

United States Department of the Interior National Park Service NATIONAL REGISTER OF HISTORIC PLACES REGISTRATION FORM

1. Name of Property Historic name: CHESAPEAKE AND OHIO 1308 STEAM LOCOMOTIVE	
Street and Number: 1401 Memorial Boulevard city/town: Huntington state: West Virginia county: Cabell	not for publication: N/A vicinity: N/A zip code: 25504
3. State/Federal Agency Certification	
As the designated authority under the National Historic Preserv that this X nomination request for determination of elig standards for registering properties in the National Register of I procedural and professional requirements set forth in 36 CFR P meets does not meet the National Register Criteria. I reconsignificant nationally statewide X locally. See a Signature of Certifying Official Date	gibility meets the documentation Historic Places and meets the Part 60. In my opinion, the property X mmend that this property be considered
State or Federal agency and bureau Date	
In my opinion, the property meets does not meet the (See continuation sheet for additional comments.)	National Register criteria.
Signature of Certifying Official/Title Date	
State or Federal agency and bureau Date	

Chesapeake and Ohio 1308 Steam L Name of Property	ocomotive	Cabell, Wes	
4. National Park Service Certification			
I, hereby certify that this property is:	Signatur	re of Keeper	Date of Action
☐ See continuation sheet. ☐ Mational Register ☐ See continuation sheet. ☐ Mational Register ☐ See continuation sheet. ☐ □ See continuation sheet.		- avag	e 1-3/-03
☐determined not eligible for the National Register			
□removed from the National Register			
Oother (explain):			
5. Classification			
Ownership of Property:	C	ategory of Proj	perty
X privatepublic-localpublic-Statepublic-Federal	_ _ _ _	building(s) district site X_ structureobject	
Number of Resources within Proper (Do not include previously listed resources)	•	nt.)	
Contributing Noncont 0 0 0 0	ributing		buildings sites
1 0			structures
0 0			objects

Number of contributing resources previously listed in the National Register 0

Name of related multiple property listing $\ \underline{N/A}$

(Enter "N/A" if property is not part of a multiple property listing.)

Chesapeake and Ohio 1308 Steam Locomotive Name of Property	<u>Cabell, West Virginia</u> County and State
<u> </u>	
6. Function or Use	
Historical Functions Transportation/Rail- related/Locomotive	Current Functions Other/Static Locomotive Display
7. Description	
Architectural Classification:	Materials
Other: H-6 Class Locomotive	Foundation: <u>N/A</u> Walls: <u>N/A</u> Roof: <u>N/A</u> Other: <u>Steel</u>
Narrative Description (See continuation on sheets.)	
8. Statement of Significance	
Applicable National Register Criteria (Mark "X" in one or more boxes for the criteria q	ualifying the property for National Register listing.)
X A. Property is associated with events that h patterns of our history.	ave made a significant contribution to the broad
B. Property is associated with the lives of p	persons significant in our past.
X C. Property embodies the distinctive character or represents the work of a master, or possesses has distinguishable entity whose components lack incomponents.	
D. Property has yielded, or is likely to yield	d, information important in prehistory or history.

<u>Chesapeake and Ohio 1308 Steam Locomotive</u> Name of Property

Cabell, West Virginia County and State

Criteria Considerations (Mark "X" in all the boxes that apply.)
Property is: A owned by a religious institution or used for religious purposes.
B removed from its original location.
C a birthplace or grave.
D a cemetery.
E a reconstructed building, object, or structure.
F a commemorative property.
G less than 50 years of age or achieved significance within the past 50 years
Areas of Significance Transportation Engineering
Period of Significance 1949-1952
Significant Dates 1949
Significant Person (Complete if Criterion B is marked above) N/A
Cultural Affiliation N/A
Architect/Builder

Narrative Statement of Significance (See continuation sheets.)

Baldwin Locomotive Works

Chesapeake and Ohio 1308 Steam LocomotiveCabell, West VirginiaName of PropertyCounty and State	
9. Major Bibliographical References	
Bibliography (Cite the books, articles, and other sources used in presheets.)	eparing this form on one or more continuation
Previous documentation on file (NPS): preliminary determination of individual listing previously listed in the National Register previously determined eligible by the National designated a National Historic Landmark recorded by Historic American Buildings Surv recorded by Historic American Engineering Re	Register rey #
Primary location of additional data: State Historic Preservation Office Other State agency Federal agency Local government University Other	
Name of Repository: <u>Collis P. Huntington Railroad F</u> <u>Historical Society</u>	Historical Society, Chesapeake and Ohio
10. Geographical Data	
Acreage of Property: Approximately ½ acre	
UTM References (Place additional UTM references of	on a continuation sheet.)
Quad Map Name: <u>Huntington, WV</u>	
17 371027 4251589 Zone Easting Northing	
Verbal Boundary Description (See continuation sheet.)	
Roundary Justification	

(See continuation sheet.)

Chesapeake and Ohio 1308 Steam Locomotive Name of Property

Cabell, West Virginia
County and State

11. Form Prepared By

Name/Title: Thomas F. Lambert, with assistance from WV SHPO staff

Organization: Collis P. Huntington Railroad Historical Society, Inc. Date: May 22, 2002

Street & Number: 26 Nedra Drive Telephone: 304/736-7349

City or Town: Barboursville State: WV ZIP: 25504-1023

Property Owner

(Complete this item at the request of SHPO or FPO.)

Name: Collis P. Huntington Railroad Historical Society, Inc.

Street & Number: <u>PO Box 451</u> Telephone: <u>304-453-1641</u>

City or Town: Kenova State: WV Zip: 25530-0451

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Chesapeake and Ohio 1308 Steam Locomotive Name of Property

Cabell, West Virginia
County and State

Section number 7 Page 1

Architectural Description:

The Chesapeake and Ohio (C&O) 1308 steam locomotive is built primarily from steel castings, machined billets, plate, and sheets. The 1308 locomotive is one of ten built in 1949 specifically for the C&O by Baldwin. The locomotive and its tender are 98'8 1/4" in length and weigh 643,100 pounds. In addition, the locomotive contains two separate driving units, which combined the power and traction of two steam engines in one chassis. The design of the 1308 is a Class H-6 Mallet, with a 2-6-6-2 wheel arrangement. When built, the 1308 was equipped with the latest equipment including mechanical lubricators, Alemite roller bearings, superheated steam, improved air and stoker gauges, and improved standard stoker. The new features of the 1308 made it more efficient by reducing rolling resistance, increasing power, and reducing labor.

Principle dimensions/statistics of the H-6 class are as follows:¹

Class	H-6
Road Numbers	1300-1309
Builder	Baldwin
Date	1949
Builders Order	48001
Weights: Lbs.	
On Drivers	366,700
On Engine Track	23,200
On Trailing Track	45,000
Engine Total	434,900
Tender	208,200
Engine & Tender	643,100

¹Eugene L. Huddleston, Philip Shuster, and Alvin Staufer. <u>C&O Power: Steam and Diesel Locomotives of the Chesapeake and Ohio Railway, 1900-1965</u> (Medina, OH: Alvin Staufer, 1965), 146.

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Chesapeake and Ohio 1308 Steam Locomotive Name of Property

Cabell, West Virginia
County and State

Section number 7 Page 2	
i.	
Boiler Pressure	210
Cylinders	22&35x32
Firebox	108x96 1/4
Grate Area, sq. ft	72.2
Total Heat. Surface	4825
Tractive Effort, Simple	98,300
Tractive Effort, Compounded	77,900
Factor of Adhesion	4.66
Cylinder Horse Power	2618
Valve Gear	Walschaert
Superheater	Type A
Feedwater Heater	none
Stoker	HT
Booster	none
Drivers	56"
Driving Wheel Base	30'-6''
Length Engine	61'-4"
Length over Couplers	98'-8 1/4"
Tender Class	12-RC
Tender Capacity:	
Coal, tons	16
Water, gallons	12,000

The appearance of the 1308 has changed very little over the years. The engine is painted standard locomotive black with 'Chesapeake and Ohio' painted in yellow on the tender as well as white paint edging on the running boards and tires of the locomotive. The 1308 exhibits features unique to the C&O, including the brake system air pumps that are mounted on the face of the

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

<u>Chesapeake and Ohio 1308 Steam Locomotive</u> Name of Property

7

Cabell, West Virginia
County and State

Section number

ć.

Page

3

smokebox at the front of the locomotive. This arrangement, known to railfans as the 'flying pumps', is a well-known characteristic of C&O locomotive design.² The 1308 embodied additional distinctive features typical of C&O design, including a large, roomy cab, piping installed with little regard for aesthetics, oversized box-type sand domes, and a low-mounted headlight.³

Operated for only a short time, and carefully protected following its retirement, the 1308 retains a high degree of physical integrity. The 1308's immediate environment is semi-industrial in nature, with the locomotive surrounded by a chain-link enclosure that includes various static, educational railroad historical displays. The historical mainline track of the C&O is located only a short distance away, with a spur line built by the C.P. Huntington group to facilitate the movement of the 1308 from the C&O's ownership into their museum enclosure. The 1308 has rested on the spur at this location since 1962.

²Brian Hollingsworth. <u>The Illustrated Encyclopedia of North American Locomotives: A historical directory of America's greatest locomotives from 1830 to the present day</u>. (New York: Crescent Books, 1984), 139.

³Eugene L. Huddleston, Philip Shuster, and Alvin Staufer. <u>C&O Power: Steam and Diesel Locomotives of the Chesapeake and Ohio Railway, 1900-1965</u> (Medina, OH: Alvin Staufer, 1965), 5.

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

<u>Chesapeake and Ohio 1308 Steam Locomotive</u> Name of Property Cabell, West Virginia
County and State

Section number

3

Page

1

Statement of Significance:

The C&O 1308 Steam Locomotive is an integral part in the history and development of the railroad business and coal mining industry in West Virginia. The 1308 is significant under Criterion A for Transportation and Criterion C for Engineering. The period of significance begins with the locomotive's construction in 1949, and ends with the fifty-year cut-off point in 1952. During this three year period the 1308 pulled coal trains on the C&O Railway's Logan Subdivision. Under Criterion A for Transportation, the locomotive is significant as a physical representation of the C&O's continued use of steam power into the post-WWII period. Under Criterion C for Engineering, the locomotive is a significant example of the final generation of American steam engines that featured the hallmarks of augmented power and increased efficiency in the face of increasing competition from Diesel technology. The engine exhibits a high amount of physical integrity, being operated only a short time, then going into protected storage. After being stored, the locomotive was obtained by the Collis P. Huntington Railroad Historical Society and placed under their protection within a fenced enclosure. As a result, the locomotive retains its original piping, hardware, controls, and materials. Undoubtedly, the 1308 could be returned to operational status with minimal preparations.

Criterion A: Transportation

The first Mallets were delivered to the C&O in 1911. The design of the Mallet allowed for hauling extremely heavy loads on mountainous terrain. The Mallet had the ability to navigate mountainous terrain because twice as many pairs of driving wheels could be placed beneath the main mass of the engine.⁴ The additional powered wheels increased the tractive force necessary to move heavy trains up steep grades. The major weakness of the Mallet design in mainline use, however, was that the top speeds of the locomotive would only reach 20 to 25 miles per hour, thus limiting its use to branchline freight uses.

⁴"The Baldwin Locomotive Works–1912. Mallet Articulated Locomotives." <u>Railroad Extra</u>. http://www.railroadextra.com/blwma100.html

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

<u>Chesapeake and Ohio 1308 Steam Locomotive</u> Name of Property

Cabell, West Virginia
County and State

Section number

Page

2

After World War II, the C&O's first order of Mallets had endured thirty years of hard service, forcing the company to seek replacements. The company ordered twenty-five new Mallet engines from the Baldwin Locomotive Works at a net cost of \$207,129.12 each, according to local sources. The order was later reduced to ten engines, due to disrupted cash flow caused by labor unrest in the coal fields of West Virginia.⁵

In the area of transportation history, the C&O demonstrated its commitment to the coal industry it served, and steam power in general, when it took delivery of the 1308 and its nine sisters. Delivered in 1949, the locomotives were the last order of Class 1, mainline steam engines produced by the Baldwin Locomotive Works. The ten locomotives were numbered 1300 to 1309. Used by the C&O to move coal out of the Logan, West Virginia coal district, the short wheelbase of the locomotives allowed them to navigate the sharp turns found in Logan County. The 1308 made a mine run about every two hours, primarily from Peach Creek, West Virginia to Russell, Kentucky and occasionally also to Hinton, West Virginia.

The Class H-6 steam locomotives aided the C&O in becoming one of the nation's greatest and most distinguished railroad companies. New advancements, like the ones made to the 1308, allowed the company to become one of the preeminent railroad companies in the nation and propelled it into an industrial leader. In West Virginia, the choice of steam power at a time of rapid Diesel conversion demonstrates the C&O's commitment not only to an established and trusted technology, but also to the fuel that granted the company much of its wealth. Where the rugged Appalachian topography demanded a specialized locomotive, the C&O chose to replicate its design for a powerful engine that could maneuver through the hollows and hills, but could also climb the steep terrain.

⁵Eugene⁶L. Huddleston, Philip Shuster, and Alvin Staufer. <u>C&O Power: Steam and Diesel Locomotives of the Chesapeake and Ohio Railway, 1900-1965</u> (Medina, OH: Alvin Staufer, 1965), 141-142.

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

<u>Chesapeake and Ohio 1308 Steam Locomotive</u> Name of Property Cabell, West Virginia
County and State

Section number

8

Page

3

Criterion C: Engineering

The Mallet type of steam locomotive originated in Europe and was designed by French engineer Anatole Mallet in 1889. In 1904, the St. Louis Exposition introduced the United States railroad industry to the Mallet design.⁶ In Europe, the Mallet had been used in the mountains of Switzerland and Russia. Therefore, the Mallet was a logical choice for use in the Appalachian Mountain region of the United States. The Baltimore and Ohio Railroad (B&O) was the first American railroad operator to use the Mallet design, which demonstrated the utility of the design to other American railroads.

Mallet's design would be improved by American engineers to develop a steam locomotive that could haul heavier loads than those common in Europe. In 1903, James Muhlfeld would apply Mallet's concepts to create B&O engine number 2400 for the St. Louis Exposition, which powered trains weighing 2,000 tons to a summit without the need for helper engines. The 2400's Mallet design demonstrated the value of steam compounding, which carries the exhaust through pipes and swiveling elbow joints from the second set of cylinders forward to the first; which causes the flow of steam to pass from one driving unit to another when one lost its grip. The Mallet design was later improved in 1910 by Samuel Vauclain, who divided the Mallet's boiler into two entities, connected by a flexible joint just ahead of the flues. This new design allowed the engine to hinge, which eliminated overhangs on sharp curves.

By 1910, the C&O Railway was moving a considerable amount of coal from the mines of West Virginia to shipping points in the east. At that time, the limit of their locomotives was 1800 tons distributed among 30 steel cars. A pusher engine was also needed in aiding these locomotives over the steepest grades of the Appalachian Mountains. The need for new power to make the push up the Appalachian Mountains led to the development of the H-1 class Mallet, the predecessor to the 1308.

⁶Henry Comstock. <u>The Iron Horse</u>. (New York: Galahad Books, 1971), 138.

⁷"The Baldwin Locomotive Works–1912. Mallet Articulated Locomotives." <u>Railroad Extra</u>. http://www.railroadextra.com/blwma100.html

⁸Henry Comstock. The Iron Horse. (New York: Galahad Books, 1971), 140-143.

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Chesapeake and Ohio 1308 Steam Locomotive Name of Property

Cabell, West Virginia
County and State

Section number 8 Page 4

As a result of a need for new power, the C&O requested a compound 2-6-6-2, which would haul 3,000 tons over the mountains at 15 miles per hour, without helpers. The design of the H-1 differed from earlier Mallets with its unique 6 ½ foot combustion chamber, which was used between the boiler and firebox, and an outside bearing radial trailing truck. The large combustion chamber permitted a deeper firebox behind the 56" drivers. The H-1 was the first locomotive of its size to use outside bearing radial trailing trucks. The outside bearing radial trailing trucks added to the riding stability of the locomotive. The new design was very significant in the area of steam power transportation because it allowed the C&O to transport more coal without the cost of helpers, which constituted a major advancement in locomotive technology. Following the successful introduction of the H-1 class, The first group of H-6 Mallets, an evolution of the H-1 design, were bought by C&O in the 1920's and were built by Richmond-Schenectady.

Following World War II, there was a great demand for new motive power on the nation's railroads. Under the stress of war shortages, the C&O and its competitors were forced to use their old fleet of engines quite heavily, and retain them long after their normal service lives had ended. Once the economy began to return to a state of normalcy, the C&O decided to integrate Diesel-electric locomotives into the roster, but retain steam in the coal fields. Quite logically, the C&O decided to use a design that had proven quite successful in branch line service for coal mining, the H-6. As a result of this decision, the C&O placed its order for some of the last Class 1 railroad steam locomotives constructed in the country.

The 1308 was built using the same advancements and technology as the first order of H-6 models in the 1920's. The reuse of the design was important because it maintained the use of steam and coal on branch line service. A few of the reasons for the maintained use of the H-6 design included the availability of coal and that the C&O was experienced with working with the H-6 type of locomotive for branch line service in the coal mining areas of West Virginia.

⁹Eugene L. Huddleston, Philip Shuster, and Alvin Staufer. <u>C&O Power: Steam and Diesel Locomotives of the Chesapeake and Ohio Railway, 1900-1965</u> (Medina, OH: Alvin Staufer, 1965), 141-143.

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Chesapeake and Ohio 1308 Steam Locomotive Name of Property

Cabell, West Virginia
County and State

Section number

Q

Page

5

Conclusion:

The C&O 1308 Steam Locomotive played a fundamental role in the development of coal mining and the railroad industry in West Virginia. The 1308 is significant under Criterion A for Transportation. The 1308 was important to the transportation of coal which fueled the growth of both the coal mining and railroad industry in West Virginia. The 1308 is also significant under Criterion C for Engineering. The design of the 1308 made its type unique to coal mine service in the Appalachian Mountain region. The engineering of the locomotive is also important as a remnant of steam technology used after diesel engines had become the principle form of power in the railroad industry. The period of significance begins in 1949 with the construction of the 1308 and runs until the fifty year cut off in 1952.

The 1308 remained in use for three years past the period of significance. On February 29, 1956, the 1308 steam made its last trip, and within the a year the end of the steam power would come to the C&O Railway. A member of the Collis P. Huntington Railroad Historical Society found a certificate in the cab that recorded when the last air test was conducted. An air test was conducted each time before the locomotive went out on a run, which indicates the final, official operation of the 1308. Currently, the Collis P. Huntington Railroad Historical Society in Huntington, West Virginia owns the 1308. The only other surviving C&O H-6, number 1309, is located at the B&O Museum, in Baltimore, Maryland.

¹⁰Eugene L. Huddleston, Philip Shuster, and Alvin Staufer. <u>C&O Power: Steam and Diesel Locomotives of the Chesapeake and Ohio Railway, 1900-1965</u> (Medina, OH: Alvin Staufer, 1965), 143.

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Chesapeake and Ohio 1308 Steam Locomotive Name of Property Cabell, West Virginia
County and State

Section number 9

Page 1

Bibliography

"An Overview of Mallet Locomotives." <u>Logging Mallets</u>. http://loggingmallets.railfan.net/sub/malletinfo.htm>.

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- Carlson, Neil.; "Railroading: 2-6-6-2." Trains.com
 http://www.trains.com/Content/Dynamic/Articles/000/000/001/814isnqa.asp (28 December 2001).
- Comstock, Henry B. The Iron Horse. New York: Galahad Books, 1971.
- Hollingsworth, Brian. <u>The Illustrated Encyclopedia of North American Locomotives: A historical directory of America's greatest locomotives from 1830 to the present day.</u> New York: Crescent Books, 1984.
- Huddleston, Eugene L., Philip Shuster and Alvin Staufer. <u>C & O Power: Steam and Diesel</u>
 <u>Locomotives of the Chesapeake and Ohio Railway, 1900-1965.</u> Medina, OH: Alvin Staufer, 1965.

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Chesapeake and Ohio 1308 Steam Locomotive

Name of Property

Cabell, West Virginia
County and State

Section number 10

Page 1

Verbal Boundary Description

The nomination boundary for the Chesapeake and Ohio 1308 Steam Locomotive encompasses only the locomotive and its tender and the track and ground upon which it stands.

Boundary Justification

 $\mathcal{A}_{\frac{n}{2}}^{\mathbb{Z}}$

The nomination boundary includes only the locomotive and its tender, excluding the unrelated, static displays of railroad equipment that surround it within the fenced enclosure.

United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

Chesapeake and Ohio 1308 Steam Locomotive

Name of Property

Photo

Section

Cabell, West Virginia
County and State

Section 1 note	Tago T
Name of Property: C	hesapeake and Ohio 1308 Steam Locomotive
	401 Memorial Boulevard
	Huntington, West Virginia
County: <u>C</u>	abell, WV
Photographer: Arthu	ur Malcom, 116 Elmwood Avenue, Huntington, WV 25705
Date: April	19, 2002
Negatives: WV S	SHPO, Charleston, WV
Photo 1 of 12	Chesapeake and Ohio 1308 Steam Locomotive and tender, camera facing south.
Photo 2 of 12	Side view of the locomotive, tender and steps leading to the locomotive's cab, camera facing north.
Photo 3 of 12	Front view of locomotive including coupler, headlight, brass bell, camera facing west.
Photo 4 of 12	Side view of locomotive, showing running gear and one engine, camera facing north.
Photo 5 of 12	Front left side of locomotive and partial view of the front of the locomotive, camera facing north.
Photo 6 of 12	View of the engineer's side of locomotive and window, camera facing north.
Photo 7 of 12	View of throttle and brake stand inside the locomotive's cab, camera facing south.

Page 1

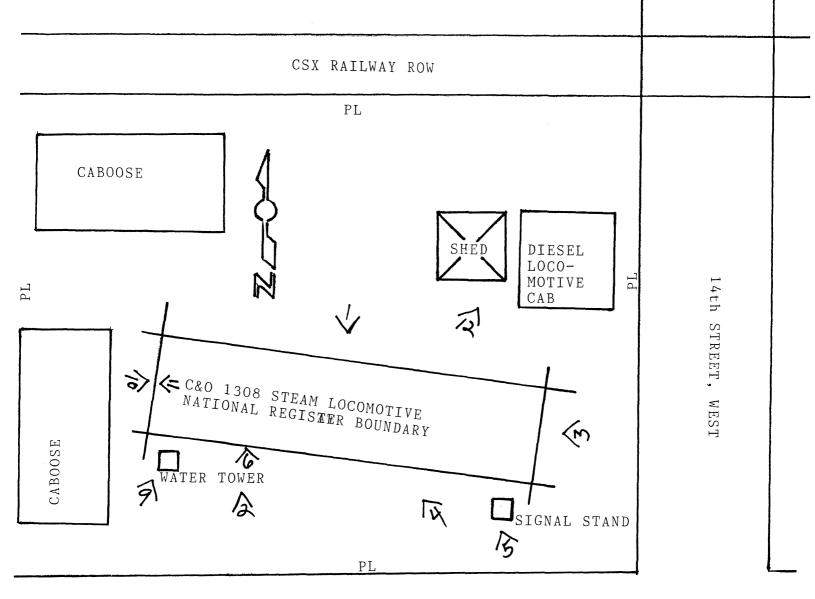
United States Department of the Interior National Park Service

NATIONAL REGISTER OF HISTORIC PLACES CONTINUATION SHEET

<u>Chesapeake and Ohio 1308 Steam Locomotive</u> Name of Property Cabell, West Virginia
County and State

Section Photo	Page 2
Photo 8 of 12	View inside the locomotive's cab showing the backhead and firedoor, camera facing east.
Photo 9 of 12	Locomotive tender, base of water tower and a portion of a C&O caboose, camera facing north.
Photo 10 of 12	Rear of the 1308's tender indicating it holds 12,000 gallons of water and carries 16 tons of coal and a portion of the water tower, camera facing east.
Photo 11 of 12	View of the rear portion of the tender where the lids were lifted and water was poured in from the water spout, camera facing east.
Photo 12 of 12	Portion of the museum including a CSX diesel cab, a crossing signal and a tool shed, camera direction unknown.

CHESAPEAKE & OHIO 1308 STEAM LOCOMOTIVE HUNTINGTON, CABELL COUNTY WEST VIRGINIA GENERAL SITE PLAN PHOTO LOCATIONS



MEMORIAL BOULEVARD