

T.S. 6.9.1.8

April 20, 2012

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: 2011 Annual Radioactive Effluent Release Report

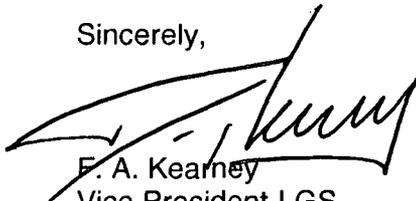
In accordance with Section 6.9.1.8 of Limerick Generating Station (LGS) Technical Specifications and Section 6.2 of the Offsite Dose Calculation Manual, attached is the 2011 Annual Radioactive Effluent Release Report No. 37 for LGS.

In accordance with 10CFR72.44(d)(3) Limerick has reviewed TLD data from the ISFSI modules currently loaded. During the period of January 1, 2011 to December 31, 2011, 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,



F. A. Kearney
Vice President-LGS
Exelon Generation Company, LLC

Attachment: 1. 2011 Annual Radioactive Effluent Release Report No. 36 for LGS
2. CY-LG-170-301, Rev 25 Limerick Offsite Dose Calculation Manual

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Exelon

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**Annual Radioactive Effluent Release Report
No. 37**

2011

Limerick Generating Station

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

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)

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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, 2011 through December 31, 2011. 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 2011 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 ≤ 3000	mrem/Yr mrem/Yr	Total Body Skin	ODCM Control 3.2.2.1.a
b.	≤ 10 ≤ 20	mRad mRad	Air Gamma Air Beta	Quarterly air dose limits ODCM Control 3.2.2.2.a
c.	≤ 20 ≤ 40	mRad mRad	Air Gamma Air Beta	Yearly air dose limits ODCM Control 3.2.2.2.b
d.	≤ 10 ≤ 30	mrem mrem	Total Body (Gamma) Skin (Beta)	10 CFR 50, Appendix I, Section II.B.2(b)
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 ≤ 10	mrem mrem	Total Body Any Organ	Quarterly dose limits ODCM Control 3.2.1.2.a
c.	≤ 6 ≤ 20	mrem mrem	Total Body Any Organ	Yearly dose limits ODCM Control 3.2.1.2.b
4. 40 CFR 190, 10 CFR 72.104				
	≤ 25 ≤ 75	mrem mrem	Total Body or Organ Thyroid	Yearly dose limits ODCM Control 3.2.3

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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 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 mr/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 Offsite Dose Calculation Manual Control 3.2.1.1. The total activity concentration for all dissolved or entrained gases was limited to $< 2E-04$ $\mu\text{Ci/ml}$.

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 $^{14}\text{CO}_2$.

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 34.04 Curies (Ci). Ninety-five percent or 32.33 Ci was in the form of $^{14}\text{CO}_2$, 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

Tritium in Liquid Effluents is analyzed using a Liquid Scintillation Counter.

Air from stack effluents was passed through two bubblers in series and 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 quarterly and analyzed for gross alpha, Sr-89 and Sr-90. 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.

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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
I-133	1E-10 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	1.60E+01	2.50E+01	2.00E+00	2.60E+01	6.90E+01
Total time period for batch releases (min)	1.47E+03	2.37E+03	1.65E+02	2.65E+03	6.66E+03
Maximum time period for batch release (min)	1.25E+02	1.18E+02	8.30E+01	1.20E+02	1.25E+02
Average time period for batch release (min)	9.19E+01	9.49E+01	8.25E+01	1.02E+02	9.65E+01
Minimum time period for batch release (min)	7.50E+01	7.00E+01	8.20E+01	7.60E+01	7.00E+01
Average stream flow (Schuylkill River) during periods of release of effluents into a flowing stream (Lpm)	2.32E+04	2.28E+04	2.10E+04	2.38E+04	2.28E+04
Aux Boiler Waste Oil Incineration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Number of Batch Releases	N/A	N/A	N/A	N/A	N/A
Total time period for batch releases (min)	N/A	N/A	N/A	N/A	N/A
Maximum time period for batch release (min)	N/A	N/A	N/A	N/A	N/A
Average time period for batch release (min)	N/A	N/A	N/A	N/A	N/A
Minimum time period for batch release (min)	N/A	N/A	N/A	N/A	N/A
Gaseous	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Number of Batch Releases	0.00E+00	1.00E+00	0.00E+00	0.00E+00	1.00E+00
Total time period for batch releases (min)	0.00E+00	4.25E+02	0.00E+00	0.00E+00	4.25E+02
Maximum time period for batch release (min)	0.00E+00	4.25E+02	0.00E+00	0.00E+00	4.25E+02
Average time period for batch release (min)	0.00E+00	4.25E+02	0.00E+00	0.00E+00	4.25E+02
Minimum time period for batch release (min)	0.00E+00	4.25E+02	0.00E+00	0.00E+00	4.25E+02

F. Abnormal Releases

1. Liquid	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
2. Gaseous					
Number of Releases	0.00E+00	1.00E+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

On June 20, 2011 a preplanned outage on the Unit 1B Turbine Enclosure HVAC exhaust fans was performed. Radiation Protection and Chemistry developed actions for monitoring potential airborne radioactivity releases via a non normal pathway, when the TE pressure went positive.

Air sampling was established at the 23 line exit roll-up door monitoring for noble gas, particulate, iodine and tritium. Anemometer readings were taken to determine release velocity for effluent release calculations. Using those readings and knowing the size of the opening a maximum release rate of 30,891 cfm was determined. No noble gas, particulate, iodine or tritium activity was identified. The entire issue was documented in IR 1235034.

G. Spills

There were no spills to ground containing radioactive material in 2011. However, the Power Block Foundation Sump, which collects groundwater around the reactor buildings, turbine building and rad waste building, had identified tritium in the first quarter sample and analysis of potentially contaminated systems (IR1200128). The maximum activity of 21,000 pCi/L was recorded. The source of the tritium was thought to be groundwater movement from the 2009 turbine building leak. Tritium activity over a period of months returned to below the MDC of 3500 pCi/L.

H. Revisions to the ODCM

Revision 25 of the Offsite Dose Calculation Manual (CY-LG-170-301) was approved by PORC and signed by the Plant Manager on October 4, 2011. As part of this revision burning of contaminated oil in the auxillary boiler system was removed. A complete legible copy of the change paperwork and ODCM is included in this submittal.

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 2011.

J. Independent Spent Fuel Storage Installation (ISFSI)

An Independent Spent Fuel Storage Installation (ISFSI) was placed in service starting July 21, 2008. There have been no gaseous or liquid releases from the ISFSI. In 2011 the dose to the nearest resident to the ISFSI was zero, using environmental dosimeters from the Radiological Environmental Monitoring Program.

K. Significant Events

1. During the week of March 29 through April 5, 2011, effluent iodine samples obtained from the North Vent, U1 South Vent and Hot Maintenance Shop identified detectable concentrations of iodine-131. A total of 32.48 μCi of I-131 was released through these vents. No other charcoal samples collected during 2011 showed positive I-131 activity. This activity was probably related to the events of March 2011 at the Dai-Ichi atomic power plant, Fukushima Japan and the associated trans-Pacific transportation of airborne releases. For completeness, the concentrations detected at the Limerick Generating Station and calculated doses are conservatively included in this report.
2. Hard-to-detect analyses were performed on the third quarter particulate composites to determine if the current gaseous effluent analysis program is complete. Nickel-63 was identified in the North Vent, U1 South Vent and U2 South Vent composites. That activity was applied to all release permits for 2011. The analysis for Ni-63 was added to the particulate composite analysis requirements beginning in 2012.

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 $4.13\text{E-}01$ mrem, which represents 1.38 percent of the the allowable limits. Carbon-14 represented 99.5 % or $4.11\text{E-}01$ mrem of the total dose (Table 1).

Liquid Releases:

The critical age-organ was the child-liver. Calculated total body dose and organ dose were $8.38\text{E-}02$ and $8.38\text{E-}02$ mrem, respectively.

40 CFR 190 Compliance:

The maximum calculated dose to a real individual would not exceed $1.30\text{E-}01$ mrem (total body), $5.11\text{E-}01$ mrem (organ), or $1.80\text{E-}01$ 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	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						
Phonenixville PA	Total Body	8.38E-02	Child	1.40E+00	6	mrem
Phonenixville PA	Liver	8.38E-02	Child	4.19E-01	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	3.22E-02	8.38E-02	0.00E+00	1.30E-01	5.20E-01	25	mrem
Organ Dose	1.39E-02	4.13E-01	8.38E-02	0.00E+00	5.11E-01	2.04E+00	25	mrem
Thryoid Dose	1.39E-02	8.26E-02	8.38E-02	0.00E+00	1.80E-01	2.40E-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 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.

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The maximum calculated dose for activities on site was 4.75E-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	1.60E-02	5.54E-03	2.60E-02	4.75E-02
Info. Center	ESE	884	7.32E-07	9.27E-09	3.09E-04	1.54E-03	7.16E-03	9.01E-03
Frick's Lock	WSW	450	5.58E-07	4.78E-09	2.36E-04	1.16E-03	5.45E-03	6.85E-03
Security Check Point	NNE	682	4.00E-07	4.43E-09	1.69E-04	4.88E-04	1.99E-03	2.65E-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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TABLE 1A GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

PERIOD 2011

A. Fission And Activation Gasses	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	6.86E+00	1.04E+02	5.42E+01	2.16E+01	1.87E+02	36.6
Average Release Rate for Period	uCi/sec	8.70E-01	1.33E+01	6.87E+00	2.73E+00	5.93E+00	
Dose - Gamma Air Dose	mrad	6.17E-04	9.53E-03	3.39E-03	1.03E-03	1.46E-02	
- Beta Air Dose	mrad	3.68E-04	5.56E-03	2.05E-03	7.45E-04	8.73E-03	
Percent of ODCM Limit							
- Gamma Air Dose	%	6.17E-03	9.53E-02	3.39E-02	1.03E-02	7.28E-02	
- Beta Air Dose	%	1.84E-03	2.78E-02	1.03E-02	3.73E-03	2.18E-02	
B. Radioiodines	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	3.25E-05	< LLD	< LLD	< LLD	3.25E-05	20.4
Average Release Rate for Period	uCi/sec	4.12E-06	< LLD	< LLD	< LLD	1.03E-06	
Percent of ODCM Limit	%	*	*	*	*	*	
C. Particulates	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	1.02E-03	9.68E-04	1.11E-03	9.24E-04	4.02E-03	22.6
Average Release Rate for Period	uCi/sec	1.29E-04	1.23E-04	1.41E-04	1.17E-04	1.27E-04	
Percent of ODCM Limit	%	*	*	*	*	*	
D. Gross Alpha	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	< LLD	22.6				
Average Release Rate for Period	uCi/sec	< LLD					
Percent of ODCM Limit	%	*	*	*	*	*	
E. Tritium (H-3)	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	1.57E+01	8.72E+00	9.45E+00	1.17E+01	4.56E+01	15.7
Average Release Rate for Period	uCi/sec	2.00E+00	1.11E+00	1.20E+00	1.48E+00	1.45E+00	
Percent of ODCM Limit	%	*	*	*	*	*	
F. Carbon-14	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	
Total Release	Ci	8.36E+00	8.27E+00	9.76E+00	7.65E+00	3.40E+01	
Average Release Rate for Period	uCi/sec	1.06E+00	1.05E+00	1.24E+00	9.70E-01	1.08E+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	1.02E-01	1.00E-01	1.18E-01	9.29E-02	4.13E-01	
Percent of ODCM Limit	%	6.77E-01	6.70E-01	7.90E-01	6.19E-01	1.38E+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—GROUND-LEVEL RELEASE—BATCH MODE

PERIOD 2011

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	< LLD	N/A	N/A	< LLD
I-133	Ci	N/A	< LLD	N/A	N/A	< LLD
I-135	Ci	N/A	< LLD	N/A	N/A	< LLD
Total	Ci	N/A	< LLD	N/A	N/A	< LLD
Particulates	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Annual
Cr-51	Ci	N/A	< LLD	N/A	N/A	< LLD
Mn-54	Ci	N/A	< LLD	N/A	N/A	< LLD
Co-58	Ci	N/A	< LLD	N/A	N/A	< LLD
Co-60	Ci	N/A	< LLD	N/A	N/A	< LLD
Zn-65	Ci	N/A	< LLD	N/A	N/A	< LLD
Sr-89	Ci	N/A	< LLD	N/A	N/A	< LLD
Sr-90	Ci	N/A	< LLD	N/A	N/A	< LLD
Mo-99	Ci	N/A	< LLD	N/A	N/A	< LLD
Ag-110m	Ci	N/A	< LLD	N/A	N/A	< LLD
Cs-134	Ci	N/A	< LLD	N/A	N/A	< LLD
Cs-137	Ci	N/A	< LLD	N/A	N/A	< LLD
Ba-140	Ci	N/A	< LLD	N/A	N/A	< LLD
La-140	Ci	N/A	< LLD	N/A	N/A	< LLD
Ce-141	Ci	N/A	< LLD	N/A	N/A	< LLD
Ce-144	Ci	N/A	< LLD	N/A	N/A	< LLD
Total	Ci	N/A	< LLD	N/A	N/A	< LLD
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 – GROUND LEVEL RELEASE - CONTINUOUS MODE PERIOD 2011

Fission And Activation Gasses	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Kr-85m	Ci	1.23E-01	1.98E+00	9.61E-01	2.69E-01	3.33E+00
Kr-85	Ci	3.87E-01	5.95E+00	8.45E-01	2.00E-01	7.38E+00
Kr-87	Ci	2.00E-01	3.16E+00	1.13E+00	3.09E-01	4.80E+00
Kr-88	Ci	3.37E-01	5.29E+00	1.43E+00	3.80E-01	7.43E+00
Ar-41	Ci	8.76E-02	1.67E+00	3.07E+00	9.00E-01	5.73E+00
Xe-131m	Ci	9.68E-03	1.49E-01	2.11E-02	5.01E-03	1.85E-01
Xe-133	Ci	4.91E-01	9.23E+00	1.61E+01	8.69E+00	3.45E+01
Xe-135m	Ci	1.22E+00	2.00E+01	1.33E+01	3.78E+00	3.83E+01
Xe-135	Ci	2.02E+00	2.63E+01	1.14E+01	5.52E+00	4.53E+01
Xe-138	Ci	1.98E+00	3.07E+01	5.94E+00	1.50E+00	4.01E+01
Total	Ci	6.86E+00	1.04E+02	5.42E+01	2.16E+01	1.87E+02
Radioiodines	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
I-131	Ci	3.25E-05	< LLD	< LLD	< LLD	3.25E-05
I-133	Ci	< LLD				
I-135	Ci	< LLD				
Total	Ci	3.25E-05	< LLD	< LLD	< LLD	3.25E-05
Particulates	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Annual
Cr-51	Ci	< LLD				
Mn-54	Ci	< LLD				
Co-58	Ci	< LLD				
Co-60	Ci	1.99E-05	< LLD	< LLD	< LLD	1.99E-05
Ni-63	Ci	9.99E-04	9.68E-04	1.11E-03	9.24E-04	4.00E-03
Zn-65	Ci	< LLD				
Sr-89	Ci	< LLD				
Sr-90	Ci	< LLD				
Mo-99	Ci	< LLD				
Ag-110m	Ci	< LLD				
Sb-125	Ci	< LLD				
Cs-134	Ci	< LLD				
Cs-137	Ci	< LLD				
Ba-140	Ci	< LLD				
La-140	Ci	< LLD				
Ce-141	Ci	< LLD				
Ce-144	Ci	< LLD				
Total	Ci	1.02E-03	9.68E-04	1.11E-03	9.24E-04	4.020E-03
H-3	Ci	1.57E+01	8.72E+00	9.45E+00	1.17E+01	4.56E+01
Gross Alpha	Ci	< LLD				
C-14	Ci	8.36E+00	8.27E+00	9.76E+00	7.65E+00	3.40E+01

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	1.77E-02	2.62E-02	1.70E-03	3.83E-02	8.38E-02	
- Organ	mrem	1.77E-02	2.62E-02	1.70E-03	3.83E-02	8.38E-02	
% of ODCM Limit - Whole Body Dose*	%	5.89E-01	8.73E-01	5.66E-02	1.28E+00	1.40E+00	
- Organ Dose*	%	1.77E-01	2.62E-01	1.70E-02	3.83E-01	4.19E-01	
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	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.

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

TABLE 2A-1 LIQUID EFFLUENTS - BATCH MODE

PERIOD 2011

Fission and Activation Products	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Cr-51	Ci	1.40E-05	8.66E-06	< LLD	< LLD	2.263E-05
Mn-54	Ci	7.94E-05	8.80E-05	7.52E-06	1.17E-05	1.87E-04
Fe-55	Ci	< LLD				
Co-58	Ci	< LLD	2.85E-05	< LLD	< LLD	2.85E-05
Fe-59	Ci	< LLD				
Co-60	Ci	4.24E-04	4.92E-04	4.89E-05	1.27E-04	1.09E-03
Zn-65	Ci	4.58E-05	6.34E-05	6.94E-06	2.23E-06	1.18E-04
Zn-69m	Ci	< LLD				
Sr-89	Ci	< LLD				
Sr-90	Ci	< LLD				
Zr-95	Ci	< LLD				
Nb-95	Ci	< LLD				
Nb-97	Ci	< LLD				
Mo-99	Ci	< LLD				
TC-99m	Ci	< LLD				
AG-110m	Ci	< LLD				
Sb-124	Ci	< LLD	4.30E-06	< LLD	< LLD	4.30E-06
Sb-125	Ci	< LLD	5.53E-06	< LLD	< LLD	5.53E-06
I-131	Ci	< LLD	8.64E-07	< LLD	< LLD	8.64E-07
Cs-134	Ci	< LLD				
Cs-137	Ci	< LLD	< LLD	< LLD	2.88E-06	2.88E-06
Ba-140	Ci	< LLD				
La-140	Ci	< LLD				
Ce-141	Ci	< LLD				
Total	Ci	5.63E-04	6.91E-04	6.33E-05	1.44E-04	1.46E-03
Dissolved and Entrained Gases	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Xe-131m	Ci	< LLD				
Xe-133	Ci	1.02E-05	1.82E-05	< LLD	2.94E-05	5.77E-05
Xe-135	Ci	< LLD	1.96E-06	< LLD	2.50E-05	2.69E-05
Total	Ci	1.02E-05	2.01E-05	0.00E+00	5.43E-05	8.46E-05
H-3	Ci	3.94E+00	5.36E+00	3.22E-01	8.18E+00	1.78E+01
Gross Alpha	Ci	< LLD				

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

TABLE 2A-2 LIQUID EFFLUENTS - CONTINUOUS MODE

PERIOD 2011

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

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

Appendix B Solid Waste and Irradiated Fuel Shipments

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

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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) 01/01/2011 – 12/31/2011

1. Type of waste

Type of waste	Unit	12 Month Period	Estimated Error %
a. Spent resin, filters sludges, evaporator bottoms, etc	m ³	83.15	25%
	Ci	2.68E+02	
b. Dry compressible waste, contaminated equipment, etc.	m ³	99.11	25%
	Ci	9.50E-01	
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)

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

Isotope	Waste Class A Curies *	Percent Abundance
C-14	7.25E-01	0.27%
Mn-54	1.18E+01	4.41%
Fe-55	1.41E+02	52.69%
Co-60	9.50E+01	35.50%
Ni-59	4.59E-03	0.01%
Ni-63	4.49E+00	1.67%
Zn-65	1.10E+01	4.11%
Sr-90	5.91E-02	0.02%
Cs-137	2.38E+00	0.89%
Ce-144	7.54E-03	0.01%
Pu-241	1.73E-01	0.06%
H-3	1.52E-02	0.01%
Co-58	9.61E-01	0.35%
Totals	2.68E+02	100.00%

* Activity is estimated

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

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

Isotope	Waste Class A Curies *	Percent Abundance
Co-60	2.46E-01	25.89%
Cs-137	5.61E-04	0.06%
Fe-55	6.62E-01	69.68%
Mn-54	3.00E-02	3.16%
Ni-63	9.79E-03	1.03%
Zn-65	1.64E-03	0.18%
TOTALS	9.50E-01	100.00%

* Activity is estimated

3. Solid Waste (Disposition)

Number of Shipments	Mode of Transportation	Destination
40	Truck	Duratek to Energy Solutions / Clive
10	Truck	Limerick Gen. Sta. to Energy Solutions / Clive

4. Waste (Processing)

Number of Shipments	Mode of Transportation	Destination
32	Truck	Limerick to Duratek

5. Waste (Solidification)

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

Category A - 13 shipments Type A LSA
 Category A - 3 shipments > Type A LSA
 Category B - 26 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".

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

Appendix C ERRATA - Previous Reports

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

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

Correction to 2008 Report

A March 2008 radwaste discharge to NPDES outfall 001 was reclassified as a spill to ground and subsequent discharge to NPDES outfall 023, which empties to the river (IR7542414).

Correction to 2009 Report

In the 2009 ARERR Table A-1 the rows were not labeled properly. Actual numbers supplied were correct (IR1141537). A corrected table is included in the ERRATA Section of this report.

Correction to 2010 Report

While performing a review of the gaseous dose factors listed in revision 25 of the ODCM with those loaded into the effluent software, OpenEMS, it was discovered that the dose factors for cow milk, meat and vegetation were missing from the effluent dose software package. OpenEMS is the software used to calculate the required monthly doses to comply with ODCM Control 3.2.2.3., Dose from Iodine-131, Iodine-133, Tritium, and Radioactive Material in Particulate Form. Further investigation determined that the dose factors had been mistakenly removed from the software package after a November 23, 2010 update. As a result the dose calculations performed for the last five weeks of 2010 were not correct (IR1297197). A corrected 2010 dose tables is included in the ERRATA Section of this report.

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

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

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

NO. 34

January 1, 2008 Through December 31, 2008

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

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G. Revisions to the ODCM

Revision 24 of CY-LG-170-301, Offsite Dose Calculation Manual was approved on July 21, 2008. A complete copy is included in the mailing.

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

Per ODCM Control 3.1.1, "Radioactive Liquid Effluent Monitoring Instrumentation" and Control 3.1.2 "Radioactive Gaseous Effluent Monitoring Instrumentation", instrumentation requires:

With less than the minimum number of radioactive gaseous effluent monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.1-1 (liquids) or and Table 3.1-2 (gas). Restore the inoperable instrumentation to OPERABLE status within the time specified in the ACTION or explain in the next Annual Radioactive Effluent Release Report why this inoperability was not corrected within the time specified. The following is a discussion of instrumentation out of service for greater than 30 days:

Per IR 789169, the Liquid Radwaste effluent line flow monitor was declared inoperable on June 22, 2008 and remained inoperable through the end of 2008. Release flows were conservatively reduced to ensure that release flows did not exceed the ODCM limit of 255 gallons per minute.

The effluent line flow monitor was not repaired in the 30-day time frame was due to the complex troubleshooting that was required to determine the cause of the suspect flow readings. The flow orifice was eventually replaced, which required an engineering change request to evaluate the replacement. However, this did not eliminate the issue. Troubleshooting is continuing.

I. Independent Spent Fuel Storage Installation (ISFSI)

An Independent Spent Fuel Storage Installation (ISFSI) was placed in service starting July 21, 2008. In 2008 a total of two canisters were placed in long-term storage. The dose to offsite individuals was non detectable.

J. Compliance to 40 CFR 190 Limits

The radioactive material released during this reporting period and the doses listed in this report were within the limits of the ODCM and 40 CFR 190. A detailed analysis of doses to Members of the Public is presented in Appendix C, Radiological Impact to Man.

K. Spills

On March 20, 2008 a radwaste tank discharge was in progress when the cooling tower blowdown overflowed to an NPDES outfall (IR7542414). Sampling at the time indicated no tritium or other radionuclides present. However, during the April 29, 2008 sampling of a nearby groundwater monitoring well, MW-LM-5, tritium was identified at a concentration of 902 pCi/L. Therefore, this overflow was reclassified as a spill to ground per the NEI 07-07 groundwater initiative and an abnormal release to Possum Hollow Creek, which discharges to the River.

A bounding calculation was performed, assuming a one day exposure to the tank contents after dilution from the cooling tower blowdown. The concentration in the tank post dilution was $1.23\text{E}+05$ pCi/L of tritium and $9.22\text{E}-01$ pCi/L of Co-60. The calculated maximum doses were to the child / GI-Li of $2.76\text{E}-02$ mrem and $2.73\text{E}-02$ child / whole body (IR1342884).

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ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

CORRECTED

NO. 35

January 1, 2009 through December 31, 2009

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)

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TABLE A-1 GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

PERIOD 2009

A. Fission And Activation Gasses	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	6.35E+00	5.51E+00	1.31E+01	3.18E+00	2.82E+01	36.6
Average Release Rate for Period	uCi/sec	8.05E-01	6.99E-01	1.67E+00	4.03E-01	8.93E-01	
Dose - Gamma Air Dose	mrad	1.10E-02	7.07E-03	1.94E-02	3.91E-03	4.14E-02	
- Beta Air Dose	mrad	6.41E-03	4.25E-03	1.12E-02	2.36E-03	2.42E-02	
Percent of ODCM Limit - Gamma Air Dose	%	0.11	0.07	0.19	0.04	0.21	
- Beta Air Dose	%	0.03	0.02	0.06	0.01	0.06	

B. Radioiodines	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	7.85E-05	9.35E-06	< LLD	< LLD	8.78E-05	20.4
Average Release Rate for Period	uCi/sec	9.96E-06	1.19E-06	< LLD	< LLD	2.79E-06	
Percent of ODCM Limit	%	*	*	*	*	*	

C. Particulates	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	2.38E-05	2.50E-05	< LLD	< LLD	4.88E-05	22.6
Average Release Rate for Period	uCi/sec	3.02E-06	3.17E-06	< LLD	< LLD	1.55E-06	
Percent of ODCM Limit	%	*	*	*	*	*	
Gross Alpha Radioactivity	Ci	< LLD					

D. Tritium	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	1.25E+01	5.42E+00	7.50E+00	7.96E+00	3.34E+01	15.7
Average Release Rate for Period	uCi/sec	1.59E+00	6.87E-01	9.51E-01	1.01E+00	1.07E+00	
Percent of ODCM Limit	%	*	*	*	*	*	

E. Iodine 131 & 133, Particulate & Tritium	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Organ Dose	mrem	2.19E-02	5.74E-03	7.35E-03	7.81E-03	3.68E-02
Percent of ODCM Limit	%	0.15	0.04	0.05	0.05	0.12

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

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ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

CORRECTED

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
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NPF-39 (Unit 1)

NPF-85 (Unit 2)

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TABLE 1A GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

PERIOD 2010

A. Fission And Activation Gasses	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	4.77E+00	1.87E+01	2.43E+01	6.34E+00	5.41E+01	36.6
Average Release Rate for Period	uCi/sec	6.05E-01	2.38E+00	3.08E+00	8.04E-01	1.72E+00	
Dose - Gamma Air Dose	mrad	2.88E-04	1.60E-03	1.59E-03	5.55E-04	4.04E-03	
- Beta Air Dose	mrad	1.76E-04	9.41E-04	9.62E-04	3.25E-04	2.40E-03	
Percent of ODCM Limit							
- Gamma Air Dose	%	2.88E-03	1.60E-02	1.59E-02	5.55E-03	2.02E-02	
- Beta Air Dose	%	8.78E-04	4.70E-03	4.81E-03	1.62E-03	6.01E-03	
B. Radioiodines	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	< LLD	20.4				
Average Release Rate for Period	uCi/sec	< LLD					
Percent of ODCM Limit	%	*	*	*	*	*	
C. Particulates	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	5.78E-08	3.48E-06	< LLD	< LLD	3.53E-06	22.6
Average Release Rate for Period	uCi/sec	7.33E-09	4.41E-07	< LLD	< LLD	1.12E-07	
Percent of ODCM Limit	%	*	*	*	*	*	
D. Gross Alpha	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	< LLD	22.6				
Average Release Rate for Period	uCi/sec	< LLD					
Percent of ODCM Limit	%	*	*	*	*	*	
E. Tritium (H-3)	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	1.13E+01	4.61E+00	1.31E+01	1.39E+01	4.28E+01	15.7
Average Release Rate for Period	uCi/sec	1.43E+00	5.84E-01	1.66E+00	1.76E+00	1.36E+00	
Percent of ODCM Limit	%	*	*	*	*	*	
F. Carbon-14	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	
Total Release	Ci	4.06E+00	5.47E+00	5.11E+00	4.15E+00	1.88E+01	
Average Release Rate for Period	uCi/sec	5.15E-01	6.94E-01	6.48E-01	5.26E-01	5.96E-01	
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	4.91E-02	6.61E-02	4.10E-02	5.01E-02	2.06E-01	
Percent of ODCM Limit	%	3.27E-01	4.40E-01	2.73E-01	3.34E-01	6.87E-01	

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

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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	3.83E-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						
Aqua PA	Total Body	1.76E-02	Child	2.93E-01	6	mrem
Aqua PA	Liver	1.77E-02	Child	8.82E-02	20	mrem

40 CFR 190 Compliance								
	Gaseous Effluents		Liquid Effluents	Direct Radiation	Total	% of Applicable Limit	Limit	Unit
	Noble Gas	Particulate, Iodine, C-14 & Tritium						
Total Body Dose	3.84E-03	4.25E-02	1.76E-02	0.00E+00	6.01E-02	2.40E-01	25	mrem
Organ Dose	3.84E-03	2.06E-01	1.77E-02	0.00E+00	2.24E-01	8.94E-01	25	mrem
Thyroid Dose	3.84E-03	4.25E-02	1.76E-02	0.00E+00	6.01E-02	8.01E-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

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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 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.
- 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)

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Appendix D Meteorological Data

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Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2011

Limerick Tower 1
 Period of Record: January - March 2011
 Stability Class - Extremely Unstable - 171Ft-26Ft·Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	0	0	0	0	2
NNE	0	3	0	0	0	0	3
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	3	0	0	0	0	3
SSE	0	1	2	0	0	0	3
S	0	2	5	0	0	0	7
SSW	0	5	4	0	0	0	9
SW	0	9	1	0	0	0	10
WSW	1	7	1	0	0	0	9
W	1	4	4	0	0	0	9
WNW	0	6	4	0	0	0	10
NW	0	2	23	1	0	0	26
NNW	0	2	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	2	48	44	1	0	0	95

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: 8

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Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	5	0	0	0	5
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	0	0	1
ENE	1	1	0	0	0	0	2
E	0	1	0	0	0	0	1
ESE	0	4	0	1	0	0	5
SE	0	1	0	0	0	0	1
SSE	1	1	1	0	0	0	3
S	0	0	1	0	0	0	1
SSW	0	4	1	0	0	0	5
SW	1	4	1	0	0	0	6
WSW	0	5	1	0	0	0	6
W	0	4	2	0	0	0	6
WNW	0	4	4	1	1	0	10
NW	0	9	19	2	0	0	30
NNW	0	1	2	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	3	40	37	4	1	0	85

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: 8

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Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	1	4	0	0	0	6
NNE	0	1	0	0	0	0	1
NE	1	0	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	1	3	0	0	0	0	4
ESE	0	1	0	1	0	0	2
SE	0	0	0	0	0	0	0
SSE	0	2	1	0	0	0	3
S	0	4	1	1	0	0	6
SSW	1	0	3	0	0	0	4
SW	3	1	0	0	0	0	4
WSW	0	3	0	0	0	0	3
W	1	6	2	0	0	0	9
WNW	0	9	13	3	0	0	25
NW	0	5	27	4	4	0	40
NNW	0	1	7	4	0	0	12
Variable	0	0	0	0	0	0	0
Total	8	37	58	13	4	0	120

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: 8

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Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	12	25	21	2	0	0	60
NNE	13	19	3	0	0	0	35
NE	18	27	5	0	0	0	50
ENE	27	32	5	0	0	0	64
E	13	43	34	6	0	0	96
ESE	5	5	3	15	0	0	28
SE	4	15	8	1	0	0	28
SSE	4	24	7	0	0	0	35
S	9	16	19	0	0	0	44
SSW	2	15	2	0	0	0	19
SW	5	9	4	0	0	0	18
WSW	8	17	3	0	0	0	28
W	6	25	9	3	0	0	43
WNW	11	61	58	27	1	0	158
NW	10	64	153	70	16	0	313
NNW	7	23	28	19	1	0	78
Variable	0	0	0	0	0	0	0
Total	154	420	362	143	18	0	1097

Hours of calm in this stability class: 3
 Hours of missing wind measurements in this stability class: 3
 Hours of missing stability measurements in all stability classes: 8

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Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	10	0	0	0	0	14
NNE	8	5	0	0	0	0	13
NE	6	3	0	0	0	0	9
ENE	16	5	0	0	0	0	21
E	11	6	1	0	0	0	18
ESE	5	4	4	0	0	0	13
SE	4	10	0	0	0	0	14
SSE	2	2	1	0	0	0	5
S	6	8	2	0	0	0	16
SSW	10	17	0	0	0	0	27
SW	17	18	1	0	0	0	36
WSW	18	11	1	0	0	0	30
W	27	14	6	1	0	0	48
WNW	21	43	2	9	0	0	75
NW	13	26	6	0	0	0	45
NNW	13	13	1	0	0	0	27
Variable	2	0	0	0	0	0	2
Total	183	195	25	10	0	0	413

Hours of calm in this stability class: 4
 Hours of missing wind measurements in this stability class: 1
 Hours of missing stability measurements in all stability classes: 8

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Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	6	1	0	0	0	0	7
NNE	4	2	0	0	0	0	6
NE	2	0	0	0	0	0	2
ENE	5	1	0	0	0	0	6
E	5	2	0	0	0	0	7
ESE	5	0	0	0	0	0	5
SE	2	0	0	0	0	0	2
SSE	4	1	0	0	0	0	5
S	4	0	0	0	0	0	5
SSW	0	4	0	0	0	0	8
SW	10	0	0	0	0	0	10
WSW	18	0	0	0	0	0	18
W	11	1	0	0	0	0	22
WNW	24	8	0	0	0	0	32
NW	10	5	0	0	0	0	15
NNW	9	0	0	0	0	0	9
Variable	2	0	0	0	0	0	2
Total	135	26	0	0	0	0	161

Hours of calm in this stability class: 12
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
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Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2011

Limerick Tower 1
 Period of Record: January - March 2011
 Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	9	0	0	0	0	0	9
NNE	10	0	0	0	0	0	10
NE	9	0	0	0	0	0	9
ENE	8	0	0	0	0	0	8
E	2	0	0	0	0	0	2
ESE	1	0	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	2	0	0	0	0	0	2
S	3	0	0	0	0	0	3
SSW	3	0	0	0	0	0	3
SW	4	0	0	0	0	0	4
WSW	9	0	0	0	0	0	9
W	29	0	0	0	0	0	29
WNW	22	7	0	0	0	0	29
NW	13	0	0	0	0	0	13
NNW	13	0	0	0	0	0	13
Variable	1	0	0	0	0	0	1
Total	138	7	0	0	0	0	145

Hours of calm in this stability class: 13
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 8

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, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	3	1	0	0	0	4
NNE	0	2	0	0	0	0	2
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	0	0	0	0	0	0
SE	0	2	1	0	0	0	3
SSE	0	1	1	0	0	0	2
S	0	1	4	3	0	0	8
SSW	0	0	6	3	1	0	10
SW	0	2	7	1	0	0	10
WSW	0	1	3	5	0	0	9
W	0	3	4	4	0	0	11
WNW	1	1	7	6	0	0	15
NW	0	0	3	16	0	0	19
NNW	0	1	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	1	18	37	38	1	0	95

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: 8

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, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	5	0	0	0	5
NNE	0	0	0	0	0	0	0
NE	0	1	0	0	0	0	1
ENE	1	0	0	0	0	0	1
E	0	2	0	0	0	0	2
ESE	0	0	0	1	0	0	1
SE	0	4	1	0	0	0	5
SSE	0	0	0	0	0	0	0
S	0	1	4	0	0	0	5
SSW	1	3	1	1	0	0	6
SW	0	1	3	1	0	0	5
WSW	0	1	5	2	0	0	8
W	0	0	0	4	0	0	4
WNW	0	4	6	3	2	1	16
NW	0	1	10	12	0	0	23
NNW	0	1	2	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	2	19	37	24	2	1	85

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: 8

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, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	3	3	0	0	6
NNE	1	0	2	0	0	0	3
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	2	2	0	0	0	0	4
ESE	0	0	0	0	1	0	1
SE	0	1	0	0	0	0	1
SSE	0	1	0	0	0	0	1
S	0	2	1	1	2	0	6
SSW	0	4	0	3	0	0	7
SW	0	3	1	0	0	0	4
WSW	0	1	3	0	0	0	4
W	0	1	3	1	2	0	7
WNW	0	5	9	12	4	2	32
W	0	1	6	22	3	1	33
NNW	0	0	2	3	3	1	9
Variable	0	0	0	0	0	0	0
Total	3	21	30	45	15	4	118

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: 8

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, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	13	28	9	2	0	54
NNE	8	13	17	3	0	0	41
NE	9	17	11	3	0	0	40
ENE	5	31	15	0	0	0	51
E	7	20	36	7	0	0	70
ESE	5	8	12	17	12	0	54
SE	3	7	9	8	4	1	32
SSE	1	6	23	8	1	0	39
S	2	10	16	20	0	0	48
SSW	1	7	14	5	0	0	27
SW	8	3	7	1	2	0	21
WSW	1	6	13	7	4	0	31
W	3	5	16	9	2	3	38
WNW	6	15	62	72	35	23	213
NW	2	10	50	114	42	17	235
NNW	1	10	27	25	11	3	77
Variable	0	0	0	0	0	0	0
Total	64	181	356	308	115	47	1071

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 32
 Hours of missing stability measurements in all stability classes: 8

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, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	8	11	0	0	0	21
NNE	3	0	7	0	0	0	10
NE	3	5	0	0	0	0	8
ENE	3	6	0	0	0	0	9
E	5	2	3	2	0	0	12
ESE	5	8	3	5	0	0	21
SE	3	10	1	1	0	0	15
SSE	2	9	3	0	0	0	14
S	0	8	6	4	0	0	18
SSW	0	11	16	1	0	0	28
SW	2	10	29	4	1	0	46
WSW	1	13	11	7	0	0	32
W	2	10	14	2	2	2	32
WNW	2	17	51	8	4	5	87
NW	1	8	22	6	0	0	37
NNW	2	7	17	1	0	0	27
Variable	0	0	0	0	0	0	0
Total	36	132	194	41	7	7	417

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: 8

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, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	6	6	3	0	0	0	15
NNE	1	3	2	0	0	0	6
NE	0	0	0	0	0	0	0
ENE	2	1	0	0	0	0	3
E	1	1	4	1	0	0	7
ESE	6	2	0	1	0	0	9
SE	0	3	0	0	0	0	3
SSE	1	1	0	0	0	0	2
S	2	5	0	1	0	0	8
SSW	0	8	4	0	0	0	12
SW	2	6	5	0	0	0	13
WSW	2	2	5	0	0	0	9
W	3	12	1	0	0	0	16
WNW	3	16	17	3	0	0	39
NW	2	7	9	0	0	0	18
NNW	2	7	4	0	0	0	13
Variable	0	0	0	0	0	0	0
Total	33	80	54	6	0	0	173

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: 8

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, 2011

Limerick Tower 1

Period of Record: January - March 2011
 Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	3	1	0	0	0	4
NNE	1	0	1	0	0	0	2
NE	0	2	0	0	0	0	2
ENE	2	1	0	0	0	0	3
E	0	1	0	0	0	0	1
ESE	3	1	0	0	0	0	4
SE	3	1	0	0	0	0	4
SSE	2	0	0	0	0	0	2
S	1	2	0	0	0	0	3
SSW	1	7	0	0	0	0	8
SW	6	10	4	0	0	0	20
WSW	4	11	5	0	0	0	20
W	3	6	3	0	0	0	12
WNW	3	17	8	5	0	0	33
NW	6	16	4	0	0	0	26
NNW	1	9	0	0	0	0	10
Variable	3	1	0	0	0	0	4
Total	39	88	26	5	0	0	158

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:

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, 2011

Limerick Tower 1
 Period of Record: April - June 2011
 Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	5	0	0	0	0	5
NNE	0	4	0	0	0	0	4
NE	0	3	0	0	0	0	3
ENE	0	1	0	0	0	0	1
E	0	0	4	1	0	0	5
ESE	0	1	2	0	0	0	3
SE	0	2	0	0	0	0	2
SSE	0	4	0	0	0	0	4
S	1	8	5	0	0	0	14
SSW	1	19	13	0	0	0	33
SW	0	6	1	0	0	0	7
WSW	2	22	6	0	0	0	30
W	0	11	4	0	0	0	15
WNW	1	22	5	0	0	0	28
NW	2	9	14	5	0	0	30
NNW	0	3	0	3	0	0	6
Variable	0	0	0	0	0	0	0
Total	7	120	54	9	0	0	190

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: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	5	1	0	0	0	6
NNE	3	8	1	0	0	0	12
NE	0	1	0	0	0	0	1
ENE	1	1	0	0	0	0	2
E	1	4	2	0	0	0	7
ESE	0	0	1	0	0	0	1
SE	1	2	0	0	0	0	3
SSE	0	3	0	0	0	0	3
S	2	8	3	0	0	0	13
SSW	1	8	3	0	0	0	12
SW	0	3	0	0	0	0	3
WSW	2	6	0	0	0	0	8
W	2	4	1	0	0	0	7
WNW	4	11	2	0	0	0	17
NW	0	18	10	4	0	0	32
NNW	1	10	3	0	0	0	14
Variable	0	0	0	0	0	0	0
Total	18	92	27	4	0	0	141

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: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	5	5	0	0	0	12
NNE	0	2	0	0	0	0	2
NE	1	2	0	0	0	0	3
ENE	3	4	0	0	0	0	7
E	6	5	2	0	0	0	13
ESE	2	5	4	1	0	0	12
SE	5	3	0	0	0	0	8
SSE	3	4	0	0	0	0	7
S	0	15	5	0	0	0	20
SSW	4	11	2	0	0	0	17
SW	2	3	1	0	0	0	6
WSW	5	4	1	0	0	0	10
W	1	3	0	0	0	0	4
WNW	2	5	4	1	0	0	12
NW	5	13	12	9	0	0	39
NNW	1	5	6	0	0	0	12
Variable	1	0	0	0	0	0	1
Total	43	89	42	11	0	0	185

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: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	12	15	5	0	0	0	32
NNE	11	9	3	0	0	0	23
NE	20	19	2	0	0	0	41
ENE	21	37	15	0	0	0	73
E	21	55	36	7	0	0	119
ESE	18	40	29	8	1	0	96
SE	15	15	3	0	1	0	34
SSE	10	29	4	0	0	0	43
S	12	42	22	1	0	0	77
SSW	4	23	9	2	0	0	38
SW	10	14	2	0	0	0	26
WSW	6	11	2	0	0	0	19
W	11	18	4	0	0	0	33
WNW	11	21	12	1	0	0	45
NW	11	53	40	17	0	0	121
NNW	11	15	14	0	0	0	40
Variable	3	0	0	0	0	0	3
Total	207	416	202	36	2	0	863

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: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	5	11	0	0	0	0	16
NNE	9	6	0	0	0	0	15
NE	8	9	0	0	0	0	17
ENE	11	2	0	0	0	0	13
E	14	3	0	0	0	0	17
ESE	13	6	0	0	0	0	19
SE	7	4	0	0	0	0	11
SSE	12	18	1	0	0	0	31
S	18	44	10	1	0	0	73
SSW	9	19	3	0	0	0	31
SW	19	9	2	0	0	0	30
WSW	27	9	4	0	0	0	40
W	32	19	6	0	0	0	57
WNW	27	28	3	0	0	0	58
NW	17	26	3	0	0	0	46
NNW	10	9	3	0	0	0	22
Variable	3	0	0	0	0	0	3
Total	241	222	35	1	0	0	499

Hours of calm in this stability class: 7
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	8	0	0	0	0	0	8
NNE	6	2	1	0	0	0	9
NE	5	2	0	0	0	0	7
ENE	7	0	0	0	0	0	7
E	3	1	0	0	0	0	4
ESE	0	3	0	0	0	0	3
SE	2	0	0	0	0	0	2
SSE	5	0	0	0	0	0	5
S	1	1	0	0	0	0	2
SSW	3	0	0	0	0	0	3
SW	4	0	0	0	0	0	4
WSW	14	0	0	0	0	0	14
W	14	1	0	0	0	0	15
WNW	28	2	0	0	0	0	30
NW	21	4	0	0	0	0	25
NNW	8	0	0	0	0	0	8
Variable	5	0	0	0	0	0	5
Total	134	16	1	0	0	0	151

Hours of calm in this stability class: 8
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 2

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, 2011

Limerick Tower 1
 Period of Record: April - June 2011
 Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	12	0	0	0	0	0	12
NNE	4	0	0	0	0	0	4
NE	4	0	0	0	0	0	4
ENE	3	0	0	0	0	0	3
E	1	0	0	0	0	0	1
ESE	1	1	0	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	1	0	0	0	0	0	1
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	4	0	0	0	0	0	4
W	7	0	0	0	0	0	7
WNW	32	0	0	0	0	0	32
NW	31	0	0	0	0	0	31
NNW	14	0	0	0	0	0	14
Variable	2	0	0	0	0	0	2
Total	120	1	0	0	0	0	121

Hours of calm in this stability class: 16
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	3	0	0	0	5
NNE	0	6	0	0	0	0	6
NE	0	1	1	0	0	0	2
ENE	0	1	0	0	0	0	1
E	0	0	0	4	0	0	4
ESE	0	0	0	3	0	0	3
SE	0	2	0	0	0	0	2
SSE	0	0	1	0	0	0	1
S	0	4	7	2	0	0	13
SSW	0	7	14	11	3	0	35
SW	0	5	5	2	2	0	14
WSW	0	3	13	11	2	0	29
W	0	2	15	4	3	0	24
WNW	0	3	17	6	2	0	28
NW	0	3	4	7	7	0	21
NNW	0	1	0	1	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	40	80	51	19	0	190

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: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	6	0	0	0	8
NNE	0	5	5	0	0	0	10
NE	1	1	1	0	0	0	3
ENE	1	1	0	0	0	0	2
E	0	3	0	1	0	0	4
ESE	0	1	3	0	0	0	4
SE	1	2	0	0	0	0	3
SSE	0	3	0	0	0	0	3
S	0	4	4	1	0	0	9
SSW	1	5	2	4	1	0	13
SW	2	1	4	1	0	0	8
WSW	0	3	4	3	0	0	10
W	0	5	3	2	1	0	11
WNW	0	5	8	5	2	0	20
NW	0	3	16	2	2	0	23
NNW	0	3	5	1	1	0	10
Variable	0	0	0	0	0	0	0
Total	6	47	61	20	7	0	141

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: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	1	5	4	0	0	11
NNE	2	1	2	0	0	0	5
NE	0	3	1	0	0	0	4
ENE	0	5	0	0	0	0	5
E	1	6	1	0	0	0	8
ESE	1	4	3	5	0	0	13
SE	1	3	3	0	0	0	7
SSE	3	5	2	0	0	0	10
S	0	9	6	4	1	0	20
SSW	1	6	9	2	1	0	19
SW	0	4	2	0	1	0	7
WSW	1	3	1	5	0	0	10
W	2	2	3	0	0	0	7
WNW	2	5	4	9	2	0	22
NW	0	7	10	4	6	0	27
NNW	1	3	3	3	0	0	10
Variable	0	0	0	0	0	0	0
Total	16	67	55	36	11	0	185

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: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	4	13	9	3	0	0	29
NNE	5	8	10	3	0	0	26
NE	8	21	9	2	0	0	40
ENE	5	24	30	4	0	0	63
E	8	31	39	31	3	0	112
ESE	10	19	39	21	6	2	97
SE	2	19	22	5	2	1	51
SSE	5	22	19	2	0	0	48
S	0	24	35	12	5	1	77
SSW	1	9	20	12	4	0	46
SW	6	8	8	3	2	0	27
WSW	1	10	11	9	2	0	33
W	3	7	10	10	1	0	31
WNW	1	14	27	21	4	0	67
NW	2	15	23	25	13	1	79
NNW	3	11	11	12	0	0	37
Variable	1	0	0	0	0	0	1
Total	65	255	322	175	42	5	864

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: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	8	8	0	0	0	17
NNE	2	4	6	0	0	0	12
NE	1	6	9	0	0	0	16
ENE	4	7	2	0	0	0	13
E	7	11	2	0	0	0	20
ESE	5	2	4	0	0	0	11
SE	3	8	3	0	0	0	14
SSE	0	13	13	2	0	0	28
S	2	27	34	14	2	0	79
SSW	1	11	22	4	2	0	40
SW	3	12	11	6	0	0	32
WSW	2	19	14	6	5	0	46
W	1	9	18	10	1	0	39
WNW	5	16	39	14	0	0	74
NW	1	13	19	5	0	0	38
NNW	3	9	11	2	0	0	25
Variable	0	0	0	0	0	0	0
Total	41	175	215	63	10	0	504

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

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	3	2	1	1	0	0	7
NNE	1	3	4	0	0	0	8
NE	2	1	1	0	0	0	4
ENE	2	4	0	0	0	0	6
E	1	3	0	0	0	0	4
ESE	2	3	1	0	0	0	6
SE	2	0	1	0	0	0	3
SSE	1	0	3	0	0	0	4
S	1	1	0	0	0	0	2
SSW	0	3	0	0	0	0	3
SW	0	7	2	0	0	0	9
WSW	1	4	3	0	0	0	8
W	4	10	6	0	0	0	20
WNW	5	24	17	0	0	0	46
NW	1	13	8	0	0	0	22
NNW	2	3	1	0	0	0	6
Variable	0	0	0	0	0	0	0
Total	28	81	48	1	0	0	158

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: 2

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, 2011

Limerick Tower 1

Period of Record: April - June 2011
 Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	5	6	0	0	0	0	11
NNE	2	2	2	0	0	0	6
NE	0	1	0	0	0	0	1
ENE	2	2	0	0	0	0	4
E	1	1	0	0	0	0	2
ESE	0	0	0	0	0	0	0
SE	1	0	0	0	0	0	1
SSE	0	0	1	0	0	0	1
S	3	0	0	0	0	0	3
SSW	1	3	2	0	0	0	6
SW	2	2	0	0	0	0	4
WSW	2	6	2	0	0	0	10
W	2	9	0	0	0	0	11
WNW	4	28	8	0	0	0	40
NW	7	18	4	0	0	0	29
NNW	5	2	0	0	0	0	7
Variable	1	0	0	0	0	0	1
Total	38	80	19	0	0	0	137

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: 2

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	6	1	0	0	0	7
NNE	0	5	3	0	0	0	8
NE	0	1	1	0	0	0	2
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	1	2	0	0	0	0	3
SE	0	4	0	0	0	0	4
SSE	0	3	0	0	0	0	3
S	1	5	4	0	0	0	10
SSW	4	22	3	0	0	0	29
SW	6	28	0	0	0	0	34
WSW	5	27	0	0	0	0	32
W	3	25	0	0	0	0	28
WNW	2	23	3	0	0	0	28
NW	0	17	1	0	0	0	18
NNW	0	5	1	0	0	0	6
Variable	0	0	0	0	0	0	0
Total	22	174	17	0	0	0	213

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: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	2	2	0	0	0	4
NNE	0	1	0	0	0	0	1
NE	0	4	0	0	0	0	4
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	1	2	0	0	0	0	3
SE	0	3	0	0	0	0	3
SSE	0	0	0	0	0	0	0
S	1	1	2	0	0	0	4
SSW	1	6	0	0	0	0	7
SW	3	6	0	0	0	0	9
WSW	0	7	0	0	0	0	11
W	5	0	0	0	0	0	8
WNW	1	7	0	0	0	0	8
NW	0	8	0	0	0	0	14
WNW	0	0	3	0	0	0	13
Variable	0	0	0	0	0	0	0
Total	16	60	13	0	0	0	89

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: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	0	0	0	0	1
NNE	1	0	1	0	0	0	2
NE	0	0	1	0	0	0	1
ENE	0	1	1	0	0	0	2
E	2	0	0	0	0	0	2
ESE	2	0	0	0	0	0	2
SE	0	1	0	0	0	0	1
SSE	1	1	0	0	0	0	2
S	1	4	1	0	0	0	6
SSW	4	9	1	0	0	0	14
SW	2	4	0	0	0	0	6
WSW	4	4	0	0	0	0	8
W	4	7	0	0	0	0	11
WNW	6	4	0	0	0	0	10
NW	0	14	6	0	0	0	20
NNW	2	5	2	0	0	0	9
Variable	0	0	0	0	0	0	0
Total	29	55	13	0	0	0	97

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: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	10	18	7	0	0	0	35
NNE	13	18	0	0	0	0	31
NE	8	30	2	0	0	0	40
ENE	9	45	4	0	0	0	58
E	15	28	5	0	0	0	48
ESE	6	16	5	0	0	0	27
SE	9	12	0	0	0	0	21
SSE	7	1	0	0	0	0	8
S	6	16	4	0	0	0	26
SSW	15	29	2	0	0	0	46
SW	20	14	0	0	0	0	34
WSW	24	8	0	0	0	0	32
W	14	10	1	0	0	0	25
WNW	12	14	2	0	0	0	28
NW	20	41	25	2	1	0	89
NNW	12	19	10	2	1	0	44
Variable	0	0	0	0	0	0	0
Total	200	319	67	4	2	0	592

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: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	17	8	2	1	0	0	28
NNE	22	6	0	6	2	0	36
NE	26	9	1	1	0	0	37
ENE	26	14	4	0	0	0	44
E	12	16	4	0	0	0	32
ESE	11	11	4	0	0	0	26
SE	21	16	0	0	0	0	37
SSE	20	17	0	0	0	0	37
S	20	52	6	0	0	0	78
SSW	37	31	0	0	0	0	68
SW	34	5	0	0	0	0	39
WSW	27	2	0	0	0	0	29
W	52	1	0	0	0	0	53
WNW	59	13	2	1	0	0	75
NW	38	24	3	4	0	0	69
NNW	16	7	0	1	0	0	24
Variable	0	0	0	0	0	0	0
Total	438	232	26	14	2	0	712

Hours of calm in this stability class: 8
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	21	0	0	0	0	0	21
NNE	10	1	0	0	0	0	11
NE	5	1	0	0	0	0	6
ENE	5	0	0	0	0	0	5
E	7	0	0	0	0	0	7
ESE	9	0	0	0	0	0	9
SE	9	1	0	0	0	0	10
SSE	10	0	0	0	0	0	10
S	3	2	0	0	0	0	5
SSW	17	7	0	0	0	0	20
SW	23	0	0	0	0	0	23
WSW	20	1	0	0	0	0	21
W	35	0	0	0	0	0	35
WNW	39	5	0	0	0	0	44
NW	42	11	0	0	0	0	53
NNW	26	0	0	0	0	0	26
Variable	0	0	0	0	0	0	1
Total	278	29	0	0	0	0	307

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: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	13	0	0	0	0	0	13
NNE	9	0	0	0	0	0	9
NE	8	0	0	0	0	0	8
ENE	6	0	0	0	0	0	6
E	6	0	0	0	0	0	6
ESE	1	0	0	0	0	0	1
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	5	0	0	0	0	0	5
SW	3	1	0	0	0	0	4
WSW	6	0	0	0	0	0	6
W	10	0	0	0	0	0	10
WNW	26	0	0	0	0	0	26
NW	37	0	0	0	0	0	37
NNW	20	0	0	0	0	0	20
Variable	0	0	0	0	0	0	0
Total	154	1	0	0	0	0	155

Hours of calm in this stability class: 17
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	4	3	0	0	0	7
NNE	0	1	4	2	0	0	7
NE	0	2	1	0	0	0	3
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	2	0	0	0	0	2
SE	0	2	2	0	0	0	4
SSE	0	1	2	0	0	0	3
S	0	5	1	2	0	0	8
SSW	2	10	15	3	0	0	30
SW	0	9	17	9	0	0	35
WSW	2	14	14	4	0	0	34
W	0	14	24	6	0	0	44
WNW	0	4	18	2	0	0	24
NW	0	3	6	0	0	0	9
NNW	0	0	2	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	4	72	109	28	0	0	213

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: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	2	1	0	0	4
NNE	0	2	1	0	0	0	3
NE	0	2	0	0	0	0	2
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	2	1	0	0	0	3
SE	0	1	0	1	0	0	2
SSE	0	1	1	0	0	0	2
S	0	0	1	2	0	0	3
SSW	0	4	2	0	0	0	6
SW	3	3	3	1	0	0	10
WSW	0	8	3	1	0	0	12
W	0	5	3	1	0	0	9
WNW	1	4	5	0	0	0	10
NW	0	1	8	4	0	0	13
NNW	0	1	9	0	0	0	10
Variable	0	0	0	0	0	0	0
Total	4	35	39	11	0	0	89

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: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	1	0	1	0	0	0	2
NNE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	2	2	0	0	0	4
E	0	2	0	0	0	0	2
ESE	0	0	0	0	0	0	0
SE	0	2	0	0	0	0	2
SSE	0	1	0	0	0	0	1
S	0	3	3	0	0	0	6
SSW	3	4	7	2	0	0	16
SW	0	4	2	1	0	0	7
WSW	2	8	2	0	0	0	12
W	1	6	2	1	0	0	10
WNW	1	7	5	1	0	0	14
NW	1	4	12	1	0	0	18
NNW	0	1	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	9	44	38	6	0	0	97

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: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	5	13	11	4	0	0	33
NNE	8	12	6	1	0	0	27
NE	6	15	15	0	0	0	36
ENE	8	28	31	0	0	0	67
E	4	12	19	3	0	0	38
ESE	3	22	10	5	0	0	40
SE	3	8	10	1	0	0	22
SSE	3	7	0	1	0	0	11
S	4	8	12	3	0	0	27
SSW	4	10	19	6	0	0	39
SW	7	24	14	2	0	0	47
WSW	9	16	8	2	0	0	35
W	9	7	10	1	1	1	29
WNW	6	18	19	4	1	0	48
NW	4	19	29	10	2	1	65
NNW	3	5	15	3	1	1	28
Variable	0	0	0	0	0	0	0
Total	86	224	228	46	5	3	592

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: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	7	8	6	0	1	0	22
NNE	6	7	7	0	2	5	27
NE	12	13	8	0	1	1	35
ENE	12	19	10	2	0	0	43
E	10	6	9	3	0	0	28
ESE	7	16	8	5	0	0	36
SE	3	11	12	3	0	0	29
SSE	6	19	18	0	0	0	43
S	3	30	43	11	0	0	87
SSW	8	25	36	2	0	0	71
SW	3	29	11	1	0	0	44
WSW	4	27	11	1	0	0	43
W	8	22	12	1	0	1	44
WNW	10	36	32	1	0	4	83
NW	9	30	15	4	0	1	59
NNW	6	10	7	0	0	1	24
Variable	0	0	0	0	0	0	0
Total	114	308	245	34	4	13	718

Hours of calm in this stability class: 2
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	5	6	0	0	0	0	11
NNE	4	9	1	0	0	0	14
NE	2	2	2	0	0	0	6
ENE	5	2	0	0	0	0	7
E	2	2	1	0	0	0	5
ESE	4	1	0	0	0	0	5
SE	1	3	0	0	0	0	4
SSE	8	5	0	0	0	0	13
S	1	7	5	0	0	0	13
SSW	3	8	14	0	0	0	25
SW	2	17	8	0	0	0	27
WSW	2	19	1	1	0	0	23
W	4	17	3	0	0	0	24
WNW	10	31	31	0	0	0	72
NW	10	24	14	2	0	0	50
NNW	11	4	1	0	0	0	16
Variable	0	0	0	0	0	0	0
Total	74	157	81	3	0	0	315

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: 7

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, 2011

Limerick Tower 1

Period of Record: July - September 2011
 Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	4	1	0	0	0	7
NNE	2	1	0	0	0	0	3
NE	2	0	0	0	0	0	2
ENE	1	1	0	0	0	0	2
E	2	1	1	0	0	0	4
ESE	6	1	0	0	0	0	7
SE	0	0	0	0	0	0	0
SSE	2	0	0	0	0	0	2
S	1	3	0	0	0	0	4
SSW	1	8	1	0	0	0	10
SW	1	7	0	0	0	0	8
WSW	3	10	3	0	0	0	16
W	6	10	0	0	0	0	16
WNW	3	23	11	0	0	0	37
NW	7	21	10	0	0	0	38
NNW	4	10	0	0	0	0	14
Variable	0	0	0	0	0	0	0
Total	43	100	27	0	0	0	170

Hours of calm in this stability class: 2
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 7

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

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

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: 6

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	1	0	0	0	1
SSW	0	5	1	0	0	0	6
SW	0	6	1	0	0	0	7
WSW	1	3	3	0	0	0	7
W	2	4	2	0	0	0	8
WNW	3	3	2	1	0	0	9
WNW		2	0	0	0	0	2
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	6	23	10	1	0	0	40

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: 6

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	1	4	0	0	0	5
NNE	0	1	0	0	0	0	1
NE	0	2	0	0	0	0	2
ENE	0	2	0	0	0	0	2
E	1	1	0	0	0	0	2
ESE	0	0	0	0	0	0	0
SE	0	1	0	0	0	0	1
SSE	1	3	0	0	0	0	4
S	1	1	1	0	0	0	3
SSW	1	7	5	0	0	0	13
SW	0	4	2	0	0	0	6
WSW	0	1	2	0	0	0	3
W	2	5	1	0	0	0	8
WNW	2	5	1	0	0	0	8
NW	1	5	6	0	0	0	12
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	9	39	22	0	0	0	70

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: 6

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, 2011

Limerick Tower 1
 Period of Record: October - December 2011
 Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	9	20	12	0	0	0	41
NNE	8	13	3	0	0	0	24
NE	12	21	1	0	0	0	34
ENE	14	27	10	0	0	0	51
E	13	20	23	2	0	0	58
ESE	5	2	7	1	0	0	15
SE	7	2	0	0	0	0	9
SSE	4	8	1	0	0	0	13
S	13	17	2	0	0	0	32
SSW	6	20	8	0	0	0	34
SW	11	19	3	0	0	0	33
WSW	10	7	2	0	0	0	19
W	8	18	15	0	0	0	41
WNW	16	54	42	10	0	0	122
NW	11	66	85	21	1	0	184
NNW	14	13	20	6	0	0	53
Variable	0	0	0	0	0	0	0
Total	161	327	234	40	1	0	763

Hours of calm in this stability class: 0
 Hours of missing wind measurements in this stability class: 17
 Hours of missing stability measurements in all stability classes: 6

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	10	7	5	0	0	0	22
NNE	8	9	0	0	0	0	17
NE	14	4	0	0	0	0	18
ENE	18	7	0	0	0	0	25
E	14	11	0	0	0	0	25
ESE	7	8	4	0	0	0	19
SE	5	13	0	0	0	0	18
SSE	8	21	0	0	0	0	29
S	14	46	5	0	0	0	65
SSW	9	42	13	0	0	0	64
SW	20	27	6	0	0	0	53
WSW	33	28	1	0	0	0	62
W	39	24	7	0	0	0	70
WNW	34	56	13	0	0	0	103
NW	21	38	13	0	0	0	72
NNW	17	2	4	0	0	0	23
Variable	1	0	0	0	0	0	1
Total	272	343	71	0	0	0	686

Hours of calm in this stability class: 2
 Hours of missing wind measurements in this stability class: 16
 Hours of missing stability measurements in all stability classes: 6

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	9	0	0	0	0	0	9
NNE	3	0	0	0	0	0	3
NE	3	0	0	0	0	0	3
ENE	17	2	0	0	0	0	19
E	7	0	0	0	0	0	7
ESE	7	1	0	0	0	0	8
SE	2	0	0	0	0	0	2
SSE	5	1	0	0	0	0	6
S	5	3	0	0	0	0	8
SSW	11	5	0	0	0	0	16
SW	15	4	0	0	0	0	19
WSW	18	1	0	0	0	0	19
W	26	3	0	0	0	0	29
WNW	29	10	0	0	0	0	39
NW	19	1	0	0	0	0	20
NNW	11	0	0	0	0	0	11
Variable	0	0	0	0	0	0	0
Total	187	31	0	0	0	0	218

Hours of calm in this stability class: 3
 Hours of missing wind measurements in this stability class: 15
 Hours of missing stability measurements in all stability classes: 6

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
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Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	22	0	0	0	0	0	22
NNE	11	0	0	0	0	0	11
NE	11	0	0	0	0	0	11
ENE	9	0	0	0	0	0	9
E	11	0	0	0	0	0	11
ESE	5	0	0	0	0	0	5
SE	6	0	0	0	0	0	6
SSE	2	0	0	0	0	0	2
S	4	0	0	0	0	0	4
SSW	4	2	0	0	0	0	6
SW	6	0	0	0	0	0	6
WSW	10	0	0	0	0	0	10
W	43	0	0	0	0	0	43
WNW	64	1	0	0	0	0	65
NW	42	1	0	0	0	0	43
NNW	22	0	0	0	0	0	22
Variable	1	0	0	0	0	0	1
Total	273	4	0	0	0	0	277

Hours of calm in this stability class: 17
 Hours of missing wind measurements in this stability class: 37
 Hours of missing stability measurements in all stability classes: 6

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

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

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: 6

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	1	0	0	0	1
SSW	0	4	2	2	0	0	8
SW	0	2	2	2	0	0	6
WSW	1	1	2	3	1	1	9
W	0	4	1	3	0	0	8
WNW	1	1	4	0	2	0	8
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	12	12	10	3	1	40

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: 6

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	0	0	1	3	0	0	4
NNE	0	2	0	0	0	0	2
NE	0	1	0	0	0	0	1
ENE	0	3	0	0	0	0	3
E	1	1	0	0	0	0	2
ESE	0	0	0	0	0	0	0
SE	0	1	0	0	0	0	1
SSE	0	0	1	0	0	0	1
S	0	3	2	0	0	0	5
SSW	0	2	6	5	0	0	13
SW	0	2	3	0	2	0	7
WSW	0	3	1	0	2	1	7
W	0	6	3	1	0	0	10
WNW	1	4	3	3	0	0	11
NW	0	1	3	2	0	0	6
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	2	29	23	14	4	1	73

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: 6

SITE: LIMERICK GENERATING STATION – UNITS 1 & 2
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Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	2	12	19	6	0	0	39
NNE	2	14	19	2	0	0	37
NE	6	21	8	0	0	0	35
ENE	8	22	8	7	0	0	45
E	4	16	21	18	2	0	61
ESE	8	3	2	9	0	0	22
SE	5	5	1	2	0	0	13
SSE	4	5	3	1	0	0	13
S	4	14	15	3	1	0	37
SSW	1	14	17	8	1	0	41
SW	2	7	14	5	2	0	30
WSW	2	7	9	7	2	0	27
W	0	9	9	10	3	0	31
WNW	8	18	66	50	17	4	163
NW	3	8	58	49	6	4	128
NNW	3	9	25	14	7	0	58
Variable	0	0	0	0	0	0	0
Total	62	184	294	191	41	8	780

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: 6

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	5	13	7	3	0	0	28
NNE	5	5	12	3	0	0	25
NE	6	3	0	0	0	0	9
ENE	10	12	4	0	0	0	26
E	10	10	8	2	0	0	30
ESE	7	5	5	2	0	0	19
SE	7	3	7	3	0	0	20
SSE	2	6	16	3	0	0	27
S	0	12	42	12	0	0	66
SSW	1	17	43	19	3	0	83
SW	5	16	26	18	6	0	71
WSW	1	15	23	18	2	0	59
W	3	12	17	13	0	0	45
WNW	3	29	47	30	1	0	110
NW	2	18	34	9	0	0	63
NNW	6	2	14	1	0	0	23
Variable	0	0	0	0	0	0	0
Total	73	178	305	136	12	0	704

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: 6

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	3	6	0	0	0	0	9
NNE	1	3	0	0	0	0	4
NE	1	2	0	0	0	0	3
ENE	8	2	0	0	0	0	10
E	4	1	2	0	0	0	7
ESE	6	4	3	1	0	0	14
SE	2	6	0	0	0	0	8
SSE	2	6	0	0	0	0	8
S	2	3	1	0	0	0	6
SSW	3	11	10	1	0	0	25
SW	2	8	10	2	0	0	22
WSW	1	9	9	0	0	0	19
W	4	13	5	0	0	0	22
WNW	4	20	20	6	0	0	50
NW	5	7	13	0	0	0	25
NNW	0	2	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	48	103	73	10	0	0	234

Hours of calm in this stability class: 2
 Hours of missing wind measurements in this stability class: 0
 Hours of missing stability measurements in all stability classes: 6

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, 2011

Limerick Tower 1

Period of Record: October - December 2011
 Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
 Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph)						Total
	1-3	4-7	8-12	13-18	19-24	> 24	
N	7	1	1	0	0	0	9
NNE	3	0	0	0	0	0	3
NE	5	1	0	0	0	0	6
ENE	5	1	0	0	0	0	6
E	6	4	0	0	0	0	10
ESE	3	5	2	0	0	0	10
SE	12	3	0	0	0	0	15
SSE	5	5	0	0	0	0	10
S	5	12	2	0	0	0	19
SSW	6	11	5	1	0	0	23
SW	6	10	6	0	0	0	22
WSW	5	5	4	0	0	0	14
W	8	18	2	0	0	0	28
WNW	6	50	18	2	0	0	76
NW	13	38	18	0	0	0	69
NNW	8	3	0	0	0	0	11
Variable	0	0	0	0	0	0	0
Total	103	167	58	3	0	0	331

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: 6

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, 2011

Limerick Tower 1 30 ft. Wind Speed and Direction														Janua 171F	December, 2011 Ft Delta-T (F)										
SPEED CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	WSW	W	NW	NNW	TOTAL	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	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	0.01	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	0.00	0.00	0.00	0.05	0.00	0.05	0.00	0.00	0.00	0.00	
- N	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.21	0.02	0.27	0.00	0.00	0.00	0.00	
2 SS	0.00	0.02	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	0.02	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	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	0.00	0.00	0.00	0.00	0.00		
																							0.35		
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	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	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	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
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	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	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	0.00	0.00	0.00	0.00	0.00	0.00	
																							0.00	0.00	
																								0.00	
TOT	4.70	3.41	3.67	5.02	5.77	3.62	2.60	3.10	6.16	6.52	5.21	5.76	7.93	13.20	16.84	5.98	99.74	6.27	4.15	5.52	38.79	27.03	9.80	8.17	99.74
Wind Direction by Stability																									
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-							
	0.16	0.18	0.06	0.02	0.07	0.08	0.11	0.12	0.36	1.04	0.69	0.89	0.67	0.80	0.87	0.16	6.27	Extremely Unstable							
	0.18	0.15	0.07	0.05	0.09	0.11	0.08	0.07	0.22	0.35	0.29	0.37	0.34	0.51	0.91	0.35	4.15	Moderately Unstable							
	0.28	0.07	0.08	0.13	0.25	0.19	0.12	0.19	0.41	0.56	0.26	0.28	0.37	0.64	1.30	0.39	5.52	Slightly Unstable							
	1.97	1.32	1.93	2.88	3.76	1.94	1.08	1.16	2.09	1.60	1.30	1.15	1.66	4.13	8.27	2.52	38.79	Neutral							
	0.94	0.95	0.95	1.21	1.08	0.90	0.94	1.19	2.72	2.22	1.85	1.88	2.67	3.64	2.72	1.12	27.03	Slightly Stable							
	0.53	0.34	0.21	0.43	0.29	0.29	0.19	0.30	0.23	0.55	0.66	0.84	1.18	1.70	1.32	0.63	9.80	Moderately Stable							
	0.66	0.40	0.37	0.30	0.23	0.11	0.09	0.07	0.12	0.19	0.16	0.34	1.04	1.78	1.45	0.81	8.17	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	0.26	C A L M							
	2.13	1.79	1.88	2.42	1.94	1.23	1.18	1.21	1.50	1.80	2.55	3.23	4.65	5.57	4.26	2.66	40.00	< 3.5 mph							
	1.67	1.35	1.63	2.14	2.34	1.32	1.26	1.69	3.46	3.79	2.35	2.15	2.47	4.96	5.41	1.67	39.67	3.6 - 7.5 mph							
	0.87	0.18	0.15	0.46	1.30	0.74	0.13	0.21	1.16	0.90	0.30	0.37	0.77	2.01	5.29	1.22	16.06	7.6 - 12.5 mph							
	0.04	0.07	0.01	0.00	0.19	0.32	0.01	0.00	0.04	0.02	0.00	0.00	0.05	0.63	1.63	0.41	3.41	12.6 - 18.5 mph							
	0.00	0.02	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.26	0.02	0.35	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	0.00	0.00	0.00	0.00	> 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, 2011

Limerick Generating Station
 x/Q and D/Q values

North Stack - Flow = 251200 cfm				X/Q (s/m ³)	D/Q (1/m ²)
Stack ID	Location	Direction	Range (m)	Undepleted	
N	Site Boundary	S	762	1.04E-07	1.28E-09
N	Site Boundary	SSW	762	7.12E-08	9.80E-10
N	Site Boundary	SW	884	5.35E-08	5.52E-10
N	Site Boundary	WSW	854	8.23E-08	7.79E-10
N	Site Boundary	W	854	1.37E-07	1.65E-09
N	Site Boundary	WNW	793	1.13E-07	1.54E-09
N	Site Boundary	NW	762	5.45E-08	6.41E-10
N	Site Boundary	NNW	884	6.29E-08	6.74E-10
N	Site Boundary	N	884	1.58E-07	1.84E-09
N	Site Boundary	NNE	793	1.81E-07	2.62E-09
N	Site Boundary	NE	793	1.02E-07	1.60E-09
N	Site Boundary	ENE	793	9.67E-08	1.77E-09
N	Site Boundary	E	762	1.39E-07	2.05E-09
N	Site Boundary	ESE	762	3.44E-07	4.65E-09
N	Site Boundary	SE	762	6.24E-07	9.73E-09
N	Site Boundary	SSE	1006	1.14E-07	1.69E-09
N	RR-Inf-Lck-NG	S	300	4.19E-07	4.00E-09
N	RR-Inf-Lck-NG	SSW	225	4.93E-07	4.11E-09
N	RR-Inf-Lck-NG	SW	225	4.45E-07	2.72E-09
N	RR-Inf-Lck-NG	WSW	345	3.14E-07	2.43E-09
N	RR-Inf-Lck-NG	W	225	1.13E-06	9.97E-09
N	RR-Inf-Lck-NG	WNW	345	3.87E-07	4.85E-09
N	RR-Inf-Lck-NG	NW	450	1.13E-07	1.17E-09
N	RR-Inf-Lck-NG	ESE	884	2.86E-07	3.86E-09
N	RR-Inf-Lck-NG	WSW	450	1.97E-07	1.70E-09
N	RR-Inf-Lck-NG	NNE	682	2.17E-07	3.08E-09
N	Inhalation	N	948	1.45E-07	1.69E-09
N	Inhalation	NNE	825	1.73E-07	2.50E-09
N	Inhalation	NE	1057	7.38E-08	1.19E-09
N	Inhalation	ENE	985	7.66E-08	1.41E-09
N	Inhalation	E	873	1.19E-07	1.77E-09
N	Inhalation	ESE	1047	2.34E-07	3.14E-09
N	Inhalation	SE	1557	2.82E-07	3.93E-09
N	Inhalation	SSE	1647	7.37E-08	9.73E-10
N	Inhalation	S	1325	5.76E-08	7.48E-10
N	Inhalation	SSW	1543	3.62E-08	4.83E-10
N	Inhalation	SW	991	4.64E-08	5.08E-10
N	Inhalation	WSW	1158	5.80E-08	6.36E-10
N	Inhalation	W	1105	1.02E-07	1.26E-09
N	Inhalation	WNW	1198	6.90E-08	9.21E-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, 2011

Limerick Generating Station
 x/Q and D/Q values

North Stack - Flow = 251200 cfm				X/Q (s/m ³)	D/Q (1/m ²)
Stack ID	Location	Direction	Range (m)	Undepleted	
N	Inhalation	NW	1104	3.59E-08	4.48E-10
N	Inhalation	NNW	1540	3.85E-08	4.11E-10
N	Vegetation	N	1017	1.34E-07	1.57E-09
N	Vegetation	NNE	2929	7.40E-08	4.96E-10
N	Vegetation	NE	1065	7.32E-08	1.18E-09
N	Vegetation	ENE	4561	5.72E-08	1.98E-10
N	Vegetation	E	3849	8.01E-08	2.95E-10
N	Vegetation	ESE	555	5.31E-07	6.98E-09
N	Vegetation	SE	390	1.60E-06	2.41E-08
N	Vegetation	SSE	2102	6.53E-08	7.15E-10
N	Vegetation	S	1860	4.83E-08	5.46E-10
N	Vegetation	SSW	1622	3.55E-08	4.56E-10
N	Vegetation	SW	1390	3.36E-08	4.49E-10
N	Vegetation	WSW	3662	5.77E-08	2.70E-10
N	Vegetation	W	1283	8.90E-08	1.12E-09
N	Vegetation	WNW	1198	6.90E-08	9.21E-10
N	Vegetation	NW	2490	2.89E-08	2.10E-10
N	Vegetation	NNW	2166	3.69E-08	2.80E-10
N	Meat	N	7551	4.78E-08	1.17E-10
N	Meat	ENE	6264	5.25E-08	1.23E-10
N	Meat	SE	3331	1.74E-07	1.39E-09
N	Meat	S	6741	3.55E-08	1.06E-10
N	Meat	SSW	3167	3.44E-08	2.05E-10
N	Meat	SW	5653	3.71E-08	1.12E-10
N	Meat	WSW	4321	5.67E-08	2.22E-10
N	Meat	W	4467	5.96E-08	3.05E-10
N	Cow	N	7551	4.78E-08	1.17E-10
N	Cow	S	6741	3.55E-08	1.06E-10
N	Cow	SSW	3167	3.44E-08	2.05E-10
N	Cow	WSW	4321	5.67E-08	2.22E-10
N	Cow	W	4467	5.96E-08	3.05E-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 Sout Stack, Limerick Generating Station, 2011

Limerick Generating Station
 x/Q and D/Q values

South Stack - Flow = 177200 cfm				X/Q (s/m ³)	D/Q (1/m ²)
Stack ID	Location	Direction	Range (m)	Undepleted	
S	Site Boundary	S	762	6.30E-08	9.49E-10
S	Site Boundary	SSW	762	3.90E-08	7.18E-10
S	Site Boundary	SW	884	2.27E-08	3.77E-10
S	Site Boundary	WSW	854	3.85E-08	5.09E-10
S	Site Boundary	W	854	7.57E-08	1.14E-09
S	Site Boundary	WNW	793	6.10E-08	9.90E-10
S	Site Boundary	NW	762	2.49E-08	4.51E-10
S	Site Boundary	NNW	884	3.38E-08	4.93E-10
S	Site Boundary	N	884	8.94E-08	1.37E-09
S	Site Boundary	NNE	793	1.12E-07	2.14E-09
S	Site Boundary	NE	793	6.26E-08	1.33E-09
S	Site Boundary	ENE	793	6.57E-08	1.53E-09
S	Site Boundary	E	762	8.67E-08	1.64E-09
S	Site Boundary	ESE	762	1.89E-07	3.26E-09
S	Site Boundary	SE	762	3.66E-07	6.85E-09
S	Site Boundary	SSE	1006	7.44E-08	1.29E-09
S	RR-Inf-Lck-NG	S	300	2.28E-07	2.48E-09
S	RR-Inf-Lck-NG	SSW	225	2.33E-07	2.30E-09
S	RR-Inf-Lck-NG	SW	225	1.53E-07	1.20E-09
S	RR-Inf-Lck-NG	WSW	345	1.36E-07	1.28E-09
S	RR-Inf-Lck-NG	W	225	5.81E-07	5.46E-09
S	RR-Inf-Lck-NG	WNW	345	1.90E-07	2.54E-09
S	RR-Inf-Lck-NG	NW	450	4.58E-08	7.12E-10
S	RR-Inf-Lck-NG	ESE	884	1.63E-07	2.80E-09
S	RR-Inf-Lck-NG	WSW	450	8.57E-08	9.29E-10
S	RR-Inf-Lck-NG	NNE	682	1.29E-07	2.46E-09
S	Inhalation	N	948	8.41E-08	1.28E-09
S	Inhalation	NNE	825	1.07E-07	2.06E-09
S	Inhalation	NE	1057	4.97E-08	1.03E-09
S	Inhalation	ENE	985	5.55E-08	1.26E-09
S	Inhalation	E	873	7.69E-08	1.44E-09
S	Inhalation	ESE	1047	1.42E-07	2.39E-09
S	Inhalation	SE	1557	2.17E-07	3.31E-09
S	Inhalation	SSE	1647	6.08E-08	8.42E-10
S	Inhalation	S	1325	4.25E-08	6.32E-10
S	Inhalation	SSW	1543	2.79E-08	4.11E-10
S	Inhalation	SW	991	2.08E-08	3.66E-10
S	Inhalation	WSW	1158	3.23E-08	4.81E-10
S	Inhalation	W	1105	6.30E-08	9.56E-10
S	Inhalation	WNW	1198	4.37E-08	6.88E-10
S	Inhalation	NW	1104	1.96E-08	3.51E-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 Sout Stack, Limerick Generating Station, 2011

Limerick Generating Station
 x/Q and D/Q values

South Stack - Flow = 177200 cfm				X/Q (s/m ³)	D/Q (1/m ²)
Stack ID	Location	Direction	Range (m)	Undepleted	
S	Inhalation	NNW	1540	2.87E-08	3.48E-10
S	Vegetation	N	1017	7.96E-08	1.21E-09
S	Vegetation	NNE	2929	7.28E-08	4.57E-10
S	Vegetation	NE	1065	4.94E-08	1.02E-09
S	Vegetation	ENE	4561	6.18E-08	1.90E-10
S	Vegetation	E	3849	8.57E-08	2.78E-10
S	Vegetation	ESE	555	2.75E-07	4.52E-09
S	Vegetation	SE	390	8.58E-07	1.46E-08
S	Vegetation	SSE	2102	5.99E-08	6.41E-10
S	Vegetation	S	1860	4.28E-08	4.89E-10
S	Vegetation	SSW	1622	2.82E-08	3.91E-10
S	Vegetation	SW	1390	2.05E-08	3.75E-10
S	Vegetation	WSW	3662	6.15E-08	2.58E-10
S	Vegetation	W	1283	6.06E-08	8.99E-10
S	Vegetation	WNW	1198	4.37E-08	6.88E-10
S	Vegetation	NW	2490	2.83E-08	1.92E-10
S	Vegetation	NNW	2166	3.41E-08	2.48E-10
S	Meat	N	7551	4.92E-08	1.11E-10
S	Meat	ENE	6264	5.65E-08	1.19E-10
S	Meat	SE	3331	1.70E-07	1.29E-09
S	Meat	S	6741	3.80E-08	1.03E-10
S	Meat	SSW	3167	3.56E-08	1.87E-10
S	Meat	SW	5653	3.99E-08	1.09E-10
S	Meat	WSW	4321	6.07E-08	2.14E-10
S	Meat	W	4467	6.24E-08	2.93E-10
S	Cow	N	7551	4.92E-08	1.11E-10
S	Cow	S	6741	3.80E-08	1.03E-10
S	Cow	SSW	3167	3.56E-08	1.87E-10
S	Cow	WSW	4321	6.07E-08	2.14E-10
S	Cow	W	4467	6.24E-08	2.93E-10