

ATTACHMENT A

BEAVER VALLEY POWER STATION SITE CHARACTERISTICS

1. General

The Beaver Valley Power Station (BVPS) (40° 37' 19" N/80° 26' 2" W) is a nuclear power plant operated by the Energy Nuclear. Unit 1 is a pressurized water reactor that has been in operation since 1976. Unit 2 is a pressurized water reactor that has been in operation since August 1987. Each unit is rated at approximately 965 Mw(e).

The exclusion area specified for Beaver Valley Power Station is 2,000 feet. There are no private residences located within the utility owned exclusion area.

2. Physical Characteristics

BVPS is located on a 500-acre site on the south bank of the Ohio River in Shippingport Borough, Beaver County, Pennsylvania.

The 10-mile EPZ contains portions of Beaver County, Pennsylvania; Columbiana County, Ohio; and Hancock County, West Virginia. No community within the 10-mile EPZ has a population in excess of 15,000. Portions of Ohio and West Virginia are also within the 50-mile EPZ.

The Ohio River in the vicinity of the site is about 2/10ths of a mile wide and the plant is situated in the south bank flood plain. The normal water elevation is about 664 feet mean sea level (MSL). The minimum plant grade is 730 feet mean sea level (MSL). The probable maximum flood is estimated to produce a water elevation of 730 feet MSL. The plant is protected from floods of that magnitude by technical specifications and by safety features added to the intake structure (the only safety-related structure that would be affected).

The major topographical features are the Ohio River and Beaver River, and the mountainous character of the area with numerous steep ridges and small valleys. The tops of nearby ridges reach an elevation of 400-500 feet above the river valley floor. Critical site meteorology is governed by these local topographic features. Although the synoptic pattern follows the prevailing westerly and northwesterly wind pattern, the steep-sided river valley tends to produce a channel effect. This channeling effect produces predominant wind directions along the axis of the valley. Another important terrain effect is the relatively high frequency of nighttime inversion conditions and fog formation.

Soils are made up of alluvial sands and gravel. The bedrock geology in the area consists of sedimentary formations composed of shales and sandstones. There are no known faults under or near the site. Drainage is primarily toward the river with the exception of the northwest corner, which drains into Peggs Run. Of the 500 acres, which comprise the site, approximately 17 acres are used for the facility.

The climate of this area of Pennsylvania is a humid continental type that is modified only slightly by the Great Lakes, and to lesser degree, the Atlantic Ocean. Average annual temperature for the area is about 50 degrees F. Average annual precipitation is 36.1 inches.

3. Land Use Characteristics

The area in the immediate vicinity of the site is mostly agricultural or undeveloped. The nearest community is Shippingport, Pennsylvania, which is the parent borough for the site. It has a population of approximately 160. The nearest population center in Pennsylvania of more than 25,000 people is Pittsburgh, Pennsylvania, approximately 22 miles to the southeast.

Two airports are located within a 10-mile radius of the plant. The Beaver County Airport is 9.8 miles to the NNE and the Herron Airport is 8.5 miles SSW. The runway extensions do not pass over the plant. The closest major airport is Pittsburgh International Airport, approximately 15 miles southeast of the site.

4. Emergency Facilities Locations

- A. The Technical Support Center (TSC) is located at the site in the Emergency Response Facility (ERF)
- B. The Emergency Operations Facility (EOF) is located at the Beaver County Airport which is located outside the 10-mile EPZ. The Alternate TSC is located within the EOF if needed.
- C. Joint Information Center (JIC) – is located at the Pittsburgh Industrial Park, near the Pittsburgh International airport located on Springs Run Road.

5. Bases of Operations for Federal Support

- A. Airport – Greater Pittsburgh Airport, Moon Township
- B. FRMAC – Pennsylvania Air National Guard, Greater Pittsburgh Airport, Moon Township
- C. JFO – Old Pittsburgh International Airport Terminal, Moon Township

6. Neighboring states within the 10-mile and 50-mile EPZs are as follows:

<u>10-Mile EPZ</u>	<u>50-Mile EPZ</u>
Ohio	Ohio
West Virginia	West Virginia

TABS

- 1. BVPS EPZ Information
- 2. BVPS Plume Exposure Pathway Description
- 3. BVPS Evacuation Time Estimate
- 4. BVPS Map, Data, and Illustrations

TAB 1

ATTACHMENT A
BVPS EPZ INFORMATION

Facility: BVPS operated by Energy Harbor
Location: Shippingport Borough, Beaver County
Site Area: 449 acres
Energy Production: Unit 1 – @965 Megawatts PWR/W
Capacity: Unit 2 – @965 Megawatts PWR/W
Operating Status: Unit 1 has been in commercial operation since 1976
 Unit 2 commenced commercial operation in 1987

AFFECTED JURISDICTIONS (2020 Census)

Risk County	Risk Municipality (27)	Risk Population*	Monitoring and Decon Requirement (20%)	Mass Care Requirement (10%)
Beaver County	City of Aliquippa	9,217	1,844	922
	Beaver Borough	4,438	888	444
	Bridgewater Borough	745	148	74
	Brighton Township	8,790	1,758	879
	Center Township	11,653	2,330	1,165
	Chippewa Township	^4,698	940	470
	Fallston Borough	259	52	26
	Frankfort Springs Borough	116	24	12
	Georgetown Borough	208	42	21
	Glasgow Borough	71	14	7
	Greene Township	2,187	438	219
	Hanover Township	3,343	668	334
	Hookstown Borough	129	26	13
	Hopewell Township	13,516	2,704	1,352
	Independence Township	2,248	450	225
	Industry Borough	1,825	364	182
	Midland Borough	2,433	486	243
	Monaca Borough	5,625	1,124	562
	Ohioville Borough	3,362	672	336
	Patterson Heights Borough	639	128	64
	Patterson Township	3,129	626	313
	Potter Township	520	104	52
	Raccoon Township	2,788	558	279
	Shippingport Borough	160	32	16
	South Beaver Township	^1,303	260	130

	South Heights Borough	384	76	38
	Vanport Township	1,295	258	129
Grand Total		85,081	17,014	8,507

*Population within the plume exposure pathway

^Denotes part of municipality within the EPZ

Alert System Status: Energy Harbor has installed 66 sirens required for coverage of the plume exposure pathway EPZ, 52 of which are in Pennsylvania. The system is operational. As a backup to the siren system, Beaver County activates a Mass Notification System (MNS) concurrently with the sirens. Additionally, the MNS is connected to the FEMA Integrated Public Alert and Warning System (IPAWS) which is utilized to send an alert message to cell phones in the designated area utilizing Wireless Emergency Alerts (WEA).

Support Counties	Reception Center	Mass Care Requirement
Allegheny County	South Park Fairgrounds	2,816
Butler County	Slippery Rock University	1,552
Lawrence County	Mohawk High School	1,745
Washington County	County Fairgrounds	2,394
TOTAL		8,507

MAJOR POPULATION CENTERS

Major Cities	2020 Population	Distance from Plant
McKeesport, PA	19,731	37 miles
New Castle, PA	23,273	26 miles
Pittsburgh, PA	305,704	25 miles
Steubenville, OH	21,970	23 miles
Wheeling, WV	31,419	43 miles
Youngstown, OH	96,000	35 miles

SCHOOL DISTRICTS

School Districts with Schools Located in the EPZ

Beaver County (8)

Aliquippa
Beaver Area
Blackhawk
Central Valley
Hopewell
Midland Borough
South Side Area
Western Beaver

School Districts Outside the EPZ with Students Residing in the EPZ

Beaver County (2)

New Brighton
Ambridge

Host Schools that Receive Relocated Student Populations

Allegheny County (2)

Independence Middle School
South Park High School

Butler County (1)

Slippery Rock High School

Lawrence County (1)

Union Area High School

Washington County (1)

Cannon-McMillan High School

RECEPTION CENTERS

Municipality	Total Population	Reception Center
Beaver County		
City of Aliquippa	9,217	Allegheny-South Park Fairgrounds
Hopewell Township	13,516	Allegheny-South Park Fairgrounds
Independence Township	2,248	Allegheny-South Park Fairgrounds
Raccoon Township	2,788	Allegheny-South Park Fairgrounds
South Heights Borough	384	Allegheny-South Park Fairgrounds
Beaver Borough	4,438	Butler-Slippery Rock University
Bridgewater Borough	745	Butler-Slippery Rock University
Brighton Township	8,790	Butler-Slippery Rock University
Fallston Borough	259	Butler-Slippery Rock University
Vanport Township	1,295	Butler-Slippery Rock University
Chippewa Township	4,698	Mohawk High School
Glasgow Borough	71	Mohawk High School
Industry Borough	1,825	Mohawk High School
Midland Borough	2,433	Mohawk High School
Ohioville Borough	3,362	Mohawk High School
Patterson Heights Borough	639	Mohawk High School
Patterson Township	3,129	Mohawk High School
South Beaver Township	1,303	Mohawk High School
Center Township	11,653	Washington-County Fairgrounds
Frankfort Springs Borough	116	Washington-County Fairgrounds
Georgetown Borough	208	Washington-County Fairgrounds
Greene Township	2,187	Washington-County Fairgrounds
Hanover Township	3,343	Washington-County Fairgrounds
Hookstown Borough	129	Washington-County Fairgrounds
Monaca Borough	5,625	Washington-County Fairgrounds
Potter Township	520	Washington-County Fairgrounds
Shippingport Borough	160	Washington-County Fairgrounds
Total – Population	85,081	
Total – Public Mon-Decon (20%)	17,014	
Total – Mass Care (10%)	8,507	

Totals Represent Pennsylvania Populations as of the 2020 Census

MASS CARE CENTERS

COUNTY	REQUIREMENT (10% of population)	CAPACITY
ALLEGHENY (10)		
South Park High School		505
South Park Middle School		660
Independence Middle School		1,073
Bethel Park Senior High School		1,250
Baldwin High School		1,047
Brentwood Junior-Senior High School		728
Upper St. Clair High School		1,152
Mt. Lebanon Senior High School		2,070
Steel Valley Senior High School		1,501
McKeesport Area High School		965
Total	2,816	10,951
BUTLER (2)		
Morris Field House		2,375
Slippery Rock Area High School		1,476
Total	1,552	3,851
LAWRENCE (3)		
Union Area Jr/Sr High School		1,765
Union Area Elementary School		547
Mohawk Area Schools		2,800
Total	1,745	5,112
WASHINGTON (2)		
Trinity High School		3,000
McGuffey Jr/Sr High School		3,000
Total	2,394	6,000
Grand Total	8,507	25,914

EMERGENCY WORKER MONITORING/DECONTAMINATION STATIONS

BEAVER

Ambridge Fire Department
Baden Fire Department
Crescent Fire Department
Darlington Township Fire Department

DECONTAMINATION CENTERS FOR THE GENERAL PUBLIC

ALLEGHENY

South Park Fairgrounds

BUTLER

Morrow Field House
Slippery Rock Area High School

LAWRENCE

Mohawk Area Schools

WASHINGTON

Trinity High School
McGuffey Jr/Sr High School

TAB 2

ATTACHMENT A

BVPS PLUME EXPOSURE PATHWAY EPZ DESCRIPTION

(Pennsylvania Portion)

Begin at the junction of the Ohio/Pennsylvania State Line and Pennsylvania Route 251. Follow Route 251 east to its junction with Pennsylvania Route 51. Proceed northwest on Route 51 approximately .25 miles to its junction with Pennsylvania Route 588. Proceed southeast on Route 588 to the point where the Chippewa, White and Patterson Township corporate boundaries meet. Proceed east/northeast on the White/Patterson Township line to the point where the White Township, Beaver Falls City, and Patterson Township corporate boundaries meet.

Proceed south on the Patterson Township/Beaver Falls City corporate boundary to its junction with Eighth Street in Pleasantville, and then southeast to its junction with the Patterson Heights Borough corporate boundary. Continue southeast on the Patterson Heights/Beaver Falls Borough corporate boundary to Beaver River.

Proceed south on the Beaver River to the junction of the Ohio River. Proceed east, then south on the Ohio River to its intersection with the Beaver/Allegheny County line.

Proceed southwest on the Beaver/Allegheny County line to the point where the Beaver, Allegheny and Washington County corporate boundaries meet. Proceed west on the Beaver/Washington County line to its junction with the West Virginia/Pennsylvania State line.

Proceed north on the West Virginia/Pennsylvania State line to its junction with the Ohio/West Virginia State line. Proceed north on the Ohio/Pennsylvania State line to its junction with Pennsylvania Route 251.

TAB 3

ATTACHMENT A
BVPS EVACUATION TIME ESTIMATE

			Evacuation Times for Full EPZ (hours, minutes)	
	Population	Vehicles	90%	100%
(a) Traditional Vehicle Demand for Residential Population				
Winter Day				
Fair Weather	164,514	65,222	3 hrs 15 min	5 hrs 16 min
Adverse Weather	164,514	65,222	4 hrs 40 min	7 hrs 22 min
Winter Night				
Fair Weather	130,634	55,178	2 hrs 55 min	4 hrs 21 min
Adverse Weather	130,634	55,178	3 hrs 40 min	6 hrs 5 min
Summer Weekend				
Fair Weather	135,351	56,567	2 hrs 50 min	4 hrs 18 min
Adverse Weather	135,351	56,567	3 hrs 20 min	5 hrs 17 min
(b) High Vehicle Demand for Residential Population				
Winter Day				
Fair Weather	164,514	89,066	4 hrs 15 min	6 hrs 57 min
Adverse Weather	164,514	89,066	6 hrs	9 hrs 45 min
Winter Night				
Fair Weather	130,634	79,022	3 hrs 40 min	6 hrs 4 min
Adverse Weather	130,634	79,022	5 hrs 15 min	8 hrs 18 min
Summer Weekend				
Fair Weather	135,351	80,411	3 hrs 45 min	6 hrs 1 min
Adverse Weather	135,351	80,411	4 hrs 35 min	7 hrs 24 min

NOTE: The KLD Report for ETES has not been released yet. Once released, the table will be updated accordingly.

TAB 4

ATTACHMENT A
BVPS MAPS, DATA, AND ILLUSTRATIONS

The following maps, data, and illustrations are located on the P Drive in the BVPS Folder.

- I: **BVPS Imagery**
- II: **Map – Beaver Valley EPZ and Ingestion Zone**
- III: **Map – Beaver Valley Critical Care Facilities**
- IV: **Critical Care Facilities Table**
- V: **Map – Beaver Valley School Districts and Host Schools**
- VI: **Beaver Valley School Districts Table**
- VII: **Map – Beaver Valley Reception Centers, Mon/Decon Centers and Mass Care Facilities**
- VIII: **Beaver Valley Reception Centers, Mon/Decon Centers and Mass Care Table**
- IX: **Map – Beaver Valley Siren Locations**
- X: **Beaver Valley Siren Locations Table**
Beaver Valley Siren Locations Table (2)
- XI: **Map – Beaver Valley Evacuation Plan Map**
- XII: **Map – Beaver Valley Population Circles**