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Exelon Nuclear

March 30, 2001

SVP-01-029

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

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

Subject: Quad Cities Nuclear Power Station's Radioactive Effluent Report for January through December 2000

In accordance with the Quad Cities Technical Specifications Section 6.9.4 and 10 CFR 50.36a, we are submitting the Quad Cities Nuclear Power Station's Radioactive Effluent Report for January through December 2000. A copy of procedure RW-AA-100, "Process Control Program for Radioactive Wastes," Revision 0, is also included as required by the Offsite Dose Calculation Manual (ODCM) Section 12.6.1, "Radioactive Effluent Release Report."

Should you have any questions concerning this letter, please contact Mr. W. J. Beck at (309) 654-2241, extension 3609.

Respectfully,

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

IE48

Attachments:

A. Effluent and Waste Disposal Semiannual Report Supplemental Information, Quad Cities Nuclear Power Station, January–June 2000
B. Effluent and Waste Disposal Semiannual Report Supplemental Information, Quad Cities Nuclear Power Station, July-December 2000
C. Quad Cities Station Meteorological Site Quarterly Joint-Frequency Wind Rose Tables for 2000
D. Solid Waste Disposition Summary
E. RW-AA-100, Revision 0, "Process Control Program for Radioactive Wastes".

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

bcc: Project Manager – NRR
Office of Nuclear Facility Safety, - IDNS
Senior Reactor Analyst – IDNS
Resident Inspector - IDNS
Manager of Energy Practice – Winston and Strawn
Director – Licensing, Mid-West Regional Operating Group
Manager – Licensing, Dresden and Quad Cities Station
Mid-West Regional Operating Group Document Control Desk - Licensing (Hard Copy)
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W. Leech – MidAmerican Energy Company
D. Tubbs – MidAmerican Energy Company
Regulatory Assurance Manager – Dresden Nuclear Power Station
Regulatory Assurance Manager – Quad Cities Nuclear Power Station
NRC Coordinator – Quad Cities Nuclear Power Station
NSRB Site Coordinator – Quad Cities Nuclear Power Station
Site Vice President – Quad Cities Nuclear Power Station
Station Manager – Quad Cities Nuclear Power Station
SVP Letter File

Attachment A
Effluent and Waste Disposal Semiannual Report Supplemental Information, Quad Cities Nuclear Power Station, January–June 2000
SVP-01-029

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Supplemental Information

Facility Quad Cities Nuclear Power Station January - June 2000

Licensee Commonwealth Edison Company

1. Regulatory Limits

a. For Noble Gases: (per unit)

Dose rate

1. Less than 500 mrem/year to the whole body.
2. Less than 3000 mrem/year to the skin.

Dose Gamma Radiation

1. Less than or equal to 5 mrad/quarter.
2. Less than or equal to 10 mrad/year.

Beta Radiation

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

Dose

1. Less than or equal to 7.5 mrem/quarter
2. Less than or equal to 15 mrem/year.

d. For Liquid: (per site)

Less than or equal to 3 mrem to the whole body during any calendar quarter.
Less than or equal to 10 mrem to any organ during any calendar quarter.
Less than or equal to 6 mrem to the whole body during any calendar year.
Less than or equal to 20 mrem to any organ during any calendar year.

2. Maximum Permissible Concentration

a.,b.,c., For fission and activation gases, iodines, and particulates with halflives greater than 8 days, allowable release limits are calculated by solving equations 10.1 and 10.2 from the Offsite Dose Calculation Manual. 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 10.3 and 10.4 from the Offsite Dose Calculation manual. The MPC values used for the monitors were as follows:

Radwaste discharge	1.18E-05 uCi/ml
Service water	1.0 E-05 uCi/ml

3. Average Energy

The average gamma energy used to calculate the alarm setpoints for the noble gas monitors was 0.642 Mev for the First quarter, and 0.871 Mev for the Second quarter.

4. Measurements and Approximations of Total Radioactivity

a. Fission and Activation Gases:
b. Iodines:
c. Particulates:

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 Sr89/90 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 Sr89/90 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 six months 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 monthly 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 are 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 is sample 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 Sr89/90 and Fe 55. 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 Sr89/90 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. The estimated total error percent for the solid waste radwaste curies is 12.3%.

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.

5. Batch Releases

a. Liquid

1. Number of releases:	15
2. Total time:	16,739 minutes
3. Maximum time:	1,280 minutes
4. Average time:	1,116 minutes
5. Minimum time:	418 minutes
6. Average stream flow:	47.0 gpm (discharge)
	3.10E+05 gpm (dilution)

b. Gaseous

NONE

6. Abnormal Releases

a. Gaseous

NONE

b. Liquid

NONE

ATTACHMENT A (Page 1 of 5)

EFFLUENT & WASTE DISPOSABLE SEMI-ANNUAL REPORT

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

Period: January through June 2000

A. FISSION & ACTIVATION GASES	UNIT	FIRST QUARTER	SECOND QUARTER	Est.Total Error %
1. Total Release	Ci	3.41E+01	4.47E+01	12.4
2. Average release rate for the period	μCi/sec	4.34E00	5.69E00	
3. *Percent of ODCM limit Chimney & Stack	%	1.26E-02	1.72E-02	
		4.28E-04	8.17E-04	

B. IODINE				
1. Total Iodine-131	Ci	1.49E-03	8.80E-04	40.0
2. Average release rate for the period	μCi/sec	1.90E-04	1.12E-04	

C. PARTICULATES				
1. Particulates with half-lives >8 days	Ci	1.74E-03	9.98E-04	30.1
2. Average release rate for the period	μCi/sec	2.21E-04	1.27E-04	
3. Gross alpha radioactivity	Ci	7.58E-06	4.36E-06	

D. TRITIUM				
1. Total Release	Ci	6.10E00	6.99E00	8.0
2. Average release rate for the period	μCi/sec	7.76E-01	8.90E-01	
E.Iodine 131 & 133,Tritium & Particulate				
1. Percent of ODCM limit Chimney & Stack	%	9.71E-02	2.99E-01	

*NOBLE GAS GAMMA/NOBLE GAS BETA DOSE LIMITS

ATTACHMENT A (Page 2 of 5)
EFFLUENT & WASTE DISPOSABLE SEMI-ANNUAL REPORT
MAIN CHIMNEY GASEOUS EFFLUENTS

CONTINUOUS MODE **BATCH MODE**

NUCLIDES RELEASED 1. Fission gases	UNIT	FIRST QUARTER	SECOND QUARTER	FIRST QUARTER	SECOND QUARTER
Kr-85	Ci	1.28E-01	<LLD	NA	NA
Kr-85m	Ci	4.76E-01	6.20E-01	NA	NA
Kr-87	Ci	9.51E-01	1.41E00	NA	NA
Kr-88	Ci	5.27E-01	1.13E00	NA	NA
Xe-133	Ci	3.50E00	2.10E00	NA	NA
Xe-135	Ci	1.01E00	3.51E00	NA	NA
Xe-135m	Ci	5.69E00	7.71E00	NA	NA
Xe-138	Ci	2.11E+01	2.81E+01	NA	NA
Ar-41	Ci	1.12E-01	1.50E-01	NA	NA
Xe-131m	Ci	1.20E-01	<LLD	NA	NA
Xe-133m	Ci	3.76E-03	<LLD	NA	NA
Total for Period	Ci	**3.36E+01**	**4.47E+01**	**NA**	**NA**
NUCLIDES RELEASED 2. Iodines	UNIT	FIRST QUARTER	SECOND QUARTER	FIRST QUARTER	SECOND QUARTER
I-131	Ci	1.09E-03	8.68E-04	NA	NA
I-133	Ci	4.40E-03	2.79E-03	NA	NA
I-135	Ci	4.94E-03	<LLD	NA	NA
Total for period	Ci	**1.04E-02**	**3.66E-03**	**NA**	**NA**
NUCLIDES RELEASED 3. Particulates	UNIT	FIRST QUARTER	SECOND QUARTER	FIRST QUARTER	SECOND QUARTER
Sr-89	Ci	8.31E-05	1.37E-04	NA	NA
Sr-90	Ci	<LLD	<LLD	NA	NA
Cs-134	Ci	<LLD	<LLD	NA	NA
Cs-137	Ci	4.24E-05	<LLD	NA	NA
Ba-140	Ci	<LLD	1.44E-04	NA	NA
La-140	Ci	<LLD	<LLD	NA	NA
Cr-51	Ci	<LLD	<LLD	NA	NA
Mn-54	Ci	<LLD	3.55E-05	NA	NA
Co-58	Ci	<LLD	<LLD	NA	NA
Co-60	Ci	3.34E-04	2.60E-04	NA	NA
Mo-99	Ci	<LLD	<LLD	NA	NA
Ag-110m	Ci	<LLD	<LLD	NA	NA
Total for Period	Ci	**4.60E-04**	**5.77E-04**	**NA**	**NA**

ATTACHMENT A (Page 3 of 5)

EFFLUENT & WASTE DISPOSABLE SEMI-ANNUAL REPORT

REACTOR VENTILATION GASEOUS EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED 1. Fission gases	UNIT	FIRST QUARTER	SECOND QUARTER	FIRST QUARTER	SECOND QUARTER
Kr-85	Ci	<LLD	<LLD	NA	NA
Kr-85m	Ci	<LLD	<LLD	NA	NA
Kr-87	Ci	<LLD	<LLD	NA	NA
Kr-88	Ci	<LLD	<LLD	NA	NA
Xe-133	Ci	4.51E-01	<LLD	NA	NA
Xe-135	Ci	<LLD	<LLD	NA	NA
Xe-135m	Ci	<LLD	<LLD	NA	NA
Xe-138	Ci	<LLD	<LLD	NA	NA
AR-41		<LLD	<LLD	NA	NA
Total for Period	Ci	**4.51E-01**	**<LLD**	**NA**	**NA**
NUCLIDES RELEASED 2. Iodines	UNIT	FIRST QUARTER	SECOND QUARTER	FIRST QUARTER	SECOND QUARTER
I-131	Ci	4.02E-04	1.18E-05	NA	NA
I-133	Ci	<LLD	<LLD	NA	NA
I-135	Ci	<LLD	<LLD	NA	NA
Total for period	Ci	**4.02E-04**	**1.18E-05**	**NA**	**NA**
NUCLIDES RELEASED 3. Particulates	UNIT	FIRST QUARTER	SECOND QUARTER	FIRST QUARTER	SECOND QUARTER
Sr-89	Ci	<LLD	<LLD	NA	NA
Sr-90	Ci	<LLD	<LLD	NA	NA
Cs-134	Ci	<LLD	<LLD	NA	NA
Cs-137	Ci	1.31E-05	<LLD	NA	NA
Ba-140	Ci	<LLD	<LLD	NA	NA
La-140	Ci	<LLD	<LLD	NA	NA
Cr-51	Ci	2.18E-04	<LLD	NA	NA
Mn-54	Ci	1.11E-04	2.89E-05	NA	NA
Co-58	Ci	8.99E-06	<LLD	NA	NA
Fe-59	Ci	8.92E-06	<LLD	NA	NA
Co-60	Ci	9.22E-04	3.92E-04	NA	NA
Mo-99	Ci	<LLD	<LLD	NA	NA
Ag-110m	Ci	<LLD	<LLD	NA	NA
Total for Period	Ci	**1.28E-03**	**4.21E-04**	**NA**	**NA**

ATTACHMENT A (Page 4 of 5)

EFFLUENT & WASTE DISPOSABLE SEMI-ANNUAL REPORT

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

A. FISSION & ACTIVATION GASES	UNIT	FIRST QUARTER	SECOND QUARTER	Est.Total Error %
1. Total Release (not including tritium, gases & alpha)	Ci	1.54E-03	2.29E-03	5.6
2. Average diluted concentration during batch discharges for the period	μCi/mL	2.05E-10	1.89E-10	
3. Percent of applicable limit*	WB % O %	1.51E-03 6.38E-04	2.47E-03 1.06E-03	
4. Maximum diluted concentration during batch discharges	μCi/mL	5.34E-10	1.53E-10	
B. TRITIUM				
1. Total Release	Ci	6.10E00	6.99E00	4.0
2. Average diluted concentration during batch discharges for the period	μCi/mL	8.11E-07	5.78E-07	
3. Percent of applicable limit	%	2.70E-02	1.93E-02	
C. DISSOLVED & ENTRAINED GASES				
1. Total Release	Ci	1.49E-04	6.38E-05	5.6
2. Average diluted concentration during batch discharges for the period	μCi/mL	1.98E-11	5.27E-12	
3. Percent of applicable limit	%	9.91E-06	2.64E-06	
D. GROSS ALPHA ACTIVITY				
1. Total Release	Ci	<LLD	<LLD	14.8
2. Average diluted concentration during batch discharges for the period	μCi/mL	<LLD	<LLD	
E. VOLUME OF WASTE RELEASED (prior to dilution)	Liters	1.68E+06	1.30E+06	
F. VOLUME OF DILUTION WATER USED DURING BATCH DISCHARGES	Liters	7.52E+09	1.21E+10	
G. TOTAL VOLUME OF DILUTION WATER USED DURING PERIOD (quarter)	Liters	2.78E+11	4.24E+11	

*Whole Body/Organ (ODCM)

ATTACHMENT A (Page 5 of 5)

EFFLUENT & WASTE DISPOSABLE SEMI-ANNUAL REPORT

LIQUID EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	FIRST QUARTER	SECOND QUARTER	FIRST QUARTER	SECOND QUARTER
Sr-89	Ci	<LLD	<LLD	<LLD	<LLD
Sr-90	Ci	<LLD	<LLD	<LLD	<LLD
Cs-134	Ci	<LLD	<LLD	<LLD	<LLD
Cs-137	Ci	<LLD	<LLD	2.13E-04	4.53E-04
I-131	Ci	<LLD	<LLD	<LLD	<LLD
Co-60	Ci	<LLD	<LLD	1.03E-03	6.54E-04
Co-58	Ci	<LLD	<LLD	9.59E-05	<LLD
Fe-59	Ci	<LLD	<LLD	<LLD	<LLD
Zn-65	Ci	<LLD	<LLD	<LLD	<LLD
Mn-54	Ci	<LLD	<LLD	2.02E-04	5.35E-05
Cr-51	Ci	<LLD	<LLD	<LLD	<LLD
Zr-95	Ci	<LLD	<LLD	<LLD	<LLD
Nb-95	Ci	<LLD	<LLD	<LLD	<LLD
Mo-99	Ci	<LLD	<LLD	<LLD	<LLD
Ag-110m	Ci	<LLD	<LLD	<LLD	4.94E-05
Ba-140	Ci	<LLD	<LLD	<LLD	<LLD
La-140	Ci	<LLD	<LLD	<LLD	<LLD
Fe-55	Ci	<LLD	<LLD	<LLD	1.07E-03
Sb-124	Ci	<LLD	<LLD	<LLD	1.16E-05
Total for Period (above)	Ci	**<LLD**	**<LLD**	**1.54E-03**	**2.29E-03**
Xe-133	Ci	<LLD	<LLD	1.49E-04	6.38E-05
Xe-135	Ci	<LLD	<LLD	<LLD	<LLD

Prepared by: _____ Date: 3/21/01

Approved by: _____ Date: 03/22/01

Attachment B
Effluent and Waste Disposal Semiannual Report Supplemental Information, Quad Cities Nuclear Power Station, July-December 2000
SVP-01-029

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Supplemental Information

Facility Quad Cities Nuclear Power Station July - December 2000

Licensee Commonwealth Edison Company

1. Regulatory Limits

a. For Noble Gases: (per unit)

Dose rate

1. Less than 500 mrem/year to the whole body.
2. Less than 3000 mrem/year to the skin.

Dose Gamma Radiation

1. Less than or equal to 5 mrad/quarter.
2. Less than or equal to 10 mrad/year.

Beta Radiation

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

Dose

1. Less than or equal to 7.5 mrem/quarter
2. Less than or equal to 15 mrem/year.

d. For Liquid: (per site)

Less than or equal to 3 mrem to the whole body during any calendar quarter.
Less than or equal to 10 mrem to any organ during any calendar quarter.
Less than or equal to 6 mrem to the whole body during any calendar year.
Less than or equal to 20 mrem to any organ during any calendar year.

2. Maximum Permissible Concentration

a.,b.,c., For fission and activation gases, iodines, and particulates with halflives greater than 8 days, allowable release limits are calculated by solving equations 10.1 and 10.2 from the Offsite Dose Calculation Manual. 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 10.3 and 10.4 from the Offsite Dose Calculation manual. The MPC values used for the monitors were as follows:

Radwaste discharge	1.18E-05 uCi/ml
Service water	1.0E-05 uCi/ml

3. Average Energy

The average gamma energy used to calculate the alarm setpoints for the noble gas monitors was 0.573 Mev for the Third quarter, and 0.657 Mev for the Fourth quarter.

4. Measurements and Approximations of Total Radioactivity

a. Fission and Activation Gases:
b. Iodines:
c. Particulates:

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 Sr89/90 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 Sr89/90 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 six months 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 monthly 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 are 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 is sample 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 Sr89/90 and Fe 55. 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 Sr89/90 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. The estimated total error percent for the solid waste radwaste curies is 12.3%.

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.

5. Batch Releases

a. Liquid

1. Number of releases	24
2. Total time	26,567 minutes
3. Maximum time	1,210 minutes
4. Average time	1,107 minutes
5. Minimum time	71 minutes
6. Average stream flow	47.9 gpm (discharge)
	4.01E+05 gpm (dilution)

b. Gaseous

NONE

6. Abnormal Releases

a. Gaseous

NONE

b. Liquid

NONE

ATTACHMENT A (Page 1 of 5)

EFFLUENT & WASTE DISPOSABLE SEMI-ANNUAL REPORT

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

Period: July through December 2000

A. FISSION & ACTIVATION GASES	UNIT	THIRD QUARTER	FOURTH QUARTER	Est.Total Error %
1. Total Release	Ci	5.08E+01	4.69E+01	12.4
2. Average release rate for the period	μCi/sec	6.39E00	5.90E00	
3. *Percent of ODCM limit Chimney & Stack	%	2.00E-02	1.80E-02	
		9.36E-04	8.52E-04	

B. IODINE				
1. Total Iodine-131	Ci	1.59E-03	1.25E-03	40.0
2. Average release rate for the period	μCi/sec	1.92E-04	1.57E-04	

C. PARTICULATES				
1. Particulates with half-lives >8 days	Ci	3.01E-03	4.85E-03	30.1
2. Average release rate for the period	μCi/sec	3.79E-04	6.10E-04	
3. Gross alpha radioactivity	Ci	9.97E-06	5.32E-06	

D. TRITIUM				
1. Total Release	Ci	3.38E+01	2.83E+01	8.0
2. Average release rate for the period	μCi/sec	4.25E00	3.56E00	
E.Iodine 131 & 133,Tritium & Particulate				
1. Percent of ODCM limit Chimney & Stack	%	5.26E-01	3.29E-01	

*NOBLE GAS GAMMA/NOBLE GAS BETA DOSE LIMITS

ATTACHMENT A (Page 2 of 5)
EFFLUENT & WASTE DISPOSABLE SEMI-ANNUAL REPORT
MAIN CHIMNEY GASEOUS EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED 1. Fission gases	UNIT	THIRD QUARTER	FOURTH QUARTER	THIRD QUARTER	FOURTH QUARTER
Kr-85	Ci	<LLD	<LLD	NA	NA
Kr-85m	Ci	5.99E-01	4.56E-01	NA	NA
Kr-87	Ci	1.46E+00	1.33E+00	NA	NA
Kr-88	Ci	1.16E+00	8.75E-01	NA	NA
Xe-133	Ci	1.93E+00	1.38E+00	NA	NA
Xe-135	Ci	3.44E+00	3.19E+00	NA	NA
Xe-135m	Ci	9.02E+00	1.02E+01	NA	NA
Xe-138	Ci	3.31E+01	2.92E+01	NA	NA
Ar-41	Ci	1.28E-01	2.19E-01	NA	NA
Total for Period	Ci	**5.08E+01**	**4.69E+01**	**NA**	**NA**
NUCLIDES RELEASED 2. Iodines	UNIT	THIRD QUARTER	FOURTH QUARTER	THIRD QUARTER	FOURTH QUARTER
I-131	Ci	1.51E-03	1.23E-03	NA	NA
I-133	Ci	4.12E-03	1.94E-03	NA	NA
I-135	Ci	<LLD	<LLD	NA	NA
Total for period	Ci	**5.63E-03**	**3.17E-03**	**NA**	**NA**
NUCLIDES RELEASED 3. Particulates	UNIT	THIRD QUARTER	FOURTH QUARTER	THIRD QUARTER	FOURTH QUARTER
Sr-89	Ci	2.62E-04	1.69E-04	NA	NA
Sr-90	Ci	<LLD	<LLD	NA	NA
Cs-134	Ci	<LLD	<LLD	NA	NA
Cs-137	Ci	<LLD	<LLD	NA	NA
Ba-140	Ci	5.01E-04	6.45E-05	NA	NA
La-140	Ci	2.33E-04	<LLD	NA	NA
Cr-51	Ci	<LLD	<LLD	NA	NA
Mn-54	Ci	2.28E-04	8.73E-05	NA	NA
Co-58	Ci	<LLD	<LLD	NA	NA
Co-60	Ci	4.45E-04	5.16E-04	NA	NA
Mo-99	Ci	<LLD	<LLD	NA	NA
Ag-110m	Ci	<LLD	<LLD	NA	NA
Total for Period	Ci	**1.67E-03**	**8.37E-04**	**NA**	**NA**

ATTACHMENT A (Page 3 of 5)

EFFLUENT & WASTE DISPOSABLE SEMI-ANNUAL REPORT

REACTOR VENTILATION GASEOUS EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED 1. Fission gases	UNIT	THIRD QUARTER	FOURTH QUARTER	THIRD QUARTER	FOURTH QUARTER
Kr-85	Ci	<LLD	<LLD	NA	NA
Kr-85m	Ci	<LLD	<LLD	NA	NA
Kr-87	Ci	<LLD	<LLD	NA	NA
Kr-88	Ci	<LLD	<LLD	NA	NA
Xe-133	Ci	<LLD	<LLD	NA	NA
Xe-135	Ci	<LLD	<LLD	NA	NA
Xe-135m	Ci	<LLD	<LLD	NA	NA
Xe-138	Ci	<LLD	<LLD	NA	NA
AR-41	Ci	<LLD	<LLD	NA	NA
Total for Period	Ci	**<LLD**	**<LLD**	**NA**	**NA**
NUCLIDES RELEASED 2. Iodines	UNIT	THIRD QUARTER	FOURTH QUARTER	THIRD QUARTER	FOURTH QUARTER
I-131	Ci	8.03E-05	2.22E-05	NA	NA
I-133	Ci	2.11E-04	2.92E-05	NA	NA
I-135	Ci	<LLD	<LLD	NA	NA
Total for period	Ci	**2.91E-04**	**5.14E-05**	**NA**	**NA**
NUCLIDES RELEASED 3. Particulates	UNIT	THIRD QUARTER	FOURTH QUARTER	THIRD QUARTER	FOURTH QUARTER
Sr-89	Ci	<LLD	<LLD	NA	NA
Sr-90	Ci	<LLD	<LLD	NA	NA
Cs-134	Ci	<LLD	<LLD	NA	NA
Cs-137	Ci	4.05E-06	6.92E-06	NA	NA
Ba-140	Ci	<LLD	<LLD	NA	NA
La-140	Ci	7.65E-05	<LLD	NA	NA
Cr-51	Ci	1.80E-04	<LLD	NA	NA
Mn-54	Ci	8.57E-05	1.24E-03	NA	NA
Co-58	Ci	4.28E-05	3.92E-05	NA	NA
Co-60	Ci	8.24E-04	2.70E-03	NA	NA
Mo-99	Ci	<LLD	<LLD	NA	NA
Ag-110m	Ci	<LLD	<LLD	NA	NA
Fe-59	Ci	5.86E-05	<LLD	NA	NA
Ce-144	Ci	<LLD	2.81E-05	NA	NA
Nb-95	Ci	4.45E-05	<LLD	NA	NA
Sb-124	Ci	2.30E-05	<LLD	NA	NA
Total for Period	Ci	**1.34E-03**	**4.01E-03**	**NA**	**NA**

ATTACHMENT A (Page 4 of 5)

EFFLUENT & WASTE DISPOSABLE SEMI-ANNUAL REPORT

LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

A. FISSION & ACTIVATION GASES	UNIT	THIRD QUARTER	FOURTH QUARTER	Est.Total Error %
1. Total Release (not including tritium, gases & alpha)	Ci	1.87E-03	1.08E-03	5.6
2. Average diluted concentration during batch discharges for the period	μCi/mL	8.95E-11	5.20E-11	
3. Percent of applicable limit*	WB % O %	5.18E-03 2.21E-03	4.71E-03 2.52E-03	
4. Maximum diluted concentration during batch discharges	μCi/mL	3.31E-10	5.13E-10	
B. TRITIUM				
1. Total Release	Ci	1.26E+01	9.71E00	4.0
2. Average diluted concentration during batch discharges for the period	μCi/mL	6.03E-07	4.41E-07	
3. Percent of applicable limit	%	2.01E-02	1.47E-02	
C. DISSOLVED & ENTRAINED GASES				
1. Total Release	Ci	5.31E-05	<LLD	5.6
2. Average diluted concentration during batch discharges for the period	μCi/mL	2.54E-12	<LLD	
3. Percent of applicable limit	%	1.27E-06	NA	
D. GROSS ALPHA ACTIVITY				
1. Total Release	Ci	<LLD	<LLD	14.5
2. Average diluted concentration during batch discharges for the period	μCi/mL	<LLD	<LLD	
E. VOLUME OF WASTE RELEASED (prior to dilution)	Liters	2.07E+06	2.75E+06	
F. VOLUME OF DILUTION WATER USED DURING BATCH DISCHARGES	Liters	2.09E+10	1.98E+10	
G. TOTAL VOLUME OF DILUTION WATER USED DURING PERIOD (quarter)	Liters	4.94E+11	3.39E+11	

*Whole Body/Organ (ODCM)

ATTACHMENT A (Page 5 of 5)

EFFLUENT & WASTE DISPOSABLE SEMI-ANNUAL REPORT

LIQUID EFFLUENTS

		CONTINUOUS MODE		BATCH MODE	
NUCLIDES RELEASED	UNIT	THIRD QUARTER	FOURTH QUARTER	THIRD QUARTER	FOURTH QUARTER
Sr-89	Ci	<LLD	<LLD	<LLD	<LLD
Sr-90	Ci	<LLD	<LLD	<LLD	<LLD
Cs-134	Ci	<LLD	<LLD	<LLD	<LLD
Cs-137	Ci	<LLD	<LLD	9.91E-04	2.45E-04
I-131	Ci	<LLD	<LLD	<LLD	<LLD
Co-60	Ci	<LLD	<LLD	6.49E-04	1.82E-04
Co-58	Ci	<LLD	<LLD	<LLD	<LLD
Fe-59	Ci	<LLD	<LLD	<LLD	<LLD
Zn-65	Ci	<LLD	<LLD	<LLD	<LLD
Mn-54	Ci	<LLD	<LLD	8.45E-05	<LLD
Cr-51	Ci	<LLD	<LLD	<LLD	<LLD
Zr-95	Ci	<LLD	<LLD	<LLD	<LLD
Nb-95	Ci	<LLD	<LLD	<LLD	<LLD
Mo-99	Ci	<LLD	<LLD	<LLD	<LLD
Ag-110m	Ci	<LLD	<LLD	1.19E-04	<LLD
Ba-140	Ci	<LLD	<LLD	<LLD	<LLD
La-140	Ci	<LLD	<LLD	<LLD	<LLD
Fe-55	Ci	<LLD	<LLD	<LLD	6.16E-04
Sb-124	Ci	<LLD	<LLD	<LLD	3.92E-05
Sb-125	Ci	<LLD	<LLD	2.67E-05	<LLD
Total for Period (above)	Ci	**<LLD**	**<LLD**	**1.87E-03**	**1.08E-03**
Xe-133	Ci	<LLD	<LLD	5.31E-05	<LLD
Xe-135	Ci	<LLD	<LLD	<LLD	<LLD

Prepared by: _____ Date: 03/21/01

Approved by: _____ Date: 3/22/01

Attachment C
Quad Cities Station Meteorological Site Quarterly Joint-Frequency Wind Rose Tables for 2000
SVP-01-029

ComEd QUAD CITIES STATION
33 ft. WIND SPEED and WIND DIRECTION

January-March 2000
196-33 ft. DIFFERENTIAL TEMPERATURE

NUMBER OF OBSERVATIONS = 2167
VALUES ARE PERCENT OCCURRENCE

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
C SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
A N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
L SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
M MS	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05						.05	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.09	.09						
MU	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.09		.09					
1 SU	.14	.05	.05	.05	.09	.00	.00	.00	.00	.05	.00	.05	.09	.00	.00	.05	.60			.60				
- N	.23	.32	.18	.32	.28	.18	.28	.32	.18	.51	.09	.42	.32	.09	.23	.18	4.15				4.15			
3 SS	.23	.32	.46	.55	.51	.74	.74	.88	.55	.60	.32	.65	.78	.42	.55	.37	8.68					8.68		
MS	.23	.23	.69	.42	.37	.78	1.25	.69	.28	.18	.14	.09	.74	.32	.18	.09	6.69						6.69	
ES	.37	.05	.14	.18	.74	1.06	.60	.32	.14	.09	.18	.28	.37	.55	.14	.05	5.26							5.26
EU	.18	.05	.32	.05	.05	.05	.18	.37	.09	.23	.42	.46	.37	.00	.55	.23	3.60	3.60						
MU	.05	.05	.05	.00	.00	.00	.09	.05	.09	.09	.05	.09	.00	.05	.18	.14	.97		.97					
4 SU	.18	.00	.09	.05	.09	.09	.37	.28	.09	.14	.42	.55	.46	.14	.37	.32	3.65			3.65				
- N	1.34	.92	1.75	1.57	.74	1.52	.69	.37	.37	.46	.83	1.25	2.17	1.89	1.25	1.20	18.32				18.32			
7 SS	.55	.09	.18	.88	.46	.92	.92	1.34	.88	1.11	1.57	1.15	2.86	1.52	.88	.69	16.01					16.01		
MS	.00	.00	.09	.14	.37	.32	.28	.42	.23	.09	.00	.05	.05	.05	.00	.00	2.08						2.08	
ES	.00	.00	.05	.00	.32	.51	.14	.09	.05	.00	.00	.00	.00	.00	.00	.00	1.15							1.15
EU	.23	.37	.05	.00	.23	.42	.18	.46	.42	.28	.14	.37	.88	.55	.09	.23	4.89	4.89						
MU	.00	.05	.14	.00	.00	.00	.00	.09	.05	.00	.00	.09	.23	.05	.00	.09	.78		.78					
8 SU	.05	.05	.05	.00	.09	.09	.00	.18	.05	.05	.09	.28	.46	.28	.05	.23	1.98			1.98				
- N	1.38	.92	1.94	1.25	.74	.92	.23	.23	.28	.32	.42	1.11	1.48	2.45	1.43	1.38	16.47				16.47			
1 SS	.00	.00	.00	.09	.09	.14	.46	.18	.28	.46	.60	.23	.14	.23	.09	.00	3.00					3.00		
2 MS	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05						.05	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.05	.05						
1 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00	.09		.09					
3 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.05			.05				
- N	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.05	.23	.42	.28	.00	.00	1.06				1.06			
1 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.09	.09	.00	.00	.00	.00	.00	.18					.18		
8 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00

ComEd QUAD CITIES STATION
33 ft. WIND SPEED and WIND DIRECTION

January-March 2000
196-33 ft. DIFFERENTIAL TEMPERATURE

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
1 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
9 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
· N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
2 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
G MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
T SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
2 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
TOT	5.17	3.46	6.23	5.58	5.26	7.89	6.41	6.28	4.01	4.75	5.40	7.38	11.86	9.04	6.00	5.26	100.00	8.63	1.94	6.28	40.01	27.87	8.86	6.41

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
.42	.42	.37	.05	.32	.46	.37	.83	.51	.51	.55	.83	1.29	.60	.65	.46	8.63	Extremely Unstable
.05	.09	.18	.00	.05	.00	.09	.14	.14	.09	.05	.23	.23	.18	.18	.23	1.94	Moderately Unstable
.37	.09	.18	.09	.28	.18	.37	.46	.14	.23	.51	.88	1.02	.46	.42	.60	6.28	Slightly Unstable
2.95	2.17	3.88	3.14	1.75	2.72	1.20	.92	.83	1.29	1.38	3.00	4.38	4.71	2.91	2.77	40.01	Neutral
.78	.42	.65	1.52	1.06	1.80	2.12	2.40	1.71	2.26	2.58	2.03	3.78	2.17	1.52	1.06	27.87	Slightly Stable
.23	.23	.78	.60	.74	1.15	1.52	1.11	.51	.28	.14	.14	.78	.37	.18	.09	8.86	Moderately Stable
.37	.05	.18	.18	1.06	1.57	.74	.42	.18	.09	.18	.28	.37	.55	.14	.05	6.41	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	C A L M
1.20	.97	1.52	1.52	2.08	2.77	2.86	2.22	1.15	1.43	.74	1.52	2.31	1.43	1.11	.74	25.57	0.9 - 3.5 mph
2.31	1.11	2.54	2.68	2.03	3.41	2.68	2.91	1.80	2.12	3.28	3.55	5.91	3.65	3.23	2.58	45.78	3.6 - 7.5 mph
1.66	1.38	2.17	1.34	1.15	1.62	.88	1.15	1.06	1.11	1.25	2.08	3.18	3.55	1.66	1.94	27.18	7.6 - 12.5 mph
.00	.00	.00	.00	.00	.09	.00	.00	.00	.09	.14	.23	.46	.42	.00	.00	1.43	12.6 - 18.5 mph
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	18.6 - 24.5 mph
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	> 24.5 mph

ComEd QUAD CITIES STATION
33 ft. WIND SPEED and WIND DIRECTION

April-June 2000
196-33 ft. DIFFERENTIAL TEMPERATURE

NUMBER OF OBSERVATIONS = 2184
VALUES ARE PERCENT OCCURRENCE

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
C SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
A N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
L SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
M MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05							.05
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.05	.05						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.05	.00	.00	.00	.09		.09					
1 SU	.05	.05	.05	.00	.00	.00	.09	.09	.14	.14	.05	.18	.14	.14	.05	.14	1.28			1.28				
- N	.27	.14	.32	.27	.23	.27	.32	.41	.18	.64	.55	.41	.41	.41	.23	.27	5.36				5.36			
3 SS	.14	.32	.09	.32	.41	.87	1.10	.92	1.56	.78	.60	.64	1.01	1.05	.37	.37	10.53					10.53		
MS	.37	.28	.23	.23	.64	1.06	.87	.83	.83	.60	.41	.14	1.01	.46	.18	.18	8.33						8.33	
ES	.33	.19	.33	.23	.37	.93	.89	.98	.51	.28	.23	.28	.65	.33	.19	.23	6.96							6.96
EU	.23	.27	.50	.27	.05	.00	.55	.82	.46	2.98	1.01	.60	.60	.64	.73	.41	10.12	10.12						
MU	.05	.05	.05	.09	.05	.00	.14	.14	.05	.64	.23	.05	.14	.14	.27	.05	2.11		2.11					
4 SU	.00	.09	.09	.09	.00	.09	.32	.23	.23	.69	.50	.09	.27	.14	.41	.18	3.43			3.43				
- N	.96	.78	.96	1.33	1.14	.96	.92	.46	.69	1.37	.69	.82	1.37	.87	1.14	.78	15.25				15.25			
7 SS	.32	.23	.41	.96	.96	1.10	1.60	.60	1.01	3.30	1.47	.78	.82	.92	1.60	.41	16.48					16.48		
MS	.00	.09	.05	.05	.09	.14	.09	.09	.18	.14	.05	.00	.14	.00	.00	.00	1.10						1.10	
ES	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05							.05
EU	.09	.05	.14	.37	.14	.18	.14	.05	.09	1.01	.14	.14	.46	.96	.64	.55	5.13	5.13						
MU	.09	.05	.09	.09	.00	.00	.00	.00	.05	.05	.05	.05	.14	.18	.05	.00	.87		.87					
8 SU	.14	.00	.05	.27	.14	.05	.00	.00	.00	.05	.18	.14	.18	.18	.09	.09	1.56			1.56				
- N	.96	.78	.87	.82	.78	.18	.09	.00	.14	.32	.32	.37	.27	.64	.37	.92	7.83				7.83			
1 SS	.05	.00	.09	.18	.23	.14	.05	.00	.00	.14	.60	.32	.14	.23	.09	.00	2.24					2.24		
2 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.05	.05	.00	.00	.00	.00	.00	.09	.05	.00	.23	.23						
1 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
3 SU	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.09			.09				
- N	.23	.05	.23	.00	.00	.05	.05	.00	.00	.00	.00	.00	.00	.00	.00	.09	.69				.69			
1 SS	.00	.00	.00	.00	.05	.05	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00	.18					.18		
8 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00

ComEd QUAD CITIES STATION
33 ft. WIND SPEED and WIND DIRECTION

April-June 2000
196-33 ft. DIFFERENTIAL TEMPERATURE

SPEED	WIND DIRECTION CLASSES																STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
1 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
9 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
- N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
2 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
G MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
T SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
2 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
TOT	4.31	3.44	4.54	5.59	5.32	6.07	7.26	5.66	6.10	13.10	7.10	5.04	7.80	7.52	6.46	4.68	100.00	15.52	3.07	6.36	29.12	29.44	9.43	7.05

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
.32	.32	.64	.64	.18	.18	.73	.92	.55	3.98	1.19	.73	1.05	1.69	1.42	.96	15.52	Extremely Unstable
.14	.09	.14	.18	.05	.00	.14	.14	.09	.69	.27	.14	.32	.32	.32	.05	3.07	Moderately Unstable
.23	.14	.18	.37	.14	.14	.41	.32	.37	.87	.73	.41	.60	.50	.55	.41	6.36	Slightly Unstable
2.43	1.74	2.38	2.43	2.15	1.47	1.37	.87	1.01	2.34	1.56	1.60	2.06	1.92	1.74	2.06	29.12	Neutral
.50	.55	.60	1.47	1.65	2.15	2.75	1.51	2.56	4.21	2.66	1.74	1.97	2.29	2.06	.78	29.44	Slightly Stable
.37	.37	.28	.28	.74	1.20	.97	.92	1.01	.74	.46	.14	1.15	.46	.18	.18	9.43	Moderately Stable
.33	.23	.33	.23	.42	.93	.89	.98	.51	.28	.23	.28	.65	.33	.19	.23	7.05	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	C A L M
1.15	.97	1.02	1.06	1.66	3.14	3.27	3.23	3.22	2.44	1.88	1.70	3.27	2.39	1.01	1.20	32.60	0.9 - 3.5 mph
1.56	1.51	2.06	2.79	2.34	2.29	3.62	2.34	2.61	9.11	3.94	2.34	3.34	2.70	4.17	1.83	48.53	3.6 - 7.5 mph
1.33	.87	1.24	1.74	1.28	.55	.27	.05	.27	1.56	1.28	1.01	1.19	2.20	1.24	1.56	17.63	7.6 - 12.5 mph
.27	.05	.23	.00	.05	.09	.09	.05	.00	.00	.00	.00	.00	.23	.05	.09	1.19	12.6 - 18.5 mph
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	18.6 - 24.5 mph
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	> 24.5 mph

ComEd QUAD CITIES STATION
33 ft. WIND SPEED and WIND DIRECTION

July-September 2000
196-33 ft. DIFFERENTIAL TEMPERATURE

NUMBER OF OBSERVATIONS = 2145
VALUES ARE PERCENT OCCURRENCE

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
C SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
A N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
L SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
M MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.05	.00	.09	.09	.05	.09	.05	.09	.00	.05	.56	.56						
MU	.00	.00	.00	.00	.00	.00	.00	.09	.05	.09	.09	.00	.05	.05	.05	.00	.47		.47					
1 SU	.05	.05	.05	.05	.05	.00	.00	.00	.05	.09	.05	.19	.23	.09	.14	.05	1.12			1.12				
- N	.09	.23	.28	.37	.37	.33	.33	.33	.19	.19	.23	.37	.56	.42	.42	.33	5.03				5.03			
3 SS	.37	.51	.75	1.40	1.03	1.07	.98	.98	.42	.65	.70	.98	1.26	1.21	1.07	.70	14.08					14.08		
MS	.75	.42	.65	.70	1.45	1.64	1.82	1.40	.94	.47	.14	.14	.65	1.12	.70	.33	13.33						13.33	
ES	.20	.25	.39	.49	1.72	2.41	1.33	.39	.34	.05	.00	.10	.20	.74	.00	.25	8.86							8.86
EU	.84	.42	.37	.61	.79	.75	.51	1.17	.51	1.21	.56	.47	.75	.93	1.35	.89	12.12	12.12						
MU	.14	.09	.00	.28	.23	.28	.14	.28	.19	.51	.28	.14	.09	.23	.28	.00	3.17		3.17					
4 SU	.47	.33	.28	.19	.42	.70	.37	.14	.19	.42	.23	.23	.09	.23	.33	.33	4.94			4.94				
- N	1.68	.47	1.35	.84	1.03	1.21	.89	.56	.93	1.17	1.03	.47	.23	.23	.79	.89	13.75				13.75			
7 SS	1.21	.47	1.26	2.10	1.54	1.31	.61	.51	1.45	1.72	2.42	.14	.65	.42	1.26	.93	18.00					18.00		
MS	.09	.00	.00	.14	.00	.28	.05	.00	.19	.05	.09	.00	.00	.05	.14	.00	1.07						1.07	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.37	.14	.00	.09	.09	.09	.14	.00	.00	.00	.09	.00	.00	.05	.00	.05	1.12	1.12						
MU	.00	.00	.05	.00	.00	.14	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.19		.19					
8 SU	.09	.00	.09	.00	.09	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.05	.37			.37				
- N	.14	.00	.23	.19	.09	.14	.00	.00	.00	.19	.05	.05	.00	.05	.05	.19	1.35				1.35			
1 SS	.00	.05	.05	.00	.09	.00	.05	.00	.00	.05	.00	.05	.09	.00	.00	.05	.47					.47		
2 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
1 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
3 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
- N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
1 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
8 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00

ComEd QUAD CITIES STATION
33 ft. WIND SPEED and WIND DIRECTION

July-September 2000
196-33 ft. DIFFERENTIAL TEMPERATURE

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
1 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
9 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
- N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
2 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
G MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
T SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
2 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
TOT	6.49	3.42	5.80	7.44	9.00	10.34	7.26	5.85	5.52	7.00	6.01	3.41	4.91	5.92	6.58	5.05	100.00	13.80	3.82	6.43	20.14	32.54	14.41	8.86

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
1.21	.56	.37	.70	.89	.84	.70	1.17	.61	1.31	.70	.56	.79	1.07	1.35	.98	13.80	Extremely Unstable
.14	.09	.05	.28	.23	.42	.14	.37	.23	.61	.37	.14	.14	.28	.33	.00	3.82	Moderately Unstable
.61	.37	.42	.23	.56	.70	.37	.14	.23	.56	.28	.42	.33	.33	.47	.42	6.43	Slightly Unstable
1.91	.70	1.86	1.40	1.49	1.68	1.21	.89	1.12	1.54	1.31	.89	.79	.70	1.26	1.40	20.14	Neutral
1.59	1.03	2.05	3.50	2.66	2.38	1.63	1.49	1.86	2.42	3.12	1.17	2.00	1.63	2.33	1.68	32.54	Slightly Stable
.84	.42	.65	.84	1.45	1.92	1.87	1.40	1.12	.51	.23	.14	.65	1.17	.84	.33	14.41	Moderately Stable
.20	.25	.39	.49	1.72	2.41	1.33	.39	.34	.05	.00	.10	.20	.74	.00	.25	8.86	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	C A L M
1.46	1.46	2.12	3.01	4.62	5.45	4.51	3.20	2.07	1.64	1.26	1.87	3.00	3.73	2.38	1.69	43.45	0.9 - 3.5 mph
4.43	1.77	3.26	4.15	4.01	4.52	2.56	2.66	3.45	5.08	4.62	1.45	1.82	2.10	4.15	3.03	53.05	3.6 - 7.5 mph
.61	.19	.42	.28	.37	.37	.19	.00	.00	.28	.14	.09	.09	.09	.05	.33	3.50	7.6 - 12.5 mph
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	12.6 - 18.5 mph
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	18.6 - 24.5 mph
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	> 24.5 mph

ComEd QUAD CITIES STATION
33 ft. WIND SPEED and WIND DIRECTION

October-December 2000
196-33 ft. DIFFERENTIAL TEMPERATURE

NUMBER OF OBSERVATIONS = 2150
VALUES ARE PERCENT OCCURRENCE

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
C SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
A N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
L SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
M MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.09	.09						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
1 SU	.05	.00	.00	.00	.00	.09	.00	.05	.00	.00	.05	.00	.09	.00	.00	.05	.37			.37				
- N	.23	.19	.28	.14	.33	.28	.28	.47	.37	.33	.37	.51	.65	.47	.28	.09	5.26				5.26			
3 SS	.14	.23	.56	.51	.61	.47	1.12	.75	.28	.51	.37	.79	.56	.56	.79	.42	8.70					8.70		
MS	.00	.14	.23	.51	.84	.56	.51	.80	.37	.42	.42	.37	.33	1.17	.14	.47	7.30						7.30	
ES	.19	.19	.14	.52	.85	1.14	.19	.28	.24	.19	.19	.00	.14	.19	.09	.09	4.65							4.65
EU	.00	.14	.09	.00	.00	.00	.14	.37	.09	.56	.56	.65	.98	.37	.47	.19	4.60	4.60						
MU	.00	.00	.09	.00	.05	.00	.33	.05	.00	.28	.14	.14	.23	.19	.14	.00	1.63		1.63					
4 SU	.05	.14	.14	.37	.19	.33	.19	.14	.09	.14	.28	.33	.47	.33	.28	.00	3.44			3.44				
- N	.88	.56	1.49	.60	1.49	1.26	1.40	.74	.42	.65	1.35	1.95	5.16	2.65	1.86	.51	22.98				22.98			
7 SS	.33	.28	.28	.79	.79	.88	.37	.70	.79	1.35	.98	1.07	.98	1.07	1.02	.37	12.05					12.05		
MS	.00	.05	.09	.05	.33	.70	.05	.09	.05	.05	.09	.00	.00	.14	.00	.00	1.67						1.67	
ES	.00	.00	.00	.05	.00	.47	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.51							.51
EU	.00	.00	.05	.00	.00	.19	.19	.33	.00	.00	.14	.19	.88	.37	.88	.33	3.53	3.53						
MU	.05	.05	.00	.00	.00	.05	.00	.00	.00	.05	.09	.05	.09	.14	.19	.09	.84		.84					
8 SU	.09	.00	.05	.14	.00	.05	.09	.05	.00	.05	.33	.23	.33	.14	.23	.05	1.81			1.81				
- N	.51	.88	.74	.28	.14	.74	.56	.09	.00	.05	.84	1.21	3.67	3.44	2.05	.42	15.63				15.63			
1 SS	.00	.14	.09	.00	.09	.60	.37	.14	.14	.23	.09	.00	.00	.00	.00	.00	1.91					1.91		
2 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28	.05	.00	.00	.33	.33						
1 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.05		.05					
3 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.05			.05				
- N	.14	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.19	.93	.98	.00	.05	2.33				2.33			
1 SS	.00	.00	.00	.00	.05	.23	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.28					.28		
8 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00

ComEd QUAD CITIES STATION
33 ft. WIND SPEED and WIND DIRECTION

October-December 2000
196-33 ft. DIFFERENTIAL TEMPERATURE

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
1 MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
9 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
- N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
2 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
G MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
T SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
2 SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
TOT	2.66	3.08	4.33	3.97	5.75	8.03	5.78	5.04	2.85	4.85	6.29	7.68	15.82	12.34	8.43	3.12	100.00	8.56	2.51	5.67	46.19	22.93	8.98	5.16

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
.00	.19	.14	.00	.00	.19	.33	.70	.09	.56	.70	.84	2.14	.84	1.35	.51	8.56	Extremely Unstable
.05	.05	.09	.00	.05	.05	.33	.05	.00	.33	.23	.19	.33	.37	.33	.09	2.51	Moderately Unstable
.19	.14	.19	.51	.19	.47	.28	.23	.09	.19	.65	.56	.93	.47	.51	.09	5.67	Slightly Unstable
1.77	1.67	2.51	1.02	1.95	2.28	2.23	1.30	.79	1.02	2.56	3.86	10.42	7.53	4.19	1.07	46.19	Neutral
.47	.65	.93	1.31	1.54	2.19	1.87	1.59	1.21	2.10	1.44	1.86	1.54	1.63	1.82	.79	22.93	Slightly Stable
.00	.19	.33	.56	1.17	1.26	.56	.89	.42	.47	.51	.37	.33	1.31	.14	.47	8.98	Moderately Stable
.19	.19	.14	.57	.85	1.60	.19	.28	.24	.19	.19	.00	.14	.19	.09	.09	5.16	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	C A L M
.61	.80	1.22	1.69	2.63	2.54	2.11	2.34	1.26	1.45	1.40	1.68	1.78	2.43	1.31	1.12	26.37	0.9 - 3.5 mph
1.26	1.16	2.19	1.86	2.84	3.63	2.47	2.09	1.44	3.02	3.40	4.14	7.81	4.74	3.77	1.07	46.88	3.6 - 7.5 mph
.65	1.07	.93	.42	.23	1.63	1.21	.60	.14	.37	1.49	1.67	4.98	4.09	3.35	.88	23.72	7.6 - 12.5 mph
.14	.05	.00	.00	.05	.23	.00	.00	.00	.00	.00	.19	1.26	1.07	.00	.05	3.02	12.6 - 18.5 mph
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	18.6 - 24.5 mph
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	> 24.5 mph

ComEd QUAD CITIES STATION
296 ft. WIND SPEED and WIND DIRECTION

January-March 2000
296-33 ft. DIFFERENTIAL TEMPERATURE

NUMBER OF OBSERVATIONS = 2184
VALUES ARE PERCENT OCCURRENCE

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
	EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
	MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
C	SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
A	N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
L	SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
M	MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
	ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
	EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
	MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.05		.05				
1	SU	.05	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.09			.09			
-	N	.05	.05	.05	.09	.00	.00	.05	.09	.05	.05	.05	.09	.18	.00	.00	.09	.87				.87		
3	SS	.00	.05	.05	.05	.05	.09	.00	.00	.09	.05	.00	.05	.00	.05	.05	.00	.55					.55	
	MS	.00	.00	.00	.00	.05	.14	.09	.00	.05	.00	.05	.00	.00	.00	.00	.00	.37						.37
	ES	.00	.00	.00	.05	.10	.05	.00	.05	.00	.05	.05	.00	.05	.05	.00	.00	.46						.46
	EU	.05	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.09	.09	.00	.05	.00	.32	.32					
	MU	.14	.00	.18	.05	.00	.00	.00	.00	.00	.05	.18	.14	.14	.23	.14	.09	1.33		1.33				
4	SU	.05	.14	.05	.05	.09	.00	.05	.05	.00	.18	.09	.27	.05	.00	.14	.23	1.42			1.42			
-	N	.32	.18	.27	.14	.55	.23	.32	.32	.27	.23	.18	.23	.14	.09	.14	.27	3.89				3.89		
7	SS	.27	.18	.14	.18	.23	.09	.09	.14	.37	.18	.18	.05	.00	.14	.09	.18	2.52					2.52	
	MS	.05	.09	.05	.18	.09	.14	.05	.05	.18	.09	.00	.05	.00	.05	.05	.09	1.19						1.19
	ES	.00	.18	.14	.00	.05	.05	.27	.18	.18	.00	.00	.00	.00	.00	.14	.05	1.24						1.24
	EU	.14	.00	.00	.05	.00	.00	.05	.05	.00	.05	.27	.23	.05	.00	.00	.00	.87	.87					
	MU	.05	.05	.05	.05	.00	.05	.00	.09	.05	.05	.05	.14	.05	.00	.27	.00	.92		.92				
8	SU	.09	.05	.00	.00	.14	.05	.05	.09	.05	.05	.09	.05	.18	.23	.18	.23	1.51			1.51			
-	N	1.10	.64	.64	.64	1.01	.46	.82	.46	.32	.18	.46	.37	.46	.55	.50	.27	8.88				8.88		
1	SS	.41	.23	.27	.14	.92	.50	.27	.64	.46	.82	.23	.18	.23	.32	.18	.18	6.00					6.00	
2	MS	.05	.37	.09	.23	.32	.14	.18	.18	.27	.27	.09	.14	.18	.14	.18	.32	3.16						3.16
	ES	.00	.00	.23	.18	.09	.23	.05	.09	.23	.05	.00	.00	.00	.00	.14	.00	1.28						1.28
	EU	.00	.27	.05	.00	.09	.23	.09	.27	.05	.27	.23	.23	.18	.00	.05	.05	2.06	2.06					
1	MU	.09	.05	.00	.00	.00	.09	.05	.05	.05	.00	.05	.14	.23	.09	.14	.14	1.14		1.14				
3	SU	.14	.09	.18	.00	.05	.14	.00	.27	.14	.14	.23	.41	.27	.18	.27	.32	2.84			2.84			
-	N	1.28	1.05	2.11	1.79	1.05	.60	.37	.23	.41	.37	.96	1.24	1.51	1.92	2.01	1.37	18.27				18.27		
1	SS	.87	.14	.09	.23	.14	.32	.50	.55	1.37	1.37	1.05	1.19	1.42	1.42	1.19	.73	12.59					12.59	
8	MS	.05	.05	.00	.00	.09	.27	.05	.37	.82	.37	.14	.14	.05	.32	.23	.05	2.98						2.98
	ES	.00	.00	.00	.00	.05	.00	.00	.05	.60	.55	.00	.00	.00	.00	.14	.00	1.37						1.37

ComEd QUAD CITIES STATION
296 ft. WIND SPEED and WIND DIRECTION

January-March 2000
296-33 ft. DIFFERENTIAL TEMPERATURE

SPEED	WIND DIRECTION CLASSES																STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.05	.09	.00	.27	.09	.00	.00	.14	.23	.05	.05	.96	.96						
1 MU	.00	.00	.00	.00	.00	.00	.05	.05	.23	.05	.00	.09	.18	.23	.05	.09	1.01		1.01					
9 SU	.00	.00	.00	.00	.00	.00	.00	.05	.09	.05	.00	.09	.32	.27	.00	.14	1.01			1.01				
- N	.27	.27	.37	.41	.18	.55	.14	.78	.41	.46	.32	.41	.96	2.06	1.05	.73	9.39				9.39			
2 SS	.00	.00	.05	.00	.00	.78	.23	.69	.55	.78	.60	.09	.60	.14	.00	.00	4.49					4.49		
4 MS	.00	.00	.00	.00	.00	.18	.18	.09	.37	.27	.00	.00	.05	.00	.00	.00	1.14						1.14	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.05	.00	.09							.09
EU	.00	.00	.00	.00	.00	.00	.00	.00	.09	.00	.00	.00	.00	.09	.00	.00	.18	.18						
G MU	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.05	.09	.00	.00	.18		.18					
T SU	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.05	.00	.00	.09	.00	.00	.18			.18				
N	.00	.00	.00	.00	.00	.05	.09	.09	.27	.09	.14	.18	.50	.69	.18	.05	2.34				2.34			
2 SS	.00	.00	.00	.00	.00	.00	.00	.09	.27	.18	.23	.09	.00	.00	.00	.00	.87					.87		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
TOT	5.49	4.12	5.04	4.49	5.32	5.45	4.17	6.09	8.70	7.42	6.00	6.36	8.25	9.71	7.65	5.72	100.00	4.40	4.62	7.05	43.64	27.01	8.84	4.44

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
.18	.27	.05	.05	.09	.27	.23	.32	.41	.46	.50	.55	.46	.32	.14	.09	4.40	Extremely Unstable
.27	.09	.23	.09	.00	.14	.09	.18	.37	.14	.27	.50	.64	.69	.60	.32	4.62	Moderately Unstable
.32	.27	.23	.05	.27	.18	.09	.46	.32	.41	.50	.82	.82	.78	.60	.92	7.05	Slightly Unstable
3.02	2.20	3.43	3.07	2.79	1.88	1.79	1.97	1.74	1.37	2.11	2.52	3.75	5.31	3.89	2.79	43.64	Neutral
1.56	.60	.60	.60	1.33	1.79	1.10	2.11	3.11	3.39	2.29	1.65	2.24	2.06	1.51	1.10	27.01	Slightly Stable
.14	.50	.14	.41	.55	.87	.55	.69	1.69	1.01	.27	.32	.27	.50	.46	.46	8.84	Moderately Stable
.00	.18	.37	.23	.28	.33	.32	.37	1.05	.65	.05	.00	.05	.05	.46	.05	4.44	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	C A L M
.09	.09	.09	.19	.19	.28	.14	.14	.18	.14	.19	.14	.23	.14	.05	.09	2.38	0.9 - 3.5 mph
.87	.78	.82	.60	1.01	.50	.78	.73	1.01	.78	.64	.82	.41	.50	.73	.92	11.90	3.6 - 7.5 mph
1.83	1.33	1.28	1.28	2.47	1.42	1.42	1.60	1.37	1.47	1.19	1.10	1.14	1.24	1.47	1.01	22.62	7.6 - 12.5 mph
2.43	1.65	2.43	2.01	1.47	1.65	1.05	1.79	3.43	3.07	2.66	3.34	3.66	3.94	4.03	2.66	41.25	12.6 - 18.5 mph
.27	.27	.41	.41	.18	1.56	.69	1.65	1.97	1.69	.92	.69	2.24	2.93	1.19	1.01	18.09	18.6 - 24.5 mph
.00	.00	.00	.00	.00	.05	.09	.18	.73	.27	.41	.27	.55	.96	.18	.05	3.75	> 24.5 mph

ComEd QUAD CITIES STATION
296 ft. WIND SPEED and WIND DIRECTION

April-June 2000
296-33 ft. DIFFERENTIAL TEMPERATURE

NUMBER OF OBSERVATIONS = 2177
VALUES ARE PERCENT OCCURRENCE

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
C SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
A N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
L SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
M MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.05		.05					
1 SU	.00	.00	.00	.00	.05	.05	.00	.00	.00	.00	.00	.05	.05	.05	.05	.00	.28			.28				
- N	.05	.05	.14	.00	.14	.00	.00	.05	.23	.05	.14	.05	.05	.14	.05	.14	1.24				1.24			
3 SS	.05	.00	.00	.00	.00	.00	.05	.00	.05	.09	.09	.05	.05	.00	.00	.00	.41					.41		
MS	.05	.00	.09	.05	.14	.00	.05	.00	.00	.00	.00	.00	.05	.09	.00	.00	.51						.51	
ES	.00	.00	.05	.00	.00	.05	.00	.00	.05	.05	.05	.05	.05	.14	.05	.05	.55							.55
EU	.05	.00	.05	.00	.00	.00	.00	.09	.05	.64	.14	.09	.09	.09	.09	.23	1.61	1.61						
MU	.00	.00	.14	.18	.00	.00	.00	.18	.09	.51	.28	.28	.18	.23	.18	.23	2.48		2.48					
4 SU	.05	.00	.05	.09	.00	.05	.09	.14	.23	.37	.23	.00	.09	.14	.14	.05	1.70			1.70				
- N	.18	.09	.23	.23	.41	.14	.14	.28	.14	.41	.23	.14	.09	.14	.18	.32	3.35				3.35			
7 SS	.05	.14	.05	.00	.05	.09	.09	.23	.18	.18	.14	.05	.32	.09	.23	.14	2.02					2.02		
MS	.05	.05	.18	.05	.09	.18	.14	.05	.18	.00	.05	.09	.09	.09	.00	.09	1.38						1.38	
ES	.05	.09	.00	.00	.00	.09	.05	.00	.23	.05	.09	.09	.14	.14	.09	.05	1.15							1.15
EU	.09	.00	.14	.14	.00	.00	.18	.28	.37	1.06	.18	.14	.14	.09	.28	.05	3.12	3.12						
MU	.09	.18	.32	.00	.09	.00	.14	.05	.23	.37	.09	.05	.05	.00	.32	.14	2.11		2.11					
8 SU	.00	.05	.14	.05	.00	.00	.09	.14	.09	.32	.00	.00	.23	.18	.05	.23	1.56			1.56				
- N	.69	.41	.46	.60	1.06	.73	.37	.51	.73	.64	.51	.51	.37	.64	.69	.69	9.60				9.60			
1 SS	.14	.18	.23	.14	.23	.28	.41	.60	.55	.69	.41	.28	.55	.73	.60	.23	6.25					6.25		
2 MS	.00	.18	.23	.05	.09	.05	.28	.37	.23	.37	.23	.18	.14	.32	.09	.14	2.94						2.94	
ES	.09	.09	.00	.00	.05	.00	.00	.05	.09	.18	.28	.14	.05	.05	.14	.05	1.24							1.24
EU	.05	.05	.14	.05	.00	.00	.18	.18	.60	1.65	.09	.37	.32	1.06	.73	.23	5.70	5.70						
1 MU	.00	.14	.00	.05	.00	.09	.09	.09	.00	.37	.00	.05	.14	.23	.18	.14	1.56		1.56					
3 SU	.09	.05	.09	.23	.18	.05	.00	.05	.09	.37	.09	.09	.14	.14	.09	.18	1.93			1.93				
- N	.87	.73	.78	1.15	.69	1.15	.51	.78	.73	1.88	.55	.46	1.01	.69	.73	.78	13.50				13.50			
1 SS	.09	.14	.28	.51	.23	.37	.78	.78	1.47	2.11	.51	.32	.64	.64	1.19	.28	10.34					10.34		
8 MS	.05	.09	.18	.09	.05	.14	.55	.46	.69	.87	.41	.23	.14	.41	.28	.05	4.69						4.69	
ES	.05	.00	.00	.00	.00	.00	.00	.09	.14	.28	.18	.00	.05	.05	.14	.00	.96							.96

ComEd QUAD CITIES STATION
296 ft. WIND SPEED and WIND DIRECTION

April-June 2000
296-33 ft. DIFFERENTIAL TEMPERATURE

SPEED	WIND DIRECTION CLASSES																STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.05	.14	.05	.05	.00	.09	.14	.64	.05	.09	.05	.28	.09	.14	1.84	1.84						
1 MU	.00	.00	.00	.05	.09	.05	.00	.00	.14	.09	.14	.05	.18	.28	.09	.05	1.19		1.19					
9 SU	.00	.00	.09	.05	.00	.05	.05	.00	.09	.18	.09	.00	.09	.14	.09	.00	.92			.92				
- N	.60	.60	.55	.37	.32	.28	.14	.41	.23	.46	.32	.37	.37	.41	.78	.60	6.80				6.80			
2 SS	.05	.09	.05	.00	.00	.14	.18	.32	.46	.83	.37	.05	.32	.14	.09	.00	3.08					3.08		
4 MS	.00	.00	.05	.00	.00	.00	.05	.18	.05	.09	.00	.00	.00	.00	.00	.00	.41						.41	
ES	.00	.00	.00	.00	.00	.00	.00	.05	.05	.00	.00	.00	.00	.00	.00	.00	.09							.09
EU	.00	.00	.00	.00	.00	.00	.00	.05	.00	.18	.00	.00	.05	.14	.05	.00	.46	.46						
G MU	.00	.00	.00	.00	.00	.00	.00	.05	.05	.05	.00	.00	.18	.14	.00	.00	.46		.46					
T SU	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.05	.00	.05	.05	.00	.00	.18			.18				
N	.05	.00	.05	.00	.00	.28	.00	.05	.14	.14	.14	.05	.18	.41	.00	.23	1.70				1.70			
2 SS	.00	.00	.05	.00	.05	.18	.00	.05	.09	.09	.00	.05	.05	.00	.00	.00	.60					.60		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.05						.05	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
TOT	3.54	3.40	4.82	4.23	4.04	4.50	4.59	6.71	8.91	16.26	6.16	4.36	6.71	8.54	7.76	5.47	100.00	12.72	7.85	6.57	36.20	22.69	9.97	4.00

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
.18	.05	.37	.32	.05	.05	.37	.69	1.15	4.18	.46	.69	.64	1.65	1.24	.64	12.72	Extremely Unstable
.09	.32	.46	.28	.18	.14	.23	.37	.51	1.38	.55	.41	.73	.87	.78	.55	7.85	Moderately Unstable
.14	.09	.37	.41	.23	.18	.23	.37	.51	1.24	.46	.14	.64	.69	.41	.46	6.57	Slightly Unstable
2.43	1.88	2.20	2.34	2.62	2.57	1.15	2.07	2.20	3.58	1.88	1.56	2.07	2.43	2.43	2.76	36.20	Neutral
.37	.55	.64	.64	.55	1.06	1.52	1.98	2.80	4.00	1.52	.78	1.93	1.61	2.11	.64	22.69	Slightly Stable
.14	.32	.73	.23	.37	.37	1.06	1.06	1.19	1.33	.69	.51	.41	.92	.37	.28	9.97	Moderately Stable
.18	.18	.05	.00	.05	.14	.05	.18	.55	.55	.60	.28	.28	.37	.41	.14	4.00	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	C A L M
.14	.05	.28	.05	.32	.09	.09	.05	.32	.18	.32	.18	.23	.41	.14	.18	3.03	0.9 - 3.5 mph
.41	.37	.69	.55	.55	.55	.51	.96	1.10	2.16	1.15	.73	1.01	.92	.92	1.10	13.69	3.6 - 7.5 mph
1.10	1.10	1.52	.96	1.52	1.06	1.47	1.98	2.30	3.63	1.70	1.29	1.52	2.02	2.16	1.52	26.83	7.6 - 12.5 mph
1.19	1.19	1.47	2.07	1.15	1.79	2.11	2.43	3.72	7.53	1.84	1.52	2.43	3.22	3.35	1.65	38.68	12.6 - 18.5 mph
.64	.69	.78	.60	.46	.55	.41	1.06	1.15	2.30	.96	.55	1.01	1.24	1.15	.78	14.33	18.6 - 24.5 mph
.05	.00	.09	.00	.05	.46	.00	.23	.32	.46	.18	.09	.51	.73	.05	.23	3.45	> 24.5 mph

ComEd QUAD CITIES STATION
296 ft. WIND SPEED and WIND DIRECTION

July-September 2000
296-33 ft. DIFFERENTIAL TEMPERATURE

NUMBER OF OBSERVATIONS = 2138
VALUES ARE PERCENT OCCURRENCE

SPEED	WIND DIRECTION CLASSES																STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
C SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
A N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
L SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
M MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.05	.05						
MU	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.05	.05	.05	.00	.05	.23		.23					
1 SU	.00	.09	.00	.00	.00	.05	.00	.00	.00	.00	.05	.05	.05	.05	.00	.09	.42			.42				
- N	.05	.05	.09	.05	.05	.05	.00	.00	.05	.05	.00	.05	.05	.05	.05	.00	.61				.61			
3 SS	.00	.00	.00	.09	.05	.05	.00	.00	.05	.00	.05	.05	.00	.00	.00	.00	.33					.33		
MS	.09	.14	.09	.00	.05	.00	.00	.00	.00	.00	.05	.09	.00	.00	.09	.19	.80						.80	
ES	.05	.05	.05	.00	.05	.00	.05	.05	.00	.00	.00	.00	.05	.00	.00	.05	.37							.37
EU	.47	.05	.05	.23	.09	.09	.09	.14	.37	.23	.14	.37	.47	.56	.42	.42	4.21	4.21						
MU	.23	.19	.14	.09	.23	.23	.14	.23	.14	.19	.19	.23	.19	.05	.23	.19	2.90		2.90					
4 SU	.00	.00	.14	.00	.09	.19	.09	.14	.09	.05	.14	.05	.23	.05	.09	.00	1.36			1.36				
- N	.33	.23	.42	.23	.33	.61	.33	.23	.23	.14	.09	.19	.33	.42	.37	.33	4.82				4.82			
7 SS	.37	.37	.14	.19	.28	.09	.05	.23	.19	.19	.09	.23	.09	.19	.14	.23	3.09					3.09		
MS	.19	.14	.28	.14	.33	.37	.14	.14	.05	.09	.14	.00	.00	.00	.09	.14	2.25						2.25	
ES	.14	.05	.00	.05	.19	.00	.09	.14	.14	.14	.00	.00	.00	.00	.05	.00	.98							.98
EU	.42	.33	.19	.19	.84	.56	.33	.65	.33	.56	.23	.19	.28	.33	.89	.61	6.92	6.92						
MU	.23	.23	.09	.14	.28	.37	.33	.09	.19	.14	.09	.23	.09	.23	.14	.14	3.04		3.04					
8 SU	.28	.28	.23	.09	.14	.33	.19	.05	.19	.42	.00	.05	.05	.05	.09	.09	2.53			2.53				
- N	1.03	.89	.89	.70	.98	.84	.28	.47	.33	.37	.47	.33	.47	.37	.47	.70	9.59				9.59			
1 SS	.84	.65	.28	.98	1.36	.33	.61	.70	.75	.75	.42	.33	.33	.42	.65	.42	9.82					9.82		
2 MS	.33	.19	.23	.09	.28	.09	.37	.94	.65	.70	.09	.33	.09	.09	.23	.89	5.61						5.61	
ES	.05	.09	.00	.05	.00	.00	.05	.33	.61	.37	.09	.09	.00	.00	.00	.00	1.73							1.73
EU	.37	.14	.05	.00	.14	.23	.33	.28	.51	.70	.28	.19	.05	.19	.19	.09	3.74	3.74						
1 MU	.14	.05	.09	.05	.09	.09	.28	.14	.14	.42	.14	.00	.05	.05	.14	.00	1.87		1.87					
3 SU	.05	.00	.14	.00	.09	.14	.00	.05	.19	.33	.14	.00	.00	.00	.00	.00	1.12			1.12				
- N	.56	.33	.65	.89	.23	.94	.42	.33	.61	.65	.89	.19	.14	.09	.51	.33	7.76				7.76			
1 SS	.56	.47	.42	.61	.33	1.31	.80	.65	1.68	2.20	1.26	.19	.47	.37	.37	.75	12.44					12.44		
8 MS	.09	.09	.23	.09	.05	.56	.80	.80	1.26	.65	.28	.00	.09	.33	.14	.19	5.66						5.66	
ES	.00	.00	.00	.00	.00	.00	.14	.09	.47	.14	.09	.00	.00	.00	.00	.00	.94							.94

ComEd QUAD CITIES STATION
296 ft. WIND SPEED and WIND DIRECTION

July-September 2000
296-33 ft. DIFFERENTIAL TEMPERATURE

SPEED	WIND DIRECTION CLASSES																STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.14	.00	.00	.00	.00	.00	.00	.14	.14						
1 MU	.00	.00	.05	.00	.00	.05	.00	.00	.00	.19	.00	.00	.00	.00	.00	.00	.28		.28					
9 SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.05			.05				
- N	.00	.05	.14	.05	.05	.09	.05	.05	.09	.42	.09	.05	.23	.14	.05	.09	1.64				1.64			
2 SS	.05	.00	.19	.00	.00	.14	.05	.00	.23	.75	.56	.05	.00	.00	.00	.00	2.01					2.01		
4 MS	.00	.00	.00	.00	.00	.05	.14	.05	.23	.00	.00	.00	.00	.00	.00	.00	.47						.47	
ES	.00	.00	.00	.00	.00	.00	.05	.09	.00	.00	.00	.00	.00	.00	.00	.00	.14							.14
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
G MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
T SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.05			.05				
N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
2 SS	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.05					.05		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
TOT	6.92	5.14	5.33	5.00	6.59	7.86	6.17	7.06	9.87	11.04	6.08	3.55	3.88	4.07	5.43	5.99	100.00	15.06	8.33	5.52	24.42	27.74	14.78	4.16

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
1.26	.51	.28	.42	1.08	.89	.75	1.08	1.26	1.64	.65	.75	.80	1.08	1.50	1.12	15.06	Extremely Unstable
.61	.47	.42	.28	.61	.75	.75	.47	.47	.94	.42	.51	.37	.37	.51	.37	8.33	Moderately Unstable
.33	.37	.51	.09	.33	.70	.28	.23	.47	.84	.33	.14	.37	.14	.19	.19	5.52	Slightly Unstable
1.96	1.54	2.20	1.92	1.64	2.53	1.08	1.08	1.31	1.64	1.54	.80	1.22	1.08	1.45	1.45	24.42	Neutral
1.82	1.50	1.03	1.87	2.01	1.92	1.50	1.59	2.95	3.88	2.39	.84	.89	.98	1.17	1.40	27.74	Slightly Stable
.70	.56	.84	.33	.70	1.08	1.45	1.92	2.20	1.45	.56	.42	.19	.42	.56	1.40	14.78	Moderately Stable
.23	.19	.05	.09	.23	.00	.37	.70	1.22	.65	.19	.09	.05	.00	.05	.05	4.16	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	C A L M
.19	.33	.28	.14	.19	.14	.05	.05	.14	.05	.14	.28	.19	.14	.14	.37	2.81	0.9 - 3.5 mph
1.73	1.03	1.17	.94	1.54	1.59	.94	1.26	1.22	1.03	.80	1.08	1.31	1.26	1.40	1.31	19.60	3.6 - 7.5 mph
3.18	2.67	1.92	2.25	3.88	2.53	2.15	3.23	3.04	3.32	1.40	1.54	1.31	1.50	2.48	2.85	39.24	7.6 - 12.5 mph
1.78	1.08	1.59	1.64	.94	3.27	2.76	2.34	4.86	5.10	3.09	.56	.80	1.03	1.36	1.36	33.54	12.6 - 18.5 mph
.05	.05	.37	.05	.05	.33	.28	.19	.56	1.50	.65	.09	.28	.14	.05	.09	4.72	18.6 - 24.5 mph
.00	.00	.00	.00	.00	.00	.00	.00	.05	.05	.00	.00	.00	.00	.00	.00	.09	> 24.5 mph

ComEd QUAD CITIES STATION
296 ft. WIND SPEED and WIND DIRECTION

October-December 2000
296-33 ft. DIFFERENTIAL TEMPERATURE

NUMBER OF OBSERVATIONS = 2195
VALUES ARE PERCENT OCCURRENCE

SPEED	WIND DIRECTION CLASSES																	STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
C SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00			.00				
A N	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00				.00			
L SS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00					.00		
M MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						
MU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00		.00					
1 SU	.00	.00	.00	.00	.05	.00	.00	.05	.05	.05	.09	.05	.09	.00	.00	.00	.41			.41				
- N	.00	.00	.09	.09	.05	.05	.05	.05	.14	.09	.23	.14	.14	.14	.09	.05	1.37				1.37			
3 SS	.05	.14	.18	.05	.05	.05	.00	.00	.00	.00	.05	.14	.18	.18	.00	.09	1.14					1.14		
MS	.00	.00	.05	.05	.05	.05	.00	.05	.05	.00	.00	.00	.00	.00	.00	.00	.27						.27	
ES	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.05	.00	.14							.14
EU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.05	.09	.09						
MU	.00	.05	.00	.00	.14	.00	.00	.00	.00	.05	.05	.00	.05	.05	.09	.14	.59		.59					
4 SU	.00	.18	.05	.00	.00	.18	.09	.05	.09	.05	.14	.05	.14	.32	.09	.00	1.41			1.41				
- N	.18	.14	.09	.00	.73	.27	.27	.18	.36	.09	.32	.46	.96	.36	.32	.00	4.74				4.74			
7 SS	.05	.05	.18	.00	.09	.18	.14	.18	.23	.18	.27	.18	.23	.00	.09	.09	2.14					2.14		
MS	.05	.05	.18	.05	.23	.18	.09	.09	.18	.27	.09	.00	.00	.00	.00	.05	1.50						1.50	
ES	.05	.09	.18	.09	.09	.00	.09	.00	.00	.00	.18	.00	.09	.09	.00	.09	1.05							1.05
EU	.00	.00	.14	.00	.00	.00	.00	.09	.05	.36	.32	.09	.77	.36	.27	.00	2.46	2.46						
MU	.00	.00	.09	.00	.00	.05	.05	.00	.14	.09	.23	.05	.36	.27	.09	.00	1.41		1.41					
8 SU	.05	.00	.05	.05	.00	.00	.14	.05	.14	.05	.09	.18	.09	.36	.23	.05	1.50			1.50				
- N	.55	.73	.55	.36	.73	.64	.91	.87	.50	.41	.64	.91	1.78	1.41	1.18	.41	12.57				12.57			
1 SS	.73	.14	.23	.36	.46	.41	.41	.68	.59	.36	.27	.46	.68	.50	.91	.32	7.52					7.52		
2 MS	.18	.27	.09	.14	.14	.27	.32	.36	.27	.18	.27	.32	.18	.05	.09	.05	3.19						3.19	
ES	.05	.05	.09	.09	.00	.09	.05	.09	.09	.41	.09	.14	.23	.05	.05	.00	1.55							1.55
EU	.00	.00	.05	.00	.00	.05	.09	.09	.18	.46	.14	.09	.41	.09	.46	.27	2.37	2.37						
1 MU	.00	.00	.05	.00	.00	.05	.09	.05	.00	.14	.00	.09	.18	.36	.36	.09	1.46		1.46					
3 SU	.14	.00	.00	.09	.14	.00	.05	.18	.05	.05	.14	.41	.14	.27	.55	.09	2.28			2.28				
- N	.55	.91	1.14	.87	.14	.68	.55	.82	.46	.59	.68	1.32	2.73	5.01	2.78	1.28	20.50				20.50			
1 SS	.32	.14	.23	.32	.32	.27	.36	.23	.77	1.50	.77	.27	.59	.64	.91	.50	8.15					8.15		
8 MS	.05	.00	.09	.05	.00	.32	.50	.68	.32	.46	.27	.14	.59	.05	.55	.00	4.05						4.05	
ES	.00	.00	.00	.00	.00	.09	.00	.00	.27	.77	.18	.09	.09	.00	.00	.00	1.50							1.50

ComEd QUAD CITIES STATION
296 ft. WIND SPEED and WIND DIRECTION

October-December 2000
296-33 ft. DIFFERENTIAL TEMPERATURE

SPEED	WIND DIRECTION CLASSES																STABILITY CLASSES						
CLASS	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	EU	MU	SU	N	SS	MS	ES
EU	.00	.00	.00	.00	.00	.00	.00	.00	.18	.14	.00	.00	.00	.00	.09	.00	.41	.41						
1 MU	.00	.00	.00	.00	.00	.00	.05	.00	.05	.09	.00	.05	.05	.36	.00	.00	.64		.64					
9 SU	.00	.00	.00	.00	.00	.00	.05	.00	.00	.14	.09	.05	.05	.18	.05	.00	.59			.59				
- N	.14	.23	.18	.09	.00	.09	.59	.36	.18	.36	.46	.18	.59	1.96	1.82	.55	7.79				7.79			
2 SS	.00	.05	.05	.00	.00	.14	.32	.14	.32	.77	.14	.05	.00	.00	.00	.00	1.96					1.96		
4 MS	.00	.00	.09	.00	.00	.00	.00	.00	.05	.00	.00	.05	.00	.00	.00	.00	.18						.18	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.05							.05
EU	.00	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.00	.00	.05	.05						
G MU	.00	.00	.00	.00	.00	.00	.00	.05	.00	.00	.00	.00	.00	.05	.00	.00	.09		.09					
T SU	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.05	.09	.00	.00	.14			.14				
N	.00	.00	.00	.00	.00	.27	.36	.05	.00	.05	.00	.09	.27	.96	.18	.09	2.32				2.32			
2 SS	.00	.00	.00	.00	.00	.05	.05	.09	.09	.14	.00	.00	.00	.00	.00	.00	.41					.41		
4 MS	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00						.00	
ES	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00							.00
TOT	3.10	3.19	4.15	2.73	3.37	4.42	5.65	5.51	5.83	8.29	6.20	6.15	11.71	14.17	11.30	4.24	100.00	5.38	4.19	6.33	49.29	21.32	9.20	4.28

Wind Direction by Stability

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-STABILITY CLASSES-
.00	.00	.18	.00	.00	.05	.09	.18	.46	.96	.46	.23	1.18	.46	.82	.32	5.38	Extremely Unstable
.00	.05	.14	.00	.14	.09	.18	.09	.18	.36	.27	.18	.64	1.09	.55	.23	4.19	Moderately Unstable
.18	.18	.09	.14	.18	.18	.32	.32	.32	.32	.55	.73	.55	1.23	.91	.14	6.33	Slightly Unstable
1.41	2.00	2.05	1.41	1.64	2.00	2.73	2.32	1.64	1.59	2.32	3.10	6.47	9.84	6.38	2.37	49.29	Neutral
1.14	.50	.87	.73	.91	1.09	1.28	1.32	2.00	2.96	1.50	1.09	1.69	1.32	1.91	1.00	21.32	Slightly Stable
.27	.32	.50	.27	.41	.82	.91	1.18	.87	.91	.64	.50	.77	.09	.64	.09	9.20	Moderately Stable
.09	.14	.32	.18	.09	.18	.14	.09	.36	1.18	.46	.32	.41	.14	.09	.09	4.28	Extremely Stable

Wind Direction by Wind Speed

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	TOTAL	-WIND SPEED CLASSES-
.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	C A L M
.05	.14	.36	.18	.18	.14	.05	.14	.23	.14	.36	.36	.41	.32	.14	.14	3.33	0.9 - 3.5 mph
.32	.55	.68	.14	1.28	.82	.68	.50	.87	.64	1.05	.73	1.46	.82	.59	.41	11.53	3.6 - 7.5 mph
1.55	1.18	1.23	1.00	1.32	1.46	1.87	2.14	1.78	1.87	1.91	2.14	4.10	3.01	2.82	.82	30.21	7.6 - 12.5 mph
1.05	1.05	1.55	1.32	.59	1.46	1.64	2.05	2.05	3.96	2.19	2.41	4.74	6.42	5.60	2.23	40.32	12.6 - 18.5 mph
.14	.27	.32	.09	.00	.23	1.00	.50	.77	1.50	.68	.41	.68	2.51	1.96	.55	11.62	18.6 - 24.5 mph
.00	.00	.00	.00	.00	.32	.41	.18	.14	.18	.00	.09	.32	1.09	.18	.09	3.01	> 24.5 mph

Attachment D
Solid Waste Disposition Summary
SVP-01-029

NRC Regulatory Guide 1.21 Reports

Report Date : 2/ 2/2001

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2000 to 12/20/2000

Number of Shipments	Mode of Transportation	Destination
3	HITTMAN TRANSPORT	A.T.G. Catalytics
1	HITTMAN TRANSPORT	A.T.G. Richland Operations
1	KINDRICK TRUCKING CO.	A.T.G. Richland Operations
2	TAG Transport	A.T.G. Richland Operations
1	TRI-STATE MOTOR TRANSIT	A.T.G. Richland Operations
1	HITTMAN TRANSPORT	AMERICAN ECOLOGY RECYCLE CE
6	KINDRICK TRUCKING CO.	AMERICAN ECOLOGY RECYCLE CE
3	HITTMAN TRANSPORT	Barnwell Waste Management Facility
8	HITTMAN TRANSPORT	GTS Duratek-Oakridge
1	TAG Transport	PERMA-FIX OF FLORIDA INC
10	HITTMAN TRANSPORT	Studvik Processing Facility LLC

NRC Regulatory Guide 1.21 Reports

Report Date : 2/ 2/2001

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2000 to 12/20/2000 Percent Cutoff: 0

Resins, Filters, and Evap Bottom		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	0.149%	5.18E-01
C-14	0.043%	1.51E-01
Cr-51	0.163%	5.67E-01
Mn-54	8.448%	2.95E+01
Fe-55	30.163%	1.05E+02
Fe-59	0.013%	4.54E-02
Co-58	0.063%	2.20E-01
Co-60	51.294%	1.79E+02
Ni-63	0.514%	1.79E+00
Zn-65	1.422%	4.96E+00
Sr-89	0.000%	0.00E+00
Sr-90	0.008%	2.73E-02
Ag-110m	0.078%	2.71E-01
Sb-124	0.000%	0.00E+00
Sb-125	0.000%	0.00E+00
I-131	0.002%	7.58E-03
Cs-134	1.408%	4.91E+00
Cs-137	6.220%	2.17E+01
La-140	0.000%	1.30E-05
Ce-144	0.002%	6.43E-03
Pu-238	0.000%	6.83E-04
Pu-239	0.000%	2.36E-04
Pu-241	0.010%	3.54E-02
Pu-242	0.000%	0.00E+00
Am-241	0.000%	9.86E-04
Cm-242	0.000%	8.14E-04
Cm-243	0.000%	4.04E-04
Resins, Filters, and Evap Bottom		
Waste Class B		
Nuclide Name	Percent Abundance	Curies
H-3	0.002%	7.49E-02
C-14	0.001%	4.23E-02
Cr-51	0.000%	0.00E+00
Mn-54	11.990%	3.95E+02
Fe-55	31.903%	1.05E+03
Fe-59	0.000%	0.00E+00
Co-58	0.208%	6.85E+00
Co-60	54.754%	1.80E+03
Ni-63	0.259%	8.51E+00
Zn-65	0.727%	2.39E+01
Sr-90	0.000%	1.19E-02

Nb-95	0.000%	0.00E+00
Ag-110m	0.000%	0.00E+00
Sb-124	0.000%	0.00E+00
Cs-137	0.153%	5.04E+00
Ce-144	0.000%	0.00E+00
Pu-238	0.000%	3.65E-04
Pu-239	0.000%	0.00E+00
Pu-241	0.001%	4.33E-02
Am-241	0.000%	4.42E-04
Cm-242	0.000%	3.09E-04
Cm-243	0.000%	2.81E-04
Resins, Filters, and Evap Bottom		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	0.016%	5.93E-01
C-14	0.005%	1.94E-01
Cr-51	0.016%	5.67E-01
Mn-54	11.651%	4.24E+02
Fe-55	31.736%	1.16E+03
Fe-59	0.001%	4.54E-02
Co-58	0.194%	7.08E+00
Co-60	54.423%	1.98E+03
Ni-63	0.283%	1.03E+01
Zn-65	0.794%	2.89E+01
Sr-89	0.000%	0.00E+00
Sr-90	0.001%	3.93E-02
Nb-95	0.000%	0.00E+00
Ag-110m	0.007%	2.71E-01
Sb-124	0.000%	0.00E+00
Sb-125	0.000%	0.00E+00
I-131	0.000%	7.58E-03
Cs-134	0.135%	4.91E+00
Cs-137	0.735%	2.67E+01
La-140	0.000%	1.30E-05
Ce-144	0.000%	6.43E-03
Pu-238	0.000%	1.05E-03
Pu-239	0.000%	2.36E-04
Pu-241	0.002%	7.87E-02
Pu-242	0.000%	0.00E+00
Am-241	0.000%	1.43E-03
Cm-242	0.000%	1.12E-03
Cm-243	0.000%	6.84E-04
Dry Active Waste		
Waste Class A		

NRC Regulatory Guide 1.21 Reports

Report Date : 2/ 2/2001

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2000 to 12/20/2000 Percent Cutoff: 0

Nuclide Name	Percent Abundance	Curies
H-3	0.106%	9.32E-03
C-14	0.028%	2.43E-03
Mn-54	5.212%	4.60E-01
Fe-55	22.861%	2.02E+00
Fe-59	0.000%	0.00E+00
Co-58	0.000%	0.00E+00
Co-60	60.991%	5.38E+00
Ni-63	0.558%	4.92E-02
Zn-65	1.021%	9.01E-02
Sr-89	0.000%	0.00E+00
Sr-90	0.011%	9.51E-04
Sb-125	0.000%	0.00E+00
Cs-137	9.205%	8.12E-01
Ce-144	0.001%	5.70E-05
Pu-238	0.000%	5.78E-06
Pu-239	0.000%	7.31E-07
Pu-241	0.009%	7.74E-04
Pu-242	0.000%	0.00E+00
Am-241	0.000%	5.97E-06
Cm-242	0.000%	6.71E-06
Cm-243	0.000%	1.23E-06
Dry Active Waste		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	0.106%	9.32E-03
C-14	0.028%	2.43E-03
Mn-54	5.212%	4.60E-01
Fe-55	22.861%	2.02E+00
Fe-59	0.000%	0.00E+00
Co-58	0.000%	0.00E+00
Co-60	60.991%	5.38E+00
Ni-63	0.558%	4.92E-02
Zn-65	1.021%	9.01E-02
Sr-89	0.000%	0.00E+00
Sr-90	0.011%	9.51E-04
Sb-125	0.000%	0.00E+00
Cs-137	9.205%	8.12E-01
Ce-144	0.001%	5.70E-05
Pu-238	0.000%	5.78E-06
Pu-239	0.000%	7.31E-07
Pu-241	0.009%	7.74E-04
Pu-242	0.000%	0.00E+00
Am-241	0.000%	5.97E-06
Cm-242	0.000%	6.71E-06

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2000 to 12/20/2000 Percent Cutoff: 0

Cm-243	0.000%	1.23E-06
Other Waste		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	4.824%	9.47E-06
C-14	0.009%	1.82E-08
Fe-55	16.700%	3.28E-05
Co-60	39.569%	7.77E-05
Ni-63	0.426%	8.37E-07
Sr-90	0.248%	4.87E-07
Cs-137	16.968%	3.33E-05
Ce-144	10.806%	2.12E-05
Pu-238	0.248%	4.87E-07
Pu-239	0.141%	2.76E-07
Pu-241	9.598%	1.88E-05
Pu-242	0.000%	0.00E+00
Am-241	0.197%	3.86E-07
Cm-242	0.082%	1.60E-07
Cm-243	0.184%	3.61E-07
Other Waste		
Waste Class B		
Nuclide Name	Percent Abundance	Curies
H-3	0.004%	1.49E-02
C-14	0.011%	3.77E-02
Cr-51	0.000%	0.00E+00
Mn-54	10.890%	3.68E+01
Fe-55	28.677%	9.68E+01
Fe-59	0.000%	0.00E+00
Co-58	0.000%	0.00E+00
Co-60	59.303%	2.00E+02
Ni-63	0.374%	1.26E+00
Zn-65	0.363%	1.23E+00
Sr-90	0.001%	1.73E-03
Nb-95	0.000%	0.00E+00
Ag-110m	0.000%	0.00E+00
Sb-124	0.000%	0.00E+00
Cs-137	0.377%	1.27E+00
Ce-144	0.000%	0.00E+00
Pu-238	0.000%	0.00E+00
Pu-239	0.000%	0.00E+00
Pu-241	0.001%	3.07E-03
Am-241	0.000%	0.00E+00
Cm-242	0.000%	2.01E-05
Cm-243	0.000%	0.00E+00

Report Date : 2/ 2/2001

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2000 to 12/20/2000 Percent Cutoff: 0

Other Waste		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	0.004%	1.49E-02
C-14	0.011%	3.77E-02
Cr-51	0.000%	0.00E+00
Mn-54	10.890%	3.68E+01
Fe-55	28.677%	9.68E+01
Fe-59	0.000%	0.00E+00
Co-58	0.000%	0.00E+00
Co-60	59.303%	2.00E+02
Ni-63	0.374%	1.26E+00
Zn-65	0.363%	1.23E+00
Sr-90	0.001%	1.73E-03
Nb-95	0.000%	0.00E+00
Ag-110m	0.000%	0.00E+00
Sb-124	0.000%	0.00E+00
Cs-137	0.377%	1.27E+00
Ce-144	0.000%	2.12E-05
Pu-238	0.000%	4.87E-07
Pu-239	0.000%	2.76E-07
Pu-241	0.001%	3.09E-03
Pu-242	0.000%	0.00E+00
Am-241	0.000%	3.86E-07
Cm-242	0.000%	2.03E-05
Cm-243	0.000%	3.61E-07
Sum of All 4 Categories		
Waste Class A		
Nuclide Name	Percent Abundance	Curies
H-3	0.148%	5.28E-01
C-14	0.043%	1.54E-01
Cr-51	0.159%	5.67E-01
Mn-54	8.368%	2.99E+01
Fe-55	29.983%	1.07E+02
Fe-59	0.013%	4.54E-02
Co-58	0.062%	2.20E-01
Co-60	51.533%	1.84E+02
Ni-63	0.515%	1.84E+00
Zn-65	1.412%	5.05E+00
Sr-89	0.000%	0.00E+00
Sr-90	0.008%	2.83E-02
Ag-110m	0.076%	2.71E-01
Sb-124	0.000%	0.00E+00
Sb-125	0.000%	0.00E+00

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2000 to 12/20/2000 Percent Cutoff: 0

I-131	0.002%	7.58E-03
Cs-134	1.373%	4.91E+00
Cs-137	6.293%	2.25E+01
La-140	0.000%	1.30E-05
Ce-144	0.002%	6.51E-03
Pu-238	0.000%	6.89E-04
Pu-239	0.000%	2.37E-04
Pu-241	0.010%	3.62E-02
Pu-242	0.000%	0.00E+00
Am-241	0.000%	9.93E-04
Cm-242	0.000%	8.21E-04
Cm-243	0.000%	4.05E-04
Sum of All 4 Categories		
Waste Class B		
Nuclide Name	Percent Abundance	Curies
H-3	0.002%	8.99E-02
C-14	0.002%	8.00E-02
Cr-51	0.000%	0.00E+00
Mn-54	11.888%	4.31E+02
Fe-55	31.602%	1.15E+03
Fe-59	0.000%	0.00E+00
Co-58	0.189%	6.85E+00
Co-60	55.178%	2.00E+03
Ni-63	0.269%	9.77E+00
Zn-65	0.693%	2.52E+01
Sr-90	0.000%	1.37E-02
Nb-95	0.000%	0.00E+00
Ag-110m	0.000%	0.00E+00
Sb-124	0.000%	0.00E+00
Cs-137	0.174%	6.32E+00
Ce-144	0.000%	0.00E+00
Pu-238	0.000%	3.65E-04
Pu-239	0.000%	0.00E+00
Pu-241	0.001%	4.64E-02
Am-241	0.000%	4.42E-04
Cm-242	0.000%	3.29E-04
Cm-243	0.000%	2.81E-04
Sum of All 4 Categories		
Waste Class All		
Nuclide Name	Percent Abundance	Curies
H-3	0.015%	6.18E-01
C-14	0.006%	2.34E-01
Cr-51	0.014%	5.67E-01
Mn-54	11.572%	4.61E+02

Report Date : 2/ 2/2001

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2000 to 12/20/2000 Percent Cutoff: 0

Fe-55	31.457%	1.25E+03
Fe-59	0.001%	4.54E-02
Co-58	0.177%	7.08E+00
Co-60	54.851%	2.19E+03
Ni-63	0.291%	1.16E+01
Zn-65	0.758%	3.02E+01
Sr-89	0.000%	0.00E+00
Sr-90	0.001%	4.20E-02
Nb-95	0.000%	0.00E+00
Ag-110m	0.007%	2.71E-01
Sb-124	0.000%	0.00E+00
Sb-125	0.000%	0.00E+00
I-131	0.000%	7.58E-03
Cs-134	0.123%	4.91E+00
Cs-137	0.723%	2.88E+01
La-140	0.000%	1.30E-05
Ce-144	0.000%	6.51E-03
Pu-238	0.000%	1.05E-03
Pu-239	0.000%	2.37E-04
Pu-241	0.002%	8.26E-02
Pu-242	0.000%	0.00E+00
Am-241	0.000%	1.43E-03
Cm-242	0.000%	1.15E-03
Cm-243	0.000%	6.86E-04

NRC Regulatory Guide 1.21 Reports

Report Date : 2/ 2/2001

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2000 to 12/20/2000 Percent Cutoff: 0

Waste Stream : Resins, Filters, and Evap Bottoms
PR-D-NA COND 215 CF-D-NA 215 FEXM PR-D-NA RWCU 120 PR-D-NA COND 170
PR-D-NA TL-215

Waste Class	Volume Ft^3	Volume M^3	Curies Shipped	% Error (Ci)
A	2.82E+03	8.00E+01	3.49E+02	+/- 25%
B	2.41E+02	6.81E+00	3.29E+03	+/- 25%
C	0.00E+00	0.00E+00	0.00E+00	+/- 25%
All	3.06E+03	8.68E+01	3.64E+03	+/- 25%

Waste Stream : Dry Active Waste
DAW 20' SEALAND DAW 40' SEALAND DAW-COND DEMINS DAW-Metal

Waste Class	Volume Ft^3	Volume M^3	Curies Shipped	%Error (Ci)
A	3.47E+04	9.84E+02	8.83E+00	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	3.47E+04	9.84E+02	8.83E+00	+/-25%

Waste Stream : Irradiated Components

Waste Class	Volume Ft^3	Volume M^3	Curies Shipped	% Error (Ci)
A	0.00E+00	0.00E+00	0.00E+00	+/-25%
B	0.00E+00	0.00E+00	0.00E+00	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	0.00E+00	0.00E+00	0.00E+00	+/-25%

NRC Regulatory Guide 1.21 Reports

Report Date : 2/ 2/2001

Solid Waste Shipped Offsite for Disposal and Estimates of Major Nuclides by Waste Class and Stream
During Period From 01/01/2000 to 12/20/2000 Percent Cutoff: 0

Waste Stream : Other Waste
Combined Packages

Waste Class	Volume Ft^3	Volume M^3	Curies Shipped	% Error (Ci)
A	1.87E+02	5.31E+00	1.96E-04	+/-25%
B	1.20E+02	3.41E+00	3.38E+02	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	3.08E+02	8.71E+00	3.38E+02	+/-25%

Waste Stream : Sum of All 4 Categories
Combined Packages DAW 20' SEALAND DAW 40' SEALAND PR-D-NA COND 215
CF-D-NA 215 FEXM PR-D-NA RWCU 120 DAW-COND DEMINS PR-D-NA COND 170
DAW-Metal PR-D-NA TL-215

Waste Class	Volume Ft^3	Volume M^3	Curies Shipped	% Error (Ci)
A	3.78E+04	1.07E+03	3.58E+02	+/-25%
B	3.61E+02	1.02E+01	3.63E+03	+/-25%
C	0.00E+00	0.00E+00	0.00E+00	+/-25%
All	3.81E+04	1.08E+03	3.99E+03	+/-25%

-Combined Waste Type Shipment, Major Volume Waste Type Shown

Attachment E

RW-AA-100, Revision 0, Process Control Program for Radioactive Wastes

SVP-01-029

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 state and federal requirements.

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 off-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, 1/91, "Branch Technical Position Paper on Waste Form"/5/83, "Branch Technical Position Paper on Waste Classification", and the Site Technical Specifications, when applicable.

1.1.3. Provide inspectors with adequate knowledge describing the utilities process for handling radioactive waste.

1.1.4. Provide reasonable assurance that waste placed in "on-site storage" meets the requirements as addressed within the Safety Analysis Reports for either the Dry Active Waste (DAW) Storage Facility or the Interim Radwaste Storage Facility (IRSF).

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, burial site requirements.

2.2. **Solidification:** Liquid waste processed to either an unstable or stable state 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 (HIC).

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 stabilization 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. The formulas, sampling, analysis and test do not require NRC approval because the HIC meets the stability criteria.

Solidification to an un-stable and solidification to a stable state are performed by vendors, when applicable. Liquid waste solidified to meet stabilization criteria (10CFR61 and 01-91 Branch Technical Requirements) must provide documentation that the vendor process is approved by the commission.

2.5. **Dewatering:** The removal of liquids from liquid waste streams to produce a waste form that meets the requirements 10CFR Part 61 and applicable burial site criteria, $\leq$.5% by volume when the waste is packaged to an "un-stable" state, $\leq$1% by volume when the waste is packaged to a "stable" state.

2.6. **High Integrity Container (HIC):** A disposable container is approved per meeting the container's Certificate of Compliance 10CFR Part 61 Requirements for meeting stability. 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 de-watered 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, solidification or reverse osmosis (RO) for the treatment of liquid wastes. (such as Floor Drains, Chemical Drains and Equipment Drain inputs.)

2.9. **Incineration, QCEP, RVR, and/or Glass Vietrification of Liquid or Solid:** Dry or wet waste processed via incineration and/or quantum catalytic extraction processing whereby the volume reduced by thermal means meeting 10CFR61 requirements.

2.10. **Compaction:** 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,

- 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, 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** - None

4. **MAIN BODY**

4.1. Process Control Program Requirements

4.1.1. Changes to utilities PCP (Radioactive Waste Treatment Systems) may be made provided that the change is reported as part of the semiannual or annual radioactive effluent release report, Reg Guide 1.21 and is documented in the Utilities PCP by the Plant Operations Review Committee (PORC).

4.1.2. Changes become effective upon acceptance by PORC.

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.

2. A determination that the change will maintain the overall conformance of 10CFR61 and the Branch Technical Position for De-watering Solidification to a "stable/Unstable" state,

4.1.4. An approved solidification media may be required by the burial site when liquid radwaste is solidified to an un-stable/stable state.

4.1.5. **If** processing liquid radwaste to meet solidification stability **then** the utility requires that the vendors must:

1. **MEET** the vendors approved Quality Assurance Program, **and SUBMITTED** their Process System Topical Report to the NRC.

2. **Or** if the vendor does not have an approved Quality Assurance Program, **then** the vendor shall **MEET** the utilities or another vendor's approved Quality Assurance Topical Report standards.

4.1.6. The Vendors Processing System(s) are controlled per the following:

1. The utility may use a commercial vendor supplied processing system(s) for the processing of LLRW streams.

2. All vendors used to process liquid LLRW at the sites must meet applicable QA Topical Report Augmented Quality Requirements and shall be approved by utility radwaste management personnel.

3. Vendor Process System(s) operated at the utilities sites will be performed and controlled in accordance with vendor approved procedures.

4.1.7. All waste streams processed for burial or long term on-site storage shall be classified and meet the waste characteristics as required by 10CFR Part 61.55, Part 61.56, and the 5-83 Branch Technical Position for waste classification, and the currently operating burial site acceptance criteria.

4.2. General Waste Processing Requirements

4.2.1. On-site resin processing involves the following: tank mixing and settling discharge to the Vendor Processing System via resin water slurry, or vacuumed out of the resin vessel into approved waste containers, and when applicable, dewatered for burial.

4.2.2. Vendor resin beds may be used for decontamination of plant systems such as the Spent Fuel Pool, RWCU (reactor water cleanup), and SDC (Shut Down Cooling). These resins are then processed by the Vendor Processing System.

4.2.3. Various drains and sump discharges will be collected in tanks or suitable containers for processing treatment.

1. Water from these tanks can 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 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 de-watering and solidification/stabilization will be performed by either utility site personnel or 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 super-compaction, incineration, or offsite volume reduction processes.

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

4. Contaminated filter cartridges will be placed into an HIC or will be encapsulated in an In-situ liner for disposal or shipped to an off site 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 at ComEd NGG for the removal of suspended solids from liquid waste streams. The pre-coast material or cartridges from these devices may be routinely removed from the filter vessel and discharged to a Filter Sludge Tank or Liner/HC. 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 handled as follows:

1. These items may be processed periodically using remote underwater handling equipment.

2. The waste may then be put into a container for shipment and/or storage.

4.2.10. High Integrity Containers (HIC):

1. Vendors who supply HIC's must provide a copy of the HIC Certificate of Compliance, which details specific limitations on use of the HIC.

2. Vendors who supply HIC's to the station must provide a handling procedure, which provides 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.

4.2.11. Lubricants and oils contaminated as a consequence of normal operating and maintenance activities will be processed for treatment on an as needed basis using a vendor or sent to an off site processor.

4.2.12. GE or Stock in-plant Solidification System references for waste processing has been deleted from the PCP. The GE or Stock Drum Transfer Cart and Drum Storage Lines may be used for higher dose DAW storage at Quad Cities, Braidwood and Byron. The use of contract vendor services proved to be cost effective and reduced personnel radiation exposure over use of the GE or Stock in-plant cement system.

4.3. Burial Site Requirements

4.3.1. Waste sent directly to burial will comply with 49CFR171-172, 10CFR61, and 10CFR71, and the acceptance criteria for the burial site.

4.3.2. No waste sent to burial may be packaged in a cardboard or fiberboard box.

4.3.3. Liquid waste must meet the following free standing water requirements: .

1. Waste containers shall be controlled to contain $\leq$ 1% free standing liquid when stability is provided by the container or $\leq$ 0.5% when stability is provided by the waste form.

    A. Free standing water requirements are determined by "testing" through the use of a vendor procedure.

2. Waste will not be capable of detonation or explosive decomposition/reaction.

3. Non-gaseous waste will be controlled such that no waste container contains or is capable of generating toxic gases, vapors or fumes harmful to people.

4. Waste will be non-flammable.

5. Gaseous waste will not exceed absolute pressure of 1.5 atmospheres at 20 degrees centigrade.

6. Gaseous waste will not exceed 100 ci/container.

7. Waste containing hazardous, biological, pathogenic, or infectious material will be treated using vendor process/policy to reduce the potential hazard from non-radiological materials.

4.4. Shipping and Inspection Requirements

4.4.1. All shipping containers will be inspected for compliance with Department Of Transportation (DOT), NRC, station, on-site storage, and/or burial site requirements prior to shipment.

4.4.2. Packages/ Containers of liquid waste will be inspected for solidification quality and/or dewatering requirements per the burial site, offsite vendor acceptance, or station acceptance criteria .

4.4.3. Shipments sent to an off site processor will be inspected to ensure that the vendor's waste acceptance criteria are being met.

4.5. Inspection and Corrective Action

4.5.1. Inspection results that indicate non compliance with NRC, State, Vendor, Site Requirements will be identified and tracked through the Corrective Action Program.

4.5.2 If free standing water or poor solidification is observed, then samples of the particular series of batches will be taken to determine the cause. Additional samples of what 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 changes) shall be approved in accordance with the ComEd QATR and the Technical Specifications or Technical Reference Manual (TRMs) as applicable for the respective plant.

4.6.2. The vendor's implementing processing procedures for the purpose of this Process Control Program shall be reviewed and approved in accordance with the ComEd QATR and the Technical Specifications (plant specific). These include the following when applicable:

1. Procedures for Set Up and Operation of De-watering Equipment (e.g., Set Up and Operation of RDS 1000 Unit).

2. Solidification Procedures affecting waste stabilization for waste processed in a steel container. (This processing method is not currently in use due to waste loading and volume reduction.)

3. High Integrity Container handling procedure.

4. Operating inline waste sampling equipment for solidification and de-watering processes.

4.6.3. All other vendor waste processing procedures shall be technically reviewed, as appropriate.

4.6.4. Station processes which include procedures relating to shipping waste manifests, shipment inspections, and container curie determination are controlled by the Radiation Protection Department.

1. Site Waste processing is controlled by the 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 current 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	De-watering, solidification to an unstable/stable state Thermal Processing (e.g. QCEP and Incineration) Free Release to a Land Fill
Powdered Resin	Systems - Quad Cities (Condensate System, Floor Drain/Equipment Drain filtration, Fuel Pool)	De-watering, solidification to an unstable/stable state Thermal Processing (e.g. QCEP and Incineration)
Concentrated Waste	Waste generated Site Evaporators resulting typically from the Floor Drain and Equipment Drain Systems	Solidification to an unstable/stable state Thermal Processing (e.g. QCEP and Incineration)
Sludge	Sedimentation resulting form various sumps, condensers and tanks throughout the plant,	De-watering, solidification to an unstable/stable state Thermal Processing (e.g. QCEP and Incineration) Evaporation on-site or at an offsite processor
Filter cartridges	Systems – Floor/Equipment Drains, Fuel Pool; cartridge filters are typically generated from clean up activities within the fuel pool, torus, etc.	De-watering, solidification to an unstable/stable state Thermal Processing (e.g. QCEP and Incineration) Evaporation Processed by a vendor for volume reduction

Waste Stream	POINTS OF GENERATION	AVAILABLE WASTE PROCESSING METHODS
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 which becomes cross 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) 6.7 and the definition of the Process Control Program are proposed to be relocated to the UFSAR. The PCP implements the requirements of 10 CFR 20, 10CFR 61, and 10CFR 71. Compliance with these regulation is required by the site Operating Licenses, and as such, relocation of the description of the PCP from the Technical Specifications and ITS does not affect the safe operation of the facility. Therefore, the relocation details are not required to be in the Technical Specification or ITS to provide adequate protection of the public health and safety. Changes to the UFSAR are controlled by the provisions of 10CFR 50.59.

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

6.1.3. Branch Technical Position Paper On Waste Classification

6.1.4. Reg Guide 1.21

6.1.5. Commonwealth Edison Quality Assurance Topical Report

7. **ATTACHMENTS** - None