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T.S. 6.9.1.8

April 16, 2004

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

Subject: 2003 Annual Radioactive Effluent Release Report

In accordance with Section 6.9.1.8 of Limerick Generating Station (LGS) Technical Specifications and Section 3.6 of the Offsite Dose Calculation Manual, attached is the 2003 Annual Radioactive Effluent Release Report No. 29 for LGS.

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

Sincerely,

Ron J. DeGregorio
Vice President-LGS

Attachment: 2003 Annual Radioactive Effluent Release Report No. 29 for LGS

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IE48

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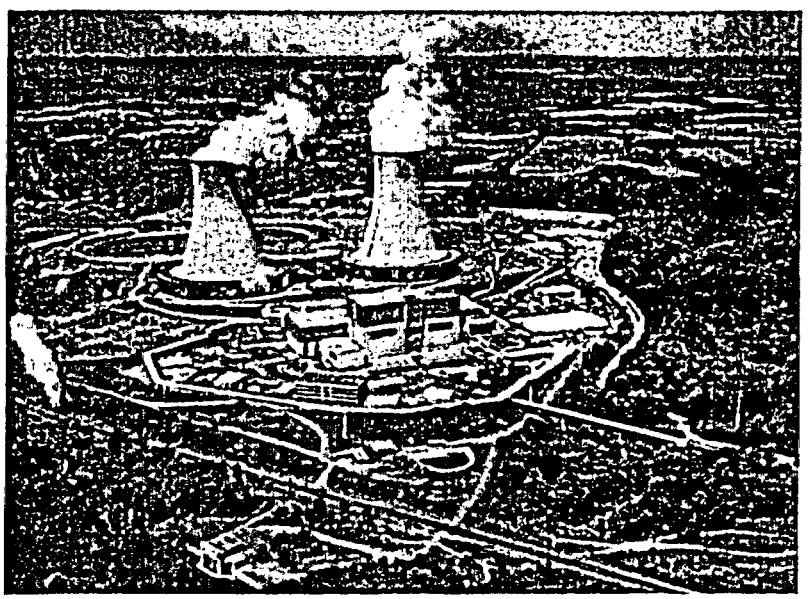

Annual Radioactive Effluent Release Report

2003

Limerick Generating Station

ANNUAL RADIOACTIVE EFFLUENT RELEASE REPORT

NO. 29

January 1, 2003 Through December 31, 2003

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)
and NPF-85 (Unit 2)

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

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

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, 2003 through December 31, 2003. 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.

2. Supplemental Information

A. Regulatory Limits

	Limit	Units	Receptor	ODCM Control
1. Noble Gases:				
a.	≤ 500	mRem/Yr	- Total body	3.3.2.a
	≤ 3000	mRem/Yr	- Skin	
b.	≤ 10	mRad	- Air gamma	Quarterly air dose limits
	≤ 20	mRad	- Air beta	3.3.3.a
c.	≤ 20	mRad	- Air gamma	Yearly air dose limits
	≤ 40	mRad	- Air beta	3.3.3.b
2. Iodines, Tritium, Particulates with Half Life >8 days:				
a.	≤ 1500	mRem/Yr	- Any organ	3.3.2.b
b.	≤ 15	mRem	- Any organ	Quarterly dose limits 3.3.4.a
c.	≤ 30	mRem	- Any organ	Yearly dose limits 3.3.4.b
3. Liquid Effluents				
a.	Concentration 10 CFR 20, Appendix B, Table II Col. 2 (pre 1994)			3.2.2
b.	≤ 3	mRem	- total body	Quarterly dose limits
	≤ 10	mRem	- any organ	3.2.3.a
c.	≤ 6	mRem	- total body	Yearly dose limits
	≤ 20	mRem	- any organ	3.2.3.b
4. 40CFR 190				
	≤ 25	mRem	- total body	Yearly dose limits
	≤ 75	mRem	- thyroid	3.3.7

B. Maximum Permissible Concentrations:

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 3.3.2.a and 3.3.2.b.

The Maximum Permissible Concentrations (MPC) specified in 10 CFR 20, Appendix B, Table II, Column 2 (pre 1994) for identified nuclides, were used to calculate permissible release rates and concentrations for liquid release per the Limerick Offsite Dose Calculation Manual Specification 3.2.2. The total activity concentration for all dissolved or entrained gases is limited to $\leq$ 2E-04 µCi/ml.

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

The Limerick ODCM limits the 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. Therefore, 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," 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 Genie System with a gas Marinelli beaker. Airborne effluent gaseous activity was continuously monitored and recorded in accordance with ODCM Table I3.3-3. Additional vent grab samples are taken 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 was analyzed to report noble gas effluent activities. 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. When no isotopic activity was identified in the grab noble gas samples, 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.

Composite particulate air samples and liquid radwaste composites, counted for beta emitters (e.g. Fe-55, Sr-89, Sr-90) and gross alpha, were submitted to an offsite vendor laboratory for analysis. Other required analyses were performed onsite. All vendor results were received and included in the report calculations. Therefore the 2003 report is complete.

2. Iodines and Particulates

The method used is the Canberra Genie 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 I3.3-3. 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 sampling period.

3. Liquid Effluents

Total gamma isotopic activity concentrations were determined on each batch of liquid effluent 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. 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:

1. Liquid

	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Number of Batch Releases	3.20E+01	3.00E+01	2.70E+01	2.80E+01
Total time period for batch releases (min)	9.02E+03	2.30E+03	1.88E+03	1.84E+03
Maximum time period for batch release (min)	6.70E+03	2.25E+02	8.91E+01	8.24E+01
Average time period for batch release (min)	2.82E+02	7.66E+01	6.95E+01	6.56E+01
Minimum time period for batch release (min)	5.80E+01	4.11E+01	4.43E+01	2.76E+01
Average stream flow (Schuylkill River) during periods of release of effluents into a flowing stream (gpm)	2.09E+06	1.64E+06	1.39E+06	1.82E+06

2. Gaseous

	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Number of Batch Releases	1.20E+01	3.00E+00	2.00E+00	1.00E+00
Total time period for batch releases (min)	5.18E+04	3.08E+04	2.75E+04	2.10E+02
Maximum time period for batch release (min)	1.09E+04	1.03E+04	1.74E+04	2.10E+02
Average time period for batch release (min)	4.32E+03	1.03E+04	1.37E+04	2.10E+02
Minimum time period for batch release (min)	9.27E+03	1.02E+04	1.01E+04	2.10E+02

There was no contaminated oil burned in the Auxillary Boilers during 2003.

F. Abnormal Releases:

1. Liquid	Qtr 1	Qtr 2	Qtr 3	Qtr 4
Number of Releases	0	1	0	0
Total Activity Released (Ci)	0	2.57E-04	0	0
2. Gaseous				
Number of Releases	0	0	0	0
Total Activity Released (Ci)	0	0	0	0

Auxiliary Boiler contaminated with tritium and gamma emitting radionuclides

As a corrective action to the tritium found in the Auxiliary Boiler in 2002, the Unit 2 CST heating coils were replaced during the March 2003 refueling outage. Tritium activity decreased following the replacement of the coils but did not return to background levels. Following the power ascension of Unit 2, tritium activity continued to increase in the Auxiliary Boiler prompting more investigation. On April 2, a sample taken from the deaerator storage tank (DAST) indicated the presence of radionuclides other than tritium. Additional sampling indicated the source of the contamination was the Reactor Water Storage Tank (RWST). On April 7, the RWST heating coils were blocked, which isolated the source from the Auxiliary Boiler. Subsequent sampling showed that tritium and other radionuclide activity started to decrease. The DAST and the Auxiliary Boilers were flushed to the Hold Pond. Subsequent sampling of the DAST indicated no residual radioactivity present.

Sampling of the Hold Pond, which is where all flush water was sent prior to discharge to the Schuylkill River indicated no activity present. This was likely due to the large dilution effect that the Hold Pond could have on a small release. The RWST heaters were repaired in October 2003.

For purposes of this report the activity released is being documented. The total curies released from the Station as reported in Appendix A include this release data.

Assumptions used to determine total curies released to the River via the Hold Pond include:

- Tritium activity assumed was highest value found (1.39E-05 uCi/ml).
- Total activity released to the Hold Pond was calculated by assuming a total volume of water released was 4500 gallons, which represents 2000 gallons each, from two Auxiliary Boilers and 500 gallons from the DAST.

Activity found in deaerator tank on April 2, 2003:

Nuclide	Concentration uCi/ml	Curies Released	% of 10CFR20 Appendix B Limits
Cr-51	2.54E-07	4.33E-06	0.013%
Mn-54	3.04E-07	5.18E-06	0.304%
Fe-59	3.18E-08	5.42E-07	0.064%
Co-58	1.57E-07	2.67E-06	0.174%
Co-60	2.73E-07	4.65E-06	0.910%
Zn-65	1.35E-07	2.30E-06	0.135%
H-3	1.39E-05	2.37E-04	0.463%

G. ODCM and PCP Revisions

There were no changes to the station's ODCM or the Process Control Program during this reporting period. However, several procedures have been introduced that either relate to the ODCM or relate to this report. The following common procedures provide consistent expectations and standards for the Radioactive Effluent Controls Program:

- CY-AA-170-000, Radioactive Effluent and Environmental Monitoring Program
- CY-AA-170-100, Radiological Environmental Monitoring Program
- CY-AA-170-200, Radioactive Effluent Controls Program
- CY-AA-170-300, Offsite Dose Calculation Manual Administration
- CY-AA-170-2100, Estimated Errors of Effluent Measurement
- CY-AA-170-3100, Offsite Dose Calculation Manual Revisions.

H. 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 40CFR Part 190.

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

Appendix A
Effluent and Waste Disposal Summary

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

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

TABLE 1 GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES PERIOD 2003

A. FISSION AND ACTIVATION GASSES

	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error %
1. Total Release	Ci	3.50E-01	1.89E+00	1.65E+00	3.69E-01	3.66E+01
2. Average Release Rate for Period	uCi/sec	4.47E-02	2.41E-01	1.95E-01	4.62E-02	
3. Percent of ODCM Limit - Gamma	%	6.48E-03	2.14E-02	1.66E-02	4.89E-03	
- Beta		1.88E-03	6.55E-03	5.15E-03	1.47E-03	

B. IODINES

	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error %
1. Total – I-131	Ci	2.89E-05	< LLD	< LLD	< LLD	2.04E+01
2. Average Release Rate for Period	uCi/sec	3.70E-06	< LLD	< LLD	< LLD	
3. Percent of Limit	%	*	*	*	*	

C. PARTICULATES

	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error %
1. Particulates with T 1/2 > 8 days	Ci	2.23E-04	1.27E-06	1.12E-06	8.87E-09	2.26E+01
2. Average Release Rate for Period	uCi/sec	2.85E-05	1.62E-07	1.32E-07	1.11E-09	
3. Percent of ODCM Limit	%	*	*	*	*	
4. Gross Alpha	Ci	1.42E-06	< LLD	< LLD	< LLD	

D. TRITIUM

	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error %
1. Total Release	Ci	6.76E+00	1.26E+01	6.74E+00	< LLD	1.57E+01
2. Average Release Rate for Period	uCi/sec	8.65E-01	1.60E+00	7.95E-01	< LLD	
3. Percent of ODCM Limit	%	*	*	*	*	

E. Iodine 131 & 133, Tritium & Particulate

	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
1. Percent of ODCM Limit Thyroid	%	8.20E-02	1.49E-01	8.00E-02	1.35E-07

* ODCM Limit is 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 2 GASEOUS EFFLUENTS FOR RELEASE POINT – NORTH STACK PERIOD 2003

1. FISSION AND ACTIVATION GASSES

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
AR-41	Ci	< LLD	< LLD	< LLD	< LLD
KR-83M	Ci	< LLD	< LLD	< LLD	< LLD
KR-85	Ci	2.29E-02	2.08E-02	1.85E-03	9.48E-03
KR-85M	Ci	6.06E-03	5.50E-03	4.89E-04	2.51E-03
KR-87	Ci	1.06E-02	9.63E-03	8.58E-04	4.40E-03
KR-88	Ci	1.88E-02	1.70E-02	1.52E-03	7.77E-03
KR-89	Ci	< LLD	< LLD	< LLD	< LLD
KR-90	Ci	< LLD	< LLD	< LLD	< LLD
XE-131M	Ci	5.73E-04	5.20E-04	4.63E-05	2.37E-04
XE-133	Ci	2.14E-03	1.94E-03	1.73E-04	8.84E-04
XE-133M	Ci	< LLD	< LLD	< LLD	< LLD
XE-135	Ci	8.36E-02	7.58E-02	6.75E-03	3.46E-02
XE-135M	Ci	5.33E-02	4.84E-02	4.31E-03	2.21E-02
XE-137	Ci	< LLD	< LLD	< LLD	< LLD
XE-138	Ci	1.14E-01	1.04E-01	9.23E-03	4.73E-02
Total for Period	Ci	3.12E-01	2.83E-01	2.52E-02	1.29E-01

2. IODINES

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
I-130	Ci	< LLD	< LLD	< LLD	< LLD
I-131	Ci	2.27E-05	< LLD	< LLD	< LLD
I-132	Ci	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	2.27E-05	< LLD	< LLD	< LLD

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

TABLE 2 GASEOUS EFFLUENTS FOR RELEASE POINT – NORTH STACK PERIOD 2003

3. PARTICULATES (T 1/2 > 8 DAYS)

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
CR-51	Ci	< LLD	< LLD	< LLD	< LLD
MN-54	Ci	< LLD	< LLD	< LLD	< LLD
FE-55	Ci	< LLD	< LLD	< LLD	< LLD
FE-59	Ci	< LLD	< LLD	< LLD	< LLD
CO-58	Ci	< LLD	< LLD	< LLD	< LLD
CO-60	Ci	< LLD	< LLD	< LLD	< LLD
NI-63	Ci	< LLD	< LLD	< LLD	< LLD
ZN-65	Ci	< LLD	< LLD	< LLD	< LLD
RB-86	Ci	< LLD	< LLD	< LLD	< LLD
SR-89	Ci	< LLD	< LLD	< LLD	< LLD
SR-90	Ci	< LLD	< LLD	< LLD	< LLD
Y-91	Ci	< LLD	< LLD	< LLD	< LLD
ZR-95	Ci	< LLD	< LLD	< LLD	< LLD
NB-95	Ci	< LLD	< LLD	< LLD	< LLD
RU-103	Ci	< LLD	< LLD	< LLD	< LLD
RU-106	Ci	< LLD	< LLD	< LLD	< LLD
AG-110M	Ci	< LLD	< LLD	< LLD	< LLD
TE-125M	Ci	< LLD	< LLD	< LLD	< LLD
TE-127M	Ci	< LLD	< LLD	< LLD	< LLD
TE-129M	Ci	< LLD	< LLD	< LLD	< LLD
CS-134	Ci	< LLD	< LLD	< LLD	< LLD
CS-136	Ci	< LLD	< LLD	< LLD	< LLD
CS-137	Ci	< LLD	< LLD	< LLD	< LLD
BA-140	Ci	< LLD	< LLD	< LLD	< LLD
CE-141	Ci	< LLD	< LLD	< LLD	< LLD
CE-144	Ci	< LLD	< LLD	< LLD	< LLD
PR-143	Ci	< LLD	< LLD	< LLD	< LLD
ND-147	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	< LLD	< LLD	< LLD	< LLD

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

TABLE 3 GASEOUS EFFLUENTS FOR RELEASE POINT – UNIT 1 SOUTH STACK PERIOD 2003

1. FISSION AND ACTIVATION GASSES

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
AR-41	Ci	2.69E-03	1.16E-01	1.17E-01	1.73E-02
KR-83M	Ci	< LLD	< LLD	< LLD	< LLD
KR-85	Ci	< LLD	< LLD	< LLD	< LLD
KR-85M	Ci	6.45E-04	2.78E-02	2.81E-02	4.14E-03
KR-87	Ci	6.45E-04	2.78E-02	2.81E-02	4.14E-03
KR-88	Ci	6.45E-04	2.78E-02	2.81E-02	4.14E-03
KR-89	Ci	< LLD	< LLD	< LLD	< LLD
KR-90	Ci	< LLD	< LLD	< LLD	< LLD
XE-131M	Ci	< LLD	< LLD	< LLD	< LLD
XE-133	Ci	1.40E-02	6.03E-01	6.10E-01	8.96E-02
XE-133M	Ci	< LLD	< LLD	< LLD	< LLD
XE-135	Ci	7.31E-03	3.15E-01	3.19E-01	4.69E-02
XE-135M	Ci	9.89E-03	4.27E-01	4.32E-01	6.35E-02
XE-137	Ci	< LLD	< LLD	< LLD	< LLD
XE-138	Ci	1.51E-03	6.50E-02	6.57E-02	9.66E-03
Total for Period	Ci	3.73E-02	1.61E+00	1.63E+00	2.39E-01

2. IODINES

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
I-130	Ci	< LLD	< LLD	< LLD	< LLD
I-131	Ci	< LLD	< LLD	< LLD	< LLD
I-132	Ci	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	< LLD	< LLD	< LLD	< LLD

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

TABLE 3 GASEOUS EFFLUENTS FOR RELEASE POINT – UNIT 1 SOUTH STACK PERIOD 2003

3. PARTICULATES (T 1/2 > 8 DAYS)

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
CR-51	Ci	7.71E-05	< LLD	< LLD	< LLD
MN-54	Ci	2.84E-05	< LLD	< LLD	< LLD
FE-55	Ci	< LLD	< LLD	< LLD	< LLD
FE-59	Ci	2.33E-05	< LLD	< LLD	< LLD
CO-58	Ci	< LLD	< LLD	< LLD	< LLD
CO-60	Ci	1.08E-05	< LLD	< LLD	< LLD
NI-63	Ci	< LLD	< LLD	< LLD	< LLD
ZN-65	Ci	< LLD	< LLD	< LLD	< LLD
RB-86	Ci	< LLD	< LLD	< LLD	< LLD
SR-89	Ci	< LLD	< LLD	< LLD	< LLD
SR-90	Ci	< LLD	< LLD	< LLD	< LLD
Y-91	Ci	< LLD	< LLD	< LLD	< LLD
ZR-95	Ci	< LLD	< LLD	< LLD	< LLD
NB-95	Ci	< LLD	< LLD	< LLD	< LLD
RU-103	Ci	< LLD	< LLD	< LLD	< LLD
RU-106	Ci	< LLD	< LLD	< LLD	< LLD
AG-110M	Ci	< LLD	< LLD	< LLD	< LLD
TE-125M	Ci	< LLD	< LLD	< LLD	< LLD
TE-127M	Ci	< LLD	< LLD	< LLD	< LLD
TE-129M	Ci	< LLD	< LLD	< LLD	< LLD
CS-134	Ci	< LLD	< LLD	< LLD	< LLD
CS-136	Ci	< LLD	< LLD	< LLD	< LLD
CS-137	Ci	< LLD	< LLD	< LLD	< LLD
BA-140	Ci	< LLD	< LLD	< LLD	< LLD
CE-141	Ci	< LLD	< LLD	< LLD	< LLD
CE-144	Ci	< LLD	< LLD	< LLD	< LLD
PR-143	Ci	< LLD	< LLD	< LLD	< LLD
ND-147	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	1.40E-04	< LLD	< LLD	< LLD

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

TABLE 4 GASEOUS EFFLUENTS FOR RELEASE POINT – UNIT 2 SOUTH STACK PERIOD 2003

1. FISSION AND ACTIVATION GASSES

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
AR-41	Ci	5.50E-15	< LLD	< LLD	< LLD
KR-83M	Ci	< LLD	< LLD	< LLD	< LLD
KR-85	Ci	< LLD	< LLD	< LLD	< LLD
KR-85M	Ci	1.32E-15	< LLD	< LLD	< LLD
KR-87	Ci	1.32E-15	< LLD	< LLD	< LLD
KR-88	Ci	1.32E-15	< LLD	< LLD	< LLD
KR-89	Ci	< LLD	< LLD	< LLD	< LLD
KR-90	Ci	< LLD	< LLD	< LLD	< LLD
XE-131M	Ci	< LLD	< LLD	< LLD	< LLD
XE-133	Ci	2.86E-14	< LLD	< LLD	< LLD
XE-133M	Ci	< LLD	< LLD	< LLD	< LLD
XE-135	Ci	1.49E-14	< LLD	< LLD	< LLD
XE-135M	Ci	2.02E-14	< LLD	< LLD	< LLD
XE-137	Ci	< LLD	< LLD	< LLD	< LLD
XE-138	Ci	3.08E-15	< LLD	< LLD	< LLD
Total for Period	Ci	7.63E-14	< LLD	< LLD	< LLD

2. IODINES

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
I-130	Ci	< LLD	< LLD	< LLD	< LLD
I-131	Ci	< LLD	< LLD	< LLD	< LLD
I-132	Ci	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	< LLD	< LLD	< LLD	< LLD

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

TABLE 4 GASEOUS EFFLUENTS FOR RELEASE POINT – UNIT 2 SOUTH STACK PERIOD 2003

3. PARTICULATES (T 1/2 > 8 DAYS)

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
CR-51	Ci	< LLD	< LLD	< LLD	< LLD
MN-54	Ci	< LLD	< LLD	< LLD	< LLD
FE-55	Ci	< LLD	< LLD	< LLD	< LLD
FE-59	Ci	< LLD	< LLD	< LLD	< LLD
CO-58	Ci	< LLD	< LLD	< LLD	< LLD
CO-60	Ci	< LLD	< LLD	< LLD	< LLD
NI-63	Ci	< LLD	< LLD	< LLD	< LLD
ZN-65	Ci	< LLD	< LLD	< LLD	< LLD
RB-86	Ci	< LLD	< LLD	< LLD	< LLD
SR-89	Ci	< LLD	< LLD	< LLD	< LLD
SR-90	Ci	< LLD	< LLD	< LLD	< LLD
Y-91	Ci	< LLD	< LLD	< LLD	< LLD
ZR-95	Ci	< LLD	< LLD	< LLD	< LLD
NB-95	Ci	< LLD	< LLD	< LLD	< LLD
RU-103	Ci	< LLD	< LLD	< LLD	< LLD
RU-106	Ci	< LLD	< LLD	< LLD	< LLD
AG-110M	Ci	< LLD	< LLD	< LLD	< LLD
TE-125M	Ci	< LLD	< LLD	< LLD	< LLD
TE-127M	Ci	< LLD	< LLD	< LLD	< LLD
TE-129M	Ci	< LLD	< LLD	< LLD	< LLD
CS-134	Ci	< LLD	< LLD	< LLD	< LLD
CS-136	Ci	< LLD	< LLD	< LLD	< LLD
CS-137	Ci	< LLD	< LLD	< LLD	< LLD
BA-140	Ci	< LLD	< LLD	< LLD	< LLD
CE-141	Ci	< LLD	< LLD	< LLD	< LLD
CE-144	Ci	< LLD	< LLD	< LLD	< LLD
PR-143	Ci	< LLD	< LLD	< LLD	< LLD
ND-147	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	< LLD	< LLD	< LLD	< LLD

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

TABLE 5 GASEOUS EFFLUENTS FOR RELEASE POINT – HOT MAINTENANCE SHOP PERIOD 2003

1. FISSION AND ACTIVATION GASSES

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
AR-41	Ci	< LLD	< LLD	< LLD	< LLD
KR-83M	Ci	< LLD	< LLD	< LLD	< LLD
KR-85	Ci	< LLD	< LLD	< LLD	< LLD
KR-85M	Ci	< LLD	< LLD	< LLD	< LLD
KR-87	Ci	< LLD	< LLD	< LLD	< LLD
KR-88	Ci	< LLD	< LLD	< LLD	< LLD
KR-89	Ci	< LLD	< LLD	< LLD	< LLD
KR-90	Ci	< LLD	< LLD	< LLD	< LLD
XE-131M	Ci	< LLD	< LLD	< LLD	< LLD
XE-133	Ci	< LLD	< LLD	< LLD	< LLD
XE-133M	Ci	< LLD	< LLD	< LLD	< LLD
XE-135	Ci	< LLD	< LLD	< LLD	< LLD
XE-135M	Ci	< LLD	< LLD	< LLD	< LLD
XE-137	Ci	< LLD	< LLD	< LLD	< LLD
XE-138	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	< LLD	< LLD	< LLD	< LLD

2. IODINES

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
I-130	Ci	< LLD	< LLD	< LLD	< LLD
I-131	Ci	< LLD	< LLD	< LLD	< LLD
I-132	Ci	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	< LLD	< LLD	< LLD	< LLD

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

TABLE 5 GASEOUS EFFLUENTS FOR RELEASE POINT – HOT MAINTENANCE SHOP PERIOD 2003

3. PARTICULATES (T 1/2 > 8 DAYS)

Nuclide Released	Continuous Mode				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
CR-51	Ci	< LLD	< LLD	< LLD	< LLD
MN-54	Ci	< LLD	< LLD	< LLD	< LLD
FE-55	Ci	< LLD	< LLD	< LLD	< LLD
FE-59	Ci	< LLD	< LLD	< LLD	< LLD
CO-58	Ci	< LLD	< LLD	< LLD	< LLD
CO-60	Ci	< LLD	< LLD	< LLD	< LLD
NI-63	Ci	< LLD	< LLD	< LLD	< LLD
ZN-65	Ci	< LLD	< LLD	< LLD	< LLD
RB-86	Ci	< LLD	< LLD	< LLD	< LLD
SR-89	Ci	< LLD	< LLD	< LLD	< LLD
SR-90	Ci	< LLD	< LLD	< LLD	< LLD
Y-91	Ci	< LLD	< LLD	< LLD	< LLD
ZR-95	Ci	< LLD	< LLD	< LLD	< LLD
NB-95	Ci	< LLD	< LLD	< LLD	< LLD
RU-103	Ci	< LLD	< LLD	< LLD	< LLD
RU-106	Ci	< LLD	< LLD	< LLD	< LLD
AG-110M	Ci	< LLD	< LLD	< LLD	< LLD
TE-125M	Ci	< LLD	< LLD	< LLD	< LLD
TE-127M	Ci	< LLD	< LLD	< LLD	< LLD
TE-129M	Ci	< LLD	< LLD	< LLD	< LLD
CS-134	Ci	< LLD	< LLD	< LLD	< LLD
CS-136	Ci	< LLD	< LLD	< LLD	< LLD
CS-137	Ci	< LLD	< LLD	< LLD	< LLD
BA-140	Ci	< LLD	< LLD	< LLD	< LLD
CE-141	Ci	< LLD	< LLD	< LLD	< LLD
CE-144	Ci	< LLD	< LLD	< LLD	< LLD
PR-143	Ci	< LLD	< LLD	< LLD	< LLD
ND-147	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	< LLD	< LLD	< LLD	< LLD

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

TABLE 6 GASEOUS EFFLUENTS FOR RELEASE POINT – OIL INCINERATION PERIOD 2003

1. FISSION AND ACTIVATION GASSES

Nuclide Released	Batch Release				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
AR-41	Ci	N/A	N/A	N/A	N/A
KR-83M	Ci	N/A	N/A	N/A	N/A
KR-85	Ci	N/A	N/A	N/A	N/A
KR-85M	Ci	N/A	N/A	N/A	N/A
KR-87	Ci	N/A	N/A	N/A	N/A
KR-88	Ci	N/A	N/A	N/A	N/A
KR-89	Ci	N/A	N/A	N/A	N/A
KR-90	Ci	N/A	N/A	N/A	N/A
XE-131M	Ci	N/A	N/A	N/A	N/A
XE-133	Ci	N/A	N/A	N/A	N/A
XE-133M	Ci	N/A	N/A	N/A	N/A
XE-135	Ci	N/A	N/A	N/A	N/A
XE-135M	Ci	N/A	N/A	N/A	N/A
XE-137	Ci	N/A	N/A	N/A	N/A
XE-138	Ci	N/A	N/A	N/A	N/A
Total for Period	Ci	N/A	N/A	N/A	N/A

2. IODINES

Nuclide Released	Batch Release				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
I-130	Ci	N/A	N/A	N/A	N/A
I-131	Ci	N/A	N/A	N/A	N/A
I-132	Ci	N/A	N/A	N/A	N/A
I-133	Ci	N/A	N/A	N/A	N/A
I-134	Ci	N/A	N/A	N/A	N/A
I-135	Ci	N/A	N/A	N/A	N/A
Total for Period	Ci	N/A	N/A	N/A	N/A

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

TABLE 6 GASEOUS EFFLUENTS FOR RELEASE POINT – OIL INCINERATION PERIOD 2003

3. PARTICULATES (T 1/2 > 8 DAYS)

Nuclide Released	Batch Release				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
CR-51	Ci	N/A	N/A	N/A	N/A
MN-54	Ci	N/A	N/A	N/A	N/A
FE-55	Ci	N/A	N/A	N/A	N/A
FE-59	Ci	N/A	N/A	N/A	N/A
CO-58	Ci	N/A	N/A	N/A	N/A
CO-60	Ci	N/A	N/A	N/A	N/A
NI-63	Ci	N/A	N/A	N/A	N/A
ZN-65	Ci	N/A	N/A	N/A	N/A
RB-86	Ci	N/A	N/A	N/A	N/A
SR-89	Ci	N/A	N/A	N/A	N/A
SR-90	Ci	N/A	N/A	N/A	N/A
Y-91	Ci	N/A	N/A	N/A	N/A
ZR-95	Ci	N/A	N/A	N/A	N/A
NB-95	Ci	N/A	N/A	N/A	N/A
RU-103	Ci	N/A	N/A	N/A	N/A
RU-106	Ci	N/A	N/A	N/A	N/A
AG-110M	Ci	N/A	N/A	N/A	N/A
TE-125M	Ci	N/A	N/A	N/A	N/A
TE-127M	Ci	N/A	N/A	N/A	N/A
TE-129M	Ci	N/A	N/A	N/A	N/A
CS-134	Ci	N/A	N/A	N/A	N/A
CS-136	Ci	N/A	N/A	N/A	N/A
CS-137	Ci	N/A	N/A	N/A	N/A
BA-140	Ci	N/A	N/A	N/A	N/A
CE-141	Ci	N/A	N/A	N/A	N/A
CE-144	Ci	N/A	N/A	N/A	N/A
PR-143	Ci	N/A	N/A	N/A	N/A
ND-147	Ci	N/A	N/A	N/A	N/A
Total for Period	Ci	N/A	N/A	N/A	N/A

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

TABLE 7 GASEOUS EFFLUENTS FOR RELEASE POINT – OTHER BATCH RELEASES PERIOD 2003

1. FISSION AND ACTIVATION GASSES

Nuclide Released	Batch Release				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
AR-41	Ci	< LLD	< LLD	< LLD	< LLD
KR-83M	Ci	< LLD	< LLD	< LLD	< LLD
KR-85	Ci	< LLD	< LLD	< LLD	< LLD
KR-85M	Ci	< LLD	< LLD	< LLD	< LLD
KR-87	Ci	< LLD	< LLD	< LLD	< LLD
KR-88	Ci	< LLD	< LLD	< LLD	< LLD
KR-89	Ci	< LLD	< LLD	< LLD	< LLD
KR-90	Ci	< LLD	< LLD	< LLD	< LLD
XE-131M	Ci	< LLD	< LLD	< LLD	< LLD
XE-133	Ci	< LLD	< LLD	< LLD	< LLD
XE-133M	Ci	2.65E-06	< LLD	< LLD	< LLD
XE-135	Ci	< LLD	< LLD	< LLD	< LLD
XE-135M	Ci	< LLD	< LLD	< LLD	< LLD
XE-137	Ci	< LLD	< LLD	< LLD	< LLD
XE-138	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	2.65E-06	< LLD	< LLD	< LLD

2. IODINES

Nuclide Released	Batch Release				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
I-130	Ci	< LLD	< LLD	< LLD	< LLD
I-131	Ci	6.21E-06	< LLD	< LLD	< LLD
I-132	Ci	< LLD	< LLD	< LLD	< LLD
I-133	Ci	1.25E-06	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	7.46E-06	< LLD	< LLD	< LLD

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

TABLE 7 GASEOUS EFFLUENTS FOR RELEASE POINT – OTHER BATCH RELEASES PERIOD 2003

3. PARTICULATES (T 1/2 > 8 DAYS)

Nuclide Released	Batch Release				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
CR-51	Ci	4.72E-05	< LLD	< LLD	< LLD
MN-54	Ci	9.55E-06	3.81E-07	3.36E-07	2.68E-09
FE-55	Ci	< LLD	< LLD	< LLD	< LLD
FE-59	Ci	6.41E-06	< LLD	< LLD	< LLD
CO-58	Ci	3.48E-06	< LLD	< LLD	< LLD
CO-60	Ci	1.11E-05	8.92E-07	7.79E-07	6.19E-09
NI-63	Ci	< LLD	< LLD	< LLD	< LLD
ZN-65	Ci	5.57E-06	< LLD	< LLD	< LLD
RB-86	Ci	< LLD	< LLD	< LLD	< LLD
SR-89	Ci	< LLD	< LLD	< LLD	< LLD
SR-90	Ci	< LLD	< LLD	< LLD	< LLD
Y-91	Ci	< LLD	< LLD	< LLD	< LLD
ZR-95	Ci	< LLD	< LLD	< LLD	< LLD
NB-95	Ci	< LLD	< LLD	< LLD	< LLD
RU-103	Ci	< LLD	< LLD	< LLD	< LLD
RU-106	Ci	< LLD	< LLD	< LLD	< LLD
AG-110M	Ci	< LLD	< LLD	< LLD	< LLD
TE-125M	Ci	< LLD	< LLD	< LLD	< LLD
TE-127M	Ci	< LLD	< LLD	< LLD	< LLD
TE-129M	Ci	< LLD	< LLD	< LLD	< LLD
CS-134	Ci	< LLD	< LLD	< LLD	< LLD
CS-136	Ci	< LLD	< LLD	< LLD	< LLD
CS-137	Ci	< LLD	< LLD	< LLD	< LLD
BA-140	Ci	< LLD	< LLD	< LLD	< LLD
CE-141	Ci	< LLD	< LLD	< LLD	< LLD
CE-144	Ci	< LLD	< LLD	< LLD	< LLD
PR-143	Ci	< LLD	< LLD	< LLD	< LLD
ND-147	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	8.32E-05	1.27E-06	1.12E-06	8.87E-09

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

TABLE 8 LIQUID EFFLUENTS – SUMMATION OF ALL RELEASES PERIOD 2003

A. FISSION AND ACTIVATION PRODUCTS

	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error %
1. Total release (not including tritium, gasses & alpha)	Ci	5.13E-04	5.76E-04	5.58E-04	8.03E-04	2.11E+01
2. Average diluted concentration during batch discharge for the period	uCi/ml	2.46E-09	1.09E-08	1.19E-08	1.85E-08	
3. Percent of ODCM Limit - Whole Body	%	4.33E-03	3.80E-03	5.63E-03	4.83E-03	
- Organ		1.30E-03	1.32E-03	2.01E-03	1.45E-03	

B. TRITIUM

	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error %
1. Total Release	Ci	6.27E+00	4.06E+00	4.41E+00	5.87E+00	6.43E+00
2. Average diluted concentration during batch discharge for the period	uCi/ml	3.00E-05	7.70E-05	9.43E-05	1.35E-04	
3. Percent of ODCM Limit	%	*	*	*	*	

C. DISSOLVED AND ENTRAINED GASSES

	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error %
1. Total release	Ci	1.12E-05	< LLD	2.74E-06	< LLD	2.11E+01
2. Average diluted concentration during batch discharge for the period	uCi/ml	5.35E-11	< LLD	5.87E-11	< LLD	
3. Percent of	%	*	*	*	*	

D. GROSS ALPHA RADIOACTIVITY

	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error %
1. Total release	Ci	< LLD	< LLD	< LLD	< LLD	2.30E+01
2. Average diluted concentration during batch discharge for the period	uCi/ml	< LLD	< LLD	< LLD	< LLD	

	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Est. Total Error %
E. Volume of waste released (prior to dilution)	Liters	1.96E+06	1.70E+06	1.52E+06	1.53E+06	5.00E+00
F. Volume of dilution water used during period	Liters	2.07E+08	5.10E+07	4.52E+07	4.18E+07	3.56E+00

* Percent of limit is included in the A.3 calculation above.

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

TABLE 9 LIQUID EFFLUENTS FOR RELEASE POINT – LIQUID RADWASTE PERIOD 2003

Nuclide Released	Batch Release				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
AG-110M	Ci	< LLD	< LLD	1.01E-06	< LLD
BA-139	Ci	< LLD	< LLD	< LLD	< LLD
BA-140	Ci	< LLD	< LLD	< LLD	< LLD
BA-141	Ci	< LLD	< LLD	< LLD	< LLD
BA-142	Ci	< LLD	< LLD	< LLD	< LLD
BR-83	Ci	< LLD	< LLD	< LLD	< LLD
BR-84	Ci	< LLD	< LLD	< LLD	< LLD
BR-85	Ci	< LLD	< LLD	< LLD	< LLD
CE-141	Ci	< LLD	< LLD	< LLD	< LLD
CE-143	Ci	< LLD	< LLD	< LLD	< LLD
CE-144	Ci	< LLD	< LLD	< LLD	< LLD
CO-58	Ci	2.97E-05	2.62E-05	4.09E-06	< LLD
CO-60	Ci	1.58E-04	2.71E-04	3.09E-04	2.19E-04
CR-51	Ci	9.51E-05	4.33E-06	< LLD	< LLD
CS-134	Ci	< LLD	< LLD	< LLD	< LLD
CS-136	Ci	< LLD	< LLD	< LLD	< LLD
CS-137	Ci	1.45E-05	< LLD	1.62E-05	1.57E-05
CS-138	Ci	< LLD	< LLD	< LLD	< LLD
CU-64	Ci	< LLD	< LLD	< LLD	< LLD
FE-55	Ci	< LLD	< LLD	< LLD	4.36E-04
FE-59	Ci	1.83E-05	5.98E-06	< LLD	2.61E-06
H-3	Ci	6.27E+00	4.06E+00	4.41E+00	5.87E+00
I-130	Ci	< LLD	< LLD	< LLD	< LLD
I-131	Ci	< LLD	< LLD	< LLD	< LLD
I-132	Ci	< LLD	< LLD	< LLD	< LLD
I-133	Ci	< LLD	< LLD	< LLD	< LLD
I-134	Ci	< LLD	< LLD	< LLD	< LLD
I-135	Ci	< LLD	< LLD	< LLD	< LLD
LA-140	Ci	< LLD	< LLD	< LLD	< LLD
LA-142	Ci	< LLD	< LLD	< LLD	< LLD
MN-54	Ci	1.93E-04	2.62E-04	2.21E-04	1.07E-04
MN-56	Ci	< LLD	< LLD	< LLD	< LLD
MO-99	Ci	< LLD	< LLD	< LLD	< LLD
NA-24	Ci	< LLD	< LLD	< LLD	< LLD
NB-95	Ci	< LLD	< LLD	< LLD	< LLD
ND-147	Ci	< LLD	< LLD	< LLD	< LLD
NI-63	Ci	< LLD	< LLD	< LLD	< LLD

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

TABLE 9 LIQUID EFFLUENTS FOR RELEASE POINT – LIQUID RADWASTE PERIOD 2003

Nuclide Released	Batch Release				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
NI-65	Ci	< LLD	< LLD	< LLD	< LLD
NP-239	Ci	< LLD	< LLD	< LLD	< LLD
PR-143	Ci	< LLD	< LLD	< LLD	< LLD
PR-144	Ci	< LLD	< LLD	< LLD	< LLD
RB-86	Ci	< LLD	< LLD	< LLD	< LLD
RB-88	Ci	< LLD	< LLD	< LLD	< LLD
RB-89	Ci	< LLD	< LLD	< LLD	< LLD
RU-103	Ci	< LLD	< LLD	< LLD	< LLD
RU-105	Ci	< LLD	< LLD	< LLD	< LLD
RU-106	Ci	< LLD	< LLD	< LLD	< LLD
SR-89	Ci	< LLD	< LLD	< LLD	< LLD
SR-90	Ci	< LLD	< LLD	< LLD	< LLD
SR-91	Ci	< LLD	< LLD	< LLD	< LLD
SR-92	Ci	< LLD	< LLD	< LLD	< LLD
TC-101	Ci	< LLD	< LLD	< LLD	< LLD
TC-99M	Ci	< LLD	< LLD	< LLD	< LLD
TE-125M	Ci	< LLD	< LLD	< LLD	< LLD
TE-127M	Ci	< LLD	< LLD	< LLD	< LLD
TE-127	Ci	< LLD	< LLD	< LLD	< LLD
TE-129M	Ci	< LLD	< LLD	< LLD	< LLD
TE-129	Ci	< LLD	< LLD	< LLD	< LLD
TE-131M	Ci	< LLD	< LLD	< LLD	< LLD
TE-131	Ci	< LLD	< LLD	< LLD	< LLD
TE-132	Ci	< LLD	< LLD	< LLD	< LLD
W-187	Ci	< LLD	< LLD	< LLD	< LLD
Y-90	Ci	< LLD	< LLD	< LLD	< LLD
Y-91M	Ci	< LLD	< LLD	< LLD	< LLD
Y-91	Ci	< LLD	< LLD	< LLD	< LLD
Y-92	Ci	< LLD	< LLD	< LLD	< LLD
Y-93	Ci	< LLD	< LLD	< LLD	< LLD
ZN-65	Ci	4.79E-06	6.78E-06	6.82E-06	2.29E-05
ZN-69	Ci	< LLD	< LLD	< LLD	< LLD
ZR-95	Ci	< LLD	< LLD	< LLD	< LLD
ZR-97	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	6.27E+00	4.06E+00	4.41E+00	5.87E+00

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

TABLE 9 LIQUID EFFLUENTS FOR RELEASE POINT – LIQUID RADWASTE PERIOD 2003

Nuclide Released	Batch Release				
	Units	Qtr 1	Qtr 2	Qtr 3	Qtr 4
AR-41	Ci	< LLD	< LLD	< LLD	< LLD
KR-83M	Ci	< LLD	< LLD	< LLD	< LLD
KR-85	Ci	< LLD	< LLD	< LLD	< LLD
KR-85M	Ci	< LLD	< LLD	< LLD	< LLD
KR-87	Ci	< LLD	< LLD	< LLD	< LLD
KR-88	Ci	< LLD	< LLD	< LLD	< LLD
KR-89	Ci	< LLD	< LLD	< LLD	< LLD
KR-90	Ci	< LLD	< LLD	< LLD	< LLD
XE-131M	Ci	< LLD	< LLD	< LLD	< LLD
XE-133	Ci	< LLD	< LLD	< LLD	< LLD
XE-133M	Ci	< LLD	< LLD	< LLD	< LLD
XE-135	Ci	1.12E-05	< LLD	2.74E-06	< LLD
XE-135M	Ci	< LLD	< LLD	< LLD	< LLD
XE-137	Ci	< LLD	< LLD	< LLD	< LLD
XE-138	Ci	< LLD	< LLD	< LLD	< LLD
Total for Period	Ci	1.12E-05	< LLD	2.74E-06	< LLD

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

Appendix B
Solid Waste and Irradiated Fuel Shipments

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

A. Solid waste shipped offsite for burial or disposal (not irradiated fuel)

1. Type of waste

Type of waste	Unit	2003	Estimated Error %
a. Spent resin, filters sludges, evaporator bottoms, etc	m^3	6.77E+01	25%
	Ci	5.87E+02	
b. Dry compressible waste, contaminated equipment, etc.	m^3	9.89E+01	25%
	Ci	1.91E+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)

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

Isotope	Waste Class A Curies *	Percent Abundance	Waste Class B Curies *	Percent Abundance	Waste Class C Curies *	Percent Abundance
H-3	8.68E+00	4.88%	4.38E+00	1.14%	1.09E+00	4.79%
Mn-54	4.44E+01	24.95%	1.02E+02	26.43%	2.95E+00	12.95%
Fe-55	5.02E+00	2.82%	2.16E+01	5.60%	5.92E-01	2.60%
Co-58	3.16E+00	1.78%	3.66E+00	0.95%	2.67E-01	1.17%
Co-60	5.43E+01	30.51%	1.82E+02	47.15%	6.79E+00	29.82%
Ni-63	1.95E+00	1.10%	3.27E+00	0.85%	2.45E-01	1.08%
Zn-65	4.99E+01	28.04%	6.46E+01	16.74%	9.65E+00	42.37%
Cs-137	4.74E+00	2.66%	1.99E+00	0.52%	6.07E-01	2.67%
Ce-144	3.64E+00	2.05%	1.79E+00	0.46%	4.54E-01	1.99%
TOTALS	1.76E+02	98.79%	3.85E+02	99.84%	2.26E+01	99.44%

* Activity is estimated

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

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

Isotope	Waste Class A Curies *	Percent Abundance
Cr-51	3.76E-01	19.67%
Mn-54	1.32E-01	6.91%
Fe-55	1.48E-01	7.74%
Co-58	1.29E-01	6.75%
Co-60	6.00E-01	31.38%
Ni-63	3.59E-01	18.77%
Zn-65	1.53E-01	8.00%
TOTALS	1.90E+00	99.22%

* Activity is estimated

3. Solid Waste (Disposition)

Number of Shipments	Mode of Transportation	Destination
2	Truck	Studsvik (THOR) to Barnwell
1	Truck	Studsvik (THOR) to Envirocare
58	Truck	Duratek to Envirocare
4	Rail	Alaron to Envirocare
11	Truck	Limerick Generating Station to Envirocare
1	Truck	Limerick Generating Station to Barnwell

Comments:
9 Shipments were made from Limerick to Duratek for processing
6 Shipments were made from Limerick to Alaron for processing
4 Shipments were made from Limerick to Studsvik (THOR) for processing
No solidifications were performed

Category A - 10 shipments Type A LSA
Category A - 4 shipments > Type A LSA
Category A - 1 shipment Type B
Category B - 62 shipments Type A LSA
Category C - No shipments made
Category D - No shipments made

B. Irradiated Fuel Shipments (disposition)

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

C. Changes to the Process Control Program

There were no revisions to procedure RW-AA-100, "Process Control Program For Radioactive Wastes".

Appendix C
Dose Calculations

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

Per ODCM Control 3.6, the Annual Effluent Release Report shall include an assessment of the radiation doses to 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
- Yearly average meteorology and actual gaseous effluent releases.
- Beta air dose attributed to noble gas releases.
- The sector with the highest x/Q, x/Q depleted and D/Q was the ESE sector at Site Boundary 762 meters.
- All significant pathways were assumed to be present
- Occupancy factor was considered 100%.

Liquid
- Average flow rate for the year (3.914E+03 cfs) was used.

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

Effluent	Applicable Organ	Estimated Dose	Age Group	Location		% of Applicable Limit	Limit	Unit
				Distance (meters)	Direction (toward)			
Noble Gas	Gamma - Air Dose	9.67E-04	All	762	ESE	4.84E-03	20	mRad
Noble Gas	Beta – Air Dose	5.89E-04	All	762	ESE	1.47E-03	40	mRad
Noble Gas	Total Body (Gamma)	6.28E-04	All	762	ESE	3.14E-03	20	mrem
Noble Gas	Skin (Beta)	1.17E-03	All	762	ESE	2.92E-03	40	mrem
Iodine, Particulate & Tritium	Thyroid	1.23E-02	Child	762	ESE	4.10E-02	30	mrem
Liquid	Total Body	5.20E-04	Child	Philadelphia Suburban		8.67E-03	6	mrem
Liquid	Liver	5.24E-04	Adult	LGS Outfall		2.62E-03	20	mrem

Doses calculated were well below all ODCM and 40 CFR Part 190 limits.

ODCM Control 3.6 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. ODCM Controls state that 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. 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 west shore of the river and the railroad tracks that runs along the east shore of the Schuylkill River are all. The dose to LGS Guards, State Police and National Guard personnel around the location of the Security Checkpoint at the entrance to the parking lot 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:

- Yearly average meteorology and actual effluent releases.
- Beta air dose attributed to noble gas releases.
- Dose is from ground plane and inhalation only. No ingestion dose.
- Adult age group was used for the National Guard Dose.
- Highest exposed sector of the railroad tracks (W), and the sectors enclosing Security Checkpoint, Frick's Lock and the Information Center available for occupancy.
- The maximum expected occupancy factor is 25% of a working year in all locations.

- Distance to the railroad tracks, which pass through the Site Boundary in the W sector, is approximately 225 meters.
- Distance to the Limerick Information Center is approximately 884 meters in the ESE sector.
- Distance to Frick's Lock is approximately 450 meters in the WSW sector.
- Distance to Security Checkpoint is approximately 682 meters in the NNE sector.

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

Location	Sector	Approx. Distane (meters)	GAMMA AIR DOSE MRAD[1]	Beta Air Dose, MRAD[2]	Iodine/Part/H3 Organ Dose, MREM[3]
Frick's Lock	WSW	450	9.24E-05	5.63E-05	2.50E-04
Info. Center	ESE	884	1.94E-04	1.18E-04	5.14E-04
R.R. Tracks	W	225	3.63E-04	2.21E-04	9.62E-04
National Guard / Security Check Point	NNE	682	8.73E-05	5.32E-05	2.25E-04

Notes:

(1) The limit for Gamma Air Dose = 20 mrad/y (ref. ODCM I3.3.3b)
(2) The limit for Beta Air Dose = 40 mrad/y (ref. ODCM I3.3.3b)
(3) The limit for Iodine/Particulate/H3 Organ Dose = 30 mrem/y (ref. ODCM I3.3.4b)

Appendix D
Meteorological Data

LIMERICK GENERATING STATION

DIGLAPSE VERSION 1.0

LAPSE RATE WIND ROSE PROGRAM TO COMPUTE

JOINT FREQUENCY DISTRIBUTIONS OF WIND DIRECTION

AND SPEED BY ATMOSPHERIC STABILITY CLASS

DIGLAPSE ALSO COMPUTES THE JOINT DATA RECOVERY RATE AS REQUIRED BY REGULATORY GUIDE 1.23. FOR BOTH THE JOINT FREQUENCY DISTRIBUTION AND DATA RECOVERY CALCULATIONS BOTH THE PRIMARY AND BACKUP SENSORS SPECIFIED IN TABLE I3.1-1 OF THE LGS OFFSITE DOSE CALCULATION MANUAL ARE USED.

THE PRIMARY AND BACK UP SENSORS USED IN THE ATTACHED DISTRIBUTIONS ARE AS FOLLOWS:

PARAMETER	TOWER 1 (PRIMARY)		TOWER 2 (BACKUP)
WIND SPEED			
LEVEL 1	30 FT.	OR	159 FT.
LEVEL 2	175 FT.	OR	304 FT.
WIND DIRECTION			
LEVEL 1	30 FT.	OR	159 FT.
LEVEL 2	175 FT.	OR	304 FT.
DELTA TEMPERATURE			
LEVELS 1 & 2	266-26 FT.	OR	300-26 FT.

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 1
DELTA T: (266-26FT)

LAPSE RATE: LE -1.9 DEG C/100M
CLASS A

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
NNE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
NE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
ENE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
E	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
ESE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
SE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
SSE	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
S	0	0.0	0	0.0	1	0.0	2	0.0	0	0.0	0	0.0	0	0.0	3	0.0
SSW	0	0.0	0	0.0	6	0.1	4	0.0	0	0.0	0	0.0	0	0.0	10	0.1
SW	0	0.0	0	0.0	4	0.0	2	0.0	0	0.0	0	0.0	0	0.0	6	0.1
WSW	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
W	0	0.0	0	0.0	0	0.0	3	0.0	0	0.0	0	0.0	0	0.0	3	0.0
WNW	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
NW	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	1	0.0
NNW	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0	0	0.0	0	0.0	2	0.0
	0	0.0	0	0.0	13	0.1	12	0.1	3	0.0	0	0.0	0	0.0	28	0.3

MEAN WIND SPEED: 8.6
MISSING: 0

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 1
DELTA T: (266-26FT)

LAPSE RATE: -1.8 TO -1.7 DEG C/100M
CLASS B

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
NNE	0	0.0	0	0.0	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
NE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
ENE	0	0.0	0	0.0	3	0.0	1	0.0	1	0.0	0	0.0	0	0.0	5	0.1
E	0	0.0	0	0.0	2	0.0	2	0.0	0	0.0	0	0.0	0	0.0	4	0.0
ESE	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
SE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
SSE	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
S	0	0.0	0	0.0	2	0.0	4	0.0	0	0.0	0	0.0	0	0.0	6	0.1
SSW	0	0.0	0	0.0	6	0.1	5	0.1	0	0.0	0	0.0	0	0.0	11	0.1
SW	0	0.0	0	0.0	5	0.1	2	0.0	0	0.0	0	0.0	0	0.0	7	0.1
WSW	0	0.0	0	0.0	5	0.1	6	0.1	0	0.0	0	0.0	0	0.0	11	0.1
W	0	0.0	0	0.0	6	0.1	6	0.1	3	0.0	0	0.0	0	0.0	15	0.2
WNW	0	0.0	0	0.0	3	0.0	4	0.0	5	0.1	0	0.0	0	0.0	12	0.1
NW	0	0.0	0	0.0	1	0.0	2	0.0	3	0.0	1	0.0	0	0.0	7	0.1
NNW	0	0.0	0	0.0	1	0.0	0	0.0	2	0.0	0	0.0	0	0.0	3	0.0
	0	0.0	0	0.0	37	0.4	34	0.4	14	0.2	1	0.0	0	0.0	86	1.0

MEAN WIND SPEED: 9.1
MISSING: 0

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 1
DELTA T: (266-26FT)

LAPSE RATE: -1.6 TO -1.5 DEG C/100M
CLASS C

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	0	0.0	8	0.1	2	0.0	0	0.0	0	0.0	0	0.0	10	0.1
NNE	0	0.0	0	0.0	8	0.1	2	0.0	0	0.0	0	0.0	0	0.0	10	0.1
NE	0	0.0	0	0.0	2	0.0	3	0.0	0	0.0	0	0.0	0	0.0	5	0.1
ENE	0	0.0	0	0.0	5	0.1	4	0.0	1	0.0	0	0.0	0	0.0	10	0.1
E	0	0.0	1	0.0	5	0.1	5	0.1	4	0.0	0	0.0	0	0.0	15	0.2
ESE	0	0.0	0	0.0	1	0.0	3	0.0	3	0.0	0	0.0	0	0.0	7	0.1
SE	0	0.0	0	0.0	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0	2	0.0
SSE	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
S	0	0.0	0	0.0	12	0.1	7	0.1	2	0.0	0	0.0	0	0.0	21	0.2
SSW	0	0.0	0	0.0	12	0.1	9	0.1	0	0.0	0	0.0	0	0.0	21	0.2
SW	0	0.0	1	0.0	15	0.2	7	0.1	0	0.0	0	0.0	0	0.0	23	0.3
WSW	0	0.0	0	0.0	21	0.2	8	0.1	0	0.0	0	0.0	0	0.0	29	0.3
W	0	0.0	2	0.0	15	0.2	7	0.1	7	0.1	1	0.0	0	0.0	32	0.4
WNW	0	0.0	0	0.0	16	0.2	18	0.2	32	0.4	5	0.1	0	0.0	71	0.8
NW	0	0.0	0	0.0	8	0.1	12	0.1	12	0.1	0	0.0	0	0.0	32	0.4
NNW	0	0.0	1	0.0	5	0.1	4	0.0	3	0.0	0	0.0	0	0.0	13	0.1
	0	0.0	5	0.1	135	1.5	92	1.1	64	0.7	6	0.1	0	0.0	302	3.5

MEAN WIND SPEED: 9.1
MISSING: 0

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 1
DELTA T: (266-26FT)

LAPSE RATE: -1.4 TO -0.5 DEG C/100M
CLASS D

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	1	0.0	33	0.4	81	0.9	39	0.4	7	0.1	0	0.0	0	0.0	161	1.8
NNE	0	0.0	39	0.4	113	1.3	31	0.4	1	0.0	0	0.0	0	0.0	184	2.1
NE	1	0.0	74	0.8	225	2.6	60	0.7	3	0.0	0	0.0	0	0.0	363	4.2
ENE	0	0.0	76	0.9	232	2.7	123	1.4	13	0.1	1	0.0	0	0.0	445	5.1
E	0	0.0	60	0.7	112	1.3	107	1.2	22	0.3	0	0.0	0	0.0	301	3.4
ESE	1	0.0	43	0.5	83	0.9	8	0.1	2	0.0	0	0.0	0	0.0	137	1.6
SE	0	0.0	33	0.4	63	0.7	20	0.2	3	0.0	2	0.0	0	0.0	121	1.4
SSE	0	0.0	28	0.3	81	0.9	24	0.3	3	0.0	0	0.0	0	0.0	136	1.6
S	0	0.0	38	0.4	116	1.3	39	0.4	6	0.1	0	0.0	0	0.0	199	2.3
SSW	0	0.0	45	0.5	109	1.2	19	0.2	1	0.0	0	0.0	0	0.0	174	2.0
SW	0	0.0	47	0.5	128	1.5	8	0.1	0	0.0	0	0.0	0	0.0	183	2.1
WSW	0	0.0	51	0.6	113	1.3	38	0.4	9	0.1	1	0.0	0	0.0	212	2.4
W	0	0.0	43	0.5	143	1.6	160	1.8	52	0.6	22	0.3	1	0.0	421	4.8
WNW	0	0.0	48	0.5	241	2.8	304	3.5	177	2.0	51	0.6	4	0.0	825	9.4
NW	0	0.0	40	0.5	137	1.6	198	2.3	147	1.7	16	0.2	0	0.0	538	6.2
NNW	0	0.0	43	0.5	60	0.7	53	0.6	19	0.2	0	0.0	0	0.0	175	2.0
	3	0.0	741	8.5	2037	23.3	1231	14.1	465	5.3	93	1.1	5	0.1	4575	52.3

MEAN WIND SPEED: 7.4
MISSING: 0

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 1
DELTA T: (266-26FT)

LAPSE RATE: -0.4 TO 1.5 DEG C/100M
CLASS E

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	1	0.0	51	0.6	13	0.1	2	0.0	0	0.0	0	0.0	0	0.0	67	0.8
NNE	0	0.0	69	0.8	18	0.2	1	0.0	0	0.0	0	0.0	0	0.0	88	1.0
NE	0	0.0	62	0.7	44	0.5	3	0.0	1	0.0	0	0.0	0	0.0	110	1.3
ENE	1	0.0	79	0.9	59	0.7	2	0.0	3	0.0	0	0.0	0	0.0	144	1.6
E	1	0.0	63	0.7	50	0.6	20	0.2	0	0.0	2	0.0	0	0.0	136	1.6
ESE	1	0.0	53	0.6	40	0.5	17	0.2	8	0.1	3	0.0	0	0.0	122	1.4
SE	0	0.0	38	0.4	60	0.7	15	0.2	6	0.1	0	0.0	0	0.0	119	1.4
SSE	1	0.0	30	0.3	82	0.9	17	0.2	5	0.1	2	0.0	0	0.0	137	1.6
S	0	0.0	61	0.7	117	1.3	18	0.2	0	0.0	0	0.0	0	0.0	196	2.2
SSW	0	0.0	95	1.1	89	1.0	14	0.2	0	0.0	0	0.0	0	0.0	198	2.3
SW	1	0.0	115	1.3	49	0.6	7	0.1	0	0.0	0	0.0	0	0.0	172	2.0
WSW	1	0.0	126	1.4	39	0.4	9	0.1	1	0.0	0	0.0	0	0.0	176	2.0
W	0	0.0	123	1.4	101	1.2	22	0.3	3	0.0	1	0.0	0	0.0	250	2.9
WNW	3	0.0	130	1.5	126	1.4	52	0.6	10	0.1	1	0.0	0	0.0	322	3.7
NW	0	0.0	76	0.9	58	0.7	22	0.3	4	0.0	0	0.0	0	0.0	160	1.8
NNW	0	0.0	56	0.6	27	0.3	2	0.0	0	0.0	0	0.0	0	0.0	85	1.0
	10	0.1	1227	14.0	972	11.1	223	2.5	41	0.5	9	0.1	0	0.0	2482	28.4

MEAN WIND SPEED: 4.3
MISSING: 0

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 1
DELTA T: (266-26FT)

LAPSE RATE: 1.6 TO 4.0 DEG C/100M
CLASS F

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM PERCENT	
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	3	0.0	39	0.4	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	44	0.5
NNE	1	0.0	20	0.2	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	22	0.3
NE	2	0.0	50	0.6	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	54	0.6
ENE	0	0.0	29	0.3	1	0.0	1	0.0	0	0.0	0	0.0	0	0.0	31	0.4
E	0	0.0	21	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	21	0.2
ESE	0	0.0	9	0.1	6	0.1	1	0.0	0	0.0	0	0.0	0	0.0	16	0.2
SE	0	0.0	8	0.1	4	0.0	1	0.0	0	0.0	0	0.0	0	0.0	13	0.1
SSE	1	0.0	21	0.2	7	0.1	0	0.0	0	0.0	0	0.0	0	0.0	29	0.3
S	2	0.0	20	0.2	10	0.1	0	0.0	0	0.0	0	0.0	0	0.0	32	0.4
SSW	1	0.0	31	0.4	9	0.1	0	0.0	0	0.0	0	0.0	0	0.0	41	0.5
SW	2	0.0	47	0.5	8	0.1	1	0.0	0	0.0	0	0.0	0	0.0	58	0.7
WSW	3	0.0	58	0.7	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	62	0.7
W	3	0.0	110	1.3	8	0.1	1	0.0	0	0.0	0	0.0	0	0.0	122	1.4
WNW	4	0.0	103	1.2	19	0.2	0	0.0	0	0.0	0	0.0	0	0.0	126	1.4
NW	2	0.0	72	0.8	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	75	0.9
NNW	2	0.0	43	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	45	0.5
	26	0.3	681	7.8	78	0.9	6	0.1	0	0.0	0	0.0	0	0.0	791	9.0

MEAN WIND SPEED: 2.2
MISSING: 0

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 1
DELTA T: (266-26FT)

LAPSE RATE: GT 4.0 DEG C/100M
CLASS G

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	1	0.0	32	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	33	0.4
NNE	3	0.0	26	0.3	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	30	0.3
NE	1	0.0	16	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	17	0.2
ENE	0	0.0	19	0.2	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	19	0.2
E	0	0.0	7	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7	0.1
ESE	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
SE	0	0.0	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
SSE	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
S	0	0.0	6	0.1	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	0.1
SSW	0	0.0	9	0.1	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	11	0.1
SW	0	0.0	12	0.1	3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15	0.2
WSW	3	0.0	22	0.3	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	27	0.3
W	5	0.1	70	0.8	3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	78	0.9
WNW	7	0.1	85	1.0	2	0.0	1	0.0	0	0.0	0	0.0	0	0.0	95	1.1
NW	7	0.1	87	1.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	95	1.1
NNW	6	0.1	37	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	43	0.5
	33	0.4	432	4.9	16	0.2	1	0.0	0	0.0	0	0.0	0	0.0	482	5.5

MEAN WIND SPEED: 1.6
MISSING: 0

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 1
DELTA T: (266-26FT)

ALL STABILITY CLASSES

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	6	0.1	155	1.8	105	1.2	43	0.5	7	0.1	0	0.0	0	0.0	316	3.6
NNE	4	0.0	154	1.8	142	1.6	35	0.4	1	0.0	0	0.0	0	0.0	336	3.8
NE	4	0.0	202	2.3	273	3.1	66	0.8	4	0.0	0	0.0	0	0.0	549	6.3
ENE	1	0.0	203	2.3	300	3.4	131	1.5	18	0.2	1	0.0	0	0.0	654	7.5
E	1	0.0	152	1.7	169	1.9	134	1.5	26	0.3	2	0.0	0	0.0	484	5.5
ESE	2	0.0	106	1.2	130	1.5	30	0.3	13	0.1	3	0.0	0	0.0	284	3.2
SE	0	0.0	81	0.9	128	1.5	37	0.4	9	0.1	2	0.0	0	0.0	257	2.9
SSE	2	0.0	80	0.9	171	2.0	43	0.5	8	0.1	2	0.0	0	0.0	306	3.5
S	2	0.0	125	1.4	260	3.0	70	0.8	8	0.1	0	0.0	0	0.0	465	5.3
SSW	1	0.0	180	2.1	233	2.7	51	0.6	1	0.0	0	0.0	0	0.0	466	5.3
SW	3	0.0	222	2.5	212	2.4	27	0.3	0	0.0	0	0.0	0	0.0	464	5.3
WSW	7	0.1	257	2.9	182	2.1	61	0.7	10	0.1	1	0.0	0	0.0	518	5.9
W	8	0.1	348	4.0	276	3.2	199	2.3	65	0.7	24	0.3	1	0.0	921	10.5
WNW	14	0.2	366	4.2	408	4.7	379	4.3	224	2.6	57	0.7	4	0.0	1452	16.6
NW	9	0.1	275	3.1	206	2.4	234	2.7	167	1.9	17	0.2	0	0.0	908	10.4
NNW	8	0.1	180	2.1	93	1.1	59	0.7	26	0.3	0	0.0	0	0.0	366	4.2
	72	0.8	3086	35.3	3288	37.6	1599	18.3	587	6.7	109	1.2	5	0.1	8746	100.0

MISSING HOURS: 14

MEAN WIND SPEED: 5.8

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 1
DELTA T: (266-26FT)

DIRECTION VS SPEED ONLY

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	6	0.1	155	1.8	105	1.2	43	0.5	7	0.1	0	0.0	0	0.0	316	3.6
NNE	4	0.0	154	1.8	142	1.6	35	0.4	1	0.0	0	0.0	0	0.0	336	3.8
NE	4	0.0	202	2.3	273	3.1	66	0.8	4	0.0	0	0.0	0	0.0	549	6.3
ENE	1	0.0	203	2.3	300	3.4	131	1.5	18	0.2	1	0.0	0	0.0	654	7.5
E	1	0.0	152	1.7	169	1.9	134	1.5	26	0.3	2	0.0	0	0.0	484	5.5
ESE	2	0.0	106	1.2	130	1.5	30	0.3	13	0.1	3	0.0	0	0.0	284	3.2
SE	0	0.0	81	0.9	128	1.5	38	0.4	9	0.1	2	0.0	0	0.0	258	2.9
SSE	2	0.0	80	0.9	171	2.0	44	0.5	8	0.1	2	0.0	0	0.0	307	3.5
S	2	0.0	125	1.4	260	3.0	70	0.8	8	0.1	0	0.0	0	0.0	465	5.3
SSW	1	0.0	180	2.1	233	2.7	51	0.6	1	0.0	0	0.0	0	0.0	466	5.3
SW	3	0.0	222	2.5	212	2.4	27	0.3	0	0.0	0	0.0	0	0.0	464	5.3
WSW	7	0.1	257	2.9	182	2.1	61	0.7	10	0.1	1	0.0	0	0.0	518	5.9
W	8	0.1	348	4.0	276	3.2	199	2.3	65	0.7	24	0.3	1	0.0	921	10.5
WNW	14	0.2	366	4.2	408	4.7	379	4.3	224	2.6	57	0.7	4	0.0	1452	16.6
NW	9	0.1	275	3.1	206	2.4	234	2.7	167	1.9	17	0.2	0	0.0	908	10.4
NNW	8	0.1	180	2.1	93	1.1	59	0.7	26	0.3	0	0.0	0	0.0	366	4.2
	72	0.8	3086	35.3	3288	37.6	1601	18.3	587	6.7	109	1.2	5	0.1	8748	100.0

MISSING HOURS: 12

MEAN WIND SPEED: 5.8

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

LIMERICK MET DATA 1/03-12/03

LIMERICK GENERATING STATION
DATA RECOVERY SUMMARY

LEVEL 1 - TOWER 1 30' OR TOWER 2 159'

PARAMETER	COUNT	PERCENT
PRIMARY SPEED GOOD HOURS	8036	91.74%
BACKUP SPEED GOOD HOURS	7845	89.55%
BACKUP SPEED HOURS USED	712	8.13%
TOTAL AVAILABLE SPEED HOURS	8748	99.86%
PRIMARY DIRECTION GOOD HOURS	8035	91.72%
BACKUP DIRECTION GOOD HOURS	4421	50.47%
BACKUP DIRECTION HOURS USED	713	8.14%
TOTAL AVAILABLE DIRECTION HOURS	8748	99.86%
PRIMARY (266-26') DELTA TEMP HOURS	8051	91.91%
BACKUP (300-26') DELTA TEMP HOURS	7843	89.53%
BACKUP DELTA TEMP HOURS USED	695	7.93%
TOTAL AVAILABLE DELTA TEMP HOURS	8746	99.84%
LEVEL 1 JOINT DATA RECOVERY:	8746	99.84%

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 2
DELTA T: (266-26FT)

LAPSE RATE: LE -1.9 DEG C/100M
CLASS A

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
NNE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
NE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
ENE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
E	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
ESE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
SE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
SSE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
S	0	0.0	0	0.0	0	0.0	1	0.0	2	0.0	0	0.0	0	0.0	3	0.0
SSW	0	0.0	0	0.0	0	0.0	8	0.1	3	0.0	0	0.0	0	0.0	11	0.1
SW	0	0.0	0	0.0	0	0.0	4	0.0	1	0.0	0	0.0	0	0.0	5	0.1
WSW	0	0.0	0	0.0	0	0.0	2	0.0	0	0.0	0	0.0	0	0.0	2	0.0
W	0	0.0	0	0.0	0	0.0	0	0.0	3	0.0	0	0.0	0	0.0	3	0.0
WNW	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
NW	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
NNW	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	0	0.0	0	0.0	0	0.0	16	0.2	9	0.1	0	0.0	0	0.0	25	0.3

MEAN WIND SPEED: 11.6
MISSING: 3

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 2
DELTA T: (266-26FT)

LAPSE RATE: -1.8 TO -1.7 DEG C/100M
CLASS B

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0
NNE	0	0.0	0	0.0	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	0.0
NE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
ENE	0	0.0	0	0.0	1	0.0	2	0.0	1	0.0	1	0.0	0	0.0	5	0.1
E	0	0.0	0	0.0	0	0.0	4	0.0	0	0.0	0	0.0	0	0.0	4	0.0
ESE	0	0.0	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	1	0.0
SE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
SSE	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
S	0	0.0	0	0.0	1	0.0	3	0.0	4	0.0	0	0.0	0	0.0	8	0.1
SSW	0	0.0	0	0.0	2	0.0	4	0.0	4	0.0	0	0.0	0	0.0	10	0.1
SW	0	0.0	0	0.0	1	0.0	6	0.1	3	0.0	0	0.0	0	0.0	10	0.1
WSW	0	0.0	0	0.0	1	0.0	5	0.1	0	0.0	4	0.0	0	0.0	10	0.1
W	0	0.0	0	0.0	0	0.0	6	0.1	4	0.0	3	0.0	0	0.0	13	0.1
WNW	0	0.0	0	0.0	1	0.0	4	0.0	4	0.0	4	0.0	0	0.0	13	0.1
NW	0	0.0	0	0.0	1	0.0	2	0.0	0	0.0	2	0.0	0	0.0	5	0.1
NNW	0	0.0	0	0.0	0	0.0	1	0.0	1	0.0	0	0.0	0	0.0	2	0.0
	0	0.0	0	0.0	11	0.1	37	0.4	22	0.3	14	0.2	0	0.0	84	1.0

MEAN WIND SPEED: 12.7
MISSING: 2

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 2
DELTA T: (266-26FT)

LAPSE RATE: -1.6 TO -1.5 DEG C/100M
CLASS C

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	0	0.0	6	0.1	4	0.0	0	0.0	0	0.0	0	0.0	10	0.1
NNE	0	0.0	0	0.0	8	0.1	2	0.0	0	0.0	0	0.0	0	0.0	10	0.1
NE	0	0.0	0	0.0	0	0.0	5	0.1	1	0.0	0	0.0	0	0.0	6	0.1
ENE	0	0.0	0	0.0	5	0.1	1	0.0	2	0.0	1	0.0	0	0.0	9	0.1
E	0	0.0	0	0.0	0	0.0	9	0.1	3	0.0	3	0.0	0	0.0	15	0.2
ESE	0	0.0	0	0.0	0	0.0	1	0.0	5	0.1	0	0.0	0	0.0	6	0.1
SE	0	0.0	0	0.0	0	0.0	1	0.0	2	0.0	0	0.0	0	0.0	3	0.0
SSE	0	0.0	0	0.0	0	0.0	1	0.0	0	0.0	0	0.0	0	0.0	1	0.0
S	0	0.0	0	0.0	6	0.1	8	0.1	5	0.1	1	0.0	0	0.0	20	0.2
SSW	0	0.0	0	0.0	5	0.1	12	0.1	5	0.1	0	0.0	0	0.0	22	0.3
SW	0	0.0	0	0.0	8	0.1	11	0.1	10	0.1	0	0.0	0	0.0	29	0.3
WSW	0	0.0	0	0.0	7	0.1	12	0.1	5	0.1	3	0.0	0	0.0	27	0.3
W	0	0.0	0	0.0	5	0.1	14	0.2	13	0.1	9	0.1	5	0.1	46	0.5
WNW	0	0.0	0	0.0	6	0.1	13	0.1	17	0.2	17	0.2	3	0.0	56	0.6
NW	0	0.0	0	0.0	5	0.1	10	0.1	4	0.0	9	0.1	0	0.0	28	0.3
NNW	0	0.0	1	0.0	2	0.0	6	0.1	2	0.0	2	0.0	0	0.0	13	0.1
	0	0.0	1	0.0	63	0.7	110	1.3	74	0.8	45	0.5	8	0.1	301	3.5

MEAN WIND SPEED: 12.5
MISSING: 1

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 2
DELTA T: (266-26FT)

LAPSE RATE: -1.4 TO -0.5 DEG C/100M
CLASS D

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	19	0.2	54	0.6	46	0.5	11	0.1	0	0.0	0	0.0	130	1.5
NNE	0	0.0	25	0.3	64	0.7	94	1.1	5	0.1	0	0.0	0	0.0	188	2.2
NE	0	0.0	30	0.3	143	1.6	152	1.7	26	0.3	1	0.0	0	0.0	352	4.0
ENE	0	0.0	48	0.6	138	1.6	179	2.1	40	0.5	5	0.1	1	0.0	411	4.7
E	0	0.0	46	0.5	73	0.8	123	1.4	81	0.9	6	0.1	0	0.0	329	3.8
ESE	0	0.0	19	0.2	66	0.8	39	0.4	18	0.2	2	0.0	0	0.0	144	1.7
SE	0	0.0	26	0.3	54	0.6	44	0.5	16	0.2	1	0.0	0	0.0	141	1.6
SSE	0	0.0	22	0.3	56	0.6	53	0.6	7	0.1	2	0.0	3	0.0	143	1.6
S	0	0.0	19	0.2	69	0.8	101	1.2	27	0.3	8	0.1	0	0.0	224	2.6
SSW	0	0.0	17	0.2	66	0.8	82	0.9	20	0.2	1	0.0	0	0.0	186	2.1
SW	0	0.0	16	0.2	71	0.8	70	0.8	18	0.2	1	0.0	0	0.0	176	2.0
WSW	0	0.0	19	0.2	50	0.6	78	0.9	46	0.5	13	0.1	4	0.0	210	2.4
W	0	0.0	16	0.2	77	0.9	140	1.6	161	1.8	74	0.8	46	0.5	514	5.9
WNW	0	0.0	14	0.2	103	1.2	244	2.8	219	2.5	101	1.2	48	0.6	729	8.4
NW	0	0.0	27	0.3	52	0.6	137	1.6	159	1.8	80	0.9	10	0.1	465	5.3
NNW	0	0.0	15	0.2	54	0.6	82	0.9	45	0.5	9	0.1	0	0.0	205	2.4
	0	0.0	378	4.3	1190	13.7	1664	19.1	899	10.3	304	3.5	112	1.3	4547	52.2

MEAN WIND SPEED: 10.4
MISSING: 28

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 2
DELTA T: (266-26FT)

LAPSE RATE: -0.4 TO 1.5 DEG C/100M
CLASS E

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	16	0.2	39	0.4	15	0.2	3	0.0	0	0.0	0	0.0	73	0.8
NNE	0	0.0	17	0.2	27	0.3	17	0.2	0	0.0	0	0.0	0	0.0	61	0.7
NE	0	0.0	28	0.3	59	0.7	28	0.3	1	0.0	0	0.0	0	0.0	116	1.3
ENE	0	0.0	32	0.4	59	0.7	30	0.3	1	0.0	3	0.0	1	0.0	126	1.4
E	0	0.0	37	0.4	49	0.6	49	0.6	14	0.2	0	0.0	2	0.0	151	1.7
ESE	0	0.0	22	0.3	36	0.4	21	0.2	18	0.2	5	0.1	2	0.0	104	1.2
SE	0	0.0	24	0.3	35	0.4	26	0.3	19	0.2	5	0.1	2	0.0	111	1.3
SSE	0	0.0	16	0.2	53	0.6	72	0.8	16	0.2	8	0.1	2	0.0	167	1.9
S	0	0.0	21	0.2	45	0.5	125	1.4	28	0.3	0	0.0	0	0.0	219	2.5
SSW	0	0.0	19	0.2	75	0.9	93	1.1	31	0.4	4	0.0	0	0.0	222	2.5
SW	0	0.0	11	0.1	85	1.0	55	0.6	7	0.1	0	0.0	0	0.0	158	1.8
WSW	0	0.0	13	0.1	79	0.9	56	0.6	14	0.2	3	0.0	1	0.0	166	1.9
W	0	0.0	26	0.3	89	1.0	108	1.2	30	0.3	4	0.0	3	0.0	260	3.0
WNW	0	0.0	17	0.2	96	1.1	151	1.7	37	0.4	7	0.1	0	0.0	308	3.5
NW	0	0.0	16	0.2	59	0.7	53	0.6	22	0.3	3	0.0	0	0.0	153	1.8
NNW	0	0.0	13	0.1	42	0.5	24	0.3	6	0.1	0	0.0	0	0.0	85	1.0
	0	0.0	328	3.8	927	10.6	923	10.6	247	2.8	42	0.5	13	0.1	2480	28.5

MEAN WIND SPEED: 8.0
MISSING: 2

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 2
DELTA T: (266-26FT)

LAPSE RATE: 1.6 TO 4.0 DEG C/100M
CLASS F

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	3	0.0	14	0.2	8	0.1	0	0.0	0	0.0	0	0.0	25	0.3
NNE	0	0.0	9	0.1	5	0.1	5	0.1	0	0.0	0	0.0	0	0.0	19	0.2
NE	0	0.0	11	0.1	14	0.2	6	0.1	0	0.0	0	0.0	0	0.0	31	0.4
ENE	0	0.0	18	0.2	11	0.1	4	0.0	0	0.0	0	0.0	0	0.0	33	0.4
E	0	0.0	13	0.1	14	0.2	8	0.1	0	0.0	0	0.0	0	0.0	35	0.4
ESE	0	0.0	8	0.1	5	0.1	2	0.0	0	0.0	0	0.0	0	0.0	15	0.2
SE	0	0.0	7	0.1	3	0.0	5	0.1	1	0.0	0	0.0	0	0.0	16	0.2
SSE	0	0.0	8	0.1	5	0.1	6	0.1	0	0.0	0	0.0	0	0.0	19	0.2
S	0	0.0	5	0.1	10	0.1	10	0.1	0	0.0	0	0.0	0	0.0	25	0.3
SSW	0	0.0	12	0.1	27	0.3	16	0.2	2	0.0	0	0.0	0	0.0	57	0.7
SW	0	0.0	13	0.1	30	0.3	10	0.1	1	0.0	0	0.0	0	0.0	54	0.6
WSW	0	0.0	14	0.2	45	0.5	12	0.1	0	0.0	0	0.0	0	0.0	71	0.8
W	0	0.0	22	0.3	66	0.8	18	0.2	2	0.0	0	0.0	0	0.0	108	1.2
WNW	0	0.0	20	0.2	104	1.2	54	0.6	0	0.0	0	0.0	0	0.0	178	2.0
NW	0	0.0	17	0.2	45	0.5	14	0.2	0	0.0	0	0.0	0	0.0	76	0.9
NNW	0	0.0	12	0.1	14	0.2	3	0.0	0	0.0	0	0.0	0	0.0	29	0.3
	0	0.0	192	2.2	412	4.7	181	2.1	6	0.1	0	0.0	0	0.0	791	9.1

MEAN WIND SPEED: 5.6
MISSING: 0

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 2
DELTA T: (266-26FT)

LAPSE RATE: GT 4.0 DEG C/100M
CLASS G

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	5	0.1	7	0.1	2	0.0	1	0.0	0	0.0	0	0.0	15	0.2
NNE	0	0.0	8	0.1	6	0.1	0	0.0	0	0.0	0	0.0	0	0.0	14	0.2
NE	0	0.0	7	0.1	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	11	0.1
ENE	0	0.0	11	0.1	4	0.0	0	0.0	0	0.0	0	0.0	0	0.0	15	0.2
E	0	0.0	10	0.1	8	0.1	0	0.0	0	0.0	0	0.0	0	0.0	18	0.2
ESE	0	0.0	7	0.1	2	0.0	0	0.0	0	0.0	0	0.0	0	0.0	9	0.1
SE	0	0.0	5	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	0.1
SSE	0	0.0	6	0.1	3	0.0	0	0.0	0	0.0	0	0.0	0	0.0	9	0.1
S	0	0.0	6	0.1	6	0.1	3	0.0	0	0.0	0	0.0	0	0.0	15	0.2
SSW	0	0.0	4	0.0	17	0.2	3	0.0	0	0.0	0	0.0	0	0.0	24	0.3
SW	0	0.0	5	0.1	17	0.2	4	0.0	0	0.0	0	0.0	0	0.0	26	0.3
WSW	0	0.0	14	0.2	18	0.2	2	0.0	0	0.0	0	0.0	0	0.0	34	0.4
W	0	0.0	18	0.2	37	0.4	6	0.1	0	0.0	0	0.0	0	0.0	61	0.7
WNW	0	0.0	24	0.3	83	1.0	36	0.4	2	0.0	0	0.0	0	0.0	145	1.7
NW	0	0.0	19	0.2	33	0.4	8	0.1	0	0.0	0	0.0	0	0.0	60	0.7
NNW	0	0.0	6	0.1	13	0.1	2	0.0	0	0.0	0	0.0	0	0.0	21	0.2
	0	0.0	155	1.8	258	3.0	66	0.8	3	0.0	0	0.0	0	0.0	482	5.5

MEAN WIND SPEED: 4.9
MISSING: 0

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 2
DELTA T: (266-26FT)

ALL STABILITY CLASSES

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	43	0.5	121	1.4	75	0.9	15	0.2	0	0.0	0	0.0	254	2.9
NNE	0	0.0	59	0.7	112	1.3	118	1.4	5	0.1	0	0.0	0	0.0	294	3.4
NE	0	0.0	76	0.9	220	2.5	191	2.2	28	0.3	1	0.0	0	0.0	516	5.9
ENE	0	0.0	109	1.3	218	2.5	216	2.5	44	0.5	10	0.1	2	0.0	599	6.9
E	0	0.0	106	1.2	144	1.7	193	2.2	98	1.1	9	0.1	2	0.0	552	6.3
ESE	0	0.0	56	0.6	109	1.3	63	0.7	42	0.5	7	0.1	2	0.0	279	3.2
SE	0	0.0	62	0.7	92	1.1	76	0.9	38	0.4	6	0.1	2	0.0	276	3.2
SSE	0	0.0	52	0.6	117	1.3	132	1.5	23	0.3	10	0.1	5	0.1	339	3.9
S	0	0.0	51	0.6	137	1.6	251	2.9	66	0.8	9	0.1	0	0.0	514	5.9
SSW	0	0.0	52	0.6	192	2.2	218	2.5	65	0.7	5	0.1	0	0.0	532	6.1
SW	0	0.0	45	0.5	212	2.4	160	1.8	40	0.5	1	0.0	0	0.0	458	5.3
WSW	0	0.0	60	0.7	200	2.3	167	1.9	65	0.7	23	0.3	5	0.1	520	6.0
W	0	0.0	82	0.9	274	3.1	292	3.4	213	2.4	90	1.0	54	0.6	1005	11.5
WNW	0	0.0	75	0.9	393	4.5	503	5.8	279	3.2	129	1.5	51	0.6	1430	16.4
NW	0	0.0	79	0.9	195	2.2	224	2.6	185	2.1	94	1.1	10	0.1	787	9.0
NNW	0	0.0	47	0.5	125	1.4	118	1.4	54	0.6	11	0.1	0	0.0	355	4.1
	0	0.0	1054	12.1	2861	32.8	2997	34.4	1260	14.5	405	4.6	133	1.5	8710	100.0

MISSING HOURS: 50

MEAN WIND SPEED: 9.1

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

LIMERICK MET DATA 1/03-12/03

JOINT DISTRIBUTION OF WIND DIRECTION AND SPEED
BY ATMOSPHERIC STABILITY CLASS
WIND: LEVEL 2
DELTA T: (266-26FT)

DIRECTION VS SPEED ONLY

WIND SPEED GROUPS (MPH)

	0.0-0.5		0.6-3.5		3.6-7.5		7.6-12.5		12.6-18.5		18.6-24.5		GE 24.6		SUM	PERCENT
DIRECTION	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT	SUM	PERCENT		
N	0	0.0	43	0.5	121	1.4	75	0.9	15	0.2	0	0.0	0	0.0	254	2.9
NNE	0	0.0	59	0.7	112	1.3	118	1.4	5	0.1	0	0.0	0	0.0	294	3.4
NE	0	0.0	76	0.9	220	2.5	191	2.2	28	0.3	1	0.0	0	0.0	516	5.9
ENE	0	0.0	109	1.3	218	2.5	216	2.5	44	0.5	10	0.1	2	0.0	599	6.9
E	0	0.0	106	1.2	144	1.7	193	2.2	98	1.1	9	0.1	2	0.0	552	6.3
ESE	0	0.0	56	0.6	109	1.3	63	0.7	42	0.5	7	0.1	2	0.0	279	3.2
SE	0	0.0	62	0.7	92	1.1	76	0.9	38	0.4	6	0.1	2	0.0	276	3.2
SSE	0	0.0	52	0.6	117	1.3	133	1.5	24	0.3	10	0.1	5	0.1	341	3.9
S	0	0.0	51	0.6	137	1.6	251	2.9	66	0.8	9	0.1	0	0.0	514	5.9
SSW	0	0.0	52	0.6	192	2.2	218	2.5	65	0.7	5	0.1	0	0.0	532	6.1
SW	0	0.0	45	0.5	212	2.4	160	1.8	40	0.5	1	0.0	0	0.0	458	5.3
WSW	0	0.0	60	0.7	200	2.3	167	1.9	65	0.7	23	0.3	5	0.1	520	6.0
W	0	0.0	82	0.9	274	3.1	292	3.4	213	2.4	90	1.0	54	0.6	1005	11.5
WNW	0	0.0	75	0.9	393	4.5	503	5.8	279	3.2	129	1.5	51	0.6	1430	16.4
NW	0	0.0	79	0.9	195	2.2	224	2.6	185	2.1	94	1.1	10	0.1	787	9.0
NNW	0	0.0	47	0.5	125	1.4	118	1.4	54	0.6	11	0.1	0	0.0	355	4.1
	0	0.0	1054	12.1	2861	32.8	2998	34.4	1261	14.5	405	4.6	133	1.5	8712	100.0

MISSING HOURS: 48

MEAN WIND SPEED: 9.1

LIMERICK MET DATA 1/03-12/03

LIMERICK GENERATING STATION
DATA RECOVERY SUMMARY

LEVEL 2 - TOWER 1 175' OR TOWER 2 304'

PARAMETER	COUNT	PERCENT
PRIMARY SPEED GOOD HOURS	8004	91.37%
BACKUP SPEED GOOD HOURS	6628	75.66%
BACKUP SPEED HOURS USED	708	8.08%
TOTAL AVAILABLE SPEED HOURS	8712	99.45%
PRIMARY DIRECTION GOOD HOURS	8036	91.74%
BACKUP DIRECTION GOOD HOURS	7845	89.55%
BACKUP DIRECTION HOURS USED	712	8.13%
TOTAL AVAILABLE DIRECTION HOURS	8748	99.86%
PRIMARY (266-26') DELTA TEMP HOURS	8051	91.91%
BACKUP (300-26') DELTA TEMP HOURS	7843	89.53%
BACKUP DELTA TEMP HOURS USED	695	7.93%
TOTAL AVAILABLE DELTA TEMP HOURS	8746	99.84%
LEVEL 2 JOINT DATA RECOVERY:	8710	99.43%