

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Lightship No. 101
other names/site number "Portsmouth," "WAL 524," "Cape Charles," "Relief," "Overfalls," "Stonehorse," "Cross Rip"

2. Location

street & number London Slip, Elizabeth River not for publication
city, town Portsmouth vicinity
state Virginia code 51 county Portsmouth code 740 zip code

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
<input type="checkbox"/> private	<input type="checkbox"/> building(s)	Contributing	Noncontributing
<input checked="" type="checkbox"/> public-local	<input type="checkbox"/> district	_____	_____ buildings
<input type="checkbox"/> public-State	<input type="checkbox"/> site	_____	_____ sites
<input type="checkbox"/> public-Federal	<input checked="" type="checkbox"/> structure	<u>1</u>	_____ structures
	<input type="checkbox"/> object	_____	_____ objects
		_____	_____ Total

Name of related multiple property listing: _____
Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property meets does not meet the National Register criteria. See continuation sheet.

Signature of certifying official Date

State or Federal agency and bureau

In my opinion, the property meets does not meet the National Register criteria. See continuation sheet.

Signature of commenting or other official Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

entered in the National Register.
 See continuation sheet.

determined eligible for the National Register. See continuation sheet.

determined not eligible for the National Register.

removed from the National Register.

other, (explain:)

Signature of the Keeper Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)
Government Aid-to-Navigation

Current Functions (enter categories from instructions)
Museum

7. Description

Architectural Classification
(enter categories from instructions)N/A

Materials (enter categories from instructions)

foundation N/A
walls N/A

roof N/A
other N/A

Describe present and historic physical appearance.

Lightship No. 101, now known as "Portsmouth" for the city in which she is preserved, served first as "Cape Charles," followed by service as "Relief," "Overfalls," "Stonehorse," and "Cross Rip." No. 101 was built by Pusey and Jones at Wilmington, Delaware, in 1916. She is now a historic museum vessel in a concrete cradle on London Slip on the Elizabeth River waterfront in downtown Portsmouth, Virginia, and an active aid to navigation appearing on the Light List with the Morse flash short, long, long, short. Owned and operated by the City of Portsmouth Museum System, No. 101 is fully restored to her appearance in the early 1920s, well interpreted, and open to the public.

No. 101 as Built and Modified During Her Career

As built in 1916, the lightship designated No. 101 was a steel-hulled vessel 101.1 feet in length with a 25-foot beam and a 11.3-foot draft, and displaced 360 tons. [1] Built to the characteristic lines of a 20th century American lightship, No. 101's double-riveted steel hull was constructed to be strong and seaworthy. As a typical lightship, No. 101 shared many characteristics with her contemporary and later steel sisters:

There is usually a bar keel, big rise of floor, and large tumble home, the outline of midship section being somewhat reminiscent of that of an icebreaker. The sheer is severe, rising rapidly both to the bow and to the stern. The bow is a strong forging and sharply raked, containing the hawse pipe for the mushroom mooring anchor. There is also the hawse pipe for the standby anchor. The stern is of stereotypical single knuckle type and contains the rudder, sternpost of usual construction, and the propelling wheel... The ships generally have two complete decks and a third part deck forward and aft of the machinery space. Side doors in the hull give access to the second deck and tend to follow...characteristic side loading... [2]

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

nationally statewide locally

Applicable National Register Criteria A B C D NHL CRITERIA 1, 4

Criteria Considerations (Exceptions) A B C D E F G

Areas of Significance (enter categories from instructions)

Period of Significance

Significant Dates

Government

1916-1964

1916

Humanitarian

1916-1964

Architecture (Naval)

1916-1964

NHL XIV-B

Cultural Affiliation

Transportation: Ships, Boats,

N/A

Lighthouses & Other Structures

Significant Person

Architect/Builder

N/A

U.S. Lighthouse Establishment/

Dusey & Jones, Wilmington, Delaware

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The 1916 lightship No. 101, now known as "Portsmouth," is one of a small number of preserved historic American lightships. Essential partners with lighthouses as aids to navigation along the coast of the United States, lightships date to 1820 when No. 1 was commissioned to light the entrance to the Elizabeth River leading to Portsmouth, Virginia. Built as one of two vessels from the same plan, No. 101 served on at least five stations in the middle Atlantic states guiding vessels into Chesapeake Bay, Delaware Bay, and within Nantucket Bay. While her lights and fog signal were "modernized" in the early 1930s, these changes reflect modifications to better enable the vessel to carry out her historic function. No. 101 served to guide mariners into three major bays and while regionally based, No. 101 had a profound impact on the nationally-significant Atlantic coast trade and on arriving and departing intercoastal and international vessels.

The preceding statement of significance is based on the more detailed discussion which follows.

9. Major Bibliographical References

SEE FOOTNOTES IN THE TEXT.

Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # _____
- recorded by Historic American Engineering Record # _____

See continuation sheet

Primary location of additional data:

- State historic preservation office
- Other State agency
- Federal agency
- Local government - City of Portsmouth
- University
- Other

Specify repository: _____

10. Geographical Data

Acreage of property Less than one acre

UTM References

A

1	8	4	7	7	3	6	0
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0	3	8	4	3	8	5
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Zone Easting Northing

C

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B

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Zone Easting Northing

D

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See continuation sheet

Verbal Boundary Description

All that area encompassed by the extreme length and beam of the vessel.

See continuation sheet

Boundary Justification

The boundary encompasses the entire area of the vessel as she floats at her berth.

See continuation sheet

11. Form Prepared By

name/title Kevin Foster

organization National Park Service (418) date August 5, 1988

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No. 101 and her sister No. 102 were smaller than most other lightships and have two major recognition features that differ from other U.S. lightships. The hull shape above the waterline shows marked tumblehome and a rounded deck edge known as a turtleback. The mast arrangement on this class is also unique. No. 101 is painted in the colors used on American lightships after the 1930s. Her hull is bright red, with buff colored masts and superstructure, and the name of her station is painted in bold block letters on the hull.

The design of No. 101 reflects improvements made in lightship design by the United States Lighthouse Establishment (USLHE). Among those improvements embodied in No. 101, were the placement of the hawsepipe in the bow to transmit strains directly to the strongest part of the hull, the installation of bilge keels to reduce rolling, a reduced metacentric height to give an easier motion, an increased bow height and sheer to keep the decks drier, and most importantly a shift from wood to metal hulls and unpowered to powered vessels. A more mature version than the first generation "modern" lightships, No. 101, was a drier, roomier vessel with greater ability to stay on station in the roughest seas. [3]

The principal feature of the vessel above decks is the large hollow steel mast amidships that mounted the light. No. 101 was the first lightship built with a single light tower amidships. The pilothouse surrounds the base of the lightmast which allowed interior access to the lantern at its peak. A mizzenmast, rigged for sail, was placed quite far aft so that a steadying sail could be set while on station to give an easier motion. Between the two masts stood the single stack and a 12-inch diameter steam fog whistle.

No. 101 was built with a 380-h.p. compound reciprocating marine steam engine and two tubular coal-fired boilers that drove a single screw. The engineroom was flanked forward by the two coal bunkers, which could be filled through scuttles accessed by side doors in the hull. The lightship also carried fresh water replenished by light tenders for drinking and cooking. Also below deck, and forward of the engineroom was the forecastle, which, in addition to providing crew quarters, housed the lightship's steam anchor windlass and protected it from weather and heavy seas. Manufactured by the Hyde Windlass Co., the

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windlass, which is still in place, has 9 by 9-inch engines and was capable of raising No. 101's 5000-ton mushroom anchor. The anchor cable, a heavy forging weighing 200 lbs. per fathom, had to be capable of being let out more than six times the depth of water to allow the catenary to take up strain on the cable in heavy seas.

Below the weather deck, forward, crew quarters for No. 101's complement of 11 were built. The quarters were built to provide better amenities of life for lightship crews. [4] Officers' quarters were built aft at the stern. The cabins line the hull and open into a central wardroom. Forward of these cabins are the crew quarters, galley, and mess, less ornate but nonetheless meeting the USLHE's claim of being roomy, comfortable, and well ventilated.

In the course of her career as a lightship No. 101 underwent several modifications. One major change involved the lights. In the early 1920s, the vessel was electrified, with the range increasing to 15 miles. In the early 1930s, a 1,000-watt light in 375-mm cut-glass 15,000-candlepower lens (then the standard optic for lightships) was installed atop each mast. The present pilothouse with master's cabin, and a radio shack were added at that time. The last alteration was the installation of steam diaphone whistles behind the funnel in 1935 to replace the original 12-inch whistle.

No. 101's Present Appearance

Since her retirement in 1964 No. 101 has undergone some restoration to return her to her appearance as a vessel of the U.S. Lighthouse Establishment. The vessel is now in excellent condition; the hull is sound and kept well painted; the brass is kept polished and all equipment appears in good order. Years of accumulated paint have been removed from the oak ship's furniture which is varnished as it was at the time of No. 101's launching. The superstructure is intact with all features in place including the 375-mm lenses atop the masts. The two boats on deck amidships are a lifeboat and a clinker-built "whaleboat." These are the types probably carried early in No. 101's career.

No. 101 displays remarkable integrity. All original fittings are in place, including the ship's massive bell mounted on the mast

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above the pilothouse with the legend "USLHE, 1916" on its face. The pilothouse retains the original wheel, telegraphs, and speaking tubes. The most striking feature of the vessel is the massive steam windlass with its elaborate paint scheme, varnished wood and polished brass fittings. The engine can be turned over by hand and is free of rust; smaller equipment appears to be in excellent condition, with little surface rust.

No. 101 is displayed in a concrete basin which has an additional layer of concrete obscuring everything below what is roughly her load waterline. Originally this second layer of concrete held a thin layer of water to give the feeling that the vessel is afloat. Conservation problems led to the elimination of water in the basin and tentative plans to remove the concrete "sea." Once aboard No. 101 the visitor sees a ship much as she looked early in this century.

NOTES

1

Thirty-Eighth Annual List of Merchant Vessels of the United States (Washington, D.C.: Government Printing Office, 1906) and James P. Delgado, ed. Evaluative Inventory of Large Preserved Historic Vessels in the United States (Washington, D.C.: National Park Service, 1987), entry for "Relief."

2

A.C. Hardy, American Ship Types: A Review of the Work, Characteristics, and Construction of Ship Types Peculiar to the Waters of the North American Continent (New York: D. Van Nostrand Co., Inc., 1927), pp. 254-256.

3

Ralph C. Shanks, Jr., and Janetta Thompson Shanks, Lighthouses and Lifeboats of the Redwood Coast (San Anselmo, California: Costano Books, 1978), p. 143.

4

Ibid., p. 139.

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THE DEVELOPMENT OF THE AMERICAN LIGHTSHIP

While the first American lighthouse dates to the colonial era, the use of lightships is a more recent 19th century phenomenon in the United States, though employed earlier in Europe. Moored on treacherous reefs and shoals, or marking the narrow approaches to a channel or harbor entrance where lighthouses could not be built, or placed far offshore where a shoreside lighthouse's beam could not reach, lightships were fewer in number than the thousands of lighthouses. In all, less than 200 lightships were built between 1820 and the 1950s. In 1909, the heyday of the United States Lighthouse Establishment, there were 51 lightships (46 on the eastern seaboard and five on the Pacific Coast) on station in the United States.

The more famous and significant lightship stations included "Ambrose," marking the southern entrance into New York harbor along the New Jersey coast; "Nantucket," marking not only the entrance to Boston harbor but also the American end of the transatlantic route; "Diamond Shoals" off the Outer Banks of North Carolina, which marked a dangerous spot along the coastal ocean highway by way of the Gulf Stream; and "San Francisco" on the bar three miles out from the Golden Gate. The first lightship, No. 1, was a small wooden schooner moored near Craney Island at the mouth of the Elizabeth River leading to Norfolk and Portsmouth, Virginia. From this pioneer, the lightship type developed through the 19th century from sail to steam, from wood through iron to steel hulls, and to more powerful optics. Numbered sequentially as they entered service under the United States Lighthouse Board, later the United States Lighthouse Establishment, lightships like lighthouses remained constant in their location, with new vessels replacing the old. Thus there were more than one "Nantucket," "Ambrose," "Diamond Shoals," and "San Francisco," as well as others, on the various stations through the years. [1]

By the end of the 19th century, hard-learned lessons had resulted in a standardization of lightship form and design. Heavily constructed steel hulls moored with massive mushroom anchors and strongly forged huge cables, built to ride out storms and rough seas, with decks designed to let the water run off, and a dual mast system to always keep a light lit, became the "typical"

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lightship in the United States. Technological advances--the introduction of electrical lighting, welded hulls, and the switch from steam to diesel and then to diesel electric engines--brought modifications to the lightship without necessarily changing the basic form. While older lightships were modified to accept the technological changes, new classes of ships were also built to embody the technology. Thus the first class of lightships built in the 20th century with riveted steel hulls and massive steam engines--numbering in the high 70s through the low 80s--were replaced at some stations by welded steel lightships such as the Pacific Coast's No. 100 with diesel electric propulsion, diaphone air horns, 1,000-watt electric lights in 375-mm lenses, and a reduced tonnage (with the installation of a less heavy diesel electric system) meaning less resistance to the sea and hence less battering. [2]

In 1950, the last class of lightship, built under the auspices of the United States Coast Guard, which had absorbed the U.S. Lighthouse Establishment in 1939, were introduced. While modern, welded hulls with diesel engines, and offering more amenities of life for their crews, these vessels closely resembled in appearance the earlier lightships of the early 20th century and the 1930s, a number of which were still in commission. Technology finally brought an end to manned lightships about the same time manned lighthouses were being automated. Large navigational buoys 40 feet in diameter and 42 feet high, painted lightship red and with automatic lights, fog signals, and radio beacons began to replace lightships in 1967, and by the beginning of the 1980s the last lightship was retired, ending a 150-year maritime tradition in the United States.

CONSTRUCTION AND CAREER OF NO. 101

Lightship No. 101 was built in 1916 by Pusey and Jones of Wilmington, Delaware, along with a sistership No. 102. This new class was not immediately successful. Both sisters needed a number of trips to the yard before they finally became acceptable. On lightship No. 101 this amounted to a complete rebuilding. All of her defects good, No. 101 served off Cape Charles, Virginia, at Smith Island Shoal to mark the entrance to Chesapeake Bay.

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In 1925 No. 101 was transferred to the less exposed station at Overfalls which marked the end of the Delaware Bay breakwater. No. 101 was unusual in that she served at her station in her peacetime colors during all of the Second World War, staying actually on station for a number of years without relief, accumulating a phenomenal amount of marine growth on her bottom. No. 101 stayed at this station until 1951 when she became the "Relief" vessel for the Nantucket station. Her short hull proved unsuitable to this open ocean station and in 1952 she was reassigned to Stonehorse station in a more protected area of Nantucket Bay. No. 101 served on Stonehorse station until 1953 when she served briefly on Crossrip station until her machinery broke down at sea the next year and she was retired on July 18, 1960. Used briefly by the Coast Guard as a museum in Portsmouth, the ship, renamed "Portsmouth" for her duty station, was transferred to the City of Portsmouth, Virginia, and now is open to the public, well interpreted, and maintained in excellent condition.

NOTES

1

George R. Putnam, Lighthouses and Lightships of the United States (New York: The Houghton-Mifflin Co., 1917).

2

A.C. Hardy, American Ship Types: A Review of the Work, Characteristics, and Construction of Ship Types Peculiar to the Waters of the North American Continent (New York: D. Van Nostrand Co., Inc., 1927), pp. 254-257, passim.