Enclosure 1

2013 Annual Radioactive Effluent Release Report

Quad Cities Nuclear Power Station

2013 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents – Summation of all Releases

Period: January – December 2013 Unit: 1 & 2

A. Fission & Activation Gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total	Est. Total Error %
1. Total Release	Ci	2.39E+01	1.44E+01	1.46E+01	1.99E+01	7.28E+01	12.7
2. Average release rate for the period	µCi/sec	3.07E+00	1.84E+00	1.83E+00	2.50E+00		
3. Percent of ODCM limit[1]	%γ	1.02E-02	6.30E-03	6.19E-03	8.18E-03		
	%β	6.73E-04	5.30E-04	4.36E-04	6.56E-04		
B. Iodine							
1. Total Iodine – 131	Ci	3.46E-04	9.13E-05	<LLD[4]	5.34E-05	4.91E-04	41.7
2. Average release rate for the period	µCi/sec	4.45E-05	1.16E-05	N/A	6.71E-06		
3. Percent of ODCM limit	%	N/A[2]	N/A[2]	N/A[2]	N/A[2]		
C. Particulates							
1. Particulates with half-lives >8 days	Ci	4.91E-04	1.75E-04	1.21E-04	1.62E-04	9.49E-04	32.2
2. Average release rate for the period	µCi/sec	6.32E-05	2.23E-05	1.52E-05	2.03E-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	1.70E+01	1.68E+01	2.28E+01	2.22E+01	7.88E+01	6.3
2. Average release rate for the period	µCi/sec	2.19E+00	2.13E+00	2.87E+00	2.79E+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	6.45E+00	7.15E+00	7.54E+00	7.57E+00	2.87E+01	
2. Average release rate for the period	µCi/sec	8.30E-01	9.10E-01	9.49E-01	9.53E-01		
3. Percent of ODCM limit	%	N/A[2]	N/A[2]	N/A[2]	N/A[2]		

F. Iodine 131 & 133, Tritium, Particulate, and C-14					
1. Percent of ODCM Organ Dose limit	%	8.92E-01	6.65E-01	6.99E-01	7.03E-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 Effluent LLDs reported on page 9 of 76

Quad Cities Nuclear Power Station

2013 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents Release Point Main Chimney (Elevated) Continuous Mode

Period: January – December 2013 Unit: 1 & 2

Continuous Mode					
Nuclides Released	**Jan – Mar 2013**	**Apr – Jun 2013**	**Jul – Sep 2013**	**Oct – Dec 2013**	**Total**
1. FISSION AND ACTIVATION GASES: Curies					
Kr-85	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Kr-85m	1.10E-01	6.06E-02	6.23E-02	8.57E-02	3.19E-01
Kr-87	6.57E-01	3.73E-01	4.03E-01	5.45E-01	1.97E+00
Kr-88	3.83E-01	2.12E-01	2.27E-01	3.06E-01	1.13E+00
Xe-133	2.54E-01	4.54E-02	9.40E-02	1.56E-01	5.49E-01
Xe-135	6.28E-01	3.14E-01	3.47E-01	4.46E-01	1.73E+00
Xe-135m	4.30E+00	2.39E+00	2.57E+00	3.36E+00	1.26E+01
Xe-138	1.64E+01	9.36E+00	9.86E+00	1.30E+01	4.86E+01
Ar-41	2.47E-01	2.25E-01	2.24E-01	2.57E-01	9.53E-01
Total for Period	2.30E+01	1.30E+01	1.38E+01	1.81E+01	6.79E+01
2. IODINES: Curies					
I-131	3.30E-04	9.13E-05	<LLD[1]	5.34E-05	4.75E-04
I-133	1.73E-03	5.93E-04	5.47E-04	1.16E-03	4.03E-03
I-135	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Total for Period	2.06E-03	6.84E-04	5.47E-04	1.21E-03	4.50E-03
3. PARTICULATES WITH HALF-LIVES > 8 DAYS[2]: Curies					
Cr-51	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Mn-54	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Fe-55	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Co-58	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Co-60	8.80E-05	3.71E-05	<LLD[1]	1.46E-05	1.40E-04
Ni-63	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Zn-65	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Sr-89	7.82E-05	1.15E-04	5.10E-05	8.31E-05	3.28E-04
Sr-90	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Zr/Nb-95	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Mo-99	<LLD[1]	1.79E-05	<LLD[1]	<LLD[1]	1.79E-05
Ag-110m	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Cs-134	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Cs-137	8.66E-06	<LLD[1]	<LLD[1]	<LLD[1]	8.66E-06
Ba/La[3] -140	1.64E-04	<LLD[1]	3.70E-05	7.40E-05	2.75E-04
Ce-141	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ce-144	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Total for Period	3.39E-04	1.70E-04	8.80E-05	1.72E-04	7.70E-04
4. Carbon-14: Curies					
C-14	6.26E+00	6.94E+00	7.32E+00	7.35E+00	2.79E+01
5. Tritium: Curies					
H-3	1.40E+01	1.49E+01	2.07E+01	1.94E+01	6.89E+01
6. Gross Alpha: Curies					
Gross Alpha	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]

(1) Gaseous LLD's reported on page 9 of 76

(2) Includes La-140 and Mo-99 per the ODCM

(3) Not included on summary page due to half-life <8 days. Equilibrium assumed, i.e., value for each nuclide is ½ of total

Quad Cities Nuclear Power Station

2013 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents Release Point Main Chimney (Elevated) Batch Mode [1]

Period: January – December 2013 Unit: 1 & 2

Batch Mode [1]					
Nuclides Released	**Jan – Mar 2013**	**Apr – Jun 2013**	**Jul – Sep 2013**	**Oct – Dec 2013**	**Total**
1. FISSION AND ACTIVATION GASES: Curies					
Kr-85	N/A	N/A	N/A	N/A	N/A
Kr-85m	N/A	N/A	N/A	N/A	N/A
Kr-87	N/A	N/A	N/A	N/A	N/A
Kr-88	N/A	N/A	N/A	N/A	N/A
Xe-133	N/A	N/A	N/A	N/A	N/A
Xe-135	N/A	N/A	N/A	N/A	N/A
Xe-135m	N/A	N/A	N/A	N/A	N/A
Xe-138	N/A	N/A	N/A	N/A	N/A
Ar-41	N/A	N/A	N/A	N/A	N/A
Total for Period	N/A	N/A	N/A	N/A	N/A
2. IODINES: Curies					
I-131	N/A	N/A	N/A	N/A	N/A
I-133	N/A	N/A	N/A	N/A	N/A
I-135	N/A	N/A	N/A	N/A	N/A
Total for Period	N/A	N/A	N/A	N/A	N/A
3. PARTICULATES WITH HALF-LIVES > 8 DAYS[2]: Curies					
Cr-51	N/A	N/A	N/A	N/A	N/A
Mn-54	N/A	N/A	N/A	N/A	N/A
Fe-55	N/A	N/A	N/A	N/A	N/A
Fe-59	N/A	N/A	N/A	N/A	N/A
Co-58	N/A	N/A	N/A	N/A	N/A
Co-60	N/A	N/A	N/A	N/A	N/A
Ni-63	N/A	N/A	N/A	N/A	N/A
Zn-65	N/A	N/A	N/A	N/A	N/A
Sr-89	N/A	N/A	N/A	N/A	N/A
Sr-90	N/A	N/A	N/A	N/A	N/A
Zr/Nb-95	N/A	N/A	N/A	N/A	N/A
Mo-99[3]	N/A	N/A	N/A	N/A	N/A
Ag-110m	N/A	N/A	N/A	N/A	N/A
Cs-134	N/A	N/A	N/A	N/A	N/A
Cs-137	N/A	N/A	N/A	N/A	N/A
Ba/La[3] -140	N/A	N/A	N/A	N/A	N/A
Ce-141	N/A	N/A	N/A	N/A	N/A
Ce-144	N/A	N/A	N/A	N/A	N/A
Total for Period	N/A	N/A	N/A	N/A	N/A
4. Carbon-14: Curies					
C-14	N/A	N/A	N/A	N/A	N/A
5. Tritium: Curies					
H-3	N/A	N/A	N/A	N/A	N/A
6. Gross Alpha: Curies					
Gross Alpha	N/A	N/A	N/A	N/A	N/A

(1) Quad Cities Station performed no batch gaseous releases.

(2) Includes La-140 and Mo-99 per the ODCM

(3) Not included on summary page due to half-life <8 days

Effluent & Waste Disposable Summary

Gaseous Effluents Release Point Reactor Vent (Mixed Mode) Continuous Mode

Period: January – December 2013 Unit: 1 & 2

Continuous Mode					
Nuclides Released	**Jan – Mar 2013**	**Apr – Jun 2013**	**Jul – Sep 2013**	**Oct – Dec 2013**	**Total**
1. FISSION AND ACTIVATION GASES: Curies					
Kr-85	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Kr-85m	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Kr-87	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Kr-88	<LLD[1]	1.64E-01	<LLD[1]	<LLD[1]	1.64E-01
Xe-133	8.45E-01	1.30E+00	7.78E-01	1.73E+00	4.65E+00
Xe-135	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Xe-135m	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Xe-138	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ar-41	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Total for Period	8.45E-01	1.46E+00	7.78E-01	1.73E+00	4.82E+00
2. IODINES: Curies					
I-131	1.63E-05	<LLD[1]	<LLD[1]	<LLD[1]	1.63E-05
I-133	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
I-135	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Total for Period	1.63E-05	<LLD[1]	<LLD[1]	<LLD[1]	1.63E-05
3. PARTICULATES WITH HALF-LIVES > 8 DAYS[2]: Curies					
Cr-51	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Mn-54	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Fe-55	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Fe-59	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Co-58	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Co-60	2.01E-04	1.36E-05	5.12E-05	2.71E-05	2.93E-04
Ni-63	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Zn-65	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Sr-89	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Sr-90	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Zr/Nb-95	3.30E-05	9.46E-06	<LLD[1]	<LLD[1]	4.25E-05
Mo-99[3]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ag-110m	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Cs-134	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Cs-137	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ba/La[3] -140	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ce-141	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ce-144	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Total for Period	2.34E-04	2.31E-05	5.12E-05	2.71E-05	3.35E-04
4. Carbon-14: Curies					
C-14	1.94E-01	2.15E-01	2.27E-01	2.28E-01	8.63E-01
5. Tritium: Curies					
H-3	3.06E+00	1.86E+00	2.12E+00	2.80E+00	9.84E+00
6. Gross Alpha: Curies					
Gross Alpha	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]

(1) Gaseous LLD's reported on page 9 of 76

(2) Includes La-140 and Mo-99 per the ODCM

(3) Not included on summary page due to half-life <8 days

Quad Cities Nuclear Power Station

2013 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents Release Point Reactor Vent (Mixed Mode) Batch Mode

Period: January – December 2013 Unit: 1 & 2

Batch Mode [1]					
Nuclides Released	**Jan – Mar 2013**	**Apr – Jun 2013**	**Jul – Sep 2013**	**Oct – Dec 2013**	**Total**
1. FISSION AND ACTIVATION GASES: Curies					
Kr-85	N/A	N/A	N/A	N/A	N/A
Kr-85m	N/A	N/A	N/A	N/A	N/A
Kr-87	N/A	N/A	N/A	N/A	N/A
Kr-88	N/A	N/A	N/A	N/A	N/A
Xe-133	N/A	N/A	N/A	N/A	N/A
Xe-135	N/A	N/A	N/A	N/A	N/A
Xe-135m	N/A	N/A	N/A	N/A	N/A
Xe-138	N/A	N/A	N/A	N/A	N/A
Ar-41	N/A	N/A	N/A	N/A	N/A
Total for Period	N/A	N/A	N/A	N/A	N/A
2. IODINES: Curies					
I-131	N/A	N/A	N/A	N/A	N/A
I-133	N/A	N/A	N/A	N/A	N/A
I-135	N/A	N/A	N/A	N/A	N/A
Total for Period	N/A	N/A	N/A	N/A	N/A
3. PARTICULATES WITH HALF-LIVES > 8 DAYS[2]: Curies					
Cr-51	N/A	N/A	N/A	N/A	N/A
Mn-54	N/A	N/A	N/A	N/A	N/A
Fe-55	N/A	N/A	N/A	N/A	N/A
Co-58	N/A	N/A	N/A	N/A	N/A
Co-60	N/A	N/A	N/A	N/A	N/A
Ni-63	N/A	N/A	N/A	N/A	N/A
Zn-65	N/A	N/A	N/A	N/A	N/A
Sr-89	N/A	N/A	N/A	N/A	N/A
Sr-90	N/A	N/A	N/A	N/A	N/A
Zr/Nb-95	N/A	N/A	N/A	N/A	N/A
Mo-99[3]	N/A	N/A	N/A	N/A	N/A
Ag-110m	N/A	N/A	N/A	N/A	N/A
Cs-134	N/A	N/A	N/A	N/A	N/A
Cs-137	N/A	N/A	N/A	N/A	N/A
Ba/La[3] -140	N/A	N/A	N/A	N/A	N/A
Ce-141	N/A	N/A	N/A	N/A	N/A
Ce-144	N/A	N/A	N/A	N/A	N/A
Total for Period	N/A	N/A	N/A	N/A	N/A
4. Carbon-14: Curies					
C-14	N/A	N/A	N/A	N/A	N/A
5. Tritium: Curies					
H-3	N/A	N/A	N/A	N/A	N/A
6. Gross Alpha: Curies					
Gross Alpha	N/A	N/A	N/A	N/A	N/A

(1) Quad Cities Station performed no batch gaseous releases.

(2) Includes La-140 and Mo-99 per the ODCM

(3) Not included on summary page due to half-life <8 days

Quad Cities Nuclear Power Station

2013 Annual Radioactive Effluent Release Report

Effluent & Waste Disposal Summary

Liquid Effluents – Summation of all Releases

Period: January – December 2013 Unit: 1 & 2

A. Fission & Activation Products [3]	Unit	Jan – Mar 2013	Apr – Jun 2013	Jul – Sep 2013	Oct – Dec 2013	Total	Est. Total Error %
1. Total Release (not including tritium, gases & alpha)	Ci	1.22E-02	<LLD[2]	<LLD[2]	<LLD[2]	1.22E-02	4.80
2 Average diluted concentration during period	µCi/mL	5.26E-11	N/A	N/A	N/A		
3. Percent of applicable limit[1]	WB	2.60E-02	N/A	N/A	N/A		
	Organ	6.04E-02	N/A	N/A	N/A		
4. Maximum diluted concentration during batch discharges	µCi/mL	1.44E-08	N/A	N/A	N/A		

B. Tritium [3]							
1. Total Release	Ci	3.00E-01	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	4.10
2. Average diluted concentration during period	µCi/mL	1.29E-09	N/A	N/A	N/A		
3. Percent of applicable limit	%	4.31E-05	N/A	N/A	N/A		

C. Dissolved & Entrained Gases							
1. Total Release	Ci	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	4.8
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]	14.8

E. Volume Of Waste Released (prior to dilution)	Liters	2.55E+05	0.00E+00	0.00E+00	0.00E+00	2.55E+05
F. Volume Of Dilution Water Used During Period	Liters	2.32E+11	4.33E+11	4.95E+11	3.40E+11	1.50E+12

(1) Whole body/organ (ODCM)

(2) Liquid LLD's reported on page 10 of 76

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

Effluent & Waste Disposal Summary

Liquid Effluents Release Point Mississippi River Continuous Mode

Period: January – December 2013 Unit: 1 & 2

	Continuous Mode				
Nuclides Released	**Jan – Mar 2013**	**Apr – Jun 2013**	**Jul – Sep 2013**	**Oct – Dec 2013**	**Total**
1.Fission and Activation Products: Curies					
Cr-51	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Mn-54	3.37E-05	<LLD[1]	<LLD[1]	<LLD[1]	3.37E-05
Fe-55	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Co-58	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Co-60	2.10E-04	<LLD[1]	<LLD[1]	<LLD[1]	2.10E-04
Ni-63	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Zn-65	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Sr-89	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Sr-90	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Zr/Nb-95	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Mo-99	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ag-110m	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Cs-134	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Cs-137	1.81E-05	<LLD[1]	<LLD[1]	<LLD[1]	1.81E-05
Ba/La -140	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ce-141	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ce-144	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Total for Period	2.62E-04	<LLD[1]	<LLD[1]	<LLD[1]	2.62E-04
2. Dissolved and Entrained Noble Gases: Curies					
Xe-133	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Xe-135	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Total for Period	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]

(1) Liquid LLD's reported on page 10 of 76

Quad Cities Nuclear Power Station

2013 Annual Radioactive Effluent Release Report

Effluent & Waste Disposal Summary

Liquid Effluents Release Point Mississippi River Batch Mode (River Discharge Tank)

Period: January – December 2013 Unit: 1 & 2

	Batch Mode				
Nuclides Released	**Jan – Mar 2013**	**Apr – Jun 2013**	**Jul – Sep 2013**	**Oct – Dec 2013**	**Total**
1.Fission and Activation Products: Curies					
Cr-51	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Mn-54	3.62E-04	<LLD[1]	<LLD[1]	<LLD[1]	3.62E-04
Fe-55	3.51E-03	<LLD[1]	<LLD[1]	<LLD[1]	3.51E-03
Co-58	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Co-60	7.93E-03	<LLD[1]	<LLD[1]	<LLD[1]	7.93E-03
Ni-63	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Zn-65	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Sr-89	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Sr-90	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Zr/Nb-95	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Mo-99	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ag-110m	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Cs-134	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Cs-137	7.91E-05	<LLD[1]	<LLD[1]	<LLD[1]	7.91E-05
Ba/La-140	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ce-141	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Ce-144	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Total for Period	1.19E-02	<LLD[1]	<LLD[1]	<LLD[1]	1.19E-02
2. Dissolved and Entrained Noble Gases: Curies					
Xe-133	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Xe-135	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]
Total for Period	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]	<LLD[1]

(1) Liquid LLD's reported on page 10 of 76

Effluent & Waste Disposable Summary

GASEOUS EFFLUENT LLD's (Most Restrictive)

CONTINUOUS MODE

NUCLIDE LOWER LIMITS OF DETECTION (LLD's) **1. Fission gases**	**UNIT**	**LLD Value**	**ODCM Required LLD**
Kr-85	uCi/cc	3.70E-06	None
Kr-85m	uCi/cc	1.38E-08	None
Kr-87	uCi/cc	3.40E-08	1E-04
Kr-88	uCi/cc	5.41E-08	1E-04
Xe-133	uCi/cc	2.70E-08	1E-04
Xe-133m	uCi/cc	8.71E-08	1E-04
Xe-135	uCi/cc	1.26E-08	1E-04
Xe-135m	uCi/cc	1.03E-06	None
Xe-138	uCi/cc	2.43E-06	1E-04
Ar-41	uCi/cc	9.00e-09	None
NUCLIDE LOWER LIMITS OF DETECTION (LLD's) **2. Iodines**	**UNIT**	**LLD Value**	**ODCM Required LLD***
I-131	uCi/cc	8.27E-13	1E-12
I-133	uCi/cc	1.11E-11	1E-10
I-135	uCi/cc	1.29E-08	None
NUCLIDE LOWER LIMITS OF DETECTION (LLD's) **3. Particulates, Tritium, Gross Alpha**	**UNIT**	**LLD Value**	**ODCM Required LLD***
H-3	uCi/cc	1.01E-11	1E-06
Fe-55	uCi/cc	7.76E-13	None
Ni-63	uCi/cc	1.83e-14	None
Sr-89	uCi/cc	4.63E-14	1E-11
Sr-90	uCi/cc	1.26E-13	1E-11
Cs-134	uCi/cc	4.72E-13	1E-11
Cs-137	uCi/cc	5.09E-13	1E-11
Ba-140	uCi/cc	1.63E-12	None
La-140	uCi/cc	2.79E-12	None
Mn-54	uCi/cc	2.97E-13	1E-11
Co-58	uCi/cc	4.38E-13	1E-11
Fe-59	uCi/cc	8.77E-13	1E-11
Co-60	uCi/cc	8.85E-13	1E-11
Zn-65	uCi/cc	9.42E-13	1E-11
Mo-99	uCi/cc	8.44E-12	1E-11
Ce-141	uCi/cc	5.87E-13	1E-11
Ce-144	uCi/cc	2.43E-12	1E-11
Ag-110m	uCi/cc	3.25E-13	None
Cr-51	uCi/cc	2.95E-12	None
Gross Alpha	uCi/cc	2.24E-12	1E-11

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

LIQUID EFFLUENT LLD's (Most Restrictive)

NUCLIDE LOWER LIMITS OF DETECTION (LLD's) 3. Liquids	UNIT	LLD Value	ODCM Required LLD
H-3	uCi/cc	1.06E-06	1E-05
Sr-89	uCi/cc	5.00E-08	5E-08
Sr-90	uCi/cc	2.58E-08	5E-08
Fe-55	uCi/cc	6.78E-07	1E-06
Ar-41	uCi/cc	9.55E-08	None
Kr-85	uCi/cc	1.33E-05	None
Kr-85m	uCi/cc	6.29E-08	None
Kr-87	uCi/cc	1.84E-07	1E-05
Kr-88	uCi/cc	1.79E-07	1E-05
Xe-133	uCi/cc	1.49E-07	1E-05
Xe-133m	uCi/cc	4.34E-07	1E-05
Xe-135	uCi/cc	4.64E-08	1E-05
Xe-135m	uCi/cc	1.84E-06	None
Xe-138	uCi/cc	6.65E-06	1E-05
Mn-54	uCi/cc	4.88E-08	5E-07
Co-58	uCi/cc	4.87E-08	5E-07
Co-60	uCi/cc	1.05E-07	5E-07
Zn-65	uCi/cc	1.29E-07	5E-07
Mo-99	uCi/cc	4.66E-07	5E-07
I-131	uCi/cc	5.10E-08	1E-06
Cs-134	uCi/cc	5.59E-08	5E-07
Cs-137	uCi/cc	7.46E-08	5E-07
Ce-141	uCi/cc	7.95E-08	5E-07
Ce-144	uCi/cc	3.61E-07	5E-06
Gross Alpha	uCi/cc	9.68E-08	1E-07
Fe-59	uCi/cc	1.18E-07	5E-07
Ni-63	uCi/cc	5.87E-07	None
Cr-51	uCi/cc	4.75E-07	None
Ag-110m	uCi/cc	6.13E-08	None

Facility: Quad Cities Nuclear Power Station (QCNPS) January – December 2013

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.

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 3.03E-07 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 are as follows:

9.63E-01 MeV for Quarter 1

9.64E-01 MeV for Quarter 2

9.65E-01 MeV for Quarter 3

9.56E-01 MeV for Quarter 4

4. Measurements and Approximations of Total Radioactivity

a. Fission and Activation Gases

b. Iodines

c. Particulates

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.

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 or reactor building release each month if applicable. 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 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 estimated its 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 2.87E+01 Ci of Carbon-14 and the resultant 2.87E+01 Ci $^{14}CO2$ 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 Carbon-14 CO2 fraction of 1.00, a reactor power rating of 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 prior to 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 Sr-89/90, Ni-63, and Fe-55 analyses. The discharge bay is sampled every 31 days and analyzed for gamma by isotopic, for tritium and for gross alpha. It is sampled quarterly and sent to a vendor for Sr-89/90, Ni-63, and Fe-55 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.

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 LLD's used for counting effluent samples are included in this report.

5. Batch Releases

a. Liquid

1.	Number of releases:	1
2.	Total time:	8.94E+02 minutes
3.	Maximum time:	8.94E+02 minutes
4.	Average time:	8.94E+02 minutes
5.	Minimum time:	8.94E+02 minutes
6.	Average stream flow:	6.25E+01 GPM

b. Gaseous

1. NONE

6. Abnormal Releases

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 was repaired during refuel outage Q1R22, in March 2013. This release pathway continued to be sampled for the remainder of 2013 to verify that the leakage had ended.

b. Gaseous

1. NONE

7. Radiological Impact on Man

a. Liquid Dose to a Member of the Public for 2013

Total Body: 7.81E-04 mrem

Organ: 1.81E-03 mrem

b. Gaseous Dose to a Member of the Public for 2013

Total Body: 4.18E-02 mrem

Skin: 3.40E-05 mrem

Organ (Particulate/Iodine/C-14): 2.01E-01 mrem Child/Bone

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 1.98E-01 mrem/yr to organ dose (98.6%) and 3.96E-02 mrem/yr to total body dose (94.8%). 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.

c. Direct Radiation Dose to a Member of the Public for 2013

Total Body: 7.82E+00 mrem

31.3% of 40 CFR 190 Limit of 25 mrem/year (Total Body)

Organ Dose: 2.01E-01 mrem Child/Bone

8.04E-01 % of 40CFR190 limit of 25 mrem/year (Organ Dose)

Thyroid Dose: 1.22E-01 mrem Infant/Thyroid

1.63E-01% of 40 CFR 190 Limit 75 mrem/yr (Thyroid Dose).

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 a 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 2012.

Quad Cities Nuclear Power Station

2013 Annual Radioactive Effluent Release Report

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

Quad Cities Station Unit One and Unit Two

Assessment Period 01/01/2013 – 01/01/2014

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)	7.77E-01	9.28E-01	1.02E+00	1.04E+00	3.76E+00	**3.76E+00**

Quad Cities Unit 2

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year Total	% of Limit
TEDE (mrem)	9.90E-01	1.02E+00	1.01E+00	1.04E+00	4.06E+00	**4.06E+00**

Submitted by: BASHAM, DAVID C. Date: 29APR2014

David C. Basham

Reviewed by: Date: 29APR2014

James G. Wooldridge

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)	1.90E-04	1.90E-04	10.0	1.90E-03	1.90E-03
Beta Air (mrad)	1.16E-04	1.16E-04	20.0	2.90E-05	2.90E-05
Organ (mrem)	1.34E-01	1.34E-01	15.0	8.93E-01	8.93E-01
Critical Person	Child	Child			
Critical Organ	Bone	Bone			

The calculation of the above doses was done by an independent contractor utilizing GASPAR, an NRC approved program. The calculation was done with current year meteorological data and equation multipliers outlined in Reg Guide 1.109 and NUREG 0133.

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	1	0	0	0	2
NNE	1	0	0	0	0	0	1
NE	0	2	0	0	0	0	2
ENE	2	2	1	0	0	0	5
E	1	0	4	0	0	0	5
ESE	0	1	1	1	0	0	3
SE	0	4	6	0	0	0	10
SSE	0	10	1	0	0	0	11
S	0	3	0	0	0	0	3
SSW	0	2	1	0	0	0	3
SW	1	0	0	0	0	0	1
WSW	3	0	2	0	0	0	5
W	3	1	5	5	0	0	14
WNW	2	6	9	9	0	0	26
NW	2	4	13	1	0	0	20
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	15	36	45	16	0	0	112

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	0	0	0	0
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	2	0	0	0	0	2
E	0	0	2	0	0	0	2
ESE	0	0	1	0	0	0	1
SE	0	0	0	0	0	0	0
SSE	0	1	0	0	0	0	1
S	0	1	0	0	0	0	1
SSW	0	1	0	0	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	1	0	0	0	0	1
W	0	3	5	1	0	0	9
WNW	0	1	6	1	0	0	8
NW	0	7	9	0	0	0	16
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	0	17	23	2	0	0	42

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	0	5	0	0	0	6
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	2	1	0	0	0	3
E	0	1	0	0	0	0	1
ESE	0	5	0	0	0	0	5
SE	0	3	0	0	0	0	3
SSE	0	8	0	0	0	0	8
S	0	3	0	0	0	0	3
SSW	0	2	1	0	0	0	3
SW	0	4	0	0	0	0	4
WSW	0	3	2	0	0	0	5
W	0	3	13	5	0	0	21
WNW	0	6	8	5	0	0	19
NW	0	5	6	0	0	0	11
NNW	1	4	8	0	0	0	13
Variable	0	0	0	0	0	0	0
Total	2	49	44	10	0	0	105

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	3	31	58	3	0	0	95
NNE	2	11	41	2	0	0	56
NE	0	19	16	6	0	0	41
ENE	3	15	12	1	0	0	31
E	3	32	25	8	0	0	68
ESE	3	50	20	1	0	0	74
SE	9	46	17	0	0	0	72
SSE	8	19	2	0	0	0	29
S	5	14	1	0	0	0	20
SSW	8	8	9	0	0	0	25
SW	3	20	14	1	0	0	38
WSW	5	29	34	8	0	0	76
W	1	36	75	24	2	0	138
WNW	2	46	121	59	0	0	228
NW	3	99	78	10	0	0	190
NNW	3	46	30	1	0	0	80
Variable	0	0	0	0	0	0	0
Total	61	521	553	124	2	0	1261

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	6	5	0	0	0	0	11
NNE	3	1	0	0	0	0	4
NE	6	9	1	0	0	0	16
ENE	7	10	5	0	0	0	22
E	3	7	2	0	0	0	12
ESE	5	26	14	0	0	0	45
SE	15	28	9	0	0	0	52
SSE	8	13	0	0	0	0	21
S	2	12	0	0	0	0	14
SSW	6	22	11	0	0	0	39
SW	10	25	18	2	0	0	55
WSW	9	22	5	0	0	0	36
W	21	18	5	0	0	0	44
WNW	9	20	0	1	0	0	30
NW	5	14	1	0	0	0	20
NNW	2	5	0	0	0	0	7
Variable	1	0	0	0	0	0	1
Total	118	237	71	3	0	0	429

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	5	0	0	0	0	0	5
NNE	5	0	0	0	0	0	5
NE	5	0	0	0	0	0	5
ENE	6	1	0	0	0	0	7
E	4	6	0	0	0	0	10
ESE	9	20	0	0	0	0	29
SE	14	4	0	0	0	0	18
SSE	3	3	0	0	0	0	6
S	1	1	0	0	0	0	2
SSW	9	2	0	0	0	0	11
SW	3	0	0	0	0	0	3
WSW	7	0	0	0	0	0	7
W	3	0	0	0	0	0	3
WNW	3	1	0	0	0	0	4
NW	2	0	0	0	0	0	2
NNW	6	0	0	0	0	0	6
Variable	1	0	0	0	0	0	1
Total	86	38	0	0	0	0	124

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	3	0	0	0	0	0	3
NE	5	0	0	0	0	0	5
ENE	6	0	0	0	0	0	6
E	4	0	0	0	0	0	4
ESE	18	4	0	0	0	0	22
SE	11	0	0	0	0	0	11
SSE	4	0	0	0	0	0	4
S	3	0	0	0	0	0	3
SSW	3	0	0	0	0	0	3
SW	1	0	0	0	0	0	1
WSW	0	0	0	0	0	0	0
W	2	0	0	0	0	0	2
WNW	3	0	0	0	0	0	3
NW	1	0	0	0	0	0	1
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	65	4	0	0	0	0	69

Hours of calm in this stability class: 8
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	2	0	0	2
SSE	0	1	0	2	0	0	3
S	0	0	0	0	0	0	0
SSW	0	0	0	1	0	0	1
SW	0	1	0	0	0	0	1
WSW	0	1	0	0	0	0	1
W	0	0	1	0	0	0	1
WNW	0	2	4	1	0	0	7
NW	0	2	4	0	0	0	6
NNW	0	1	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	8	10	6	0	0	24

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	1	1	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	4	0	0	0	4
E	0	0	0	3	0	0	3
ESE	0	0	0	0	1	0	1
SE	0	0	0	2	0	0	2
SSE	0	1	3	1	1	1	7
S	0	0	1	0	1	0	2
SSW	0	0	0	1	0	0	1
SW	0	0	0	0	0	0	0
WSW	0	0	0	0	0	0	0
W	0	0	0	0	2	1	3
WNW	0	0	0	3	7	4	14
NW	0	0	0	8	1	0	9
NNW	0	1	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	3	9	18	13	6	49

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	0	1	1	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	1	1	4	0	0	0	6
E	0	0	0	3	0	0	3
ESE	0	1	0	1	1	0	3
SE	0	1	0	2	2	0	5
SSE	0	2	3	1	1	0	7
S	0	1	0	0	0	0	1
SSW	0	0	1	2	0	0	3
SW	0	0	1	0	0	0	1
WSW	0	0	5	1	0	0	6
W	0	0	4	5	3	1	13
WNW	0	0	1	6	7	3	17
NW	0	1	9	14	1	0	25
NNW	0	0	0	0	0	0	0
Variable	0	0	0	0	0	0	0
Total	1	7	29	36	15	4	92

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	8	23	36	15	0	82
NNE	1	1	6	28	13	1	50
NE	0	1	8	23	0	7	39
ENE	1	2	13	14	5	2	37
E	2	10	16	21	11	4	64
ESE	3	6	16	17	20	1	63
SE	2	13	15	31	7	1	69
SSE	1	10	7	21	6	1	46
S	0	4	17	3	4	2	30
SSW	1	4	8	9	11	8	41
SW	0	5	13	14	13	1	46
WSW	0	5	13	45	11	8	82
W	0	8	18	56	37	25	144
WNW	1	11	45	77	71	53	258
NW	0	9	39	86	39	12	185
NNW	1	13	36	72	16	0	138
Variable	0	0	0	0	0	0	0
Total	13	110	293	553	279	126	1374

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 6
Hours of missing stability measurements in all stability classes: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	7	6	5	0	0	18
NNE	4	2	4	0	0	0	10
NE	0	5	1	5	0	0	11
ENE	0	4	11	4	0	0	19
E	0	6	4	1	1	0	12
ESE	0	3	8	16	5	1	33
SE	0	3	13	18	16	0	50
SSE	0	2	9	14	7	0	32
S	1	0	9	4	10	5	29
SSW	0	1	4	19	21	13	58
SW	0	1	4	18	16	7	46
WSW	1	2	10	7	4	0	24
W	0	5	12	7	3	0	27
WNW	0	5	27	3	1	0	36
NW	1	2	9	1	1	0	14
NNW	0	2	7	2	0	0	11
Variable	0	0	0	0	0	0	0
Total	7	50	138	124	85	26	430

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	1	0	0	0	0	0	1
NNE	0	0	1	0	0	0	1
NE	0	1	2	0	0	0	3
ENE	1	2	2	0	0	0	5
E	0	2	1	3	0	0	6
ESE	0	6	9	9	1	0	25
SE	0	0	0	16	1	0	17
SSE	0	2	1	3	2	0	8
S	0	0	8	1	1	1	11
SSW	0	3	7	8	2	0	20
SW	0	1	10	2	1	0	14
WSW	0	3	2	1	0	0	6
W	0	5	1	0	0	0	6
WNW	0	1	1	0	0	0	2
NW	0	1	7	0	0	0	8
NNW	0	2	1	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	2	29	53	43	8	1	136

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: January - March 2013
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	1	0	0	0	0	1
NNE	0	2	0	0	0	0	2
NE	1	0	0	0	0	0	1
ENE	0	1	0	0	0	0	1
E	0	0	0	0	0	0	0
ESE	0	2	5	2	0	0	9
SE	0	0	2	4	1	0	7
SSE	1	0	1	0	0	0	2
S	0	0	1	0	0	0	1
SSW	0	0	6	5	0	0	11
SW	0	0	1	1	0	0	2
WSW	2	2	0	0	0	0	4
W	0	2	0	0	0	0	2
WNW	0	1	0	0	0	0	1
NW	0	1	0	0	0	0	1
NNW	0	1	0	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	4	13	16	12	1	0	46

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: 3

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	7	0	0	0	8
NNE	0	1	13	0	0	0	14
NE	0	4	6	0	0	0	10
ENE	0	1	6	0	0	0	7
E	0	5	2	0	0	0	7
ESE	0	5	0	1	0	0	6
SE	0	21	16	2	0	0	39
SSE	0	21	16	0	0	0	37
S	0	12	4	0	0	0	16
SSW	0	10	7	0	0	0	17
SW	0	27	13	0	0	0	40
WSW	0	8	7	0	0	0	15
W	0	10	17	0	0	0	27
WNW	1	3	18	0	0	0	22
NW	0	0	12	6	0	0	18
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	1	129	145	9	0	0	284

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: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	5	1	0	0	0	6
NE	0	1	2	0	0	0	3
ENE	0	1	0	0	0	0	1
E	0	4	1	0	0	0	5
ESE	0	3	0	0	0	0	3
SE	0	7	3	0	0	0	10
SSE	0	4	0	0	0	0	4
S	0	3	1	0	0	0	4
SSW	0	1	1	0	0	0	2
SW	0	6	2	0	0	0	8
WSW	0	3	1	0	0	0	4
W	0	7	0	0	0	0	7
WNW	0	0	0	1	0	0	1
NW	0	2	6	0	0	0	8
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	52	21	1	0	0	74

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	5	1	0	0	0	6
NNE	0	5	7	1	0	0	13
NE	0	2	3	0	0	0	5
ENE	0	4	2	0	0	0	6
E	0	6	5	0	0	0	11
ESE	0	3	0	1	0	0	4
SE	0	16	4	1	0	0	21
SSE	0	4	2	0	0	0	6
S	0	3	2	0	0	0	5
SSW	0	3	1	0	0	0	4
SW	1	10	1	0	0	0	12
WSW	0	3	1	0	0	0	4
W	0	16	6	0	0	0	22
WNW	0	10	2	0	0	0	12
NW	0	4	4	2	0	0	10
NNW	0	4	0	1	0	0	5
Variable	1	0	0	0	0	0	1
Total	2	98	41	6	0	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: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	11	19	7	0	0	37
NNE	2	25	35	2	0	0	64
NE	1	24	21	1	0	0	47
ENE	6	25	24	2	0	0	57
E	2	26	24	4	0	0	56
ESE	6	39	28	6	0	0	79
SE	4	36	18	0	0	0	58
SSE	6	25	3	0	0	0	34
S	6	14	2	0	0	0	22
SSW	5	17	3	0	0	0	25
SW	8	31	4	1	0	0	44
WSW	2	30	24	9	0	0	65
W	6	31	26	19	1	0	83
WNW	6	17	21	8	0	0	52
NW	2	29	25	2	0	0	58
NNW	4	24	9	1	0	0	38
Variable	1	0	0	0	0	0	1
Total	67	404	286	62	1	0	820

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: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	12	1	0	0	0	18
NNE	4	4	2	0	0	0	10
NE	6	10	2	0	0	0	18
ENE	7	18	1	0	0	0	26
E	19	19	2	0	0	0	40
ESE	21	24	6	1	0	0	52
SE	18	40	1	0	0	0	59
SSE	25	38	8	0	0	0	71
S	11	17	4	0	0	0	32
SSW	8	21	1	0	0	0	30
SW	10	31	6	0	0	0	47
WSW	8	14	4	2	0	0	28
W	4	16	5	0	0	0	25
WNW	10	17	2	0	0	0	29
NW	6	35	4	0	0	0	45
NNW	3	10	0	0	0	0	13
Variable	0	0	0	0	0	0	0
Total	165	326	49	3	0	0	543

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: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	4	0	0	0	0	0	4
NNE	9	1	0	0	0	0	10
NE	8	1	0	0	0	0	9
ENE	10	2	0	0	0	0	12
E	7	1	0	0	0	0	8
ESE	26	6	1	0	0	0	33
SE	20	6	0	0	0	0	26
SSE	19	3	0	0	0	0	22
S	4	1	0	0	0	0	5
SSW	4	0	1	0	0	0	5
SW	7	0	0	0	0	0	7
WSW	4	0	0	0	0	0	4
W	4	0	0	0	0	0	4
WNW	3	1	0	0	0	0	4
NW	4	3	0	0	0	0	7
NNW	5	2	0	0	0	0	7
Variable	0	0	0	0	0	0	0
Total	138	27	2	0	0	0	167

Hours of calm in this stability class: 7
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	2	1	0	0	0	0	3
NNE	1	0	0	0	0	0	1
NE	4	1	0	0	0	0	5
ENE	4	0	0	0	0	0	4
E	5	0	0	0	0	0	5
ESE	12	2	0	0	0	0	14
SE	5	0	0	0	0	0	5
SSE	5	0	0	0	0	0	5
S	3	0	0	0	0	0	3
SSW	3	0	0	0	0	0	3
SW	4	0	0	0	0	0	4
WSW	7	0	0	0	0	0	7
W	6	0	0	0	0	0	6
WNW	3	0	0	0	0	0	3
NW	4	1	0	0	0	0	5
NNW	2	1	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	70	6	0	0	0	0	76

Hours of calm in this stability class: 29
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	1	0	0	1
NE	0	0	1	2	0	0	3
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	1	2	3	0	6
SSE	0	0	2	4	7	2	15
S	0	0	2	3	0	3	8
SSW	0	0	4	6	2	3	15
SW	0	0	1	2	2	0	5
WSW	0	0	0	0	0	0	0
W	0	0	0	1	0	0	1
WNW	0	0	0	8	0	0	8
NW	0	0	0	3	1	0	4
NNW	0	0	0	1	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	0	11	33	15	8	67

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 11
Hours of missing stability measurements in all stability classes: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	1	2	0	0	3
NNE	0	0	4	6	0	0	10
NE	0	0	7	1	0	0	8
ENE	0	0	3	0	0	0	3
E	0	0	1	0	0	0	1
ESE	0	0	1	0	1	0	2
SE	0	0	11	2	1	0	14
SSE	0	0	2	4	2	2	10
S	0	0	4	5	1	0	10
SSW	0	1	2	4	2	2	11
SW	0	0	6	4	1	0	11
WSW	0	0	3	0	0	0	3
W	0	0	7	4	0	0	11
WNW	0	0	1	5	2	0	8
NW	0	1	0	5	1	2	9
NNW	0	0	0	1	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	2	53	43	11	6	115

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 2
Hours of missing stability measurements in all stability classes: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	10	3	0	0	15
NNE	0	0	5	3	2	0	10
NE	0	1	3	1	1	0	6
ENE	0	2	2	0	0	0	4
E	0	3	11	4	0	0	18
ESE	0	5	7	1	0	0	13
SE	0	4	6	4	3	0	17
SSE	0	5	6	4	1	2	18
S	0	1	2	1	1	3	8
SSW	0	6	2	2	1	3	14
SW	0	4	4	2	2	0	12
WSW	0	1	3	4	0	0	8
W	0	2	6	5	1	0	14
WNW	0	5	4	0	2	0	11
NW	0	1	2	3	2	4	12
NNW	0	0	3	1	1	0	5
Variable	0	0	0	0	0	0	0
Total	0	42	76	38	17	12	185

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: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	4	19	24	10	0	58
NNE	1	8	24	27	6	1	67
NE	0	13	13	18	8	0	52
ENE	0	4	15	23	12	2	56
E	1	9	17	29	15	1	72
ESE	0	7	21	26	22	6	82
SE	0	7	19	13	9	0	48
SSE	0	4	16	13	14	5	52
S	0	5	9	19	11	6	50
SSW	0	12	13	15	13	7	60
SW	0	10	18	15	4	1	48
WSW	0	10	8	30	5	0	53
W	2	14	17	27	20	1	81
WNW	3	7	16	10	16	3	55
NW	0	9	12	45	7	6	79
NNW	0	8	11	21	4	0	44
Variable	1	1	0	0	0	0	2
Total	9	132	248	355	176	39	959

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 57
Hours of missing stability measurements in all stability classes: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	7	10	0	0	19
NNE	0	2	4	3	0	0	9
NE	2	2	3	3	4	0	14
ENE	1	6	7	9	1	0	24
E	1	4	15	8	0	0	28
ESE	0	5	8	25	6	2	46
SE	0	4	15	10	2	0	31
SSE	1	8	7	27	17	10	70
S	2	5	13	35	13	4	72
SSW	1	3	18	13	17	0	52
SW	1	4	13	16	8	3	45
WSW	0	0	4	1	3	1	9
W	0	0	4	4	4	1	13
WNW	0	5	4	8	2	0	19
NW	0	3	5	23	4	0	35
NNW	1	2	8	6	2	0	19
Variable	0	0	0	0	0	0	0
Total	10	55	135	201	83	21	505

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 17
Hours of missing stability measurements in all stability classes: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	3	6	0	0	9
NNE	1	2	2	5	0	0	10
NE	0	2	1	2	0	0	5
ENE	1	2	4	1	0	0	8
E	0	3	3	1	1	0	8
ESE	0	1	4	5	1	0	11
SE	0	3	16	12	2	1	34
SSE	0	4	10	9	3	0	26
S	0	2	6	8	0	0	16
SSW	2	1	4	2	0	1	10
SW	0	0	4	1	0	0	5
WSW	0	3	4	1	0	0	8
W	0	1	1	0	0	0	2
WNW	1	0	0	3	0	0	4
NW	2	1	2	1	0	0	6
NNW	0	1	3	1	0	0	5
Variable	0	0	0	0	0	0	0
Total	7	26	67	58	7	2	167

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 6
Hours of missing stability measurements in all stability classes: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: April - June 2013
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	1	0	1
NNE	0	0	0	1	0	0	1
NE	0	0	2	0	0	0	2
ENE	0	0	0	0	0	0	0
E	1	0	3	0	0	0	4
ESE	0	2	1	0	0	0	3
SE	1	1	5	1	0	0	8
SSE	1	0	4	3	1	0	9
S	0	1	2	0	1	0	4
SSW	1	0	0	2	0	0	3
SW	0	2	0	0	0	0	2
WSW	1	1	1	1	0	0	4
W	2	2	3	0	0	0	7
WNW	0	2	3	1	0	0	6
NW	0	2	0	0	0	0	2
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	7	13	25	9	3	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: 33

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: July - September 2013
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	17	12	0	0	0	29
NNE	2	4	2	0	0	0	8
NE	1	12	8	0	0	0	21
ENE	1	20	3	0	0	0	24
E	0	10	6	0	0	0	16
ESE	0	17	4	0	0	0	21
SE	0	24	5	0	0	0	29
SSE	0	25	1	0	0	0	26
S	1	22	0	0	0	0	23
SSW	0	35	2	0	0	0	37
SW	0	78	3	0	0	0	81
WSW	0	28	16	0	0	0	44
W	0	13	0	0	0	0	13
WNW	0	6	2	0	0	0	8
NW	0	9	10	0	0	0	19
NNW	0	12	15	0	0	0	27
Variable	0	0	0	0	0	0	0
Total	5	332	89	0	0	0	426

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: July - September 2013
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	4	4	0	0	0	8
NNE	0	1	0	0	0	0	1
NE	1	2	0	0	0	0	3
ENE	0	8	0	0	0	0	8
E	0	5	0	0	0	0	5
ESE	0	7	1	0	0	0	8
SE	0	6	1	0	0	0	7
SSE	0	6	0	0	0	0	6
S	0	3	0	0	0	0	3
SSW	0	4	0	0	0	0	4
SW	0	3	0	0	0	0	3
WSW	0	10	2	0	0	0	12
W	0	6	0	0	0	0	6
WNW	1	6	2	0	0	0	9
NW	0	6	1	0	0	0	7
NNW	0	3	1	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	2	80	12	0	0	0	94

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: July - September 2013
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	3	0	0	0	9
NNE	3	3	1	0	0	0	7
NE	1	6	2	0	0	0	9
ENE	1	13	2	0	0	0	16
E	0	5	2	0	0	0	7
ESE	0	14	2	0	0	0	16
SE	0	8	3	0	0	0	11
SSE	0	7	0	0	0	0	7
S	0	6	0	0	0	0	6
SSW	0	6	0	0	0	0	6
SW	3	17	0	0	0	0	20
WSW	0	14	7	0	0	0	21
W	0	10	0	0	0	0	10
WNW	0	7	2	0	0	0	9
NW	0	10	1	0	0	0	11
NNW	0	6	2	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	8	138	27	0	0	0	173

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

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: July - September 2013
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	3	11	9	0	0	0	23
NNE	1	10	2	0	0	0	13
NE	3	9	0	0	0	0	12
ENE	3	20	1	0	0	0	24
E	5	23	5	0	0	0	33
ESE	2	35	5	0	0	0	42
SE	5	21	4	0	0	0	30
SSE	6	10	0	0	0	0	16
S	9	7	0	0	0	0	16
SSW	6	12	1	0	0	0	19
SW	10	22	0	0	0	0	32
WSW	6	23	1	0	0	0	30
W	6	16	4	0	0	0	26
WNW	6	23	3	0	0	0	32
NW	8	29	6	0	0	0	43
NNW	3	15	1	0	0	0	19
Variable	0	0	0	0	0	0	0
Total	82	286	42	0	0	0	410

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: July - September 2013
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	14	2	0	0	0	23
NNE	3	4	0	0	0	0	7
NE	3	10	1	0	0	0	14
ENE	12	9	0	0	0	0	21
E	17	13	1	0	0	0	31
ESE	31	25	0	0	0	0	56
SE	30	11	0	0	0	0	41
SSE	23	0	0	0	0	0	23
S	12	7	0	0	0	0	19
SSW	13	15	0	0	0	0	28
SW	13	50	1	0	0	0	64
WSW	7	30	1	0	0	0	38
W	7	20	1	0	0	0	28
WNW	3	22	0	0	0	0	25
NW	12	40	0	1	0	0	53
NNW	9	16	0	0	0	0	25
Variable	0	0	0	0	0	0	0
Total	202	286	7	1	0	0	496

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: July - September 2013
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	5	2	0	0	0	0	7
NNE	5	1	0	0	0	0	6
NE	13	0	0	0	0	0	13
ENE	21	3	0	0	0	0	24
E	36	1	0	0	0	0	37
ESE	63	11	0	0	0	0	74
SE	50	0	0	0	0	0	50
SSE	23	0	0	0	0	0	23
S	17	0	0	0	0	0	17
SSW	11	1	0	0	0	0	12
SW	8	1	0	0	0	0	9
WSW	2	0	0	0	0	0	2
W	9	0	0	0	0	0	9
WNW	14	3	0	0	0	0	17
NW	12	9	0	0	0	0	21
NNW	3	5	0	0	0	0	8
Variable	2	0	0	0	0	0	2
Total	294	37	0	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: 5

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: July - September 2013
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	7	0	0	0	0	0	7
NE	5	0	0	0	0	0	5
ENE	15	0	0	0	0	0	15
E	14	0	0	0	0	0	14
ESE	51	2	0	0	0	0	53
SE	20	1	0	0	0	0	21
SSE	7	0	0	0	0	0	7
S	6	0	0	0	0	0	6
SSW	5	0	0	0	0	0	5
SW	5	0	0	0	0	0	5
WSW	2	0	0	0	0	0	2
W	4	0	0	0	0	0	4
WNW	3	0	0	0	0	0	3
NW	4	1	0	0	0	0	5
NNW	2	0	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	154	4	0	0	0	0	158

Hours of calm in this stability class: 100
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: July - September 2013
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	2	0	2	0	4
ENE	0	0	0	1	0	0	1
E	0	0	1	0	0	0	1
ESE	0	0	0	3	0	0	3
SE	0	0	4	2	0	0	6
SSE	0	0	5	7	0	0	12
S	0	1	4	3	1	1	10
SSW	0	2	21	13	2	0	38
SW	0	1	7	6	2	0	16
WSW	0	0	2	2	1	0	5
W	0	0	1	0	0	0	1
WNW	0	0	1	0	0	0	1
NW	0	0	0	8	0	0	8
NNW	0	0	1	4	1	0	6
Variable	0	0	0	0	0	0	0
Total	0	4	49	49	9	1	112

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: July - September 2013
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	4	0	0	0	4
NNE	0	0	5	1	0	0	6
NE	0	0	8	4	0	0	12
ENE	0	4	6	0	0	0	10
E	0	1	5	2	0	0	8
ESE	0	1	9	1	0	0	11
SE	0	1	7	1	0	0	9
SSE	0	2	6	2	0	0	10
S	0	2	5	3	0	0	10
SSW	0	11	14	2	2	0	29
SW	0	2	13	2	1	0	18
WSW	0	1	9	1	0	0	11
W	0	0	4	0	0	0	4
WNW	0	0	1	1	0	0	2
NW	0	0	8	5	0	0	13
NNW	0	1	12	3	0	0	16
Variable	0	0	0	0	0	0	0
Total	0	26	116	28	3	0	173

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

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: July - September 2013
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	6	8	3	0	0	17
NNE	0	3	3	0	0	0	6
NE	0	9	9	1	1	0	20
ENE	0	9	11	0	0	0	20
E	0	1	5	1	0	0	7
ESE	0	7	19	1	0	0	27
SE	0	2	10	5	1	0	18
SSE	0	4	6	2	1	1	14
S	0	8	3	2	1	1	15
SSW	0	8	8	3	0	0	19
SW	0	5	5	2	3	0	15
WSW	0	6	3	3	0	0	12
W	0	6	3	1	0	0	10
WNW	0	2	3	5	0	0	10
NW	0	3	5	3	0	0	11
NNW	0	5	9	7	1	0	22
Variable	0	0	0	0	0	0	0
Total	0	84	110	39	8	2	243

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: July - September 2013
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	10	11	8	1	0	31
NNE	0	6	7	4	0	0	17
NE	1	12	4	15	1	0	33
ENE	1	11	11	4	0	0	27
E	1	8	9	13	1	0	32
ESE	1	5	22	17	0	0	45
SE	1	9	10	7	0	0	27
SSE	0	5	6	9	1	1	22
S	1	13	14	9	1	1	39
SSW	0	14	13	18	5	1	51
SW	0	11	17	16	2	0	46
WSW	2	13	14	18	2	0	49
W	1	11	12	12	0	0	36
WNW	4	9	14	16	0	0	43
NW	1	5	16	20	4	0	46
NNW	0	5	11	12	1	0	29
Variable	0	0	0	0	0	0	0
Total	15	147	191	198	19	3	573

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: July - September 2013
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	18	18	0	0	38
NNE	1	2	6	9	0	0	18
NE	0	7	4	10	0	0	21
ENE	0	1	16	4	0	0	21
E	0	2	11	10	2	0	25
ESE	0	0	19	40	4	0	63
SE	0	3	9	13	0	0	25
SSE	0	5	12	16	1	0	34
S	1	7	11	24	1	0	44
SSW	0	2	19	45	10	0	76
SW	0	3	8	32	12	1	56
WSW	0	3	13	19	1	0	36
W	0	2	3	11	1	0	17
WNW	0	1	8	10	0	0	19
NW	0	0	5	15	0	1	21
NNW	1	0	9	15	0	0	25
Variable	0	0	0	0	0	0	0
Total	3	40	171	291	32	2	539

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: July - September 2013
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	1	12	6	0	0	19
NNE	2	3	8	6	0	0	19
NE	1	6	7	4	0	0	18
ENE	0	4	5	2	0	0	11
E	0	5	19	6	0	0	30
ESE	0	2	11	27	10	0	50
SE	0	5	10	25	0	0	40
SSE	0	6	10	13	2	0	31
S	1	9	13	42	2	0	67
SSW	0	2	13	35	1	0	51
SW	1	0	20	3	0	0	24
WSW	0	4	10	0	0	0	14
W	0	1	3	1	0	0	5
WNW	0	1	5	2	0	0	8
NW	0	1	10	6	0	0	17
NNW	0	0	2	2	0	0	4
Variable	0	0	0	0	0	0	0
Total	5	50	158	180	15	0	408

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: July - September 2013
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	1	0	0	0	1
NNE	0	4	2	1	0	0	7
NE	1	2	2	0	0	0	5
ENE	1	2	0	0	0	0	3
E	0	6	2	0	0	0	8
ESE	2	3	1	2	1	0	9
SE	0	6	7	6	1	0	20
SSE	0	6	12	5	3	0	26
S	2	10	14	3	0	0	29
SSW	0	2	5	1	0	0	8
SW	1	2	12	0	0	0	15
WSW	0	4	6	1	0	0	11
W	0	2	3	0	0	0	5
WNW	0	1	3	0	0	0	4
NW	0	0	0	0	0	0	0
NNW	1	1	2	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	8	51	72	19	5	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: 5

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: October - December2013
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	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	1	0	0	0	1
E	0	0	5	0	0	0	5
ESE	0	1	5	0	0	0	6
SE	0	14	8	0	0	0	22
SSE	0	12	3	0	0	0	15
S	0	5	1	0	0	0	6
SSW	0	2	0	0	0	0	2
SW	0	23	6	0	0	0	29
WSW	0	0	5	0	0	0	5
W	0	4	9	0	0	0	13
WNW	0	0	7	2	0	0	9
NW	0	1	5	0	0	0	6
NNW	0	2	5	0	0	0	7
Variable	0	0	0	0	0	0	0
Total	0	65	62	2	0	0	129

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 - December2013
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	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	1	0	0	0	1
E	0	0	1	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	0	2	0	0	0	2
SSE	0	4	0	0	0	0	4
S	0	2	0	0	0	0	2
SSW	0	1	0	0	0	0	1
SW	0	3	1	0	0	0	4
WSW	0	4	1	0	0	0	5
W	0	1	3	1	0	0	5
WNW	0	3	4	1	0	0	8
NW	0	6	6	0	0	0	12
NNW	0	2	2	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	0	26	21	3	0	0	50

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 - December2013
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	0	1	0	0	0	1
NNE	0	1	1	0	0	0	2
NE	0	1	0	0	0	0	1
ENE	0	2	0	0	0	0	2
E	0	0	0	0	0	0	0
ESE	1	2	2	0	0	0	5
SE	0	8	2	0	0	0	10
SSE	0	7	0	0	0	0	7
S	0	2	0	0	0	0	2
SSW	0	0	0	0	0	0	0
SW	0	8	3	0	0	0	11
WSW	0	5	2	0	0	0	7
W	0	3	10	2	0	0	15
WNW	0	2	6	4	0	0	12
NW	0	5	4	0	0	0	9
NNW	0	4	9	0	0	0	13
Variable	0	0	0	0	0	0	0
Total	1	50	40	6	0	0	97

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

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: October - December2013
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	4	19	27	2	0	0	52
NNE	2	8	7	0	0	0	17
NE	1	14	23	0	0	0	38
ENE	3	27	5	0	0	0	35
E	8	30	10	0	0	0	48
ESE	2	26	7	0	0	0	35
SE	9	39	9	0	0	0	57
SSE	3	21	3	0	0	0	27
S	7	12	3	0	0	0	22
SSW	1	14	0	0	0	0	15
SW	4	38	8	0	0	0	50
WSW	4	55	15	0	0	0	74
W	1	63	75	13	0	0	152
WNW	6	59	92	16	0	0	173
NW	7	71	63	0	0	0	141
NNW	4	22	15	0	0	0	41
Variable	0	0	0	0	0	0	0
Total	66	518	362	31	0	0	977

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 - December2013
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	1	0	0	0	0	3
NNE	3	2	0	0	0	0	5
NE	3	2	0	0	0	0	5
ENE	3	12	0	0	0	0	15
E	3	7	0	0	0	0	10
ESE	12	33	4	0	0	0	49
SE	15	50	7	0	0	0	72
SSE	25	21	3	0	0	0	49
S	10	13	7	0	0	0	30
SSW	11	19	8	0	0	0	38
SW	16	57	15	0	0	0	88
WSW	20	39	10	0	0	0	69
W	10	29	6	0	0	0	45
WNW	16	51	11	0	0	0	78
NW	10	43	4	0	0	0	57
NNW	3	9	0	0	0	0	12
Variable	0	0	0	0	0	0	0
Total	162	388	75	0	0	0	625

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 - December2013
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	0	0	0	0	0	0	0
NNE	2	0	0	0	0	0	2
NE	5	1	0	0	0	0	6
ENE	4	5	0	0	0	0	9
E	8	0	0	0	0	0	8
ESE	14	10	0	0	0	0	24
SE	17	14	0	0	0	0	31
SSE	18	0	0	0	0	0	18
S	6	2	0	0	0	0	8
SSW	7	4	0	0	0	0	11
SW	13	1	0	0	0	0	14
WSW	7	0	0	0	0	0	7
W	14	0	0	0	0	0	14
WNW	7	7	0	0	0	0	14
NW	5	0	0	0	0	0	5
NNW	3	0	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	130	44	0	0	0	0	174

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: 0

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: October - December2013
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	0	0	0	0	0	0	0
NNE	5	0	0	0	0	0	5
NE	2	1	0	0	0	0	3
ENE	10	0	0	0	0	0	10
E	13	0	0	0	0	0	13
ESE	28	4	0	0	0	0	32
SE	19	0	0	0	0	0	19
SSE	14	0	0	0	0	0	14
S	4	0	0	0	0	0	4
SSW	4	0	0	0	0	0	4
SW	1	0	0	0	0	0	1
WSW	4	0	0	0	0	0	4
W	6	0	0	0	0	0	6
WNW	5	0	0	0	0	0	5
NW	2	0	0	0	0	0	2
NNW	1	0	0	0	0	0	1
Variable	2	0	0	0	0	0	2
Total	120	5	0	0	0	0	125

Hours of calm in this stability class: 30
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 - December2013
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	1	0	0	1
SE	0	0	1	2	0	0	3
SSE	0	0	1	2	0	3	6
S	0	0	1	1	2	0	4
SSW	0	0	0	6	0	0	6
SW	0	0	0	3	0	0	3
WSW	0	0	0	1	0	0	1
W	0	0	0	0	0	0	0
WNW	0	0	0	0	1	0	1
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	3	16	3	3	25

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 - December2013
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	1	0	0	1
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	1	0	0	1
E	0	0	2	3	0	0	5
ESE	0	0	1	6	0	0	7
SE	0	0	4	5	0	0	9
SSE	0	0	6	3	0	1	10
S	0	0	0	1	0	0	1
SSW	0	0	5	3	1	0	9
SW	0	0	2	1	2	0	5
WSW	0	0	0	2	0	0	2
W	0	0	1	5	0	0	6
WNW	0	0	0	2	2	0	4
NW	0	0	0	0	0	0	0
NNW	0	0	1	2	1	0	4
Variable	0	0	0	0	0	0	0
Total	0	0	22	35	6	1	64

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

Joint Frequency Tables

Quad Cities Generating Station
Period of Record: October - December2013
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	0	1	0	1	0	2
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	0	0	2	0	0	2
E	0	0	0	0	0	0	0
ESE	0	0	1	1	1	0	3
SE	0	1	3	1	0	0	5
SSE	0	0	2	1	1	0	4
S	0	0	1	2	1	0	4
SSW	0	0	4	4	0	0	8
SW	0	1	2	3	1	0	7
WSW	0	0	3	4	2	0	9
W	0	0	3	2	3	0	8
WNW	0	1	3	2	8	1	15
NW	0	3	6	7	6	0	22
NNW	0	0	6	3	0	0	9
Variable	0	0	0	0	0	0	0
Total	0	6	35	32	24	1	98

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 - December2013
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	6	10	18	7	0	42
NNE	0	10	4	12	3	0	29
NE	0	2	8	17	6	0	33
ENE	0	8	18	20	1	0	47
E	1	10	15	8	0	0	34
ESE	1	8	13	20	2	0	44
SE	3	3	23	26	9	1	65
SSE	0	5	17	14	13	4	53
S	1	3	7	7	11	6	35
SSW	0	3	14	28	7	1	53
SW	2	5	14	28	9	1	59
WSW	1	5	32	31	21	1	91
W	1	6	41	83	38	17	186
WNW	1	6	29	102	49	10	197
NW	0	10	19	75	29	0	133
NNW	1	5	13	29	10	1	59
Variable	0	0	0	0	0	0	0
Total	13	95	277	518	215	42	1160

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 - December2013
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	1	3	1	0	0	5
NNE	0	2	2	0	0	0	4
NE	0	1	4	0	0	0	5
ENE	0	1	2	11	0	0	14
E	1	2	7	1	0	0	11
ESE	0	3	2	9	8	0	22
SE	0	3	18	27	15	1	64
SSE	0	1	7	24	7	2	41
S	2	3	12	31	3	9	60
SSW	1	1	9	41	17	12	81
SW	0	1	11	28	23	2	65
WSW	0	1	15	16	3	1	36
W	0	1	25	16	7	0	49
WNW	0	3	17	30	4	0	54
NW	0	5	12	19	0	0	36
NNW	0	2	9	6	0	0	17
Variable	0	0	0	0	0	0	0
Total	4	31	155	260	87	27	564

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 - December2013
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	1	2	2	0	0	5
NNE	0	0	3	0	0	0	3
NE	0	1	2	0	0	0	3
ENE	1	0	3	4	0	0	8
E	0	2	1	1	0	0	4
ESE	0	0	1	0	2	0	3
SE	0	1	0	6	1	0	8
SSE	0	1	6	13	4	0	24
S	0	0	1	16	2	0	19
SSW	0	0	3	9	0	0	12
SW	0	2	1	7	0	0	10
WSW	0	1	4	4	0	0	9
W	0	0	10	10	0	0	20
WNW	0	0	7	8	0	0	15
NW	0	0	6	5	0	0	11
NNW	0	2	4	2	0	0	8
Variable	0	0	0	0	0	0	0
Total	1	11	54	87	9	0	162

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 - December2013
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	1	4	2	0	0	0	7
NNE	0	1	4	0	0	0	5
NE	2	0	0	4	0	0	6
ENE	1	3	1	1	0	0	6
E	0	2	2	2	0	0	6
ESE	0	0	7	2	0	0	9
SE	0	2	8	3	0	0	13
SSE	0	1	5	3	0	0	9
S	1	1	5	1	2	0	10
SSW	0	1	10	7	0	0	18
SW	0	4	8	7	0	0	19
WSW	0	1	3	0	0	0	4
W	0	2	2	0	0	0	4
WNW	0	3	7	2	0	0	12
NW	0	0	0	0	0	0	0
NNW	1	1	1	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	6	26	65	32	2	0	131

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: 0

Quad Cities Nuclear Power Station

2013 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	7.90E+01	2.21E+02	2013	2.50E+01
b. Dry compressible waste, contaminated equip, etc	1.17E+03	8.50E-01	2013	2.50E+01
c. Irradiated components, control rods, etc	1.59E+00	8.96E+01	2013	2.50E+01
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	6.37E+01
Fe-55	2.27E+01
Cs-137	9.76E+00
Ni-63	2.24E+00
b. Mn-54	3.34E+00
Fe-55	1.25E+01
Co-58	1.66E+00
Co-60	6.12E+01
Zn-65	1.12E+01
Cs-137	8.11E+00
c. Cr-51	2.63E+00
Mn-54	3.31E+00
Fe-55	4.17E+01
Co-58	2.44E+00
Co-60	4.13E+01
Ni-63	1.80E+00
Zn-65	4.47E+00
d. N/A	N/A

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
27	Highway	Processor
18	Highway	Disposal

B. Irradiated Fuel Shipments (disposition)

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

C. Changes to the Process Control Program

Revision 8 of RW-AA-100, Process Control Program for Radioactive Wastes, was sent with the 2012 ARERR. No changes have been made.