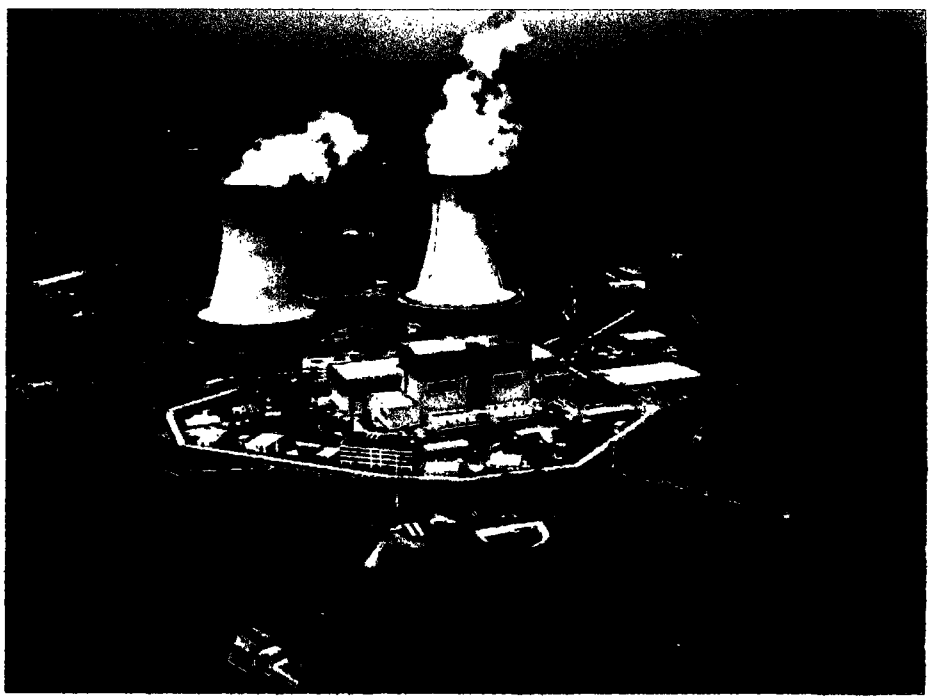
ATTACHMENT

2012 ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT
NO. 39 FOR LGS

Exelon Generation®



Annual Radioactive Effluent Release Report
No. 39

2013

Limerick Generating Station

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

NO. 39

January 1, 2013 through December 31, 2013

EXELON GENERATION COMPANY, LLC

LIMERICK GENERATING STATION
UNITS NO. 1 AND 2

DOCKET NO. 50-352 (Unit 1)

DOCKET NO. 50-353 (Unit 2)

Submitted to
The United States Nuclear Regulatory Commission
Pursuant to
Facility Operating License:

NPF-39 (Unit 1)
NPF-85 (Unit 2)

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
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SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
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SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

1. Introduction

In accordance with the reporting requirements of Technical Specification 6.9.1.8 applicable during the reporting period, this report summarizes the effluent release data for Limerick Generating Station Units 1 and 2 for the period January 1, 2013 through December 31, 2013. This submittal complies with the format described in 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", Revision 1, June, 1974.

Meteorological data was reported in the format specified in Regulatory Guide 1.23, Revision 1, "Meteorological Monitoring Programs for Nuclear Power Plants".

All vendor results were received and included in the report calculations. Therefore the 2013 report is complete.

2. Supplemental Information

A. Regulatory Limits

	Limit	Units	Receptor	ODCM and 10 CFR 50, Appendix I Design Objective Limits
1. Noble Gases:				
a.	≤ 500	mrem/Yr	Total Body	ODCM Control 3.2.2.1.a
	≤ 3000	mrem/Yr	Skin	
b.	≤ 10	mRad	Air Gamma	Quarterly air dose limits
	≤ 20	mRad	Air Beta	ODCM Control 3.2.2.2.a
c.	≤ 20	mRad	Air Gamma	Yearly air dose limits
	≤ 40	mRad	Air Beta	ODCM Control 3.2.2.2.b
d.	≤ 10	mrem	Total Body (Gamma)	10 CFR 50, Appendix I, Section II.B.2(b) (limits listed here are based on two unit operation)
	≤ 30	mrem	Skin (Beta)	
2. Iodines, Tritium, Particulates with Half Life > 8 days:				
a.	≤ 1500	mrem/Yr	Any Organ	ODCM Control 3.2.2.1.b
b.	≤ 15	mrem	Any Organ	Quarterly dose limits ODCM Control 3.2.2.3.a
c.	≤ 30	mrem	Any Organ	Yearly dose limits ODCM Control 3.2.2.3.b
3. Liquid Effluents				
a.	10 times the concentration limits in 10 CFR 20, Appendix B, Table 2 Col. 2			ODCM Control 3.2.1.1
b.	≤ 3	mrem	Total Body	Quarterly dose limits
	≤ 10	mrem	Any Organ	ODCM Control 3.2.1.2.a
c.	≤ 6	mrem	Total Body	Yearly dose limits
	≤ 20	mrem	Any Organ	ODCM Control 3.2.1.2.b
4. 40 CFR 190, 10 CFR 72.104				
	≤ 25	mrem	Total Body or Organ	Yearly dose limits
	≤ 75	mrem	Thyroid	ODCM Control 3.2.3

B. Effluent Concentration Limits

Gaseous dose rates rather than effluent concentrations are used to calculate permissible release rates for gaseous releases. The maximum permissible dose rates for gaseous releases are defined in Offsite Dose Calculation Manual (ODCM) Controls 3.2.2.1.a and 3.2.2.1.b as 500 mrem/yr (Total Body), 3000 mrem/yr (Skin), and 1500 mrem/yr (Organ).

The Effluent Concentration Limit (ECL) specified in 10 CFR 20, Appendix B, Table 2, Column 2 for identified nuclides, were used to calculate permissible release rates and concentrations for liquid release per the Limerick ODCM Control 3.2.1.1. The total activity concentration for all dissolved or entrained gases was limited to < 2E-04 μCi/ml.

C. Average Energy ($\bar{E}$)

The Limerick ODCM limits the instantaneous dose equivalent rates due to the release of noble gases to less than or equal to 500 mrem/year to the total body and less than or equal to 3000 mrem/year to the skin. The average beta and gamma energies ($\bar{E}$) of the radionuclide mixture in releases of fission and activation gases as described in Regulatory Guide 1.21, "Measuring, Evaluation, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," may be used to calculate doses in lieu of more sophisticated software. The Limerick radioactive effluent program employs the methodologies presented in U.S. NRC Regulatory Guide 1.109 "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I," Revision 1, October 1977 and NUREG-0133, "Preparation of Radiological Effluent Technical Specifications for Nuclear Power Plants, October 1978. Therefore, average energies are not applicable to Limerick.

D. Measurements and Approximations of Total Radioactivity

1. Fission and Activation Gases

The method used for Gamma Isotopic Analysis is the Canberra Gamma Spectroscopy System with a gas Marinelli beaker. Airborne effluent gaseous activity was continuously monitored and recorded in accordance with ODCM Table 4.2-2. Additional vent grab samples were taken from the North Stack, Unit 1 South Stack and Unit 2 South Stack and analyzed at least monthly to determine the isotopic mixture of noble gas activity released for the month. The data from the noble gas radiation monitors were analyzed to report net noble gas effluent activity. When no activity was found in the grab isotopic analysis, the isotopic mixture was assumed to be that evaluated in the UFSAR (Section 11.5, Table 11.5-4). If activity was found in the grab isotopic analysis, the isotopic mixture for the Noble Gas Monitor was determined from that isotopic mixture.

Each month a monitor background was determined at the time of the noble gas grab sample and used to determine net radiation monitor activity. When no isotopic activity was identified in the grab noble gas sample, the noble gas radiation monitor 15-minute average data for one-hour prior to and one-hour post noble gas grab sampling were used to determine monitor background for the month. The mean plus two standard deviations was used as background for each Noble Gas Monitor. When activity was identified the background determination was made from the last month that no activity was found.

2. Particulates and Iodines

The method used for Gamma Isotopic Analysis is the Canberra Gamma Spectroscopy System with a particulate filter (47 mm) or charcoal cartridge, respectively. Particulate and iodine activity was continuously sampled and analyzed in accordance with ODCM Table 4.2-2. Charcoal and particulate samples are taken from the North Stack, Unit 1 South Stack, Unit 2 South Stack and

the Hot Maintenance Shop exhausts and analyzed at least weekly to determine the total activity released from the plant based on the highest vent flow rates recorded for the sampling period.

3. Carbon-14 in gaseous effluents

Gaseous releases of Carbon-14 were estimated based upon a study by EPRI (EPRI 1021106, Estimation of Carbon-14 in Nuclear Power Plant Gaseous Effluents). The principal production reaction leading to the release of C-14 during plant operation is the O-17(n,α) C-14 nuclear reaction in reactor coolant. Carbon-14 is also produced by neutron activation of N-14 in the BWR drywell and dissolved nitrogen in the reactor coolant, however these sources are a small fraction of that produced by the O-17(n,α) C-14 reaction and can be neglected since reactor coolant normally contains less than 0.1 ppm by weight nitrogen and the neutron flux in the drywell is low. Most of the C-14 produced in a BWR is released in a gaseous form by the off-gas system, primarily in the form of $^{14}CO_2$.

An Exelon Fleet-Wide spreadsheet was developed using the production factors from the EPRI report. The spreadsheet requires site specific inputs of total reactor power ratings (7030) MWth and Equivalent Full Power Operation (350) days. Using this method, total C-14 production was estimated at 32.87 Curies (Ci). Ninety-five percent or 32.33 Ci was in the form of $^{14}CO_2$, which was the chemical form necessary to be incorporated in the dose pathways of vegetation, meat and milk. Only inhalation pathway uses the full C-14 production value in estimating dose.

To simplify the dose calculations for C-14, the total production value was used in calculating dose via the offsite effluent pathways. Using the total production C-14 production value, results in a conservative five percent overestimation of dose via the vegetation, meat and milk pathways. In addition, releases of C-14 were assumed to occur only through the North Vent, which is common to both units. The North Vent has the most conservative X/Q factors for calculating dose.

4. Liquid Effluents

Each batch of liquid effluent was sampled and analyzed for gamma isotopic activity in accordance with ODCM Table 4.2-1 prior to release. The total activity of each released batch was determined by multiplying each nuclide's concentration by the total volume discharged and then summing. The total activity released during a quarter was then determined by summing the activity content of all batch releases discharged during the quarter.

5. Tritium in Liquid and Gaseous Effluents

Liquid effluents are analyzed for tritium using a Liquid Scintillation Counter.

Gaseous effluents are analyzed for tritium by passing air from stack effluents through two bubblers in series. An aliquot of the water from each bubbler was analyzed using a Liquid Scintillation Counter.

The monthly liquid radwaste composite was analyzed for tritium using a Liquid Scintillation Counter.

6. Composite Samples and Lower Limit of Detection (LLD)

Particulate air samples were composited monthly and analyzed for gross alpha, Sr-89, Sr-90, and Ni-63. Liquid radwaste samples were composited monthly and quarterly and analyzed for gross alpha (monthly) and Fe-55, Sr-89 and Sr-90 (quarterly). These composites were submitted to an offsite vendor laboratory for analysis.

The ODCM required lower limit of detection for airborne and liquid releases as follows:

Airborne:	LLD
Gross Alpha, Sr-89, Sr-90	1E-11 uCi/cc
H-3	1E-06 uCi/cc
I-131	1E-12 uCi/cc

Principal Gamma Emitters (Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, I-131, Cs-134, Cs-137,Ce-141, Ce-144)	1E-11 uCi/cc
Noble Gas (Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, Xe-135m, Xe-138)	1E-04 uCi/cc

Liquid:	LLD
Principal Gamma Emitters (Mn-54, Fe-59, Co-58, Co-60, Zn-65, Mo-99, Cs-134, Cs-137, Ce-141, Ce-144)	5E-07 uCi/ml
I-131	1E-06 uCi/ml
Entrained Gases (Kr-87, Kr-88, Xe-133, Xe-133m, Xe-135, Xe-135m, Xe-138)	1E-05 uCi/ml
H-3	1E-05 uCi/ml
Gross Alpha	1E-07 uCi/ml
Sr-89, Sr-90	5E-08 uCi/ml
Fe-55	1E-06 uCi/ml

7. Estimated Total Error Present

Procedure CY-AA-170-2100, Estimated Errors of Effluent Measurements, provides the methodology to obtain an overall estimate of the error associated with radioactive effluents. The sum of errors used in this report was documented in IR 138895-02.

E. Batch Releases

Liquid	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**
Number of Batch Releases	1.00E+00	1.30E+01	0.00E+00	0.00E+00	1.40E+01
Total time period for batch releases (min)	1.68E+02	1.22E+03	0.00E+00	0.00E+00	1.39E+03
Maximum time period for batch release (min)	1.68E+02	1.08E+02	0.00E+00	0.00E+00	1.68E+02
Average time period for batch release (min)	1.68E+02	9.39E+01	0.00E+00	0.00E+00	9.92E+01
Minimum time period for batch release (min)	1.68E+02	1.20E+01	0.00E+00	0.00E+00	1.20E+01
Average stream flow (Schuylkill River) during periods of release of effluents into a flowing stream (Lpm)	1.89E+04	2.10E+04	0.00E+00	0.00E+00	2.07E+04

Gaseous	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**
Number of Batch Releases	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total time period for batch releases (min)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Maximum time period for batch release (min)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Average time period for batch release (min)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Minimum time period for batch release (min)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

F. Abnormal Releases

1. Liquid	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Number of Releases	1.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+00
Total Activity Released (Ci)	7.35E-05	0.00E+00	0.00E+00	0.00E+00	7.35E-05

2. Gaseous	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Number of Releases	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total Activity Released (Ci)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

- Tritium was identified in the Unit 1 Underground Normal Waste Holding Tank (UGNWHT) from a sample taken on March 13, 2013 at a concentration of 4.620E+03 pCi/L. The U1 UGNWHT is an isolated tank that is released in batches to the Holding Pond, and ultimately released through the permitted discharge point. The concentration released, as summarized in Appendix A Table 2A, represents 2.30E-4% of the ODCM limit of 1.00E-2 uCi/ml. The entire issue was documented in IR 1503500.

G. Spills

There were no spills to ground containing radioactive material in 2013. However, during the first quarter and fourth quarter of 2013, tritiated water was identified leaking from the expansion joints of the Unit 1 Turbine Building condenser bay. The water was contained and disposed of via the normal radioactive waste processing system. No elevated tritium results due to this leak were observed in the monitoring wells or the Power Block Foundation Sump in 2013.

H. Revisions to the ODCM

No changes to the ODCM have been made since the 2012 AREOR.

I. Radioactive Effluent Monitoring Instrumentation Out of Service for More Than 30 Days

There was no radioactive effluent monitoring instrumentation out of service for more than 30 days in 2013.

J. Independent Spent Fuel Storage Installation (ISFSI)

An Independent Spent Fuel Storage Installation (ISFSI) was placed in service starting July 21, 2008. In 2013 the dose to the nearest resident from the ISFSI was 10.4 mrem, using environmental dosimeters from the Radiological Environmental Monitoring Program.

3. Radiological Impact to Man and Compliance to 40 CFR 190 Limits

A. Dose to Members of the Public at or Beyond Site Boundary

Per ODCM Control 6.2, the Annual Radioactive Effluent Release Report shall include an assessment of the radiation doses to the hypothetically highest exposed MEMBER OF THE PUBLIC from reactor releases and other nearby uranium fuel cycle sources. The ODCM does not require population doses to be calculated. For purposes of this calculation the following assumptions were made:

- Long term annual average meteorology X/Q and D/Q and actual gaseous effluent releases were used.
- Gamma air dose, Beta air dose, Total Body and Skin doses were attributed to noble gas releases.
- Critical organ and age group dose attributed to iodine, particulate, carbon-14 and tritium releases.

- 100 percent occupancy factor was assumed.
- Dosimetry measurements (minus background levels) obtained from the Radiological Environmental Monitoring Program for the nearest residence to the Independent Spent Fuel Storage Installation (ISFSI) was used to determine direct radiation exposure.
- The highest doses from the critical organ and critical age group for each release pathway was summed and added to the net dosimetry measurement from nearest residence to the ISFSI for 40CFR190 compliance.

Gaseous Releases:

The critical age-organ group was the child-bone. Calculated dose was 1.55E+00 mrem, which represents 5.17 E+00 percent of the allowable limits. Carbon-14 represented 99.9 % or 1.55E+00 mrem of the total dose (Table 1).

Liquid Releases:

The critical age-organ was the child-GI-Lli. Calculated total body dose and organ dose were 1.79E-04 and 1.79E-03 mrem, respectively.

40 CFR 190 Compliance:

The maximum calculated dose to a real individual would not exceed 1.07E+01 mrem (total body), 1.16E+01 mrem (organ), or 1.07 E+01 mrem (thyroid).

All doses calculated were well below all ODCM and 40 CFR Part 190 limits to a real individual.

Table 1 Summary of Gaseous and Liquid Effluent Doses to Members of the Public at the Highest Dose Receptors and 40CFR190 Compliance

Maximum Individual Noble Gas	**Applicable Dose**	**Estimated Dose**	**Age Group**	**% of Applicable Limit**	**Limit**	**Unit**
Nearest Residence	Gamma Air Dose	6.22E-03	All	3.11E-02	20	mRad
Nearest Residence	Beta Air Dose	3.83E-03	All	9.58E-03	40	mRad
Nearest Residence	Total Body	5.85E-03	All	5.85E-02	10	mrem
Nearest Residence	Skin	9.64E-03	All	3.21E-02	30	mrem
Iodine, Particulate, C-14 & Tritium						
Vegetation Pathway	Bone	1.55E+00	Child	5.17E+00	30	mrem
Liquid						
Aqua, PA	Total Body	1.79E-04	Child	2.98E-03	6	mrem
Aqua, PA	GI-Lli	1.79E-04	Child	8.95E-04	20	mrem

40 CFR 190 Compliance								
	Gaseous Effluents		**Liquid Effluents**	**Net Direct Radiation**	**Total**	**% of Applicable Limit**	**Limit**	**Unit**
	Noble Gas	**Particulate, Iodine, C-14 & Tritium**						
Total Body Dose	6.76E-03	3.12E-01	1.79E-04	1.04E+01	1.07E+01	4.28E+01	25	mrem
Organ Dose	6.76E-03	1.55E+00	1.79E-04	1.04E+01	1.20E+01	4.80E+01	25	mrem
Thyroid Dose	6.76E-03	3.12E-01	1.78E-04	1.04E+01	1.07E+01	1.43E+01	75	mrem

B. Dose to Members of the Public Inside the Site Boundary

ODCM Control 6.2 also requires that the Annual Effluent Release Report shall include an assessment of the radiation doses from radioactive liquid and gaseous effluents to members of the public due to activities inside the Site Boundary during the report period. MEMBER OF THE PUBLIC shall include all persons not occupationally associated with the plant. This category does not include employees of the utility or contractors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational education, or other purposes not associated with the plant. A MEMBER OF THE PUBLIC may receive up to 100 mrem in a year (10CFR20.1301). Areas within the site boundary, where radiation dose of this type could occur include the Limerick Information Center on Longview Road, Frick's Lock on the south shore of the Schuylkill River and the railroad tracks that runs along the north shore of the River. The dose to State Police and National Guard personnel around the location of the Security Checkpoint was also included in this report. The radiation doses to Members of the Public have been estimated using methodology stated in the ODCM. The maximum gaseous dose to members of the public at these locations is based on the following assumptions:

- Long term annual average meteorology and actual effluent releases for the sectors encompassing the Railroad Tracks (W), Information Center, Frick's Lock and the Security Checkpoint were used.
- Dose is from ground plane and inhalation only. No ingestion dose is included.
- Adult age group was used for the State Police and National Guard Dose.
- The maximum expected occupancy factor is 25% of a working year at all locations.

The maximum calculated dose for activities on site was 4.14-02 mrem at the Rail Road Tracks in the West sector (Table 2). All Doses calculated were a small fraction of the 10 CFR 20.1301 limits.

Table 2 Summary of Gaseous Radiation Doses to Members of the Public for Activities on Site

Location	Sector	Approx. Distance (meters)	X/Q s/m^3	D/Q 1/m^2	Total Body Dose mrem(1)		Organ Dose, mrem(1)	Total
					Noble Gas	Iodine, Particulate, C-14 & H-3	Iodine, Particulate, C-14 & H-3	
R.R. Tracks	W	225	2.66E-06	2.36E-08	6.76E-03	5.85E-03	2.88E-02	4.14E-02
Info. Center	ESE	884	7.32E-07	9.27E-09	1.86E-03	1.62E-03	7.94E-03	1.14E-02
Frick's Lock	WSW	450	5.58E-07	4.78E-09	1.42E-03	1.23E-03	6.05E-03	8.70E-03
Security Check Point	NNE	682	4.00E-07	4.43E-09	1.02E-03	4.89E-04	2.20E-03	3.71E-03

(1) The limit for sum of the Total Body Dose and Organ Dose = 100 mrem (ref. 10 CFR 20.1301)

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Appendix A
Effluent and Waste Disposal Summary

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SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
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LIST OF TABLES

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TABLE 1A GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES PERIOD 2013

A. Fission And Activation Gasses	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	4.81E+00	6.54E+01	8.03E+00	3.48E+01	1.13E+02	36.6
Average Release Rate for Period	uCi/sec	6.10E-01	8.29E+00	1.02E+00	4.41E+00	3.58E+00	
Dose - Gamma Air Dose	mrad	3.77E-04	3.44E-03	4.78E-04	1.92E-03	6.22E-03	
- Beta Air Dose	mrad	2.23E-04	2.13E-03	2.92E-04	1.18E-03	3.83E-03	
Percent of ODCM Limit - Gamma Air Dose	%	3.77E-03	3.44E-02	4.78E-03	1.92E-02	3.11E-02	
- Beta Air Dose	%	1.12E-03	1.07E-02	1.46E-03	5.92E-03	9.58E-03	
B. Radioiodines	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	20.4
Average Release Rate for Period	uCi/sec	< LLD	< LLD	< LLD	< LLD	< LLD	
Percent of ODCM Limit	%	*	*	*	*	*	
C. Particulates	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	2.74E-05	< LLD	< LLD	< LLD	2.74E-05	22.6
Average Release Rate for Period	uCi/sec	3.48E-06	< LLD	< LLD	< LLD	8.69E-07	
Percent of ODCM Limit	%	*	*	*	*	*	
D. Gross Alpha	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	22.6
Average Release Rate for Period	uCi/sec	< LLD	< LLD	< LLD	< LLD	< LLD	
Percent of ODCM Limit	%	*	*	*	*	*	
E. Tritium (H-3)	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	1.17E+01	8.54E+00	5.77E+00	9.58E+00	3.56E+01	15.7
Average Release Rate for Period	uCi/sec	1.49E+00	1.08E+00	7.32E-01	1.21E+00	1.13E+00	
Percent of ODCM Limit	%	*	*	*	*	*	
F. Carbon-14	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	
Total Release	Ci	8.98E+00	9.12E+00	1.10E+01	8.84E+00	3.79E+01	
Average Release Rate for Period	uCi/sec	1.14E+00	1.16E+00	1.39E+00	1.12E+00	1.20E+00	
Percent of ODCM Limit	%	*	*	*	*	*	
G. Iodine 131 & 133, Particulate, C-14 & H-3	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	
Organ Dose	mrem	3.68E-01	3.74E-01	4.50E-01	3.62E-01	1.55E+00	
Percent of ODCM Limit	%	2.45E+00	2.49E+00	3.00E+00	2.41E+00	5.18E+00	

* ODCM Limit for combined Iodine, tritium and particulate only, which is shown in Item G.

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

TABLE 1B–1 GASEOUS EFFLUENTS—MIXED-LEVEL RELEASE—BATCH MODE PERIOD 2013

Fission And Activation Gasses	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**
Ar-41	Ci	N/A	N/A	N/A	N/A	N/A
Kr-85	Ci	N/A	N/A	N/A	N/A	N/A
Kr-85m	Ci	N/A	N/A	N/A	N/A	N/A
Kr-87	Ci	N/A	N/A	N/A	N/A	N/A
Kr-88	Ci	N/A	N/A	N/A	N/A	N/A
Xe-133	Ci	N/A	N/A	N/A	N/A	N/A
Xe-135	Ci	N/A	N/A	N/A	N/A	N/A
Xe-135m	Ci	N/A	N/A	N/A	N/A	N/A
Xe-138	Ci	N/A	N/A	N/A	N/A	N/A
Total	Ci	N/A	N/A	N/A	N/A	N/A
Radioiodines	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Annual**
I-131	Ci	N/A	N/A	N/A	N/A	N/A
I-133	Ci	N/A	N/A	N/A	N/A	N/A
I-135	Ci	N/A	N/A	N/A	N/A	N/A
Total	Ci	N/A	N/A	N/A	N/A	N/A
Particulates	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Annual**
Cr-51	Ci	N/A	N/A	N/A	N/A	N/A
Mn-54	Ci	N/A	N/A	N/A	N/A	N/A
Co-58	Ci	N/A	N/A	N/A	N/A	N/A
Co-60	Ci	N/A	N/A	N/A	N/A	N/A
Zn-65	Ci	N/A	N/A	N/A	N/A	N/A
Sr-89	Ci	N/A	N/A	N/A	N/A	N/A
Sr-90	Ci	N/A	N/A	N/A	N/A	N/A
Mo-99	Ci	N/A	N/A	N/A	N/A	N/A
Ag-110m	Ci	N/A	N/A	N/A	N/A	N/A
Cs-134	Ci	N/A	N/A	N/A	N/A	N/A
Cs-137	Ci	N/A	N/A	N/A	N/A	N/A
Ba-140	Ci	N/A	N/A	N/A	N/A	N/A
La-140	Ci	N/A	N/A	N/A	N/A	N/A
Ce-141	Ci	N/A	N/A	N/A	N/A	N/A
Ce-144	Ci	N/A	N/A	N/A	N/A	N/A
Total	Ci	N/A	N/A	N/A	N/A	N/A
H-3	Ci	N/A	N/A	N/A	N/A	N/A
Gross Alpha	Ci	N/A	N/A	N/A	N/A	N/A
C-14	Ci	N/A	N/A	N/A	N/A	N/A

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

TABLE 1B–2 GASEOUS EFFLUENTS – MIXED-LEVEL RELEASE - CONTINUOUS MODE PERIOD 2013

Fission And Activation Gasses	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**
Kr-85m	Ci	8.85E-02	1.14E+00	1.41E-01	6.06E-01	1.97E+00
Kr-85	Ci	1.85E-01	6.31E-02	9.09E-02	1.79E-01	5.18E-01
Kr-87	Ci	1.25E-01	1.15E+00	1.59E-01	6.42E-01	2.07E+00
Kr-88	Ci	1.91E-01	1.17E+00	1.92E-01	7.05E-01	2.26E+00
Ar-41	Ci	1.64E-01	4.67E+00	4.90E-01	2.33E+00	7.66E+00
Xe-131m	Ci	6.05E-03	1.58E-03	2.28E-03	4.48E-03	1.44E-02
Xe-133	Ci	8.72E-01	2.40E+01	2.55E+00	1.21E+01	3.96E+01
Xe-135m	Ci	1.04E+00	1.73E+01	2.01E+00	8.99E+00	2.94E+01
Xe-135	Ci	1.12E+00	1.29E+01	1.66E+00	6.99E+00	2.27E+01
Xe-138	Ci	1.02E+00	2.93E+00	7.28E-01	2.20E+00	6.87E+00
Total	Ci	4.81E+00	6.54E+01	8.03E+00	3.48E+01	1.13E+02
Radioiodines	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**
I-131	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Particulates	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Annual**
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-60	Ci	1.34E-05	< LLD	< LLD	< LLD	1.34E-05
Ni-63	Ci	1.40E-05	< LLD	< LLD	< LLD	1.40E-05
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	2.74E-05	< LLD	< LLD	< LLD	2.74E-05
H-3	Ci	1.17E+01	8.54E+00	5.77E+00	9.58E+00	3.56E+01
Gross Alpha	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
C-14	Ci	8.98E+00	9.12E+00	1.10E+01	8.84E+00	3.79E+01

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

TABLE 2A LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES PERIOD 2013

Fission and Activation Products Excluding Tritium, Gasses & Alpha)	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	< LLD	3.25E-04	N/A	N/A	3.25E-04	21.1
Average Concentration	uCi/ml	N/A	1.23E-08	N/A	N/A	1.09E-08	
Dose - Whole Body	mrem	4.40E-07	1.78E-04	N/A	N/A	1.78E-04	
- Organ	mrem	4.40E-07	1.79E-04	N/A	N/A	1.79E-04	
% of ODCM Limit - Whole Body Dose*	%	1.47E-05	5.93E-03	N/A	N/A	2.97E-03	
- Organ Dose*	%	4.40E-06	1.79E-03	N/A	N/A	8.96E-04	
Tritium	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	7.35E-05	4.09E+00	N/A	N/A	4.09E+00	6.4
Average Concentration	uCi/ml	2.30E-08	1.54E-04	N/A	N/A	1.38E-04	
% of ODCM Limit - ECL	%	2.30E-04	1.54E+00	N/A	N/A	1.38E+00	
Dissolved and Entrained Gases	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	< LLD	2.73E-05	N/A	N/A	2.73E-05	21.1
Average Concentration	uCi/ml	N/A	1.03E-09	N/A	N/A	9.19E-10	
% of ODCM Limit - ECL	%	N/A	5.15E-04	N/A	N/A	4.60E-04	
Gross Alpha	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	< LLD	< LLD	N/A	N/A	< LLD	23.0
Average Concentration	uCi/ml	N/A	N/A	N/A	N/A	N/A	
Volume of Waste Released	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total	Liters	1.59E+04	8.86E+05	0.00E+00	0.00E+00	9.02E+05	5.0
Volume of Dilution Water used during period	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total	Liters	3.18E+06	2.56E+07	N/A	N/A	2.88E+07	3.6

* Percent of limit includes gases and tritium.

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

TABLE 2A–1 LIQUID EFFLUENTS - BATCH MODE PERIOD 2013

Fission and Activation Products	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**
NA-24	Ci	< LLD	8.16E-06	N/A	N/A	8.16E-06
Cr-51	Ci	< LLD	1.16E-04	N/A	N/A	1.16E-04
Mn-54	Ci	< LLD	1.76E-05	N/A	N/A	1.76E-05
Fe-55	Ci	< LLD	< LLD	N/A	N/A	< LLD
Co-58	Ci	< LLD	1.93E-05	N/A	N/A	1.93E-05
Fe-59	Ci	< LLD	3.10E-06	N/A	N/A	3.10E-06
Co-60	Ci	< LLD	1.61E-04	N/A	N/A	1.61E-04
Zn-65	Ci	< LLD	< LLD	N/A	N/A	< LLD
Zn-69m	Ci	< LLD	< LLD	N/A	N/A	< LLD
Sr-89	Ci	< LLD	< LLD	N/A	N/A	< LLD
Sr-90	Ci	< LLD	< LLD	N/A	N/A	< LLD
Zr-95	Ci	< LLD	< LLD	N/A	N/A	< LLD
Nb-95	Ci	< LLD	< LLD	N/A	N/A	< LLD
Nb-97	Ci	< LLD	< LLD	N/A	N/A	< LLD
Mo-99	Ci	< LLD	< LLD	N/A	N/A	< LLD
TC-99m	Ci	< LLD	< LLD	N/A	N/A	< LLD
AG-110m	Ci	< LLD	< LLD	N/A	N/A	< LLD
Sb-124	Ci	< LLD	< LLD	N/A	N/A	< LLD
Sb-125	Ci	< LLD	< LLD	N/A	N/A	< LLD
I-131	Ci	< LLD	< LLD	N/A	N/A	< LLD
Cs-134	Ci	< LLD	< LLD	N/A	N/A	< LLD
Cs-137	Ci	< LLD	< LLD	N/A	N/A	< LLD
Ba-140	Ci	< LLD	< LLD	N/A	N/A	< LLD
La-140	Ci	< LLD	< LLD	N/A	N/A	< LLD
Ce-141	Ci	< LLD	< LLD	N/A	N/A	< LLD
U-235	Ci	< LLD	< LLD	N/A	N/A	< LLD
Total	Ci	< LLD	3.25E-04	N/A	N/A	3.25E-04
Dissolved and Entrained Gases	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**
Ar-41	Ci	< LLD	< LLD	N/A	N/A	< LLD
Xe-131m		< LLD	< LLD	N/A	N/A	< LLD
Xe-133	Ci	< LLD	2.50E-05	N/A	N/A	2.50E-05
Xe-135	Ci	< LLD	2.25E-06	N/A	N/A	2.25E-06
Total	Ci	< LLD	2.73E-05	N/A	N/A	2.73E-05
H-3	Ci	7.35E-05	4.09E+00	N/A	N/A	4.09E+00
Gross Alpha	Ci	< LLD	< LLD	N/A	N/A	< LLD

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

TABLE 2A-2 LIQUID EFFLUENTS - CONTINUOUS MODE PERIOD 2013

Fission and Activation Products	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**
Cr-51	Ci	N/A	N/A	N/A	N/A	N/A
Mn-54	Ci	N/A	N/A	N/A	N/A	N/A
Fe-55	Ci	N/A	N/A	N/A	N/A	N/A
Co-58	Ci	N/A	N/A	N/A	N/A	N/A
Fe-59	Ci	N/A	N/A	N/A	N/A	N/A
Co-60	Ci	N/A	N/A	N/A	N/A	N/A
Zn-65	Ci	N/A	N/A	N/A	N/A	N/A
Sr-89	Ci	N/A	N/A	N/A	N/A	N/A
Sr-90	Ci	N/A	N/A	N/A	N/A	N/A
Zr-95	Ci	N/A	N/A	N/A	N/A	N/A
Nb-95	Ci	N/A	N/A	N/A	N/A	N/A
Mo-99	Ci	N/A	N/A	N/A	N/A	N/A
Tc-99m	Ci	N/A	N/A	N/A	N/A	N/A
Ag-110m	Ci	N/A	N/A	N/A	N/A	N/A
I-131	Ci	N/A	N/A	N/A	N/A	N/A
Cs-134	Ci	N/A	N/A	N/A	N/A	N/A
Cs-137	Ci	N/A	N/A	N/A	N/A	N/A
Ba-140	Ci	N/A	N/A	N/A	N/A	N/A
La-140	Ci	N/A	N/A	N/A	N/A	N/A
Ce-141	Ci	N/A	N/A	N/A	N/A	N/A
Total	Ci	N/A	N/A	N/A	N/A	N/A
Dissolved and Entrained Gases	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**
Xe-131m	Ci	N/A	N/A	N/A	N/A	N/A
Xe-133	Ci	N/A	N/A	N/A	N/A	N/A
Xe-135	Ci	N/A	N/A	N/A	N/A	N/A
Total	Ci	N/A	N/A	N/A	N/A	N/A
H-3	Ci	N/A	N/A	N/A	N/A	N/A
Gross Alpha	Ci	N/A	N/A	N/A	N/A	N/A

Appendix B
Solid Waste and Irradiated Fuel Shipments

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SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

A. Solid waste shipped offsite for burial or disposal (not irradiated fuel) 1/1/13 – 12/31/13

1. Type of waste

Type of waste	Unit	12 Month Period	Estimated Error %
a. Spent resin, filters sludges, evaporator bottoms, etc	m^3	110.72	25%
	Ci	236.00	
b. Dry compressible waste, contaminated equipment, etc.	m^3	85.98	25%
	Ci	27.40	
c. Irradiated components, control rods, etc.	m^3	None	N/A
	Ci	None	
d. Other (Describe)	m^3	None	N/A
	Ci	None	

2. Estimate of Major Nuclide Composition (By Waste Type)

Category A – Spent Resin, Filters, Sludges, Evaporator Bottoms, etc.

Isotope	Waste Class A Curies *	Percent Abundance
C-14	1.59E-01	0.06%
Mn-54	9.26E+00	3.92%
Fe-55	8.62E+01	36.52%
Co-60	1.10E+02	46.60%
Cr-51	2.25E+00	0.96%
Ni-63	4.32E+00	1.83%
Zn-65	1.03E+01	4.37%
Sr-90	4.69E-02	0.02%
Cs-137	7.78E+00	3.30%
Ce-144	9.30E-01	0.39%
Cs-134	2.68E+00	1.14%
H-3	5.62E-02	0.02%
Co-58	2.05E+00	0.87%
TOTALS	2.36E+02	100.00%

* Activity is estimated

Category B – Dry Compressible Waste, Contaminated Equipment, etc.

Isotope	Waste Class A Curies *	Percent Abundance
Co-60	1.24E+01	45.19%
Cs-137	2.62E-02	0.09%
Fe-55	1.19E+01	43.38%
Mn-54	1.30E+00	4.73%
Ni-63	2.23E-01	0.81%
Zn-65	7.31E-01	2.67%
Cr-51	8.57E-01	3.13%
TOTALS	2.74E+01	100.00%

* Activity is estimated

3. Solid Waste (Disposition)

Number of Shipments	Mode of Transportation	Destination
23	Truck	Energy Solutions Bear Creek Operations Facility to Energy Solutions / Clive
16	Truck	Limerick Gen. Sta. to Energy Solutions / Clive
1	Truck	TOXCO Inc. to Energy Solutions / Clive
3	Truck	Energy Solutions Barnwell Processing Facility to Energy Solutions / Clive

Comments:
31 Shipments were made from Limerick to Energy Solution Processing Facility for processing
1 Shipment was made from Limerick to TOXCO Processing Facility for processing
No solidifications were performed

Category A - 16 shipments Type A LSA
Category A - 4 shipments > Type A LSA
Category B - 28 shipments Type A LSA
Category C - No shipments made
Category D - No shipments made

B. Irradiated Fuel Shipments (disposition)

Number of Shipments	Mode of Transportation	Destination
0	N/A	N/A

C. Changes to the Process Control Program
There were no revisions to procedure RW-AA-100, "Process Control Program for Radioactive Wastes".

Appendix C
Meteorological Data

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LIST OF TABLES

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SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	1	1	0	0	0	0	2
SE	0	1	0	0	0	0	1
SSE	0	4	0	0	0	0	4
S	0	3	0	0	0	0	3
SSW	0	2	2	0	0	0	4
SW	0	0	0	0	0	0	0
WSW	0	8	2	0	0	0	10
W	0	5	4	0	0	0	9
WNW	0	4	15	4	0	0	23
NW	0	2	1	1	0	0	4
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	2	32	24	5	0	0	63

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	1	0	0	0	3
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	1	0	0	0	0	1
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	1	1	1	0	0	0	3
S	0	0	0	0	0	0	0
SSW	0	2	0	0	0	0	2
SW	0	2	0	0	0	0	2
WSW	0	1	3	0	0	0	4
W	1	0	4	2	0	0	7
WNW	0	8	13	7	0	0	28
NW	1	1	17	10	0	0	29
NNW	1	1	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	4	21	39	19	0	0	83

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	1	0	0	0	3
NNE	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
E	0	2	1	0	0	0	3
ESE	1	3	2	3	0	0	9
SE	0	1	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	1	0	3	0	0	0	4
SSW	1	2	0	0	0	0	3
SW	0	3	0	0	0	0	3
WSW	1	4	0	0	0	0	5
W	1	4	4	2	0	0	11
WNW	1	14	9	4	0	0	28
NW	1	4	24	21	0	0	50
NNW	0	1	6	2	0	0	9
Variable	0	0	0	0	0	0	0
Total	7	42	50	32	0	0	131

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	19	35	6	0	0	0	60
NNE	21	15	3	4	0	0	43
NE	18	24	9	3	0	0	54
ENE	12	39	5	4	0	0	60
E	12	29	17	10	0	0	68
ESE	11	11	6	4	0	0	32
SE	6	6	3	0	0	0	15
SSE	9	11	16	0	0	0	36
S	0	15	7	0	0	0	22
SSW	4	12	6	0	0	0	22
SW	3	5	1	0	0	0	9
WSW	4	5	2	0	0	0	11
W	12	43	12	2	0	0	69
WNW	11	75	104	17	0	0	207
NW	9	95	197	70	0	0	371
NNW	9	33	43	16	0	0	101
Variable	0	0	0	0	0	0	0
Total	160	453	437	130	0	0	1180

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	4	0	0	0	0	11
NNE	10	3	0	0	0	0	13
NE	5	6	0	0	0	0	11
ENE	10	1	0	0	0	0	11
E	10	8	0	0	0	0	18
ESE	5	3	1	0	0	0	9
SE	7	6	1	0	0	0	14
SSE	5	9	0	0	0	0	14
S	9	19	2	0	0	0	30
SSW	9	15	0	0	0	0	24
SW	10	6	0	0	0	0	16
WSW	18	7	1	0	0	0	26
W	38	26	4	0	0	0	68
WNW	48	69	4	0	0	0	121
NW	34	41	8	0	0	0	83
NNW	13	6	0	0	0	0	19
Variable	0	0	0	0	0	0	0
Total	238	229	21	0	0	0	488

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	0	0	0	0	0	1
NNE	3	0	0	0	0	0	3
NE	7	1	0	0	0	0	8
ENE	2	1	0	0	0	0	3
E	3	2	0	0	0	0	5
ESE	5	0	1	0	0	0	6
SE	4	0	0	0	0	0	4
SSE	3	0	0	0	0	0	3
S	3	0	0	0	0	0	3
SSW	6	0	0	0	0	0	6
SW	5	0	0	0	0	0	5
WSW	9	0	0	0	0	0	9
W	7	0	0	0	0	0	7
WNW	11	1	0	0	0	0	12
NW	7	1	0	0	0	0	8
NNW	6	0	0	0	0	0	6
Variable	0	0	0	0	0	0	0
Total	82	6	1	0	0	0	89

Hours of calm in this stability class: 4
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	0	0	0	0	0	7
NNE	2	0	0	0	0	0	2
NE	4	0	0	0	0	0	4
ENE	3	0	0	0	0	0	3
E	3	0	0	0	0	0	3
ESE	2	0	0	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	1	0	0	0	0	0	1
S	0	2	0	0	0	0	2
SSW	1	1	0	0	0	0	2
SW	2	0	0	0	0	0	2
WSW	1	0	0	0	0	0	1
W	8	1	0	0	0	0	9
WNW	17	1	0	0	0	0	18
NW	12	0	0	0	0	0	12
NNW	8	0	0	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	71	5	0	0	0	0	76

Hours of calm in this stability class: 4
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	1	0	1	0	0	0	2
SE	0	1	0	0	0	0	1
SSE	0	0	4	0	0	0	4
S	0	0	3	0	0	0	3
SSW	0	0	2	2	0	0	4
SW	0	0	0	1	0	0	1
WSW	0	0	8	3	3	0	14
W	0	0	2	4	1	0	7
WNW	0	0	6	8	10	0	24
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	2	3	26	18	14	0	63

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	3	0	0	0	5
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	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	1	1	0	0	0	0	2
SSE	0	0	0	1	0	0	1
S	0	0	1	0	0	0	1
SSW	0	0	3	0	0	0	3
SW	0	0	1	1	0	0	2
WSW	0	0	0	2	2	0	4
W	0	1	3	4	1	2	11
WNW	1	0	5	13	11	4	34
NW	0	1	4	7	4	1	17
NNW	1	1	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	3	7	20	28	18	7	83

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	1	0	0	0	2
NNE	1	0	1	0	0	0	2
NE	0	1	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	2	0	3	0	0	5
ESE	0	0	1	2	0	0	3
SE	0	2	2	0	0	0	4
SSE	0	0	0	0	0	0	0
S	0	1	2	1	0	0	4
SSW	0	2	1	1	0	0	4
SW	0	1	2	2	0	0	5
WSW	1	3	0	0	0	0	4
W	0	1	5	3	2	2	13
WNW	0	3	9	9	14	1	36
NW	0	1	8	18	9	0	36
NNW	0	0	6	4	2	0	12
Variable	0	0	0	0	0	0	0
Total	2	18	38	43	27	3	131

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	5	24	27	13	0	0	69
NNE	8	19	8	1	5	0	41
NE	8	22	17	5	3	0	55
ENE	7	29	26	10	4	0	76
E	8	16	12	6	9	0	51
ESE	6	17	8	3	0	0	34
SE	1	5	1	3	0	0	10
SSE	2	13	9	18	0	0	42
S	0	6	14	7	0	0	27
SSW	0	6	8	3	3	0	20
SW	2	5	3	2	1	0	13
WSW	0	4	4	3	1	0	12
W	1	8	35	27	7	8	86
WNW	1	18	82	126	51	7	285
NW	6	17	80	103	32	10	248
NNW	1	12	38	35	12	1	99
Variable	0	0	0	0	0	0	0
Total	56	221	372	365	128	26	1168

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 13
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	5	7	2	0	0	0	14
NNE	3	4	2	0	0	0	9
NE	8	3	7	0	0	0	18
ENE	4	10	0	0	0	0	14
E	3	10	4	1	0	0	18
ESE	2	5	2	1	0	0	10
SE	1	6	1	1	0	0	9
SSE	2	6	5	0	0	0	13
S	3	9	20	4	0	0	36
SSW	1	11	12	2	0	0	26
SW	1	12	13	3	0	0	29
WSW	1	10	11	6	0	0	28
W	2	13	18	13	1	0	47
WNW	1	37	77	20	0	0	135
NW	3	17	30	9	0	0	59
NNW	4	10	9	0	0	0	23
Variable	0	0	0	0	0	0	0
Total	44	170	213	60	1	0	488

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	0	0	0	0	0	2
NNE	2	1	0	0	0	0	3
NE	0	1	1	0	0	0	2
ENE	6	4	0	0	0	0	10
E	0	1	1	1	0	0	3
ESE	1	1	0	1	0	0	3
SE	1	1	0	0	0	0	2
SSE	2	2	0	0	0	0	4
S	0	3	0	0	0	0	3
SSW	2	2	3	0	0	0	7
SW	2	2	5	0	0	0	9
WSW	0	7	1	0	0	0	8
W	2	8	4	0	0	0	14
WNW	1	7	5	0	0	0	13
NW	1	3	2	0	0	0	6
NNW	2	1	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	24	44	22	2	0	0	92

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2013

Limerick Tower 1

Period of Record: January - March 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	5	0	0	0	0	0	5
NNE	3	1	0	0	0	0	4
NE	1	3	0	0	0	0	4
ENE	4	1	0	0	0	0	5
E	2	1	0	0	0	0	3
ESE	1	0	0	0	0	0	1
SE	1	0	0	0	0	0	1
SSE	2	1	0	1	0	0	4
S	0	0	0	0	0	0	0
SSW	0	3	3	0	0	0	6
SW	0	2	1	0	0	0	3
WSW	1	6	1	0	0	0	8
W	0	0	1	1	0	0	2
WNW	2	3	17	1	0	0	23
NW	2	2	0	0	0	0	4
NNW	4	2	0	0	0	0	6
Variable	0	0	0	0	0	0	0
Total	28	25	23	3	0	0	79

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April – June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	1	0	0	0	2
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	5	8	2	0	0	15
ESE	0	0	1	0	0	0	1
SE	0	1	0	0	0	0	1
SSE	0	2	0	0	0	0	2
S	0	5	9	0	0	0	14
SSW	0	27	4	0	0	0	31
SW	1	8	0	0	0	0	9
WSW	0	12	0	0	0	0	12
W	0	8	3	0	0	0	11
WNW	1	12	17	1	0	0	31
NW	0	8	4	4	0	0	16
NNW	0	2	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	2	92	47	7	0	0	148

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April – June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	2	0	0	0	3
NNE	0	1	0	0	0	0	1
NE	0	1	0	0	0	0	1
ENE	0	5	0	0	0	0	5
E	0	4	10	2	0	0	16
ESE	1	3	5	0	0	0	9
SE	1	2	1	0	0	0	4
SSE	1	3	0	0	0	0	4
S	0	2	5	0	0	0	7
SSW	0	11	3	0	0	0	14
SW	4	9	0	0	0	0	13
WSW	4	4	1	0	0	0	9
W	0	7	0	0	0	0	7
WNW	2	18	5	1	0	0	26
NW	0	12	18	8	0	0	38
NNW	0	3	1	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	13	86	51	11	0	0	161

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April – June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	3	1	0	0	0	4
NNE	0	1	0	0	0	0	1
NE	1	2	0	0	0	0	3
ENE	1	6	1	0	0	0	8
E	1	13	11	1	0	0	26
ESE	2	3	5	1	0	0	11
SE	1	3	1	0	0	0	5
SSE	1	0	0	0	0	0	1
S	5	2	3	0	0	0	10
SSW	4	11	4	0	0	0	19
SW	4	6	1	0	0	0	11
WSW	2	5	0	0	0	0	7
W	1	5	0	0	0	0	6
WNW	2	8	2	0	0	0	12
NW	4	13	17	9	1	0	44
NNW	0	6	2	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	29	87	48	11	1	0	176

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April – June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	10	15	0	0	0	32
NNE	9	12	0	0	0	0	21
NE	11	13	2	0	0	0	26
ENE	6	39	2	0	0	0	47
E	12	69	33	7	0	0	121
ESE	11	22	43	5	0	0	81
SE	8	18	2	0	0	0	28
SSE	7	14	2	0	0	0	23
S	11	20	11	1	0	0	43
SSW	13	45	7	0	0	0	65
SW	12	14	0	0	0	0	26
WSW	10	14	0	0	0	0	24
W	5	17	2	0	0	0	24
WNW	17	19	11	4	0	0	51
NW	4	23	47	19	0	0	93
NNW	8	15	21	6	0	0	50
Variable	0	0	0	0	0	0	0
Total	151	364	198	42	0	0	755

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April – June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	11	4	0	0	0	0	15
NNE	7	6	0	0	0	0	13
NE	16	1	0	0	0	0	17
ENE	16	7	0	0	0	0	23
E	13	21	2	0	0	0	36
ESE	14	21	10	0	0	0	45
SE	8	6	0	0	0	0	14
SSE	8	14	1	0	0	0	23
S	16	38	6	0	0	0	60
SSW	24	46	0	0	0	0	70
SW	35	13	1	0	0	0	49
WSW	27	4	1	0	0	0	32
W	39	9	1	1	0	0	50
WNW	36	26	2	0	0	0	64
NW	21	23	2	0	0	0	46
NNW	7	15	4	0	0	0	26
Variable	1	0	0	0	0	0	1
Total	299	254	30	1	0	0	584

Hours of calm in this stability class: 5
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April – June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	8	1	0	0	0	0	9
NNE	7	1	0	0	0	0	8
NE	4	0	0	0	0	0	4
ENE	12	2	0	0	0	0	14
E	4	0	0	0	0	0	4
ESE	6	2	0	0	0	0	8
SE	3	0	0	0	0	0	3
SSE	1	0	0	0	0	0	1
S	9	2	0	0	0	0	11
SSW	10	7	0	0	0	0	17
SW	15	0	0	0	0	0	15
WSW	19	0	0	0	0	0	19
W	11	1	0	0	0	0	12
WNW	21	1	0	0	0	0	22
NW	16	1	0	0	0	0	17
NNW	11	0	0	0	0	0	11
Variable	0	0	0	0	0	0	0
Total	157	18	0	0	0	0	175

Hours of calm in this stability class: 11
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April – June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	0	0	0	0	0	2
NNE	6	0	0	0	0	0	6
NE	8	0	0	0	0	0	8
ENE	9	0	0	0	0	0	9
E	4	0	0	0	0	0	4
ESE	4	0	0	0	0	0	4
SE	2	0	0	0	0	0	2
SSE	2	1	0	0	0	0	3
S	2	0	0	0	0	0	2
SSW	2	0	0	0	0	0	2
SW	0	0	0	0	0	0	0
WSW	3	0	0	0	0	0	3
W	12	0	0	0	0	0	12
WNW	21	0	0	0	0	0	21
NW	26	5	0	0	0	0	31
NNW	15	0	0	0	0	0	15
Variable	1	0	0	0	0	0	1
Total	119	6	0	0	0	0	125

Hours of calm in this stability class: 26
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	3	0	0	0	3
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	8	8	0	0	16
ESE	0	0	0	1	0	0	1
SE	0	0	1	0	0	0	1
SSE	0	0	1	1	0	0	2
S	0	1	3	8	0	0	12
SSW	0	5	17	4	0	0	26
SW	0	8	10	1	0	0	19
WSW	0	3	8	1	0	0	12
W	0	5	9	3	1	0	18
WNW	0	0	11	9	12	0	32
NW	0	0	3	1	1	0	5
NNW	0	0	2	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	22	76	37	14	0	149

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	2	0	0	0	3
NNE	1	0	1	0	0	0	2
NE	0	1	2	0	0	0	3
ENE	0	2	2	0	0	0	4
E	0	2	9	5	0	0	16
ESE	0	1	3	2	0	0	6
SE	0	0	4	0	0	0	4
SSE	1	2	0	0	0	0	3
S	0	2	2	4	1	0	9
SSW	1	3	7	4	0	0	15
SW	0	5	9	0	0	0	14
WSW	0	3	2	4	0	0	9
W	0	7	11	0	0	0	18
WNW	0	1	11	11	10	0	33
NW	0	1	7	7	3	1	19
NNW	0	0	3	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	3	31	75	37	14	1	161

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	3	0	0	0	5
NNE	0	0	0	0	0	0	0
NE	1	3	1	0	0	0	5
ENE	0	3	7	0	0	0	10
E	0	7	10	7	0	0	24
ESE	1	1	5	2	0	0	9
SE	0	1	2	1	0	0	4
SSE	1	1	1	0	0	0	3
S	1	1	4	3	0	0	9
SSW	0	6	5	5	1	0	17
SW	1	5	3	2	1	0	12
WSW	1	2	1	3	0	0	7
W	1	2	5	4	0	0	12
WNW	1	8	5	8	4	0	26
NW	1	2	7	8	4	4	26
NNW	1	2	4	0	0	0	7
Variable	0	0	0	0	0	0	0
Total	10	46	63	43	10	4	176

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	3	7	17	8	0	0	35
NNE	1	6	6	0	0	0	13
NE	7	8	13	2	0	0	30
ENE	6	25	18	1	0	0	50
E	4	11	73	27	3	0	118
ESE	5	6	42	21	1	0	75
SE	2	6	14	10	0	0	32
SSE	4	7	11	0	0	0	22
S	4	9	18	15	2	0	48
SSW	6	9	33	14	0	0	62
SW	5	12	10	7	0	0	34
WSW	8	7	10	3	0	0	28
W	4	7	18	8	3	0	40
WNW	3	5	23	18	8	3	60
NW	5	5	8	37	13	3	71
NNW	1	5	21	6	4	0	37
Variable	0	0	0	0	0	0	0
Total	68	135	335	177	34	6	755

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	5	6	0	0	0	12
NNE	4	2	4	1	0	0	11
NE	5	5	0	0	0	0	10
ENE	4	13	3	0	0	0	20
E	7	8	21	1	0	0	37
ESE	7	13	19	13	0	0	52
SE	4	6	6	2	0	0	18
SSE	3	11	8	3	0	0	25
S	2	11	30	12	0	0	55
SSW	3	21	37	15	0	0	76
SW	6	24	28	4	0	0	62
WSW	1	22	17	2	2	0	44
W	2	14	21	5	0	0	42
WNW	6	23	33	15	0	0	77
NW	1	8	12	2	0	0	23
NNW	1	4	14	4	0	0	23
Variable	0	0	0	0	0	0	0
Total	57	190	259	79	2	0	587

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: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	4	2	0	0	0	10
NNE	2	3	1	0	0	0	6
NE	0	4	1	0	0	0	5
ENE	2	4	1	0	0	0	7
E	0	2	6	0	0	0	8
ESE	3	1	7	1	0	0	12
SE	1	0	1	1	0	0	3
SSE	4	3	1	0	0	0	8
S	2	3	2	0	0	0	7
SSW	1	4	11	1	0	0	17
SW	1	9	6	0	0	0	16
WSW	1	13	10	1	0	0	25
W	3	11	4	0	0	0	18
WNW	2	13	13	1	0	0	29
NW	2	6	3	1	0	0	12
NNW	0	1	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	28	81	70	6	0	0	185

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2013

Limerick Tower 1

Period of Record: April - June 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	2	0	0	0	0	3
NNE	1	2	2	0	0	0	5
NE	2	3	0	0	0	0	5
ENE	0	5	0	0	0	0	5
E	1	3	0	0	0	0	4
ESE	3	1	1	0	0	0	5
SE	1	0	1	0	0	0	2
SSE	3	1	0	0	0	0	4
S	0	3	1	0	0	0	4
SSW	2	5	0	0	0	0	7
SW	5	4	1	0	0	0	10
WSW	3	5	0	0	0	0	8
W	4	22	1	0	0	0	27
WNW	6	16	12	1	0	0	35
NW	3	9	4	2	0	0	18
NNW	1	5	1	1	0	0	8
Variable	0	0	0	0	0	0	0
Total	36	86	24	4	0	0	150

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 16

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 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	1	0	0	0	1
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	2	0	0	0	2
SSW	0	10	0	0	0	0	10
SW	1	14	0	0	0	0	15
WSW	3	22	0	0	0	0	25
W	1	7	0	0	0	0	8
WNW	0	7	0	0	0	0	7
NW	0	1	0	0	0	0	1
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	5	63	3	0	0	0	71

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 3
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	0	0	0	0	1
NNE	0	6	0	0	0	0	6
NE	0	7	0	0	0	0	7
ENE	0	3	0	0	0	0	3
E	0	2	0	0	0	0	2
ESE	0	2	0	0	0	0	2
SE	0	1	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	1	2	0	0	0	3
SSW	0	8	0	0	0	0	8
SW	1	10	0	0	0	0	11
WSW	1	11	0	0	0	0	12
W	4	11	0	0	0	0	15
WNW	3	5	0	0	0	0	8
NW	3	3	3	0	0	0	9
NNW	0	2	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	12	73	5	0	0	0	90

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 8
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	4	0	0	0	0	5
NNE	1	7	0	0	0	0	8
NE	2	7	1	0	0	0	10
ENE	2	6	0	0	0	0	8
E	0	9	0	0	0	0	9
ESE	1	2	0	0	0	0	3
SE	0	5	0	0	0	0	5
SSE	1	0	0	0	0	0	1
S	3	3	0	0	0	0	6
SSW	1	14	1	1	0	0	17
SW	1	10	0	0	0	0	11
WSW	6	11	0	0	0	0	17
W	4	4	0	0	0	0	8
WNW	10	12	0	0	0	0	22
NW	2	13	10	7	0	0	32
NNW	1	5	7	0	0	0	13
Variable	0	0	0	0	0	0	0
Total	36	112	19	8	0	0	175

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 4
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	8	18	14	0	0	0	40
NNE	15	20	2	0	0	0	37
NE	10	22	0	0	0	0	32
ENE	10	6	0	0	0	0	16
E	9	9	3	0	0	0	21
ESE	10	14	0	0	0	0	24
SE	5	10	0	0	0	0	15
SSE	8	21	0	0	0	0	29
S	14	47	4	0	0	0	65
SSW	12	41	3	0	0	0	56
SW	18	13	0	0	0	0	31
WSW	19	18	0	0	0	0	37
W	23	8	1	0	0	0	32
WNW	17	14	2	0	0	0	33
NW	17	53	23	2	0	0	95
NNW	12	30	35	0	0	0	77
Variable	2	0	0	0	0	0	2
Total	209	344	87	2	0	0	642

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 11
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	16	11	0	0	0	0	27
NNE	17	7	0	0	0	0	24
NE	17	6	0	0	0	0	23
ENE	11	5	1	0	0	0	17
E	12	4	0	0	0	0	16
ESE	9	3	0	0	0	0	12
SE	11	5	0	0	0	0	16
SSE	12	12	0	0	0	0	24
S	15	56	2	0	0	0	73
SSW	41	48	1	0	0	0	90
SW	51	16	0	0	0	0	67
WSW	44	8	1	0	0	0	53
W	51	2	1	0	0	0	54
WNW	44	3	2	0	0	0	49
NW	39	34	3	0	0	0	76
NNW	28	14	0	0	0	0	42
Variable	5	0	0	0	0	0	5
Total	423	234	11	0	0	0	668

Hours of calm in this stability class: 12
Hours of missing wind measurements in this stability class: 8
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	13	1	0	0	0	0	14
NNE	3	4	0	0	0	0	7
NE	3	0	0	0	0	0	3
ENE	2	0	0	0	0	0	2
E	7	1	0	0	0	0	8
ESE	4	1	0	0	0	0	5
SE	4	0	0	0	0	0	4
SSE	2	1	0	0	0	0	3
S	5	1	0	0	0	0	6
SSW	12	3	0	0	0	0	15
SW	13	1	0	0	0	0	14
WSW	19	0	0	0	0	0	19
W	27	0	0	0	0	0	27
WNW	37	0	1	0	0	0	38
NW	44	4	1	0	0	0	49
NNW	27	1	0	0	0	0	28
Variable	5	0	0	0	0	0	5
Total	227	18	2	0	0	0	247

Hours of calm in this stability class: 31
Hours of missing wind measurements in this stability class: 2
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	23	0	0	0	0	0	23
NNE	10	1	0	0	0	0	11
NE	3	0	0	0	0	0	3
ENE	0	0	0	0	0	0	0
E	5	0	0	0	0	0	5
ESE	2	0	0	0	0	0	2
SE	2	0	0	0	0	0	2
SSE	1	0	0	0	0	0	1
S	1	0	0	0	0	0	1
SSW	3	1	0	0	0	0	4
SW	4	0	0	0	0	0	4
WSW	6	0	0	0	0	0	6
W	10	0	0	0	0	0	10
WNW	18	0	0	0	0	0	18
NW	26	0	0	0	0	0	26
NNW	19	0	0	0	0	0	19
Variable	6	0	0	0	0	0	6
Total	139	2	0	0	0	0	141

Hours of calm in this stability class: 41
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 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	2	0	0	0	2
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	1	0	0	0	1
S	0	0	0	2	0	0	2
SSW	0	6	7	1	0	0	14
SW	1	3	7	2	0	0	13
WSW	0	8	12	3	0	0	23
W	0	6	10	0	0	0	16
WNW	0	1	1	0	0	0	2
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	1	24	41	8	0	0	74

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	2	0	0	0	2
NNE	0	5	0	0	0	0	5
NE	0	4	3	0	0	0	7
ENE	0	2	0	0	0	0	2
E	0	1	0	0	0	0	1
ESE	0	1	1	0	0	0	2
SE	0	1	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	1	2	2	0	0	5
SSW	0	1	8	1	0	0	10
SW	0	4	6	0	0	0	10
WSW	1	9	9	0	0	0	19
W	1	1	6	0	0	0	8
WNW	1	9	2	0	0	0	12
NW	0	2	5	3	0	0	10
NNW	0	3	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	3	44	44	6	0	0	97

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	3	3	0	0	0	7
NNE	0	5	1	0	0	0	6
NE	1	5	6	0	0	0	12
ENE	0	5	0	0	0	0	5
E	0	6	4	0	0	0	10
ESE	0	1	0	0	0	0	1
SE	1	3	1	0	0	0	5
SSE	1	1	0	0	0	0	2
S	0	0	2	0	0	0	2
SSW	0	4	13	2	0	0	19
SW	0	7	7	0	0	0	14
WSW	0	7	9	1	0	0	17
W	0	14	2	0	0	0	16
WNW	2	13	7	1	0	0	23
NW	0	2	12	15	3	0	32
NNW	2	2	1	3	0	0	8
Variable	0	0	0	0	0	0	0
Total	8	78	68	22	3	0	179

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	13	21	5	0	0	46
NNE	6	18	2	2	0	0	28
NE	5	20	16	0	0	0	41
ENE	7	13	2	1	0	0	23
E	4	9	5	3	0	0	21
ESE	2	5	7	0	0	0	14
SE	8	9	12	0	0	0	29
SSE	2	5	19	0	0	0	26
S	2	17	39	5	0	0	63
SSW	6	16	20	12	0	0	54
SW	1	13	18	1	0	0	33
WSW	2	12	25	1	0	0	40
W	10	17	12	0	0	0	39
WNW	8	16	24	3	0	0	51
NW	7	22	36	20	1	0	86
NNW	1	15	31	11	0	0	58
Variable	0	0	0	0	0	0	0
Total	78	220	289	64	1	0	652

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: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	12	14	2	0	0	30
NNE	4	12	8	1	0	0	25
NE	8	11	4	0	0	0	23
ENE	9	10	2	1	0	0	22
E	5	6	3	1	0	0	15
ESE	6	3	5	0	0	0	14
SE	1	8	2	0	0	0	11
SSE	6	14	11	0	0	0	31
S	1	16	50	6	0	0	73
SSW	1	38	60	6	0	0	105
SW	8	34	23	2	0	0	67
WSW	2	31	17	1	0	0	51
W	2	20	13	0	0	0	35
WNW	12	40	36	0	0	0	88
NW	6	20	30	7	0	0	63
NNW	5	12	11	1	0	0	29
Variable	1	0	0	0	0	0	1
Total	79	287	289	28	0	0	683

Hours of calm in this stability class: 2
Hours of missing wind measurements in this stability class: 3
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	3	6	1	0	0	0	10
NNE	2	0	1	3	0	0	6
NE	4	1	0	0	0	0	5
ENE	2	2	0	0	0	0	4
E	0	2	1	0	0	0	3
ESE	4	3	1	0	0	0	8
SE	1	0	0	0	0	0	1
SSE	3	3	0	0	0	0	6
S	1	5	4	0	0	0	10
SSW	2	8	5	1	0	0	16
SW	1	14	6	0	0	0	21
WSW	1	12	6	0	0	0	19
W	1	23	9	0	0	0	33
WNW	12	51	21	0	0	0	84
NW	3	22	7	0	0	0	32
NNW	4	11	5	0	0	0	20
Variable	1	0	0	0	0	0	1
Total	45	163	67	4	0	0	279

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2013

Limerick Tower 1

Period of Record: July - September 2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	2	1	0	0	0	5
NNE	3	0	3	0	0	0	6
NE	2	2	0	0	0	0	4
ENE	2	0	0	0	0	0	2
E	3	1	2	0	0	0	6
ESE	1	0	1	0	0	0	2
SE	3	0	0	0	0	0	3
SSE	3	2	0	0	0	0	5
S	1	0	0	0	0	0	1
SSW	3	2	2	0	0	0	7
SW	4	14	0	0	0	0	18
WSW	3	5	0	0	0	0	8
W	11	8	0	0	0	0	19
WNW	13	15	12	0	0	0	40
NW	9	23	4	0	0	0	36
NNW	7	8	1	0	0	0	16
Variable	0	1	0	0	0	0	1
Total	70	83	26	0	0	0	179

Hours of calm in this stability class: 3
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 53

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 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	2	0	0	0	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	1	0	0	0	0	1
SSW	0	2	4	0	0	0	6
SW	0	6	0	0	0	0	6
WSW	0	0	1	0	0	0	1
W	0	1	2	0	0	0	3
WNW	0	1	2	0	0	0	3
NW	0	1	0	0	0	0	1
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	12	11	0	0	0	23

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 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	1	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
S	0	1	0	0	0	0	1
SSW	0	0	0	0	0	0	0
SW	0	1	0	0	0	0	1
WSW	0	1	3	0	0	0	4
W	0	2	4	0	0	0	6
WNW	0	6	4	2	0	0	12
NW	0	0	2	1	0	0	3
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	15	13	3	0	0	31

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	2	0	0	0	3
NNE	0	4	1	0	0	0	5
NE	1	3	1	0	0	0	5
ENE	1	1	1	0	0	0	3
E	1	6	5	0	0	0	12
ESE	0	3	3	0	0	0	6
SE	0	5	0	0	0	0	5
SSE	1	0	0	0	0	0	1
S	1	4	0	0	0	0	5
SSW	0	2	0	0	0	0	2
SW	1	4	0	0	0	0	5
WSW	0	4	2	0	0	0	6
W	2	2	7	4	0	0	15
WNW	0	5	9	2	0	0	16
NW	0	5	13	8	3	0	29
NNW	1	0	3	1	0	0	5
Variable	0	0	0	0	0	0	0
Total	9	49	47	15	3	0	123

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	18	12	5	1	0	0	36
NNE	8	16	3	0	0	0	27
NE	11	48	3	0	0	0	62
ENE	21	36	13	0	0	0	70
E	19	19	29	0	0	0	67
ESE	6	8	1	0	0	0	15
SE	10	7	0	0	0	0	17
SSE	11	18	3	0	0	0	32
S	9	32	10	2	0	0	53
SSW	7	14	4	2	0	0	27
SW	11	14	2	0	0	0	27
WSW	8	15	10	0	0	0	33
W	12	25	21	5	0	0	63
WNW	17	35	66	30	1	1	150
NW	12	40	100	39	1	0	192
NNW	9	41	31	5	0	0	86
Variable	1	0	0	0	0	0	1
Total	190	380	301	84	2	1	958

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 5
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	11	5	0	0	0	0	16
NNE	11	6	0	0	0	0	17
NE	8	15	0	0	0	0	23
ENE	10	3	0	0	0	0	13
E	11	15	2	0	0	0	28
ESE	8	5	0	0	0	0	13
SE	5	7	1	0	0	0	13
SSE	6	19	5	0	0	0	30
S	9	26	6	0	0	0	41
SSW	14	20	8	0	0	0	42
SW	23	20	3	0	0	0	46
WSW	24	22	1	1	0	0	48
W	24	37	7	0	0	0	68
WNW	24	57	14	0	0	0	95
NW	28	31	6	0	0	0	65
NNW	9	8	0	0	0	0	17
Variable	5	0	0	0	0	0	5
Total	230	296	53	1	0	0	580

Hours of calm in this stability class: 7
Hours of missing wind measurements in this stability class: 3
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	16	0	0	0	0	0	16
NNE	7	0	0	0	0	0	7
NE	8	0	0	0	0	0	8
ENE	6	1	0	0	0	0	7
E	5	5	0	0	0	0	10
ESE	4	0	0	0	0	0	4
SE	2	0	0	0	0	0	2
SSE	0	2	0	0	0	0	2
S	5	1	0	0	0	0	6
SSW	7	5	0	0	0	0	12
SW	14	6	0	0	0	0	20
WSW	9	4	0	0	0	0	13
W	14	7	0	0	0	0	21
WNW	28	12	0	0	0	0	40
NW	22	6	0	0	0	0	28
NNW	4	2	0	0	0	0	6
Variable	1	0	0	0	0	0	1
Total	152	51	0	0	0	0	203

Hours of calm in this stability class: 5
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	26	0	0	0	0	0	26
NNE	12	0	0	0	0	0	12
NE	4	0	0	0	0	0	4
ENE	8	0	0	0	0	0	8
E	6	1	0	0	0	0	7
ESE	2	0	0	0	0	0	2
SE	3	0	0	0	0	0	3
SSE	0	0	0	0	0	0	0
S	1	0	0	0	0	0	1
SSW	2	0	0	0	0	0	2
SW	7	0	0	0	0	0	7
WSW	6	0	0	0	0	0	6
W	15	0	0	0	0	0	15
WNW	33	1	0	0	0	0	34
NW	32	1	1	0	0	0	34
NNW	42	0	0	0	0	0	42
Variable	4	0	0	0	0	0	4
Total	203	3	1	0	0	0	207

Hours of calm in this stability class: 32
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 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	1	0	0	1
ENE	0	0	1	0	0	0	1
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	2	0	0	0	2
SSW	0	1	5	2	0	0	8
SW	0	0	4	0	0	0	4
WSW	0	0	0	1	0	0	1
W	0	0	1	2	0	0	3
WNW	0	0	3	0	0	0	3
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	16	6	0	0	23

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 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	1	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
S	0	1	0	0	0	0	1
SSW	0	0	0	0	0	0	0
SW	0	0	1	0	0	0	1
WSW	0	1	3	2	0	0	6
W	0	3	3	4	0	0	10
WNW	0	1	1	5	0	0	7
NW	0	0	0	2	0	0	2
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	10	8	13	0	0	31

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	2	1	0	0	0	5
NNE	0	1	2	0	0	0	3
NE	0	2	2	0	0	0	4
ENE	0	2	1	1	0	0	4
E	0	6	3	3	0	0	12
ESE	0	1	4	0	0	0	5
SE	1	4	1	0	0	0	6
SSE	0	0	0	0	0	0	0
S	0	4	2	0	0	0	6
SSW	0	1	1	0	0	0	2
SW	0	4	2	0	0	0	6
WSW	0	1	3	4	1	0	9
W	0	3	4	5	3	0	15
WNW	1	4	3	12	0	0	20
NW	0	0	3	12	4	3	22
NNW	0	0	0	4	0	0	4
Variable	0	0	0	0	0	0	0
Total	4	35	32	41	8	3	123

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	6	5	14	4	1	0	30
NNE	5	12	11	2	0	0	30
NE	11	12	42	2	0	0	67
ENE	11	17	34	1	0	0	63
E	10	23	19	10	0	0	62
ESE	10	12	2	0	0	0	24
SE	5	5	3	0	0	0	13
SSE	7	8	10	3	0	0	28
S	6	15	27	9	2	0	59
SSW	1	20	14	5	1	2	43
SW	3	11	11	4	1	0	30
WSW	1	7	15	7	2	0	32
W	5	18	22	14	3	1	63
WNW	6	21	44	83	37	1	192
NW	3	4	34	53	28	2	124
NNW	10	13	33	21	1	0	78
Variable	0	0	0	0	0	0	0
Total	100	203	335	218	76	6	938

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 24
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	6	10	6	0	0	0	22
NNE	4	4	3	1	0	0	12
NE	4	0	20	0	0	0	24
ENE	8	3	2	0	0	0	13
E	5	7	6	4	0	0	22
ESE	4	3	3	1	0	0	11
SE	6	5	1	0	0	0	12
SSE	0	11	14	1	0	0	26
S	2	14	19	20	0	0	55
SSW	0	18	22	12	5	0	57
SW	4	14	23	8	1	0	50
WSW	4	15	26	4	0	0	49
W	2	20	28	5	0	0	55
WNW	5	17	60	18	1	0	101
NW	2	14	21	4	0	0	41
NNW	10	10	10	0	0	0	30
Variable	1	0	0	0	0	0	1
Total	67	165	264	78	7	0	581

Hours of calm in this stability class: 2
Hours of missing wind measurements in this stability class: 7
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	7	0	0	0	0	14
NNE	4	3	0	0	0	0	7
NE	2	1	3	0	0	0	6
ENE	4	2	0	0	0	0	6
E	2	2	2	0	0	0	6
ESE	3	2	5	2	0	0	12
SE	2	2	0	0	0	0	4
SSE	0	0	0	0	0	0	0
S	2	5	1	0	0	0	8
SSW	2	5	6	2	0	0	15
SW	0	6	14	0	0	0	20
WSW	0	12	6	1	0	0	19
W	3	11	6	0	0	0	20
WNW	0	13	26	1	0	0	40
NW	6	9	6	1	0	0	22
NNW	3	5	0	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	40	85	75	7	0	0	207

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: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2013

Limerick Tower 1

Period of Record: October - December2013
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	6	4	1	0	0	0	11
NNE	7	6	0	0	0	0	13
NE	8	8	1	0	0	0	17
ENE	6	1	0	0	0	0	7
E	2	5	0	0	0	0	7
ESE	2	2	1	3	0	0	8
SE	0	0	0	0	0	0	0
SSE	3	1	0	0	0	0	4
S	7	4	0	0	0	0	11
SSW	2	16	1	0	0	0	19
SW	5	12	3	0	0	0	20
WSW	8	7	3	0	0	0	18
W	9	18	3	0	0	0	30
WNW	7	32	6	0	0	0	45
NW	7	7	2	0	0	0	16
NNW	6	3	1	0	0	0	10
Variable	0	0	0	0	0	0	0
Total	85	126	22	3	0	0	236

Hours of calm in this stability class: 3
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 30

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 9 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January - December, 2013

Limerick Tower 1
30 ft. Wind Speed and Direction

January-December, 2013
171Ft-26Ft Delta-T (F)

Number of Observations = 8424
Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	STABILITY CLASSES EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04				0.04				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13					0.13			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07						0.07		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13							0.13	
																									0.37
EU	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.04	0.01	0.01	0.00	0.00	0.11	0.11							
MU	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.06	0.06	0.06	0.06	0.05	0.01	0.34		0.34						
1 SU	0.01	0.01	0.05	0.05	0.02	0.05	0.01	0.04	0.12	0.07	0.07	0.11	0.09	0.15	0.08	0.02	0.96			0.96					
- N	0.62	0.63	0.59	0.58	0.62	0.45	0.34	0.42	0.40	0.43	0.52	0.49	0.62	0.74	0.50	0.45	8.39				8.39				
3 SS	0.53	0.53	0.55	0.56	0.55	0.43	0.37	0.37	0.58	1.04	1.41	1.34	1.80	1.80	1.45	0.68	14.00					14.00			
MS	0.45	0.24	0.26	0.26	0.23	0.23	0.15	0.07	0.26	0.42	0.56	0.66	0.70	1.15	1.06	0.57	7.26						7.26		
ES	0.69	0.36	0.23	0.24	0.21	0.12	0.08	0.05	0.05	0.09	0.15	0.19	0.53	1.06	1.14	1.00	6.18							6.18	
																									37.25
EU	0.04	0.01	0.00	0.01	0.06	0.02	0.02	0.07	0.11	0.49	0.33	0.50	0.25	0.28	0.14	0.02	2.36	2.36							
MU	0.05	0.11	0.11	0.09	0.09	0.07	0.04	0.06	0.05	0.25	0.26	0.20	0.24	0.44	0.19	0.07	2.31		2.31						
4 SU	0.12	0.15	0.14	0.17	0.36	0.13	0.17	0.00	0.11	0.34	0.27	0.28	0.18	0.46	0.42	0.14	3.44			3.44					
- N	0.89	0.75	1.27	1.42	1.50	0.65	0.49	0.76	1.35	1.33	0.55	0.62	1.10	1.70	2.50	1.41	18.29				18.29				
7 SS	0.28	0.26	0.33	0.19	0.57	0.38	0.28	0.64	1.65	1.53	0.65	0.49	0.88	1.84	1.53	0.51	12.03					12.03			
MS	0.02	0.06	0.01	0.05	0.09	0.04	0.00	0.04	0.05	0.18	0.08	0.05	0.09	0.17	0.14	0.04	1.10						1.10		
ES	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.02	0.00	0.00	0.01	0.02	0.07	0.00	0.19							0.19	
																									39.73
EU	0.01	0.00	0.01	0.00	0.12	0.01	0.00	0.00	0.13	0.12	0.00	0.04	0.11	0.40	0.06	0.00	1.01	1.01							
MU	0.04	0.00	0.00	0.00	0.12	0.06	0.01	0.01	0.08	0.04	0.00	0.08	0.09	0.26	0.47	0.01	1.28		1.28						
8 SU	0.05	0.01	0.02	0.02	0.20	0.12	0.01	0.00	0.07	0.06	0.01	0.02	0.13	0.24	0.76	0.21	1.95			1.95					
- N	0.47	0.09	0.17	0.24	0.97	0.59	0.06	0.25	0.38	0.24	0.04	0.14	0.43	2.17	4.36	1.54	12.14				12.14				
1 SS	0.00	0.00	0.00	0.01	0.05	0.13	0.02	0.07	0.19	0.11	0.05	0.05	0.15	0.26	0.23	0.05	1.37					1.37			
2 MS	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.04						0.04		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01							0.01	
																									17.79
EU	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.14	0.14							
1 MU	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.12	0.23	0.00	0.39		0.39						
3 SU	0.00	0.00	0.00	0.00	0.01	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.07	0.07	0.53	0.04	0.78			0.78					
- N	0.01	0.05	0.04	0.05	0.20	0.11	0.00	0.00	0.04	0.02	0.00	0.00	0.08	0.61	1.54	0.32	3.06				3.06				
1 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02					0.02			
8 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									4.40

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 9 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January - December, 2013

Limerick Tower 1 — January-December, 2013
30 ft. Wind Speed and Direction — 171Ft-26Ft Delta-T (F)

SPEED CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	STABILITY CLASSES EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05			0.05					
- N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.02				0.02				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.07
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01				0.01				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.01
TOT	4.29	3.28	3.79	3.94	6.03	3.67	2.08	2.87	5.64	6.79	5.05	5.37	7.68	14.11	17.59	7.10	99.63	3.62	4.33	7.18	41.96	27.54	8.48	6.52	99.63

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.05	0.01	0.02	0.01	0.20	0.05	0.02	0.07	0.24	0.61	0.36	0.57	0.37	0.76	0.26	0.02	3.62	Extremely Unstable
0.08	0.11	0.11	0.09	0.24	0.14	0.06	0.09	0.13	0.28	0.32	0.34	0.42	0.88	0.94	0.09	4.33	Moderately Unstable
0.18	0.18	0.21	0.24	0.59	0.34	0.19	0.04	0.30	0.49	0.36	0.42	0.47	0.93	1.84	0.42	7.18	Slightly Unstable
1.99	1.52	2.07	2.29	3.29	1.80	0.89	1.42	2.17	2.02	1.10	1.25	2.23	5.24	8.92	3.73	41.96	Neutral
0.82	0.80	0.88	0.76	1.16	0.94	0.68	1.08	2.42	2.68	2.11	1.89	2.85	3.91	3.21	1.23	27.54	Slightly Stable
0.47	0.30	0.27	0.31	0.32	0.27	0.15	0.11	0.31	0.59	0.64	0.71	0.80	1.33	1.21	0.61	8.48	Moderately Stable
0.69	0.37	0.23	0.24	0.23	0.12	0.08	0.06	0.07	0.12	0.15	0.19	0.55	1.08	1.22	1.00	6.52	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.37	C A L M
2.30	1.77	1.69	1.69	1.63	1.29	0.97	0.96	1.41	2.05	2.80	2.88	3.82	4.97	4.27	2.73	37.25	< 3.5 mph
1.40	1.35	1.86	1.93	2.68	1.29	1.00	1.58	3.34	4.14	2.15	2.14	2.75	4.91	5.00	2.20	39.73	3.6 - 7.5 mph
0.57	0.11	0.20	0.27	1.46	0.93	0.11	0.33	0.85	0.56	0.09	0.33	0.91	3.35	5.90	1.82	17.79	7.6 - 12.5 mph
0.01	0.05	0.04	0.05	0.26	0.15	0.00	0.00	0.04	0.04	0.00	0.01	0.19	0.85	2.36	0.36	4.40	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.06	0.00	0.07	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	> 24.5 mph

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 10 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January - December, 2013

Limerick Tower 1
175 ft. Wind Speed and Direction

January-December, 2013
171Ft-26Ft Delta-T (F)

Number of Observations = 8555
Values are Percent Occurrence

SPEED CLASS	WIND DIRECTION CLASSES N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	STABILITY CLASSES EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.04					0.04			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01						0.01		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01							0.01	
																									0.06
EU	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.04							
MU	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.00	0.01	0.01	0.02	0.00	0.01	0.11		0.11						
1 SU	0.04	0.01	0.02	0.00	0.00	0.01	0.02	0.02	0.01	0.00	0.01	0.02	0.01	0.05	0.01	0.04	0.28			0.28					
- N	0.25	0.23	0.36	0.36	0.30	0.27	0.19	0.18	0.14	0.15	0.13	0.13	0.23	0.21	0.25	0.15	3.53				3.53				
3 SS	0.16	0.18	0.29	0.29	0.23	0.22	0.14	0.13	0.09	0.06	0.22	0.09	0.09	0.28	0.14	0.23	2.86					2.86			
MS	0.19	0.12	0.07	0.16	0.02	0.13	0.06	0.11	0.06	0.08	0.05	0.02	0.11	0.18	0.14	0.11	1.59						1.59		
ES	0.16	0.16	0.15	0.14	0.09	0.08	0.06	0.13	0.09	0.08	0.16	0.18	0.28	0.33	0.25	0.21	2.56							2.56	
																									10.96
EU	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.14	0.13	0.13	0.13	0.01	0.00	0.00	0.58	0.58							
MU	0.04	0.07	0.07	0.06	0.05	0.02	0.02	0.04	0.05	0.05	0.11	0.15	0.14	0.13	0.05	0.05	1.08		1.08						
4 SU	0.09	0.07	0.13	0.12	0.25	0.04	0.12	0.02	0.07	0.15	0.20	0.15	0.23	0.33	0.06	0.05	2.07			2.07					
- N	0.57	0.64	0.72	0.98	0.69	0.47	0.29	0.39	0.55	0.60	0.48	0.35	0.58	0.70	0.56	0.53	9.11				9.11				
7 SS	0.40	0.26	0.22	0.42	0.36	0.28	0.29	0.49	0.58	1.03	0.98	0.91	0.78	1.37	0.69	0.42	9.49					9.49			
MS	0.20	0.08	0.08	0.14	0.08	0.08	0.04	0.09	0.19	0.22	0.36	0.51	0.62	0.98	0.47	0.21	4.36						4.36		
ES	0.09	0.11	0.19	0.08	0.12	0.04	0.00	0.06	0.08	0.30	0.37	0.27	0.56	0.77	0.48	0.21	3.73							3.73	
																									30.41
EU	0.04	0.00	0.02	0.01	0.09	0.01	0.01	0.07	0.09	0.36	0.25	0.33	0.26	0.25	0.05	0.02	1.86	1.86							
MU	0.08	0.01	0.06	0.02	0.11	0.05	0.05	0.00	0.06	0.21	0.20	0.16	0.27	0.22	0.19	0.04	1.72		1.72						
8 SU	0.09	0.05	0.11	0.09	0.20	0.12	0.07	0.01	0.12	0.23	0.16	0.15	0.19	0.28	0.35	0.13	2.35			2.35					
- N	0.92	0.32	1.03	0.94	1.27	0.69	0.35	0.57	1.15	0.88	0.49	0.63	1.02	2.02	1.85	1.44	15.56				15.56				
1 SS	0.33	0.20	0.36	0.08	0.40	0.34	0.12	0.44	1.39	1.53	1.02	0.83	0.94	2.41	1.09	0.51	11.98					11.98			
2 MS	0.04	0.02	0.06	0.01	0.12	0.15	0.01	0.01	0.08	0.29	0.36	0.27	0.27	0.76	0.21	0.07	2.74						2.74		
ES	0.02	0.06	0.01	0.00	0.02	0.04	0.01	0.00	0.01	0.07	0.06	0.05	0.06	0.55	0.12	0.04	1.11							1.11	
																									37.31
EU	0.00	0.00	0.01	0.00	0.09	0.01	0.00	0.01	0.12	0.11	0.05	0.09	0.11	0.20	0.01	0.00	0.81	0.81							
1 MU	0.00	0.00	0.00	0.00	0.06	0.02	0.00	0.01	0.07	0.06	0.01	0.09	0.09	0.34	0.22	0.00	0.98		0.98						
3 SU	0.00	0.00	0.00	0.01	0.15	0.05	0.01	0.00	0.05	0.09	0.05	0.09	0.14	0.35	0.62	0.13	1.74			1.74					
- N	0.35	0.06	0.11	0.15	0.54	0.28	0.15	0.25	0.42	0.40	0.16	0.16	0.57	2.69	2.49	0.85	9.63				9.63				
1 SS	0.02	0.04	0.00	0.01	0.08	0.18	0.04	0.05	0.49	0.41	0.20	0.15	0.27	0.62	0.26	0.06	2.86					2.86			
8 MS	0.00	0.04	0.00	0.00	0.01	0.05	0.01	0.00	0.00	0.05	0.00	0.02	0.00	0.02	0.02	0.00	0.22						0.22		
ES	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.01	0.12							0.12	
																									16.36

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 10 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January - December, 2013

Limerick Tower 1
175 ft. Wind Speed and Direction

January-December, 2013
171Ft-26Ft Delta-T (F)

SPEED CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	STABILITY CLASSES EU	MU	SU	N	SS	MS	ES	TOTAL
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.02	0.26	0.01	0.00	0.33	0.33							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.01	0.25	0.08	0.00	0.37		0.37						
9 SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.06	0.21	0.23	0.02	0.56			0.56					
- N	0.01	0.06	0.04	0.05	0.14	0.01	0.00	0.00	0.05	0.05	0.02	0.04	0.15	1.12	0.86	0.20	2.79				2.79				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.02	0.01	0.01	0.00	0.00	0.12					0.12			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									4.17
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.02	0.00	0.09		0.09						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.08	0.00	0.12			0.12					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.11	0.13	0.18	0.01	0.44				0.44				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.65
TOT	4.11	2.78	4.13	4.14	5.48	3.67	2.08	3.10	6.03	7.70	6.27	6.10	8.38	18.12	12.06	5.74	99.94	3.61	4.35	7.12	41.06	27.35	8.92	7.53	99.94

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.06	0.00	0.05	0.01	0.19	0.04	0.02	0.08	0.22	0.61	0.43	0.58	0.51	0.71	0.07	0.02	3.61	Extremely Unstable
0.12	0.09	0.13	0.08	0.21	0.09	0.08	0.06	0.19	0.33	0.32	0.44	0.55	1.01	0.56	0.09	4.35	Moderately Unstable
0.22	0.13	0.26	0.22	0.60	0.21	0.22	0.06	0.25	0.49	0.43	0.43	0.65	1.23	1.36	0.36	7.12	Slightly Unstable
2.10	1.31	2.26	2.48	2.95	1.72	0.98	1.38	2.30	2.09	1.29	1.31	2.67	6.87	6.18	3.18	41.06	Neutral
0.91	0.67	0.88	0.81	1.08	1.02	0.58	1.11	2.56	3.09	2.43	2.01	2.09	4.69	2.19	1.23	27.35	Slightly Stable
0.42	0.26	0.21	0.32	0.23	0.41	0.12	0.21	0.33	0.64	0.77	0.83	0.99	1.94	0.84	0.39	8.92	Moderately Stable
0.28	0.33	0.35	0.22	0.23	0.19	0.07	0.20	0.19	0.46	0.60	0.49	0.91	1.67	0.86	0.47	7.53	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	C A L M
0.79	0.71	0.91	0.96	0.65	0.72	0.48	0.57	0.40	0.39	0.58	0.46	0.74	1.06	0.78	0.75	10.96	< 3.5 mph
1.41	1.23	1.41	1.80	1.54	0.92	0.77	1.09	1.53	2.49	2.63	2.48	3.05	4.29	2.30	1.46	30.41	3.6 - 7.5 mph
1.52	0.65	1.65	1.16	2.21	1.39	0.62	1.11	2.90	3.58	2.54	2.42	2.99	6.49	3.85	2.24	37.31	7.6 - 12.5 mph
0.37	0.13	0.12	0.18	0.94	0.62	0.21	0.33	1.15	1.11	0.47	0.62	1.19	4.24	3.65	1.05	16.36	12.6 - 18.5 mph
0.01	0.06	0.04	0.05	0.14	0.01	0.00	0.00	0.06	0.12	0.05	0.13	0.26	1.85	1.19	0.22	4.17	18.6 - 24.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.15	0.19	0.28	0.01	0.65	> 24.5 mph

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 11 Annual x/Q and D/Q values for the North Stack, Limerick Generating Station, 2013

Limerick Generating Station
x/Q and D/Q values

North Stack - Flow = 316000 cfm				X/Q (s/m^3)	D/Q (1/m^2)
Stack ID	Location	Direction	Range (m)	Undepleted	
N	Site Boundary	S	762	8.25E-08	8.73E-10
N	Site Boundary	SSW	762	6.49E-08	6.85E-10
N	Site Boundary	SW	884	7.29E-08	7.50E-10
N	Site Boundary	WSW	854	7.71E-08	7.32E-10
N	Site Boundary	W	854	1.72E-07	2.15E-09
N	Site Boundary	WNW	793	1.03E-07	1.24E-09
N	Site Boundary	NW	762	4.44E-08	4.23E-10
N	Site Boundary	NNW	884	6.33E-08	5.68E-10
N	Site Boundary	N	884	1.50E-07	1.46E-09
N	Site Boundary	NNE	793	1.95E-07	2.16E-09
N	Site Boundary	NE	793	9.31E-08	1.10E-09
N	Site Boundary	ENE	793	9.89E-08	1.44E-09
N	Site Boundary	E	762	1.72E-07	2.10E-09
N	Site Boundary	ESE	762	4.42E-07	6.20E-09
N	Site Boundary	SE	762	7.20E-07	1.07E-08
N	Site Boundary	SSE	1006	1.43E-07	1.76E-09
N	RR-Inf-Lck-NG	S	300	3.46E-07	3.00E-09
N	RR-Inf-Lck-NG	SSW	225	4.64E-07	3.33E-09
N	RR-Inf-Lck-NG	SW	225	6.19E-07	4.21E-09
N	RR-Inf-Lck-NG	WSW	345	2.92E-07	2.34E-09
N	RR-Inf-Lck-NG	W	225	1.38E-06	1.26E-08
N	RR-Inf-Lck-NG	WNW	345	3.57E-07	3.84E-09
N	RR-Inf-Lck-NG	NW	450	9.39E-08	8.05E-10
N	RR-Inf-Lck-NG	ESE	884	3.67E-07	5.08E-09
N	RR-Inf-Lck-NG	WSW	450	1.83E-07	1.63E-09
N	RR-Inf-Lck-NG	NNE	682	2.35E-07	2.59E-09
N	Inhalation	N	948	1.37E-07	1.34E-09
N	Inhalation	NNE	825	1.86E-07	2.07E-09
N	Inhalation	NE	1057	6.83E-08	8.22E-10
N	Inhalation	ENE	985	8.00E-08	1.15E-09
N	Inhalation	E	873	1.46E-07	1.78E-09
N	Inhalation	ESE	1047	2.98E-07	4.09E-09
N	Inhalation	SE	1557	3.18E-07	4.17E-09
N	Inhalation	SSE	1647	9.28E-08	1.07E-09
N	Inhalation	S	1325	4.57E-08	5.33E-10
N	Inhalation	SSW	1543	3.24E-08	3.88E-10
N	Inhalation	SW	991	6.38E-08	6.71E-10
N	Inhalation	WSW	1158	5.39E-08	5.76E-10
N	Inhalation	W	1105	1.27E-07	1.59E-09
N	Inhalation	WNW	1198	6.40E-08	7.76E-10

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 11 Annual x/Q and D/Q values for the North Stack, Limerick Generating Station, 2013

Limerick Generating Station
x/Q and D/Q values

North Stack - Flow = 316000 cfm				X/Q (s/m^3)	D/Q (1/m^2)
Stack ID	Location	Direction	Range (m)	Undepleted	
N	Inhalation	NW	1104	2.87E-08	3.02E-10
N	Inhalation	NNW	1540	3.75E-08	3.76E-10
N	Vegetation	N	1017	1.26E-07	1.24E-09
N	Vegetation	NNE	2929	8.49E-08	4.59E-10
N	Vegetation	NE	1065	6.77E-08	8.16E-10
N	Vegetation	ENE	4561	6.19E-08	1.84E-10
N	Vegetation	E	3849	8.89E-08	3.15E-10
N	Vegetation	ESE	555	6.81E-07	9.53E-09
N	Vegetation	SE	390	1.89E-06	2.79E-08
N	Vegetation	SSE	2102	8.35E-08	8.11E-10
N	Vegetation	S	1860	4.01E-08	4.09E-10
N	Vegetation	SSW	1622	3.19E-08	3.70E-10
N	Vegetation	SW	1390	4.70E-08	5.34E-10
N	Vegetation	WSW	3662	4.38E-08	2.24E-10
N	Vegetation	W	1283	1.10E-07	1.37E-09
N	Vegetation	WNW	1198	6.40E-08	7.76E-10
N	Vegetation	NW	2490	2.37E-08	1.60E-10
N	Vegetation	NNW	2166	3.50E-08	2.70E-10
N	Meat	N	7551	4.37E-08	1.01E-10
N	Meat	ENE	6264	5.60E-08	1.15E-10
N	Meat	SE	3331	1.92E-07	1.47E-09
N	Meat	S	6741	3.51E-08	8.61E-11
N	Meat	SSW	3167	3.39E-08	1.88E-10
N	Meat	SW	5653	3.84E-08	1.16E-10
N	Meat	WSW	4321	4.23E-08	1.83E-10
N	Meat	W	4467	6.03E-08	3.15E-10
N	Cow	N	7551	4.37E-08	1.01E-10
N	Cow	S	6741	3.51E-08	8.61E-11
N	Cow	SSW	3167	3.39E-08	1.88E-10
N	Cow	WSW	4321	4.23E-08	1.83E-10
N	Cow	W	4467	6.03E-08	3.15E-10
N	Garden	ESE	2198	1.68E-07	1.61E-09
N	Garden	SE	1972	2.65E-07	3.03E-09

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 12 Annual x/Q and D/Q values for the South Stack, Limerick Generating Station, 2013

Limerick Generating Station
x/Q and D/Q values

South Stack - Flow = 187000 cfm				X/Q (s/m^3)	D/Q (1/m^2)
Stack ID	Location	Direction	Range (m)	Undepleted	
S	Site Boundary	S	762	4.72E-08	6.07E-10
S	Site Boundary	SSW	762	3.07E-08	4.38E-10
S	Site Boundary	SW	884	3.82E-08	5.21E-10
S	Site Boundary	WSW	854	3.55E-08	4.74E-10
S	Site Boundary	W	854	1.03E-07	1.56E-09
S	Site Boundary	WNW	793	6.06E-08	8.72E-10
S	Site Boundary	NW	762	2.14E-08	2.85E-10
S	Site Boundary	NNW	884	3.13E-08	3.87E-10
S	Site Boundary	N	884	8.32E-08	1.04E-09
S	Site Boundary	NNE	793	1.07E-07	1.59E-09
S	Site Boundary	NE	793	4.73E-08	8.34E-10
S	Site Boundary	ENE	793	5.73E-08	1.17E-09
S	Site Boundary	E	762	9.32E-08	1.50E-09
S	Site Boundary	ESE	762	2.42E-07	4.33E-09
S	Site Boundary	SE	762	3.87E-07	6.95E-09
S	Site Boundary	SSE	1006	8.45E-08	1.23E-09
S	RR-Inf-Lck-NG	S	300	1.87E-07	1.80E-09
S	RR-Inf-Lck-NG	SSW	225	2.04E-07	1.60E-09
S	RR-Inf-Lck-NG	SW	225	2.89E-07	2.18E-09
S	RR-Inf-Lck-NG	WSW	345	1.22E-07	1.21E-09
S	RR-Inf-Lck-NG	W	225	7.47E-07	7.24E-09
S	RR-Inf-Lck-NG	WNW	345	1.99E-07	2.32E-09
S	RR-Inf-Lck-NG	NW	450	4.27E-08	4.81E-10
S	RR-Inf-Lck-NG	ESE	884	2.08E-07	3.68E-09
S	RR-Inf-Lck-NG	WSW	450	7.68E-08	8.85E-10
S	RR-Inf-Lck-NG	NNE	682	1.24E-07	1.85E-09
S	Inhalation	N	948	7.74E-08	9.71E-10
S	Inhalation	NNE	825	1.03E-07	1.53E-09
S	Inhalation	NE	1057	3.97E-08	6.64E-10
S	Inhalation	ENE	985	5.15E-08	9.72E-10
S	Inhalation	E	873	8.21E-08	1.31E-09
S	Inhalation	ESE	1047	1.80E-07	3.08E-09
S	Inhalation	SE	1557	2.33E-07	3.38E-09
S	Inhalation	SSE	1647	7.28E-08	8.97E-10
S	Inhalation	S	1325	3.29E-08	4.41E-10
S	Inhalation	SSW	1543	2.37E-08	3.28E-10
S	Inhalation	SW	991	3.51E-08	4.86E-10
S	Inhalation	WSW	1158	2.93E-08	4.29E-10
S	Inhalation	W	1105	8.37E-08	1.24E-09
S	Inhalation	WNW	1198	4.36E-08	6.10E-10
S	Inhalation	NW	1104	1.61E-08	2.29E-10

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table D – 12 Annual x/Q and D/Q values for the South Stack, Limerick Generating Station, 2013

Limerick Generating Station
x/Q and D/Q values

South Stack - Flow = 187000 cfm				X/Q (s/m^3)	D/Q (1/m^2)
Stack ID	Location	Direction	Range (m)	Undepleted	
S	Inhalation	NNW	1540	2.61E-08	3.11E-10
S	Vegetation	N	1017	7.25E-08	9.14E-10
S	Vegetation	NNE	2929	8.24E-08	4.11E-10
S	Vegetation	NE	1065	3.95E-08	6.60E-10
S	Vegetation	ENE	4561	6.62E-08	1.77E-10
S	Vegetation	E	3849	9.36E-08	2.94E-10
S	Vegetation	ESE	555	3.50E-07	6.17E-09
S	Vegetation	SE	390	9.55E-07	1.55E-08
S	Vegetation	SSE	2102	7.42E-08	7.13E-10
S	Vegetation	S	1860	3.57E-08	3.64E-10
S	Vegetation	SSW	1622	2.44E-08	3.16E-10
S	Vegetation	SW	1390	3.26E-08	4.39E-10
S	Vegetation	WSW	3662	4.57E-08	2.12E-10
S	Vegetation	W	1283	7.76E-08	1.11E-09
S	Vegetation	WNW	1198	4.36E-08	6.10E-10
S	Vegetation	NW	2490	2.34E-08	1.46E-10
S	Vegetation	NNW	2166	3.09E-08	2.36E-10
S	Meat	N	7551	4.48E-08	9.48E-11
S	Meat	ENE	6264	5.97E-08	1.11E-10
S	Meat	SE	3331	1.84E-07	1.34E-09
S	Meat	S	6741	3.78E-08	8.37E-11
S	Meat	SSW	3167	3.53E-08	1.75E-10
S	Meat	SW	5653	4.07E-08	1.11E-10
S	Meat	WSW	4321	4.45E-08	1.76E-10
S	Meat	W	4467	6.19E-08	3.00E-10
S	Cow	N	7551	4.48E-08	9.48E-11
S	Cow	S	6741	3.78E-08	8.37E-11
S	Cow	SSW	3167	3.53E-08	1.75E-10
S	Cow	WSW	4321	4.45E-08	1.76E-10
S	Cow	W	4467	6.19E-08	3.00E-10
S	Garden	ESE	2198	1.48E-07	1.40E-09
S	Garden	SE	1972	2.18E-07	2.58E-09

Appendix D
ERRATA – Previous Reports

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Correction to 2010 ARERR
Total body and organ dose for liquid releases were recalculated due to a software error identified (IR 1613017). Due to the software error, dose calculations were being performed without the inclusion of the Schuylkill River dilution factor as required by the ODCM dose methodology. The corrected data in this section includes the dose calculations post dilution and the updated 40 CFR 190 Compliance table. No limits have been exceeded.

Correction to 2011 ARERR
Total body and organ dose for liquid releases were recalculated due to a software error identified (IR 1613017). Due to the software error, dose calculations were being performed without the inclusion of the Schuylkill River dilution factor as required by the ODCM dose methodology. The corrected data in this section includes the dose calculations post dilution and the updated 40 CFR 190 Compliance table. No limits have been exceeded.

Correction to 2012 ARERR
Total body and organ dose for liquid releases were recalculated due to a software error identified (IR 1613017). Due to the software error, dose calculations were being performed without the inclusion of the Schuylkill River dilution factor as required by the ODCM dose methodology. The corrected data in this section includes the dose calculations post dilution and the updated 40 CFR 190 Compliance table. No limits have been exceeded.

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

NO. 36

January 1, 2010 through December 31, 2010

EXELON GENERATION COMPANY, LLC

LIMERICK GENERATING STATION
UNITS NO. 1 AND 2

DOCKET NO. 50-352 (Unit 1)

DOCKET NO. 50-353 (Unit 2)

Submitted to
The United States Nuclear Regulatory Commission
Pursuant to
Facility Operating License:

NPF-39 (Unit 1)
NPF-85 (Unit 2)

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

TABLE A2 LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES PERIOD 2010

Fission and Activation Products Excluding Tritium, Gasses & Alpha)	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	7.72E-04	5.30E-04	7.70E-04	4.76E-04	2.55E-03	21.1
Average Concentration	uCi/ml	1.57E-08	1.93E-08	9.66E-08	7.80E-08	2.81E-08	
Dose - Whole Body	mrem	4.74E-04	1.61E-04	1.17E-04	9.67E-04	1.25E-03	
- Organ	mrem	7.11E-04	2.06E-04	1.55E-04	1.02E-03	1.40E-03	
% of ODCM Limit - Whole Body Dose*	%	1.58E-02	5.35E-03	3.91E-03	3.22E-02	2.08E-02	
- Organ Dose*	%	7.11E-03	2.06E-03	1.55E-03	1.02E-02	6.98E-03	
Tritium	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	4.47E+00	2.23E+00	6.71E-01	4.42E-01	7.82E+00	6.4
Average Concentration	uCi/ml	9.10E-05	8.11E-05	8.42E-05	7.25E-05	8.62E-05	
% of ODCM Limit - ECL	%	9.10E-01	8.11E-01	8.42E-01	7.25E-01	8.62E-01	
Dissolved and Entrained Gases	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	< LLD	8.07E-08	4.74E-06	< LLD	4.82E-06	21.1
Average Concentration	uCi/ml	< LLD	2.93E-12	5.95E-10	< LLD	5.31E-11	
% of ODCM Limit - ECL	%	< LLD	1.47E-06	2.97E-04	< LLD	2.66E-05	
Gross Alpha	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	23.0
Average Concentration	uCi/ml	N/A	N/A	N/A	N/A	N/A	
Volume of Waste Released	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total	Liters	1.43E+06	8.65E+05	2.31E+05	1.17E+05	2.64E+06	5.0
Volume of Dilution Water used during period	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total	Liters	4.77E+07	2.66E+07	7.74E+06	5.99E+06	8.81E+07	3.6

* Percent of limit includes gases and tritium.

Appendix C
Radiological Impact to Man

Per ODCM Control 6.2, the Annual Radioactive Effluent Release Report shall include an assessment of the radiation doses to the hypothetically highest exposed MEMBER OF THE PUBLIC from reactor releases and other nearby uranium fuel cycle sources. For purposes of this calculation the following assumptions were made:

Gaseous

- Long term annual average meteorology and actual gaseous effluent releases were used.
- Gamma air dose, Beta air dose, Total Body and Skin doses were attributed to noble gas releases.
- Critical organ and age group dose attributed to iodine, particulate, carbon-14 and tritium releases.
- 100 percent occupancy factor was assumed.
- Thermoluminescence Dosimetry (TLD) measurements (minus background levels) obtained from the Radiological Environmental Monitoring Program for the nearest residence to the Independent Spent Fuel Storage Installation (ISFSI) was used to determine direct radiation exposure.
- For 40 CFR 190 compliance, the highest doses from the critical organ and critical age group for each release pathway was summed and added to the net TLD measurement from nearest residence to the ISFSI.

A summary of gaseous and liquid radiation doses to members of the public at these locations was as follows:

Maximum Individual	**Applicable Dose**	**Estimated Dose**	**Age Group**	**% of Applicable Limit**	**Limit**	**Unit**
Noble Gas						
Nearest Residence	Gamma Air Dose	4.04E-03	All	2.02E-02	20	mRad
Nearest Residence	Beta Air Dose	2.40E-03	All	6.01E-03	40	mRad
Nearest Residence	Total Body	3.84E-03	All	3.84E-02	10	mrem
Nearest Residence	Skin	6.39E-03	All	2.13E-02	30	mrem
Iodine, Particulate, C-14 & Tritium						
Cow Milk	Bone	2.06E-01	Child	6.87E-01	30	mrem
Liquid						
Phoenixville, Pa	Total Body	1.25E-03	Child	2.08E-02	6	mrem
Phoenixville, Pa	Liver	1.40E-03	Child	7.00E-03	20	mrem

40 CFR 190 Compliance								
	Gaseous Effluents		**Liquid Effluents**	**Direct Radiation**	**Total**	**% of Applicable Limit**	**Limit**	**Unit**
	Noble Gas	**Particulate, Iodone, C-14 & Tritium**						
Total Body Dose	3.84E-03	4.25E-02	1.25E-03	0.00E+00	4.76E-02	1.90E-01	25	mrem
Organ Dose	3.84E-03	2.06E-01	1.40E-03	0.00E+00	2.11E-01	8.44E-01	25	mrem
Thryoid Dose	3.84E-03	4.25E-02	1.18E-03	0.00E+00	4.75E-02	6.33E-02	75	mrem

Doses calculated were well below all ODCM and 40 CFR Part 190 limits to a real individual.

The ODCM does not require population doses to be calculated.

ODCM Control 6.2 also requires that the Annual Effluent Release Report shall include an assessment of the radiation doses from radioactive liquid and gaseous effluents to members of the public due to activities inside the Site Boundary during the report period. MEMBER OF THE PUBLIC shall include all persons not occupationally associated with the plant. This category does not include employees of the utility or contractors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational, occupational education, or other purposes not associated with the plant. A MEMBER OF THE PUBLIC may receive up to 100 mrem in a year (10CFR20.1301). Areas within the site boundary, where radiation dose of this type could occur include the Limerick Information Center on Longview Road near the rear exit of the plant, Frick's Lock on the south shore of the Schuylkill River and the railroad tracks that runs along the north shore of the River. The dose to State Police and National Guard personnel around the location of the Security Checkpoint was also included in this report. The radiation doses to Members of the Public have been estimated using methodology stated in the ODCM. The maximum gaseous dose to members of the public at these locations is based on the following assumptions:

- Long term annual average meteorology and actual effluent releases for the the sectors encompacing the Railroad Tracks (W), Information Center, Frick's Lock and the Security Checkpoint were used.
- Dose is from ground plane and inhalation only. No ingestion dose.
- Adult age group was used for the State Police and National Guard Dose.
- The maximum expected occupancy factor is 25% of a working year at all locations.

A summary of gaseous radiation doses to members of the public at these locations is as follows:

Location	Sector	Approx. Distance (meters)	x/Q s/m^3	D/Q 1/m^2	Total Body Dose mrem(1)		Organ Dose, mrem(1)	Total
					Noble Gas	Iodine, Particulate, C-14 & H-3	Iodine, Particulate, C-14 & H-3	
R.R. Tracks	W	225	2.66E-06	2.36E-08	4.43E-03	1.56E-02	2.66E-02	4.66E-02
Info. Center	ESE	884	7.32E-07	9.27E-09	1.22E-03	4.29E-03	7.32E-03	1.28E-02
Frick's Lock	WSW	450	5.58E-07	4.78E-09	9.30E-04	4.22E-02	1.88E-01	2.31E-01
National Guard / Security Check Point	NNE	682	4.00E-07	4.43E-09	6.66E-04	3.04E-04	1.09E-03	2.06E-03

Doses calculated were a small fraction of the 10 CFR 20.1301 limits.

Notes:

(1) The limit for sum of the Total Body Dose and Organ Dose = 100 mrem (ref. 10 CFR 20.1301)

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

NO. 37

January 1, 2011 through December 31, 2011

EXELON GENERATION COMPANY, LLC

LIMERICK GENERATING STATION
UNITS NO. 1 AND 2

DOCKET NO. 50-352 (Unit 1)

DOCKET NO. 50-353 (Unit 2)

Submitted to
The United States Nuclear Regulatory Commission
Pursuant to
Facility Operating License:

NPF-39 (Unit 1)
NPF-85 (Unit 2)

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

TABLE A2 LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES PERIOD 2011

Fission and Activation Products Excluding Tritium, Gasses & Alpha)	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	5.63E-04	6.91E-04	6.33E-05	1.44E-04	1.46E-03	21.1
Average Concentration	uCi/ml	1.60E-08	1.24E-08	1.77E-08	2.21E-09	9.16E-09	
Dose - Whole Body	mrem	1.33E-04	2.42E-04	7.86E-05	1.74E-04	5.27E-04	
- Organ	mrem	1.54E-04	2.82E-04	9.12E-05	1.74E-04	6.00E-04	
% of ODCM Limit - Whole Body Dose*	%	4.42E-03	8.05E-03	2.62E-03	5.79E-03	8.79E-03	
- Organ Dose*	%	1.54E-03	2.82E-03	9.12E-04	1.74E-03	3.00E-03	
Tritium	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	3.94E+00	5.36E+00	3.22E-01	8.18E+00	1.78E+01	6.4
Average Concentration	uCi/ml	1.12E-04	9.60E-05	8.97E-05	1.26E-04	1.12E-04	
% of ODCM Limit - ECL	%	1.12E+00	9.60E-01	8.97E-01	1.26E+00	1.12E+00	
Dissolved and Entrained Gases	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	1.02E-05	2.01E-05	0.00E+00	5.43E-05	8.46E-05	21.1
Average Concentration	uCi/ml	2.90E-10	3.60E-10	0.00E+00	8.37E-10	5.30E-10	
% of ODCM Limit - ECL	%	1.45E-04	1.80E-04	0.00E+00	4.18E-04	2.65E-04	
Gross Alpha	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	23.0
Average Concentration	uCi/ml	N/A	N/A	N/A	N/A	N/A	
Volume of Waste Released	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total	Liters	9.91E+05	1.70E+06	1.16E+05	1.81E+06	4.61E+06	5.0
Volume of Dilution Water used during period	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total	Liters	3.41E+07	5.42E+07	3.47E+06	6.31E+07	1.55E+08	3.6

* Percent of limit includes gases and tritium.

4. Radiological Impact to Man and Compliance to 40 CFR 190 Limits

C. Dose to Members of the Public at or Beyond Site Boundary

Per ODCM Control 6.2, the Annual Radioactive Effluent Release Report shall include an assessment of the radiation doses to the hypothetically highest exposed MEMBER OF THE PUBLIC from reactor releases and other nearby uranium fuel cycle sources. The ODCM does not require population doses to be calculated. For purposes of this calculation the following assumptions were made:

- Long term annual average meteorology X/Q and D/Q and actual gaseous effluent releases were used.
- Gamma air dose, Beta air dose, Total Body and Skin doses were attributed to noble gas releases.
- Critical organ and age group dose attributed to iodine, particulate, carbon-14 and tritium releases.
- 100 percent occupancy factor was assumed.
- Dosimetry measurements (minus background levels) obtained from the Radiological Environmental Monitoring Program for the nearest residence to the Independent Spent Fuel Storage Installation (ISFSI) was used to determine direct radiation exposure.
- The highest doses from the critical organ and critical age group for each release pathway was summed and added to the net dosimetry measurement from nearest residence to the ISFSI for 40CFR190 compliance.

Gaseious Releases:

The critical age-organ group was the child-bone. Calculated dose was 4.13E-01 mrem, which represents 1.38 percent of the the allowable limits. Carbon-14 represented 99.5 % or 4.11E-01 mrem of the total dose (Table 1).

Liquid Releases:

The critical age-organ was the adult-GI-Lli. Calculated total body dose and organ dose were 5.28E-04 and 6.00E-04 mrem, respectively.

40 CFR 190 Compliance:

The maximum calculated dose to a real individual would not exceed 4.66E-02 mrem (total body), 4.28E-01 mrem (organ), or 9.70E-02 mrem (thyroid).

All doses calculated were well below all ODCM and 40 CFR Part 190 limits to a real individual.

Table 1 Summary of Gaseous and Liquid Effluent Doses to Members of the Public at the Highest Dose Receptors and 40CFR190 Compliance

Maximum Individual Noble Gas	Applicable Dose	Estimate dDose	Age Group	% of Applicable Limit	Limit	Unit
Nearest Residence	Gamma Air Dose	1.46E-02	All	7.28E-02	20	mRad
Nearest Residence	Beta Air Dose	8.73E-03	All	2.18E-02	40	mRad
Nearest Residence	Total Body	1.39E-02	All	1.39E-02	10	mrem
Nearest Residence	Skin	2.30E-02	All	7.67E-02	30	mrem
Iodine, Particulate, C-14 & Tritium						
Milk Pathway	Bone	4.13E-01	Child	1.38E+00	30	mrem
Liquid						
LGS Outfall	Total Body	5.28E-04	Adult	8.80E-03	6	mrem
LGS Outfall	GI-Lli	6.00E-04	Adult	3.00E-03	20	mrem

40 CFR 190 Compliance								
	Gaseous Effluents		Liquid Effluents	Net Direct Radiation	Total	% of Applicable Limit	Limit	Unit
	Noble Gas	Particulate, Iodone, C-14 & Tritium						
Total Body Dose	1.39E-02	8.26E-02	5.28E-04	0.00E+00	9.70E-02	3.88E-01	25	mrem
Organ Dose	1.39E-02	4.13E-01	6.00E-04	0.00E+00	4.28E-01	1.71E+00	25	mrem
Thyroid Dose	1.39E-02	8.26E-02	4.77E-04	0.00E+00	9.70E-02	1.29E-01	75	mrem

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

NO. 38

January 1, 2012 through December 31, 2012

EXELON GENERATION COMPANY, LLC

LIMERICK GENERATING STATION
UNITS NO. 1 AND 2

DOCKET NO. 50-352 (Unit 1)

DOCKET NO. 50-353 (Unit 2)

Submitted to
The United States Nuclear Regulatory Commission
Pursuant to
Facility Operating License:

NPF-39 (Unit 1)
NPF-85 (Unit 2)

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

TABLE 2A LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES PERIOD 2012

Fission and Activation Products Excluding Tritium, Gasses & Alpha)	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	7.92E-04	2.76E-04	1.62E-04	9.07E-06	1.24E-03	21.1
Average Concentration	uCi/ml	1.62E-08	6.36E-09	7.98E-09	2.00E-09	1.06E-08	
Dose - Whole Body	mrem	5.22E-04	2.40E-04	2.18E-04	4.55E-05	9.79E-04	
- Organ	mrem	6.32E-04	2.76E-04	2.35E-04	4.55E-05	1.10E-03	
% of ODCM Limit - Whole Body Dose*	%	1.74E-02	8.01E-03	7.25E-03	1.52E-03	1.63E-02	
- Organ Dose*	%	6.32E-03	2.76E-03	2.35E-03	4.55E-04	5.50E-03	
Tritium	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	6.30E+00	6.33E+00	2.76E+00	8.82E-01	1.63E+01	6.4
Average Concentration	uCi/ml	1.29E-04	1.46E-04	1.36E-04	1.95E-04	1.39E-04	
% of ODCM Limit - ECL	%	1.29E+00	1.46E+00	1.36E+00	1.95E+00	1.39E+00	
Dissolved and Entrained Gases	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	3.94E-05	2.72E-05	1.56E-05	4.71E-06	8.68E-05	21.1
Average Concentration	uCi/ml	8.08E-10	6.27E-10	7.64E-10	1.04E-09	7.42E-10	
% of ODCM Limit - ECL	%	4.04E-04	3.14E-04	3.82E-04	5.20E-04	3.71E-04	
Gross Alpha	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total Release	Ci	< LLD	< LLD	9.00E-05	< LLD	9.00E-05	23.0
Average Concentration	uCi/ml	N/A	N/A	1.37E-07	N/A	2.43E-08	
Volume of Waste Released	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total	Liters	1.51E+06	1.39E+06	6.55E+05	1.52E+05	3.70E+06	5.0
Volume of Dilution Water used during period	**Units**	**Qtr 1**	**Qtr 2**	**Qtr 3**	**Qtr 4**	**Total**	**Uncertainty (%)**
Total	Liters	4.72E+07	4.20E+07	1.97E+07	4.37E+06	1.13E+08	3.6

* Percent of limit includes gases and tritium.

5. Radiological Impact to Man and Compliance to 40 CFR 190 Limits

D. Dose to Members of the Public at or Beyond Site Boundary

Per ODCM Control 6.2, the Annual Radioactive Effluent Release Report shall include an assessment of the radiation doses to the hypothetically highest exposed MEMBER OF THE PUBLIC from reactor releases and other nearby uranium fuel cycle sources. The ODCM does not require population doses to be calculated. For purposes of this calculation the following assumptions were made:

- Long term annual average meteorology X/Q and D/Q and actual gaseous effluent releases were used.
- Gamma air dose, Beta air dose, Total Body and Skin doses were attributed to noble gas releases.
- Critical organ and age group dose attributed to iodine, particulate, carbon-14 and tritium releases.
- 100 percent occupancy factor was assumed.
- Dosimetry measurements (minus background levels) obtained from the Radiological Environmental Monitoring Program for the nearest residence to the Independent Spent Fuel Storage Installation (ISFSI) was used to determine direct radiation exposure.
- The highest doses from the critical organ and critical age group for each release pathway was summed and added to the net dosimetry measurement from nearest residence to the ISFSI for 40CFR190 compliance.

Gaseous Releases:

The critical age-organ group was the child-bone. Calculated dose was 6.28E-01 mrem, which represents 2.09 percent of the allowable limits. Carbon-14 represented 99.9 % or 6.28E-01 mrem of the total dose (Table 1).

Liquid Releases:

The critical age-organ was the Adult-liver. Calculated total body dose and organ dose were 9.79E-04 and 1.10E-03 mrem, respectively.

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The maximum calculated dose to a real individual would not exceed 1.32E-01 mrem (total body), 6.34E-01 mrem (organ), or 1.32E-01 mrem (thyroid).

All doses calculated were well below all ODCM and 40 CFR Part 190 limits to a real individual.

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
LICENSEE: EXELON GENERATION COMPANY, LLC

Table 1 Summary of Gaseous and Liquid Effluent Doses to Members of the Public at the Highest Dose Receptors and 40CFR190 Compliance

Maximum Individual Noble Gas	**Applicable Dose**	**Estimated Dose**	**Age Group**	**% of Applicable Limit**	**Limit**	**Unit**
Nearest Residence	Gamma Air Dose	4.69E-03	All	2.35E-02	20	mRad
Nearest Residence	Beta Air Dose	3.02E-03	All	7.55E-03	40	mRad
Nearest Residence	Total Body	4.45E-03	All	4.45E-02	10	mrem
Nearest Residence	Skin	7.47E-03	All	2.49E-02	30	mrem
Iodine, Particulate, C-14 & Tritium						
Vegetation Pathway	Bone	6.28E-01	Child	2.09E+00	30	mrem
Liquid						
LGS Outfall	Total Body	9.79E-04	Adult	1.63E-02	6	mrem
LGS Outfall	Liver	1.10E-03	Adult	5.50E-03	20	mrem

40 CFR 190 Compliance								
	Gaseous Effluents		**Liquid Effluents**	**Net Direct Radiation**	**Total**	**% of Applicable Limit**	**Limit**	**Unit**
	Noble Gas	**Particulate, Iodine, C-14 & Tritium**						
Total Body Dose	4.45E-03	1.27E-01	9.79E-04	0.00E+00	1.32E-01	5.28E-01	25	mrem
Organ Dose	4.45E-03	6.28E-01	1.10E-03	0.00E+00	6.34E-01	2.54E-00	25	mrem
Thyroid Dose	4.45E-03	1.27E-01	7.98E-04	0.00E+00	1.32E-01	1.76E-01	75	mrem