Limerick Generating Station
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Exelon Nuclear

T.S. 6.9.1.8

April 27, 2010

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: 2009 Annual Radioactive Effluent Release Report

Reference: Exelon Limerick Letter to NRC on ISFSI from 8/1/08 to 8/1/09 dated 9/25/09

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 2009 Annual Radioactive Effluent Release Report No. 35 for LGS. Also attached is the Process Control Program, revision 7.

In accordance with 10CFR72.44(d)(3) Limerick has reviewed TLD data from the ISFSI modules currently loaded. During the period of August 1, 2009 to December 31, 2009, 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,

Christopher H. Mudrick
Vice President-LGS
Exelon Generation Company, LLC

Attachment: 1. 2009 Annual Radioactive Effluent Release Report No. 35 for LGS
2. Process Control Program Rev. 7

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

IE17
IE48
NRR
NMSS

bcc: P. Cowan - KSA 3P (w/o Attachments)
J. Grimes – KSA-3N (w/o Attachments)
C. Mudrick - GML 5-1 (w/o Attachments)
E. Callan-GML 5-1(w/o Attachments)
S. Johnson-GML 5-1(w/o Attachments)
D. Helker - KSA 3P (w/o Attachments)
D. Merchant - GML 1-1 (w/Attachments)
J. Hunter III - SSB 2-4 (w/Attachments)
A. Columbus - SMB 1-2 (w/Attachments)
D. Wahl – SSB 2-3 (w/Attachments)
L. Birkmire - SSB 2-2 (w/Attachments)
D. Eisenhut – NSRB (w/Attachments)
M. Murphy - PADEP BRP (w/Attachments)
S. Focht – ANI (w/Attachments)

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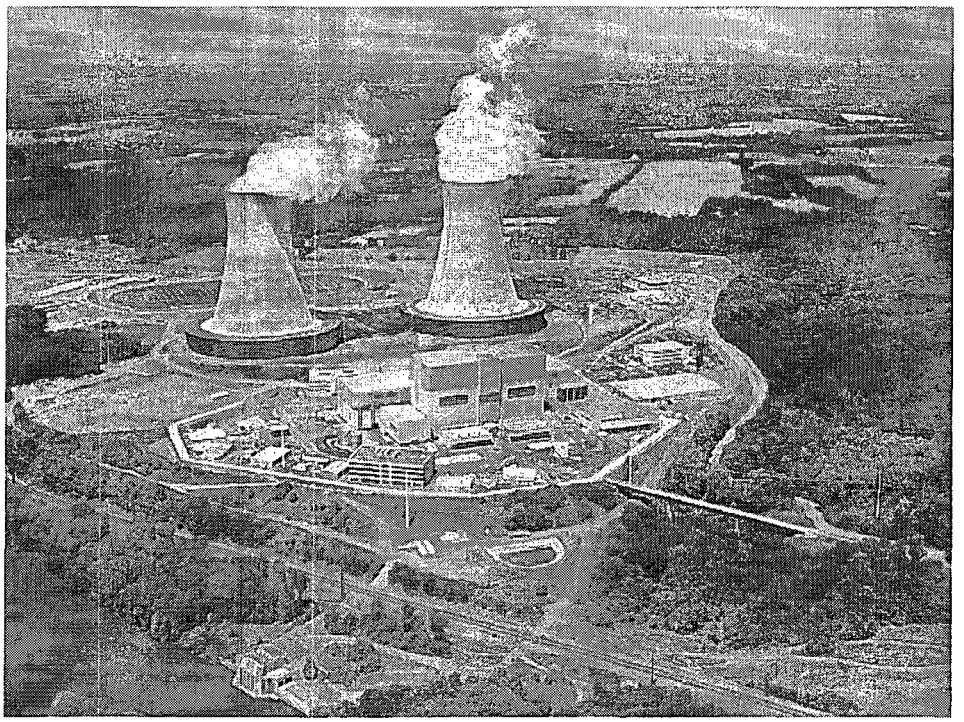

Annual Radioactive Effluent Release Report
No. 35

2009

Limerick Generating Station

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

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

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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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, 2009 through December 31, 2009. 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 2009 report is complete.

2. Supplemental Information

A. Regulatory Limits

	Limit	Units	Receptor	ODCM and 10 CFR 50, Appendix I Design Objective Limits
1. Noble Gases:				
a.	≤ 500	mrem/Yr	Total Body	ODCM Control 3.2.2.1.a
	≤ 3000	mrem/Yr	Skin	
b.	≤ 10	mRad	Air Gamma	Quarterly air dose limits
	≤ 20	mRad	Air Beta	ODCM Control 3.2.2.2.a
c.	≤ 20	mRad	Air Gamma	Yearly air dose limits
	≤ 40	mRad	Air Beta	ODCM Control 3.2.2.2.b
d.	≤ 10	mrem	Total Body (Gamma)	10 CFR 50, Appendix I, Section
	≤ 30	mrem	Skin (Beta)	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.	Concentration 10 CFR 20, Appendix B, Table 2 Col. 2			ODCM Control 3.2.1.1
b.	≤ 3	mrem	Total Body	Quarterly dose limits
	≤ 10	mrem	Any Organ	ODCM Control 3.2.1.2.a
c.	≤ 6	mrem	Total Body	Yearly dose limits
	≤ 20	mrem	Any Organ	ODCM Control 3.2.1.2.b
4. 40 CFR 190				
	≤ 25	mrem	Total Body or Organ	Yearly dose limits
	≤ 75	mrem	Thyroid	ODCM Control 3.2.3

B. Effluent Concentration Limits

Gaseous dose rates rather than effluent concentrations are used to calculate permissible release rates for gaseous releases. The maximum permissible dose rates for gaseous releases are defined in ODCM Controls 3.2.2.2.a and 3.2.2.2.b.

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 µCi/ml.

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

The Limerick ODCM limits the instantaneous dose equivalent rates due to the release of noble gases to less than or equal to 500 mrem/year to the total body and less than or equal to 3000 mrem/year to the skin. The average beta and gamma energies ($\bar{E}$) of the radionuclide mixture in releases of fission and activation gases as described in Regulatory Guide 1.21, "Measuring, Evaluation, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," maybe 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 monitor 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. 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 month was then determined by summing the activity content of all batch releases discharged during the month.

4. 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.

5. 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.

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

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

6. 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.

E. Batch Releases

Liquid	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Number of Batch Releases	38	34	39	35	146
Total time period for batch releases (min)	3.26E+03	2.84E+03	3.16E+03	2.84E+03	1.21E+04
Maximum time period for batch release (min)	1.20E+02	1.13E+02	9.60E+01	1.01E+02	1.20E+02
Average time period for batch release (min)	8.57E+01	8.34E+01	8.10E+01	8.10E+01	8.28E+01
Minimum time period for batch release (min)	5.50E+01	1.60E+01	4.00E+01	3.50E+01	1.60E+01
Average stream flow (Schuylkill River) during periods of release of effluents into a flowing stream (gpm)	2.42E+04	2.11E+04	2.19E+04	4.42E+04	2.42E+04

Aux Boiler Waste Oil Incineration	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Number of Batch Releases	0	0	0	0	0
Total time period for batch releases (min)	0	0	0	0	0
Maximum time period for batch release (min)	0	0	0	0	0
Average time period for batch release (min)	0	0	0	0	0
Minimum time period for batch release (min)	0	0	0	0	0

Gaseous	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Number of Batch Releases	0	0	0	0	0
Total time period for batch releases (min)	0	0	0	0	0
Maximum time period for batch release (min)	0	0	0	0	0
Average time period for batch release (min)	0	0	0	0	0
Minimum time period for batch release (min)	0	0	0	0	0

F. Abnormal Releases

1. Liquid	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Number of Releases	0	1	0	0	1
Total Activity Released (Ci)	0	7.47E-04	0	0	7.47E-04
2. Gaseous					
Number of Releases	0	0	0	0	0
Total Activity Released (Ci)	0	0	0	0	0

G. Spills

On February 13, 2009 a leak from the exterior walls of both U1 and U2 condenser bays was discovered via operator rounds (IR880716). The condensation was observed dripping directly to open ground and asphalt. Water samples were collected and analyzed for gamma isotopic and tritium. No gamma emitting nuclides were identified; however, tritium was identified at a concentration of 3.90E-03 uCi/ml.

Sampling of NPDES outfalls verified that no offsite release of tritium occurred. The release to ground occurred for up to six days until catch containments were installed. The total release of tritium to the ground was conservatively estimated at 1.23E-03 Curies. Groundwater sampling, as part of the radiological groundwater protection program (RGPP), has identified tritium in one down gradient well, MW-LM-9, at a maximum concentration of 1750 pCi/L, which is below the environmental lower limit of detection (LLD) of 2000 pCi/L.

The leaks along the condenser bay joints were sealed with caulk and periodic inspections for future leaking has been added to operator rounds. All data related to this release was added to the Stations 10 CFR 50.75(g) decommissioning file.

On April 3, 2009 the water from the catch containments was released to the station's holding pond. The holding pond releases through the normal liquid effluent release point at outfall 001. The catch containment water contained approximately 747 uCi of tritium.

H. Revisions to the ODCM

There were no changes made to the ODCM in 2009

I. 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:

As reported in the 2008 ARERR, the Liquid Radwaste effluent line flow indicator (FI-063-053) 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 within 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.

The Liquid Radwaste effluent line flow indicator (FI-063-053) remained inoperable until July 1, 2009 after Engineering completed their assessment (IR859104, A1692301). At no time did the discharge flow exceed the pre-release calculation criteria.

J. Independent Spent Fuel Storage Installation (ISFSI)

An Independent Spent Fuel Storage Installation (ISFSI) was placed in service starting July 21, 2008. In 2009 the dose to nearest resident to the ISFSI was non detectable using thermoluminescent dosimeters from the Radiological Environmental Monitoring Program.

K. 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.

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Appendix A
Effluent and Waste Disposal Summary

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LIST OF TABLES

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

TABLE A-1 GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES PERIOD 2009

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	

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	%	*	*	*	*	*	

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	< LLD	< LLD	< LLD	< LLD	

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	%	*	*	*	*	*	

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.

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

TABLE A-1A GASEOUS EFFLUENTS—GROUND-LEVEL RELEASE—BATCH MODE PERIOD 2009

Fission And Activation Gasses	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Ar-41	Ci	N/A	N/A	N/A	N/A	N/A
Kr-85	Ci	N/A	N/A	N/A	N/A	N/A
Kr-85m	Ci	N/A	N/A	N/A	N/A	N/A
Kr-87	Ci	N/A	N/A	N/A	N/A	N/A
Kr-88	Ci	N/A	N/A	N/A	N/A	N/A
Xe-133	Ci	N/A	N/A	N/A	N/A	N/A
Xe-135	Ci	N/A	N/A	N/A	N/A	N/A
Xe-135m	Ci	N/A	N/A	N/A	N/A	N/A
Xe-138	Ci	N/A	N/A	N/A	N/A	N/A
Total	Ci	N/A	N/A	N/A	N/A	N/A

Radioiodines	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Annual
I-131	Ci	N/A	N/A	N/A	N/A	N/A
I-133	Ci	N/A	N/A	N/A	N/A	N/A
I-135	Ci	N/A	N/A	N/A	N/A	N/A
Total	Ci	N/A	N/A	N/A	N/A	N/A

Particulates	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Annual
Cr-51	Ci	N/A	N/A	N/A	N/A	N/A
Mn-54	Ci	N/A	N/A	N/A	N/A	N/A
Co-58	Ci	N/A	N/A	N/A	N/A	N/A
Co-60	Ci	N/A	N/A	N/A	N/A	N/A
Zn-65	Ci	N/A	N/A	N/A	N/A	N/A
Sr-89	Ci	N/A	N/A	N/A	N/A	N/A
Sr-90	Ci	N/A	N/A	N/A	N/A	N/A
Mo-99	Ci	N/A	N/A	N/A	N/A	N/A
Ag-110m	Ci	N/A	N/A	N/A	N/A	N/A
Cs-134	Ci	N/A	N/A	N/A	N/A	N/A
Cs-137	Ci	N/A	N/A	N/A	N/A	N/A
Ba-140	Ci	N/A	N/A	N/A	N/A	N/A
La-140	Ci	N/A	N/A	N/A	N/A	N/A
Ce-141	Ci	N/A	N/A	N/A	N/A	N/A
Ce-144	Ci	N/A	N/A	N/A	N/A	N/A
Total	Ci	N/A	N/A	N/A	N/A	N/A

H-3	Ci	N/A	N/A	N/A	N/A	N/A

Gross Alpha	Ci	N/A	N/A	N/A	N/A	N/A

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

TABLE A–1B GASEOUS EFFLUENTS – GROUND LEVEL RELEASE - CONTINUOUS MODE PERIOD 2009

Fission And Activation Gasses	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Kr-85m	Ci	1.20E-01	9.87E-02	2.31E-01	5.66E-02	5.07E-01
Kr-85	Ci	3.57E-01	1.23E-01	4.14E-01	5.83E-02	9.53E-01
Kr-87	Ci	1.92E-01	1.23E-01	3.14E-01	6.82E-02	6.97E-01
Kr-88	Ci	3.19E-01	1.67E-01	4.61E-01	8.90E-02	1.04E+00
Ar-41	Ci	1.06E-01	2.77E-01	9.40E-01	1.72E-01	1.49E+00
Xe-131m	Ci	8.95E-03	3.08E-03	1.04E-02	1.46E-03	2.39E-02
Xe-133	Ci	5.86E-01	1.45E+00	2.67E+00	8.97E-01	5.61E+00
Xe-135m	Ci	1.22E+00	1.30E+00	2.83E+00	7.68E-01	6.13E+00
Xe-135	Ci	1.59E+00	1.20E+00	2.89E+00	6.80E-01	6.36E+00
Xe-138	Ci	1.84E+00	7.69E-01	2.36E+00	3.87E-01	5.35E+00
Total	Ci	6.35E+00	5.51E+00	1.31E+01	3.18E+00	2.82E+01

Radioiodines	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
I-131	Ci	7.85E-05	9.35E-06	< LLD	< LLD	8.78E-05
I-133	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	7.85E-05	9.35E-06	< LLD	< LLD	8.78E-05

Particulates	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Annual
Cr-51	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mn-54	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-58	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-60	Ci	2.38E-05	< LLD	< LLD	< LLD	2.38E-05
Zn-65	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ag-110m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sb-125	Ci	< LLD	2.50E-05	< LLD	< LLD	2.50E-05
Cs-134	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Cs-137	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Ce-144	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	2.38E-05	2.50E-05	< LLD	< LLD	4.88E-05

H-3	Ci	1.25E+01	5.42E+00	7.50E+00	7.96E+00	3.34E+01

Gross Alpha	Ci	< LLD	< LLD	< LLD	< LLD	< LLD

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

TABLE A-2 LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES PERIOD 2009

Fission and Activation Products Excluding Tritium, Gasses & Alpha)	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	6.63E-04	2.35E-03	3.89E-04	6.26E-04	4.03E-03	21.1
Average Concentration	uCi/ml	8.20E-09	3.81E-08	5.44E-09	4.92E-09	1.18E-08	
Dose - Whole Body	mrem	2.44E-01	1.17E-01	1.90E-01	2.23E-01	7.75E-01	
- Organ	mrem	2.44E-01	1.17E-01	1.90E-01	2.23E-01	7.75E-01	
% of ODCM Limit - Whole Body Dose*	%	8.15	3.91	6.32	7.44	12.91	
- Organ Dose*	%	2.44	1.17	1.90	2.23	3.87	

Tritium	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	7.33E+00	4.58E+00	5.40E+00	5.12E+00	2.24E+01	6.4
Average Concentration	uCi/ml	9.06E-05	7.41E-05	7.57E-05	4.02E-05	6.57E-05	
% of ODCM Limit - ECL	%	0.91%	0.74%	0.76%	0.40%	0.66%	

Dissolved and Entrained Gases	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	< LLD	< LLD	< LLD	3.63E-05	3.63E-05	21.1
Average Concentration	uCi/ml	N/A	N/A	N/A	2.85E-10	1.06E-10	
% of ODCM Limit - ECL	%	N/A	N/A	N/A	0.00%	0.00%	

Gross Alpha	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total Release	Ci	< LLD	< LLD	< LLD	< LLD	< LLD	23.0
Average Concentration	uCi/ml	N/A	N/A	N/A	N/A	N/A	

Volume of Waste Released	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total	Liters	2.20E+06	1.88E+06	2.18E+06	1.89E+06	8.14E+06	5.0

Volume of Dilution Water used during period	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total	Uncertainty (%)
Total	Liters	7.87E+07	5.99E+07	6.92E+07	1.25E+08	3.33E+08	3.6
Average Concentration	uCi/ml	N/A	N/A	N/A	N/A	N/A	

* Percent of limit includes gases and tritium.

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

TABLE A-2A LIQUID EFFLUENTS - BATCH MODE PERIOD 2009

Fission and Activation Products	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Cr-51	Ci	6.24E-05	3.15E-04	< LLD	< LLD	3.78E-04
Mn-54	Ci	1.29E-04	3.02E-04	4.61E-05	2.30E-05	5.00E-04
Mn-56	Ci	< LLD	1.08E-06	< LLD	< LLD	1.08E-06
Co-58	Ci	3.00E-06	2.72E-05	< LLD	2.36E-05	5.38E-05
Fe-55	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Fe-59	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Co-60	Ci	4.28E-04	1.47E-03	2.65E-04	2.57E-04	2.42E-03
Zn-65	Ci	2.18E-05	1.83E-04	1.15E-05	2.71E-04	4.88E-04
Sr-89	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Sr-90	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Y-92	Ci	< LLD	1.27E-05	< LLD	< LLD	1.27E-05
Zr-95	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Nb-95	Ci	1.06E-06	1.04E-06	< LLD	< LLD	2.10E-06
Nb-97	Ci	< LLD	< LLD	< LLD	7.94E-07	7.94E-07
Mo-99	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
TC-99m	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
AG-110m	Ci	< LLD	8.64E-06	< LLD	< LLD	8.64E-06
Sb-124	Ci	< LLD	1.38E-05	8.09E-06	1.59E-06	2.35E-05
Sb-125	Ci	6.50E-06	7.24E-06	5.11E-05	4.42E-05	1.09E-04
I-131	Ci	< LLD	1.80E-06	< LLD	4.51E-07	2.25E-06
Cs-134	Ci	< LLD	2.26E-06	< LLD	< LLD	2.26E-06
Cs-137	Ci	1.13E-05	4.53E-06	6.69E-06	2.36E-06	2.49E-05
Ba-140	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
La-140	Ci	< LLD	< LLD	< LLD	1.54E-06	1.54E-06
Ce-141	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	6.63E-04	2.35E-03	3.89E-04	6.26E-04	4.03E-03

Dissolved and Entrained Gases	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Xe-131m	Ci	< LLD	< LLD	< LLD	3.02E-05	3.02E-05
Xe-133	Ci	< LLD	< LLD	< LLD	6.09E-06	6.09E-06
Xe-135	Ci	< LLD	< LLD	< LLD	< LLD	< LLD
Total	Ci	< LLD	< LLD	< LLD	3.63E-05	3.63E-05

H-3	Ci	7.33E+00	4.58E+00	5.40E+00	5.12E+00	2.24E+01

Gross Alpha	Ci	< LLD	< LLD	< LLD	< LLD	< LLD

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

TABLE A-2B LIQUID EFFLUENTS - CONTINUOUS MODE PERIOD 2009

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

Dissolved and Entrained Gases	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Total
Xe-131m	Ci	N/A	N/A	N/A	N/A	N/A
Xe-133	Ci	N/A	N/A	N/A	N/A	N/A
Xe-135	Ci	N/A	N/A	N/A	N/A	N/A
Total	Ci	N/A	N/A	N/A	N/A	N/A

H-3	Ci	N/A	N/A	N/A	N/A	N/A

Gross Alpha	Ci	N/A	N/A	N/A	N/A	N/A

Appendix B
Solid Waste and Irradiated Fuel Shipments

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A. Solid waste shipped offsite for burial or disposal (not irradiated fuel) 01/01/2009 – 12/31/2009

1. Type of waste

Type of waste	Unit	12 Month Period	Estimated Error %
a. Spent resin, filters sludges, evaporator bottoms, etc	m^3	114.21	25%
	Ci	7.56E+02	
b. Dry compressible waste, contaminated equipment, etc.	m^3	87.39	25%
	Ci	4.74E+00	
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	2.77E-01	0.04%
Mn-54	4.05E+01	5.36%
Fe-55	4.99E+02	66.01%
Co-60	1.62E+02	21.42%
Ni-59	4.24E-02	0.01%
Ni-63	7.99E+00	1.06%
Zn-65	3.47E+01	4.59%
Sr-90	1.54E-01	0.02%
Cs-137	5.93E+00	0.78%
Ce-144	2.14E+00	0.28%
Pu-241	1.54E+00	0.20%
H-3	5.83E-01	0.08%
Cr-51	1.11E+00	0.15%
Totals	7.56E+02	100.00%

* Activity is estimated

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

Isotope	Waste Class A Curies *	Percent Abundance
Mn-54	2.35E-01	4.96%
Fe-55	3.39E+00	71.61%
Co-60	9.20E-01	19.43%
Ni-63	4.79E-02	1.01%
Zn-65	7.60E-02	1.61%
Cs-137	1.40E-02	0.30%
Ce-144	5.10E-02	1.08%
TOTALS	4.74E+00	100.00%

* Activity is estimated

3. Solid Waste (Disposition)

Number of Shipments	Mode of Transportation	Destination
3	Truck	Studsvik (THOR) to Energy Solutions / Clive
41	Truck	Duratek to Energy Solutions / Clive
15	Truck	Limerick Gen. Sta. to Energy Solutions / Clive

4. Waste (Processing)

Number of Shipments	Mode of Transportation	Destination
37	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 - 6 shipments > Type A LSA
Category B - 33 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

Revision 7 of RW-AA-100, Process Control Program for Radioactive Wates was active on 01/23/2009. The changes were administrative in nature. The revision corrected formatting issues and standardized the use of shall, should, may and will in accordance with AD-AA-101-1002. The record retention requirements were moved to section 5 and corrected references. A complete legible copy of this document is attached.

Appendix C
Radiological Impact to Man

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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

- Five year 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 and tritium releases.
- The Receptor with the highest dose was the nearest residence in the ESE sector at 1004 meters (x/Q = 2.27E-06 s/m^3, D/Q = 1.88E-08 1/m^2).
- 100 percent occupancy factor was assumed.
- For 40 CFR 190 compliance, the highest doses from the critical organ and critical age group for each release pathway was summed.
- 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.

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**	**Location**		**% of Applicable Limit**	**Limit**	**Unit**
				Distance (meters)	**Direction (toward)**			
Noble Gas								
Nearest Residence	Gamma Air Dose	2.17E-03	All	1004	ESE	0.011	20	mRad
Nearest Residence	Beta Air Dose	1.27E-03	All	1004	ESE	0.003	40	mRad
Nearest Residence	Total Body	2.06E-03	All	1004	ESE	0.021	10	mrem
Nearest Residence	Skin	3.42E-03	All	1004	ESE	0.011	30	mrem
Iodine, Particulate & Tritium								
Nearest Residence	Thyroid	6.06E-04	Teen	1004	ESE	0.002	30	mrem
Liquid	Total Body	7.75E-01	Child	Aqua PA		12.92	6	mrem
Liquid	Liver	7.75E-01	Child	Aqua PA		3.88	20	mrem

40 CFR 190 Compliance							
Pathway	**Gaseous Effluents**	**Liquid Effluents**	**Direct Radiation**	**Total**	**% of Applicable Limit**	**Limit**	**Unit**
Total Body Dose	2.06E-03	7.75E-01	0	7.77E-01	3.11	25	mrem
Organ Dose	6.06E-04	7.75E-01	0	7.76E-01	3.10	25	mrem

Doses calculated were well below all ODCM and 40 CFR Part 190 limits of 25 mrem to a real individual.

The ODCM does not require population doses to be calculated.

ODCM Control 6.2 also requires that the Annual Effluent Release Report shall include an assessment of the radiation doses from radioactive liquid and gaseous effluents to members of the public due to activities inside the Site Boundary during the report period. MEMBER OF THE PUBLIC shall include all persons not occupationally associated with the plant. This category does not include employees of the utility or contractors. Also excluded from this category are persons who enter the site to service equipment or to make deliveries. This category does include persons who use portions of the site for recreational,

occupational education, or other purposes not associated with the plant. A MEMBER OF THE PUBLIC may receive up to 100 mrem in a year (10CFR20.1301). Areas within the site boundary, where radiation dose of this type could occur include the Limerick Information Center on Longview Road near the rear exit of the plant, Frick's Lock on the south shore of the Schuylkill River and the railroad tracks that runs along the north shore of the River. The dose to State Police and National Guard personnel around the location of the Security Checkpoint was also included in this report. The radiation doses to Members of the Public have been estimated using methodology stated in the ODCM. The maximum gaseous dose to members of the public at these locations is based on the following assumptions:

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

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

Location	Sector	Approx. Distance (meters)	x/Q s/m^3	D/Q 1/m^2	Total Body Dose mrem(1)	Iodine/Part/ H3 Organ Dose, mrem(1)
R.R. Tracks	W	225	2.53E-06	2.09E-08	2.38E-03	6.53E-04
Info. Center	ESE	884	6.55E-07	7.78E-09	6.55E-04	1.93E-04
Frick's Lock	WSW	450	5.27E-07	4.30E-09	4.99E-04	1.36E-04
National Guard / Security Check Point	NNE	682	2.37E-07	2.42E-09	3.57E-04	1.01E-04

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)

Appendix D
Meteorological Data

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LIST OF TABLES

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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, 2009

Period of Record: January - March 2009
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	2	0	0	0	3
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	2	0	0	0	0	2
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	1	0	0	0	1
S	0	8	1	0	0	0	9
SSW	0	10	7	0	0	0	17
SW	0	8	1	0	0	0	9
WSW	0	4	3	0	0	0	7
W	1	7	1	1	0	0	10
WNW	0	7	13	7	0	0	27
NW	1	2	11	1	0	0	15
NNW	0	0	2	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	2	49	42	9	0	0	102

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: 34

Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	2	0	0	0	3
NNE	0	2	0	0	0	0	2
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	1	0	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
S	0	1	0	1	0	0	2
SSW	0	13	2	0	0	0	15
SW	1	2	0	0	0	0	3
WSW	0	1	1	0	0	0	2
W	1	3	1	0	0	0	5
WNW	1	10	7	1	0	0	19
NW	1	7	23	12	3	0	46
NNW	1	3	6	0	0	0	10
Variable	0	0	0	0	0	0	0
Total	5	46	42	14	3	0	110

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: 34

Table D-1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	9	6	0	0	0	15
NNE	2	1	0	0	0	0	3
NE	0	1	0	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	2	1	0	0	0	3
ESE	0	1	0	0	0	0	1
SE	0	2	0	0	0	0	2
SSE	0	3	0	0	0	0	3
S	2	6	1	1	0	0	10
SSW	1	7	1	0	0	0	9
SW	1	4	0	0	0	0	5
WSW	0	4	0	0	0	0	4
W	0	4	3	2	2	0	11
WNW	2	3	4	7	1	0	17
NW	1	8	17	20	0	0	46
NNW	0	3	7	4	0	0	14
Variable	0	0	0	0	0	0	0
Total	9	58	40	34	3	0	144

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: 34

Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	10	23	20	1	0	0	54
NNE	18	14	0	0	0	0	32
NE	16	28	0	0	0	0	44
ENE	10	31	5	0	0	0	46
E	11	23	19	0	0	0	53
ESE	9	5	4	0	0	0	18
SE	6	12	1	0	0	0	19
SSE	6	30	4	0	0	0	40
S	10	28	7	1	0	0	46
SSW	7	29	8	0	0	0	44
SW	9	9	0	0	0	0	18
WSW	10	6	0	0	0	0	16
W	14	12	16	9	1	0	52
WNW	13	44	80	31	4	0	172
NW	14	61	121	73	5	0	274
NNW	7	25	44	11	0	0	87
Variable	0	0	0	0	0	0	0
Total	170	380	329	126	10	0	1015

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: 34

Table D-1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	3	1	0	0	0	11
NNE	8	0	0	0	0	0	8
NE	10	1	0	0	0	0	11
ENE	8	8	0	0	0	0	16
E	10	6	1	0	0	0	17
ESE	2	7	1	0	0	0	10
SE	3	15	3	0	0	0	21
SSE	4	10	5	0	0	0	19
S	15	24	1	0	0	0	40
SSW	21	23	3	0	0	0	47
SW	27	5	3	0	0	0	35
WSW	28	7	7	0	0	0	42
W	34	27	6	0	0	0	67
WNW	26	37	9	2	0	0	74
NW	31	25	9	1	0	0	66
NNW	4	19	2	0	0	0	25
Variable	2	1	0	0	0	0	3
Total	240	218	51	3	0	0	512

Hours of calm in this stability class: 5
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 34

Table D – 1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	6	2	0	0	0	0	8
NNE	3	0	0	0	0	0	3
NE	7	0	0	0	0	0	7
ENE	10	0	0	0	0	0	10
E	6	1	0	0	0	0	7
ESE	7	0	0	0	0	0	7
SE	4	1	0	0	0	0	5
SSE	0	2	0	0	0	0	2
S	2	5	0	0	0	0	7
SSW	7	0	0	0	0	0	7
SW	5	1	0	0	0	0	6
WSW	5	0	0	0	0	0	5
W	11	2	0	0	0	0	13
WNW	14	5	0	0	0	0	19
NW	8	1	0	0	0	0	9
NNW	4	0	0	0	0	0	4
Variable	8	0	0	0	0	0	8
Total	107	20	0	0	0	0	127

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: 34

Table D-1 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	8	0	0	0	0	0	8
NNE	7	0	0	0	0	0	7
NE	9	0	0	0	0	0	9
ENE	5	0	0	0	0	0	5
E	4	0	0	0	0	0	4
ESE	2	0	0	0	0	0	2
SE	1	0	0	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	0	0	0	0	0
SW	1	0	0	0	0	0	1
WSW	3	1	0	0	0	0	4
W	14	0	0	0	0	0	14
WNW	16	0	0	0	0	0	16
NW	9	0	0	0	0	0	9
NNW	5	0	0	0	0	0	5
Variable	5	0	0	0	0	0	5
Total	89	1	0	0	0	0	90

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: 34

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	0	3	0	0	0	4
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	1	0	0	0	1
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	1	7	1	0	0	9
SSW	0	5	7	6	0	0	18
SW	0	4	6	1	0	0	11
WSW	0	1	4	4	0	0	9
W	0	4	4	0	1	1	10
WNW	0	5	8	11	1	6	31
NW	0	0	1	4	0	0	5
NNW	0	0	3	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	1	21	44	27	2	7	102

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: 34

Table D-2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	4	2	0	0	7
NNE	0	2	1	0	0	0	3
NE	0	0	0	0	0	0	0
ENE	0	0	1	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	1	0	0	0	1
SSE	0	0	0	0	0	0	0
S	0	1	1	0	0	0	2
SSW	0	8	7	1	2	0	18
SW	0	2	0	0	0	0	2
WSW	0	0	0	1	0	0	1
W	1	5	3	1	0	0	10
WNW	0	5	10	13	3	2	33
NW	0	1	6	12	4	1	24
NNW	0	3	2	3	0	0	8
Variable	0	0	0	0	0	0	0
Total	1	28	36	33	9	3	110

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: 34

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	3	12	1	0	0	17
NNE	0	3	1	0	0	0	4
NE	0	0	1	0	0	0	1
ENE	0	0	0	0	0	0	0
E	0	1	1	0	0	0	2
ESE	0	1	1	0	0	0	2
SE	0	2	0	0	0	0	2
SSE	0	1	0	0	0	0	1
S	0	6	5	0	1	0	12
SSW	0	4	5	1	0	0	10
SW	0	1	4	0	0	0	5
WSW	1	0	2	2	0	0	5
W	0	3	2	1	4	5	15
WNW	2	0	7	15	3	4	31
NW	0	2	4	10	7	0	23
NNW	1	2	2	6	3	0	14
Variable	0	0	0	0	0	0	0
Total	5	29	47	36	18	9	144

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: 34

Table D-20 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	>24	Total
N	6	18	24	20	2	0	70
NNE	6	12	11	2	0	0	31
NE	13	21	12	0	0	0	46
ENE	9	21	18	0	0	0	48
E	7	12	26	8	0	0	53
ESE	6	7	7	3	0	0	23
SE	5	6	5	1	0	0	17
SSE	4	7	22	4	0	0	37
S	3	14	32	5	1	0	55
SSW	6	14	19	5	4	0	48
SW	0	12	5	0	0	0	17
WSW	2	6	4	2	0	1	15
W	5	15	10	16	15	9	70
WNW	5	17	55	92	50	16	235
NW	5	19	40	61	30	5	160
NNW	4	10	45	23	9	0	91
Variable	0	0	0	0	0	0	0
Total	86	211	335	242	111	31	1016

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: 34

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	3	6	1	0	0	11
NNE	4	3	1	0	0	0	8
NE	4	4	1	0	0	0	9
ENE	4	6	5	0	0	0	15
E	6	2	5	0	0	0	13
ESE	3	5	2	0	0	0	10
SE	4	2	4	2	0	0	12
SSE	3	6	20	4	0	0	33
S	2	8	26	8	0	0	44
SSW	1	20	24	6	1	0	52
SW	1	16	14	4	1	0	36
WSW	0	17	4	6	3	1	31
W	5	21	20	6	3	0	55
WNW	4	32	52	10	4	1	103
NW	5	15	26	4	0	0	50
NNW	1	10	22	1	0	0	34
Variable	0	0	0	0	0	0	0
Total	48	170	232	52	12	2	516

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: 34

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	4	0	0	0	6
NNE	1	2	0	0	0	0	3
NE	0	1	0	0	0	0	1
ENE	1	0	0	0	0	0	1
E	1	5	0	0	0	0	6
ESE	3	2	0	0	0	0	5
SE	0	6	0	0	0	0	6
SSE	2	6	1	1	0	0	10
S	3	6	1	0	0	0	10
SSW	2	6	2	0	0	0	10
SW	2	5	4	0	0	0	11
WSW	2	7	3	0	0	0	12
W	1	5	2	2	0	0	10
WNW	1	6	12	1	0	0	20
NW	5	7	2	0	0	0	14
NNW	0	5	0	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	24	71	31	4	0	0	130

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: 34

Table D – 2 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January – March, 2009

Limerick Tower 1

Period of Record: January - March 2009
Stability Class -- Extremely Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	>24	Total
N	2	1	0	0	0	0	3
NNE	1	0	0	0	0	0	1
NE	2	0	0	0	0	0	2
ENE	6	3	0	0	0	0	9
E	4	0	0	0	0	0	4
ESE	3	3	0	0	0	0	6
SE	2	1	0	0	0	0	3
SSE	4	3	0	0	0	0	7
S	2	3	0	0	0	0	5
SSW	2	7	0	0	0	0	9
SW	1	7	4	1	0	0	13
WSW	2	6	5	0	0	0	13
W	1	2	1	0	0	0	4
WNW	1	11	0	0	0	0	12
NW	5	2	0	0	0	0	7
NNW	3	3	0	0	0	0	6
Variable	2	0	0	0	0	0	2
Total	43	52	10	1	0	0	106

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: 34

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	1	0	0	0	1
NNE	0	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	3	2	0	0	0	5
SSW	0	11	2	0	0	0	13
SW	0	8	0	0	0	0	8
WSW	0	5	5	0	0	0	10
W	0	9	6	0	0	0	15
WNW	0	4	3	0	1	0	8
NW	0	1	0	0	0	0	1
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	42	19	0	1	0	62

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: 144

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	1	0	0	0	1
NNE	0	1	0	0	0	0	1
NE	0	1	0	0	0	0	1
ENE	0	1	2	0	0	0	3
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	1	0	0	0	0	1
S	0	3	1	0	0	0	4
SSW	0	6	0	0	0	0	6
SW	1	3	0	0	0	0	4
WSW	0	4	4	0	0	0	8
W	2	4	2	1	0	0	9
WNW	0	5	9	2	1	0	17
NW	0	1	2	4	0	0	7
NNW	0	2	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	3	32	21	7	1	0	64

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: 144

Table D-3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	4	3	0	0	0	8
NNE	0	3	0	0	0	0	3
NE	1	2	0	0	0	0	3
ENE	0	0	1	0	0	0	1
E	0	2	5	0	0	0	7
ESE	0	1	1	0	0	0	2
SE	0	1	0	0	0	0	1
SSE	0	4	0	0	0	0	4
S	0	6	3	0	0	0	9
SSW	1	13	0	0	0	0	14
SW	2	8	1	0	0	0	11
WSW	3	6	4	0	0	0	13
W	3	6	4	0	0	0	13
WNW	1	3	10	1	2	0	17
NW	0	7	7	3	0	0	17
NNW	0	0	2	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	12	66	41	4	2	0	125

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: 144

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	>24	Total
N	3	13	7	1	0	0	24
NNE	6	16	1	0	0	0	23
NE	14	20	3	0	0	0	37
ENE	13	24	8	0	0	0	45
E	11	48	30	4	0	0	93
ESE	2	12	12	3	0	0	29
SE	4	9	0	0	0	0	13
SSE	6	12	0	0	0	0	18
S	9	18	6	2	0	0	35
SSW	6	22	2	0	0	0	30
SW	10	11	2	0	0	0	23
WSW	12	15	2	0	0	0	29
W	14	13	12	7	0	0	46
WNW	10	22	26	8	1	0	67
NW	3	31	36	8	0	0	78
NNW	8	18	29	5	0	0	60
Variable	0	0	0	0	0	0	0
Total	131	304	176	38	1	0	650

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: 144

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	20	16	4	0	0	0	40
NNE	12	12	0	0	0	0	24
NE	26	29	1	0	0	0	56
ENE	24	33	6	0	0	0	63
E	26	36	24	6	0	0	92
ESE	7	19	7	0	0	0	33
SE	6	18	1	0	0	0	25
SSE	12	23	5	0	0	0	40
S	11	29	9	0	0	0	49
SSW	12	17	0	0	0	0	29
SW	23	12	3	0	0	0	38
WSW	23	11	2	0	0	0	36
W	27	17	11	3	0	0	58
WNW	26	25	17	6	0	0	74
NW	20	23	15	1	0	0	59
NNW	9	25	9	3	0	0	46
Variable	4	0	0	0	0	0	4
Total	288	345	114	19	0	0	766

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: 144

Table D – 3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	0	0	0	0	0	4
NNE	3	1	0	0	0	0	4
NE	2	2	0	0	0	0	4
ENE	8	0	0	0	0	0	8
E	3	1	0	0	0	0	4
ESE	3	2	0	0	0	0	5
SE	5	0	0	0	0	0	5
SSE	8	3	0	0	0	0	11
S	8	4	0	0	0	0	12
SSW	11	8	0	0	0	0	19
SW	12	1	0	0	0	0	13
WSW	15	0	0	0	0	0	15
W	26	3	0	0	0	0	29
WNW	29	4	0	0	0	0	33
NW	17	4	0	0	0	0	21
NNW	8	0	0	0	0	0	8
Variable	5	0	0	0	0	0	5
Total	167	33	0	0	0	0	200

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: 144

Table D-3 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	5	0	0	0	0	0	5
NNE	3	0	0	0	0	0	3
NE	7	0	0	0	0	0	7
ENE	4	0	0	0	0	0	4
E	2	0	0	0	0	0	2
ESE	2	0	0	0	0	0	2
SE	4	0	0	0	0	0	4
SSE	2	0	0	0	0	0	2
S	3	0	0	0	0	0	3
SSW	2	0	0	0	0	0	2
SW	6	0	0	0	0	0	6
WSW	6	0	0	0	0	0	6
W	13	0	0	0	0	0	13
WNW	22	4	0	0	0	0	26
NW	31	1	0	0	0	0	32
NNW	14	0	0	0	0	0	14
Variable	10	0	0	0	0	0	10
Total	136	5	0	0	0	0	141

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: 144

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	1	0	0	1
NNE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	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	2	11	2	0	0	15
SW	0	0	6	3	0	0	9
WSW	0	2	4	9	0	0	15
W	0	2	6	4	1	0	13
WNW	0	1	2	1	1	1	6
NW	0	0	0	0	0	0	0
NNW	0	1	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	8	31	20	2	1	62

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: 144

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	0	1	0	0	2
NNE	0	1	1	0	0	0	2
NE	0	0	0	0	0	0	0
ENE	0	0	2	0	0	0	2
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	0	2	0	0	0	2
SSW	0	3	4	0	0	0	7
SW	0	2	3	0	0	0	5
WSW	1	2	2	4	0	0	9
W	0	5	2	6	1	2	16
WNW	0	1	7	2	3	1	14
NW	0	0	0	0	3	0	3
NNW	0	1	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	1	17	23	13	7	3	64

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: 144

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	2	3	0	0	6
NNE	0	6	0	0	0	0	6
NE	0	0	1	0	0	0	1
ENE	1	0	1	0	0	0	2
E	0	0	7	0	0	0	7
ESE	0	0	0	1	0	0	1
SE	0	1	0	0	0	0	1
SSE	0	1	2	0	0	0	3
S	0	3	2	2	0	0	7
SSW	0	3	9	1	0	0	13
SW	0	7	7	1	0	0	15
WSW	0	4	4	5	0	0	13
W	0	3	3	6	2	0	14
WNW	2	4	7	6	2	2	23
NW	0	1	8	0	2	0	11
NNW	1	0	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	4	34	54	25	6	2	125

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: 144

Table D-4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	6	14	9	1	0	32
NNE	5	13	4	1	0	0	23
NE	6	21	11	0	0	0	38
ENE	5	16	7	2	0	0	30
E	8	30	31	17	0	0	86
ESE	1	12	19	13	3	0	48
SE	2	5	7	0	0	0	14
SSE	4	9	7	0	0	0	20
S	2	8	10	4	2	0	26
SSW	4	10	17	10	0	0	41
SW	3	7	7	7	0	0	24
WSW	7	9	9	5	2	0	32
W	5	11	13	13	6	6	54
WNW	5	17	23	14	16	4	79
NW	3	4	25	13	5	0	50
NNW	0	12	22	19	0	0	53
Variable	0	0	0	0	0	0	0
Total	62	190	226	127	35	10	650

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: 144

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	8	6	25	3	0	0	42
NNE	8	11	9	0	0	0	28
NE	12	20	14	0	0	0	46
ENE	12	38	17	1	0	0	68
E	8	25	34	11	4	0	82
ESE	5	20	21	14	0	0	60
SE	3	6	14	3	0	0	26
SSE	4	8	23	2	0	0	37
S	4	15	25	9	0	0	53
SSW	2	12	15	9	0	0	38
SW	3	17	23	4	0	0	47
WSW	3	13	9	2	3	0	30
W	8	13	21	10	4	3	59
WNW	2	21	24	19	9	1	76
NW	4	9	16	4	0	0	33
NNW	3	14	19	10	3	0	49
Variable	0	0	0	0	0	0	0
Total	89	248	309	101	23	4	774

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: 144

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	2	0	0	0	0	6
NNE	2	0	0	1	0	0	3
NE	2	3	2	0	0	0	7
ENE	3	2	0	0	0	0	5
E	0	2	0	0	0	0	2
ESE	3	2	0	1	0	0	6
SE	5	0	0	0	0	0	5
SSE	3	3	0	0	0	0	6
S	1	7	1	0	0	0	9
SSW	1	10	10	4	0	0	25
SW	3	16	12	1	0	0	32
WSW	1	10	4	1	0	0	16
W	1	14	4	0	0	0	19
WNW	3	19	12	0	0	0	34
NW	3	12	10	0	0	0	25
NNW	3	6	2	0	0	0	11
Variable	1	0	0	0	0	0	1
Total	39	108	57	8	0	0	212

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: 144

Table D – 4 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, April - June, 2009

Limerick Tower 1

Period of Record: April - June 2009
Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	3	0	0	0	0	3
NNE	2	1	0	0	0	0	3
NE	1	2	0	0	0	0	3
ENE	0	3	0	0	0	0	3
E	5	1	2	0	0	0	8
ESE	1	1	0	0	0	0	2
SE	1	2	0	0	0	0	3
SSE	0	0	0	0	0	0	0
S	1	4	0	0	0	0	5
SSW	3	11	0	0	0	0	14
SW	2	6	4	0	0	0	12
WSW	5	6	0	0	0	0	11
W	4	14	1	0	0	0	19
WNW	4	22	12	2	0	0	40
NW	5	12	6	0	0	0	23
NNW	1	2	0	0	0	0	3
Variable	1	0	0	0	0	0	1
Total	36	90	25	2	0	0	153

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: 144

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	10	3	0	0	0	14
NNE	0	17	2	0	0	0	19
NE	1	23	1	0	0	0	25
ENE	2	14	3	0	0	0	19
E	3	3	0	0	0	0	6
ESE	3	2	2	0	0	0	7
SE	2	2	0	0	0	0	4
SSE	0	2	0	0	0	0	2
S	3	9	2	0	0	0	14
SSW	7	18	1	0	0	0	26
SW	6	19	1	0	0	0	26
WSW	8	15	2	0	0	0	25
W	7	37	2	0	0	0	46
WNW	3	25	5	0	0	0	33
NW	1	18	9	0	0	0	28
NNW	1	5	0	0	0	0	6
Variable	1	0	0	0	0	0	1
Total	49	219	33	0	0	0	301

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 9
Hours of missing stability measurements in all stability classes: 14

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Moderately Unstable - 171Ft-23Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	>24	Total
N	2	2	0	0	0	0	4
NNE	0	2	0	0	0	0	2
NE	1	7	4	0	0	0	12
ENE	0	4	0	0	0	0	4
E	0	2	0	0	0	0	2
ESE	0	1	0	0	0	0	1
SE	1	1	0	0	0	0	2
SSE	0	1	0	0	0	0	1
S	1	1	1	1	0	0	4
SSW	0	0	1	0	0	0	1
SW	2	2	0	0	0	0	4
WSW	5	0	1	0	0	0	6
W	6	2	1	0	0	0	9
WNW	1	14	5	0	0	0	20
NW	2	14	9	0	0	0	25
NNW	3	2	0	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	24	55	22	1	0	0	102

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 4
Hours of missing stability measurements in all stability classes: 14

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	3	0	0	0	0	5
NNE	1	7	0	0	0	0	8
NE	1	6	0	0	0	0	7
ENE	0	7	0	0	0	0	7
E	1	1	2	0	0	0	4
ESE	1	0	0	0	0	0	1
SE	2	0	0	0	0	0	2
SSE	4	1	0	0	0	0	5
S	1	2	0	0	0	0	3
SSW	0	5	1	0	0	0	6
SW	3	5	0	0	0	0	8
WSW	4	8	0	0	0	0	12
W	7	3	0	0	0	0	10
WNW	3	7	1	0	0	0	11
NW	2	14	17	0	0	0	33
NNW	1	0	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	33	69	22	0	0	0	124

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 6
Hours of missing stability measurements in all stability classes: 14

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July – September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	13	18	2	0	0	0	33
NNE	12	19	12	2	0	0	45
NE	10	17	1	0	0	0	28
ENE	7	36	3	0	0	0	46
E	8	24	4	0	0	0	36
ESE	2	7	0	0	0	0	9
SE	2	0	0	0	0	0	2
SSE	7	2	0	0	0	0	9
S	7	5	3	0	0	0	15
SSW	4	13	1	0	0	0	18
SW	13	7	0	0	0	0	20
WSW	16	7	0	0	0	0	23
W	11	12	3	0	0	0	26
WNW	12	19	5	0	0	0	36
NW	18	35	18	1	0	0	72
NNW	18	6	0	0	0	0	24
Variable	0	0	0	0	0	0	0
Total	160	227	52	3	0	0	442

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 11
Hours of missing stability measurements in all stability classes: 14

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	21	6	0	0	0	0	27
NNE	26	19	1	0	0	0	46
NE	33	10	2	0	0	0	45
ENE	24	14	2	0	0	0	40
E	15	16	4	0	0	0	35
ESE	7	5	0	0	0	0	12
SE	7	3	0	0	0	0	10
SSE	9	19	0	0	0	0	28
S	9	29	0	0	0	0	38
SSW	17	13	0	0	0	0	30
SW	18	2	0	0	0	0	20
WSW	30	6	1	0	0	0	37
W	46	24	1	0	0	0	71
WNW	60	37	0	0	0	0	97
NW	34	18	5	0	0	0	57
NNW	34	8	1	0	0	0	43
Variable	2	0	0	0	0	0	2
Total	392	229	17	0	0	0	638

Hours of calm in this stability class: 9
Hours of missing wind measurements in this stability class: 33
Hours of missing stability measurements in all stability classes: 14

Table D – 5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	8	1	0	0	0	0	9
NNE	6	1	0	0	0	0	7
NE	6	0	0	0	0	0	6
ENE	7	1	0	0	0	0	8
E	3	0	0	0	0	0	3
ESE	4	1	0	0	0	0	5
SE	3	0	0	0	0	0	3
SSE	3	0	0	0	0	0	3
S	4	4	0	0	0	0	8
SSW	9	2	0	0	0	0	11
SW	14	0	0	0	0	0	14
WSW	20	0	0	0	0	0	20
W	44	2	0	0	0	0	46
WNW	63	3	0	0	0	0	66
NW	43	3	0	0	0	0	46
NNW	20	1	0	0	0	0	21
Variable	5	0	0	0	0	0	5
Total	262	19	0	0	0	0	281

Hours of calm in this stability class: 14
Hours of missing wind measurements in this stability class: 25
Hours of missing stability measurements in all stability classes: 14

Table D-5 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	16	0	0	0	0	0	16
NNE	4	0	0	0	0	0	4
NE	4	0	0	0	0	0	4
ENE	5	0	0	0	0	0	5
E	1	0	0	0	0	0	1
ESE	2	0	0	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	1	0	0	0	0	0	1
S	1	0	0	0	0	0	1
SSW	4	0	0	0	0	0	4
SW	8	0	0	0	0	0	8
WSW	4	0	0	0	0	0	4
W	16	1	0	0	0	0	17
WNW	33	1	0	0	0	0	34
NW	29	0	0	0	0	0	29
NNW	34	0	0	0	0	0	34
Variable	4	0	0	0	0	0	4
Total	166	2	0	0	0	0	168

Hours of calm in this stability class: 24
Hours of missing wind measurements in this stability class: 3
Hours of missing stability measurements in all stability classes: 14

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	5	5	0	0	0	10
NNE	0	10	12	0	0	0	22
NE	1	19	7	0	0	0	27
ENE	1	9	7	0	0	0	17
E	0	3	6	0	0	0	9
ESE	0	1	1	0	0	0	2
SE	2	1	0	3	0	0	6
SSE	2	3	1	0	0	0	6
S	3	3	2	1	2	0	11
SSW	1	6	16	1	0	0	24
SW	3	8	8	1	0	0	20
WSW	0	11	9	2	3	0	25
W	2	15	29	12	0	0	58
WNW	3	10	12	1	0	0	26
NW	1	4	12	0	0	0	17
NNW	1	1	2	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	20	109	129	21	5	0	284

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 26
Hours of missing stability measurements in all stability classes: 14

Table D-6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	0	0	0	0	1
NNE	0	3	0	0	0	0	3
NE	0	4	3	0	0	0	7
ENE	0	6	3	0	0	0	9
E	1	1	1	0	0	0	3
ESE	0	0	0	0	0	0	0
SE	0	1	1	0	0	0	2
SSE	0	0	0	0	0	0	0
S	0	3	0	2	0	0	5
SSW	0	0	1	1	1	0	3
SW	0	0	3	0	0	0	3
WSW	0	3	1	0	1	0	5
W	1	4	5	4	1	0	15
WNW	4	7	8	2	0	0	21
NW	2	7	12	0	0	0	21
NNW	1	2	2	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	9	42	40	9	3	0	103

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: 14

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	3	0	0	0	0	3
NNE	1	5	1	0	0	0	7
NE	0	5	5	0	0	0	10
ENE	0	5	0	0	0	0	5
E	1	3	2	0	0	0	6
ESE	1	0	0	1	0	0	2
SE	3	0	0	0	0	0	3
SSE	0	2	0	0	0	0	2
S	0	4	0	0	0	0	4
SSW	2	3	4	2	0	0	11
SW	0	1	5	0	0	0	6
WSW	2	5	6	0	0	0	13
W	3	3	4	1	0	0	11
WNW	2	3	9	4	0	0	18
NW	0	6	14	2	0	0	22
NNW	0	1	1	1	0	0	3
Variable	0	0	0	0	0	0	0
Total	15	49	51	11	0	0	126

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 4
Hours of missing stability measurements in all stability classes: 14

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	8	9	6	0	0	0	23
NNE	5	12	14	9	0	0	40
NE	7	18	6	5	2	0	38
ENE	7	26	17	0	0	0	50
E	5	11	21	1	0	0	38
ESE	1	5	9	3	0	0	18
SE	4	1	4	0	0	0	9
SSE	0	4	1	0	0	0	5
S	1	6	5	0	0	0	12
SSW	6	5	10	6	1	0	28
SW	2	15	2	0	0	0	19
WSW	5	5	7	2	1	0	20
W	11	9	7	6	1	0	34
WNW	6	13	16	10	0	0	45
NW	3	11	20	7	0	0	41
NNW	8	11	1	0	0	0	20
Variable	0	0	0	0	0	0	0
Total	79	161	146	49	5	0	440

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 13
Hours of missing stability measurements in all stability classes: 14

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	14	17	9	1	0	0	41
NNE	10	18	9	4	0	0	41
NE	12	18	15	2	0	0	47
ENE	8	18	9	0	0	0	35
E	6	13	17	4	0	0	40
ESE	5	3	8	2	0	0	18
SE	8	5	6	0	0	0	19
SSE	4	14	6	0	0	0	24
S	1	18	40	3	0	0	62
SSW	2	11	19	2	0	0	34
SW	0	15	10	0	0	0	25
WSW	3	12	14	0	0	0	29
W	6	11	36	6	0	0	59
WNW	5	46	45	4	0	0	100
NW	8	30	22	0	0	0	60
NNW	5	16	4	0	0	0	25
Variable	0	0	0	0	0	0	0
Total	97	265	269	28	0	0	659

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 20
Hours of missing stability measurements in all stability classes: 14

Table D-6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	5	3	0	0	0	10
NNE	0	2	0	0	0	0	2
NE	2	3	0	0	0	0	5
ENE	5	4	0	0	0	0	9
E	0	2	1	0	0	0	3
ESE	2	1	0	0	0	0	3
SE	3	1	0	0	0	0	4
SSE	2	2	2	0	0	0	6
S	1	3	5	0	0	0	9
SSW	4	2	4	1	0	0	11
SW	4	13	3	0	0	0	20
WSW	2	15	4	1	0	0	22
W	4	21	3	0	0	0	28
WNW	7	52	30	0	0	0	89
NW	11	29	3	0	0	0	43
NNW	10	13	4	0	0	0	27
Variable	0	0	0	0	0	0	0
Total	59	168	62	2	0	0	291

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 28
Hours of missing stability measurements in all stability classes: 14

Table D – 6 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, July - September, 2009

Limerick Tower 1

Period of Record: July - September 2009
Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	3	3	1	0	0	0	7
NNE	0	2	0	0	0	0	2
NE	2	3	1	0	0	0	6
ENE	1	3	0	0	0	0	4
E	4	0	0	0	0	0	4
ESE	3	0	2	0	0	0	5
SE	2	1	0	0	0	0	3
SSE	0	0	0	0	0	0	0
S	0	3	0	0	0	0	3
SSW	2	4	2	0	0	0	8
SW	3	4	2	0	0	0	9
WSW	3	8	1	0	0	0	12
W	6	14	1	0	0	0	21
WNW	10	24	11	0	0	0	45
NW	6	24	7	0	0	0	37
NNW	1	9	1	0	0	0	11
Variable	0	0	0	0	0	0	0
Total	46	102	29	0	0	0	177

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 18
Hours of missing stability measurements in all stability classes: 14

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	0	0	0	0	0	1
NNE	2	2	0	0	0	0	4
NE	1	1	0	0	0	0	2
ENE	3	2	1	0	0	0	6
E	2	4	1	1	0	0	8
ESE	0	0	2	0	0	0	2
SE	2	1	0	0	0	0	3
SSE	1	1	0	0	0	0	2
S	0	6	0	0	0	0	6
SSW	1	8	1	0	0	0	10
SW	1	1	0	0	0	0	2
WSW	5	4	0	0	0	0	9
W	6	9	3	2	0	0	20
WNW	3	15	10	2	0	0	30
NW	2	4	10	3	0	0	19
NNW	1	1	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	31	59	28	8	0	0	126

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 4
Hours of missing stability measurements in all stability classes: 11

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Moderately Unstable - 171Ft-26Ft Dolta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	1	1	0	0	2
NNE	0	1	0	0	0	0	1
NE	0	2	0	0	0	0	2
ENE	1	0	0	0	0	0	1
E	0	1	1	1	0	0	3
ESE	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
S	0	3	0	0	0	0	3
SSW	1	3	0	0	0	0	4
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	3	3	4	0	0	10
WNW	0	6	11	7	0	0	24
NW	2	3	5	2	3	0	15
NNW	1	1	2	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	5	24	23	15	3	0	70

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: 11

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	3	1	1	0	0	7
NNE	1	1	0	0	0	0	2
NE	4	2	0	0	0	0	6
ENE	1	5	5	0	0	0	11
E	2	3	1	0	0	0	6
ESE	1	2	0	0	0	0	3
SE	0	0	0	0	0	0	0
SSE	1	0	0	0	0	0	1
S	1	2	2	0	0	0	5
SSW	0	2	0	0	0	0	2
SW	1	0	0	0	0	0	1
WSW	1	1	1	0	0	0	3
W	3	10	4	0	0	0	17
WNW	1	7	9	2	0	0	19
NW	1	3	10	9	1	0	24
NNW	0	4	1	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	20	45	34	12	1	0	112

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: 11

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	35	6	0	0	0	48
NNE	13	52	33	0	0	0	98
NE	12	39	29	2	0	0	82
ENE	18	46	17	1	0	0	82
E	6	16	33	3	0	0	58
ESE	9	4	2	0	0	0	15
SE	4	6	0	0	0	0	10
SSE	7	17	1	0	0	0	25
S	4	13	6	0	0	0	23
SSW	6	9	5	0	0	0	20
SW	4	7	0	0	0	0	11
WSW	10	3	4	0	0	0	17
W	16	28	23	5	0	0	72
WNW	16	39	48	21	0	0	124
NW	9	21	63	27	3	0	123
NNW	13	21	11	1	0	0	46
Variable	0	0	0	0	0	0	0
Total	154	356	281	60	3	0	854

Hours of calm in this stability class: 6
Hours of missing wind measurements in this stability class: 13
Hours of missing stability measurements in all stability classes: 11

Table D-7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	13	14	0	0	0	0	27
NNE	11	9	4	0	0	0	24
NE	11	15	3	0	0	0	29
ENE	15	15	5	0	0	0	35
E	8	6	5	0	0	0	19
ESE	8	6	5	1	0	0	20
SE	5	8	2	0	0	0	15
SSE	2	17	4	0	0	0	23
S	4	18	1	0	0	0	23
SSW	11	8	1	0	0	0	20
SW	12	7	0	1	0	0	20
WSW	22	10	2	0	0	0	34
W	38	34	10	0	0	0	82
WNW	21	61	21	0	0	0	103
NW	16	22	15	0	0	0	53
NNW	13	12	1	0	0	0	26
Variable	2	0	0	0	0	0	2
Total	212	262	79	2	0	0	555

Hours of calm in this stability class: 8
Hours of missing wind measurements in this stability class: 17
Hours of missing stability measurements in all stability classes: 11

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	8	0	0	0	0	0	8
NNE	6	3	0	0	0	0	9
NE	6	1	0	0	0	0	7
ENE	4	4	0	0	0	0	8
E	4	4	0	0	0	0	8
ESE	3	0	0	0	0	0	3
SE	2	1	0	0	0	0	3
SSE	3	0	0	0	0	0	3
S	8	1	0	0	0	0	9
SSW	10	2	0	0	0	0	12
SW	6	1	0	0	0	0	7
WSW	17	0	0	0	0	0	17
W	35	2	0	0	0	0	37
WNW	23	12	0	0	0	0	35
NW	17	3	0	0	0	0	20
NNW	7	0	0	0	0	0	7
Variable	1	0	0	0	0	0	1
Total	160	34	0	0	0	0	194

Hours of calm in this stability class: 5
Hours of missing wind measurements in this stability class: 4
Hours of missing stability measurements in all stability classes: 11

Table D – 7 Wind Speed by Direction Measured at 30 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 30 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	11	0	0	0	0	0	11
NNE	9	0	0	0	0	0	9
NE	8	0	0	0	0	0	8
ENE	2	0	0	0	0	0	2
E	3	1	0	0	0	0	4
ESE	2	0	0	0	0	0	2
SE	0	0	0	0	0	0	0
SSE	1	0	0	0	0	0	1
S	1	0	0	0	0	0	1
SSW	2	0	0	0	0	0	2
SW	5	0	0	0	0	0	5
WSW	12	0	0	0	0	0	12
W	39	1	0	0	0	0	40
WNW	46	0	0	0	0	0	46
NW	21	1	0	0	0	0	22
NNW	17	0	0	0	0	0	17
Variable	2	0	0	0	0	0	2
Total	181	3	0	0	0	0	184

Hours of calm in this stability class: 31
Hours of missing wind measurements in this stability class: 12
Hours of missing stability measurements in all stability classes: 11

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Extremely Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	0	0	0	0	0	1
NNE	1	2	0	0	0	0	3
NE	3	2	1	0	0	0	6
ENE	1	1	1	0	0	0	3
E	1	3	2	0	1	0	7
ESE	0	1	0	0	0	0	1
SE	2	0	0	2	0	0	4
SSE	0	3	0	0	0	0	3
S	0	3	4	0	0	0	7
SSW	0	2	7	1	0	0	10
SW	0	1	1	0	0	0	2
WSW	1	7	3	0	0	0	11
W	0	8	7	6	1	1	23
WNW	1	5	18	7	3	1	35
NW	1	0	6	3	0	1	11
NNW	0	0	1	2	0	0	3
Variable	0	0	0	0	0	0	0
Total	12	38	51	21	5	3	130

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: 11

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Moderately Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	1	1	0	0	3
NNE	1	1	0	0	0	0	2
NE	0	1	0	0	0	0	1
ENE	0	2	0	0	0	0	2
E	0	0	0	2	0	0	2
ESE	0	0	1	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	0	0	0	0	0	0
S	0	1	3	0	0	0	4
SSW	1	0	3	0	0	0	4
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	2	1	7	2	12
WNW	0	4	5	9	4	2	24
NW	1	0	3	3	0	4	11
NNW	0	1	2	2	0	0	5
Variable	0	0	0	0	0	0	0
Total	3	11	20	18	11	8	71

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: 11

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Slightly Unstable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	3	2	1	0	0	6
NNE	0	3	1	0	1	0	5
NE	1	3	0	0	0	0	4
ENE	3	5	2	0	0	0	10
E	0	2	5	0	0	0	7
ESE	2	2	0	0	0	0	4
SE	0	1	0	0	0	0	1
SSE	1	1	0	0	0	0	2
S	0	1	4	1	0	0	6
SSW	1	0	1	0	0	0	2
SW	0	1	0	0	0	0	1
WSW	0	1	1	0	1	0	3
W	0	2	7	2	1	1	13
WNW	0	4	8	11	4	1	28
NW	0	0	3	6	2	2	13
NNW	1	1	3	1	2	0	8
Variable	0	0	0	0	0	0	0
Total	9	30	37	22	11	4	113

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: 11

Table D-8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Neutral - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	5	14	23	7	0	0	49
NNE	5	25	39	14	0	0	83
NE	8	31	50	30	2	0	121
ENE	8	30	31	0	0	0	69
E	4	15	20	34	3	0	76
ESE	1	9	3	5	0	0	18
SE	6	5	2	2	0	0	15
SSE	1	7	14	0	0	0	22
S	0	4	15	10	1	0	30
SSW	1	6	10	5	3	0	25
SW	3	5	5	1	0	0	14
WSW	1	2	3	3	3	0	12
W	7	8	13	14	10	1	53
WNW	4	20	35	56	32	2	149
NW	3	10	22	50	13	5	103
NNW	4	6	14	8	2	0	34
Variable	0	0	0	0	0	0	0
Total	61	197	299	239	69	8	873

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: 11

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Slightly Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	10	15	3	0	0	32
NNE	9	12	15	3	0	0	39
NE	5	6	12	4	0	0	27
ENE	2	13	6	2	0	0	23
E	3	9	13	6	0	0	31
ESE	4	6	3	6	1	0	20
SE	2	4	4	4	0	0	14
SSE	2	6	8	6	0	0	22
S	1	8	16	11	0	0	36
SSW	2	9	7	3	0	0	21
SW	1	10	6	7	0	1	25
WSW	6	7	9	10	0	1	33
W	2	16	10	9	2	0	39
WNW	3	25	69	32	1	0	130
NW	4	11	41	15	0	0	71
NNW	3	6	7	1	0	0	17
Variable	0	0	0	0	0	0	0
Total	53	158	241	122	4	2	580

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: 11

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Moderately Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	1	0	0	0	2
NNE	1	4	3	0	0	0	8
NE	1	2	1	0	0	0	4
ENE	2	4	1	0	0	0	7
E	1	0	6	4	0	0	11
ESE	0	1	1	0	0	0	2
SE	4	0	0	0	0	0	4
SSE	1	0	0	0	0	0	1
S	1	3	3	0	0	0	7
SSW	0	5	5	1	0	0	11
SW	4	4	1	0	0	0	9
WSW	1	12	4	1	0	0	18
W	2	9	7	0	0	0	18
WNW	1	29	23	1	0	0	54
NW	6	10	8	2	0	0	26
NNW	7	7	3	0	0	0	17
Variable	0	0	0	0	0	0	0
Total	32	91	67	9	0	0	199

Hours of calm in this stability class: 4
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 11

Table D – 8 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, October - December, 2009

Limerick Tower 1

Period of Record: October - December2009
Stability Class - Extremely Stable - 171Ft-26Ft Delta-T (F)
Winds Measured at 175 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	5	8	3	0	0	0	16
NNE	5	3	1	0	0	0	9
NE	5	2	0	0	0	0	7
ENE	4	2	0	0	0	0	6
E	4	4	1	0	0	0	9
ESE	3	2	1	0	0	0	6
SE	1	1	0	0	0	0	2
SSE	2	2	1	0	0	0	5
S	2	1	0	0	0	0	3
SSW	3	2	0	0	0	0	5
SW	4	6	2	0	0	0	12
WSW	7	9	3	0	0	0	19
W	5	13	3	0	0	0	21
WNW	10	15	25	0	0	0	50
NW	7	23	8	0	0	0	38
NNW	5	8	2	0	0	0	15
Variable	0	0	0	0	0	0	0
Total	72	101	50	0	0	0	223

Hours of calm in this stability class: 4
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 11

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, 2009

Limerick Tower 1
30 ft. Wind Speed and Direction

January-December, 2009
171Ft-26Ft Delta-T (F)

Number of Observations = 8311
Values are Percent Occurrence

SPEED		WIND DIRECTION CLASSES																	STABILITY CLASSES							
CLASS		N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	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	0.01	0.01							
	MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
C	SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A	N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
L	SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13					0.13			
M	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23						0.23		
	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	0.25							0.25	
																										0.63
	EU	0.02	0.02	0.02	0.06	0.06	0.04	0.05	0.01	0.04	0.10	0.08	0.16	0.17	0.07	0.05	0.02	0.97	0.97							
	MU	0.02	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.01	0.01	0.05	0.06	0.11	0.02	0.06	0.06	0.45		0.45						
1	SU	0.06	0.05	0.07	0.01	0.04	0.02	0.02	0.06	0.05	0.02	0.08	0.10	0.16	0.08	0.05	0.01	0.89			0.89					
-	N	0.40	0.59	0.63	0.58	0.43	0.26	0.19	0.31	0.36	0.28	0.43	0.58	0.66	0.61	0.53	0.55	7.40				7.40				
3	SS	0.73	0.69	0.96	0.85	0.71	0.29	0.25	0.32	0.47	0.73	0.96	1.24	1.74	1.60	1.22	0.72	13.50					13.50			
	MS	0.31	0.22	0.25	0.35	0.19	0.20	0.17	0.17	0.26	0.45	0.45	0.69	1.40	1.55	1.02	0.47	8.15						8.15		
	ES	0.48	0.28	0.34	0.19	0.12	0.10	0.06	0.05	0.06	0.10	0.24	0.30	0.99	1.41	1.08	0.84	6.63							6.63	
																										37.99
	EU	0.13	0.24	0.29	0.22	0.08	0.02	0.04	0.04	0.31	0.57	0.43	0.34	0.75	0.61	0.30	0.07	4.44	4.44							
	MU	0.04	0.07	0.12	0.07	0.04	0.02	0.01	0.05	0.10	0.26	0.08	0.06	0.14	0.42	0.30	0.10	1.89		1.89						
4	SU	0.23	0.14	0.13	0.14	0.10	0.05	0.04	0.10	0.19	0.32	0.20	0.23	0.28	0.24	0.39	0.08	2.86			2.86					
-	N	1.07	1.22	1.25	1.65	1.34	0.34	0.32	0.73	0.77	0.88	0.41	0.37	0.78	1.49	1.78	0.84	15.24				15.24				
7	SS	0.47	0.48	0.66	0.84	0.77	0.45	0.53	0.83	1.20	0.73	0.31	0.41	1.23	1.93	1.06	0.77	12.67					12.67			
	MS	0.04	0.06	0.04	0.06	0.07	0.04	0.02	0.06	0.17	0.14	0.04	0.00	0.11	0.29	0.13	0.01	1.28						1.28		
	ES	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.06	0.02	0.00	0.13							0.13	
																										38.52
	EU	0.07	0.02	0.01	0.05	0.01	0.05	0.00	0.01	0.06	0.13	0.02	0.12	0.14	0.37	0.36	0.02	1.47	1.47							
	MU	0.05	0.00	0.05	0.02	0.01	0.00	0.00	0.00	0.02	0.04	0.00	0.07	0.08	0.39	0.47	0.10	1.30		1.30						
8	SU	0.12	0.00	0.00	0.07	0.11	0.01	0.00	0.00	0.07	0.02	0.01	0.06	0.13	0.29	0.61	0.13	1.65			1.65					
-	N	0.42	0.55	0.40	0.40	1.03	0.22	0.01	0.06	0.26	0.19	0.02	0.07	0.65	1.91	2.86	1.01	10.08				10.08				
1	SS	0.06	0.06	0.07	0.16	0.41	0.16	0.07	0.17	0.13	0.05	0.07	0.14	0.34	0.57	0.53	0.16	3.14					3.14			
2	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																										17.64
	EU	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.11	0.05	0.00	0.20	0.20							
1	MU	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.06	0.12	0.22	0.00	0.45		0.45						
3	SU	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.12	0.39	0.05	0.60			0.60					
-	N	0.02	0.02	0.02	0.01	0.08	0.04	0.00	0.00	0.04	0.00	0.00	0.00	0.25	0.72	1.31	0.20	2.73				2.73				
1	SS	0.00	0.00	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.10	0.02	0.04	0.29					0.29			
8	MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
	ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																										4.27

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, 2009

Limerick Tower 1 — 30 ft. Wind Speed and Direction — January-December, 2009 — 171Ft-26Ft Delta-T (F)

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES							
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	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	0.01	0.00	0.00	0.01	0.01							
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	0.01	0.07	0.00	0.08		0.08						
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	0.02	0.04	0.01	0.00	0.07			0.07					
- 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	0.01	0.06	0.10	0.00	0.17				0.17				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.34
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
G MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
T SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									0.00
TOT	4.78	4.72	5.33	5.75	5.72	2.31	1.80	2.97	4.62	5.03	3.92	5.01	10.32	15.21	14.99	6.27	99.37	7.11	4.16	6.08	35.63	29.73	9.65	7.01	99.37

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.23	0.29	0.32	0.32	0.17	0.11	0.08	0.06	0.41	0.79	0.54	0.61	1.09	1.18	0.76	0.12	7.11	Extremely Unstable
0.12	0.07	0.18	0.11	0.06	0.02	0.02	0.05	0.16	0.31	0.13	0.19	0.40	0.96	1.12	0.25	4.16	Moderately Unstable
0.42	0.19	0.20	0.23	0.24	0.08	0.06	0.16	0.32	0.37	0.30	0.39	0.61	0.77	1.44	0.28	6.08	Slightly Unstable
1.91	2.38	2.30	2.64	2.89	0.85	0.53	1.11	1.43	1.35	0.87	1.02	2.36	4.80	6.58	2.61	35.63	Neutral
1.26	1.23	1.70	1.85	1.96	0.90	0.85	1.32	1.80	1.52	1.36	1.79	3.34	4.19	2.83	1.68	29.73	Slightly Stable
0.35	0.28	0.29	0.41	0.26	0.24	0.19	0.23	0.43	0.59	0.48	0.69	1.50	1.84	1.16	0.48	9.65	Moderately Stable
0.48	0.28	0.34	0.19	0.13	0.10	0.06	0.05	0.06	0.10	0.24	0.31	1.01	1.47	1.11	0.84	7.01	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	0.63	C A L M
2.03	1.84	2.29	2.06	1.55	0.91	0.76	0.93	1.25	1.68	2.30	3.12	5.22	5.35	4.01	2.68	37.99	< 3.5 mph
1.97	2.21	2.49	2.98	2.41	0.91	0.96	1.80	2.74	2.91	1.48	1.42	3.31	5.04	3.98	1.88	38.52	3.6 - 7.5 mph
0.72	0.64	0.53	0.70	1.58	0.43	0.08	0.24	0.55	0.43	0.13	0.47	1.35	3.53	4.84	1.42	17.64	7.6 - 12.5 mph
0.05	0.02	0.02	0.01	0.18	0.05	0.00	0.00	0.07	0.00	0.01	0.00	0.41	1.17	1.99	0.29	4.27	12.6 - 18.5 mph
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.12	0.18	0.00	0.34	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 – 10 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January - December, 2009

Limerick Tower 1
175 ft. Wind Speed and Direction

January-December, 2009
171Ft-26Ft Delta-T (F)

Number of Observations = 8437
Values are Percent Occurrence

SPEED CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	WIND DIRECTION CLASSES																	STABILITY CLASSES							
EU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							
MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00						
C SU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			0.00					
A N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				0.00				
L SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00			
M MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01						0.01		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04							0.04	
																									0.05
EU	0.02	0.01	0.05	0.02	0.01	0.00	0.05	0.02	0.04	0.01	0.04	0.01	0.02	0.05	0.02	0.01	0.39	0.39							
MU	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.05	0.04	0.01	0.17		0.17						
1 SU	0.01	0.01	0.01	0.05	0.01	0.04	0.04	0.01	0.00	0.04	0.00	0.04	0.04	0.07	0.00	0.04	0.39			0.39					
- N	0.25	0.25	0.40	0.34	0.28	0.11	0.20	0.11	0.07	0.20	0.09	0.18	0.33	0.24	0.17	0.19	3.41				3.41				
3 SS	0.32	0.37	0.39	0.31	0.27	0.20	0.20	0.15	0.09	0.08	0.06	0.14	0.25	0.17	0.25	0.14	3.40					3.40			
MS	0.07	0.05	0.06	0.13	0.02	0.09	0.14	0.09	0.07	0.08	0.15	0.07	0.09	0.14	0.30	0.24	1.81						1.81		
ES	0.12	0.09	0.12	0.13	0.20	0.12	0.07	0.07	0.06	0.12	0.12	0.20	0.19	0.30	0.27	0.12	2.30							2.30	
																									11.88
EU	0.06	0.14	0.25	0.12	0.08	0.02	0.01	0.07	0.08	0.18	0.15	0.25	0.34	0.25	0.05	0.02	2.09	2.09							
MU	0.05	0.08	0.06	0.09	0.02	0.00	0.01	0.00	0.06	0.13	0.05	0.05	0.17	0.20	0.09	0.08	1.16		1.16						
4 SU	0.12	0.20	0.09	0.12	0.07	0.04	0.05	0.06	0.17	0.12	0.12	0.12	0.13	0.13	0.11	0.05	1.68			1.68					
- N	0.56	0.73	1.08	1.10	0.81	0.39	0.20	0.32	0.38	0.41	0.46	0.26	0.51	0.79	0.52	0.46	9.00				9.00				
7 SS	0.43	0.52	0.57	0.89	0.58	0.40	0.20	0.40	0.58	0.62	0.69	0.58	0.72	1.47	0.77	0.55	9.97					9.97			
MS	0.12	0.09	0.11	0.12	0.11	0.07	0.08	0.13	0.23	0.27	0.45	0.52	0.58	1.26	0.69	0.37	5.19						5.19		
ES	0.18	0.07	0.08	0.13	0.06	0.07	0.06	0.06	0.13	0.28	0.27	0.34	0.51	0.85	0.72	0.26	4.09							4.09	
																									33.18
EU	0.09	0.15	0.09	0.11	0.09	0.01	0.00	0.01	0.17	0.49	0.25	0.24	0.55	0.47	0.23	0.07	3.02	3.02							
MU	0.06	0.02	0.04	0.07	0.01	0.01	0.02	0.00	0.07	0.18	0.07	0.04	0.14	0.36	0.25	0.07	1.41		1.41						
8 SU	0.19	0.04	0.08	0.04	0.18	0.01	0.00	0.02	0.13	0.23	0.19	0.15	0.19	0.37	0.38	0.08	2.24			2.24					
- N	0.79	0.81	0.94	0.87	1.16	0.45	0.21	0.52	0.73	0.66	0.23	0.27	0.51	1.53	1.27	0.97	11.92				11.92				
1 SS	0.65	0.40	0.50	0.44	0.82	0.40	0.33	0.68	1.27	0.77	0.63	0.43	1.03	2.25	1.24	0.62	12.46					12.46			
2 MS	0.09	0.04	0.04	0.01	0.08	0.01	0.00	0.04	0.12	0.25	0.24	0.18	0.19	0.91	0.27	0.11	2.57						2.57		
ES	0.05	0.01	0.01	0.00	0.04	0.04	0.00	0.01	0.00	0.02	0.14	0.11	0.07	0.57	0.25	0.04	1.35							1.35	
																									34.98
EU	0.01	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.02	0.12	0.06	0.18	0.26	0.24	0.08	0.02	1.05	1.05							
1 MU	0.05	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.02	0.00	0.06	0.14	0.31	0.18	0.06	0.87		0.87						
3 SU	0.06	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.04	0.05	0.01	0.08	0.12	0.43	0.21	0.09	1.11			1.11					
- N	0.43	0.31	0.41	0.02	0.71	0.28	0.04	0.05	0.23	0.31	0.09	0.14	0.58	2.04	1.55	0.59	7.79				7.79				
1 SS	0.09	0.08	0.07	0.04	0.25	0.26	0.11	0.14	0.37	0.24	0.18	0.21	0.37	0.77	0.27	0.14	3.59					3.59			
8 MS	0.00	0.01	0.00	0.00	0.05	0.01	0.00	0.01	0.00	0.07	0.01	0.04	0.02	0.02	0.02	0.00	0.27						0.27		
ES	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	0.02	0.00	0.00	0.04							0.04	
																									14.72

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

Table D – 10 Wind Speed by Direction Measured at 175 Feet for Various Stability Classes for the Limerick Generating Station, January - December, 2009

Limerick Tower 1
175 ft. Wind Speed and Direction

January-December, 2009
171Ft-26Ft Delta-T (F)

SPEED CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES	TOTAL
	WIND DIRECTION CLASSES																	STABILITY CLASSES							
EU	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.00	0.04	0.04	0.06	0.00	0.00	0.17	0.17							
1 MU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.01	0.11	0.12	0.08	0.00	0.36		0.36						
9 SU	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.08	0.11	0.13	0.06	0.41			0.41					
- N	0.04	0.00	0.05	0.00	0.04	0.04	0.00	0.00	0.05	0.09	0.00	0.07	0.38	1.16	0.57	0.13	2.61				2.61				
2 SS	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.01	0.01	0.07	0.11	0.17	0.00	0.04	0.46					0.46			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									4.01
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	0.02	0.09	0.01	0.00	0.13	0.13							
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	0.05	0.06	0.06	0.00	0.17		0.17						
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	0.07	0.08	0.02	0.00	0.18			0.18					
N	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.19	0.26	0.12	0.00	0.58				0.58				
2 SS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.04	0.02	0.00	0.00	0.09					0.09			
4 MS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						0.00		
ES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00							0.00	
																									1.15
TOT	4.91	4.53	5.50	5.14	6.06	3.12	2.09	2.99	5.20	6.10	4.79	5.14	9.16	18.38	11.17	5.63	99.95	6.85	4.12	6.02	35.31	29.98	9.86	7.81	99.95

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
0.19	0.31	0.39	0.25	0.20	0.04	0.12	0.11	0.33	0.79	0.50	0.71	1.23	1.16	0.39	0.13	6.85	Extremely Unstable
0.15	0.12	0.09	0.17	0.07	0.01	0.04	0.00	0.15	0.38	0.12	0.18	0.63	1.09	0.70	0.23	4.12	Moderately Unstable
0.38	0.26	0.19	0.20	0.26	0.11	0.08	0.09	0.34	0.43	0.32	0.40	0.63	1.19	0.82	0.32	6.02	Slightly Unstable
2.06	2.10	2.88	2.33	3.00	1.27	0.65	1.00	1.46	1.68	0.88	0.94	2.50	6.02	4.20	2.35	35.31	Neutral
1.49	1.37	1.53	1.67	1.97	1.28	0.84	1.37	2.31	1.72	1.58	1.46	2.51	4.85	2.54	1.48	29.98	Slightly Stable
0.28	0.19	0.20	0.26	0.26	0.19	0.23	0.27	0.41	0.68	0.85	0.81	0.89	2.33	1.28	0.71	9.86	Moderately Stable
0.34	0.18	0.21	0.26	0.30	0.23	0.13	0.14	0.19	0.43	0.55	0.65	0.77	1.74	1.24	0.41	7.81	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	0.05	C A L M
0.79	0.79	1.03	0.98	0.82	0.56	0.70	0.46	0.33	0.55	0.46	0.65	0.95	1.01	1.04	0.75	11.88	< 3.5 mph
1.51	1.85	2.24	2.57	1.73	1.00	0.62	1.04	1.62	2.01	2.19	2.13	2.96	4.95	2.95	1.79	33.18	3.6 - 7.5 mph
1.93	1.47	1.69	1.53	2.38	0.94	0.57	1.28	2.49	2.60	1.74	1.41	2.68	6.46	3.85	1.96	34.98	7.6 - 12.5 mph
0.64	0.40	0.49	0.06	1.03	0.58	0.20	0.20	0.68	0.81	0.37	0.71	1.49	3.83	2.32	0.91	14.72	12.6 - 18.5 mph
0.04	0.01	0.05	0.00	0.09	0.05	0.00	0.00	0.08	0.14	0.01	0.20	0.71	1.61	0.78	0.23	4.01	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	0.01	0.04	0.37	0.52	0.21	0.00	1.15	> 24.5 mph

Table D – 11 Annual x/Q and D/Q values for the North Stack, Limerick Generating Station, 2009

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	1.86E-07	1.77E-09
N	Site Boundary	SSW	762	1.94E-07	1.75E-09
N	Site Boundary	SW	884	1.80E-07	1.51E-09
N	Site Boundary	WSW	854	2.12E-07	1.81E-09
N	Site Boundary	W	854	2.90E-07	2.95E-09
N	Site Boundary	WNW	793	1.03E-07	8.99E-10
N	Site Boundary	NW	762	7.11E-08	4.51E-10
N	Site Boundary	NNW	884	1.05E-07	7.59E-10
N	Site Boundary	N	884	1.76E-07	1.64E-09
N	Site Boundary	NNE	793	1.94E-07	2.00E-09
N	Site Boundary	NE	793	1.12E-07	1.12E-09
N	Site Boundary	ENE	793	1.36E-07	1.49E-09
N	Site Boundary	E	762	4.09E-07	4.48E-09
N	Site Boundary	ESE	762	8.02E-07	9.70E-09
N	Site Boundary	SE	762	9.04E-07	1.21E-08
N	Site Boundary	SSE	1006	1.91E-07	2.04E-09
N	RR-Inf-Lck-NG	S	300	7.98E-07	6.56E-09
N	RR-Inf-Lck-NG	SSW	225	1.40E-06	9.32E-09
N	RR-Inf-Lck-NG	SW	225	1.62E-06	9.92E-09
N	RR-Inf-Lck-NG	WSW	345	8.39E-07	6.13E-09
N	RR-Inf-Lck-NG	W	225	2.53E-06	2.09E-08
N	RR-Inf-Lck-NG	WNW	345	3.84E-07	3.10E-09
N	RR-Inf-Lck-NG	NW	450	1.62E-07	9.61E-10
N	RR-Inf-Lck-NG	ESE	884	6.55E-07	7.78E-09
N	RR-Inf-Lck-NG	WSW	450	5.27E-07	4.30E-09
N	RR-Inf-Lck-NG	NNE	682	2.37E-07	2.42E-09
N	Inhalation	N	948	1.61E-07	1.49E-09
N	Inhalation	NNE	825	1.84E-07	1.91E-09
N	Inhalation	NE	1057	7.87E-08	8.10E-10
N	Inhalation	ENE	985	1.03E-07	1.15E-09
N	Inhalation	E	873	3.42E-07	3.72E-09
N	Inhalation	ESE	1047	5.20E-07	6.08E-09
N	Inhalation	SE	1557	3.45E-07	4.23E-09
N	Inhalation	SSE	1647	1.03E-07	1.08E-09
N	Inhalation	S	1325	8.91E-08	9.09E-10
N	Inhalation	SSW	1543	7.90E-08	8.11E-10
N	Inhalation	SW	991	1.54E-07	1.31E-09

Table D – 11 Annual x/Q and D/Q values for the North Stack, Limerick Generating Station, 2009

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	WSW	1158	1.42E-07	1.28E-09
N	Inhalation	W	1105	2.04E-07	2.06E-09
N	Inhalation	WNW	1198	5.88E-08	5.17E-10
N	Inhalation	NW	1104	4.34E-08	2.85E-10
N	Inhalation	NNW	1540	5.25E-08	4.10E-10
N	Vegetation	N	2867	5.74E-08	3.55E-10
N	Vegetation	NNE	2929	5.78E-08	3.82E-10
N	Vegetation	NE	5416	3.68E-08	1.03E-10
N	Vegetation	ENE	4372	4.70E-08	1.78E-10
N	Vegetation	E	3849	9.85E-08	4.72E-10
N	Vegetation	ESE	555	1.27E-06	1.55E-08
N	Vegetation	SE	390	2.43E-06	3.31E-08
N	Vegetation	SSE	2102	8.24E-08	7.71E-10
N	Vegetation	S	1860	6.34E-08	6.28E-10
N	Vegetation	SSW	1622	7.51E-08	7.65E-10
N	Vegetation	SW	1572	8.75E-08	8.33E-10
N	Vegetation	WSW	2662	6.52E-08	3.54E-10
N	Vegetation	W	1283	1.67E-07	1.70E-09
N	Vegetation	WNW	1198	5.88E-08	5.17E-10
N	Vegetation	NW	2490	2.20E-08	1.23E-10
N	Vegetation	NNW	2666	3.70E-08	2.09E-10
N	Meat	N	7565	3.33E-08	8.45E-11
N	Meat	ENE	6264	4.33E-08	1.04E-10
N	Meat	SE	3331	1.67E-07	1.36E-09
N	Meat	S	3722	4.84E-08	2.67E-10
N	Meat	SSW	3145	5.27E-08	3.52E-10
N	Meat	SW	5653	5.16E-08	1.68E-10
N	Meat	WSW	4336	6.13E-08	2.83E-10
N	Meat	W	4467	6.14E-08	3.15E-10
N	Cow	N	7565	3.33E-08	8.45E-11
N	Cow	S	6781	3.77E-08	1.11E-10
N	Cow	SSW	3145	5.27E-08	3.52E-10
N	Cow	WSW	4336	6.13E-08	2.83E-10
N	Cow	W	4467	6.14E-08	3.15E-10

Table D-12 Annual x/Q and D/Q values for the Sout Stack, Limerick Generating Station, 2009

Limerick Generating Station
x/Q and D/Q values

South Stack - Flow = 177200 cfm

Stack ID	Location	Direction	Range (m)	X/Q (s/m^3) Undepleted	D/Q (1/m^2)
S	Site Boundary	S	762	6.22E-08	8.34E-10
S	Site Boundary	SSW	762	6.49E-08	8.61E-10
S	Site Boundary	SW	884	5.24E-08	7.29E-10
S	Site Boundary	WSW	854	6.89E-08	9.64E-10
S	Site Boundary	W	854	1.02E-07	1.23E-09
S	Site Boundary	WNW	793	3.36E-08	3.74E-10
S	Site Boundary	NW	762	2.28E-08	2.06E-10
S	Site Boundary	NNW	884	3.61E-08	3.98E-10
S	Site Boundary	N	884	6.76E-08	9.35E-10
S	Site Boundary	NNE	793	6.84E-08	1.25E-09
S	Site Boundary	NE	793	3.16E-08	7.37E-10
S	Site Boundary	ENE	793	3.94E-08	9.39E-10
S	Site Boundary	E	762	1.28E-07	2.35E-09
S	Site Boundary	ESE	762	2.65E-07	4.61E-09
S	Site Boundary	SE	762	3.39E-07	5.53E-09
S	Site Boundary	SSE	1006	6.70E-08	9.29E-10
S	RR-Inf-Lck-NG	S	300	2.55E-07	2.46E-09
S	RR-Inf-Lck-NG	SSW	225	4.39E-07	3.49E-09
S	RR-Inf-Lck-NG	SW	225	4.38E-07	3.34E-09
S	RR-Inf-Lck-NG	WSW	345	2.51E-07	2.49E-09
S	RR-Inf-Lck-NG	W	225	8.70E-07	7.37E-09
S	RR-Inf-Lck-NG	WNW	345	1.24E-07	1.16E-09
S	RR-Inf-Lck-NG	NW	450	5.15E-08	3.96E-10
S	RR-Inf-Lck-NG	ESE	884	2.24E-07	3.85E-09
S	RR-Inf-Lck-NG	WSW	450	1.59E-07	1.88E-09
S	RR-Inf-Lck-NG	NNE	682	8.09E-08	1.44E-09
S	Inhalation	N	948	6.24E-08	8.70E-10
S	Inhalation	NNE	825	6.55E-08	1.21E-09
S	Inhalation	NE	1057	2.59E-08	5.82E-10
S	Inhalation	ENE	985	3.29E-08	7.77E-10
S	Inhalation	E	873	1.11E-07	2.03E-09
S	Inhalation	ESE	1047	1.87E-07	3.16E-09
S	Inhalation	SE	1557	1.61E-07	2.56E-09
S	Inhalation	SSE	1647	4.46E-08	6.55E-10
S	Inhalation	S	1325	3.42E-08	5.73E-10
S	Inhalation	SSW	1543	3.24E-08	5.75E-10
S	Inhalation	SW	991	4.58E-08	6.74E-10
S	Inhalation	WSW	1158	4.93E-08	7.87E-10
S	Inhalation	W	1105	7.45E-08	9.60E-10
S	Inhalation	WNW	1198	2.03E-08	2.62E-10
S	Inhalation	NW	1104	1.44E-08	1.54E-10

Table D – 12 Annual x/Q and D/Q values for the Sout Stack, Limerick Generating Station, 2009

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	2.09E-08	2.76E-10
S	Vegetation	N	2867	3.80E-08	2.82E-10
S	Vegetation	NNE	2929	3.89E-08	3.20E-10
S	Vegetation	NE	5416	3.12E-08	9.40E-11
S	Vegetation	ENE	4372	3.78E-08	1.58E-10
S	Vegetation	E	3849	7.31E-08	3.82E-10
S	Vegetation	ESE	555	3.96E-07	6.83E-09
S	Vegetation	SE	390	8.80E-07	1.38E-08
S	Vegetation	SSE	2102	4.29E-08	5.17E-10
S	Vegetation	S	1860	3.03E-08	4.61E-10
S	Vegetation	SSW	1622	3.18E-08	5.52E-10
S	Vegetation	SW	1572	3.19E-08	5.72E-10
S	Vegetation	WSW	3662	4.78E-08	3.09E-10
S	Vegetation	W	1283	6.38E-08	8.70E-10
S	Vegetation	WNW	1198	2.03E-08	2.62E-10
S	Vegetation	NW	2490	1.24E-08	9.37E-11
S	Vegetation	NNW	2666	2.25E-08	1.62E-10
S	Meat	N	7565	2.95E-08	7.46E-11
S	Meat	ENE	6264	3.76E-08	9.42E-11
S	Meat	SE	3331	1.20E-07	1.05E-09
S	Meat	S	3722	3.67E-08	2.32E-10
S	Meat	SSW	3145	3.62E-08	3.00E-10
S	Meat	SW	5653	4.34E-08	1.52E-10
S	Meat	WSW	4336	4.80E-08	2.52E-10
S	Meat	W	4467	4.81E-08	2.56E-10
S	Cow	N	7565	2.95E-08	7.46E-11
S	Cow	S	6781	3.32E-08	1.02E-10
S	Cow	SSW	3145	3.62E-08	3.00E-10
S	Cow	WSW	4336	4.80E-08	2.52E-10
S	Cow	W	4467	4.81E-08	2.56E-10

PROCESS CONTROL PROGRAM FOR RADIOACTIVE WASTES

1. PURPOSE

1.1. The purpose of the Process Control Program (PCP) is to:

1.1.1. Establish the process and boundary conditions for the preparation of specific procedures for processing, sampling, analysis, packaging, storage, and shipment of solid radwaste in accordance with local, state, and federal requirements. **(CM-1)**

1.1.2. Establish parameters which will provide reasonable assurance that all Low Level Radioactive Wastes (LLRW), processed by the in-plant waste process systems on-site OR by on-site vendor supplied waste processing systems, meet the acceptance criteria to a Licensed Burial Facility, as required by 10CFR Part 20, 10CFR Part 61, 10CFR Part 71, 49CFR Parts 171-172, "Technical Position on Waste Form (Revision 1)" [1/91], "Low-Level Waste Licensing Branch Technical Position on Radioactive Waste Classification" [5/83], and the Station Technical Specifications, as applicable.

1.1.3. Provide reasonable assurance that waste placed in "on-site storage" meets the requirements as addressed within the Safety Analysis Reports for the low level radwaste storage facilities for dry and/or processed wet waste.

2. TERMS AND DEFINITIONS

2.1. **Process Control Program (PCP):** The program which contains the current formulas, sampling, analysis, tests, and determinations to be made to ensure that processing and packaging of solid radioactive waste based on demonstrated processing of actual or simulated wet solid wastes will be accomplished in such a way as to assure the waste meets the stabilization criteria specified in 10CFR Parts 20, 61 and 71, state regulations, and burial site requirements.

2.2. **Solidification:** Liquid waste processed to either an unstable or stable form per 10CFR61 requirements. Waste solidified does not have to meet the 300-year free standing monolith criteria. Approved formulas, samples and tests do not have to meet NRC approval for wastes solidified in a container meeting stability (e.g. High Integrity Container).

2.3. **Stabilization:** Liquid waste processed to a "stable state" per 10CFR61 Requirements. Established formulas, samples, and tests shall be approved by the NRC in order to meet solidification "stabilization" criteria. This processing method is currently not available, because the NRC recognizes that waste packed in a High Integrity Container meets the 300-year stabilization criteria. In the event that this processing method becomes an acceptable method, then the NRC shall approve the stabilization formulas, samples, tests, etc.

2.4. **Solidification Media:** An approved media (e.g. Barnwell - vinyl ester styrene, cement, bitumen) when waste containing greater than 5-year half lives is solidified in a container when the activity is greater than 1 micro curie/cc. Waste solidified in a HIC is approved by the commission meeting the 10CFR61 stabilization criteria, including 1% free standing liquids by volume when the waste is packaged to a "stable" form and ≤ 0.5% when waste is packaged to an "unstable" form. The formulas, sampling, analysis, and test do not require NRC approval, because the HIC meets the stability criteria.

2.4.1. Solidification to an unstable or stable state are performed by vendors, when applicable. Liquid waste solidified to meet stabilization criteria (10CFR61 and 01-91 Branch Technical Requirements) shall have documentation available that shows that the process is approved by the NRC or disposal facility.

2.5. **Dewatering:** The process of removing fluids from liquid waste streams to produce a waste form that meets the requirements of 10CFR Part 61 and applicable burial site criteria, ≤0.5% by volume when the waste is packaged to an "unstable" state, or ≤1% by volume when the waste is packaged to a "stable" form.

2.6. **High Integrity Container (HIC):** A disposable container that is approved to the Requirements of 10CFR61. The use of HIC's is an alternative to solidification or encapsulation in a steel container to meet burial stability. HIC's are used to package dewatered liquid wastes, (e.g. filter cartridges, filter media, resin, sludges, etc), or dry active waste.

2.7. **Encapsulation:** The process of placing a component (e.g. cartridge filters or mechanical components) into a special purpose disposable container and then completely surrounding the waste material with an approved stabilization media, such as cement.

2.8. **Liquid Waste Processing Systems:** In-plant or vendor supplied processing systems consisting of equipment utilized for evaporation, filtration, demineralization, dewatering, compression dewatering, solidification, or reverse osmosis (RO) for the treatment of liquid wastes (such as Floor Drains, Chemical Drains and Equipment Drain inputs).

2.9. **Incineration, RVR, and/or Glass Vitrification of Liquid or Solid:** Dry or wet waste processed via incineration and/or thermal processing where the volume is reduced by thermal means meets 10CFR61 requirements.

2.10. **Compaction:** When dry wastes such as paper, wood, plastic, cardboard, incinerator ash, and etc. are volume reduced through the use of a compactor.

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

- Filter media (powdered, bead resin and fiber),
- Filter cartridges,
- Pre-coat body feed material,
- Contaminated charcoal,

- Fuel pool activated hardware,
- Oil Dry absorbent material added to a container to absorb liquids
- Fuel Pool Crud
- Sump and tank sludges,
- High activity filter cartridges,
- Concentrated liquids,
- Contaminated waste oil,
- Dried sewage or wastewater plant waste,
- Dry Active Waste (DAW): Waste such as filters, air filters, low activity cartridge filters, paper, wood, glass, plastic, cardboard, hoses, cloth, and metals, etc, which have become contaminated as a consequence of normal operating, housekeeping and maintenance activities.
- Other radioactive waste generated from cleanup of inadvertent contamination.

3. RESPONSIBILITIES

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

4. MAIN BODY

4.1. Process Control Program Requirements

4.1.1. A change to this PCP (Radioactive Waste Treatment Systems) may be made provided that the change is reported as part of the annual radioactive effluent release report, Regulatory Guide 1.21, and is approved by the Plant Operations Review Committee (PORC).

4.1.2. Changes become effective upon acceptance per station requirements.

4.1.3. A solidification media, approved by the burial site, may be **REQUIRED when** liquid radwaste is solidified to a stable/unstable state.

4.1.4. **When** processing liquid radwaste to meet solidification stability using a vendor supplied solidification system:

1. **If** the vendor has its own Quality Assurance (QA) Program, **then** the vendor shall **ADHERE** to its own QA Program and shall have **SUBMITTED** its process system topical report to the NRC or agreement state.

2. **If** the vendor does **not HAVE** its own Quality Assurance Program, **then** the vendor shall **ADHERE** to an approved Quality Assurance Topical Report standard belonging to the Station or to another vendor.

4.1.5. The vendor processing system(s) is/are controlled per the following:

1. A commercial vendor supplied processing system(s) may be **USED** for the processing of LLRW streams.

2. Vendors that process liquid LLRW at the sites shall **MEET** applicable QA Topical Report and Augmented Quality Requirements.

4.1.6. Vendor processing system(s) operated at the site shall be **OPERATED and CONTROLLED** in accordance with vendor approved procedures or station procedures based upon vendor approved documents.

4.1.7. All waste streams processed for burial or long term on-site storage shall **MEET** the waste classification and characteristics specified in 10CFR Part 61.55, Part 61.56, the 5-83 Branch Technical Position for waste classification, and the applicable burial site acceptance criteria (for any burial site operating at the time the waste was processed).

4.2. General Waste Processing Requirements

NOTE: On-site resin processing involves tank mixing and settling, transferring to the station or vendor processing system via resin water slurry or vacuuming into approved waste containers, and, when applicable, dewatering for burial.

4.2.1. Vendor resin beds may be **USED** for decontamination of plant systems, such as, Spent Fuel Pool, RWCU (reactor water cleanup), and SDC (Shut Down Cooling). These resins are **then PROCESSED** via the station or vendor processing system.

4.2.2. Various drains and sump discharges will be **COLLECTED** in tanks or suitable containers for processing treatment. Water from these tanks may be **SENT** through a filter, demineralizer, concentrator or vendor supplied processing systems.

4.2.3. Process waste (e.g. filter media, sludges, resin, etc) will be periodically **DISCHARGED** to the station or vendor processing system for onsite waste treatment **or PACKAGED** in containers for shipment to offsite vendor for volume reduction processing.

4.2.4. Process water (e.g. chemical, floor, equipment drain, etc.) may be **SENT** to either the site waste process systems or vendor waste processing systems for further filtration, demineralization for plant re-use, or discharge.

4.2.5. All dewatering and solidification/stabilization will be **PERFORMED** by either utility site personnel or by on-site vendors **or** will be **PACKAGED and SHIPPED** to an off-site vendor low-level radwaste processing facility.

4.2.6. Dry Active Waste (DAW) will be **HANDLED and PROCESSED** per the following:

1. DAW will be **COLLECTED and SURVEYED and** may be **SORTED** for compactable and non-compactable wastes.

2. "DAW may be packaged in containers to facilitate on-site pre-compaction and/or off-site vendor contract requirements

3. DAW items may be **SURVEYED** for release onsite or offsite when applicable.

4. Contaminated filter cartridges will be **PLACED** into a HIC **or** will be **ENCAPSULATED** in an in-situ liner for disposal **or SHIPPED** to an offsite waste processor in drums, boxes or steel liners per the vendor site criteria for processing and disposal.

4.2.7. Filtering devices using pre-coat media may be **USED** for the removal of suspended solids from liquid waste streams. The pre-coat material or cartridges from these devices may be routinely **REMOVED** from the filter vessel and discharged to a Filter Sludge Tank or Liner/HIC. Periodically, the filter sludge may be **DISCHARGED** to the vendor processing system for waste treatment onsite **or PACKAGED** in containers for shipment to offsite vendor for volume reduction processing.

4.2.8. Activated hardware stored in the Spent Fuel Pools will be **PROCESSED** periodically using remote handling equipment **and** may then be **PUT** into a container for shipment or storage

4.2.9. High Integrity Containers (HIC):

1. For Barnwell disposal vendors who supply HIC's to the station shall **PROVIDE** a copy of the HIC Certificate of Compliance, which details specific limitations on use of the HIC.

2. For Disposal at Clive vendors who supply HIC's to the station shall **PROVIDE** a copy of the HIC Certificate of Conformance, which details specific limitations on use of the HIC.

3. Vendors who supply HIC's to the station shall **PROVIDE** a handling procedure, which establishes guidelines for the utilization of the HIC. These guidelines serve to protect the integrity of the HIC and ensure the HIC is handled in accordance with the requirements of the Certificate of Compliance or Certificate of Conformance.

4.2.10. Lubricants and oils contaminated as a consequence of normal operating and maintenance activities may be **PROCESSED** on-site (by incineration, for oils meeting 10CFR20.2004 and applicable state requirements, or by an approved vendor process) **or SHIPPED** offsite (for incineration or other acceptable processing method).

4.2.11. Former in-plant systems GE or Stock Drum Transfer Cart and Drum Storage Areas may be **USED** for higher dose DAW storage at Clinton, Dresden, Quad Cities, Braidwood and Byron.

4.2.13 Certain waste, including flowable solids from holding pond, oily waste separator, cooling tower basin and emergency spray pond, may be disposed of onsite under the provisions of 10CFR20.2002 permit. Specific requirements associated with the disposal shall be incorporated into station implementing procedures. **(CM-2)**

4.3. Burial Site Requirements

4.3.1. Waste sent directly to burial shall **COMPLY** with the applicable parts of 49CFR171-172, 10CFR61, 10CFR71, and the acceptance criteria for the applicable burial site.

4.4. Shipping and Inspection Requirements

4.4.1. All shipping/storage containers shall be **INSPECTED**, as required by station procedures, for compliance with applicable requirements (Department Of Transportation (DOT), Nuclear Regulatory Commission (NRC), station, on-site storage, and/or burial site requirements) prior to use.

4.4.2. Containers of solidified liquid waste shall be **INSPECTED** for solidification quality and/or dewatering requirements per the burial site, offsite vendor acceptance, or station acceptance criteria, as applicable.

4.4.3. Shipments sent to an off site processor shall be **INSPECTED** to ensure that the applicable processor's waste acceptance criteria are being met.

4.5. Inspection and Corrective Action

4.5.1. Inspection results that indicate non-compliance with applicable NRC, State, vendor, or site requirements shall be **IDENTIFIED and TRACKED** through the Corrective Action Program.

4.5.2. Administrative controls for preventing unsatisfactory waste forms from being released for shipment are described in applicable station procedures. **If** the provisions of the Process Control Program are not satisfied, **then SUSPEND** shipments of defectively packaged radioactive waste from the site. **(CM-1)**

4.5.3. **If** freestanding water or solidification **not** meeting program requirements is observed, **then** samples of the particular series of batches shall be **TAKEN** to determine the cause. Additional samples shall be **TAKEN**, as warranted, to ensure that **no** freestanding water is present and solidification requirements are maintained.

4.6. Procedure and Process Reviews

4.6.1. The Exelon Nuclear Process Control Program and changes to it (other than editorial/minor changes) shall be **REVIEWED and APPROVED** in accordance with the station procedures, plant-specific Technical Specifications (Tech Spec), Technical Requirements Manual (T&RM), Operation Requirements Manual (ORM), as applicable, for the respective station and LS-AA-106. Changes to the Licensees Controlled Documents, UFSAR, ORM, or TRM are controlled by the provisions of 10CFR 50.59.

4.6.2. Any changes to the PCP shall be reviewed to determine if reportability is required in the Annual Radiological Effluent Release Report (ARERR). The Radwaste Specialist shall ensure correct information is **SUBMITTED** to the ODCM program owner prior to submittal of the ARERR.

4.6.3. Station processes, cask manual procedures as applicable to your station, or other vendor waste processing/operating procedures shall be approved per RM-AA-102-1006. Procedures related to waste manifests, shipment inspections, and container activity determination are **CONTROLLED** by Radiation Protection Standard Procedures (RP-AA-600 Series).

1. Site waste processing **IS CONTROLLED** by site operating procedures.
2. Liquid processed by vendor equipment shall be **DONE** in accordance with vendor procedures.

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

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

WASTE STREAM	POINTS OF GENERATION	AVAILABLE WASTE PROCESSING METHODS
Bead Resin	Systems - Fuel Pool, Condensate, Reactor Water Cleanup, Blowdown, Equipment Drain, Chemical and Volume Control Systems, Floor Drain, Maximum Recycle, Blowdown, Boric Acid Recycling System, Vendor Supplied Processing Systems, and Portable Demin System	Dewatering, solidification to an unstable/stable state Thermal Processing Free Release to a Land Fill
Powdered Resin	Systems - (Condensate System, Floor Drain/Equipment Drain filtration, Fuel Pool)	Dewatering, solidification to an unstable/stable state Thermal Processing
Concentrated Waste	Waste generated from Site Evaporators resulting typically from the Floor Drain and Equipment Drain Systems	Solidification to an unstable/stable state Thermal Processing
Sludge	Sedimentation resulting from various sumps, condensers, tanks, cooling tower, emergency spray pond, holding pond, and oily waste separators..	Dewatering, solidification to an unstable/stable state Thermal Processing Evaporation on-site or at an offsite processor On-site disposal per 10CFR20.2002 permit

WASTE STREAM	POINTS OF GENERATION	AVAILABLE WASTE PROCESSING METHODS
Filter cartridges	Systems - Floor/Equipment Drains, Fuel Pool; cartridge filters are typically generated from clean up activities within the fuel pool, torus, etc.	Dewatering, solidification to an unstable/stable state Processed by a vendor for volume reduction
Dry Active Waste	Paper, wood, plastic, rubber, glass, metal, and etc. resulting from daily plant activities.	Decon/Sorting for Free Release, Compaction/Super-compaction Thermal Processing by Incineration or glass vitrification Sorting for Free Release Metal melting to an ingot
Contaminated Oil	Oil contaminated with radioactive materials from any in-plant system.	Solidification unstable state Thermal Processing by Incineration Free Release for recycling
Drying Bed Sludge	Sewage Treatment and Waste Water Treatment Facilities	Free release to a landfill or burial
Metals	See DAW	See DAW
Irradiated Hardware	Fuel Pool, Reactor Components	Volume Reduction for packaging efficiencies

5. DOCUMENTATION

5.1.1. Records of reviews performed shall be retained for the duration of the unit operating license. This documentation shall contain:

1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change, and

2. A determination which documents that the change will maintain the overall conformance of waste products to Federal (10CFR61 and the Branch Technical Position), State, or other applicable requirements, including applicable burial site criteria.

6. REFERENCES

6.1. Technical Specifications:

6.1.1. The details contained in Current Tech Specs (CTS) or Improved Technical Specifications (ITS), as applicable, in regard to the Process Control Program (PCP), are to be relocated to the Licensee Controlled Documents. Some facilities have elected to relocate these details into the Operational Requirements Manual (ORM). Relocation of the description of the PCP from the CTS or ITS does **not** affect the safe operation of the facility. Therefore, the relocation details are **not** required to be in the CTS or the ITS to provide adequate protection of the public health and safety.

6.2. Writers' References:

6.2.1. Code Of Federal Regulations: 10 CFR Part 20, Part 61, Part 71, 49 CFR Parts 171-172

6.2.2. Low Level Waste Licensing Branch Technical Position On Radioactive Waste Classification, May 1983

6.2.3. Technical Position on Waste Form (Revision 1), January 1991

6.2.4. Branch Technical Position on Concentration Averaging and Encapsulation, January 1995

6.2.5. Regulatory Guide 1.21

6.2.6. I.E. Circular 80.18, 10CFR 50.59 Safety Evaluation for Changes to Radioactive Waste Treatment Systems

6.3. User References

6.3.1. Quality Assurance Program

6.3.2. LS-AA-106

6.3.3. RM-AA-102-1006

6.3.4. RP-AA-600 Series

6.3.5. CY-AA-170-2000, Annual Radioactive Effluent Release Report

6.4. Station Commitments:

6.4.1. Peach Bottom

CM-1, T03819, Letter from G.A. Hunger, Jr., dated Sept. 29,94, transmitting TSCR 93-16 (Improved Technical Specifications).

6.4.2. Limerick

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

7. **ATTACHMENTS** - None