RTL A9.690E

Enclosure 2
Annual Radioactive Effluent Release Report (Annual RETS Report)

FirstEnergy Nuclear Operating Company
FENOC

Beaver Valley Power Station - Units 1 & 2
Unit 1 License No. DPR-66
Unit 2 License No. NPF-73

Annual
Radioactive Effluent Release Report
Calendar Year - 2004

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Index

Note: The Total Error values (%) listed in this report are documented in Calculation Package No. ERS-ATL-04-002

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Supplemental Information Page

FACILITY: B.V.P.S. Units 1 and 2 LICENSEE: FENOC

1. Regulatory Limits	
a. Fission and activation gases:	Annual Unit 1 or 2 Dose: 10 mrad from Gamma, & 20 mrad from Beta
b. Iodines & particulates, half-lives > 8 days:	Annual Unit 1 or 2 Dose: 15 mrem to Any Organ
c. Liquid effluents:	Annual Unit 1 or 2 Dose: 3 mrem to Total Body, & 10 mrem to Any Organ

2. Maximum Permissable Concentrations Used In Determining Allowable Release Rates Or Concentrations	
a. Fission and activation gases:	Site Release Rate: 500 mrem/yr to Total Body, & 3000 mrem/yr to the Skin
b. Iodines & particulates, half-lives > 8 days:	Site Release Rate: 1500 mrem/yr to Any Organ
c. Liquid effluents:	Site Release Concentration: 10 times 10 CFR 20 Appendix B, Table 2, EC's

3. Average Energy (Not Applicable To The BVPS ODCM)

4. Measurements and Approximations of Total Radioactivity	
The methods used to measure or approximate the total radioactivity in effluents, and the methods used to determine radionuclide composition are as follows:	
a. Fission and activation gases:	Ge Gamma Spectrometry, Liquid Scintillation Counter
b. Iodines:	Ge Gamma Spectrometry
c. Particulates, half-lives > 8 days:	Ge Gamma Spectrometry, Proportional Counter
d. Liquid effluents:	Ge Gamma Spectrometry, Proportional Counter, Liquid Scintillation

5. Batch & Abnormal Release Information	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year
a. Liquid Batch Releases						
1. Number of batch releases		15	21	26	24	86
2. Total time period for batch releases	minutes	4197	5488	11308	8006	28999
3. Maximum time period for a batch release	minutes	1067	1020	1080	1128	1128
4. Average time period for batch releases	minutes	280	261	435	334	337
5. Minimum time period for a batch release	minutes	76	72	90	1	1
6. Average river flow during release periods	cuft/sec	73033	66167	50567	44067	58458
b. Gaseous Batch Releases						
1. Number of batch releases		8	10	12	22	52
2. Total time period for batch releases	minutes	204	3494	3863	16256	23817
3. Maximum time period for a batch release	minutes	118	3167	1867	4800	4800
4. Average time period for batch releases	minutes	26	349	322	739	458
5. Minimum time period for a batch release	minutes	86	100	2	1	1
c. Abnormal Liquid Releases						
1. Number of releases		NONE	1	NONE	NONE	1
2. Total activity released	Curies	0.00E+00	9.75E-01	0.00E+00	0.00E+00	9.75E-01
d. Abnormal Gaseous Releases						
1. Number of releases		NONE	NONE	NONE	NONE	NONE
2. Total activity released	Curies	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 1A

Gaseous Effluents - Summation Of All Releases

	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year	Total Error, %
A. Fission & Activation Gases							
1. Site Total release	Ci	0.00E+00	3.68E-01	1.28E-01	7.26E+00	7.75E+00	26.5%
1a. Unit 1 Gases	Ci	0.00E+00	1.78E-01	6.40E-02	4.12E+00	4.37E+00	
1b. Unit 2 Gases	Ci	0.00E+00	1.90E-01	6.40E-02	3.13E+00	3.39E+00	
2. Average release rate for period	uCi/sec	0.00E+00	4.67E-02	1.62E-02	9.21E-01	2.46E-01	
3. Percent of applicable limit	%	N/A	N/A	N/A	N/A	N/A	
B. Iodines							
1. Site Total Iodine - 131	Ci	0.00E+00	2.59E-07	0.00E+00	3.62E-04	3.63E-04	28.3%
1a. Unit 1 Iodine - 131	Ci	0.00E+00	1.30E-07	0.00E+00	3.38E-04	3.38E-04	
1b. Unit 2 Iodine - 131	Ci	0.00E+00	1.30E-07	0.00E+00	2.47E-05	2.48E-05	
2. Average release rate for period	uCi/sec	0.00E+00	3.29E-08	0.00E+00	4.60E-05	1.15E-05	
3. Percent of applicable limit	%	N/A	N/A	N/A	N/A	N/A	
C. Particulates							
1. Particulates with half-lives > 8 days	Ci	9.11E-08	0.00E+00	0.00E+00	4.53E-05	4.54E-05	30.0%
1a. Unit 1 Particulates	Ci	0.00E+00	0.00E+00	0.00E+00	4.50E-05	4.50E-05	
1b. Unit 2 Particulates	Ci	9.11E-08	0.00E+00	0.00E+00	3.03E-07	3.94E-07	
2. Average release rate for period	uCi/sec	1.16E-08	0.00E+00	0.00E+00	5.75E-06	1.44E-06	
3. Percent of applicable limit	%	N/A	N/A	N/A	N/A	N/A	
D. Gross Alpha							
1. Site Gross alpha radioactivity	Ci	LLD	LLD	LLD	LLD	LLD	30.0%
1a. Unit 1 Gross alpha	Ci	LLD	LLD	LLD	LLD	LLD	
1b. Unit 2 Gross alpha	Ci	LLD	LLD	LLD	LLD	LLD	
2. Average release rate for period	uCi/sec	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
3. Percent of applicable limit	%	N/A	N/A	N/A	N/A	N/A	
E. Tritium							
1. Site Total release	Ci	2.38E+01	2.48E+01	2.19E+01	1.76E+01	8.81E+01	32.9%
1a. Unit 1 Tritium	Ci	2.07E+01	2.18E+01	1.88E+01	1.55E+01	7.68E+01	
1b. Unit 2 Tritium	Ci	3.14E+00	2.96E+00	3.14E+00	2.04E+00	1.13E+01	
2. Average release rate for period	uCi/sec	3.02E+00	3.15E+00	2.78E+00	2.23E+00	2.80E+00	
3. Percent of applicable limit	%	N/A	N/A	N/A	N/A	N/A	

N/A = Not Applicable

The amount of time (in seconds) used to calculate the release rates specified in A.2, B.2, C.2, D.2 and E.2 is the average amount of seconds per calendar quarter (7.88E+06 seconds).

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 1B-EB

Gaseous Effluents - Elevated Batch Releases

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year
1. Fission gases						
argon-41	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85	Ci	LLD	3.56E-01	1.28E-01	2.16E+00	2.64E+00
krypton-85m	Ci	LLD	LLD	LLD	2.78E-03	2.78E-03
krypton-87	Ci	LLD	LLD	LLD	LLD	LLD
krypton-88	Ci	LLD	LLD	LLD	LLD	LLD
xenon-131m	Ci	LLD	LLD	LLD	1.30E-02	1.30E-02
xenon-133	Ci	LLD	LLD	LLD	3.55E+00	3.55E+00
xenon-133m	Ci	LLD	LLD	LLD	6.26E-02	6.26E-02
xenon-135	Ci	LLD	LLD	LLD	1.18E-01	1.18E-01
xenon-135m	Ci	LLD	LLD	LLD	1.45E-04	1.45E-04
xenon-138	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	3.56E-01	1.28E-01	5.91E+00	6.39E+00
2. Iodines						
iodine-131	Ci	LLD	LLD	LLD	LLD	LLD
iodine-133	Ci	LLD	LLD	LLD	LLD	LLD
iodine-135	Ci	LLD	LLD	LLD	LLD	LLD
Total for period	Ci	ND	ND	ND	ND	ND
3. Particulates						
chromium-51	Ci	LLD	LLD	LLD	LLD	LLD
manganese-54	Ci	LLD	LLD	LLD	LLD	LLD
iron-59	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-57	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-58	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-60	Ci	LLD	LLD	LLD	LLD	LLD
zinc-65	Ci	LLD	LLD	LLD	LLD	LLD
strontium-89	Ci	LLD	LLD	LLD	LLD	LLD
strontium-90	Ci	LLD	LLD	LLD	LLD	LLD
molybdenum-99	Ci	LLD	LLD	LLD	LLD	LLD
cesium-134	Ci	LLD	LLD	LLD	LLD	LLD
cesium-137	Ci	LLD	LLD	LLD	LLD	LLD
barium/lanthanum-140	Ci	LLD	LLD	LLD	LLD	LLD
cerium-141	Ci	LLD	LLD	LLD	LLD	LLD
cerium-144	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	ND	ND	ND	ND

LLD = Below the Lower Limit of Detectability, in uCi/cc (Table 4).

ND = None Detected

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 1B-EC

Gaseous Effluents - Elevated Continuous Releases

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year
1. Fission gases						
argon-41	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85m	Ci	LLD	LLD	LLD	LLD	LLD
krypton-87	Ci	LLD	LLD	LLD	LLD	LLD
krypton-88	Ci	LLD	LLD	LLD	LLD	LLD
xenon-131m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-133	Ci	LLD	LLD	LLD	3.57E-01	3.57E-01
xenon-133m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-135	Ci	LLD	LLD	LLD	4.39E-04	4.39E-04
xenon-135m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-138	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	ND	ND	3.57E-01	3.57E-01
2. Iodines						
Iodine-131	Ci	LLD	2.59E-07	LLD	4.93E-05	4.96E-05
Iodine-133	Ci	LLD	LLD	LLD	LLD	LLD
Iodine-135	Ci	LLD	LLD	LLD	LLD	LLD
Total for period	Ci	ND	2.59E-07	ND	4.93E-05	4.96E-05
3. Particulates						
chromium-51	Ci	LLD	LLD	LLD	LLD	LLD
manganese-54	Ci	LLD	LLD	LLD	LLD	LLD
iron-59	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-57	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-58	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-60	Ci	LLD	LLD	LLD	LLD	LLD
zinc-65	Ci	LLD	LLD	LLD	6.05E-07	6.05E-07
strontium-89	Ci	LLD	LLD	LLD	LLD	LLD
strontium-90	Ci	LLD	LLD	LLD	LLD	LLD
molybdenum-99	Ci	LLD	LLD	LLD	LLD	LLD
cesium-134	Ci	LLD	LLD	LLD	LLD	LLD
cesium-137	Ci	LLD	LLD	LLD	LLD	LLD
barium/lanthanum-140	Ci	LLD	LLD	LLD	LLD	LLD
cerium-141	Ci	LLD	LLD	LLD	LLD	LLD
cerium-144	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	ND	ND	6.05E-07	6.05E-07

LLD = Below the Lower Limit of Detectability, in uCi/cc (Table 4).

ND = None Detected

Beaver Valley Power Station - Unit 1

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 1C-GB1

Gaseous Effluents - Ground Level Batch Releases (Unit 1)

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year
1. Fission gases						
argon-41	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85m	Ci	LLD	LLD	LLD	LLD	LLD
krypton-87	Ci	LLD	LLD	LLD	LLD	LLD
krypton-88	Ci	LLD	LLD	LLD	LLD	LLD
xenon-131m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-133	Ci	LLD	LLD	LLD	6.56E-01	6.56E-01
xenon-133m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-135	Ci	LLD	LLD	LLD	LLD	LLD
xenon-135m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-138	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	ND	ND	6.56E-01	6.56E-01
2. Iodines						
Iodine-131	Ci	LLD	LLD	LLD	LLD	LLD
Iodine-133	Ci	LLD	LLD	LLD	LLD	LLD
Iodine-135	Ci	LLD	LLD	LLD	LLD	LLD
Total for period	Ci	ND	ND	ND	ND	ND
3. Particulates						
chromium-51	Ci	LLD	LLD	LLD	LLD	LLD
manganese-54	Ci	LLD	LLD	LLD	LLD	LLD
iron-59	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-57	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-58	Ci	LLD	LLD	LLD	4.58E-06	4.58E-06
cobalt-60	Ci	LLD	LLD	LLD	3.06E-07	3.06E-07
zinc-65	Ci	LLD	LLD	LLD	LLD	LLD
strontium-89	Ci	LLD	LLD	LLD	LLD	LLD
strontium-90	Ci	LLD	LLD	LLD	LLD	LLD
molybdenum-99	Ci	LLD	LLD	LLD	LLD	LLD
cesium-134	Ci	LLD	LLD	LLD	LLD	LLD
cesium-137	Ci	LLD	LLD	LLD	3.06E-07	3.06E-07
barium/lanthanum-140	Ci	LLD	LLD	LLD	LLD	LLD
cerium-141	Ci	LLD	LLD	LLD	LLD	LLD
cerium-144	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	ND	ND	5.19E-06	5.19E-06

LLD = Below the Lower Limit of Detectability, in uCi/cc (Table 4).

ND = None Detected

Annual Radioactive Effluent Release Report

Table 1C-GC1

Gaseous Effluents - Ground Level Continuous Releases (Unit 1)

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year
1. Fission gases						
argon-41	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85m	Ci	LLD	LLD	LLD	LLD	LLD
krypton-87	Ci	LLD	LLD	LLD	LLD	LLD
krypton-88	Ci	LLD	LLD	LLD	LLD	LLD
xenon-131m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-133	Ci	LLD	LLD	LLD	2.84E-01	2.84E-01
xenon-133m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-135	Ci	LLD	LLD	LLD	5.14E-02	5.14E-02
xenon-135m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-138	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	ND	ND	3.35E-01	3.35E-01
2. Iodines						
iodine-131	Ci	LLD	LLD	LLD	3.13E-04	3.13E-04
iodine-133	Ci	LLD	LLD	LLD	LLD	LLD
iodine-135	Ci	LLD	LLD	LLD	LLD	LLD
Total for period	Ci	ND	ND	ND	3.13E-04	3.13E-04
3. Particulates						
chromium-51	Ci	LLD	LLD	LLD	LLD	LLD
manganese-54	Ci	LLD	LLD	LLD	LLD	LLD
iron-59	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-57	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-58	Ci	LLD	LLD	LLD	1.24E-05	1.24E-05
cobalt-60	Ci	LLD	LLD	LLD	1.42E-05	1.42E-05
zinc-65	Ci	LLD	LLD	LLD	1.29E-05	1.29E-05
zirconium/niobium-95	Ci	LLD	LLD	LLD	LLD	LLD
zirconium/niobium-97	Ci	LLD	LLD	LLD	LLD	LLD
molybdenum-99	Ci	LLD	LLD	LLD	LLD	LLD
cesium-134	Ci	LLD	LLD	LLD	LLD	LLD
cesium-137	Ci	LLD	LLD	LLD	LLD	LLD
barium/lanthanum-140	Ci	LLD	LLD	LLD	LLD	LLD
cerium-141	Ci	LLD	LLD	LLD	LLD	LLD
cerium-144	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	ND	ND	3.95E-05	3.95E-05

LLD = Below the Lower Limit of Detectability, in uCi/cc (Table 4).

ND = None Detected

Beaver Valley Power Station - Unit 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 1C-GB2

Gaseous Effluents - Ground Level Batch Releases (Unit 2)

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year
1. Fission gases						
argon-41	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85m	Ci	LLD	LLD	LLD	LLD	LLD
krypton-87	Ci	LLD	LLD	LLD	LLD	LLD
krypton-88	Ci	LLD	LLD	LLD	LLD	LLD
xenon-131m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-133	Ci	LLD	LLD	LLD	LLD	LLD
xenon-133m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-135	Ci	LLD	LLD	LLD	LLD	LLD
xenon-135m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-138	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	ND	ND	ND	ND
2. Iodines						
iodine-131	Ci	LLD	LLD	LLD	LLD	LLD
iodine-133	Ci	LLD	LLD	LLD	LLD	LLD
iodine-135	Ci	LLD	LLD	LLD	LLD	LLD
Total for period	Ci	ND	ND	ND	ND	ND
3. Particulates						
beryllium-7	Ci	LLD	LLD	LLD	LLD	LLD
chromium-51	Ci	LLD	LLD	LLD	LLD	LLD
manganese-56	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-57	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-58	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-60	Ci	LLD	LLD	LLD	LLD	LLD
zinc-65	Ci	LLD	LLD	LLD	LLD	LLD
strontium-89	Ci	LLD	LLD	LLD	LLD	LLD
strontium-90	Ci	LLD	LLD	LLD	LLD	LLD
zirconium/niobium-97	Ci	LLD	LLD	LLD	LLD	LLD
cesium-134	Ci	LLD	LLD	LLD	LLD	LLD
cesium-137	Ci	LLD	LLD	LLD	LLD	LLD
barium/lanthanum-140	Ci	LLD	LLD	LLD	LLD	LLD
cerium-141	Ci	LLD	LLD	LLD	LLD	LLD
cerium-144	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	ND	ND	ND	ND

LLD = Below the Lower Limit of Detectability, in uCi/cc (Table 4).

ND = None Detected

Beaver Valley Power Station - Unit 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 1C-GC2

Gaseous Effluents - Ground Level Continuous Releases (Unit 2)

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year
1. Fission gases						
argon-41	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85	Ci	LLD	LLD	LLD	LLD	LLD
krypton-85m	Ci	LLD	LLD	LLD	LLD	LLD
krypton-87	Ci	LLD	LLD	LLD	LLD	LLD
krypton-88	Ci	LLD	LLD	LLD	LLD	LLD
xenon-131m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-133	Ci	LLD	LLD	LLD	LLD	LLD
xenon-133m	Ci	LLD	1.22E-02	LLD	LLD	1.22E-02
xenon-135	Ci	LLD	LLD	LLD	LLD	LLD
xenon-135m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-138	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	ND	1.22E-02	ND	ND	1.22E-02
2. Iodines						
iodine-131	Ci	LLD	LLD	LLD	LLD	LLD
iodine-133	Ci	LLD	LLD	LLD	LLD	LLD
iodine-135	Ci	LLD	LLD	LLD	LLD	LLD
Total for period	Ci	ND	ND	ND	ND	ND
3. Particulates						
chromium-51	Ci	LLD	LLD	LLD	LLD	LLD
manganese-54	Ci	LLD	LLD	LLD	LLD	LLD
iron-59	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-57	Ci	9.11E-08	LLD	LLD	LLD	9.11E-08
cobalt-58	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-60	Ci	LLD	LLD	LLD	LLD	LLD
zinc-65	Ci	LLD	LLD	LLD	LLD	LLD
strontium-89	Ci	LLD	LLD	LLD	LLD	LLD
strontium-90	Ci	LLD	LLD	LLD	LLD	LLD
zirconium/niobium-95	Ci	LLD	LLD	LLD	LLD	LLD
cesium-134	Ci	LLD	LLD	LLD	LLD	LLD
cesium-137	Ci	LLD	LLD	LLD	LLD	LLD
barium/lanthanum-140	Ci	LLD	LLD	LLD	LLD	LLD
cerium-141	Ci	LLD	LLD	LLD	LLD	LLD
cerium-144	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	9.11E-08	ND	ND	ND	9.11E-08

LLD = Below the Lower Limit of Detectability, in uCi/cc (Table 4).

ND = None Detected

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 2A

Liquid Effluents - Summation Of All Releases

	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year	Total Error, %
A. Fission & activation products							
1. Total release (excl. H-3, gas & alpha)	Ci	1.02E-02	9.92E-03	4.47E-02	5.68E-02	1.22E-01	26.1%
2. Average diluted concentration	uCi/ml	2.70E-08	2.26E-08	3.32E-08	8.46E-08	4.29E-08	
3. Percent of applicable limit	%	4.08E-01	3.97E-01	1.79E+00	2.27E+00	1.22E+00	
B. Tritium							
1. Total release	Ci	8.91E+01	8.57E+01	8.38E+02	7.53E+02	1.77E+03	25.0%
2. Average diluted concentration	uCi/ml	2.36E-04	1.95E-04	6.23E-04	1.12E-03	6.23E-04	
3. Percent of applicable limit	%	2.36E+00	1.95E+00	6.23E+00	1.12E+01	6.23E+00	
C. Dissolved and entrained gases							
1. Total release	Ci	3.97E-03	3.28E-05	3.23E-04	6.59E-04	4.98E-03	27.0%
2. Average diluted concentration	uCi/ml	1.05E-08	7.46E-11	2.40E-10	9.82E-10	1.76E-09	
3. Percent of applicable limit	%	5.26E-03	3.73E-05	1.20E-04	4.91E-04	8.80E-04	
D. Gross alpha radioactivity (total release)	Ci	LLD	LLD	LLD	LLD	LLD	28.9%
E. Volume of waste released (prior to dilution)	liters	5.29E+05	8.06E+05	1.49E+06	1.04E+06	3.87E+06	11.2%
F. Volume of dilution water used	liters	3.77E+08	4.39E+08	1.34E+09	6.70E+08	2.83E+09	22.9%

LLD = Below the Lower Limit of Detectability, in uCi/ml (Table 4)

A.3 is based on a historical PA-DEP guide of 10 Ci/yr

B.3 is based on a ODCM limit of 1.00E-2 uCi/ml

C.3 is based on a ODCM limit of 2.00E-04 uCi/ml

The values listed at F. are the volumes during actual liquid waste discharge periods. The total dilution volume for a continuo calendar quarter is approximately 1E+10 liters for BVPS-1 & 2 (ie.; ~ 22,800 gpm is the total dilution flowrate from the site)

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 2B-B

Liquid Effluents - Batch Releases

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year
1. Fission and activation products						
beryllium-7	Ci	LLD	LLD	LLD	LLD	LLD
sodium-24	Ci	LLD	LLD	LLD	LLD	LLD
chromium-51	Ci	LLD	4.15E-09	LLD	3.09E-06	3.09E-06
manganese-54	Ci	LLD	6.06E-06	1.78E-04	1.44E-04	3.28E-04
iron-55	Ci	2.36E-03	3.67E-03	1.81E-02	1.12E-02	3.53E-02
iron-59	Ci	LLD	LLD	LLD	LLD	LLD
cobalt-57	Ci	1.01E-05	LLD	1.76E-05	3.38E-06	3.11E-05
cobalt-58	Ci	2.42E-03	1.26E-03	1.73E-03	2.16E-03	7.57E-03
cobalt-60	Ci	7.18E-04	8.47E-04	5.22E-03	6.13E-03	1.29E-02
zinc-65	Ci	LLD	LLD	LLD	4.97E-04	4.97E-04
strontium-89	Ci	2.09E-05	LLD	LLD	LLD	2.09E-05
strontium-90	Ci	LLD	LLD	LLD	LLD	LLD
zirconium/niobium-95	Ci	LLD	8.17E-06	7.09E-05	3.86E-05	1.18E-04
zirconium/niobium-97	Ci	5.98E-05	3.23E-05	5.13E-05	2.84E-06	1.46E-04
molybdenum-99	Ci	LLD	LLD	LLD	LLD	LLD
technetium-99m	Ci	LLD	LLD	LLD	LLD	LLD
tin-113	Ci	LLD	LLD	LLD	LLD	LLD
silver-110m	Ci	3.29E-03	1.35E-03	1.76E-02	2.66E-02	4.88E-02
antimony-122	Ci	LLD	LLD	LLD	LLD	LLD
antimony-124	Ci	4.84E-05	1.13E-06	LLD	1.42E-03	1.47E-03
antimony-125	Ci	1.14E-03	2.21E-03	1.67E-03	8.13E-03	1.32E-02
iodine-131	Ci	LLD	LLD	LLD	3.48E-04	3.48E-04
cesium-134	Ci	3.14E-05	7.22E-05	6.79E-07	1.55E-05	1.20E-04
cesium-137	Ci	9.06E-05	4.63E-04	5.76E-05	8.54E-05	6.97E-04
barium/lanthanum-140	Ci	LLD	LLD	LLD	LLD	LLD
cerium-141	Ci	LLD	LLD	LLD	LLD	LLD
cerium-144	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	1.02E-02	9.92E-03	4.47E-02	5.68E-02	1.22E-01
2. Dissolved and entrained gases						
krypton-85	Ci	3.97E-03	LLD	LLD	LLD	3.97E-03
xenon-133	Ci	LLD	3.28E-05	3.23E-04	6.59E-04	1.01E-03
xenon-133m	Ci	LLD	LLD	LLD	LLD	LLD
xenon-135	Ci	LLD	LLD	LLD	LLD	LLD
unidentified	Ci	NONE	NONE	NONE	NONE	NONE
Total for period	Ci	3.97E-03	3.28E-05	3.23E-04	6.59E-04	4.98E-03

LLD = Below the Lower Limit of Detectability, in uCi/ml (Table 4)

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 2B-C

Liquid Effluents - Continuous Releases

Nuclides released	Unit	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Calendar Year
1. Fission and activation products						
beryllium-7	Ci	N/A	N/A	N/A	N/A	N/A
sodium-24	Ci	N/A	N/A	N/A	N/A	N/A
chromium-51	Ci	N/A	N/A	N/A	N/A	N/A
manganese-54	Ci	N/A	N/A	N/A	N/A	N/A
iron-55	Ci	N/A	N/A	N/A	N/A	N/A
iron-59	Ci	N/A	N/A	N/A	N/A	N/A
cobalt-57	Ci	N/A	N/A	N/A	N/A	N/A
cobalt-58	Ci	N/A	N/A	N/A	N/A	N/A
cobalt-60	Ci	N/A	N/A	N/A	N/A	N/A
zinc-65	Ci	N/A	N/A	N/A	N/A	N/A
strontium-89	Ci	N/A	N/A	N/A	N/A	N/A
strontium-90	Ci	N/A	N/A	N/A	N/A	N/A
zirconium/niobium-95	Ci	N/A	N/A	N/A	N/A	N/A
zirconium/niobium-97	Ci	N/A	N/A	N/A	N/A	N/A
molybdenum-99	Ci	N/A	N/A	N/A	N/A	N/A
technetium-99m	Ci	N/A	N/A	N/A	N/A	N/A
ruthenium-103	Ci	N/A	N/A	N/A	N/A	N/A
silver-110m	Ci	N/A	N/A	N/A	N/A	N/A
antimony-124	Ci	N/A	N/A	N/A	N/A	N/A
antimony-125	Ci	N/A	N/A	N/A	N/A	N/A
iodine-131	Ci	N/A	N/A	N/A	N/A	N/A
iodine-133	Ci	N/A	N/A	N/A	N/A	N/A
cesium-134	Ci	N/A	N/A	N/A	N/A	N/A
cesium-137	Ci	N/A	N/A	N/A	N/A	N/A
barium/lanthanum-140	Ci	N/A	N/A	N/A	N/A	N/A
cerium-141	Ci	N/A	N/A	N/A	N/A	N/A
cerium-144	Ci	N/A	N/A	N/A	N/A	N/A
unidentified	Ci	N/A	N/A	N/A	N/A	N/A
Total for period	Ci	N/A	N/A	N/A	N/A	N/A
2. Dissolved and entrained gases						
argon-41	Ci	N/A	N/A	N/A	N/A	N/A
xenon-133	Ci	N/A	N/A	N/A	N/A	N/A
xenon-133m	Ci	N/A	N/A	N/A	N/A	N/A
xenon-135	Ci	N/A	N/A	N/A	N/A	N/A
unidentified	Ci	N/A	N/A	N/A	N/A	N/A
Total for period	Ci	N/A	N/A	N/A	N/A	N/A

N/A = Not Applicable (liquids not discharged in a continuous mode during this period)

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 3A

Solid Waste And Irradiated Fuel Shipments (Part 1 of 3)

A. Solid Waste Shipped Offsite For Burial Or Disposal (Not Irradiated fuel)				
1. Type of Waste (Spent resins, Filter Sludges, Evaporator Bottoms, Oil)		1st Half	2nd Half	Estimated Total Error
a. Volume Shipped		4.27E+01 m3	2.95E+01 m3	0.0% (1)
b. Volume Buried		0.00E+00 m3	2.11E-01 m3	0.0% (1)
c. Total Activity		3.32E+02 Ci	1.41E+01 Ci	30.0%
2. Estimate of Major Nuclide Composition by Type of Waste On This Table (2)		Percent (%)	Percent (%)	
H-3		0.08 %	77.10 %	
Be-7		0.54 %	0.00 %	
C-14		0.16 %	0.14 %	
Cr-51		0.00 %	0.98 %	
Mn-54		3.72 %	0.23 %	
Fe-55		30.10 %	5.22 %	
Fe-59		0.01 %	0.92 %	
Co-57		0.20 %	0.02 %	
Co-58		4.92 %	8.83 %	
Co-60		10.50 %	2.61 %	
Ni-59		0.11 %	0.02 %	
Ni-63		20.70 %	1.46 %	
Zn-65		0.04 %	0.02 %	
Sr-89		0.01 %	0.00 %	
Sr-90		0.03 %	0.00 %	
Zr-95		0.01 %	0.18 %	
Nb-95		0.03 %	0.52 %	
Tc-99m		0.00 %	0.01 %	
Ru-106		0.00 %	0.11 %	
Ag-110m		0.12 %	0.87 %	
Sn-113		0.01 %	0.01 %	
Sb-124		0.01 %	0.02 %	
Sb-125		0.04 %	0.07 %	
Cs-134		14.60 %	0.18 %	
Cs-137		13.80 %	0.39 %	
Ce-144/Pr-144		0.16 %	0.01 %	
Pu-241		0.00 %	0.04 %	
3. Number of Shipments		7	4	
a. Type of Container Used	LSA	4	4	
	Type A	0	0	
	Type B	3	0	
	Large Quantity	0	0	
b. Solidification Agent Used	Cement	0	0	
	Urea Formaldehyde	0	0	
	None	7	4	
c. Mode of Transport	Truck	7	4	
	Rail	0	0	
d. Final Destination	Erwin, TN	5	0	
	Oak Ridge, TN	2	4	
e. Waste Class per 10 CFR Part 61	Class A	5	4	
	Class B	2	0	
	Class C	0	0	
	> Class C	0	0	

(1) Since container volumes are provided by the burial site, a calculational error of zero is assumed.

(2) Percent values for any nuclide that are <0.01 % are not shown on this table. Data is available upon reques

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 3B

Solid Waste And Irradiated Fuel Shipments (Part 2 of 3)

A. Solid Waste Shipped Offsite For Burial Or Disposal (Not Irradiated fuel)				
1. Type of Waste (Dry Compressible Waste, Contaminated Equipment, etc.)		1st Half	2nd Half	Estimated Total Error
a. Volume Shipped		2.56E+02 m3	5.19E+02 m3	0.0% (1)
b. Volume Buried		1.89E+01 m3	1.41E+01 m3	0.0% (1)
c. Total Activity		8.53E-01 Ci	2.46E+00 Ci	30.0%
2. Estimate of Major Nuclide Composition by Type of Waste On This Table (2)		Percent (%)	Percent (%)	
H-3		3.89 %	0.70 %	
C-14		1.71 %	0.82 %	
Mn-54		1.29 %	0.52 %	
Fe-55		30.50 %	24.00 %	
Co-58		2.08 %	52.00 %	
Co-60		26.20 %	6.01 %	
Ni-59		0.40 %	0.10 %	
Ni-63		21.60 %	5.49 %	
Zn-65		0.00 %	0.93 %	
Sr-90		0.03 %	0.02 %	
Tc-99m		0.03 %	0.03 %	
Ag-110m		0.05 %	0.03 %	
Sb-125		0.02 %	0.01 %	
I-129		0.05 %	0.04 %	
Cs-134		3.08 %	1.77 %	
Cs-137		8.59 %	7.43 %	
Ce-144/Pr-144		0.05 %	0.02 %	
Pu-241		0.40 %	0.07 %	
3. Number of Shipments		7	14	
a. Type of Container Used	LSA	7	14	
	Type A	0	0	
	Type B	0	0	
	Large Quantity	0	0	
b. Solidification Agent Used	Cement	0	0	
	Urea Formaldehyde	0	0	
	None	7	14	
c. Mode of Transport	Truck	7	14	
	Rail	0	0	
	Other	0	0	
d. Final Destination	Oak Ridge, TN	7	14	
	Wampum, PA	0	0	
e. Waste Class per 10 CFR Part 61	Class A	7	14	
	Class B	0	0	
	Class C	0	0	
	> Class C	0	0	

(1) Since container volumes are provided by the burial site, a calculational error of zero is assumed.

(2) Percent values for any nuclide that are <0.01 % are not shown on this table. Data is available upon request

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 3C

Solid Waste And Irradiated Fuel Shipments (Part 3 of 3)

A. Solid Waste Shipped Offsite For Burial Or Disposal (Not Irradiated fuel)				
1. Type of Waste (Irradiated components, Control Rods, etc)		1st Half	2nd Half	Estimated Total Error
a. Volume Shipped		0.00E+00 m3	2.84E-02 m3	0.0% (1)
b. Volume Buried		0.00E+00 m3	0.00E+00 m3	0.0% (1)
c. Total Activity		0.00E+00 Ci	0.00E+00 Ci	0.0%
2. Estimate of Major Nuclide Composition by Type of Waste On This Table (2)		Percent (%)	Percent (%)	
Cr-51		0.00 %	11.40 %	
Mn-54		0.00 %	0.25 %	
Fe-55		0.00 %	33.90 %	
Fe-59		0.00 %	0.64 %	
Co-58		0.00 %	0.51 %	
Co-60		0.00 %	26.80 %	
Ni-59		0.00 %	0.15 %	
Ni-63		0.00 %	25.70 %	
Se-75		0.00 %	0.63 %	
3. Number of Shipments		0	1	
a. Type of Container Used	LSA	0	1	
	Type A	0	0	
	Type B	0	0	
	Large Quantity	0	0	
b. Solidification Agent Used	Cement	0	0	
	Urea Formaldehyde	0	0	
	None	0	1	
c. Mode of Transport	Truck	0	1	
	Rail	0	0	
	Other	0	0	
d. Final Destination	Barnwell, SC	0	0	
	Oak Ridge, TN	0	1	
e. Waste Class per 10 CFR Part 61	Class A	0	1	
	Class B	0	0	
	Class C	0	0	
	> Class C	0	0	
B. No Irradiated Fuel Shipments				

(1) Since container volumes are provided by the burial site, a calculational error of zero is assumed.

(2) Percent values for any nuclide that are <0.01 % are not shown on this table. Data is available upon request.

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 4

Lower Limits Of Detectability (LLD)

	RWDA-G 1000 cc Gas Grab Sample		RWDA-L 1000 ml Liquid Grab Sample		Filter Paper / Charcoal Continuous Effluent Sample	
Nuclide	(3) Calculated LLD (uCi/cc)	ODCM Required LLD (uCi/cc)	(3) Calculated LLD (uCi/ml)	ODCM Required LLD (uCi/ml)	(3) Calculated (2) LLD (uCi/cc)	ODCM Required LLD (uCi/cc)
H-3	(4) 1.00E-06	1E-06	1.00E-06	1E-05	----	----
Na-24	7.18E-08	1E-04	1.67E-08	5E-07	1.87E-13	1E-11
Ar-41	6.86E-08	1E-04	1.60E-08	5E-07	----	----
Cr-51	4.29E-07	1E-04	1.21E-07	5E-07	7.64E-13	1E-11
Mn-54	1.00E-07	1E-04	2.40E-08	5E-07	1.83E-13	1E-11
Fe-55	----	----	(1) 1.00E-06	1E-06	----	----
Fe-59	1.46E-07	1E-04	3.45E-08	5E-07	2.68E-13	1E-11
Co-57	9.58E-09	1E-04	9.35E-09	5E-07	6.62E-14	1E-11
Co-58	4.38E-08	1E-04	1.05E-08	5E-07	2.11E-13	1E-11
Co-60	6.21E-08	1E-04	1.46E-08	5E-07	1.14E-13	1E-11
Zn-65	1.03E-07	1E-04	2.43E-08	5E-07	2.67E-13	1E-11
Kr-85	1.97E-05	1E-04	4.95E-06	1E-05	----	----
Kr-85m	1.22E-08	1E-04	7.12E-09	1E-05	----	----
Kr-87	8.09E-08	1E-04	2.13E-08	1E-05	----	----
Kr-88	1.11E-07	1E-04	4.38E-08	1E-05	----	----
Sr-89	----	----	(1) 5.00E-08	5E-08	(1) 1.00E-13	1E-11
Sr-90	----	----	(1) 5.00E-08	5E-08	(1) 1.00E-14	1E-11
Sr-92	1.14E-07	1E-04	2.65E-08	5E-07	3.32E-13	1E-11
Nb-95	8.24E-08	1E-04	1.99E-08	5E-07	1.06E-13	1E-11
Nb-97	6.20E-08	1E-04	1.51E-08	5E-07	1.30E-13	1E-11
Zr-95	7.35E-08	1E-04	1.77E-08	5E-07	1.89E-13	1E-11
Mo-99	1.20E-08	1E-04	8.18E-09	5E-07	8.28E-14	1E-11
Tc-99m	1.17E-08	1E-04	7.97E-09	5E-07	8.07E-14	1E-11
Ag-110m	6.44E-08	1E-04	1.57E-08	5E-07	1.17E-13	1E-11
Sb-124	6.53E-08	1E-04	1.61E-08	5E-07	1.68E-13	1E-11
Sb-125	1.65E-07	1E-04	4.27E-08	5E-07	3.83E-13	1E-11
I-131	6.53E-08	1E-04	1.76E-08	1E-06	1.22E-13	1E-12
I-133	4.54E-08	1E-04	1.14E-08	5E-07	1.88E-13	1E-10
I-135	2.32E-07	1E-04	5.43E-08	5E-07	6.15E-13	1E-11
Xe-131m	8.32E-07	1E-04	4.20E-07	1E-05	----	----
Xe-133	3.65E-09	1E-04	2.12E-08	1E-05	----	----
Xe-133m	2.04E-07	1E-04	6.84E-08	1E-05	----	----
Xe-135	2.01E-08	1E-04	6.44E-09	1E-05	----	----
Xe-135m	3.40E-08	1E-04	8.51E-09	1E-05	----	----
Xe-137	1.68E-07	1E-04	4.30E-08	1E-05	----	----
Xe-138	6.04E-08	1E-04	1.89E-08	1E-05	----	----
Cs-134	5.69E-08	1E-04	1.40E-08	5E-07	1.99E-13	1E-11
Cs-137	5.87E-08	1E-04	1.43E-08	5E-07	2.27E-13	1E-11
Ba-139	1.03E-07	1E-04	5.08E-08	5E-07	4.36E-13	1E-11
Ba-140	1.13E-07	1E-04	2.81E-08	5E-07	4.60E-13	1E-11
La-140	8.71E-08	1E-04	1.99E-08	5E-07	2.28E-13	1E-11
Ce-141	2.19E-08	1E-04	1.38E-08	5E-07	1.10E-13	1E-11
Ce-144	9.72E-08	1E-04	7.44E-08	5E-07	5.78E-13	1E-11
Gross Alpha	----	----	(1) 1.00E-07	1E-07	(1) 3.51E-15	1E-11

(1) Sample analyses performed by a contractor laboratory.

(2) These LLD calculations contain a default weekly continuous sample volume of 2.85E+8 cc. Therefore, grab sample LLD values reflect a different volume (ie; 10 cuft or 2.83E+5 cc).

(3) The calculated LLD's, except those denoted by (1), are from a counter/detector calibration on 9/16/04. These values are typical for other counter/detectors used for effluent counting at BVPS.

(4) Based on counting 50 ml of the water that was bubbled through a 20 liter air sample.

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 5A

Assessment Of Radiation Doses

		Unit 1 Liquid Effluents									
		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Calendar Year	
	Batch Releases	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit
	Bone	1.97E-03	0.0394	2.93E-03	0.0585	6.65E-04	0.0133	1.78E-03	0.0356	7.34E-03	0.0734
O	Liver	5.02E-03	0.1004	7.01E-03	0.1402	3.23E-03	0.0646	8.03E-03	0.1606	2.33E-02	0.2329
R	Total Body	4.14E-03	0.2760	5.66E-03	0.3773	2.96E-03	0.1973	6.76E-03	0.4507	1.95E-02	0.6507
G	Thyroid	2.00E-03	0.0400	3.09E-03	0.0618	2.37E-03	0.0474	5.97E-03	0.1194	1.34E-02	0.1343
A	Kidney	2.98E-03	0.0596	4.38E-03	0.0876	2.58E-03	0.0516	6.25E-03	0.1250	1.62E-02	0.1619
N	Lung	2.35E-03	0.0470	3.58E-03	0.0716	2.49E-03	0.0499	5.06E-03	0.1013	1.35E-02	0.1349
(1)	GI-LLI	2.40E-03	0.0480	3.46E-03	0.0692	3.37E-03	0.0674	6.80E-03	0.1360	1.60E-02	0.1603

		Unit 1 Gaseous Effluents									
		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Calendar Year	
	Batch & Continuous Releases	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit
(2)	Gamma Air	0.00E+00	0.0000	1.33E-08	0.0000	1.38E-07	0.0000	1.74E-03	0.0348	1.74E-03	0.0174
(2)	Beta Air	0.00E+00	0.0000	7.70E-09	0.0000	3.49E-09	0.0000	4.23E-03	0.0423	4.23E-03	0.0212
	Bone	0.00E+00	0.0000	1.78E-10	0.0000	2.37E-10	0.0000	9.33E-04	0.0124	9.33E-04	0.0062
O	Liver	2.44E-01	3.2533	2.72E-01	3.6200	2.27E-01	3.0200	1.20E-01	1.6000	8.62E-01	5.7467
R	Total Body	2.44E-01	3.2533	2.72E-01	3.6200	2.27E-01	3.0200	1.20E-01	1.6000	8.62E-01	5.7467
G	Thyroid	2.44E-01	3.2533	2.72E-01	3.6200	2.27E-01	3.0200	1.40E-01	1.8667	8.82E-01	5.8800
A	Kidney	2.44E-01	3.2533	2.72E-01	3.6200	2.27E-01	3.0200	1.20E-01	1.6000	8.62E-01	5.7467
N	Lung	2.44E-01	3.2533	2.72E-01	3.6200	2.27E-01	3.0200	1.21E-01	1.6133	8.63E-01	5.7533
(3)	GI-LLI	2.44E-01	3.2533	2.72E-01	3.6200	2.27E-01	3.0200	1.20E-01	1.6000	8.62E-01	5.7467

(1) These doses are listed in mrem; they are calculated for the maximum individual for all batch liquid effluents

(2) These doses are listed in mrad; they are calculated at the site boundary for batch & continuous gaseous effluents (0.4 miles NW)

(3) These doses are listed in mrem; they are calculated for the most likely exposed real individual (child) via all real pathways at 0.89 miles NW.

Limits used for calculation of percent (%) are from ODCM procedure 1/2-ODC-3.03, Attachment H Control 3.11.1.2, Attachment L Control 3.11.2.2, and Attachment M Control 3.11.2.3 (considered to be the design objectives).

Beaver Valley Power Station - Unit 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 5B

Assessment Of Radiation Doses

		Unit 2 Liquid Effluents									
		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Calendar Year	
	Batch Releases	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit
	Bone	1.97E-03	0.0394	2.93E-03	0.0585	6.65E-04	0.0133	1.78E-03	0.0356	7.34E-03	0.0734
O	Liver	5.02E-03	0.1004	7.01E-03	0.1402	3.23E-03	0.0646	8.03E-03	0.1606	2.33E-02	0.2329
R	Total Body	4.14E-03	0.2760	5.66E-03	0.3773	2.96E-03	0.1973	6.76E-03	0.4507	1.95E-02	0.6507
G	Thyroid	2.00E-03	0.0400	3.09E-03	0.0618	2.37E-03	0.0474	5.97E-03	0.1194	1.34E-02	0.1343
A	Kidney	2.98E-03	0.0596	4.38E-03	0.0876	2.58E-03	0.0516	6.25E-03	0.1250	1.62E-02	0.1619
N	Lung	2.35E-03	0.0470	3.58E-03	0.0716	2.49E-03	0.0499	5.06E-03	0.1013	1.35E-02	0.1349
(1)	GI-LLI	2.40E-03	0.0480	3.46E-03	0.0692	3.37E-03	0.0674	6.80E-03	0.1360	1.60E-02	0.1603

		Unit 2 Gaseous Effluents									
		1st Quarter		2nd Quarter		3rd Quarter		4th Quarter		Calendar Year	
	Batch & Continuous Releases	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit	Dose	% of ODCM Limit
(2)	Gamma Air	0.00E+00	0.0000	1.33E-08	0.0000	2.84E-05	0.0006	1.06E-05	0.0002	3.90E-05	0.0004
(2)	Beta Air	0.00E+00	0.0000	7.70E-09	0.0000	1.28E-04	0.0013	1.11E-07	0.0000	1.28E-04	0.0006
	Bone	0.00E+00	0.0000	2.70E-07	0.0000	2.37E-10	0.0000	7.69E-08	0.0000	3.47E-07	0.0000
O	Liver	2.14E-02	0.2853	7.19E-03	0.0959	7.24E-03	0.0965	2.97E-02	0.3960	6.55E-02	0.4369
R	Total Body	2.14E-02	0.2853	7.19E-03	0.0959	7.24E-03	0.0965	2.97E-02	0.3960	6.55E-02	0.4369
G	Thyroid	2.14E-02	0.2853	7.19E-03	0.0959	7.24E-03	0.0965	2.97E-02	0.3960	6.55E-02	0.4369
A	Kidney	2.14E-02	0.2853	7.19E-03	0.0959	7.24E-03	0.0965	2.97E-02	0.3960	6.55E-02	0.4369
N	Lung	2.14E-02	0.2853	7.19E-03	0.0959	7.24E-03	0.0965	2.97E-02	0.3960	6.55E-02	0.4369
(3)	GI-LLI	2.14E-02	0.2853	7.19E-03	0.0959	7.24E-03	0.0965	2.97E-02	0.3960	6.55E-02	0.4369

(1) These doses are listed in mrem; they are calculated for the maximum individual for all batch liquid effluents

(2) These doses are listed in mrad; they are calculated at the site boundary for batch & continuous gaseous effluents (0.4 miles NW)

(3) These doses are listed in mrem; they are calculated for the most likely exposed real individual (child) via all real pathways at 0.89 miles NW.

Limits used for calculation of percent (%) are from ODCM procedure 1/2-ODC-3.03, Attachment H Control 3.11.1.2, Attachment L Control 3.11.2.2, and Attachment M Control 3.11.2.3 (considered to be the design objectives).

Annual Radioactive Effluent Release Report

Calendar Year - 2004
Table 6

Effluent Monitoring Instrumentation Channels Not Returned To Operable Status Within 30 Days

[FT-1CW-101-1] - Unit 1/2 Cooling Tower Blowdown Line Flow Rate Recorder

This recorder was removed from service on August 23, 2004 for scheduled 18-month calibration. The recorder would not pass the Acceptance Criteria so it was returned to a vendor for repair. The recorder was installed on September 21, 2004, but it would not pass Acceptance Criteria for one of the calibration points. The instrument was re-worked in-house and the subsequent calibration met the Acceptance Criteria. The recorder was returned to Operable staus on October 1, 2004. This condition and associated Corrective Actions are detailed in Condition Report No. CR04-07108.

As required by ODCM procedure 1/2-ODC-3.03, Control 3.3.3.9, Table 3.3-12 Action 25, the flow rate was estimated every 4 hours during batch liquid releases.

[RM-1GW-109 Ch-7 & Ch-9] - Unit 1/2 Process Vent Mid & High Range Noble Gas Effluent Monitors
[RM-1VS-110 Ch-7 & Ch-9] - Unit 1 SLCRS Vent Mid & High Range Noble Gas Effluent Monitors

During the 18-month calibration of these monitors on March 16, 2004, it was determined that the solenoid operated flush valves were leaking by, thus causing a dilution of the sample streams. Since no other testing was performed on these valves after the previous calibration, then it was determined that the monitor was not providing valid data since shortly after the previous calibration. The valves were isolated from the sample streams, thus providing a means for valid monitoring of the sample streams. The leak by condition of these valves was resolved, and monitors were returned to Operable status on March 19, 2004. This condition and associated Corrective Actions are detailed in Condition Report No. CR04-02427.

As required by ODCM procedure 1/2-ODC-3.03, Control 3.3.3.1 and 3.3.3.10 for inoperable monitors, the following information is provided:

(1) The minimum Preplanned Method of Monitoring (PMM) requirements for [RM-1GW-109] inoperable periods were met in accordance with Control 3.3.3.1, Table 3.3-6. However, the PMM requirements were not met for all of the inoperable periods associated with [RM-1VS-110].

(2) The minimum monitoring requirements for continuous releases during [RM-1GW-109] inoperable periods were met in accordance with Control 3.3.3.10, Table 3.3-13, Action 29. However, the continuous monitoring requirements were not met for all of the inoperable periods associated with [RM-1VS-110].

(3) The minimum monitoring requirements for batch releases during [RM-1GW-109] and/or [RM-1VS-110] inoperable periods were met in accordance with Control 3.3.3.10, Table 3.3-13, Action 27.

(4) The continuous sample collection requirements for releases via the effluent pathways monitored by [RM-1GW-109] and/or [RM-1VS-110] were met in accordance with Control 3.3.3.10, Table 3.3-13, Action 32.

In Summary, the previous offsite dose determinations were validated using redundant samples. For information, redundant continuous sample collection was provided with auxiliary sampling equipment during the periods of monitor inoperability.

Annual Radioactive Effluent Release Report

Table 7

Total Dose Commitments, Total Effective Dose Equivalents and Population Doses

Total Dose Commitment From All Facility Releases To Members of the Public 40 CFR 190.10(a) Environmental Doses				
Organ	(1) Effluent Dose (mrem)	(2) Direct Radiation Dose (mrem)	Total Dose (mrem)	% of ODCM or 40 CFR 190 Limit
Bone	1.56E-02	0.00E+00	1.56E-02	0.06%
Liver	9.75E-01	0.00E+00	9.75E-01	3.90%
Total Body	9.69E-01	0.00E+00	9.69E-01	3.88%
Thyroid	9.75E-01	0.00E+00	9.75E-01	1.30%
Kidney	9.61E-01	0.00E+00	9.61E-01	3.84%
Lung	9.56E-01	0.00E+00	9.56E-01	3.82%
GI-LLI	9.61E-01	0.00E+00	9.61E-01	3.84%

(1) The cumulative dose contributions from liquid and gaseous effluents were determined in accordance with the applicable CONTROLS & SURVEILLANCE REQUIREMENTS listed in ODCM procedure 1/2-ODC-3.03. The dose commitment limits for 40 CFR 190 MEMBERS OF THE PUBLIC (ODCM 1/2-ODC-3.03 Control 3.11.4.1) are as follows:

a) < or = 25 mrem / calendar year (for the total body, or any organ except the thyroid)

b) < or = 75 mrem / calendar year (for the thyroid)

(2) The dose contribution listed for the total body is for Direct Radiation. This was calculated by comparing offsite TLD exposure at the ODCM controlling location (0.8 miles NW; Midland, PA) to TLD exposure at the REMP control location (16.5 miles SSW; Weirton, WV).

Compliance to 100 mrem Limit of 10 CFR 20.1301 For Total Effective Dose Equivalent

Pursuant to 10 CFR 20.1301(a)(1), the Total Effective Dose Equivalent from licensed operation to the maximum individual during the report period, is 4.41 mrem. This is a summation of Direct Radiation Exposure (calculated by comparing the maximum of all perimeter TLD exposures to TLD exposure at the REMP control location) plus Effluent Doses (calculated per the ODCM).

Members of the Public Doses Due To Their Activities Inside The Site Boundary

The radiation doses for MEMBER(S) OF THE PUBLIC due to their activities inside the site boundary are not greater than the doses listed in this table to show compliance with 40 CFR Part 190 or 10 CFR 20.1301. Evaluations have shown that exposure time for individuals not occupationally associated with the plant site is minimal in comparison to the exposure time considered for the dose calculation at or beyond the site boundary. Therefore, a separate assessment of radiation doses from radioactive effluents to MEMBER(S) OF THE PUBLIC, due to their activities inside the site boundary, is not necessary for this report period.

0-50 Mile Population Doses From Liquid and Gaseous Effluents

The 0-50 mile Total Population Dose from liquid and gaseous effluents is 2020 man-mrem (Total Body)

The 0-50 mile Average Population Dose from liquid and gaseous effluents is 0.000505 mrem (Total Body)

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004

Table 8

Offsite Dose Calculation Manual Surveillance Deficiencies

There were Surveillances Deficiencies associated with the inoperable periods of mid and high range noble gas effluent monitors [RM-1VS-110 Ch-7 & Ch-9]. Those deficiencies are detailed in Table 6 of this report and documented in Condition Report No. CR04-02427.

Annual Radioactive Effluent Release Report

Unit 1 and 2 Offsite Dose Calculation Manual Changes (Description)

There was one change made to ODCM during the report period. See ODCM procedure No. 1/2-ODC-1.01 for a complete description of the change, and the change justification. A brief description of the changes are as follows:

Change (21) to the ODCM (Effective November, 2004)

1) **Procedure 1/2-ODC-1.01:** Updated the History of ODCM Changes to include this change.

2) **Procedure 1/2-ODC-2.01:** Updated the tank volumes shown on the Liquid Radwaste Treatment System diagrams.

3) **Procedure 1/2-ODC-3.03:** Updated Mode restraints to agree with recent amendments to the Technical Specifications. Corrected typographical errors. Provided clarification that devices used for monitoring Gaseous Effluent Sampler Flowrate are the devices used in the flowpath for Particulate and Iodine Sampling, and not the devices used in the flowpath for Particulate and Iodine Monitoring. Provided clarification that requires calculation of 10 CFR Part 20 Effluent Concentrations (EC's) when the individual liquid activity tank limits are exceeded.

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004
Attachment 1
Joint Frequency Distribution Tables

Attachment 1
An annual summary of hourly meteorological data, in the form of joint frequency distribution, is provided for the calendar year as specified in the ODCM.

Attachment 1 Clarification
Hourly meteorological data is not provided for specific periods of Abnormal Gaseous Release during the calendar quarters (as indicated in Regulatory Guide 1.21), for the following reasons: 1) All Gaseous Releases for the calendar year were determined to be within design objectives. where as, the ODCM Dose and Dose Rate Limits are considered to be the design objectives, 2) There were no Abnormal Gaseous Releases during the calendar year. For a copy of the hourly meteorological data during the calendar quarters, contact Mr. Anthony T. Lonnett at 724-682-7523.

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 35 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:38

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	20	48	3	0	0	0	71
NNE	15	24	0	0	0	0	39
NE	27	8	0	0	0	0	35
ENE	22	18	0	0	0	0	40
E	8	7	0	0	0	0	15
ESE	19	13	0	0	0	0	32
SE	12	12	0	0	0	0	24
SSE	19	10	0	0	0	0	29
S	5	22	3	0	0	0	30
SSW	8	39	3	0	0	0	50
SW	7	45	13	0	0	0	65
WSW	8	71	13	0	0	0	92
W	13	89	17	0	0	0	119
WNW	16	54	9	0	0	0	79
NW	14	35	4	0	0	0	53
NNW	23	41	2	0	0	0	66
TOTAL	236	536	67	0	0	0	839

PERIODS OF CALM(HOURS): 4
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 110

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 1: Joint Frequency Distribution Tables (35ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 35 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:41

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	4	7	1	0	0	0	12
NNE	8	6	0	0	0	0	14
NE	6	4	0	0	0	0	10
ENE	7	3	0	0	0	0	10
E	4	2	0	0	0	0	6
ESE	2	2	0	0	0	0	4
SE	2	1	0	0	0	0	3
SSE	2	0	0	0	0	0	2
S	0	1	0	0	0	0	1
SSW	1	10	0	0	0	0	11
SW	0	10	11	0	0	0	21
WSW	1	11	8	1	0	0	21
W	3	20	6	0	0	0	29
WNW	4	16	2	0	0	0	22
NW	4	6	1	0	0	0	11
NNW	2	12	1	0	0	0	15
TOTAL	50	111	30	1	0	0	192

PERIODS OF CALM(HOURS): 4
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 110

Beaver Valley Power Station – Units 1 & 2
Annual Radioactive Effluent Release Report
Calendar Year – 2004
Attachment 1
Part 1: Joint Frequency Distribution Tables (35ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 35 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:41

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	2	6	0	0	0	0	8
NNE	5	2	0	0	0	0	7
NE	5	2	0	0	0	0	7
ENE	7	3	0	0	0	0	10
E	1	2	0	0	0	0	3
ESE	1	0	0	0	0	0	1
SE	3	1	0	0	0	0	4
SSE	4	0	0	0	0	0	4
S	1	6	0	0	0	0	7
SSW	2	12	3	1	0	0	18
SW	1	18	22	0	0	0	41
WSW	4	21	9	0	0	0	34
W	6	26	7	0	0	0	39
WNW	1	19	4	0	0	0	24
NW	4	17	3	0	0	0	24
NNW	9	12	0	0	0	0	21
TOTAL	56	147	48	1	0	0	252

PERIODS OF CALM(HOURS): 4
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 110

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 1: Joint Frequency Distribution Tables (35ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 35 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:41

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	68	60	1	0	0	0	129
NNE	82	27	1	0	0	0	110
NE	115	22	0	0	0	0	137
ENE	84	67	0	0	0	0	151
E	50	9	0	0	0	0	59
ESE	32	3	0	0	0	0	35
SE	32	3	0	0	0	0	35
SSE	40	9	0	0	0	0	49
S	37	33	3	0	0	0	73
SSW	41	88	36	2	0	0	167
SW	60	207	190	10	1	0	468
WSW	72	184	142	4	0	0	402
W	87	251	85	0	0	0	423
WNW	74	143	21	0	0	0	238
NW	92	162	15	0	0	0	269
NNW	74	93	3	0	0	0	170
TOTAL	1040	1361	497	16	1	0	2915

PERIODS OF CALM(HOURS): 4
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 110

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 35 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:41

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	110	17	0	0	0	0	127
NNE	126	11	0	0	0	0	137
NE	189	10	0	0	0	0	199
ENE	180	26	0	0	0	0	206
E	127	7	0	0	0	0	134
ESE	112	3	0	0	0	0	115
SE	104	1	0	0	0	0	105
SSE	158	2	0	0	0	0	160
S	193	33	0	0	0	0	226
SSW	175	83	10	1	0	0	269
SW	129	99	60	5	0	0	293
WSW	90	100	43	4	1	0	238
W	64	60	11	0	0	0	135
WNW	79	38	6	0	0	0	123
NW	110	66	1	0	0	0	178
NNW	95	31	0	0	0	0	126
TOTAL	2041	587	131	10	1	0	2771

PERIODS OF CALM(HOURS): 4
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 110

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 1: Joint Frequency Distribution Tables (35ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 35 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:41

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	20	0	0	0	0	0	20
NNE	22	1	0	0	0	0	23
NE	45	0	0	0	0	0	45
ENE	59	0	0	0	0	0	59
E	116	0	0	0	0	0	116
ESE	147	1	0	0	0	0	148
SE	192	0	0	0	0	0	193
SSE	205	2	1	0	0	0	208
S	165	11	0	0	0	0	177
SSW	100	20	0	0	0	0	120
SW	48	9	0	0	0	0	57
WSW	19	2	2	0	0	0	23
W	15	1	1	0	0	0	17
WNW	17	0	1	0	0	0	18
NW	19	0	0	0	0	0	19
NNW	15	0	0	0	0	0	15
TOTAL	1204	47	5	0	0	0	1258

PERIODS OF CALM(HOURS): 4
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 110

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 35 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:41

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	6	0	0	0	0	0	6
NNE	13	0	0	0	0	0	14
NE	20	0	0	0	0	0	20
ENE	13	0	0	0	0	0	13
E	27	0	0	0	0	0	27
ESE	69	0	0	0	0	0	69
SE	93	0	0	0	0	0	93
SSE	57	0	0	0	0	0	57
S	48	11	0	0	0	0	59
SSW	34	8	1	0	0	0	43
SW	14	0	0	0	0	0	14
WSW	9	0	1	0	0	0	10
W	3	0	0	0	0	0	3
WNW	4	0	0	0	0	0	4
NW	8	1	0	0	0	0	9
NNW	6	0	0	0	0	0	6
TOTAL	424	20	2	0	0	0	447

PERIODS OF CALM(HOURS): 4
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 110

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 1: Joint Frequency Distribution Tables (35ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF
DELTA-T (150 FT-35 FT) VERSUS 35 FT WIND SPEED AND DIRECTION
FROM BEAVER VALLEY
(JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:41

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SP 35P DIRECTION:DI 35P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	230	138	5	0	0	0	373
NNE	271	71	1	0	0	0	344
NE	407	46	0	0	0	0	453
ENE	372	117	0	0	0	0	489
E	333	27	0	0	0	0	360
ESE	382	22	0	0	0	0	404
SE	438	18	0	0	0	0	457
SSE	485	23	1	0	0	0	509
S	449	117	6	0	0	0	573
SSW	361	260	53	4	0	0	678
SW	259	388	296	15	1	0	959
WSW	203	389	218	9	1	0	820
W	191	447	127	0	0	0	765
WNW	195	270	43	0	0	0	508
NW	251	287	24	0	0	0	563
NNW	224	189	6	0	0	0	419
TOTAL	5051	2809	780	28	2	0	8674

PERIODS OF CALM(HOURS): 4
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 110

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 150 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:42

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	4	33	28	3	0	0	68
NNE	4	31	20	3	0	0	58
NE	0	16	2	1	0	0	19
ENE	4	30	10	0	0	0	44
E	1	22	8	0	0	0	31
ESE	1	23	6	0	0	0	30
SE	0	28	19	3	0	0	50
SSE	1	26	14	0	0	0	41
S	1	7	24	0	0	0	32
SSW	1	6	26	3	0	0	36
SW	3	6	17	1	0	0	27
WSW	6	27	32	7	0	0	72
W	6	66	64	24	0	0	160
WNW	1	35	41	22	1	0	100
NW	3	20	12	4	0	0	39
NNW	6	25	12	2	0	0	45
TOTAL	42	401	335	73	1	0	852

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 27

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 2: Joint Frequency Distribution Tables (150 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF
DELTA-T (150 FT-35 FT) VERSUS 150 FT WIND SPEED AND DIRECTION
FROM BEAVER VALLEY
(JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:42

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	4	6	1	0	0	12
NNE	1	7	3	2	0	0	13
NE	1	6	2	0	0	0	9
ENE	1	8	6	0	0	0	15
E	1	2	1	0	0	0	4
ESE	0	2	4	0	0	0	6
SE	0	3	2	0	0	0	5
SSE	0	0	1	0	0	0	1
S	0	2	1	1	0	0	4
SSW	0	2	9	0	0	0	11
SW	0	1	7	2	0	0	10
WSW	0	3	10	5	1	0	19
W	2	14	10	12	0	0	38
WNW	1	4	15	6	0	0	26
NW	2	3	3	1	0	0	9
NNW	0	7	4	0	0	0	11
TOTAL	10	68	84	30	1	0	193

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 27

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 150 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:43

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	6	6	0	0	0	13
NNE	2	4	2	1	0	0	9
NE	1	1	0	0	0	0	2
ENE	2	8	3	0	0	0	13
E	1	1	2	0	0	0	4
ESE	0	3	0	0	0	0	3
SE	0	4	1	0	0	0	5
SSE	0	2	2	0	0	0	4
S	0	1	8	1	0	0	10
SSW	0	6	8	2	1	0	17
SW	2	4	11	7	0	0	24
WSW	2	8	15	4	0	0	29
W	1	18	15	19	2	0	55
WNW	2	8	16	7	0	0	33
NW	0	9	9	2	0	0	20
NNW	3	6	4	0	0	0	13
TOTAL	17	89	102	43	3	0	254

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 27

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 2: Joint Frequency Distribution Tables (150 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 150 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:43

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	31	74	44	4	0	0	153
NNE	28	56	31	5	0	0	120
NE	35	56	11	1	0	0	103
ENE	16	88	73	11	0	0	188
E	23	35	10	0	0	0	68
ESE	12	31	5	0	0	0	48
SE	10	19	1	0	0	0	30
SSE	10	31	17	2	0	0	60
S	16	34	42	2	0	0	94
SSW	13	37	80	14	1	0	145
SW	15	48	172	47	4	0	286
WSW	35	94	155	74	6	0	364
W	28	120	215	202	25	0	590
WNW	23	109	142	64	8	0	346
NW	23	100	82	8	0	0	213
NNW	19	63	28	1	0	0	111
TOTAL	337	995	1108	435	44	0	2919

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 27

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 2: Joint Frequency Distribution Tables (150 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 150 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:43

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	58	37	19	1	0	0	115
NNE	105	69	16	0	0	0	190
NE	129	94	10	1	0	0	234
ENE	80	194	42	4	0	0	320
E	57	62	8	0	0	0	127
ESE	29	30	12	0	0	0	71
SE	22	26	7	0	0	0	55
SSE	31	33	5	0	0	0	69
S	54	63	40	0	0	0	157
SSW	78	68	41	4	0	0	191
SW	101	77	86	21	1	0	286
WSW	55	83	74	21	6	2	241
W	56	84	71	51	2	1	265
WNW	39	113	55	9	2	0	218
NW	29	87	28	1	0	0	145
NNW	41	60	12	0	0	0	113
TOTAL	964	1180	526	113	11	3	2797

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 27

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 2: Joint Frequency Distribution Tables (150 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 150 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:43

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	96	8	0	0	0	0	104
NNE	120	32	0	0	0	0	152
NE	117	76	2	0	0	0	195
ENE	51	65	2	0	0	0	118
E	28	15	0	0	0	0	43
ESE	9	7	0	0	0	0	16
SE	24	2	2	0	0	0	28
SSE	14	7	1	0	1	0	23
S	40	31	12	0	0	0	83
SSW	81	51	3	0	0	0	135
SW	94	49	10	0	0	0	153
WSW	41	32	7	1	0	0	81
W	29	12	4	3	0	0	48
WNW	23	19	1	1	0	0	44
NW	26	11	0	0	0	0	37
NNW	23	2	0	0	0	0	25
TOTAL	816	419	44	5	1	0	1285

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 27

Beaver Valley Power Station – Units 1 & 2
Annual Radioactive Effluent Release Report
Calendar Year – 2004
Attachment 1
Part 2: Joint Frequency Distribution Tables (150 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 150 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:43

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	14	4	0	0	0	0	18
NNE	39	13	0	0	0	0	52
NE	32	16	0	0	0	0	48
ENE	20	27	0	0	0	0	47
E	8	5	0	0	0	0	13
ESE	8	3	0	0	0	0	11
SE	6	2	0	0	0	0	8
SSE	4	8	0	0	0	0	12
S	8	27	5	0	0	0	40
SSW	28	31	5	0	0	0	64
SW	35	23	6	1	0	0	65
WSW	20	13	1	1	0	0	35
W	7	4	0	0	0	0	11
WNW	7	8	0	0	0	0	15
NW	4	3	0	0	0	0	7
NNW	10	1	0	0	0	0	11
TOTAL	250	188	17	2	0	0	457

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 27

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 2: Joint Frequency Distribution Tables (150 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (150 FT-35 FT) VERSUS 150 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:43

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SP150P DIRECTION:DI150P LAPSE:DT150-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	205	166	103	9	0	0	483
NNE	299	212	72	11	0	0	594
NE	315	265	27	3	0	0	610
ENE	174	420	136	15	0	0	745
E	119	142	29	0	0	0	290
ESE	59	99	27	0	0	0	185
SE	62	84	32	3	0	0	181
SSE	60	107	40	2	1	0	210
S	119	165	132	4	0	0	420
SSW	201	201	172	23	2	0	599
SW	250	208	309	79	5	0	851
WSW	159	260	294	113	13	2	841
W	129	318	379	311	29	1	1167
WNW	96	296	270	109	11	0	782
NW	87	233	134	16	0	0	470
NNW	102	164	60	3	0	0	329
TOTAL	2436	3340	2216	701	61	3	8757

PERIODS OF CALM(HOURS): 0
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 27

Beaver Valley Power Station – Units 1 & 2
Annual Radioactive Effluent Release Report
Calendar Year – 2004
Attachment 1
Part 3: Joint Frequency Distribution Tables (500 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (500 FT-35 FT) VERSUS 500 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:45

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: A DT/DZ
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT500-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	0	1	0	0	0	1
NNE	0	0	2	0	0	0	2
NE	0	0	1	0	0	0	1
ENE	0	1	0	0	0	0	1
E	0	1	0	0	0	0	1
ESE	0	1	1	1	0	0	3
SE	0	0	4	2	0	0	6
SSE	0	0	0	0	0	0	0
S	0	0	0	0	0	0	0
SSW	0	0	1	0	0	0	1
SW	0	0	1	0	0	0	1
WSW	0	0	0	0	0	0	0
W	0	0	0	0	0	0	0
WNW	0	0	1	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	1	0	0	0	1
TOTAL	0	3	13	3	0	0	19

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 32

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 3: Joint Frequency Distribution Tables (500 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF
DELTA-T (500 FT-35 FT) VERSUS 500 FT WIND SPEED AND DIRECTION
FROM BEAVER VALLEY
(JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:45

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: B DT/DZ
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT500-

	WIND SPEED(MPH)						
WIND DIRECTION	1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	1	1	3	0	0	5
NNE	0	1	2	0	0	0	3
NE	0	2	2	1	0	0	5
ENE	0	1	1	0	0	0	2
E	0	3	2	0	0	0	5
ESE	0	5	9	0	0	0	14
SE	0	5	7	5	0	0	17
SSE	1	3	3	0	0	0	7
S	0	0	0	1	0	0	1
SSW	0	2	1	0	0	0	3
SW	0	1	0	1	0	0	2
WSW	0	1	2	0	0	0	3
W	0	1	3	1	0	0	5
WNW	0	2	2	2	0	0	6
NW	0	0	1	1	0	0	2
NNW	0	1	2	0	0	0	3
TOTAL	1	29	38	15	0	0	83

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 32

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (500 FT-35 FT) VERSUS 500 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:45

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: C DT/DZ
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT500-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	0	1	7	6	0	0	14
NNE	0	0	5	0	0	0	5
NE	0	3	2	0	0	0	5
ENE	0	4	4	2	0	0	10
E	0	6	5	0	0	0	11
ESE	2	4	3	0	0	0	9
SE	0	5	5	2	0	0	12
SSE	0	3	7	0	0	0	10
S	1	1	5	5	0	0	12
SSW	0	1	6	4	1	0	12
SW	0	1	4	4	0	0	9
WSW	0	2	9	0	0	0	11
W	0	5	12	6	4	0	27
WNW	1	9	14	7	4	0	35
NW	0	2	2	8	0	0	12
NNW	0	0	9	4	1	0	14
TOTAL	4	47	99	48	10	0	208

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 32

Beaver Valley Power Station – Units 1 & 2
Annual Radioactive Effluent Release Report
Calendar Year – 2004
Attachment 1
Part 3: Joint Frequency Distribution Tables (500 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (500 FT-35 FT) VERSUS 500 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:45

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: D DT/DZ
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT500-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	18	59	135	59	5	0	276
NNE	20	49	40	35	3	0	147
NE	27	52	37	19	4	0	139
ENE	15	71	70	29	9	1	195
E	26	91	87	35	3	0	242
ESE	23	80	73	10	1	0	187
SE	12	46	42	26	6	0	132
SSE	4	39	46	14	3	0	106
S	10	21	56	39	1	0	127
SSW	10	26	77	101	19	5	238
SW	17	30	141	262	112	11	573
WSW	23	50	136	196	87	18	510
W	25	104	180	282	190	35	816
WNW	35	157	242	197	71	12	714
NW	14	68	170	102	13	1	368
NNW	13	73	170	40	4	0	300
TOTAL	292	1016	1702	1446	531	83	5070

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 32

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 3: Joint Frequency Distribution Tables (500 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (500 FT-35 FT) VERSUS 500 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:45

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: E DT/DZ
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT500-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	25	22	38	14	0	0	100
NNE	22	22	10	8	0	0	63
NE	30	31	13	6	1	0	81
ENE	42	62	47	15	0	0	166
E	43	78	53	3	0	0	177
ESE	34	56	42	6	0	0	138
SE	40	47	39	17	8	0	151
SSE	27	44	32	21	1	0	125
S	28	30	52	44	9	2	165
SSW	40	32	36	67	16	0	191
SW	31	32	53	96	55	3	270
WSW	44	58	30	32	8	1	173
W	45	103	88	29	20	3	289
WNW	101	107	64	9	2	1	284
NW	22	35	32	5	1	0	95
NNW	18	22	27	7	0	0	74
TOTAL	592	781	656	379	121	10	2542

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 32

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

Attachment 1

Part 3: Joint Frequency Distribution Tables (500 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (500 FT-35 FT) VERSUS 500 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:45

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: F DT/DZ
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT500-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	8	8	2	1	0	0	19
NNE	14	6	1	0	0	0	21
NE	7	6	0	0	0	0	13
ENE	12	25	17	1	0	0	55
E	13	25	8	1	0	0	47
ESE	20	15	5	2	0	0	42
SE	17	13	15	7	0	0	52
SSE	11	25	14	2	0	0	52
S	11	18	29	16	4	0	78
SSW	16	18	23	17	0	0	74
SW	15	16	26	24	12	0	93
WSW	23	13	9	0	0	0	45
W	23	22	14	2	0	0	61
WNW	49	20	10	0	0	0	79
NW	12	10	2	1	0	0	25
NNW	6	5	4	0	0	0	15
TOTAL	257	245	179	74	16	0	771

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 32

Beaver Valley Power Station – Units 1 & 2
Annual Radioactive Effluent Release Report
Calendar Year – 2004
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Part 3: Joint Frequency Distribution Tables (500 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (500 FT-35 FT) VERSUS 500 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:45

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: G DT/DZ
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT500-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	1	0	0	0	0	0	1
NNE	0	0	0	0	0	0	0
NE	1	0	0	0	0	0	1
ENE	1	0	0	0	0	0	1
E	2	2	0	0	0	0	4
ESE	3	4	0	0	0	0	7
SE	2	4	0	0	0	0	6
SSE	1	4	0	0	0	0	5
S	0	2	0	0	0	0	2
SSW	2	6	3	2	0	0	13
SW	0	3	2	7	0	0	12
WSW	1	4	0	0	0	0	5
W	1	0	0	0	0	0	1
WNW	0	1	0	0	0	0	1
NW	0	0	0	0	0	0	0
NNW	0	0	0	0	0	0	0
TOTAL	15	30	5	9	0	0	59

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 32

Beaver Valley Power Station – Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year – 2004

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Part 3: Joint Frequency Distribution Tables (500 ft)

ANNUAL JOINT FREQUENCY DISTRIBUTION OF DELTA-T (500 FT-35 FT) VERSUS 500 FT WIND SPEED AND DIRECTION FROM BEAVER VALLEY (JANUARY 1, 2004 THROUGH DECEMBER 31, 2004)

SITE: BEAVER VALLEY UNIT: ONE 03/23/05 09:45

HOURS AT EACH WIND SPEED AND DIRECTION
PERIOD OF RECORD = 04010101-04123124
STABILITY CLASS: ALL DT/DZ
ELEVATION: SPEED:SP500P DIRECTION:DI500P LAPSE:DT500-

WIND DIRECTION	WIND SPEED(MPH) 1-3	4-7	8-12	13-18	19-24	>24	TOTAL
N	52	91	184	83	5	0	416
NNE	56	78	60	43	3	0	241
NE	65	94	55	26	5	0	245
ENE	70	164	139	47	9	1	430
E	84	206	155	39	3	0	487
ESE	82	165	133	19	1	0	400
SE	71	120	112	59	14	0	376
SSE	44	118	102	37	4	0	305
S	50	72	142	105	14	2	385
SSW	68	85	147	191	36	5	532
SW	63	83	227	394	179	14	960
WSW	91	128	186	228	95	19	747
W	94	235	297	320	214	38	1199
WNW	186	296	333	215	77	13	1120
NW	48	115	207	117	14	1	502
NNW	37	101	213	51	5	0	407
TOTAL	1161	2151	2692	1974	678	93	8752

PERIODS OF CALM(HOURS): 3
VARIABLE DIRECTION 0
HOURS OF MISSING DATA: 32

Beaver Valley Power Station - Units 1 & 2

Annual Radioactive Effluent Release Report

Calendar Year - 2004
Attachment 2
Unit 1 and 2 Offsite Dose Calculation Manual Changes

Attachment 2
Attached is a complete copy of the ODCM that includes: Change (21) of the ODCM (Effective: November, 2004)

Attachment 2 Clarification
A complete copy of the ODCM has been provided to the following offices: United States Nuclear Regulatory Commission Attention: Document Control Desk Washington, DC 20555-0001 United States Nuclear Regulatory Commission Regional Administrator 475 Allendale Road King of Prussia, PA 19406
For a complete copy of the ODCM, contact Mr. Anthony T Lonnett at 724-682-7523.