

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

**NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY -- NOMINATION FORM**

FOR NPS USE ONLY	
RECEIVED	DEC 10 1980
DATE ENTERED	

SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*  
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

**1 NAME**

HISTORIC Dam No. 4 Hydroelectric Plant

AND/OR COMMON

**2 LOCATION**

STREET & NUMBER Along the Potomac River, on Dam No. 4 Road, 0.8 miles north of  
County Road No. 5 at the village of Scrabble

CITY, TOWN Shepherdstown	<input checked="" type="checkbox"/> VICINITY OF	CONGRESSIONAL DISTRICT 002	CODE 003
STATE West Virginia	CODE 54	COUNTY Berkeley	CODE 003

**3 CLASSIFICATION**

CATEGORY	OWNERSHIP	STATUS	PRESENT USE
<input type="checkbox"/> DISTRICT	<input type="checkbox"/> PUBLIC	<input checked="" type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE <input type="checkbox"/> MUSEUM
<input checked="" type="checkbox"/> BUILDING(S)	<input checked="" type="checkbox"/> PRIVATE	<input type="checkbox"/> UNOCCUPIED	<input type="checkbox"/> COMMERCIAL <input type="checkbox"/> PARK
<input type="checkbox"/> STRUCTURE	<input type="checkbox"/> BOTH	<input type="checkbox"/> WORK IN PROGRESS	<input type="checkbox"/> EDUCATIONAL <input type="checkbox"/> PRIVATE RESIDENCE
<input type="checkbox"/> SITE	<b>PUBLIC ACQUISITION</b>	<b>ACCESSIBLE</b>	<input type="checkbox"/> ENTERTAINMENT <input type="checkbox"/> RELIGIOUS
<input type="checkbox"/> OBJECT	<input type="checkbox"/> IN PROCESS	<input checked="" type="checkbox"/> YES: RESTRICTED	<input type="checkbox"/> GOVERNMENT <input type="checkbox"/> SCIENTIFIC
	<input type="checkbox"/> BEING CONSIDERED	<input type="checkbox"/> YES: UNRESTRICTED	<input checked="" type="checkbox"/> INDUSTRIAL <input type="checkbox"/> TRANSPORTATION
		<input type="checkbox"/> NO	<input type="checkbox"/> MILITARY <input type="checkbox"/> OTHER:

**4 OWNER OF PROPERTY**

NAME Potomac Edison Company, contact Supervisor of Minor Poser Stations for  
information and access

STREET & NUMBER

Downsville Pike

CITY, TOWN Hagerstown, Md. 21740 VICINITY OF STATE

**5 LOCATION OF LEGAL DESCRIPTION**

COURTHOUSE, Berkeley County  
REGISTRY OF DEEDS, ETC.

STREET & NUMBER

CITY, TOWN Martinsburg, WV 25401 STATE

**6 REPRESENTATION IN EXISTING SURVEYS**

TITLE NAER (HAPR) 1980 WV Recording Project

DATE

FEDERAL  STATE  COUNTY  LOCAL

DEPOSITORY FOR SURVEY RECORDS Library of Congress, Div. of Prints and Photographs

CITY, TOWN Washington, DC 20204 STATE

# 7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input type="checkbox"/> DETERIORATED	<input type="checkbox"/> UNALTERED	<input type="checkbox"/> ORIGINAL SITE
<input type="checkbox"/> GOOD	<input type="checkbox"/> RUINS	<input type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED      DATE _____
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED		

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## DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

Site: Located along WV abutment to Dam No. 4\* Stone abutment modified with concrete addition to allow for better shaped forebay. Forebay carved out of 80' high sheer limestone cliffs; twelve 5' wide inlet gates give river water access to forebay (original wooden gates and hoists are now removed). Two sets of vertical steel slat trash racks that screen out tree branches and miscellaneous debris; head gates immediately downstream. Downstream of head gates and trash racks are three turbine pits; Pit No. 3 (furthest from river) contains no trash rack, gate, or machinery or flooring; it does contain steel and wood framing.

Building: 30' x 80', bays deep, 2 floors, main floor (containing all generating machinery) of concrete; delineated on exterior facades with concrete belt course. Basement (or sheave pit) sits 39' below main floor, 3 bays, 2 of the 3 bays contain a 10'-0" diameter sheave wheel which is attached to the turbine shaft. A rope wraps around the sheave wheel and connects it to the upper sheave (on the main floor). Built of the grey limestone that was excavated from the cliffs where the forebay was cut out. 2" thick tooled, raised mortar joints. Windows are 2 over 2 wood sash double hung with concrete sills and lintels. 5 evenly spaced on east facade, 2 on north, 3 on west, and a smaller version of this type window in each gable end. In basement two openings for wood frame casements near main floor level, in each bay. Also, two steel hatched openings near basement floor level to provide light to basement only. Enter building on main floor level on south side through a 10' x 16' rollup metal door or through a standard 3' x 7' metal door. Gable roof of asphalt shingles supported on six wood simple trusses (with steel tension members). Three metal monitors with draft fans are located on roof. A tail race with an arched opening is located under basement, allowing water leaving turbine pit to exit underneath building and flow back into river.

Machinery: Each turbine pit (1 and 2) contains two tandem, 40", Samson-type, dual runner, center discharge turbines by Leffel and Co. (Springfield, OH) that operate under 17'4" of head at 169 rpm. In each sheave pit (1 and 2) direct connected to the turbine shaft, is a 10'0" diameter steel sheave wheel that has two 1250' long 1-5/8" thick sisal ropes wrapped around it, connecting it to the upper sheave wheel. On the main floor, the shaft of the upper sheave wheel is direct-connected to the generator. Generator Unit 1 (closest to river) three phase, 2500 volts, 116 Amp, 500 KW at 360 rpm by Warren Electric Mfg. Co. (Sandusky, OH) Direct current excitation to its 20 chain wound rotating magnetic field coils by a 25KW, 156 Amp, 160 Volt exciter (also by Warren) that rotates at 850 rpm and is belt driven by main generator shaft. Generator Unit 2, three phase, 2500 Volt, 116 Amp, 500 KW at 360 rpm by Electric Machinery Co. (Minneapolis, MN). Direct current excitation to its 24 rotating magnetic field coils by a 25KW, 156 Amps, 160 Volt exciter (also by EMCo) that rotates at 850 rpm and is belt driven by main generator shaft. Two Lombard Type "o" governors control turbine speed; both are semi automatic as the head, oil pump and oil tank have been removed from each and replaced with electrical relay equipment. Three single phase, oil insulated, air cooled 2400/34500 Volt Westinghouse transformers sit on a concrete pad 20' away from south entrance to building.

\*Original dam built by C & O Canal Co. in 1830s, as a rock filled timber crib. In 1850s, dam leaked so bad that in 1860 a new stone dam was built in its place. It still is in good condition, today NPS owns dam, Potomac Edison maintains it.

# 8 SIGNIFICANCE

## PERIOD

## AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW

<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input type="checkbox"/> TRANSPORTATION
<input type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input type="checkbox"/> OTHER (SPECIFY)
		<input type="checkbox"/> INVENTION		

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SPECIFIC DATES

BUILDER/ARCHITECT

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## STATEMENT OF SIGNIFICANCE

At present, believed to be sole survivor, nationwide, of this type of rope drive technology. It serves as a unique model for this kind of power system: in 1906 when designed, it represented the "state of the art" (in fact both of the MPCo's other two plants had rope drive in 1906) but as new developments were made in turbine technology in the 1910s and 1920s, the rope drive was phased out and many companies that had rope drive units converted them or retrofitted them. Currently however, it is believed that this is the only survivor, nationwide, of the rope drive that still functions fully.

## 9 MAJOR BIBLIOGRAPHICAL REFERENCES

Potomac Edison News, "What Makes Dam 4 Hydro Run?", Oct. 1971, Vol 47, No. 9, pps 4-5  
Charles Scott, Principal Historian; NAER 1980 WV Recording Project, History of the  
Hydroelectric Plants at Dams 4 and 5, available at the Library of Congress, Div. of  
Prints and Photographs (available mid-1981).

## 10 GEOGRAPHICAL DATA

\*Unless UTM on map is wrong. Then UTM on nomination form may be correct)

ACREAGE OF NOMINATED PROPERTY 6 acres

QUADRANGLE NAME Shepherdstown

QUADRANGLE SCALE \_\_\_\_\_

UTM REFERENCES

A 18 256980 4375320\*

B                  

ZONE EASTING NORTHING

ZONE EASTING NORTHING

C                  

D                  

E                  

F                  

G                  

H                  

VERBAL BOUNDARY DESCRIPTION Beginning at the south bank of the Potomac, 100 ft. east of the power plant, thence south 100 feet, thence west, parallel to the river bank, 600 feet thence north 200 feet, thence east 200 feet, thence north 600 feet, thence east along the north bank of the Potomac 200 feet, thence south 600 feet, thence east 150 feet,

thence south 100 feet to the beginning.

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
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STATE	CODE	COUNTY	CODE
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## 11 FORM PREPARED BY

NAME/TITLE

Don C. Wood, Genealogist, Historian, Historic Archeologist.

ORGANIZATION President, Berkeley County Historical Society  
Chairman, Berkeley County Historical Landmarks Commission

DATE

STREET & NUMBER

Route 3, Box 79

TELEPHONE

CITY OR TOWN

Martinsburg, WV 25401

STATE

## 12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL   

STATE   

LOCAL   

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

TITLE

DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

ATTEST:

KEEPER OF THE NATIONAL REGISTER

DATE

CHIEF OF REGISTRATION