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Exelon Nuclear

SVP-09-016

10 CFR 50.36a

April 28, 2009

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 2008

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 2008. In addition, a copy of the Process Control Program for Radioactive Wastes (RW-AA-100, Revision 6), which was revised in 2008, is included as required by Section 12.7.3.4 of the Off-Site Dose Calculation Manual.

There were a total of four abnormal releases that occurred during 2008. These abnormal releases resulted in minor contributions to normal plant radioactive effluents and are discussed in detail in this report.

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

Respectfully,

Timothy J. Tulon
Site Vice President
Quad Cities Nuclear Power Station

Attachments:
1. 2008 Annual Radioactive Effluent Release Report
2. RW-AA-100, Revision 6, Process Control Program for Radioactive Wastes

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

IE48
NRR

Attachment 1

2008 Annual Radioactive Effluent Release Report
SVP-09-016

Quad Cities Nuclear Power Station
2008 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents – Summation of all Releases

Period: January – December 2008 Unit: 1 & 2

A. Fission & Activation Gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Est. Total Error %
1. Total Release	Ci	3.59E+01	3.77E+01	5.05E+01	4.70E+01	12.5
2. Average release rate for the period	µCi/sec	4.57E+00	4.79E+00	6.36E+00	5.92E+00	
3. Percent of ODCM limit[1]	%γ	3.42E-03	3.63E-03	4.87E-03	4.77E-03	
	%β	7.92E-04	8.08E-04	1.17E-03	1.20E-03	

B. Iodine						
1. Total Iodine – 131.	Ci	6.99E-04	2.96E-04	3.23E-04	3.49E-04	41.6
2. Average release rate for the period	µCi/sec	8.89E-05	3.76E-05	4.06E-05	4.39E-05	
3. Percent of ODCM limit	%	N/A	N/A	N/A	N/A	

C. Particulates						
1. Total particulates	Ci	1.08E-03	2.90E-04	1.27E-04	1.93E-04	32.3
2. Average release rate for the period	µCi/sec	1.37E-04	3.68E-05	1.60E-05	2.42E-05	
3. Percent of ODCM limit	%	N/A	N/A	N/A	N/A	
4. Gross alpha radioactivity	Ci	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	

D. Tritium						
1. Total Release	Ci	2.58E+01	2.24E+01	2.62E+01	2.76E+01	6.3
2. Average release rate for the period	µCi/sec	3.29E+00	2.85E+00	3.30E+00	3.47E+00	
3. Percent of ODCM limit	%	N/A	N/A	N/A	N/A	

E. Iodine 131 & 133, Tritium & Particulate					
1. Percent of ODCM limit	%	1.57E+00	4.81E-01	5.14E-01	5.63E-01

(1) % Noble gas gamma/noble gas beta dose limits
(2) Gross alpha LLD reported on page 6 of 73

Effluent & Waste Disposable Summary

Gaseous Effluents Release Point: Main Chimney (Elevated)

Period: January – December 2008 Unit: 1 & 2

Nuclides Released		Continuous Mode				Batch Mode			
1. Fission gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Kr-85	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-85m	Ci	4.66E+00	5.64E+00	6.04E+00	1.70E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-87	Ci	7.92E-01	8.30E-01	1.46E+00	1.36E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-88	Ci	5.07E+00	6.38E+00	5.76E+00	2.24E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-133	Ci	5.04E+00	4.91E+00	5.26E+00	2.60E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-133M	Ci	9.01E-02	1.27E-01	8.33E-02	2.26E-02	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-135	Ci	4.72E-01	4.49E-01	7.49E-01	1.04E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-135m	Ci	3.74E+00	3.44E+00	5.63E+00	7.60E+00	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-138	Ci	1.48E+01	1.39E+01	2.32E+01	2.97E+01	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ar-41	Ci	1.23E+00	1.96E+00	2.36E+01	8.24E-01	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	3.59E+01	3.76E+01	5.05E+01	4.71E+01	N/A(2)	N/A(2)	N/A(2)	N/A(2)
2. Iodines									
I-131	Ci	4.79E-04	2.96E-04	3.23E-04	3.33E-04	N/A(2)	N/A(2)	N/A(2)	N/A(2)
I-133	Ci	1.61E-03	1.97E-03	1.88E-03	2.04E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)
I-135	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	2.09E-03	2.27E-03	2.20E-03	2.37E-03	N/A(2)	N/A(2)	N/A(2)	N/A(2)
3. Particulates									
Sr-89	Ci	3.14E-05	4.41E-05	5.88E-05	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Sr-90	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cs-134	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cs-137	Ci	<LLD(1)	<LLD(1)	9.89E-06	2.02E-05	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ba-140	Ci	<LLD(1)	3.62E-05	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
La-140	Ci	2.28E-05	2.33E-05	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cr-51	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Mn-54	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Co-58	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Co-60	Ci	6.49E-05	5.87E-05	<LLD(1)	2.07E-05	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Mo-99	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ag-110m	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ce-141	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ce-144	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	1.91E-04	1.62E-04	6.87E-05	4.09E-05	N/A(2)	N/A(2)	N/A(2)	N/A(2)

(1) Gaseous LLD's reported on page 6 of 73

(2) No gaseous batch releases

Quad Cities Nuclear Power Station
2008 Annual Radioactive Effluent Release Report

Effluent & Waste Disposable Summary

Gaseous Effluents Release Point Reactor Vents (Mixed Mode)

Period: January – December 2008 Unit: 1 & 2

Nuclides Released		Continuous Mode				Batch Mode			
1. Fission gases	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Kr-85	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-85m	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-87	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Kr-88	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-133	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-133M	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-135	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-135m	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Xe-138	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ar-41	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
2. Iodines									
I-131	Ci	2.19E-04	<LLD(1)	<LLD(1)	1.57E-05	N/A(2)	N/A(2)	N/A(2)	N/A(2)
I-133	Ci	1.75E-03	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
I-135	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	1.97E-03	<LLD(1)	<LLD(1)	1.57E-05	N/A(2)	N/A(2)	N/A(2)	N/A(2)
3. Particulates									
Sr-89	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Sr-90	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cs-134	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cs-137	Ci	<LLD(1)	<LLD(1)	<LLD(1)	2.96E-05	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ba-140	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
La-140	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Cr-51	Ci	1.34E-04	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Mn-54	Ci	1.11E-05	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Co-58	Ci	5.92E-06	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Co-60	Ci	8.33E-04	1.51E-04	5.84E-05	1.22E-04	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Mo-99	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ag-110m	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ce-141	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Ce-144	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Zn-65	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	N/A(2)	N/A(2)	N/A(2)	N/A(2)
Total for Period	Ci	9.84E-04	1.51E-04	5.84E-05	1.52E-04	N/A(2)	N/A(2)	N/A(2)	N/A(2)

(1) Gaseous LLD's reported on page 6 of 73

(2) No gaseous batch releases

Quad Cities Nuclear Power Station
2008 Annual Radioactive Effluent Release Report

Effluent & Waste Disposal Summary

Liquid Effluents – Summation of all Releases

Period: January – December 2008 Unit: 1 & 2

A. Fission & Activation Products	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Est. Total Error %
1. Total Release (not including tritium, gases & alpha)	Ci	3.31E-04	2.41E-04	3.04E-05	1.17E-03	4.1
2 Average diluted concentration during period	µCi/mL	1.24E-12	5.94E-13	6.19E-14	3.68E-12	
3. Percent of applicable limit[1]	WB	1.40E-01	5.86E-02	1.20E-03	3.87E-01	
	O	6.65E-02	2.77E-02	5.61E-03	1.84E-01	
4. Maximum diluted concentration during batch discharges	µCi/mL	1.30E-09	9.22E-11	2.17E-11	5.29E-10	
B. Tritium						
1. Total Release	Ci	7.91E-01	3.23E-01	1.56E-01	4.39E+00	4.1
2. Average diluted concentration during period	µCi/mL	1.91E-15	1.49E-15	4.08E-14	3.09E-12	
3. Percent of applicable limit	%	6.73E-02	8.17E-03	3.07E-03	4.10E-02	
C. Dissolved & Entrained Gases						
1. Total Release	Ci	<LLD[2]	<LLD[2]	<LLD[2]	<LLD[2]	4.1
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]	14.8
E. Volume Of Waste Released (prior to dilution)	Liters	1.87E+05	3.93E+05	1.80E+05	8.52E+05	
F. Volume Of Dilution Water Used During Period	Liters	2.67E+11	4.06E+11	4.91E+11	3.18E+11	

(1) Whole body/organ (ODCM)
(2) Liquid LLD's reported on page 7 of 73

Quad Cities Nuclear Power Station
2008 Annual Radioactive Effluent Release Report

Effluent & Waste Disposal Summary

Liquid Effluents Release Point Mississippi River

Period: January – December 2008 Unit: 1 & 2

Nuclides Released		Continuous Mode				Batch Mode			
	Unit	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4
Sr-89	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Sr-90	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Cs-134	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Cs-137	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	1.26E-04	1.54E-04	3.04E-05	1.04E-03
I-131	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Co-58	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Co-60	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	1.91E-04	8.70E-05	<LLD(1)	1.09E-04
Fe-59	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Zn-65	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Mn-54	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Cr-51	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Zr-95	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Nb-95	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Mo-99	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Tc-99m	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Ba-140	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
La-140	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Ce-141	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Ag-110m	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	1.49E-05	<LLD(1)	<LLD(1)	<LLD(1)
Fe-55	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Sb-124	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	1.37E-05
Total for Period	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	3.32E-04	2.41E-04	3.04E-05	1.16E-03
Xe-133	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)
Xe-135	Ci	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)	<LLD(1)

(1) Liquid LLD's reported on page 7 of 73

(2) No batch releases

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	3.15E-06	None
Kr-85m	uCi/cc	1.57E-08	None
Kr-87	uCi/cc	5.68E-08	1E-04
Kr-88	uCi/cc	4.81E-08	1E-04
Xe-133	uCi/cc	2.94E-08	1E-04
Xe-133m	uCi/cc	8.67E-08	1E-04
Xe-135	uCi/cc	9.39E-08	1E-04
Xe-135m	uCi/cc	1.08E-06	None
Xe-138	uCi/cc	3.18E-06	1E-04
Ar-41	uCi/cc	2.74E-08	None
NUCLIDE LOWER LIMITS OF DETECTION (LLD's) **2. Iodines**	**UNIT**	**LLD Value**	**ODCM Required LLD***
I-131	uCi/cc	7.86E-13	1E-12
I-133	uCi/cc	7.44E-12	1E-10
NUCLIDE LOWER LIMITS OF DETECTION (LLD's) **3. Particulates and Tritium**	**UNIT**	**LLD Value**	**ODCM Required LLD***
H-3	uCi/cc	2.95E-11	1E-06
Sr-89	uCi/cc	1.67E-13	1E-11
Sr-90	uCi/cc	3.06E-14	1E-11
Cs-134	uCi/cc	4.24E-13	1E-11
Cs-137	uCi/cc	5.58E-13	1E-11
Ba-140	uCi/cc	1.76E-12	None
La-140	uCi/cc	7.94E-12	None
Mn-54	uCi/cc	3.66E-13	1E-11
Co-58	uCi/cc	4.58E-13	1E-11
Fe-59	uCi/cc	8.25E-13	1E-11
Co-60	uCi/cc	9.04E-13	1E-11
Zn-65	uCi/cc	2.58E-12	1E-11
Mo-99	uCi/cc	8.86E-12	1E-11
Ce-141	uCi/cc	6.42E-13	1E-11
Ce-144	uCi/cc	2.39E-12	1E-11
Ag-110m	uCi/cc	4.97E-13	None
Cr-51	uCi/cc	3.62E-12	None
Gross Alpha	uCi/cc	3.85E-14	1E-11

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

Effluent & Waste Disposable Summary

LIQUID EFFLUENT LLD's (Most Restrictive)
BATCH MODE

NUCLIDE LOWER LIMITS OF DETECTION (LLD's) 3. Liquids	UNIT	LLD Value	ODCM Required LLD
H-3	uCi/cc	3.19E-08	1E-05
Sr-89	uCi/cc	3.24E-08	5E-08
Sr-90	uCi/cc	1.66E-08	5E-08
Fe-55	uCi/cc	9.47E-07	1E-06
Kr-85	uCi/cc	1.59E-05	None
Kr-87	uCi/cc	2.15E-07	1E-05
Kr-88	uCi/cc	2.26E-07	1E-05
Xe-133	uCi/cc	1.55E-07	1E-05
Xe-133m	uCi/cc	4.22E-07	1E-05
Xe-135	uCi/cc	5.39E-08	1E-05
Xe-138	uCi/cc	8.16E-06	1E-05
Mn-54	uCi/cc	6.50E-08	5E-07
Co-58	uCi/cc	5.60E-08	5E-07
Co-60	uCi/cc	1.00E-07	5E-07
Zn-65	uCi/cc	1.26E-07	5E-07
Mo-99	uCi/cc	4.86E-07	5E-07
I-131	uCi/cc	5.69E-08	1E-06
Cs-134	uCi/cc	5.19E-08	5E-07
Cs-137	uCi/cc	6.51E-08	5E-07
Ce-141	uCi/cc	9.03E-08	5E-07
Ce-144	uCi/cc	3.97E-07	5E-06
Gross Alpha	uCi/cc	8.66E-08	1E-07
Fe-59	uCi/cc	1.16E-07	5E-07
Cr-51	uCi/cc	3.88E-07	None
Ag-110m	uCi/cc	5.60E-08	None

Supplemental Information

Facility: Quad Cities Nuclear Power Station January – December 2008

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, for Iodine-133, 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, 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

3. Average Energy

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

8.85E-01 MeV for Quarter 1
8.88E-01 MeV for Quarter 2
9.00E-01 MeV for Quarter 3
9.03E-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.

Supplemental Information

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 steam contribution to the release.

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

d. 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 Sr-89/90 and Fe-55 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 Sr-89/90 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.

e. 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.

f. 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.

Supplemental Information

5. Batch Releases

   a. Liquid

1.	Number of releases:	8
2.	Total time:	6.73E+03 minutes
3.	Maximum time:	9.23E+02 minutes
4.	Average time:	8.41E+02 minutes
5.	Minimum time:	7.50E+02 minutes
6.	Average stream flow:	63.1 gpm (discharge) 6.16E+05 gpm (dilution)

   b. Gaseous

   NONE.

6. Abnormal Releases

   a. Liquid

   1. "On October 12, 2007, Exelon voluntarily contacted the Illinois Environmental Protection Agency (IEPA) regarding the higher than expected concentrations of tritium in Site groundwater sampling points in the vicinity of the Service Building and Turbine building."

      In late May 2008, there was a leak discovered on the 1A RHR suction line from the CCST. There was no evidence of any radioacitivity leaving the site via the groundwater monitoring wells. However, it is understood that this may be the result of dilution. The site established a methodology to account for the tritium activity that had entered the Mississippi River. It was estimated that a total of 40 gallons per day was leaking from the CCST while the leak was active. For 2008, this resulted in 0.185 Curies of tritium activity released via the RHR suction line leak. This amount is assuming that all of the tritium entered the Mississippi River. This activity was included in the monthly effluent dose calculations.

   b. Gaseous

   1. During repair efforts for the 1A RHR Suction line from the CCST in late May of 2008, a small amount of Co-60 was released at a concentration of 1.26E-11 µCi/cc. Conservative assumptions were used to estimate the total Co-60 activity released to the environment to be approximately 1 µCi. This nominal amount of radioacitivity attributed to this release was included in the monthly effluent dose calculations.

2. Several air samples taken from the doorway and HEPA filter effluent at the location of the Floor Drain Surge Tank event in late October 2008 identified Co-60, Cs-137, and Xe-133 at concentrations above detection limits. Conservative volume assumptions were used to estimate the total radioactivity released to the environment, which was insignificant compared to the normal station radioactive gaseous effluents. This activity was included in the stations monthly effluent dose calculations.

3. During restoration of the Floor Drain Surge Tank ventilation in November 2008, there were several air samples that showed Co-60 and Cs-137 at concentrations above detection limits. Conservative volume assumptions were used to estimate the total radioactivity released to the environment, which was insignificant compared to the normal station radioactive gaseous effluents. This nominal amount of radioactivity was included in the monthly effluent dose calculations.

7. Radiological Impact on Man

a. Liquid Dose to a Member of the Public for 2008

Total Body: 1.35E-02 mrem

Organ: 2.14E-02 mrem

b. Gaseous Dose to a Member of the Public for 2008

Total Body: 6.06E-03 mrem

Skin: 3.96E-04 mrem

Organ (Particulate/Iodine): 2.38E-01 mrem

c. Direct Radiation Dose to a Member of the Public for 2008

Total Body: 7.13E+00 mrem

28.5% of 40CFR190 Limit of 25 mrem/year. Thyroid and Organ doses <1% of 40CFR190 Limits.

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 Thermo Luminescent Dosimeter (TLD).

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 2008.

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

Quad Cities Station Unit One and Unit Two

Assessment Period 01/01/08 THROUGH 12/31/08

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)	1.01E+00	9.52E-01	9.82E-01	9.68E-01	3.91E+00	**3.91**

Quad Cities Unit 2

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Year Total	% of Limit
TEDE (mrem)	6.74E-01	9.63E-01	9.81E-01	8.57E-01	3.48E+00	**3.48**

Submitted by: Blake A. Young Date: 4/23/09
Blake A. Young

Reviewed by: James G. Wooldridge Date: 4/23/09
James G. Wooldridge

Maximum Doses Resulting From Airborne Releases

Quad Cities Station - *Unit One*

TYPE OF DOSE	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
Gamma Air (mrad)	7.250E-04 (ESE)	5.550E-04 (SE)	1.590E-03 (NW)	8.550E-04(WNW)	3.330E-03 (N)
Beta Air (mrad)	1.205E-04 (ESE)	9.600E-05 (SE)	1.825E-04(WSW)	1.180E-04 (SE)	4.165E-04 (SE)
Whole Body (mrem)	1.287E-03 (NNE)	7.365E-04 (NNE)	1.074E-03 (NNE)	8.220E-04 (NNE)	3.919E-03 (NNE)
Skin (mrem)	1.519E-03 (NNE)	8.810E-04 (NNE)	1.333E-03 (NNE)	1.003E-03 (NNE)	4.736E-03 (NNE)
Organ (mrem)	1.000E-04(WNW)	5.875E-05(WNW)	1.180E-04(WNW)	1.206E-04(WNW)	3.683E-04(WNW)
Critical Person	Child	Teenager	Teenager	Teenager	Teenager
Critical Organ	Thyroid	Lung	Lung	Lung	Lung

Compliance Status

Quad Cities Station - *Unit One*

TYPE OF DOSE	10 CFR 50 APP. I QUARTERLY OBJECTIVE	% OF APP. I	10 CFR 50 APP. I YEARLY OBJECTIVE	% OF APP. I
Gamma Air (mrad)	5.0	0.03	10.0	0.03
Beta Air (mrad)	10.0	0.00	20.0	0.00
Whole Body (mrem)	2.5	0.05	5.0	0.08
Skin (mrem)	7.5	0.02	15.0	0.03
Organ (mrem)	7.5	0.00	15.0	0.00
Critical Person		Teenager		Teenager
Critical Organ		Lung		Lung

Calculation used release data from the following:

Unit 0 – Vent
Unit 0 – Chimney

Maximum Doses Resulting From Airborne Releases

Quad Cities Station - *Unit Two*

TYPE OF DOSE	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	ANNUAL
Gamma Air (mrad)	7.250E-04 (ESE)	5.550E-04 (SE)	1.590E-03 (NW)	8.550E-04(WNW)	3.330E-03 (N)
Beta Air (mrad)	1.205E-04 (ESE)	9.600E-05 (SE)	1.825E-04(WSW)	1.180E-04 (SE)	4.165E-04 (SE)
Whole Body (mrem)	1.287E-03 (NNE)	7.365E-04 (NNE)	1.074E-03 (NNE)	8.220E-04 (NNE)	3.919E-03 (NNE)
Skin (mrem)	1.519E-03 (NNE)	8.810E-04 (NNE)	1.333E-03 (NNE)	1.003E-03 (NNE)	4.736E-03 (NNE)
Organ (mrem)	1.000E-04(WNW)	5.875E-05(WNW)	1.180E-04(WNW)	1.206E-04(WNW)	3.683E-04(WNW)
Critical Person	Child	Teenager	Teenager	Teenager	Teenager
Critical Organ	Thyroid	Lung	Lung	Lung	Lung

Compliance Status

Quad Cities Station - *Unit Two*

TYPE OF DOSE	10 CFR 50 APP. I QUARTERLY OBJECTIVE	% OF APP. I	10 CFR 50 APP. I YEARLY OBJECTIVE	% OF APP. I
Gamma Air (mrad)	5.0	0.03	10.0	0.03
Beta Air (mrad)	10.0	0.00	20.0	0.00
Whole Body (mrem)	2.5	0.05	5.0	0.08
Skin (mrem)	7.5	0.02	15.0	0.03
Organ (mrem)	7.5	0.00	15.0	0.00
Critical Person		Teenager		Teenager
Critical Organ		Lung		Lung

Calculation used release data from the following:

Unit 0 – Vent
Unit 0 – Chimney

Joint Frequency Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	4	0	0	0	4
NNE	0	1	1	0	0	0	2
NE	0	0	0	0	0	0	0
ENE	0	2	1	0	0	0	3
E	0	0	2	0	0	0	2
ESE	0	1	4	6	0	0	11
SE	0	0	0	0	0	0	0
SSE	0	6	0	0	0	0	6
S	0	4	2	0	0	0	6
SSW	0	4	0	0	0	0	4
SW	0	3	0	0	0	0	3
WSW	0	0	0	0	0	0	0
W	0	0	6	1	0	0	7
WNW	0	0	1	6	0	0	7
NW	0	1	1	0	0	0	2
NNW	0	0	3	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	0	22	25	13	0	0	60

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 Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	1	0	0	0	2
NNE	0	4	3	0	0	0	7
NE	0	0	2	0	0	0	2
ENE	0	1	0	0	0	0	1
E	0	2	0	0	0	0	2
ESE	0	0	1	1	0	0	2
SE	0	1	0	0	0	0	1
SSE	0	5	0	0	0	0	5
S	0	1	1	0	0	0	2
SSW	0	1	0	0	0	0	1
SW	0	1	0	0	0	0	1
WSW	0	0	1	0	0	0	1
W	0	1	3	1	0	0	5
WNW	0	0	2	1	0	0	3
NW	0	3	1	0	0	0	4
NNW	0	0	4	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	0	21	19	3	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: 3

Joint Frequency Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	3	3	0	0	0	6
NNE	0	1	5	0	0	0	6
NE	0	2	3	0	0	0	5
ENE	0	3	0	0	0	0	3
E	0	1	2	0	0	0	3
ESE	0	5	4	0	0	0	9
SE	0	6	3	0	0	0	9
SSE	0	7	0	0	0	0	7
S	0	0	1	0	0	0	1
SSW	0	3	0	0	0	0	3
SW	1	4	1	0	0	0	6
WSW	0	0	4	1	0	0	5
W	0	6	9	3	0	0	18
WNW	0	4	13	7	0	0	24
NW	0	10	6	2	0	0	18
NNW	0	3	11	0	0	0	14
Variable	0	0	0	0	0	0	0
Total	1	58	65	13	0	0	137

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: 3

Joint Frequency Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	29	22	4	0	0	58
NNE	1	19	16	0	0	0	36
NE	8	27	24	1	0	0	60
ENE	6	24	11	0	0	0	41
E	9	50	33	7	0	0	99
ESE	4	31	33	9	0	0	77
SE	4	28	9	0	0	0	41
SSE	4	13	1	0	0	0	18
S	3	8	3	0	0	0	14
SSW	3	5	2	0	0	0	10
SW	1	11	6	0	0	0	18
WSW	4	15	13	1	0	0	33
W	1	54	83	32	1	0	171
WNW	4	69	119	33	8	0	233
NW	8	70	43	3	0	0	124
NNW	4	49	13	0	0	0	66
Variable	0	0	0	0	0	0	0
Total	67	502	431	90	9	0	1099

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 9
Hours of missing stability measurements in all stability classes: 3

Joint Frequency Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	0	11	2	2	0	0	15
NNE	4	20	1	0	0	0	25
NE	8	5	1	0	0	0	14
ENE	5	11	2	0	0	0	18
E	13	16	2	0	0	0	31
ESE	10	26	15	3	0	0	54
SE	12	26	4	0	0	0	42
SSE	13	29	3	0	0	0	45
S	6	29	10	0	0	0	45
SSW	3	13	16	2	0	0	34
SW	4	18	5	0	0	0	27
WSW	6	9	2	0	0	0	17
W	8	38	12	0	0	0	58
WNW	9	23	2	0	0	0	34
NW	8	13	6	0	0	0	27
NNW	9	10	1	0	0	0	20
Variable	0	0	0	0	0	0	0
Total	118	297	84	7	0	0	506

Hours of calm in this stability class: 7
Hours of missing wind measurements in this stability class: 9
Hours of missing stability measurements in all stability classes: 3

Joint Frequency Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	4	1	0	0	0	7
NNE	4	4	0	0	0	0	8
NE	8	3	1	0	0	0	12
ENE	9	1	0	0	0	0	10
E	4	7	0	0	0	0	11
ESE	5	11	5	0	0	0	21
SE	6	10	0	0	0	0	16
SSE	8	18	0	0	0	0	26
S	3	7	0	0	0	0	10
SSW	1	3	0	0	0	0	4
SW	2	0	0	0	0	0	2
WSW	1	1	0	0	0	0	2
W	8	4	0	0	0	0	12
WNW	9	2	0	0	0	0	11
NW	5	2	0	1	0	0	8
NNW	3	1	0	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	78	78	7	1	0	0	164

Hours of calm in this stability class: 5
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Joint Frequency Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	2	0	0	0	5
NNE	7	0	0	0	0	0	7
NE	1	0	0	0	0	0	1
ENE	1	0	0	0	0	0	1
E	11	2	0	0	0	0	13
ESE	17	24	0	0	0	0	41
SE	13	9	0	0	0	0	22
SSE	6	1	0	0	0	0	7
S	6	0	0	0	0	0	6
SSW	4	1	0	0	0	0	5
SW	5	0	0	0	0	0	5
WSW	4	1	0	0	0	0	5
W	3	4	0	0	0	0	7
WNW	2	0	0	0	0	0	2
NW	1	0	0	0	0	0	1
NNW	0	1	1	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	83	44	3	0	0	0	130

Hours of calm in this stability class: 10
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 3

Joint Frequency Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	5	0	6
SE	0	0	0	0	0	0	0
SSE	0	0	0	2	0	0	2
S	0	0	0	1	3	0	4
SSW	0	0	1	2	0	0	3
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	1	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	2	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	0	1	8	8	1	18

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 Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	1	0	0	0	1
ESE	0	0	1	0	1	1	3
SE	0	0	0	0	0	0	0
SSE	0	0	0	2	0	0	2
S	0	0	1	2	3	0	6
SSW	0	0	1	0	0	0	1
SW	0	0	2	0	0	0	2
WSW	0	0	0	0	0	0	0
W	0	0	0	4	0	0	4
WNW	0	0	0	2	0	1	3
NW	0	0	0	0	0	0	0
NNW	0	0	0	2	0	0	2
Variable	0	0	0	0	0	0	0
Total	0	0	6	12	4	2	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 Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	5	1	0	0	6
NNE	0	1	4	6	0	0	11
NE	0	1	1	2	1	0	5
ENE	0	0	3	2	0	0	5
E	0	1	1	0	1	0	3
ESE	0	1	4	0	0	1	6
SE	0	1	0	0	0	0	1
SSE	0	4	1	1	1	0	7
S	0	1	0	0	0	0	1
SSW	0	1	1	1	0	0	3
SW	0	1	0	0	0	0	1
WSW	0	0	0	1	0	0	1
W	0	0	5	6	2	3	16
WNW	0	0	2	3	4	5	14
NW	0	3	6	2	3	0	14
NNW	0	0	6	2	0	0	8
Variable	0	0	0	0	0	0	0
Total	0	15	39	27	12	9	102

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

Joint Frequency Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	2	7	17	21	1	0	48
NNE	0	4	14	24	1	0	43
NE	3	7	16	24	6	0	56
ENE	2	9	13	9	1	0	34
E	3	16	34	14	7	6	80
ESE	4	4	16	14	20	6	64
SE	0	4	16	19	6	0	45
SSE	1	5	11	13	1	0	31
S	3	4	6	8	5	3	29
SSW	3	6	3	6	2	4	24
SW	0	6	2	6	2	1	17
WSW	1	12	12	25	7	1	58
W	0	11	30	62	39	26	168
WNW	1	14	40	99	59	36	249
NW	2	12	51	42	20	1	128
NNW	2	14	22	20	8	0	66
Variable	0	0	0	0	0	0	0
Total	27	135	303	406	185	84	1140

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: 3

Joint Frequency Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	2	3	7	12	1	1	26
NNE	0	2	11	11	1	0	25
NE	0	4	3	8	6	0	21
ENE	0	2	6	5	0	0	13
E	1	4	4	12	8	0	29
ESE	3	1	4	12	12	5	37
SE	0	4	14	20	8	1	47
SSE	0	9	15	20	10	3	57
S	1	5	9	25	31	15	86
SSW	0	1	5	19	8	16	49
SW	0	2	4	12	2	0	20
WSW	0	2	8	9	2	0	21
W	0	0	11	16	8	0	35
WNW	3	3	22	16	1	0	45
NW	1	1	19	11	0	1	33
NNW	2	6	11	14	2	0	35
Variable	0	0	0	0	0	0	0
Total	13	49	153	222	100	42	579

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: 3

Joint Frequency Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	2	0	0	5
NNE	0	1	7	5	0	0	13
NE	0	1	8	6	1	0	16
ENE	0	0	8	0	0	0	8
E	0	1	10	2	0	0	13
ESE	1	0	2	9	0	0	12
SE	0	0	1	3	4	0	8
SSE	0	4	3	8	3	0	18
S	1	0	1	4	10	1	17
SSW	0	2	6	1	1	0	10
SW	0	3	1	0	0	0	4
WSW	0	3	0	1	0	0	4
W	0	3	1	0	0	0	4
WNW	0	1	6	3	0	0	10
NW	0	5	8	11	4	1	29
NNW	0	4	4	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	2	28	69	55	23	2	179

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 Data

Quad Cities Generating Station

Period of Record: January - March 2008
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	1	2	0	4
NNE	0	0	2	3	0	0	5
NE	1	0	1	1	0	0	3
ENE	0	1	3	1	0	0	5
E	0	1	3	1	0	0	5
ESE	0	1	2	0	0	0	3
SE	0	4	0	1	1	0	6
SSE	0	0	3	7	4	1	15
S	0	0	7	9	3	0	19
SSW	0	5	14	2	1	0	22
SW	0	4	3	0	0	0	7
WSW	0	2	4	5	0	0	11
W	0	3	8	0	0	0	11
WNW	0	2	3	0	0	0	5
NW	0	4	4	0	0	1	9
NNW	0	2	2	2	1	0	7
Variable	0	0	0	0	0	0	0
Total	1	29	60	33	12	2	137

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

Joint Frequency Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	4	0	0	0	5
NNE	0	2	3	0	0	0	5
NE	0	2	0	0	0	0	2
ENE	0	0	3	0	0	0	3
E	0	2	3	0	0	0	5
ESE	0	3	11	6	0	0	20
SE	0	4	11	4	0	0	19
SSE	0	7	16	0	0	0	23
S	0	9	12	0	0	0	21
SSW	0	3	13	2	0	0	18
SW	0	2	15	0	0	0	17
WSW	0	0	6	3	0	0	9
W	0	1	5	1	0	0	7
WNW	0	1	9	0	0	0	10
NW	0	9	31	2	0	0	42
NNW	0	1	11	0	0	0	12
Variable	0	0	0	0	0	0	0
Total	0	47	153	18	0	0	218

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: 32

Joint Frequency Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	0	1	0	0	0	1
NE	0	2	0	0	0	0	2
ENE	0	0	2	0	0	0	2
E	0	2	1	0	0	0	3
ESE	0	0	4	2	0	0	6
SE	0	2	2	0	0	0	4
SSE	0	3	0	0	0	0	3
S	0	1	0	0	0	0	1
SSW	0	1	0	0	0	0	1
SW	0	4	1	0	0	0	5
WSW	0	1	2	0	0	0	3
W	0	1	3	1	0	0	5
WNW	0	2	5	0	0	0	7
NW	0	4	8	1	0	0	13
NNW	0	4	5	0	0	0	9
Variable	0	0	0	0	0	0	0
Total	0	28	34	4	0	0	66

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: 32

Joint Frequency Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	3	1	0	0	0	4
NNE	0	3	1	0	0	0	4
NE	0	1	2	0	0	0	3
ENE	0	2	2	0	0	0	4
E	0	5	5	0	0	0	10
ESE	0	1	3	0	0	0	4
SE	0	4	3	0	0	0	7
SSE	0	5	1	0	0	0	6
S	0	1	1	0	0	0	2
SSW	0	2	1	0	0	0	3
SW	0	7	6	0	0	0	13
WSW	0	11	6	1	0	0	18
W	0	9	4	3	0	0	16
WNW	0	5	7	0	0	0	12
NW	0	14	14	0	0	0	28
NNW	0	4	2	2	0	0	8
Variable	0	0	0	0	0	0	0
Total	0	77	59	6	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: 32

Joint Frequency Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	23	21	4	2	0	52
NNE	1	6	6	0	0	0	13
NE	2	10	9	0	0	0	21
ENE	3	34	13	0	0	0	50
E	1	19	13	3	0	0	36
ESE	3	11	9	1	0	0	24
SE	0	18	12	2	0	0	32
SSE	1	23	2	0	0	0	26
S	2	9	2	0	0	0	13
SSW	2	7	4	1	0	0	14
SW	7	32	38	4	0	0	81
WSW	2	24	22	8	0	0	56
W	3	45	22	20	0	0	90
WNW	4	32	36	6	0	0	78
NW	2	37	20	1	0	0	60
NNW	2	11	19	1	0	0	33
Variable	0	0	0	0	0	0	0
Total	37	341	248	51	2	0	679

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: 32

Joint Frequency Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	17	3	2	0	0	29
NNE	6	11	5	2	0	0	24
NE	10	10	5	1	0	0	26
ENE	11	25	4	0	0	0	40
E	4	18	3	10	1	0	36
ESE	10	31	14	0	0	0	55
SE	6	42	7	0	0	0	55
SSE	14	30	6	0	0	0	50
S	16	27	6	0	0	0	49
SSW	9	27	7	0	0	0	43
SW	10	48	9	0	0	0	67
WSW	6	26	8	1	0	0	41
W	13	37	4	0	0	0	54
WNW	10	30	4	0	0	0	44
NW	6	35	2	0	0	0	43
NNW	5	18	3	1	0	0	27
Variable	0	0	0	0	0	0	0
Total	143	432	90	17	1	0	683

Hours of calm in this stability class: 2
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 32

Joint Frequency Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	6	1	0	0	0	0	7
NNE	6	1	0	0	0	0	7
NE	6	2	0	0	0	0	8
ENE	6	5	0	0	0	0	11
E	8	5	0	1	0	0	14
ESE	10	17	0	1	0	0	28
SE	9	10	3	0	0	0	22
SSE	13	7	0	0	0	0	20
S	8	5	0	0	0	0	13
SSW	9	2	0	0	0	0	11
SW	5	5	0	0	0	0	10
WSW	9	4	0	0	0	0	13
W	13	1	0	0	0	0	14
WNW	6	5	0	0	0	0	11
NW	4	3	0	0	0	0	7
NNW	11	0	0	0	0	0	11
Variable	0	0	0	0	0	0	0
Total	129	73	3	2	0	0	207

Hours of calm in this stability class: 5
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 32

Joint Frequency Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	1	0	0	0	0	2
NNE	6	0	0	0	0	0	6
NE	1	0	0	0	0	0	1
ENE	6	0	0	0	0	0	6
E	5	0	0	0	0	0	5
ESE	10	6	0	0	0	0	16
SE	9	3	0	0	0	0	12
SSE	10	1	0	0	0	0	11
S	7	1	0	0	0	0	8
SSW	4	5	0	0	0	0	9
SW	2	7	0	0	0	0	9
WSW	5	2	0	0	0	0	7
W	7	1	0	0	0	0	8
WNW	5	0	0	0	0	0	5
NW	5	0	0	0	0	0	5
NNW	5	0	0	0	0	0	5
Variable	0	0	0	0	0	0	0
Total	88	27	0	0	0	0	115

Hours of calm in this stability class: 35
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 32

Joint Frequency Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	2	0	0	2
E	0	0	0	0	0	0	0
ESE	0	0	0	2	5	0	7
SE	0	0	0	3	2	0	5
SSE	0	0	1	1	10	2	14
S	0	0	1	6	4	4	15
SSW	0	0	0	6	5	3	14
SW	0	0	1	1	0	0	2
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	1	1	0	0	2
NW	0	0	2	5	0	0	7
NNW	0	0	0	8	0	0	8
Variable	0	0	0	0	0	0	0
Total	0	0	6	35	26	9	76

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 Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	1	0	0	2
NNE	0	0	0	3	0	0	3
NE	0	0	0	0	1	0	1
ENE	0	0	1	1	0	0	2
E	0	0	3	3	0	0	6
ESE	0	0	1	4	1	0	6
SE	0	0	2	3	2	0	7
SSE	0	0	3	2	1	1	7
S	0	0	0	0	1	4	5
SSW	0	0	0	0	2	3	5
SW	0	0	0	2	0	0	2
WSW	0	0	2	4	0	1	7
W	0	0	1	0	0	0	1
WNW	0	0	3	4	0	0	7
NW	0	0	4	11	4	0	19
NNW	0	1	3	2	0	0	6
Variable	0	0	0	0	0	0	0
Total	0	1	24	40	12	9	86

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 Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	1	1	0	0	4
NNE	0	0	5	1	0	0	6
NE	0	1	1	0	3	0	5
ENE	0	1	2	1	0	0	4
E	0	0	4	1	0	0	5
ESE	0	0	2	5	4	0	11
SE	0	1	2	5	2	0	10
SSE	0	1	2	3	1	0	7
S	0	0	3	5	2	1	11
SSW	0	0	0	1	4	1	6
SW	0	1	1	3	0	0	5
WSW	0	0	2	4	2	1	9
W	0	2	3	2	0	0	7
WNW	0	1	7	6	1	0	15
NW	0	5	8	15	8	1	37
NNW	0	0	6	1	0	1	8
Variable	0	0	0	0	0	0	0
Total	0	15	49	54	27	5	150

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 Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	5	4	16	1	1	27
NNE	0	7	5	2	2	0	16
NE	0	3	10	13	7	0	33
ENE	0	7	15	17	2	0	41
E	2	6	8	9	3	0	28
ESE	0	3	8	8	11	0	30
SE	2	5	8	8	2	7	32
SSE	0	3	8	15	6	0	32
S	1	3	4	9	12	8	37
SSW	1	10	13	2	10	17	53
SW	1	7	13	22	18	7	68
WSW	3	11	5	14	15	13	61
W	1	14	14	32	11	16	88
WNW	0	7	18	34	18	5	82
NW	2	10	22	31	7	1	73
NNW	2	8	12	24	8	5	59
Variable	0	0	0	0	0	0	0
Total	15	109	167	256	133	80	760

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 Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	4	13	11	2	4	34
NNE	0	2	4	10	1	2	19
NE	0	0	18	11	9	1	39
ENE	0	5	13	18	2	0	38
E	0	7	8	5	5	7	32
ESE	0	3	6	13	15	7	44
SE	0	1	11	29	17	1	59
SSE	0	2	10	23	13	9	57
S	1	1	12	20	29	9	72
SSW	1	1	21	23	23	5	74
SW	0	3	13	23	12	1	52
WSW	0	3	9	15	5	3	35
W	1	6	16	13	5	0	41
WNW	0	2	18	31	3	0	54
NW	1	2	6	28	0	0	37
NNW	0	6	20	12	0	0	38
Variable	0	0	0	0	0	0	0
Total	4	48	198	285	141	49	725

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 33

Joint Frequency Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	5	6	2	0	14
NNE	1	0	5	0	0	0	6
NE	0	4	9	1	0	0	14
ENE	0	0	0	0	0	0	0
E	0	2	9	2	1	5	19
ESE	0	3	3	12	3	0	21
SE	0	2	6	12	3	1	24
SSE	0	1	3	9	12	1	26
S	0	0	4	12	3	0	19
SSW	0	0	9	8	0	0	17
SW	0	1	4	9	1	0	15
WSW	0	2	6	6	0	0	14
W	0	1	4	9	0	0	14
WNW	0	0	3	1	0	0	4
NW	0	2	4	9	0	0	15
NNW	2	1	2	5	0	1	11
Variable	0	0	0	0	0	0	0
Total	3	20	76	101	25	8	233

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 Data

Quad Cities Generating Station

Period of Record: April - June 2008
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	1	0	0	0	2
NNE	0	3	3	1	0	0	7
NE	0	5	7	1	0	0	13
ENE	0	2	8	0	0	0	10
E	1	1	0	0	0	1	3
ESE	0	2	1	2	0	1	6
SE	0	3	6	0	0	0	9
SSE	0	2	2	3	0	0	7
S	0	1	1	10	2	0	14
SSW	0	1	3	4	0	0	8
SW	0	1	6	6	0	0	13
WSW	1	3	3	1	0	0	8
W	0	4	0	0	0	0	4
WNW	1	1	1	0	0	0	3
NW	1	1	3	0	0	0	5
NNW	0	3	1	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	4	34	46	28	2	2	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: 33

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	6	2	0	0	0	8
NNE	0	2	1	0	0	0	3
NE	0	9	3	0	0	0	12
ENE	0	18	10	0	0	0	28
E	0	2	5	0	0	0	7
ESE	0	0	5	0	0	0	5
SE	0	11	8	0	0	0	19
SSE	0	21	4	0	0	0	25
S	0	17	2	0	0	0	19
SSW	0	12	3	0	0	0	15
SW	0	10	0	0	0	0	10
WSW	0	4	0	0	0	0	4
W	0	9	3	0	0	0	12
WNW	0	3	0	0	0	0	3
NW	0	8	2	0	0	0	10
NNW	0	12	8	0	0	0	20
Variable	0	0	0	0	0	0	0
Total	0	144	56	0	0	0	200

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: 105

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	2	0	0	0	0	2
NNE	0	0	0	0	0	0	0
NE	0	4	0	0	0	0	4
ENE	0	17	0	0	0	0	17
E	0	2	0	0	0	0	2
ESE	0	1	0	0	0	0	1
SE	0	2	0	0	0	0	2
SSE	0	2	0	0	0	0	2
S	0	2	0	0	0	0	2
SSW	0	5	0	0	0	0	5
SW	0	9	0	0	0	0	9
WSW	0	5	0	0	0	0	5
W	0	4	1	0	0	0	5
WNW	0	2	0	0	0	0	2
NW	0	3	0	0	0	0	3
NNW	0	7	1	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	0	67	2	0	0	0	69

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: 105

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	7	2	0	0	0	9
NNE	0	2	0	0	0	0	2
NE	0	7	0	0	0	0	7
ENE	1	13	1	0	0	0	15
E	0	7	0	0	0	0	7
ESE	0	5	2	0	0	0	7
SE	0	8	1	0	0	0	9
SSE	0	6	0	0	0	0	6
S	0	8	1	0	0	0	9
SSW	1	12	0	0	0	0	13
SW	0	20	2	0	0	0	22
WSW	0	18	0	0	0	0	18
W	2	22	2	0	0	0	26
WNW	1	9	4	0	0	0	14
NW	0	10	0	0	0	0	10
NNW	0	20	2	0	0	0	22
Variable	0	0	0	0	0	0	0
Total	5	174	17	0	0	0	196

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: 105

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	18	6	0	0	0	26
NNE	2	6	0	0	0	0	8
NE	0	14	0	0	0	0	14
ENE	5	20	1	0	0	0	26
E	4	17	0	0	0	0	21
ESE	2	25	2	0	0	0	29
SE	1	25	2	0	0	0	28
SSE	3	9	0	0	0	0	12
S	2	21	1	0	0	0	24
SSW	4	25	0	0	0	0	29
SW	7	34	7	0	0	0	48
WSW	7	42	5	0	0	0	54
W	5	32	3	0	0	0	40
WNW	4	10	5	0	0	0	19
NW	2	25	4	0	0	0	31
NNW	3	23	1	0	0	0	27
Variable	0	0	0	0	0	0	0
Total	53	346	37	0	0	0	436

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: 105

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	0	0	0	0	17
NNE	7	5	0	0	0	0	12
NE	7	14	0	0	0	0	21
ENE	12	15	0	0	0	0	27
E	17	10	0	0	0	0	27
ESE	7	23	1	0	0	0	31
SE	16	11	1	0	0	0	28
SSE	22	5	1	0	0	0	28
S	4	14	0	0	0	0	18
SSW	12	14	2	0	0	0	28
SW	21	44	1	0	0	0	66
WSW	30	48	4	0	0	0	82
W	25	30	0	0	0	0	55
WNW	19	25	0	0	0	0	44
NW	18	59	4	0	0	0	81
NNW	11	19	0	0	0	0	30
Variable	0	0	0	0	0	0	0
Total	233	348	14	0	0	0	595

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: 105

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	8	1	0	0	0	0	9
NNE	8	1	0	0	0	0	9
NE	13	1	1	0	0	0	15
ENE	12	2	0	0	0	0	14
E	19	1	0	0	0	0	20
ESE	48	13	0	0	0	0	61
SE	15	0	0	0	0	0	15
SSE	13	0	0	0	0	0	13
S	7	0	0	0	0	0	7
SSW	14	0	0	0	0	0	14
SW	14	2	0	0	0	0	16
WSW	21	1	0	0	0	0	22
W	12	1	0	0	0	0	13
WNW	11	5	0	0	0	0	16
NW	8	12	0	0	0	0	20
NNW	7	5	0	0	0	0	12
Variable	0	0	0	0	0	0	0
Total	230	45	1	0	0	0	276

Hours of calm in this stability class: 13
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 105

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	7	0	0	0	0	0	7
NE	11	2	0	0	0	0	13
ENE	15	0	0	0	0	0	15
E	30	0	0	0	0	0	30
ESE	45	6	0	0	0	0	51
SE	28	1	0	0	0	0	29
SSE	8	0	0	0	0	0	8
S	3	1	0	0	0	0	4
SSW	3	0	0	0	0	0	3
SW	6	0	0	0	0	0	6
WSW	5	0	0	0	0	0	5
W	7	0	0	0	0	0	7
WNW	14	1	0	0	0	0	15
NW	3	1	0	0	0	0	4
NNW	2	0	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	188	12	0	0	0	0	200

Hours of calm in this stability class: 115
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 105

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	1	0	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	0	0	0	0	0
ESE	0	0	0	0	0	0	0
SE	0	0	1	1	0	0	2
SSE	0	0	3	3	3	0	9
S	0	0	0	0	1	0	1
SSW	0	0	5	0	0	0	5
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	1	0	0	1
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	0	12	5	4	0	21

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: 111

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	0	0	2
NNE	0	0	4	0	0	0	4
NE	0	0	12	2	0	0	14
ENE	0	1	13	3	0	0	17
E	0	0	1	0	0	0	1
ESE	0	1	0	4	0	0	5
SE	0	0	2	7	0	0	9
SSE	0	0	9	2	1	0	12
S	0	0	1	4	2	0	7
SSW	0	0	5	2	0	0	7
SW	0	0	0	0	0	0	0
WSW	0	0	3	0	0	0	3
W	0	0	2	0	0	0	2
WNW	0	0	0	0	0	0	0
NW	0	0	3	2	0	0	5
NNW	0	0	9	0	0	0	9
Variable	0	0	0	0	0	0	0
Total	0	2	66	26	3	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: 111

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	3	1	0	0	4
NNE	0	1	3	0	0	0	4
NE	0	9	12	0	0	0	21
ENE	0	8	12	0	0	0	20
E	0	1	3	0	0	0	4
ESE	0	1	2	2	0	0	5
SE	0	2	6	1	0	0	9
SSE	0	1	6	4	1	0	12
S	0	2	3	7	1	0	13
SSW	0	1	6	4	0	0	11
SW	0	5	2	0	0	0	7
WSW	0	2	10	0	0	0	12
W	0	0	5	3	0	0	8
WNW	0	1	1	0	0	0	2
NW	0	7	7	3	0	0	17
NNW	0	3	13	4	0	0	20
Variable	0	0	0	0	0	0	0
Total	0	44	94	29	2	0	169

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: 111

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	12	13	7	1	0	33
NNE	1	5	3	0	0	0	9
NE	0	10	15	6	0	0	31
ENE	0	16	9	1	0	0	26
E	0	8	1	0	0	0	9
ESE	1	9	11	8	0	0	29
SE	1	12	11	9	0	0	33
SSE	0	5	15	5	0	0	25
S	0	8	9	26	5	0	48
SSW	1	20	23	14	1	0	59
SW	0	24	14	16	2	0	56
WSW	1	14	34	5	1	0	55
W	2	22	26	10	1	0	61
WNW	1	14	11	6	6	0	38
NW	3	11	18	12	0	0	44
NNW	1	15	18	7	0	0	41
Variable	0	0	0	0	0	0	0
Total	12	205	231	132	17	0	597

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: 111

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	12	0	0	32
NNE	2	2	6	7	0	0	17
NE	1	2	13	13	0	0	29
ENE	1	3	10	5	0	0	19
E	1	7	10	13	0	0	31
ESE	0	2	7	15	1	0	25
SE	0	4	10	13	0	0	27
SSE	1	5	12	12	0	1	31
S	0	2	16	17	6	0	41
SSW	0	2	25	16	4	0	47
SW	0	1	32	31	2	0	66
WSW	0	7	29	29	3	0	68
W	0	9	31	26	0	0	66
WNW	0	2	16	12	0	0	30
NW	0	4	30	24	3	0	61
NNW	0	4	21	16	0	0	41
Variable	0	0	0	0	0	0	0
Total	7	61	282	261	19	1	631

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: 111

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	3	6	11	8	0	0	28
NNE	4	0	4	0	1	0	9
NE	1	3	5	3	0	0	12
ENE	0	6	6	1	0	0	13
E	0	3	18	12	0	0	33
ESE	0	2	12	15	0	0	29
SE	0	3	17	29	2	0	51
SSE	0	3	13	8	0	0	24
S	0	3	7	15	2	0	27
SSW	1	2	11	14	1	0	29
SW	0	4	8	1	0	0	13
WSW	0	3	8	3	0	0	14
W	1	4	13	10	0	0	28
WNW	1	3	5	1	0	0	10
NW	0	3	10	2	0	0	15
NNW	1	0	5	7	0	0	13
Variable	0	0	0	0	0	0	0
Total	12	48	153	129	6	0	348

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: 111

Joint Frequency Data

Quad Cities Generating Station

Period of Record: July - September 2008
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	0	3	0	0	0	4
NNE	2	1	3	0	0	0	6
NE	1	3	8	1	0	0	13
ENE	3	7	6	0	0	0	16
E	2	2	2	0	0	0	6
ESE	0	2	11	2	0	0	15
SE	1	2	18	21	3	0	45
SSE	0	6	10	8	0	0	24
S	3	8	6	10	0	0	27
SSW	3	4	6	8	0	0	21
SW	1	8	2	3	0	0	14
WSW	0	3	2	0	0	0	5
W	0	9	4	0	0	0	13
WNW	0	7	5	1	0	0	13
NW	0	2	3	1	0	0	6
NNW	1	3	0	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	18	67	89	55	3	0	232

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: 111

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	4	3	0	0	0	7
NNE	0	2	1	0	0	0	3
NE	0	0	1	0	0	0	1
ENE	0	2	0	0	0	0	2
E	0	0	0	0	0	0	0
ESE	0	1	8	1	0	0	10
SE	0	1	7	2	0	0	10
SSE	0	8	4	0	0	0	12
S	0	6	6	0	0	0	12
SSW	0	11	6	0	0	0	17
SW	0	5	3	0	0	0	8
WSW	0	0	0	0	0	0	0
W	0	2	4	0	0	0	6
WNW	0	2	13	0	0	0	15
NW	0	1	2	0	0	0	3
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	0	45	59	3	0	0	107

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: 50

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	2	0	0	0	0	2
NNE	0	2	0	0	0	0	2
NE	0	0	0	0	0	0	0
ENE	0	1	0	0	0	0	1
E	0	1	0	0	0	0	1
ESE	0	0	0	0	0	0	0
SE	0	2	2	0	0	0	4
SSE	0	4	2	0	0	0	6
S	0	1	0	0	0	0	1
SSW	0	6	1	0	0	0	7
SW	0	3	4	0	0	0	7
WSW	0	0	0	0	0	0	0
W	0	0	7	1	0	0	8
WNW	0	0	1	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	4	0	0	0	0	4
Variable	0	0	0	0	0	0	0
Total	0	26	17	1	0	0	44

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: 50

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	3	1	0	0	0	4
NNE	0	0	0	0	0	0	0
NE	0	0	0	0	0	0	0
ENE	0	3	0	0	0	0	3
E	0	6	3	0	0	0	9
ESE	0	3	1	1	0	0	5
SE	0	1	3	0	0	0	4
SSE	0	3	0	0	0	0	3
S	0	2	0	0	0	0	2
SSW	0	5	2	0	0	0	7
SW	0	11	2	0	0	0	13
WSW	0	1	3	0	0	0	4
W	0	5	9	1	0	0	15
WNW	1	3	7	1	0	0	12
NW	0	7	2	1	0	0	10
NNW	0	4	4	0	0	0	8
Variable	0	0	0	0	0	0	0
Total	1	57	37	4	0	0	99

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: 50

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	1	27	31	8	0	0	67
NNE	4	17	8	3	0	0	32
NE	5	7	1	0	0	0	13
ENE	3	8	2	0	0	0	13
E	2	38	18	0	0	0	58
ESE	1	31	40	3	0	0	75
SE	1	19	28	0	0	0	48
SSE	5	23	6	0	0	0	34
S	3	21	9	0	0	0	33
SSW	2	24	7	0	0	0	33
SW	7	16	22	0	0	0	45
WSW	5	37	13	0	0	0	55
W	8	57	52	26	2	0	145
WNW	1	34	72	52	4	0	163
NW	2	60	86	7	0	0	155
NNW	2	22	52	2	0	0	78
Variable	0	0	0	0	0	0	0
Total	52	441	447	101	6	0	1047

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 20
Hours of missing stability measurements in all stability classes: 50

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	9	1	0	0	0	16
NNE	4	3	0	0	0	0	7
NE	3	13	0	0	0	0	16
ENE	3	7	0	0	0	0	10
E	4	21	1	0	0	0	26
ESE	11	46	13	0	0	0	70
SE	12	19	2	0	0	0	33
SSE	16	35	12	0	0	0	63
S	7	18	21	0	0	0	46
SSW	12	22	0	0	0	0	34
SW	4	22	7	0	0	0	33
WSW	10	11	3	0	0	0	24
W	8	19	4	1	0	0	32
WNW	3	33	4	0	0	0	40
NW	4	28	1	0	0	0	33
NNW	7	14	0	0	0	0	21
Variable	0	0	0	0	0	0	0
Total	114	320	69	1	0	0	504

Hours of calm in this stability class: 1
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 50

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	3	0	0	0	0	8
NNE	2	1	0	0	0	0	3
NE	0	2	0	0	0	0	2
ENE	7	3	0	0	0	0	10
E	5	2	0	0	0	0	7
ESE	18	9	1	0	0	0	28
SE	17	6	0	0	0	0	23
SSE	17	15	0	0	0	0	32
S	8	9	3	0	0	0	20
SSW	2	2	1	0	0	0	5
SW	3	0	0	0	0	0	3
WSW	8	3	0	0	0	0	11
W	1	1	0	0	0	0	2
WNW	1	10	0	0	0	0	11
NW	3	2	0	0	0	0	5
NNW	2	1	0	0	0	0	3
Variable	0	0	0	0	0	0	0
Total	99	69	5	0	0	0	173

Hours of calm in this stability class: 6
Hours of missing wind measurements in this stability class: 1
Hours of missing stability measurements in all stability classes: 50

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	2	0	0	0	0	0	2
NE	2	0	0	0	0	0	2
ENE	3	1	0	0	0	0	4
E	16	0	0	0	0	0	16
ESE	23	14	0	0	0	0	37
SE	14	2	0	0	0	0	16
SSE	13	0	0	0	0	0	13
S	5	3	0	0	0	0	8
SSW	1	0	0	0	0	0	1
SW	7	0	0	0	0	0	7
WSW	4	1	0	0	0	0	5
W	4	1	0	0	0	0	5
WNW	4	0	0	0	0	0	4
NW	1	0	0	0	0	0	1
NNW	2	0	0	0	0	0	2
Variable	0	0	0	0	0	0	0
Total	101	22	0	0	0	0	123

Hours of calm in this stability class: 31
Hours of missing wind measurements in this stability class: 0
Hours of missing stability measurements in all stability classes: 50

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	1	0	0	1
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	1	4	0	0	5
SE	0	0	0	0	0	0	0
SSE	0	0	0	1	1	1	3
S	0	0	0	2	1	2	5
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	0	0	0
WNW	0	0	0	5	0	0	5
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	1	14	2	3	20

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: 69

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	3	0	0	0	3
NNE	0	0	1	0	0	0	1
NE	0	0	2	0	0	0	2
ENE	0	0	0	0	0	0	0
E	0	0	0	1	0	0	1
ESE	0	0	0	1	0	2	3
SE	0	0	0	2	0	0	2
SSE	0	0	0	2	1	0	3
S	0	0	0	4	1	0	5
SSW	0	0	0	2	2	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	1	0	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	7	14	4	2	27

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: 69

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	5	0	0	0	5
NNE	0	0	1	0	0	0	1
NE	0	0	2	0	0	0	2
ENE	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0
ESE	0	0	3	0	0	1	4
SE	0	0	1	1	0	0	2
SSE	0	0	6	3	0	1	10
S	0	1	3	8	3	0	15
SSW	0	1	3	3	3	0	10
SW	0	2	0	3	3	0	8
WSW	0	0	0	0	0	0	0
W	0	0	5	6	0	0	11
WNW	0	0	2	6	1	0	9
NW	0	1	4	1	0	0	6
NNW	0	0	3	2	0	0	5
Variable	0	0	0	0	0	0	0
Total	0	5	38	33	10	2	88

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: 69

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December 2008
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	9	12	7	4	0	32
NNE	0	2	2	6	1	0	11
NE	2	2	0	1	0	0	5
ENE	0	1	3	2	0	0	6
E	1	2	25	10	8	1	47
ESE	1	8	7	27	18	6	67
SE	0	0	6	20	12	0	38
SSE	0	4	11	13	4	6	38
S	0	1	9	16	10	3	39
SSW	1	9	13	20	9	7	59
SW	1	20	12	9	18	2	62
WSW	1	8	21	6	7	0	43
W	0	4	25	45	35	12	121
WNW	0	7	23	52	47	20	149
NW	0	6	16	73	39	1	135
NNW	0	7	9	42	20	8	86
Variable	0	0	0	0	0	0	0
Total	7	90	194	349	232	66	938

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 193
Hours of missing stability measurements in all stability classes: 69

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	2	0	11	9	0	0	22
NNE	2	2	4	4	0	0	12
NE	0	1	3	6	0	0	10
ENE	1	4	5	6	0	0	16
E	0	2	7	13	3	0	25
ESE	0	2	9	40	21	2	74
SE	0	3	8	9	1	0	21
SSE	2	1	11	21	19	8	62
S	0	1	8	28	12	23	72
SSW	0	1	12	26	23	2	64
SW	0	2	4	9	8	2	25
WSW	2	6	6	7	3	0	24
W	0	3	8	27	6	1	45
WNW	0	1	6	9	3	0	19
NW	1	3	10	31	1	0	46
NNW	0	0	13	7	0	0	20
Variable	0	0	0	0	0	0	0
Total	10	32	125	252	100	38	557

Hours of calm in this stability class: 0
Hours of missing wind measurements in this stability class: 5
Hours of missing stability measurements in all stability classes: 69

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	7	1	0	0	8
NNE	0	1	3	5	1	0	10
NE	0	0	2	3	1	0	6
ENE	0	3	1	2	0	0	6
E	1	1	5	4	0	0	11
ESE	0	1	4	3	3	0	11
SE	0	0	4	2	2	0	8
SSE	0	0	6	8	7	0	21
S	0	2	3	27	10	7	49
SSW	0	3	12	10	1	0	26
SW	0	3	2	0	2	0	7
WSW	0	4	2	5	1	0	12
W	0	2	3	5	0	0	10
WNW	0	1	3	2	0	0	6
NW	0	1	1	4	0	0	6
NNW	0	0	6	5	0	0	11
Variable	0	0	0	0	0	0	0
Total	1	22	64	86	28	7	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: 69

Joint Frequency Data

Quad Cities Generating Station

Period of Record: October - December2008
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	2	0	0	0	3
NNE	0	4	0	0	0	0	4
NE	0	2	0	0	0	0	2
ENE	0	2	0	0	0	0	2
E	0	0	1	2	0	0	3
ESE	0	0	0	1	2	0	3
SE	0	0	3	7	2	0	12
SSE	1	3	5	16	0	0	25
S	0	2	1	6	2	0	11
SSW	0	2	2	0	0	0	4
SW	0	2	3	0	0	0	5
WSW	0	6	0	2	1	0	9
W	1	1	1	2	0	0	5
WNW	0	2	5	1	0	0	8
NW	0	0	1	3	0	0	4
NNW	0	0	1	0	0	0	1
Variable	0	0	0	0	0	0	0
Total	2	27	25	40	7	0	101

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: 69

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	5.81E+01	4.41E+02	2008	2.50E+01
b. Dry compressed waste, contaminated equip, etc	1.35E+03	1.87E+00	2008	2.50E+01
c. Irradiated components, control rods, etc	1.93E-01	1.46E+04	2008	2.50E+01
d. Other (RWCU Powdex Resin)	N/A	N/A	N/A	N/A

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

Major Nuclide Composition	%
a. Fe-55	5.35E+01
Co-60	3.02E+01
Mn-54	7.44E+00
b. Co-60	4.97E+01
Fe-55	4.29E+01
Zn-65	5.07E+00
c. Co-60	5.71E+01
Fe-55	3.76E+01
Ni-63	3.71E+00
d. Co-60	N/A
Fe-55	N/A
Mn-54	N/A

3. Solid Waste Disposition

Number of Shipments	Mode of Transportation	Destination
30	Highway	Processor
13	Highway	Disposal

B. Irradiated Fuel Shipments (disposition)

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

C. Changes to the Process Control Program

See Attachment 2.

Attachment 2

RW-AA-100, Revision 6 - Process Control Program for Radioactive Wastes
SVP-09-016

PROCESS CONTROL PROGRAM FOR RADIOACTIVE WASTES

1. PURPOSE

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

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

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

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

2. TERMS AND DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3. RESPONSIBILITIES

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

4. MAIN BODY

4.1. Process Control Program Requirements

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

4.1.2. Changes become effective upon acceptance per station requirements.

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

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

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

4.1.4. A solidification media, approved by the burial site, **MAY BE REQUIRED when** liquid radwaste is solidified to a stable/unstable state.

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

1. **If** the vendor has its own Quality Assurance (QA) Program, **then** the vendor **SHALL ADHERE** to its own QA Program and **SHALL HAVE SUBMITTED** its process system topical report to the NRC or agreement state.
2. **If** the vendor **DOES NOT HAVE** its own Quality Assurance Program, **then** the vendor **SHALL ADHERE** to an approved Quality Assurance Topical Report standard belonging to the Station or to another vendor.

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

1. A commercial vendor supplied processing system(s) **MAY BE USED** for the processing of LLRW streams.
2. Vendors that process liquid LLRW at the sites must meet applicable QA Topical Report and Augmented Quality Requirements.

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

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

4.2. <u>General Waste Processing Requirements</u>

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

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

4.2.3. Various drains and sump discharges **WILL BE COLLECTED** in tanks or suitable containers for processing treatment. Water from these tanks **MAY BE SENT** through a filter, demineralizer, concentrator or vendor supplied processing systems.

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

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

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

4.2.7. Dry Active Waste (DAW) **WILL BE HANDLED and PROCESSED** per the following:

1. DAW **WILL BE COLLECTED and SURVEYED and MAY BE SORTED** for compactable and non-compactable wastes.

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

3. DAW items **MAY BE SURVEYED** for release onsite or offsite when applicable.

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

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

4.2.9. Activated hardware stored in the Spent Fuel Pools **WILL BE PROCESSED** periodically using remote handling equipment **and MAY then BE PUT** into a container for shipment or storage

4.2.10. High Integrity Containers (HIC):

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

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

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

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

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

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

4.3. Burial Site Requirements

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

4.4. Shipping and Inspection Requirements

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

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

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

4.5. Inspection and Corrective Action

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

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

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

4.6. Procedure and Process Reviews

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

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

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

1. Site waste processing **IS CONTROLLED** by site operating procedures.

2. Liquid processed by vendor equipment **WILL BE DONE** in accordance with vendor procedures.

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

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

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

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

5. **DOCUMENTATION** - None

6. **REFERENCES**

6.1. Technical Specifications:

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

6.2. Source Documents:

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

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

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

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

6.2.5. Regulatory Guide 1.21

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

6.2.7. Quality Assurance Program

6.2.8. LS-AA-106

6.2.9. RM-AA-102-1006

6.2.10. RP-AA-600 Series

6.3. Station Commitments:

6.3.1. Peach Bottom

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

6.3.2. Limerick

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

7. **ATTACHMENTS** - None