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Exelon Nuclear

SVP-12-040

10 CFR 50.36a

April 27, 2012

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

Quad Cities Nuclear Power Station, Units 1 and 2
Renewed Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Radioactive Effluent Release Report for 2011

Reference: Letter from William R. Gideon (Exelon Generation Company, LLC) to U. S. NRC, "Radioactive Effluent Release Report for 2010," dated April 27, 2011

Pursuant to Technical Specifications Section 5.6.3 and 10 CFR 50.36a, enclosed is the Quad Cities Nuclear Power Station Radioactive Effluent Release Report for January through December 2011. There were two abnormal releases that occurred during 2011. These releases, which resulted in a minor contribution to normal plant radioactive effluents, are discussed in detail in the report.

In addition, pursuant to Technical Specifications Section 5.5.1.c.3 and Offsite Dose Calculation Manual (ODCM) Section 12.7.4.3.3, enclosed is the current ODCM (CY-QC-170-301, Revision 10) which was revised in 2011.

The final enclosure (Attachment 3) is a correction to the Radioactive Effluent Release Report for 2010 which was submitted by the referenced letter.

Should you have any questions concerning this letter, please contact Mr. Wally J. Beck at (309) 227-2800.

Respectfully,

Wally John Beck for.

Tim Hanley
Site Vice President
Quad Cities Nuclear Power Station

IE48
NRR

Attachments:

1. 2011 Annual Radioactive Effluent Release Report
2. CY-QC-170-301, Revision 10, Offsite Dose Calculation Manual
3. Errata/Correction to the 2010 Annual Radioactive Effluent Release Report

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

Attachment 1

2011 Annual Radioactive Effluent Release Report

Quad Cities Nuclear Power Station
2011 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents – Summation of all Releases

Period: January – December 2011 Unit: 1 & 2

A. Fission & Activation Gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
1. Total Release	Ci	1.11E+02	9.85E+01	3.82E+01	3.20E+01	2.80E+02	12.7
2. Average Release Rate for the period	µCi/sec	1.43E+01	1.25E+01	4.80E+00	4.02E+00		
3. Percent of ODCM limit[1]	%γ	1.08E-02	9.45E-03	3.41E-03	3.13E-03		
	%β	2.75E-03	2.42E-03	9.06E-04	8.03E-04		

B. Iodine - 131							
1. Total Iodine-131	Ci	2.12E-03	3.17E-03	4.49E-04	2.39E-04	5.98E-03	41.7
2. Average Release Rate for the period	µCi/sec	2.73E-04	4.04E-04	5.65E-05	3.00E-05		
3. Percent of ODCM limit	%	N/A[2]	N/A[2]	N/A[2]	N/A[2]		

C. Particulates >8 Days[3]							
1. Particulates with >8 day half-life	Ci	2.20E-03	1.10E-03	6.01E-04	3.04E-04	4.21E-03	32.2
2. Average Release Rate for the period	µCi/sec	2.83E-04	1.40E-04	7.57E-05	3.82E-05		
3. Percent of ODCM limit	%	N/A[2]	N/A[2]	N/A[2]	N/A[2]		
4. Gross Alpha Radioactivity	Ci	<LLD[4]	<LLD[4]	<LLD[4]	<LLD[4]		

D. Tritium							
1. Total Release	Ci	1.44E+01	1.58E+01	2.29E+01	1.89E+01	7.20E+01	6.3
2. Average Release Rate for the period	µCi/sec	1.85E+00	2.01E+00	2.88E+00	2.37E+00		
3. Percent of ODCM limit	%	N/A[2]	N/A[2]	N/A[2]	N/A[2]		

E. Carbon-14							
1. Total Release	Ci	7.36E+00	5.95E+00	7.58E+00	7.54E+00	2.84E+01	N/A
2. Average Release Rate for the period	µCi/sec	9.46E-01	7.57E-01	9.53E-01	9.45E-01		
3. Percent of ODCM limit	%	N/A[2]	N/A[2]	N/A[2]	N/A[2]		

F. Iodine-131 & 133, Tritium, Particulates >8 days, & Carbon-14					
1. Percent of ODCM Limit	%	4.73E+00	6.88E+00	1.12E+00	7.07E-01

(1) % Noble gas gamma/noble gas beta dose limits

(2) Percent of ODCM limit is captured in aggregate in section F

(3) Nuclides with less than 8 day half-lives are not included per the ODCM, with the exception of those with regulatory required LLDs (La-140 and Mo-99)

(4) Gaseous LLDs reported on page 6 of 72

Quad Cities Nuclear Power Station
2011 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents Release Point Main Chimney (Elevated)

Period: January – December 2011 Unit: 1 & 2

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Kr-85	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Kr-85m	Ci	4.66E-01	4.07E-01	4.03E-01	1.46E-01	1.42E+00	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Kr-87	Ci	3.10E+00	2.68E+00	1.01E+00	8.99E-01	7.70E+00	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Kr-88	Ci	1.93E+00	1.73E+00	9.81E-01	5.43E-01	5.18E+00	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Xe-133	Ci	4.59E-01	1.20E+00	7.69E-01	2.67E-01	2.70E+00	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
X3-133m	Ci	<LLD[1]	<LLD[1]	4.72E-02	<LLD[1]	4.72E-02	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Xe-135	Ci	4.00E+00	3.13E+00	4.93E+00	8.11E-01	1.29E+01	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Xe-135m	Ci	2.07E+01	1.93E+01	6.21E+00	6.01E+00	5.23E+01	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Xe-138	Ci	8.02E+01	6.98E+01	2.37E+01	2.31E+01	1.97E+02	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Ar-41	Ci	8.06E-02	1.17E-01	1.79E-01	1.74E-01	5.51E-01	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Period Total	Ci	1.11E+02	9.85E+01	3.82E+01	3.20E+01	2.80E+02	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
2. Iodines											
I-131	Ci	2.09E-03	3.07E-03	4.40E-04	2.39E-04	5.83E-03	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
I-133	Ci	1.15E-02	5.70E-03	3.09E-03	1.97E-03	2.22E-02	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
I-135	Ci	4.64E-03	3.11E-03	<LLD[1]	<LLD[1]	7.74E-03	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Period Total	Ci	1.82E-02	1.19E-02	3.53E-03	2.21E-03	3.58E-02	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
3. Particulates > 8 days[3]											
Sr-89	Ci	4.77E-04	2.01E-04	1.85E-04	1.45E-04	1.01E-03	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Sr-90	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Cs-134	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Cs-137	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2])	N/A[2]	N/A[2]
Ba-140	Ci	8.11E-04	3.21E-04	1.92E-04	5.79E-05	1.38E-03	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
La-140	Ci	8.11E-04	3.21E-04	1.92E-04	5.79E-05	1.38E-03	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Cr-51	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Mn-54	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Co-58	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Co-60	Ci	7.31E-05	1.12E-04	<LLD[1]	<LLD[1]	1.85E-04	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Mo-99	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Ag-110m	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Ce-141	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Ce-144	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Period Total	Ci	2.17E-03	1.08E-03	5.69E-04	2.61E-04	3.96E-03	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]

(1) Gaseous LLDs reported on page 6 of 72

(2) No gaseous batch releases performed

(3) Nuclides with less than 8 day half-lives are not included per the ODCM, with the exception of those with regulatory required LLDs (La-140 and Mo-99)

Quad Cities Nuclear Power Station
2011 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents Release Point Reactor Vents (Mixed Mode)

Period: January – December 2011 Unit: 1 & 2

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Kr-85	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Kr-85m	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Kr-87	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Kr-88	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Xe-133	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Xe-133m	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Xe-135	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Xe-135m	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Xe-138	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Ar-41	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Period Total	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
2. Iodines											
I-131	Ci	3.42E-05	1.08E-04	8.83E-06	<LLD[1]	1.51E-04	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
I-133	Ci	<LLD[1]	1.06E-04	<LLD[1]	<LLD[1]	1.06E-04	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
I-135	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Period Total	Ci	3.42E-05	2.14E-04	8.83E-06	<LLD[1]	2.57E-04	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
3. Particulates > 8 days[3]											
Sr-89	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Sr-90	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Cs-134	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Cs-137	Ci	<LLD[1]	<LLD[1]	9.94E-06	1.19E-05	2.18E-05	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Ba-140	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
La-140	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Cr-51	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Mn-54	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Co-58	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Co-60	Ci	3.24E-05	1.49E-04	2.23E-05	3.13E-05	2.35E-04	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Mo-99	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Ag-110m	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Ce-141	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Ce-144	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Zn-65	Ci	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]
Period Total	Ci	3.24E-05	1.49E-04	3.22E-05	4.32E-05	2.57E-04	N/A[2]	N/A[2]	N/A[2]	N/A[2]	N/A[2]

(1) Gaseous LLDs reported on page 6 of 72

(2) No gaseous batch releases

(3) Nuclides with less than 8 day half-lives are not included per the ODCM, with the exception of those with regulatory required LLDs (La-140 and Mo-99)

Effluent & Waste Disposal Summary

Liquid Effluents – Summation of all Releases

Period: January – December 2011 Unit: 1 & 2

A. Fission & Activation Products	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
1. Total Release (not including tritium, gases & alpha)	Ci	<LLD[2]	6.49E-03	9.14E-04	1.25E-03	8.65E-03	4.8
2. Average diluted concentration during period	µCi/mL	N/A	1.78E-11	1.85E-12	3.31E-12		
3. Percent of applicable limit[1]	WB	N/A	6.87E-02	1.23E-05	2.99E-04		
	Organ	N/A	4.34E-02	2.45E-05	1.51E-04		
4. Maximum diluted concentration during batch discharges	µCi/mL	N/A	2.19E-08	N/A	N/A		
B. Tritium							
1. Total Release	Ci	<LLD[2]	5.07E-01	1.49E-03	3.59E-04	5.98E-03	4.1
2. Average diluted concentration during period	µCi/mL	N/A	1.39E-09	3.02E-12	9.50E-13		
3. Percent of applicable limit	%	N/A	4.07E-05	1.43E-07	4.77E-08		
C. Dissolved & Entrained Gases							
1. Total Release	Ci	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	N/A
2. Average diluted concentration during period	µCi/mL	N/A	N/A	N/A	N/A		
3. Percent of applicable limit	%	N/A	N/A	N/A	N/A		
D. Gross Alpha Activity							
1. Total Release	Ci	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	N/A
E. Volume of Waste Released (prior to dilution)	Liters	0.00E+00	2.28E+05	6.19E+04	3.71E+04	3.27E+05	
F. Volume of Dilution Water Used during period	Liters	2.72E+11	3.64E+11	4.94E+11	3.78E+11	1.51E+12	

(1) Whole body/organ (ODCM)
(2) Liquid LLDs reported on page 7 of 72

Quad Cities Nuclear Power Station
2011 Annual Radioactive Effluent Release Report

Effluent & Waste Disposal Summary

Liquid Effluents Release Point Mississippi River

Period: January – December 2011 Unit: 1 & 2

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission & Activation Products	**Unit**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**	**Total**
Sr-89	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
Sr-90	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2))	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
Cs-134	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
Cs-137	Ci	<LLD(1)	<LLD(1)	<LLD(1)	3.00E-05	3.00E-05	N/A(2)	4.46E-05	N/A(2)	N/A(2)	4.46E-05
I-131	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
Co-58	Ci	<LLD(1)	1.14E-07	1.05E-04	6.50E-05	1.70E-04	N/A(2)	4.57E-05	N/A(2)	N/A(2)	4.57E-05
Co-60	Ci	<LLD(1)	2.51E-07	5.80E-04	7.91E-04	1.37E-03	N/A(2)	4.74E-03	N/A(2)	N/A(2)	4.74E-03
Fe-55	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
Fe-59	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2))	N/A(2))	<LLD(1)
Zn-65	Ci	<LLD(1)	<LLD(1)	<LLD(1)	3.70E-05	3.70E-05	N/A(2)	1.40E-04	N/A(2)	N/A(2)	1.40E-04
Mn-54	Ci	<LLD(1)	<LLD(1)	8.11E-05	2.35E-04	3.16E-04	N/A(2)	1.52E-03	N/A(2)	N/A(2)	1.52E-03
Cr-51	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
Mo-99	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
Ag-110m	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
Ni-63	Ci	<LLD(1)	<LLD(1)	1.48E-04	8.87E-05	2.37E-04	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
Total for Period	Ci	<LLD(1)	3.66E-07	9.14E-04	1.25E-03	2.16E-03	N/A(2)	6.49E-03	N/A(2)	N/A(2)	6.49E-03
2. Tritium											
Total Tritium for Period	Ci	<LLD(1)	<LLD(1)	1.49E-03	3.59E-04	1.85E-03	N/A(2)	5.07E-01	N/A(2)	N/A(2)	5.07E-01
3. D&EG											
Xe-133	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
Xe-135	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)
4. Gross Alpha Activity											
Total Gross Alpha for period	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	<LLD(1)	N/A(2)	N/A(2)	<LLD(1)

(1) Liquid LLDs reported on page 7 of 72

(2) No liquid releases performed in this period

Quad Cities Nuclear Power Station
2011 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

GASEOUS EFFLUENT LLDs (Most Restrictive)

NUCLIDE LOWER LIMITS OF DETECTION (LLDs) **1. Fission gases**	UNIT	LLD Value	ODCM Required LLD
Kr-85	uCi/cc	3.02E-06	None
Kr-85m	uCi/cc	1.35E-08	None
Kr-87	uCi/cc	5.33E-08	1E-04
Kr-88	uCi/cc	5.57E-08	1E-04
Xe-133	uCi/cc	2.89E-08	1E-04
Xe-133m	uCi/cc	9.51E-08	1E-04
Xe-135	uCi/cc	1.12E-08	1E-04
Xe-135m	uCi/cc	1.24E-06	None
Xe-138	uCi/cc	3.12E-06	1E-04
Ar-41	uCi/cc	3.14E-08	None
NUCLIDE LOWER LIMITS OF DETECTION (LLDs) **2. Iodines**	**UNIT**	**LLD Value**	**ODCM Required LLD***
I-131	uCi/cc	5.85E-13	1E-12
I-133	uCi/cc	7.54E-12	1E-10
I-135	uCi/cc	1.29E-08	None
NUCLIDE LOWER LIMITS OF DETECTION (LLDs) **3. Particulates and Tritium**	**UNIT**	**LLD Value**	**ODCM Required LLD***
H-3	uCi/cc	1.01E-11	1E-06
Sr-89	uCi/cc	6.85E-13	1E-11
Sr-90	uCi/cc	1.26E-13	1E-11
Cs-134	uCi/cc	5.04E-13	1E-11
Cs-137	uCi/cc	6.14E-13	1E-11
Ba-140	uCi/cc	1.79E-12	None
La-140	uCi/cc	2.61E-12	None
Mn-54	uCi/cc	4.19E-13	1E-11
Co-58	uCi/cc	5.42E-13	1E-11
Fe-59	uCi/cc	9.97E-13	1E-11
Co-60	uCi/cc	8.54E-13	1E-11
Zn-65	uCi/cc	9.33E-13	1E-11
Mo-99	uCi/cc	8.34E-12	1E-11
Ce-141	uCi/cc	5.71E-13	1E-11
Ce-144	uCi/cc	2.17E-12	1E-11
Ag-110m	uCi/cc	4.06E-13	None
Cr-51	uCi/cc	2.83E-12	None
Gross Alpha	uCi/cc	2.72E-12	1E-11

* ODCM REC LLDs for weekly samples. These may be increased by a factor of 10 for daily samples

Quad Cities Nuclear Power Station
2011 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

LIQUID EFFLUENT LLDs (Most Restrictive)

NUCLIDE LOWER LIMITS OF DETECTION (LLDs) 3. Liquids	UNIT	LLD Value	ODCM Required LLD
H-3	uCi/cc	1.06E-06	1E-05
Sr-89	uCi/cc	1.86E-08	5E-08
Sr-90	uCi/cc	8.09E-09	5E-08
Fe-55	uCi/cc	3.80E-07	1E-06
Kr-85	uCi/cc	1.65E-05	None
Kr-87	uCi/cc	1.93E-07	1E-05
Kr-88	uCi/cc	2.01E-07	1E-05
Xe-133	uCi/cc	1.36E-07	1E-05
Xe-133m	uCi/cc	4.17E-07	1E-05
Xe-135	uCi/cc	5.90E-08	1E-05
Xe-138	uCi/cc	5.87E-06	1E-05
Mn-54	uCi/cc	6.98E-08	5E-07
Co-58	uCi/cc	6.60E-08	5E-07
Co-60	uCi/cc	7.85E-08	5E-07
Zn-65	uCi/cc	1.05E-07	5E-07
Mo-99	uCi/cc	3.78E-07	5E-07
I-131	uCi/cc	5.85E-08	1E-06
Cs-134	uCi/cc	9.75E-08	5E-07
Cs-137	uCi/cc	9.95E-08	5E-07
Ce-141	uCi/cc	8.38E-08	5E-07
Ce-144	uCi/cc	3.62E-07	5E-06
Gross Alpha	uCi/cc	9.90E-08	1E-07
Fe-59	uCi/cc	1.28E-07	5E-07
Ni-63	uCi/cc	7.70E-08	None
Cr-51	uCi/cc	3.88E-07	None
Ag-110m	uCi/cc	6.46E-08	None

Quad Cities Nuclear Power Station
2011 Annual Radioactive Effluent Release Report

Supplemental Information

Facility: Quad Cities Nuclear Power Station (QCNPS) January – December 2011

Licensee: Exelon Generation Company

1. Regulatory Limits

a. For Noble Gases:

Dose rate (per site)
1. Less than 500 mrem/year to the whole body
2. Less than 3000 mrem/year to the skin.

Dose Gamma Radiation (per unit)
1. Less than or equal to 5 mrad/quarter.
2. Less than or equal to 10 mrad/year.

Beta Radiation (per unit)
1. Less than or equal to 10 mrad/quarter.
2. Less than or equal to 20 mrad/year.

b,c. For Iodine-131, Iodine-133, Carbon-14, and for all radionuclides in particulate form with half-lives greater than 8 days.

Dose Rate
1. Less than 1500 mrem/year. (per site)

Dose (per unit)
1. Less than or equal to 7.5 mrem/quarter.
2. Less than or equal to 15 mrem/year.

d. For Liquid: (per unit)

Less than or equal to 1.5 mrem to the whole body during any calendar quarter.
Less than or equal to 5 mrem to any organ during any calendar quarter.
Less than or equal to 3 mrem to the whole body during any calendar year.
Less than or equal to 10 mrem to any organ during any calendar year.

Supplemental Information

2. Maximum Permissible Concentration

a,b,c. For fission and activation gases, iodines, and particulates with half-lives greater than 8 days, allowable release limits are calculated by solving equations 2.0-5 and 2.0-6 from the Offsite Dose Calculation Manual Part II Chapter 2. The alarm setpoint is conservatively set at approximately 10% of the 10CFR20 limit.

d. For liquid effluents, with the exception of tritium and dissolved & entrained noble gasses, allowable release limits are calculated by solving equations 2.0-1 and 2.0-2 from the Offsite Dose Calculation Manual Part II Chapter 2. The MPC values used for the monitors were as follows:

Radwaste discharge	1.55E-05 μCi/ml
Service water	1.00E-05 μCi/ml

The allowable release limits for tritium and dissolved & entrained noble gases are as follows:

Tritium: 3.00E-03 uCi/mL taken from Reg Guide 1.21
Dissolved & Entrained noble gases: 2.00E-04 uCi/mL taken from NUREG 1302

3. Average Energy

The average gamma energy used to calculate the alarm setpoints for the noble gas monitors was:

9.59E-01 MeV for Quarter 1
9.61E-01 MeV for Quarter 2
9.49E-01 MeV for Quarter 3
8.79E-01 MeV for Quarter 4

4. Measurements and Approximations of Total Radioactivity

a. Fission and Activation Gases
b. Iodines
c. Particulates
d. Carbon-14

a,b,c. The main chimney and reactor building ventilation exhaust systems are continually monitored for iodines and particulates. These samples are pulled every 7 days and analyzed by gamma isotopic. The particulate papers are composited every 31 days and sent to a vendor for Sr-89/90 and gross alpha analysis. Noble gas grab samples are pulled and analyzed by gamma isotopic weekly. Tritium samples are pulled and analyzed every month.

Supplemental Information

The Sr-89/90 and gross alpha curies released values reported are actual. On a real time basis, the portion of the "percent of applicable limit" for these contributors is reported based on projections using the previous available data. The actual results are obtained by editing the ODCM software inputs when the vendor results become available. Therefore, the "percent of applicable limits" in this report are actual.

The continuous strip chart recorders for the monitors on the release points are reviewed for spikes and the activity released is calculated. An additional calculated activity for noble gases is added to the main chimney release each month. This calculation is done because most of the grab samples show less than the lower limit of detection due to the low amount of activity and the large dilution flow at the sample point. The calculation takes into account the normal offgas train and the gland sealing steam contribution to the release.

The average flow at the release points is used to calculate the curies released.

There are no ground level releases from QCNPS. All monitored releases are considered either elevated or mixed mode.

d. Carbon-14

Quad Cities has conservatively estimated it's Carbon-14 generation and release in accordance with EPRI Technical Report 1021106, "Estimation of Carbon-14 in Nuclear Power Plant Gaseous Effluents". The Quad Cities estimate of 2.84E+01 Ci of Carbon-14 and the resultant 2.84E+01 Ci of $^{14}CO_2$ released is based upon a normalized Carbon-14 production rate of 5.10E+00 Ci/GWTh-yr, a gaseous release fraction of 1.00, a $^{14}CO_2$ fraction of 1.00, a reactor power rating of 5914 MWTh (2957 MWTh/unit for 2 units), and a calculated Effective Full Power days based upon Total Core Therms data.

e. Liquid Effluents

The River Discharge Tanks are analyzed before discharge by gamma isotopic. A composite representative portion of this sample is saved. This is composited with other discharges that occurred every 31 days and is analyzed for tritium and gross alpha. The monthly composites are composited quarterly and sent to a vendor for Fe-55, Ni-63, and Sr-89/90 analyses. The discharge bay is sampled every 31 days and analyzed by gamma isotopic for tritium and gross alpha. It is sampled quarterly and sent to a vendor for Fe-55, Ni-63, and Sr-89/90 analysis. On a real time basis, the portion of the "percent of applicable limit" for these contributors is based on projections using scaling factors. The actual results are obtained by editing the ODCM software inputs when the vendor results become available. Therefore, the "percent of applicable limits" in this report are actual.

Supplemental Information

The tank volumes and activities are used to calculate the curies released for the River Discharge Tank. The total water released during the quarter and the activity is used to calculate the diluted activity released at the discharge bay, from batch discharges.

f. Estimated Total Error Percent

The estimated total error percents were calculated by taking the square root of the sum of the squares of errors for sampling and measurement parameters.

g. Less than the Lower Limit of Detection (<LLD)

Samples are analyzed such that the Technical Specification LLD requirements are met. When a nuclide is not detected during the quarter, then <LLD is reported. The most conservative LLDs used for counting effluent samples are included in this report.

5. Batch Releases

a. Liquid

1.	Number of releases:	2
2.	Total time:	1.14E+03 minutes
3.	Maximum time:	9.31E+02 minutes
4.	Average time:	5.72E+02 minutes
5.	Minimum time:	2.13E+02 minutes
6.	Average stream flow:	56.2 gpm (discharge)
		2.53E+05 gpm (dilution)

b. Gaseous

1. NONE

6. Abnormal Releases

a. Liquid

A leak into the 1A RHR (Residual Heat Removal) heat exchanger, service water side, developed in May 2011. This produces a monitored liquid effluent release via the continuous liquid release pathway each time that the "A" loop of the Unit-1 RHR system is started. The activity identified from the leak is included in the monthly effluent calculations and is also included in the “continuous” liquid section of this report. A temporary modification to pressurize the service water side of the affected heat exchanger was installed in September 2011, which significantly reduced the leakage rate. This leak is scheduled to be repaired during refuel outage Q1R22, in March 2013. The radioactive effluent releases from this leak will continue to be trended until after the repair.

b. Gaseous

An air sample taken from the doorway of the Floor Drain Surge Tank Building vestibule on September 30, 2011 was obtained due to Max Recycle Ventilation being secured. Cs-137 at a concentration just above detection limits was identified. Conservative volume assumptions were used to estimate the total radioactivity released to the environment, and the overall impact is insignificant to normal station effluent, but still meets the definition of "abnormal" per Regulatory Guide 1.21, has been accounted for in station effluent calculations. This release totaled 8.00E-04 uCi of Cs-137. This radioactivity was added to the normal monthly station radioactive gaseous effluent for September 2011.

7. Radiological Impact on Man

a. Liquid Dose to a Member of the Public for 2011

Total Body: 1.04E-03 mrem

Organ: 2.19E-03 mrem

b. Gaseous Dose to a Member of the Public for 2011

Total Body: 4.20E-02 mrem

Skin: 6.87E-04 mrem

Organ (Particulate/Iodine/C-14): 1.00E+00 mrem

The Quad Cities calculated annual doses from Carbon-14 releases have been calculated using the methodologies outlined in the ODCM. The resultant estimated releases of Carbon-14 resulted in a dose contribution of 1.24E-01 mrem/yr to organ dose (12.4%) and 3.91E-02 mrem/yr to total body dose (93%). The maximum expected annual dose contribution from Carbon-14 has been calculated to be 2.08E-01 mrem/yr organ dose and 4.15E-02 mrem/yr total body dose. This was obtained using maximum gross thermal capacity maintained for 365 days for both units.

Quad Cities conservatively calculates a "bounding dose" for gaseous effluents. The ODCM methodology determines the maximum parameters associated with each of the 16 meteorological sectors around the site. The highest of these parameters are applied to one location to determine the maximum potential for offsite doses. This calculation assumes that all available uptake pathways are present and are being used at the "maximum exposed individual" usage factors listed in Regulatory Guide 1.109. This methodology bounds the highest expected annual dose to an individual.

Supplemental Information

c. Direct Radiation Dose to a Member of the Public for 2011

Total Body: 7.59E+00 mrem

30.4% of 40 CFR 190 Limit of 25 mrem/year (Whole Body and Organ). Thyroid dose of 1.33% of 40 CFR 190 Limit (75 mrem).

d. Total Body Doses to the Population and Average Doses to Individuals in the Population from All Receiving-Water-Related-Pathways:

Not applicable for QCNPS

e. Total Body Doses to the Population and Average Doses to Individuals in the Population from Gaseous Effluents to a Distance of 50 Miles:

Not applicable for QCNPS

f. Doses From Liquid and Gaseous Effluent to Members of the Public Due to Their Activities Inside the Site Boundary for the Report Period:

Not applicable for QCNPS. Any member of the public that is onsite for a significant period will be issued an occupational dosimeter.

g. Liquid and Gaseous Effluent Radiation Monitors and Instrumentation Unavailability for the Period Beyond the Requirements of the ODCM, Including Sampling Deviation:

No ODCM monitors were unavailable for greater than 30 days in 2011.

10CFR20.1301(a)(1) Compliance Assessment

Quad Cities Station Unit One and Unit Two

Assessment Period 01/01/2011 THROUGH 12/31/2011

10CFR20.1301(a)(1) Limit 100.0 mrem/year

Quad Cities Unit 1

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year Total	% of Limit
TEDE (mrem)	1.13E+00	8.23E-01	1.05E+00	1.06E+00	4.06E+00	**4.06**

Quad Cities Unit 2

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year Total	% of Limit
TEDE (mrem)	1.19E+00	1.27E+00	1.05E+00	1.04E+00	4.55E+00	**4.55**

Submitted by: _____ Date: 25APR2012
James G. Wooldridge

Reviewed by: BASHAM.DAVID C. Date: 25APR2012
David C. Basham

Maximum Doses Resulting From Airborne Releases/Compliance Status

Quad Cities Station - *Unit One/Unit Two*

Type of Dose	Unit One Annual	Unit Two Annual	10 CFR 50 APP. I Yearly Objective	Unit One % of APP. I	Unit Two % of APP. I
Gamma Air (mrad)	4.46E-04	4.46E-04	10.0	4.46E-03	4.46E-03
Beta Air (mrad)	2.34E-04	2.34E-04	20.0	1.17E-03	1.17E-03
Organ (mrem)	1.35E-01	1.35E-01	15.0	8.99E-01	8.99E-01
Critical Person	Child	Child		Child	Child
Critical Organ	Bone	Bone		Bone	Bone

The calculation of the above doses was done by an independent contractor utilizing GASPAR II, an NRC approved program. The calculation was done with current year meteorological data and default equation multipliers outlined in Reg Guide 1.109 and NUREG 0133. These values are provided as a comparison to the conservative dose calculations performed by Quad Cities Station.

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Extremely Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 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	0	0	0	0	0	0
NE	0	3	4	0	0	0	7
ENE	0	3	14	0	0	0	17
E	0	3	4	0	0	0	7
ESE	0	1	5	0	0	0	6
SE	0	1	5	0	0	0	6
SSE	0	4	2	0	0	0	6
S	0	1	0	0	0	0	1
SSW	0	4	0	0	0	0	4
SW	0	12	2	0	0	0	14
WSW	0	1	1	0	0	0	2
W	0	1	2	0	0	0	3
WNW	0	0	0	0	0	0	0
NW	0	2	3	0	0	0	5
NNW	0	0	2	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	37	44	0	0	0	81

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Moderately Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 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	2	0	0	0	0	2
NE	0	1	0	0	0	0	1
ENE	0	1	1	0	0	0	2
E	0	2	1	1	0	0	4
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	0	0	0	0	0	0
SSW	0	1	0	0	0	0	1
SW	0	0	1	0	0	0	1
WSW	0	2	1	0	0	0	3
W	0	0	0	0	0	0	0
WNW	0	0	2	0	0	0	2
NW	0	2	4	0	0	0	6
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	13	12	1	0	0	26

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Slightly Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	6	1	0	0	0	7
NNE	0	2	0	0	0	0	2
NE	0	3	0	0	0	0	3
ENE	0	6	2	0	0	0	8
E	0	8	8	1	0	0	17
ESE	0	4	2	0	0	0	6
SE	0	1	2	0	0	0	3
SSE	0	4	1	0	0	0	5
S	0	2	0	0	0	0	2
SSW	0	2	0	0	0	0	2
SW	0	2	3	0	0	0	5
WSW	0	4	2	0	0	0	6
W	0	6	7	0	0	0	13
WNW	0	1	7	3	0	0	11
NW	0	0	13	0	0	0	13
NNW	0	4	4	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	0	55	52	4	0	0	111

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Neutral - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	6	37	40	0	0	0	83
NNE	3	18	17	3	0	0	41
NE	5	19	20	5	0	0	49
ENE	7	50	25	0	0	0	82
E	8	49	20	10	0	0	87
ESE	4	28	22	5	0	0	59
SE	3	31	19	0	0	0	53
SSE	7	30	9	0	0	0	46
S	11	9	0	0	0	0	20
SSW	4	6	2	0	0	0	12
SW	3	24	11	0	0	0	38
WSW	7	38	14	4	0	0	63
W	4	54	45	10	0	0	113
WNW	3	60	53	13	0	0	129
NW	2	88	91	1	0	0	182
NNW	1	45	22	3	0	0	71
Variable	0	0	0	0	0	0	0
Total	78	586	410	54	0	0	1128

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Slightly Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	7	11	8	3	0	0	29
NNE	6	14	9	1	5	0	35
NE	12	25	3	3	0	0	43
ENE	15	37	11	0	0	0	63
E	10	29	17	0	0	0	56
ESE	7	23	12	0	0	0	42
SE	12	14	9	0	0	0	35
SSE	12	10	0	0	0	0	22
S	4	13	1	0	0	0	18
SSW	4	23	2	0	0	0	29
SW	8	27	5	0	0	0	40
WSW	17	24	6	1	0	0	48
W	8	40	13	5	0	0	66
WNW	8	35	5	1	0	0	49
NW	7	41	8	1	0	0	57
NNW	10	14	0	0	0	0	24
Variable	0	0	0	0	0	0	0
Total	147	380	109	15	5	0	656

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Moderately Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	0	0	0	0	0	2
NNE	4	0	0	0	0	0	4
NE	3	1	0	0	0	0	4
ENE	7	4	0	0	0	0	11
E	7	0	0	0	0	0	7
ESE	10	8	0	0	0	0	18
SE	8	7	0	0	0	0	15
SSE	7	5	0	0	0	0	12
S	4	4	0	0	0	0	8
SSW	1	0	0	0	0	0	1
SW	4	1	0	0	0	0	5
WSW	1	0	0	0	0	0	1
W	4	1	0	0	0	0	5
WNW	5	0	0	0	0	0	5
NW	1	2	0	0	0	0	3
NNW	4	1	0	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	72	34	0	0	0	0	106

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Extremely Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 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	0	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	2	0	0	0	0	0	2
ESE	4	5	0	0	0	0	9
SE	7	1	0	0	0	0	8
SSE	5	0	0	0	0	0	5
S	5	2	0	0	0	0	7
SSW	3	0	0	0	0	0	3
SW	1	0	0	0	0	0	1
WSW	2	0	0	0	0	0	2
W	0	0	0	0	0	0	0
WNW	3	0	0	0	0	0	3
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	2	0	0	0	0	0	2
Total	36	8	0	0	0	0	44

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Extremely Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

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

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Moderately Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

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

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Slightly Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	6	0	0	0	7
NNE	0	1	2	0	0	0	3
NE	0	1	5	0	0	0	6
ENE	0	1	10	1	1	0	13
E	0	2	4	3	0	0	9
ESE	0	0	3	0	0	0	3
SE	0	1	0	2	0	0	3
SSE	0	3	1	0	1	0	5
S	0	0	0	0	0	0	0
SSW	0	0	1	5	0	0	6
SW	0	0	1	7	0	0	8
WSW	0	0	2	1	0	0	3
W	0	0	2	2	0	0	4
WNW	0	0	0	8	0	0	8
NW	0	0	4	6	2	0	12
NNW	0	2	3	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	0	12	44	35	4	0	95

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Neutral - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	17	15	34	11	7	85
NNE	3	5	12	14	13	5	52
NE	1	10	16	39	13	6	85
ENE	1	16	40	49	6	0	112
E	4	20	37	28	15	7	111
ESE	2	7	14	14	9	0	46
SE	1	8	13	17	14	1	54
SSE	1	14	13	15	8	5	56
S	1	5	14	7	5	0	32
SSW	0	7	6	8	6	1	28
SW	3	6	20	15	13	0	57
WSW	2	14	30	15	8	7	76
W	0	15	28	46	17	11	117
WNW	2	20	41	86	17	13	179
NW	0	22	50	93	23	0	188
NNW	1	17	28	30	9	6	91
Variable	0	0	0	0	0	0	0
Total	23	203	377	510	187	69	1369

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 15
Hours of missing stability measurements in all stability classes: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Slightly Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	4	10	1	0	0	16
NNE	0	2	10	5	1	0	18
NE	0	3	13	3	0	0	19
ENE	0	4	14	13	1	0	32
E	1	7	21	8	0	0	37
ESE	0	2	9	8	6	1	26
SE	0	0	11	12	4	0	27
SSE	1	3	7	8	4	0	23
S	1	1	5	13	11	2	33
SSW	2	3	2	24	14	2	47
SW	0	4	4	22	6	2	38
WSW	1	1	11	16	5	1	35
W	1	0	9	18	12	6	46
WNW	0	1	9	27	0	0	37
NW	0	2	12	14	4	1	33
NNW	0	4	6	8	0	0	18
Variable	0	1	0	0	0	0	1
Total	8	42	153	200	68	15	486

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Moderately Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	1	3	0	0	4
NNE	0	2	2	1	0	0	5
NE	2	4	1	0	0	0	7
ENE	0	2	3	1	0	0	6
E	1	1	4	0	0	0	6
ESE	0	0	4	3	1	0	8
SE	0	1	7	5	0	0	13
SSE	0	0	1	6	2	0	9
S	0	0	1	4	5	0	10
SSW	0	1	2	1	3	0	7
SW	0	2	1	1	0	0	4
WSW	0	1	0	1	0	0	2
W	0	1	1	2	0	0	4
WNW	0	0	2	1	0	0	3
NW	0	3	0	0	0	0	3
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	3	18	30	29	11	0	91

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: January - March 2011
Stability Class - Extremely Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

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

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: 4

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Extremely Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	2	0	0	0	3
NNE	0	1	16	1	0	0	18
NE	0	2	8	2	0	0	12
ENE	0	3	2	3	0	0	8
E	0	0	3	1	0	0	4
ESE	0	3	19	3	0	0	25
SE	0	7	13	0	0	0	20
SSE	0	11	3	0	0	0	14
S	0	8	3	0	0	0	11
SSW	0	12	5	0	0	0	17
SW	0	22	11	0	0	0	33
WSW	0	1	3	0	0	0	4
W	0	3	16	3	0	0	22
WNW	0	3	20	1	0	0	24
NW	0	1	6	0	0	0	7
NNW	0	1	4	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	0	79	134	14	0	0	227

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: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Moderately Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 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	3	1	0	0	0	4
NE	0	0	0	1	0	0	1
ENE	0	2	2	1	0	0	5
E	0	5	1	1	0	0	7
ESE	0	0	5	0	0	0	5
SE	0	7	5	0	0	0	12
SSE	0	5	1	0	0	0	6
S	0	2	0	0	0	0	2
SSW	0	2	2	0	0	0	4
SW	0	4	2	0	0	0	6
WSW	0	0	2	0	0	0	2
W	0	1	10	1	0	0	12
WNW	0	5	3	1	0	0	9
NW	0	1	0	0	0	0	1
NNW	0	1	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	38	36	5	0	0	79

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: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Slightly Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	1	0	0	0	3
NNE	0	4	6	0	0	0	10
NE	0	5	1	1	0	0	7
ENE	0	4	3	1	0	0	8
E	0	5	2	1	0	0	8
ESE	0	5	6	2	0	0	13
SE	0	8	6	2	0	0	16
SSE	0	2	0	0	0	0	2
S	0	4	2	0	0	0	6
SSW	0	3	1	0	0	0	4
SW	0	11	2	0	0	0	13
WSW	0	10	3	0	0	0	13
W	0	9	6	1	0	0	16
WNW	0	2	6	4	0	0	12
NW	0	2	1	1	0	0	4
NNW	0	4	3	0	0	0	7
Variable	0	0	0	0	0	0	0
Total	0	80	49	13	0	0	142

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: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Neutral - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	4	23	0	0	0	29
NNE	0	7	11	0	0	0	18
NE	2	18	9	3	0	0	32
ENE	2	12	23	6	0	0	43
E	1	26	22	16	1	0	66
ESE	0	17	16	2	0	0	35
SE	1	29	25	11	0	0	66
SSE	5	15	1	0	0	0	21
S	3	11	2	0	0	0	16
SSW	4	7	2	0	0	0	13
SW	3	26	16	0	0	0	45
WSW	1	19	18	2	0	0	40
W	0	11	34	2	0	0	47
WNW	0	14	58	8	0	0	80
NW	2	29	24	4	0	0	59
NNW	1	27	2	0	0	0	30
Variable	0	0	0	0	0	0	0
Total	27	272	286	54	1	0	640

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: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Slightly Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	5	16	12	0	0	0	33
NNE	5	14	13	0	0	0	32
NE	8	21	16	6	0	0	51
ENE	21	25	11	5	0	0	62
E	21	36	44	6	0	0	107
ESE	11	41	34	4	0	0	90
SE	18	35	20	1	0	0	74
SSE	7	22	2	0	0	0	31
S	6	7	0	0	0	0	13
SSW	13	19	2	0	0	0	34
SW	15	55	7	0	0	0	77
WSW	4	34	8	0	0	0	46
W	6	24	12	1	0	0	43
WNW	9	24	10	2	0	0	45
NW	7	28	12	0	0	0	47
NNW	1	12	3	0	0	0	16
Variable	1	0	0	0	0	0	1
Total	158	413	206	25	0	0	802

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: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Moderately Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 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	4	0	0	0	0	0	4
NE	21	0	0	0	0	0	21
ENE	14	1	0	0	0	0	15
E	17	1	0	0	0	0	18
ESE	19	12	0	0	0	0	31
SE	25	10	0	0	0	0	35
SSE	2	2	0	0	0	0	4
S	3	3	0	0	0	0	6
SSW	8	2	0	0	0	0	10
SW	1	1	2	0	0	0	4
WSW	4	1	0	0	0	0	5
W	7	0	0	0	0	0	7
WNW	4	1	0	0	0	0	5
NW	1	3	0	0	0	0	4
NNW	3	2	0	0	0	0	5
Variable	2	0	0	0	0	0	2
Total	146	39	2	0	0	0	187

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: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Extremely Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 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	4	0	0	0	0	0	4
NE	6	0	0	0	0	0	6
ENE	2	0	0	0	0	0	2
E	12	0	0	0	0	0	12
ESE	15	3	0	0	0	0	18
SE	12	1	0	0	0	0	13
SSE	5	1	0	0	0	0	6
S	1	0	0	0	0	0	1
SSW	0	0	0	0	0	0	0
SW	2	0	0	0	0	0	2
WSW	3	0	0	0	0	0	3
W	6	0	0	0	0	0	6
WNW	1	0	0	0	0	0	1
NW	1	0	0	0	0	0	1
NNW	1	0	0	0	0	0	1
Variable	1	0	0	0	0	0	1
Total	76	5	0	0	0	0	81

Hours of calm in this stability class: 18
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Extremely Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	1	7	0	0	8
NE	0	0	0	4	0	1	5
ENE	0	0	0	0	1	0	1
E	0	0	0	5	0	0	5
ESE	0	0	0	3	2	0	5
SE	0	0	3	2	1	0	6
SSE	0	0	1	4	1	1	7
S	0	0	1	4	8	2	15
SSW	0	0	1	7	2	4	14
SW	0	0	3	0	0	0	3
WSW	0	0	0	0	0	0	0
W	0	0	0	2	1	0	3
WNW	0	0	0	6	0	0	6
NW	0	0	0	0	2	0	2
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	10	44	18	8	80

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: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Moderately Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	2	0	1	0	3
NNE	0	0	7	3	5	0	15
NE	0	0	2	2	0	0	4
ENE	0	1	2	1	4	0	8
E	0	0	1	3	0	0	4
ESE	0	0	5	8	4	1	18
SE	0	0	5	8	2	0	15
SSE	0	0	4	1	1	1	7
S	0	0	3	1	1	3	8
SSW	0	1	0	6	6	1	14
SW	0	0	0	1	1	0	2
WSW	0	0	1	1	0	0	2
W	0	0	0	11	2	0	13
WNW	0	0	2	7	0	0	9
NW	0	0	1	3	1	0	5
NNW	0	0	1	2	2	0	5
Variable	0	0	0	0	0	0	0
Total	0	2	36	58	30	6	132

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: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Slightly Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	1	2	0	0	4
NNE	0	3	4	2	2	0	11
NE	0	1	6	0	1	2	10
ENE	0	2	3	5	2	1	13
E	0	4	4	3	0	0	11
ESE	0	0	6	6	4	2	18
SE	0	0	5	5	3	0	13
SSE	0	0	4	4	0	1	9
S	0	2	5	1	3	3	14
SSW	0	4	4	0	5	1	14
SW	0	2	4	3	0	0	9
WSW	0	2	1	5	3	0	11
W	0	1	4	12	3	1	21
WNW	0	1	9	6	4	2	22
NW	0	1	0	2	0	0	3
NNW	0	1	2	5	0	0	8
Variable	0	0	0	0	0	0	0
Total	0	25	62	61	30	13	191

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: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Neutral - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	3	5	40	1	0	49
NNE	0	5	14	12	16	3	50
NE	0	10	10	13	12	6	51
ENE	0	7	27	36	33	10	113
E	1	15	20	32	14	4	86
ESE	0	6	16	24	22	13	81
SE	0	2	12	16	18	16	64
SSE	0	5	13	7	4	2	31
S	2	4	9	11	8	3	37
SSW	0	2	9	13	23	4	51
SW	0	7	12	22	15	2	58
WSW	0	3	4	21	5	4	37
W	0	3	10	33	21	4	71
WNW	1	5	14	42	28	1	91
NW	0	1	18	28	5	4	56
NNW	1	7	16	13	1	0	38
Variable	0	0	0	0	0	0	0
Total	5	85	209	363	226	76	964

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Slightly Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	10	6	0	0	18
NNE	0	4	6	6	2	0	18
NE	0	6	8	13	4	0	31
ENE	0	2	19	20	0	0	41
E	0	1	14	8	4	1	28
ESE	1	0	11	24	17	4	57
SE	0	6	10	24	18	2	60
SSE	0	1	17	14	8	1	41
S	0	0	12	18	16	0	46
SSW	0	1	10	29	17	8	65
SW	1	2	4	24	6	2	39
WSW	0	3	4	11	2	1	21
W	0	0	12	12	2	0	26
WNW	0	3	6	20	7	1	37
NW	0	2	9	10	2	0	23
NNW	0	4	7	2	1	0	14
Variable	0	0	0	0	0	0	0
Total	2	37	159	241	106	20	565

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: 5

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Moderately Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	4	2	0	0	6
NNE	0	2	1	2	0	0	5
NE	0	3	4	2	0	0	9
ENE	0	3	2	2	0	0	7
E	1	4	9	1	0	0	15
ESE	0	4	5	4	0	0	13
SE	1	1	7	11	3	0	23
SSE	0	0	3	16	2	0	21
S	0	1	6	7	4	0	18
SSW	0	3	0	6	0	0	9
SW	0	1	3	1	0	0	5
WSW	1	1	4	0	0	0	6
W	0	2	5	0	0	0	7
WNW	0	0	2	2	0	0	4
NW	0	4	2	0	0	0	6
NNW	1	3	0	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	4	32	57	56	9	0	158

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: April - June 2011
Stability Class - Extremely Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	1	0	0	1
NE	0	0	0	1	0	0	1
ENE	0	1	0	0	0	0	1
E	1	1	2	1	0	0	5
ESE	0	1	4	1	0	0	6
SE	0	1	1	1	0	0	3
SSE	0	0	3	3	0	0	6
S	1	0	1	3	0	0	5
SSW	0	1	0	2	0	0	3
SW	1	2	2	0	0	0	5
WSW	0	6	0	0	0	0	6
W	0	5	1	0	0	0	6
WNW	0	2	4	0	0	0	6
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	3	20	18	13	0	0	54

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: 5

Quad Cities Generating Station

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Extremely Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	13	13	0	0	0	26
NNE	0	4	17	0	0	0	21
NE	0	3	4	0	0	0	7
ENE	0	1	2	0	0	0	3
E	0	4	2	0	0	0	6
ESE	0	3	1	0	0	0	4
SE	0	5	2	0	0	0	7
SSE	0	13	3	0	0	0	16
S	0	16	1	0	0	0	17
SSW	0	5	1	0	0	0	6
SW	0	15	2	0	0	0	17
WSW	0	8	3	0	0	0	11
W	0	9	7	0	0	0	16
WNW	0	11	0	0	0	0	11
NW	0	9	0	0	0	0	9
NNW	0	15	6	0	0	0	21
Variable	0	1	0	0	0	0	1
Total	0	135	64	0	0	0	199

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Moderately Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	5	2	0	0	0	7
NNE	0	6	4	0	0	0	10
NE	0	3	1	0	0	0	4
ENE	0	5	0	0	0	0	5
E	0	4	1	0	0	0	5
ESE	0	5	0	0	0	0	5
SE	0	7	2	0	0	0	9
SSE	0	8	0	0	0	0	8
S	0	4	0	0	0	0	4
SSW	0	2	0	0	0	0	2
SW	1	6	0	0	0	0	7
WSW	0	2	1	0	0	0	3
W	1	8	1	0	0	0	10
WNW	0	3	2	0	0	0	5
NW	0	2	2	0	0	0	4
NNW	0	5	0	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	2	75	16	0	0	0	93

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Slightly Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	1	6	0	0	0	8
NNE	1	6	5	0	0	0	12
NE	0	5	2	0	0	0	7
ENE	0	14	0	0	0	0	14
E	0	6	1	0	0	0	7
ESE	0	8	0	0	0	0	8
SE	0	11	0	0	0	0	11
SSE	0	6	0	0	0	0	6
S	1	3	1	0	0	0	5
SSW	2	5	0	0	0	0	7
SW	2	15	0	0	0	0	17
WSW	2	12	0	0	0	0	14
W	3	17	1	0	0	0	21
WNW	3	7	2	0	0	0	12
NW	0	10	2	0	0	0	12
NNW	0	13	4	0	0	0	17
Variable	0	0	0	0	0	0	0
Total	15	139	24	0	0	0	178

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Neutral - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	22	17	0	0	0	41
NNE	5	21	4	0	0	0	30
NE	4	14	2	0	0	0	20
ENE	4	10	0	0	0	0	14
E	5	21	0	0	0	0	26
ESE	4	31	2	0	0	0	37
SE	4	30	2	0	0	0	36
SSE	5	13	0	0	0	0	18
S	2	17	0	0	0	0	19
SSW	7	14	0	0	0	0	21
SW	12	27	1	0	0	0	40
WSW	3	17	1	0	0	0	21
W	8	15	8	0	0	0	31
WNW	5	18	5	1	0	0	29
NW	7	14	5	6	0	0	32
NNW	6	24	1	1	0	0	32
Variable	0	1	0	0	0	0	1
Total	83	309	48	8	0	0	448

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Slightly Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	23	43	7	0	0	0	73
NNE	14	17	4	0	0	0	35
NE	12	14	0	0	0	0	26
ENE	12	6	1	0	0	0	19
E	29	15	1	0	0	0	45
ESE	28	42	2	0	0	0	72
SE	21	15	1	0	0	0	37
SSE	12	19	0	0	0	0	31
S	9	12	0	0	0	0	21
SSW	9	6	0	0	0	0	15
SW	12	31	0	0	0	0	43
WSW	8	26	4	2	0	0	40
W	12	28	4	0	0	0	44
WNW	16	23	0	0	0	0	39
NW	18	59	10	0	0	0	87
NNW	14	38	5	1	0	0	58
Variable	0	1	0	0	0	0	1
Total	249	395	39	3	0	0	686

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Moderately Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	20	7	0	0	0	0	27
NNE	20	2	0	0	0	0	22
NE	25	1	0	0	0	0	26
ENE	12	0	0	0	0	0	12
E	22	1	0	0	0	0	23
ESE	35	0	0	0	0	0	35
SE	31	1	0	0	0	0	32
SSE	14	0	0	0	0	0	14
S	13	0	0	0	0	0	13
SSW	5	1	0	0	0	0	6
SW	8	0	0	0	0	0	8
WSW	6	1	1	0	0	0	8
W	11	0	0	0	0	0	11
WNW	22	1	0	0	0	0	23
NW	28	10	0	0	0	0	38
NNW	26	7	0	0	0	0	33
Variable	0	0	0	0	0	0	0
Total	298	32	1	0	0	0	331

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: 6

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Extremely Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	6	0	0	0	0	0	6
NNE	7	0	0	0	0	0	7
NE	3	0	0	0	0	0	3
ENE	21	0	0	0	0	0	21
E	17	0	0	0	0	0	17
ESE	31	1	0	0	0	0	32
SE	28	0	0	0	0	0	28
SSE	9	0	0	0	0	0	9
S	4	0	0	0	0	0	4
SSW	2	0	0	0	0	0	2
SW	9	0	0	0	0	0	9
WSW	7	0	0	0	0	0	7
W	6	0	0	0	0	0	6
WNW	7	1	0	0	0	0	8
NW	4	4	0	0	0	0	8
NNW	3	0	0	0	0	0	3
Variable	2	0	0	0	0	0	2
Total	166	6	0	0	0	0	172

Hours of calm in this stability class: 83
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 6

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Extremely Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

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

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Moderately Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	9	11	0	0	22
NNE	0	0	10	8	0	0	18
NE	0	1	3	2	0	0	6
ENE	0	1	3	0	0	0	4
E	0	2	3	0	0	0	5
ESE	0	2	3	1	0	0	6
SE	0	1	7	3	0	0	11
SSE	0	2	4	3	1	0	10
S	0	1	3	3	1	0	8
SSW	0	2	5	1	1	0	9
SW	0	1	0	4	0	0	5
WSW	0	0	1	0	0	0	1
W	0	3	2	2	2	0	9
WNW	0	1	3	0	0	0	4
NW	0	3	4	3	0	0	10
NNW	0	2	11	3	3	0	19
Variable	0	0	0	0	0	0	0
Total	0	24	71	44	8	0	147

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Slightly Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	9	4	0	0	14
NNE	0	2	7	2	0	0	11
NE	1	11	4	0	0	0	16
ENE	0	12	3	0	0	0	15
E	0	3	2	0	0	0	5
ESE	0	8	7	0	0	0	15
SE	0	5	7	2	0	0	14
SSE	0	7	5	1	0	0	13
S	0	2	3	2	1	0	8
SSW	0	13	2	0	0	0	15
SW	0	7	3	2	0	0	12
WSW	1	7	7	2	0	0	17
W	1	16	10	3	4	0	34
WNW	0	8	4	1	2	0	15
NW	0	4	7	1	0	0	12
NNW	0	5	11	2	2	0	20
Variable	0	1	0	0	0	0	1
Total	3	112	91	22	9	0	237

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Neutral - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	4	14	22	17	6	0	63
NNE	0	15	19	8	1	1	44
NE	0	13	15	4	0	0	32
ENE	0	13	8	1	0	0	22
E	2	15	14	1	0	0	32
ESE	0	8	19	19	5	0	51
SE	1	8	14	12	1	0	36
SSE	1	5	16	5	1	0	28
S	2	8	15	17	2	0	44
SSW	0	13	8	17	6	0	44
SW	7	12	3	13	2	0	37
WSW	1	7	16	6	0	4	34
W	2	9	16	15	5	0	47
WNW	2	11	13	13	8	3	50
NW	2	12	11	16	4	5	50
NNW	1	9	24	17	3	2	56
Variable	0	0	0	0	0	0	0
Total	25	172	233	181	44	15	670

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Slightly Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	15	36	26	3	0	81
NNE	1	11	21	18	0	0	51
NE	1	5	14	6	0	0	26
ENE	0	8	5	2	0	0	15
E	0	13	22	7	1	0	43
ESE	0	3	15	22	4	0	44
SE	0	2	13	13	1	0	29
SSE	0	2	21	8	4	0	35
S	1	0	9	17	5	0	32
SSW	2	3	10	13	6	0	34
SW	0	5	13	19	6	0	43
WSW	0	3	6	18	1	1	29
W	1	0	16	12	0	0	29
WNW	0	3	4	8	1	0	16
NW	2	4	10	24	13	1	54
NNW	0	4	22	16	1	0	43
Variable	0	0	0	0	0	0	0
Total	9	81	237	229	46	2	604

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Moderately Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	10	9	11	2	0	32
NNE	3	9	18	17	0	0	47
NE	2	9	7	5	0	0	23
ENE	1	8	10	4	0	0	23
E	1	9	12	4	0	0	26
ESE	2	3	7	12	0	0	24
SE	1	4	17	9	0	0	31
SSE	0	1	9	9	0	0	19
S	2	0	16	10	0	0	28
SSW	1	3	13	4	3	0	24
SW	1	5	8	2	0	0	16
WSW	3	4	7	1	1	0	16
W	1	0	3	0	0	0	4
WNW	1	4	8	2	0	0	15
NW	1	3	10	2	0	0	16
NNW	1	2	4	2	0	0	9
Variable	0	0	0	0	0	0	0
Total	21	74	158	94	6	0	353

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: July - September 2011
Stability Class - Extremely Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	2	3	0	0	7
NNE	1	1	0	3	0	0	5
NE	1	4	1	0	0	0	6
ENE	2	3	1	0	0	0	6
E	3	4	3	1	0	0	11
ESE	0	5	7	0	0	0	12
SE	0	7	2	1	0	0	10
SSE	1	2	6	3	1	0	13
S	2	2	18	6	0	0	28
SSW	0	4	8	3	0	0	15
SW	0	4	10	3	0	0	17
WSW	0	3	7	0	0	0	10
W	0	2	3	0	0	0	5
WNW	0	0	1	0	0	0	1
NW	0	1	2	1	0	0	4
NNW	2	3	0	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	12	47	71	24	1	0	155

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Extremely Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	1	0	0	0	0	1
NE	0	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	3	3	0	0	0	6
SSE	0	7	5	0	0	0	12
S	0	4	5	0	0	0	9
SSW	0	13	4	0	0	0	17
SW	0	20	5	0	0	0	25
WSW	0	3	0	0	0	0	3
W	0	1	0	1	0	0	2
WNW	0	3	4	1	0	0	8
NW	0	1	0	0	0	0	1
NNW	0	1	2	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	0	57	28	2	0	0	87

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Moderately Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 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	1	0	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	1	0	0	0	0	1
ESE	0	0	1	0	0	0	1
SE	0	1	2	0	0	0	3
SSE	0	2	0	0	0	0	2
S	0	4	0	0	0	0	4
SSW	0	2	0	0	0	0	2
SW	0	9	2	0	0	0	11
WSW	0	0	1	0	0	0	1
W	0	1	3	0	0	0	4
WNW	0	3	4	1	0	0	8
NW	0	2	1	0	0	0	3
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	26	15	2	0	0	43

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Slightly Unstable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	1	2	2	0	0	5
NNE	0	3	0	2	0	0	5
NE	0	1	0	0	0	0	1
ENE	0	1	0	0	0	0	1
E	0	1	1	0	0	0	2
ESE	0	3	0	0	0	0	3
SE	0	6	0	0	0	0	6
SSE	0	7	1	0	0	0	8
S	0	4	0	0	0	0	4
SSW	0	4	0	0	0	0	4
SW	0	10	4	0	0	0	14
WSW	0	6	2	0	0	0	8
W	0	6	3	0	0	0	9
WNW	1	4	6	1	0	0	12
NW	0	6	9	0	0	0	15
NNW	0	4	5	0	0	0	9
Variable	0	0	0	0	0	0	0
Total	1	67	33	5	0	0	106

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Neutral - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	27	51	11	0	0	89
NNE	0	23	16	8	0	0	47
NE	1	17	1	0	0	0	19
ENE	1	24	1	0	0	0	26
E	3	13	1	0	0	0	17
ESE	0	8	0	0	0	0	8
SE	1	8	3	0	0	0	12
SSE	4	8	2	0	0	0	14
S	2	14	8	0	0	0	24
SSW	3	18	6	0	0	0	27
SW	1	30	11	1	0	0	43
WSW	4	20	3	2	0	0	29
W	3	46	27	2	0	0	78
WNW	3	30	52	16	0	0	101
NW	2	34	38	2	0	0	76
NNW	1	16	21	0	0	0	38
Variable	0	0	0	0	0	0	0
Total	29	336	241	42	0	0	648

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Slightly Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	23	10	3	0	0	38
NNE	4	12	14	8	0	0	38
NE	2	21	20	4	0	0	47
ENE	6	13	6	0	0	0	25
E	4	14	3	0	0	0	21
ESE	3	17	0	0	0	0	20
SE	12	29	3	0	0	0	44
SSE	17	37	5	0	0	0	59
S	15	40	5	0	0	0	60
SSW	10	49	17	0	0	0	76
SW	19	43	2	0	0	0	64
WSW	11	47	12	0	0	0	70
W	10	49	19	0	0	0	78
WNW	15	59	19	0	0	0	93
NW	11	55	20	4	0	0	90
NNW	5	28	3	0	0	0	36
Variable	0	0	0	0	0	0	0
Total	146	536	158	19	0	0	859

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Moderately Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	2	0	0	0	0	0	2
NNE	1	2	0	0	0	0	3
NE	3	1	0	0	0	0	4
ENE	3	0	0	0	0	0	3
E	9	0	0	0	0	0	9
ESE	19	14	0	0	0	0	33
SE	29	13	0	0	0	0	42
SSE	21	18	0	0	0	0	39
S	12	9	0	0	0	0	21
SSW	3	2	0	0	0	0	5
SW	7	2	0	0	0	0	9
WSW	4	3	0	0	0	0	7
W	7	2	0	0	0	0	9
WNW	3	7	0	0	0	0	10
NW	5	0	0	0	0	0	5
NNW	7	0	0	0	0	0	7
Variable	0	0	0	0	0	0	0
Total	135	73	0	0	0	0	208

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Extremely Stable - 196Ft-33Ft Delta-T (F)
Winds Measured at 33 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	2	0	0	0	0	3
NNE	2	0	0	0	0	0	2
NE	6	0	0	0	0	0	6
ENE	6	0	0	0	0	0	6
E	21	0	0	0	0	0	21
ESE	65	19	0	0	0	0	84
SE	36	1	0	0	0	0	37
SSE	11	0	0	0	0	0	11
S	10	0	0	0	0	0	10
SSW	6	0	0	0	0	0	6
SW	7	0	0	0	0	0	7
WSW	5	0	0	0	0	0	5
W	8	0	0	0	0	0	8
WNW	11	0	0	0	0	0	11
NW	7	0	0	0	0	0	7
NNW	3	0	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	205	22	0	0	0	0	227

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

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Extremely Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	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	4	3	0	7
S	0	0	0	1	7	0	8
SSW	0	0	0	6	0	1	7
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	0	0	0	0	0
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	0	0	11	10	1	22

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Moderately Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	0	0	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	3	2	1	0	6
SSE	0	0	1	0	0	0	1
S	0	0	1	4	2	0	7
SSW	0	0	4	6	2	2	14
SW	0	0	4	3	0	0	7
WSW	0	0	0	0	0	0	0
W	0	0	0	0	1	0	1
WNW	0	0	5	0	1	0	6
NW	0	0	1	0	1	0	2
NNW	0	0	0	0	1	0	1
Variable	0	0	0	0	0	0	0
Total	0	0	19	15	9	2	45

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Slightly Unstable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	2	0	3	2	9
NNE	0	0	1	0	0	0	1
NE	0	0	0	0	0	0	0
ENE	0	0	1	0	0	0	1
E	0	0	3	0	0	0	3
ESE	0	0	3	0	0	0	3
SE	0	3	1	0	0	0	4
SSE	0	1	4	3	4	0	12
S	0	1	3	4	1	0	9
SSW	0	1	8	6	3	1	19
SW	0	0	8	2	0	0	10
WSW	0	0	1	2	0	0	3
W	0	2	3	3	3	0	11
WNW	0	0	5	3	2	3	13
NW	0	5	1	4	2	0	12
NNW	0	2	1	1	2	0	6
Variable	0	0	0	0	0	0	0
Total	0	17	45	28	20	6	116

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Neutral - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	6	31	61	16	4	118
NNE	1	3	18	15	10	8	55
NE	0	7	16	16	13	4	56
ENE	1	10	22	3	2	1	39
E	1	6	11	7	1	0	26
ESE	1	3	5	2	0	0	11
SE	0	3	15	6	1	2	27
SSE	1	6	11	10	3	0	31
S	0	4	14	17	11	10	56
SSW	1	10	14	30	23	6	84
SW	2	7	20	20	4	2	55
WSW	0	17	20	6	4	3	50
W	0	17	30	29	29	2	107
WNW	1	12	28	37	37	14	129
NW	0	9	28	25	34	4	100
NNW	1	7	22	31	16	3	80
Variable	0	0	0	0	0	0	0
Total	10	127	305	315	204	63	1024

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Slightly Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	1	5	14	8	0	0	28
NNE	0	2	7	3	1	0	13
NE	0	1	3	7	2	0	13
ENE	0	0	5	11	0	0	16
E	0	2	0	0	0	0	2
ESE	0	0	0	3	2	0	5
SE	1	1	2	10	4	0	18
SSE	0	1	7	22	12	6	48
S	0	1	17	25	33	8	84
SSW	1	9	17	29	38	8	102
SW	0	2	4	13	7	0	26
WSW	1	2	11	15	11	0	40
W	0	5	11	27	19	1	63
WNW	0	2	14	31	7	0	54
NW	0	0	11	34	6	0	51
NNW	1	3	13	8	1	0	26
Variable	0	0	0	0	0	0	0
Total	5	36	136	246	143	23	589

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Moderately Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	2	2	1	0	0	5
NNE	0	0	3	1	0	0	4
NE	0	0	3	7	0	0	10
ENE	0	0	0	0	0	0	0
E	0	4	0	0	0	0	4
ESE	0	0	0	4	1	0	5
SE	1	0	5	13	4	0	23
SSE	1	1	9	14	10	0	35
S	0	2	7	28	24	0	61
SSW	1	2	8	5	1	0	17
SW	1	2	4	3	1	0	11
WSW	0	0	3	5	0	0	8
W	0	2	1	4	0	0	7
WNW	0	1	5	6	0	0	12
NW	0	0	2	8	1	0	11
NNW	0	1	4	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	4	17	56	99	42	0	218

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: 0

Joint Frequency Tables

Quad Cities Generating Station

Period of Record: October - December 2011
Stability Class - Extremely Stable - 296Ft-33Ft Delta-T (F)
Winds Measured at 296 Feet

Wind Direction	Wind Speed (in mph) 1-3	4-7	8-12	13-18	19-24	> 24	Total
N	0	6	3	0	0	0	9
NNE	0	3	3	0	0	0	6
NE	1	1	1	0	0	0	3
ENE	1	6	0	0	0	0	7
E	0	1	0	1	0	0	2
ESE	0	2	3	4	0	0	9
SE	0	5	12	10	7	0	34
SSE	0	0	5	23	3	0	31
S	0	2	10	20	2	0	34
SSW	0	1	6	7	0	0	14
SW	0	2	4	8	1	0	15
WSW	0	0	4	0	0	0	4
W	0	1	1	0	0	0	2
WNW	0	0	6	2	0	0	8
NW	0	4	5	1	0	0	10
NNW	0	0	2	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	2	34	65	76	13	0	190

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: 0

Quad Cities Nuclear Power Station
2011 Annual Radioactive Effluent Release Report

Solid Waste and Irradiated Fuel Shipments

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

1. Types of Waste

Types of Waste	Total Quantity (m^3)	Total Activity (Ci)	Period	Est. Total Error %
a. Spent resins, filter sludges, evaporator bottoms, etc	1.17E+02	6.13E+02	2011	2.50E+01
b. Dry compressible waste, contaminated equip, etc	2.15E+03	1.04E+01	2010	2.50E+01
c. Irradiated components, control rods, etc	N/A	N/A	N/A	N/A
d. Other (describe) Combined Packages of a. and b.	N/A	N/A	N/A	N/A

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

	Major Nuclide Composition	%
a.	Co-60	5.72E+01
	Fe-55	3.30E+01
	Cs-137	6.37E+00
	Zn-65	1.19E+00
	Ni-63	1.13E+00
b.	Mn-54	2.87E+00
	Fe-55	4.31E+01
	Co-60	4.15E+01
	Zn-65	6.65E+00
	Co-58	2.48E+00
	Ni-63	1.10E+00
c.	N/A	N/A
d.	N/A	N/A

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
31	Highway	Processor
32	Highway	Disposal
21	Rail	Disposal

B. Irradiated Fuel Shipments (disposition)

Number of Shipments	Mode of Transportation	Destination
N/A	Highway	Disposal

C. Changes to the Process Control Program

No changes made.

Attachment 2

CY-QC-170-301, Revision 10, Offsite Dose Calculation Manual

Attachment 3

Errata/Correction to the 2010 Annual Radioactive Effluent Release Report

Attachment 3

Errata/Correction to the 2010 ARERR

The following list identifies each piece of errata data that has been identified within the previous year. The following pages reflect the affected original submitted page and the edited page. The edited page contains revision bars to track the changes. At the top of each page, the year of the appropriate report is outlined. The errors in the report are inconsequential. The Station Corrective Action Program was utilized to capture these errors and to provide a tracking mechanism to correct the data from the 2010 Radiological Effluent Release Report.

Errata data from 2010 ARERR:

1. During review of the 2010 Radiological Effluent Release Report, it was identified that the report contained incorrect data for the following values in the Gaseous Effluent via the Main Chimney nuclide tables: annual total Sr-89 value, annual total Cs-137, and the particulate total activities for the 4th quarter and annual total.

   - Gaseous Effluent Release Point – Main Chimney

     Sr-89
     Reported Annual Total Value: 2.01E-03
     Corrected Annual Total Value: 1.09E-03

     Cs-137
     Reported Annual Total Value: <LLD
     Corrected Annual Total Value: 6.51E-06

     4th Quarter Particulate Total
     Reported Quarterly Particulate Total: 4.50E-03
     Corrected Quarterly Particulate Total: 1.95E-03

     Annual Particulate Total
     Reported Annual Particulate Total: 5.42E-03
     Corrected Annual Particulate Total: 4.50E-03

2. The "Liquid Effluents -- Summation of all Releases" table contained errors in the "Average Diluted Concentration" section of the tables, and are corrected in this attachment.

Quad Cities Nuclear Power Station
2010 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents Release Point Main Chimney (Elevated)

Period: January – December 2010 Unit: 1 & 2

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Kr-85	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-85m	Ci	3.78E-01	1.25E+00	4.72E-01	4.98E-01	2.60E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-87	Ci	2.38E+00	2.52E+00	3.05E+00	3.31E+00	1.13E+01	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-88	Ci	1.53E+00	1.75E+00	1.93E+00	2.04E+00	7.26E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-133	Ci	5.37E-01	2.02E+00	6.26E-01	6.20E-01	3.80E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-135	Ci	1.94E+00	2.04E+00	2.53E+00	3.28E+00	9.79E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-135m	Ci	1.42E+01	1.64E+01	1.93E+01	2.15E+01	7.15E+01	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-138	Ci	5.59E+01	6.23E+01	7.77E+01	8.25E+01	2.78E+02	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ar-41	Ci	1.90E-01	8.89E-01	1.80E-01	1.15E-01	1.37E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	7.71E+01	8.92E+01	1.06E+02	1.14E+02	3.86E+02	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
2. Iodines											
I-131	Ci	1.60E-03	2.32E-03	1.96E-03	1.91E-03	7.79E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
I-133	Ci	7.48E-03	1.32E-02	1.17E-02	1.21E-02	4.46E-02	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
I-135	Ci	1.50E-03	5.52E-03	4.16E-03	<LLD(1)	1.12E-02	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	1.06E-02	2.11E-02	1.78E-02	1.40E-02	6.35E-02	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
3. Particulates											
Sr-89	Ci	1.28E-04	1.42E-04	3.93E-04	4.22E-04	2.01E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Sr-90	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cs-134	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cs-137	Ci	<LLD(1)	<LLD(1)	6.51E-06	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2))	N/A(2)	N/A(2)
Ba-140	Ci	1.82E-04	6.13E-05	9.18E-04	8.54E-04	2.01E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
La-140	Ci	2.46E-05	1.48E-04	4.78E-04	6.24E-04	1.28E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cr-51	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Mn-54	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Co-58	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Co-60	Ci	2.13E-05	<LLD(1)	4.52E-05	4.95E-05	1.16E-04	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Mo-99	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ag-110m	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ce-141	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ce-144	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	3.56E-04	3.52E-04	1.84E-03	4.50E-03	5.42E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)

(1) Gaseous LLD's reported on page 6 of 72

(2) No gaseous batch releases

Quad Cities Nuclear Power Station
2010 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents Release Point Main Chimney (Elevated)

Period: January – December 2010 Unit: 1 & 2

Nuclides Released		Continuous Mode					Batch Mode				
1. Fission gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
Kr-85	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-85m	Ci	3.78E-01	1.25E+00	4.72E-01	4.98E-01	2.60E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-87	Ci	2.38E+00	2.52E+00	3.05E+00	3.31E+00	1.13E+01	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-88	Ci	1.53E+00	1.75E+00	1.93E+00	2.04E+00	7.26E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-133	Ci	5.37E-01	2.02E+00	6.26E-01	6.20E-01	3.80E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-135	Ci	1.94E+00	2.04E+00	2.53E+00	3.28E+00	9.79E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-135m	Ci	1.42E+01	1.64E+01	1.93E+01	2.15E+01	7.15E+01	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-138	Ci	5.59E+01	6.23E+01	7.77E+01	8.25E+01	2.78E+02	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ar-41	Ci	1.90E-01	8.89E-01	1.80E-01	1.15E-01	1.37E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	7.71E+01	8.92E+01	1.06E+02	1.14E+02	3.86E+02	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
2. Iodines											
I-131	Ci	1.60E-03	2.32E-03	1.96E-03	1.91E-03	7.79E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
I-133	Ci	7.48E-03	1.32E-02	1.17E-02	1.21E-02	4.46E-02	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
I-135	Ci	1.50E-03	5.52E-03	4.16E-03	<LLD(1)	1.12E-02	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	1.06E-02	2.11E-02	1.78E-02	1.40E-02	6.35E-02	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
3. Particulates											
Sr-89	Ci	1.28E-04	1.42E-04	3.93E-04	4.22E-04	1.09E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Sr-90	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cs-134	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cs-137	Ci	<LLD(1)	<LLD(1)	6.51E-06	<LLD(1)	6.51E-06	N/A(2)	N/A(2)	N/A(2))	N/A(2)	N/A(2)
Ba-140	Ci	1.82E-04	6.13E-05	9.18E-04	8.54E-04	2.01E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
La-140	Ci	2.46E-05	1.48E-04	4.78E-04	6.24E-04	1.28E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cr-51	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Mn-54	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Co-58	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Co-60	Ci	2.13E-05	<LLD(1)	4.52E-05	4.95E-05	1.16E-04	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Mo-99	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ag-110m	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ce-141	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ce-144	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	3.56E-04	3.52E-04	1.84E-03	1.95E-03	4.50E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)	N/A(2)

(1) Gaseous LLD's reported on page 6 of 72

(2) No gaseous batch releases

Quad Cities Nuclear Power Station
2010 Annual Radioactive Effluent Release Report

Effluent & Waste Disposal Summary

Liquid Effluents – Summation of all Releases

Period: January – December 2010 Unit: 1 & 2

A. Fission & Activation Products	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
1. Total Release (not including tritium, gases & alpha)	Ci	4.77E-04	3.27E-03	1.79E-02	<LLD[2]	2.17E-02	4.1
2 Average diluted concentration during period	µCi/mL	3.09E-10	1.27E-08	5.79E-09	<LLD[2]		
3. Percent of applicable limit[1]	WB	2.77E-02	3.01E-01	9.10E-02	<LLD[2]		
	Organ	2.26E-02	1.51E-01	5.73E-02	<LLD[2]		
4. Maximum diluted concentration during batch discharges	µCi/mL	3.24E-10	1.27E-08	6.39E-09	<LLD[2]		

B. Tritium							
1. Total Release [3]	Ci	6.06E+00	3.82E+00	4.89E+00	3.35E+00	1.81E+01	4.1
2. Average diluted concentration during period	µCi/mL	3.94E-06	1.48E-05	1.58E-06	8.98E-09		
3. Percent of applicable limit	%	6.03E-02	6.63E-02	1.66E-02	2.99E-04		

C. Dissolved & Entrained Gases							
1. Total Release	Ci	<LLD[2]	<LLD[2]	2.73E-04	<LLD[2]	2.73E-04	4.1
2. Average diluted concentration during period	µCi/mL	<LLD[2]	<LLD[2]	8.85E-11	<LLD[2]		
3. Percent of applicable limit	%	N/A	N/A	4.43E-05	N/A		

D. Gross Alpha Activity							
1. Total Release	Ci	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	14.8

E. Volume Of Waste Released (prior to dilution)	Liters	4.04E+05	1.01E+05	4.06E+05	0.00E+00	9.10E+05

F. Volume Of Dilution Water Used During Period	Liters	2.38E+11	4.26E+11	4.90E+11	3.73E+11	1.53E+12

(1) Whole body/organ (ODCM)

(2) Liquid LLD's reported on page 7 of 72

(3) Total Ci's include those considered in Abnormal Release

Quad Cities Nuclear Power Station
2010 Annual Radioactive Effluent Release Report

Effluent & Waste Disposal Summary

Liquid Effluents – Summation of all Releases

Period: January – December 2010 Unit: 1 & 2

A. Fission & Activation Products	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
1. Total Release (not including tritium, gases & alpha)	Ci	4.77E-04	3.27E-03	1.79E-02	<LLD(2)	2.17E-02	4.1
2 Average diluted concentration during period	µCi/mL	2.00E-12	7.67E-12	3.65E-11	<LLD(2)		
3. Percent of applicable limit(1)	WB	2.77E-02	3.01E-01	9.10E-02	<LLD(2)		
	Organ	2.26E-02	1.51E-01	5.73E-02	<LLD(2)		
4. Maximum diluted concentration during batch discharges	µCi/mL	3.24E-10	1.27E-08	6.39E-09	<LLD(2)		

B. Tritium							
1. Total Release (3)	Ci	6.06E+00	3.82E+00	4.89E+00	3.35E+00	1.81E+01	4.1
2. Average diluted concentration during period	µCi/mL	2.55E-08	8.97E-09	9.98E-09	8.98E-09		
3. Percent of applicable limit	%	6.03E-02	6.63E-02	1.66E-02	2.99E-04		

C. Dissolved & Entrained Gases							
1. Total Release	Ci	<LLD(2)	<LLD(2)	2.73E-04	<LLD(2)	2.73E-04	4.1
2. Average diluted concentration during period	µCi/mL	<LLD(2)	<LLD(2)	5.57E-13	<LLD(2)		
3. Percent of applicable limit	%	N/A	N/A	4.43E-05	N/A		

D. Gross Alpha Activity							
1. Total Release	Ci	<LLD(2)	<LLD(2)	<LLD(2)	<LLD(2)	<LLD(2)	14.8

E. Volume Of Waste Released (prior to dilution)	Liters	4.04E+05	1.01E+05	4.06E+05	0.00E+00	9.10E+05

F. Volume Of Dilution Water Used During Period	Liters	2.38E+11	4.26E+11	4.90E+11	3.73E+11	1.53E+12

(1) Whole body/organ (ODCM)

(2) Liquid LLD's reported on page 7 of 72

(3) Total Ci's include those considered in Abnormal Release