NPS Form 10-900
(Rev. Aug. 2002)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places
Registration Form

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NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

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This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Green Bay Harbor Entrance Light

other names/site number

2. Location

street & number Offshore in lower Green Bay, approximately 3.1 miles NW of Point Comfort ☐ not for publication

city or town Scott Township ☒ vicinity

state Wisconsin code WI county Brown code 009 zip code 54301

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, 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. I recommend that this property be considered significant ☐ nationally ☐ statewide ☒ locally. (____ See continuation sheet for additional comments.)

Dwight Mamit, PE, CAPT, USCG 1/16/2007
Signature of certifying official/Title Date

United States Coast Guard
State or Federal Agency or Tribal government

In my opinion, the property ☒ meets ☐ does not meet the National Register criteria. (____ See continuation sheet for additional comments.)

Signature of commenting official/Title , SHPO Date 2/1/07

State Historic Preservation Officer - Wisconsin
State or Federal agency and bureau

4. 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:) _____

for Carol D. Shull
Signature of the Keeper Date of Action 3.28.08

5. Classification

Ownership of Property
(Check as many boxes as apply)

- ☐ private
- ☐ public-local
- ☐ public-State
- ☒ public-Federal

Category of Property
(Check only one box)

- ☐ building(s)
- ☐ district
- ☐ site
- ☒ structure
- ☐ object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
		buildings
		sites
1		structures
		objects
1	0	Total

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

Light Stations of the United States

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions)

Transportation
Water-related

Current Functions
(Enter categories from instructions)

Transportation
Water-related

7. Description

Architectural Classification
(Enter categories from instructions)

No Style

Materials
(Enter categories from instructions)

foundation Reinforced concrete
roof Concrete and metal
walls Steel, concrete
other Lantern: Metal, lexan glazing

Narrative Description
(Describe the historic and current condition of the property on one or more continuation sheets.)

Narrative Description

Summary

Green Bay Harbor Entrance Light is an offshore lighthouse established in 1935 to mark the shipping channel leading to the port of Green Bay, Wisconsin. It stands alone, surrounded by the waters of lower Green Bay, approximately 3.1 miles northwest of Point Comfort in Brown County. This lighthouse is approximately 95 feet tall from the base of its foundation to the top of its lantern. It includes a crib and pier foundation, service building, and light tower with lantern. The pier is approximately 50 feet in diameter, cylindrical, and built of reinforced concrete. A steel, one-story, cylindrical service building approximately 25 feet in diameter sits centered atop the pier. It supports a steel, slightly-tapering, cylindrical light tower that is 10 feet in diameter at the base and stands four stories tall. The tower supports a cylindrical lantern equipped with a fourth order Fresnel lens, along with two emergency lights for use if the main optic fails. A steel skeletal tower is mounted atop the lantern. It was used for a radio antenna that has been discontinued. The lighthouse's service building and tower are painted white; the lantern is painted black. Green Bay Harbor Entrance Light is owned by the U.S. Coast Guard. It is operated as an automated aid to navigation identified as number 22130 in the Great Lakes regional light list. The lantern optic's focal plane is 72 feet above water level. It signals a red light visible for 12 miles in clear weather. An automated fog signal is mounted on the lantern gallery. It sounds a 2-second blast every 15 seconds from April to November. A submarine cable brings electricity to the lighthouse from shore. This property is accessible by boat.

The following description is based on historic research and a field visit in October 2005 conducted by Daniel Hart, architectural historian, and Timothy McGrath, photographer, of engineering-environmental Management, Inc. Background research examined materials such as building plans, U.S. Coast Guard (USCG) maintenance records, and historical documentation gathered from published and unpublished materials in archival collections and government agencies.

Contributing Resource (Lighthouse)

Established in 1935, Green Bay Harbor Entrance Light sits on submerged land in approximately 19 feet of water in lower Green Bay. It is located some 3.1 miles northwest of Point Comfort in Brown County, Wisconsin. This lighthouse marks the western side of the 26-foot deep shipping channel leading to the port of Green Bay, which is situated approximately 10 miles to the south. Navigable waters in the vicinity are traversed by commercial vessels as well as recreational watercraft.

This property consists of one contributing resource, an offshore lighthouse surrounded by water. It has three principal sections, a crib foundation and pier, service building, and light tower. This structure is owned by the U.S. Coast Guard (USCG) and is operated an automated aid to navigation. It is identified as number 22130 in the Great Lakes regional light list. This lighthouse is accessible by boat. Steel ladders attached to the concrete pier's exterior provide for access between water level and the main gallery deck atop the pier. The lighthouse's aid to navigation equipment is powered with electricity brought by a submarine cable. This cable extends approximately 5.8 miles southwest from the light to the western shore of lower Green Bay near the Suamico River.

Exterior

Green Bay Harbor Entrance Light is similar in design and appearance to Peshtigo Reef Light, which was established in 1936 approximately 27 miles north of this property in Green Bay. Both include a cylindrical crib foundation and concrete pier approximately 50 feet in diameter, a steel, one-story cylindrical station building approximately 25-feet in diameter, and a 4-story, slightly tapering, cylindrical tower topped with a lantern.

The lighthouse's foundation includes a circular wooden crib filled with concrete. It supports a circular pier built of reinforced concrete. Riprap placed around the foundation's perimeter protects it from damage by natural forces. The pier rises to approximately 25 feet above water level. Its flat top forms the deck of the lighthouse's main gallery. The pier includes a surrounding band of unpainted steel plates extending from approximately 5 feet below to 5 feet above water level. This provides protection from ice damage. A second band of steel plates approximately 5 feet tall surrounds the pier above the unpainted plates. This band helps support the pier and is bolted in place and painted white. The pier's concrete exterior from there to the main gallery deck is unpainted. Four single-rung steel ladders are attached to the pier's vertical exterior at equal intervals around its perimeter. These provide access from water level to the main gallery deck. The upper part of the pier's exterior is pierced with 8 circular port-light window openings spaced at equal intervals. Presently covered, they formerly lighted rooms in the lighthouse's basement. The lighthouse's basement is inside the pier. Its concrete floor is approximately 10 feet above water level.

The basement's outer rooms are covered with a concrete slab that forms the ceiling and supports the pier's main gallery deck. This deck is approximately 10 feet wide, is covered with steel plates, and surrounds the cylindrical service building. A vertical steel pole stands on the eastern side and there is a large metal vent shaped like an upside-down letter "J" on the northwestern side. A railing surrounds the gallery's perimeter. It is made with three tiers of steel chain supported by steel stanchions. A circular concrete wall approximately 4 feet tall rises from the center of the main gallery. It is approximately 25 feet in diameter and surrounds the basement's central area. This wall is pierced with 8 circular port-light openings spaced at equal intervals. Presently covered, these windows formerly lighted rooms in the basement's central area.

The service building sits atop the circular concrete wall in the center of the pier. It is built of steel plates fastened with bolts and nuts. The service building is approximately 10 feet tall and is painted white. Its roof is flat and made of concrete. The exterior is pierced with 8 rectangular 2-foot wide by 4-foot tall windows spaced around its perimeter. The original fenestration consisted of 4-over-4, double-hung steel sash. Steel shutters now cover the windows. There is one entrance on the southwest side, level with the main gallery deck. Its rectangular steel door is pierced with a circular port-light and is original. The service building contains the lighthouse's first story rooms. The first story's floor is approximately 6 feet above the main gallery deck.

The lighthouse's tower is approximately 30 feet tall and sits centered atop the service building's roof. It is 4 stories tall and is painted white. The tower is built of steel plates fastened with bolts and nuts. Almost cylindrical, it is 10 feet in diameter at its base and tapers slightly towards the top. The tower's fenestration includes three evenly-spaced circular port-lights on its lowest story, which is the lighthouse's second story. A fourth circular opening was formerly occupied by a fog signal resonator horn. The tower's upper room is the lighthouse's fifth story. Its exterior is pierced with four circular port-lights.

The tower is capped with a circular metal platform. The lighthouse's cylindrical lantern is centered atop this platform, surrounded by a 1-foot wide gallery. The lantern gallery's metal railing includes stanchions approximately 3-feet tall that support a 1.5-inch diameter steel pipe handrail. The gallery is pierced on the northwest side with a 1-foot diameter vertical pipe that formerly served as a smokestack. Two modern standby beacons are affixed to the lantern gallery, one on the northeast side and one on the southwest side. They are lighted if the lighthouse's principal optic malfunctions. A modern fog signal sits on the gallery's eastern side. It sounds a 2-second blast every 15 seconds from April to November. The lantern includes a lower parapet wall approximately 3 feet tall that is painted black. It supports the lantern's glazing. The glazed portion includes metal mullions arranged in helical fashion. These hold diamond-shaped and triangle-shaped lexan panes that are colored red. The lantern's metal roof is capped with a vent ball, and is painted black. A steel skeletal tower stands vertically atop the lantern. It was formerly used as a radio antenna.

Interior

The lighthouse's basement is inside the concrete pier. The service building contains the lighthouse's first story. The second through fifth stories are inside the tower. The sixth story is the lantern.

Basement

The basement is surrounded by the pier's circular exterior wall and is partitioned into 10 rooms. The floor, interior partition walls and ceiling are made of concrete. The ceiling is approximately 9 feet above the floor. The basement is accessed by way of a steel stairway inside the entrance on the service building's south side. This stairway leads down to a foyer in the basement's circular central area. The central area is surrounded by an outer ring of 5 utility rooms. In this description, the basement rooms are numbered clockwise beginning with the utility room on the basement's south side (room 1). The other utility rooms are numbered 2, 3, 4 and 5. The central area's rooms are numbered 6 (the foyer), 7, 8, 9 and 10. The floor of the utility rooms is approximately 10 feet above water level. The floor of the central area is approximately 14 feet above water level.

Room 1 is located at the south end of the outer ring of utility rooms. It is accessed from the basement's central area by way of a foyer (room 6). This foyer is at the foot of the steel stairs leading down from the service building's entry. On the eastern side of this stairway, a separate, short flight of 5 stairs leads down to the 3-foot wide doorway providing access to room 1. This room provides access to the other 4 rooms in the basement's outer ring. These 5 rooms were used for storage or to operate machinery. They are positioned between the pier's exterior wall and the partition wall that encircles the basement's central area. All the utility rooms are 10 feet wide, though they vary in length.

Room 1 is approximately 18 feet long, measured along its outer wall. A 16-inch diameter port-light opening pierces this wall. The room is empty. A 6-foot-wide doorway pierces the western-end partition wall and leads to room 2. The eastern-end partition wall is pierced with a 3-foot-wide doorway that leads to room 5.

Room 2 is 42 feet long measured along its outer wall. This wall is pierced with three 16-inch diameter port-lights. There is also a 2-leaf steel sea-door at the base of a short flight of concrete steps. It formerly provided access to the outside and allowed cargo to be transferred directly into the basement from a moored vessel. The sea-door is secured on the inside with a steel bar and is deteriorated. It is no longer operable. The floor of room 2 is pierced with a circular well that extends down into the crib foundation. An electrical box sits on the floor near the room's southeastern corner. A 3-foot wide doorway pierces the room's northern-end partition wall. It leads to room 3.

Room 3 is 27 feet long measured along its outer wall. This wall is pierced with two 16-inch diameter port-lights. The room is empty. Its eastern-end partition wall is pierced with a 3-foot wide doorway that leads to room 4.

Room 4 is 21 feet long measured along its outer wall. This wall is pierced with one 16-inch diameter port-light. The room is empty except for a cylindrical steel tank 7 feet in diameter by 8 feet long. The room's southeastern-end partition wall is solid.

Room 5 is accessed from the eastern end of room 1 through a 3-foot wide doorway. This room is 22 feet long measured along its outer wall, which is pierced with one 16-inch diameter port-light. Room 5 is empty except for two 15,000-galllon steel tanks that are each 7 feet in diameter by 8 feet long. This room's northern-end partition wall is solid and separates it from room 4.

The basement's central area is surrounded by a circular partition wall approximately 23 feet in diameter that supports the steel service building. The concrete ceiling supports the service building's first story floor. The central area is divided into 5 rooms, numbered clockwise beginning with the foyer (room 6) on the southern side. Room 6 connects with the 4 other rooms (numbered 7, 8, 9 and 10). These rooms were used for residential purposes when the lighthouse was staffed by keepers. The floor, ceiling and walls are concrete. The walls are plastered and the floor is covered with 8-inch by 8-inch wooden tiles. There is wood baseboard and molding around the doorways. The doors have been removed.

The foyer (room 6) is situated at the foot of the steel stairway leading down from the entrance on the service building's south side. On the east side of this steel stairway, a separate, short stairway leads down to basement utility room 1. The foyer's northern side 4 doorways providing access to each of the central area's other rooms. Moving clockwise around the foyer, the first doorway on the west leads to room 7. This room is approximately 6 feet long and is equipped with a shower and toiler. Room 7's curved outer wall includes a circular 16-inch diameter window that is presently covered. The next doorway to the right of room 7 leads to room 8. This room includes a closet on its western side and two circular 16-inch diameter windows that are presently covered. The windows are set into 24-inch by 24-inch recesses in the outer wall. The next doorway to the right leads to room 9. This also has two circular 16-inch diameter windows set into 24-inch by 24-inch recesses in the outer wall. These windows are covered. The next room to the right is room 10. It includes a closet and two circular 16-inch diameter windows, both covered, that are set into 24-inch by 24-inch recesses in the outer wall.

First Story

The lighthouse's first story is inside the service building and includes 4 rooms. These are numbered clockwise beginning with room 11, the foyer on the southern side inside the entrance doorway. The floor of rooms 11, 12, 13 and 14 is covered with 8-inch by 8-inch wooden tiles. The ceiling is concrete. The original walls are concrete covered with plaster, and include wooden baseboard and molding around doorways. Non-original partition walls have been added. They cover some of the first story's windows. The foyer (room 11) adjoins the stairwell inside the entry. A flight of steel stairs leads up from the entrance door's interior landing to the first story foyer. The foyer includes a short hallway separated from the stairwell by a steel railing. There are doorways at the eastern and western ends. The western door leads to room 12. This room is on the first story's southwestern side. It includes a closet and one rectangular window covered with a steel shutter. Room 13 is on the first story's northwestern side. It includes two windows that are covered. The doorway at the foyer's eastern end leads to room 14. This room is the largest one on the first story and has been modified with non-original plywood partition walls and ceiling. This forms a rectangular space measuring 8 feet wide by 18 feet long. The non-original walls have covered room 14's original curving outer wall and windows. A vertical steel ladder stands next to the foyer's northern wall. It provides access to the second story through a rectangular opening in the ceiling.

Second Story

The lighthouse's second story is a circular room inside the base of the light tower. It is 10 feet in diameter, and the floor and surrounding wall are concrete. The ceiling is 7 feet above the floor and is made with steel plates. A 2-foot by 2-foot rectangular opening pierces the floor. The metal ladder providing access from the first story extends up through it. The surrounding wall is pierced with four, circular 16-inch diameter openings that face northeast, southeast, southwest, and northwest. Three hold port-lights. The one on the northeast formerly held a fog signal resonator horn. It is presently covered. The ceiling is pierced with a 2-foot by 3-foot rectangular opening. A 2-foot wide steel ship's ladder extends from the floor to this opening, providing access to the third story. The ceiling's northern part is pierced with a 12-inch diameter circular light. A 1-foot diameter metal pipe extends from floor to ceiling on the room's western side.

Third Story

The lighthouse's third story is a circular room in the light tower. It is 9 feet, 2 inches in diameter. The surrounding wall, floor and ceiling are made with steel plates. A 12-inch diameter circular deck light pierces the floor's northern part. The ceiling is 9 feet, 9 inches above the floor. It is pierced with a 12-inch diameter circular light. A 1-foot diameter metal pipe pierces the floor and rises to pierce the ceiling.

The third story room is partitioned with steel plates that extend from floor to ceiling. These form an enclosure with two metal doors. The door on the northern side provides access to the 2-foot by 3-foot opening in the floor for the ship's ladder leading up from the second story. The enclosure's southern door provides access to another ship's ladder that leads up from the third story to the fourth story.

Fourth Story

The fourth story is a circular tower room 8 feet, 6 inches in diameter. Its floor, surrounding wall, and ceiling are made of steel plates. The ceiling is 9 feet, 9 inches above the floor. The floor is pierced with a 12-inch diameter circular deck light and the 2-foot by 3-foot opening for the ladder providing access from the third story. Alongside this opening, a 2-foot wide steel ship's ladder rises to an opening in the ceiling. It provides access to the firth story. A 1-foot diameter metal pipe pierces the floor and rises to pierce the ceiling. The fourth story's surrounding wall is pierced with 4 half-circle-shaped vents on the northeast, southeast, southwest, and northwest sides. They are 6 inches tall by 5 inches wide, and are 7 feet above the floor.

Fifth Story

The fifth story is a circular room inside the light tower. It is 8 feet in diameter. The surrounding wall, floor and ceiling are made with steel plates. The ceiling is 7 feet, 3 inches above the floor. This room is lighted with four 16-inch-diameter port-lights. They face northeast, southeast, southwest and northwest. The floor is pierced with a 2-foot by 3-foot opening for the ladder leading up from the fourth story. This opening is partially-enclosed with vertical steel plates on three sides. The side facing towards west is fitted with a steel door. A double-rung vertical steel ladder extends from the floor to a trapdoor opening in the ceiling. It provides access to the lantern room. A 1-foot diameter metal pipe pierces the floor and rises to pierce the ceiling.

Sixth Story (Lantern)

The lighthouse's sixth story is its lantern. The lantern room is circular and 6 feet in diameter. The floor is made with steel plates and is pierced with a 2-foot by 2-foot trapdoor. This provides for access from the fifth story. The lantern's surrounding parapet wall is 3 feet tall, made of steel plates, and is painted white. It is pierced with a 2.5-foot tall metal door on the southwest side that provides access to the gallery outside. The parapet wall supports the lantern's metal mullions, which are arranged in helical fashion. The glazing consists of triangular and diamond-shaped lexan panes coated with a red film. A steel pipe pedestal affixed to the center of the floor supports a fourth order Fresnel lens that is lighted with a 250-watt lamp. This light flashes 24 hours a day in a continuous cycle of 4 seconds on, followed by 4 seconds off. It is visible for 12 miles in clear weather. The optic's focal plane is 72 feet above water level. The lantern room's metal ceiling is conical and is supported by 8 metal bars arranged in radial fashion. There is a vent opening in the center.

Changes in physical appearance and integrity issues

Green Bay Harbor Entrance Light is very much the same today as when it was established in 1935. Modifications to its structure have been limited. The lighthouse's overall appearance remains essentially the same as when it was built. One change has been the addition of a 5-foot tall band of steel plates around the concrete pier. This was placed above the band of original steel plates that protect the pier near the waterline. This newer band of steel plates is painted white. The original band is unpainted. Another change relates to the windows for the basement and first story. Almost all are covered. In addition, equipment that was formerly on the main gallery deck has been removed. From the time the lighthouse was built until its automation in 1980, a steel crane was mounted on the main gallery deck. It was used for moving supplies and launching and recovering the light station's boat. This crane is no longer present.

Most of the lighthouse's interior structure has not been changed, except for the first story. The original partitioning of the first story has been modified by construction of plywood partition walls and a plywood ceiling. This has reconfigured interior space on the eastern side. The existing large, windowless rectangular room appears to have replaced one that formerly had a curving exterior wall and windows.

There have been several changes relating to the lighthouse's interior equipment. Machinery that was formerly installed included a heating furnace, electrical generators, pumps, compressors for air-powered fog signal equipment, and radio equipment for a distance-finding station and radio beacon. Units originally installed in 1935 were changed out through time for more modern equipment. Much of the equipment present when the light was automated in 1980 became superfluous and was removed. Today, electrical power for the existing aid to navigation equipment is brought from shore by way of a submarine cable. Other changes include the removal of furniture from the keepers' work rooms and living quarters. In addition, the doors for the 4 rooms in the basement living quarters have been removed. Some of the lighthouse's pre-1980 equipment is still present. Three steel tanks remain in the basement's outer ring of utility rooms. Some original furnishings remain in the living quarters. These include cabinets, a toilet, and shower.

The lighthouse's daymark has not been changed. The Green Bay Harbor Entrance Light's service building and tower have been painted white since it was established, while its lantern has been painted black.

The lighthouse's aid to navigation equipment has changed through time. The only remaining original navigation aid is the fourth order Fresnel lens in the lantern. The lantern's original glass glazing has been replaced with lexan that is coated on the inner side with a transparent red film to give a red color to the light signal. Aid to navigation equipment that has been changed includes the fog signal, radiobeacon and distance-finding station. The original fog signal was a diaphragm horn powered by compressed air. Its resonator horn was mounted on the light tower's northeast side next to the second story room. This fog signal was powered by an engine and compressor in the machinery room. These have been removed. The existing fog signal is a modern automated device. The radiobeacon included a radio transmitter in the service building and an antenna tower atop the lantern. It transmitted the letter "K" (dash, dot, dash) in Morse code as its identifier. The radio transmitter has been removed, but the antenna tower remains. The distance-finding station used the fog signal and a radio transmitter in tandem to enable vessels to estimate their distance from the light when it was obscured by fog. It used the time difference between the speeds of a radio signal versus sound. The lighthouse would emit a radio signal and fog horn blast simultaneously, and the time delay between then and when the sound was heard onboard a vessel allowed the distance to the light to be estimated. For example, a time delay of 3 seconds indicated a distance of approximately 0.65 mile. This distance finding system operated until the late 1950s. It became obsolete due to the widespread adoption of shipboard radar. The radiobeacon continued to transmit its "K" signal until 1988, when it was discontinued due to advances in navigational technology such as LORAN and the Global Positioning System (GPS).

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing)

- [X] A. Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B Property is associated with the lives of persons significant in our past.
- [X] C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D Property has yielded, or is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

- [ ] A Owned by a religious institution or used for religious purposes.
- [ ] B Removed from its original location.
- [ ] C A birthplace or a 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
(Enter categories from instructions)

Maritime History
Transportation
Architecture
Engineering

Period of Significance
1935 to 1957

Significant Dates

Significant Person
(Complete if Criterion B is marked above)
N/A

Cultural Affiliation
N/A

Architect / Builder
U.S. Bureau of Lighthouses, Twelfth District, Milwaukee, WI

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

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 record number _____
- [ ] recorded by Historic American Engineering record number _____

Primary location of additional data:

- [ ]
- [ ] Other State agency
- [X] Federal agency
- [ ] Local government
- [ ] University
- [X] Other

Name of repository: Wisconsin Maritime Museum; Wisconsin Historical Society; USCG District 9 Headquarters; USCG Historian's Office

Narrative Statement of Significance

Green Bay Harbor Entrance Light has been an important aid to navigation since 1935 and is significant in the local history of Brown County, Wisconsin. It marks the shipping channel leading to the port of Green Bay, a focal point of Great Lakes maritime commerce. This property's period of historical significance begins in 1935 when it was established, and ends in 1957, the most recent year of its operation 50 years before the present. Green Bay Harbor Entrance Light is eligible for listing in the National Register under Criteria A and C. It is significant in terms of Criterion A for its association with the efforts of the Federal government to provide for safe maritime transport on the Great Lakes. This lighthouse exemplifies how the long-term Federal program for establishing an integrated system of navigational aids throughout the United States was manifested in the Brown County locality. It is also significant under Criterion C because it represents and embodies important aspects of early twentieth century lighthouse architecture and engineering. This property exemplifies design and construction methods used during that time period for building a steel lighthouse superstructure atop a reinforced concrete pier supported by a crib. Green Bay Harbor Entrance Light possesses qualities of original location, setting and design, and also embodies historical integrity in terms of materials, workmanship, feeling and association. The character and appearance of this property remain largely unchanged from when it was first established as an aid to navigation.

This property's nomination to the National Register is submitted as an individual registration associated with the overarching *Light Stations of the United States* multiple property documentation form (MPDF) (Clifford 2002). The following discussion focuses on the nominated property. Information and historic contexts presented and available in the *Light Stations of the United States* MPDF are not repeated here. This submission focuses on additional facts and details linking Green Bay Harbor Entrance Light with the history of its geographic location and that support the significance of this specific property.

Significance under Criteria A and C

This property qualifies under criterion A for its association with events related to Federal government efforts to provide for an integrated system of navigational aids throughout the United States, and for promoting maritime safety on the Great Lakes. Green Bay Harbor Entrance Light has been an important aid to navigation since it was established by the U.S. Bureau of Lighthouses in 1935. It is historically significant because of its contribution to the broad historical patterns of maritime transportation and commerce associated with Brown County and the Great Lakes waters of the state of Wisconsin. Lighthouses such as this have enabled safe passage for thousands of ships and exemplify the Federal government's role in providing for a nationwide system of aids to navigation. This lighthouse's signal light, fog signal and daymark have guided mariners through lower Green Bay and been an important enhancement to navigational safety in and around Brown County for more than 70 years.

Green Bay Harbor Entrance Light also qualifies for National Register listing under criterion C. It embodies and represents distinctive design and engineering characteristics of offshore lighthouses built on crib and pier foundations in the Great Lakes region during the 1930s. It was constructed during the time period when the Federal government engaged in a concerted effort to build permanent offshore lighthouse structures in the Great Lakes region. The harsh winter weather associated with this locality's environmental setting required that a substantial light structure be built. To resolve this problem, the Bureau of Lighthouses adopted a construction program for offshore lighthouses using designs that could withstand the forces of strong waves and inclement weather. This structure's durable, compact and weather-resistant character embodies success of its design, appropriateness to this natural setting, and a high quality of construction. The property's good state of preservation attests to the permanence and durability of 1930s offshore lighthouses throughout the Great Lakes. It stands as a monument to Brown County's maritime and commercial history, and is widely regarded as a landmark in lower Green Bay.

Shipping, Commerce, and the Establishment of Navigational Aids on the Great Lakes

The Great Lakes region includes Lakes Ontario, Erie, Huron, Michigan and Superior, along with their connecting waters and the St. Lawrence River. It is one of the largest concentrations of fresh water on earth. This waterway system has a total shore length of approximately 11,000 statute miles and a total water surface area of about 95,000 square miles. The completion of the Erie Canal in 1825 linked Lake Erie at Buffalo, New York, with the port of New York City via the Hudson River. This marked the beginning of a period of enormous growth in population, maritime traffic and trade in the Great Lakes Region. In 1829, the Welland Canal opened and linked Lake Ontario and Lake Erie. The St. Mary's Falls Ship Canal (the Soo Locks) at Sault Sainte Marie opened in 1855, thus completing one of the last major links in the Great Lakes navigation system. With the opening of the St. Lawrence Seaway in 1959, the industrial and agricultural heartland of North America became accessible to deep-draft oceangoing vessels navigating the Great Lakes. In addition, barge traffic and small watercraft reach the Great Lakes from the Gulf of Mexico via the Mississippi River and the Illinois Waterway, and also from New York City by way of the Hudson River and the New York State Barge Canal System.

Commerce grew rapidly in the Great Lakes region throughout the second half of the nineteenth century and into the twentieth century. The lumber industry accounted for early development and expansion of marine traffic, leading to an increase in aids to navigation. Iron ore production in northern Wisconsin, Michigan's Upper Peninsula and Minnesota, as well as grain from farms and flour from mills in the northwest, furnished cargoes carried aboard southbound vessels. These shipments corresponded with the heavy up-bound movement of coal and manufactured goods from ports in the lower Great Lakes.

By 1910, the amount of goods shipped annually on the Great Lakes increased to 80 million tons. Most of this was bulk cargo such as iron ore and coal. Shipped freight tonnage reached a record of 217 million tons in 1948. The combined movement of lumber, grain, flour, iron ore and coal, together with limestone cargoes from the Lake Michigan area to the centers of steel production, resulted in the greatest bulk freight marine commerce the world has ever seen.

The need for aids to navigation on the Great Lakes increased along with the expansion of shipping and settlement. Seven lighthouses were built in the region between 1818 and 1822, and 32 were completed during the 1830s. From 1841 to 1852, the U.S. Lighthouse Establishment added 33 new lights. Between 1852 and 1860, the total number of aids to navigation increased from 76 to 102. Another construction boom occurred in the 1890s. By the beginning of the twentieth century, the Great Lakes had 334 major-lighted aids, 67 fog signals, and 563 buoys.

Several distinct designs or types of lighthouses emerged during the nineteenth century. Until 1870 or so, the most common design consisted of a wood, stone, or brick keeper's dwelling that exhibited the lighthouse's optic in a lantern on the roof or atop an attached square tower. By the 1870s, taller towers that were connected to a keeper's dwelling by an enclosed passageway became popular. From 1870 to around 1910, lighthouse engineers practiced and perfected the construction of light stations built on isolated islands and on crib structures placed atop submerged reefs and shoals. Another widespread lighthouse type in the Great Lakes is the pierhead light, used for guiding vessels into harbors along the coasts. Such lights differ from East Coast lights that serve the same purpose in that they are constructed on piers that project from shore into the lakes rather than on land. Great Lakes breakwater lights are closely related to pierhead lights. Usually constructed of metal plates, they are generally tower-like structures positioned at the head of a breakwater.

Light vessels also served in the Great Lakes region. During the nineteenth century and early twentieth century, they were a substitute for building expensive lighthouses at offshore sites. However, harsh weather in late autumn often forced lightships to leave their stations before the end of the shipping season. In the spring, light vessels often had to wait in port until larger, stronger vessels broke the ice. This sometimes prevented their return to assigned locations by the beginning of the shipping season. Some dangerous areas were thus left unmarked for a period of time near the start or end of a year's shipping season. To overcome this, lighthouse engineers worked throughout the late 1920s and 1930s to replace all lightships on the Great Lakes with permanent aids to navigation. This contributed a great deal to enhancing maritime safety and commerce.

Historic Context of Green Bay Harbor Entrance Light

The maritime history of the Green Bay region began in the seventeenth century when French explorers, missionaries and traders visited the area and established outposts, missions and settlements along the western shore of Lake Michigan. The first mission on what is now the mainland of Wisconsin was the Mission of St. Francis Xavier. It was established in 1669 on the western shore of lower Green Bay at the mouth of the Oconto River, some 17 miles north of Green Bay Harbor Entrance Light. Washington Island, where Green Bay meets Lake Michigan, became an important center of trade between Native American groups and French colonial groups. After the French cession of Canada to Britain during the 1760s, British colonial groups came to dominate commercial trade in the Green Bay area.

The United States did not establish effective occupation of the Green Bay vicinity until 1814 when Fort Howard was built where the Fox River empties into the southern end of Green Bay. The fort's strategic location led to substantial settlement expansion in the area. This included the founding of the borough of Green Bay in 1838 and the borough of Fort Howard in 1856. These settlements faced one another across the Fox River, and both grew into cities during the late nineteenth century. The entwined character and economy of these communities led to their consolidation in 1895 to form the present-day city of Green Bay.

Long-distance travel and commercial activity in the Green Bay region relied principally on water-borne transportation from early colonial times through the late nineteenth century. It was not until 1855 that the state of Wisconsin constructed a road along Green Bay's western shore connecting commercial centers of the lower bay with the port communities of Marinette and Menominee at the Wisconsin-Michigan border. Vessels navigating Green Bay's waters dominated the transportation of commercial cargoes in the area until around the middle twentieth century. Maritime commerce continues to be important today.

The U.S. Lighthouse Board sent a group to Green Bay in 1865 to assess which types of Federal aids to navigation were needed, and to recommend locations where they should be established. The findings identified three places where lights were most needed. They were Grassy Island at the mouth of the Fox River, Peshtigo Reef in lower Green Bay, and Chambers Island in Door County. In 1866, the U.S. Congress appropriated $25,000 for building light stations at these three places. Chambers Island Light was constructed, but the appropriation was withdrawn in 1867 before the others could be built. In 1872, a pair of range lights was established on Grassy Island. These two lighthouses marked the entry to the Fox River for vessels approaching the port of Green Bay.

The rise in volume of maritime commerce in lower Green Bay during the late nineteenth century led to increased awareness that measures were required for promoting maritime safety. One area of attention was the entry channel leading to the port of Green Bay. This channel traverses waters that become increasingly shallow towards the bay's southern end where the port of Green Bay is located. During its early development as a center of maritime commerce, the port of Green Bay was accessible to most commercial vessels in the Great Lakes region. However, as vessels increased in size through time, shallow water depths at the bay's southern end presented a problematic obstacle to navigation. This led to the dredging of a shipping channel through the shallows of lower Green Bay between the Fox River and the bay's deeper waters during the late nineteenth century. This channel was deepened and extended farther northward through time, reaching its present length by the early 1930s. It was marked with buoys, several of which were lighted.

The U.S. Lighthouse Board was abolished in 1910 and replaced with the Bureau of Lighthouses. The newly-established bureau undertook several measures to improve the facilities and operation of the nation's Lighthouse Service. During the 1920s and 1930s, the Bureau of Lighthouses sought to replace aging light vessels then operating on the Great Lakes with permanent offshore lighthouses, as well as erect offshore lights at important locations where no light vessel had been stationed. This program took advantage of advances in the design and technology of building and operating aids to navigation. It led to a substantial number of new offshore lights being constructed in the Great Lakes region. Two locations selected for building lighthouses were the entry channel leading to Green Bay Harbor and Peshtigo Reef. The same basic design was prepared for use in building both, though some details varied because of differences in the lighthouses' operating character. Green Bay Harbor Entrance Light was designed to be manned by keepers while Peshtigo Reef Light was designed for remotely-controlled semi-automatic operation without resident keepers.

Construction of a permanent lighthouse to mark the entrance to Green Bay Harbor began in 1934. The initial work consisted of building a wooden crib to serve as the structure's foundation. Construction was completed in 1935 and the light station was formally established as an aid to navigation.

When it began operating in 1935, Green Bay Harbor Entrance Light was equipped with four aids to navigation. These included its lantern optic, a fourth order Fresnel lens lighted with a 5,000 candlepower electric lamp. This optic signaled a red light for 4 seconds followed by 2 seconds of darkness. The light station was also equipped with an air-powered diaphragm fog horn that sounded a 2-second blast followed by 18 seconds of silence. The other aids to navigation included a radiobeacon that transmitted the letter "K" (dash, dot, dash) in Morse code, and a distance-finding station that transmitted a combined sound and radio signal during times of reduced visibility. This enabled a radio-equipped vessel within hearing distance to estimate how far it was from the lighthouse. Green Bay Harbor Entrance Light station was manned during the navigation season that extended from April to November. During the winter months when it was unmanned, the lighthouse displayed an automated light that signaled a red flash for one second followed by 9 seconds of darkness.

The light station was equipped with machinery to generate electricity for the light and radio, and compressed air for the fog signal. There was also a submarine telephone cable that provided for communicating with parties onshore. This submarine cable extended southeast from the lighthouse and made landfall on the eastern side of Green Bay. It passed beneath the shipping channel's alignment. This made it potentially vulnerable to channel dredging activity.

In 1939, the Bureau of Lighthouses merged with the U.S. Coast Guard. Green Bay Harbor Entrance Light was subsequently manned by Coast Guard personnel who served 2-week stints on a rotating basis during the shipping season. The light continued to be operated automatically at reduced intensity during the winter months.

Advances in vessel navigation technology led to the distance-finding station being discontinued in the 1950s. It became superfluous with the increased use of shipboard radar on commercial vessels following World War II. The lighthouse was automated in 1980, ending the need for resident keepers. The submarine telephone cable that extended southeast to shore on the east side of Green Bay was subsequently removed. A new cable was laid to bring electrical power to the light. It extends southwest to the bay's western shore near the Suamico River and does not cross the shipping channel's alignment. The lighthouse's radiobeacon was discontinued in 1988, although the steel skeletal antenna tower atop the lantern remains.

Today, the Green Bay Harbor Entrance Light remains standing in its original position. Its character, appearance and setting remain essentially unchanged from the property's 1935 to 1957 period of historical significance. This lighthouse includes three principal components, its crib and concrete pier foundation, station building, and light tower. The changes that have been made include the addition of steel plates around the upper part of the concrete pier for protection and support, replacing the original fog signal with modern automated equipment, and removing interior furnishings associated with the lighthouse's period of manned operation. These limited changes do not detract at all from the property's qualities of original location and setting. This lighthouse continues to embody historical integrity in materials, workmanship, feeling and association. Its good state of structural integrity attests to the lasting value of its design, as well as the high quality of its materials and construction. This property is now operated automatically and requires only periodic visits for maintenance by personnel from the U.S. Coast Guard Aids to Navigation Team (ANT) responsible for the Green Bay area.

Green Bay Harbor Entrance Light has been an operating Federal aid to navigation and local landmark in the lower Green Bay vicinity for more than 70 years. It is significant in the history of Brown County and the port of Green Bay. This property evokes feelings that recall the dedication to duty that characterized United States lighthouse keepers in their work guiding vessels and warning mariners of danger. The lighthouse still fulfills these functions today for both commercial shipping and recreational watercraft. Its lantern optic, fog signal, and daymark continue aiding mariners by marking the channel for vessels navigating to and from the port of Green Bay.

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10. Geographical Data

Acreage of Property Less than one acre

UTM References:	Zone	Easting	Northing
1	16	428642	4944611

Verbal Boundary Description: The boundary of the nominated property is the exterior perimeter of riprap placed to protect the perimeter of the lighthouse's circular foundation. The lighthouse stands alone in the open waters of lower Green Bay.

Boundary Justification: The nominated property is the lighthouse structure that historically has been owned by the U.S. Coast Guard. It consists of the lighthouse's crib and pier foundation, service building, and light tower.

11. Form Prepared By

name / title Daniel Koski-Karell, Ph.D., USCG HQ Environmental Management Division, & Jayne Aaron and Daniel Hart, e^2M Inc

organization United States Coast Guard (COMDT CG-443) date 10 January 2007

street & number 2100 Second Street SW telephone 202.475.5683

city or town Washington State DC zip code 20593

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Map: **USGS map** (7.5 or 15 minute series) indicating the property's location.

Photographs: Representative **black and white photographs** of the property.

Property Owner

name United States Coast Guard

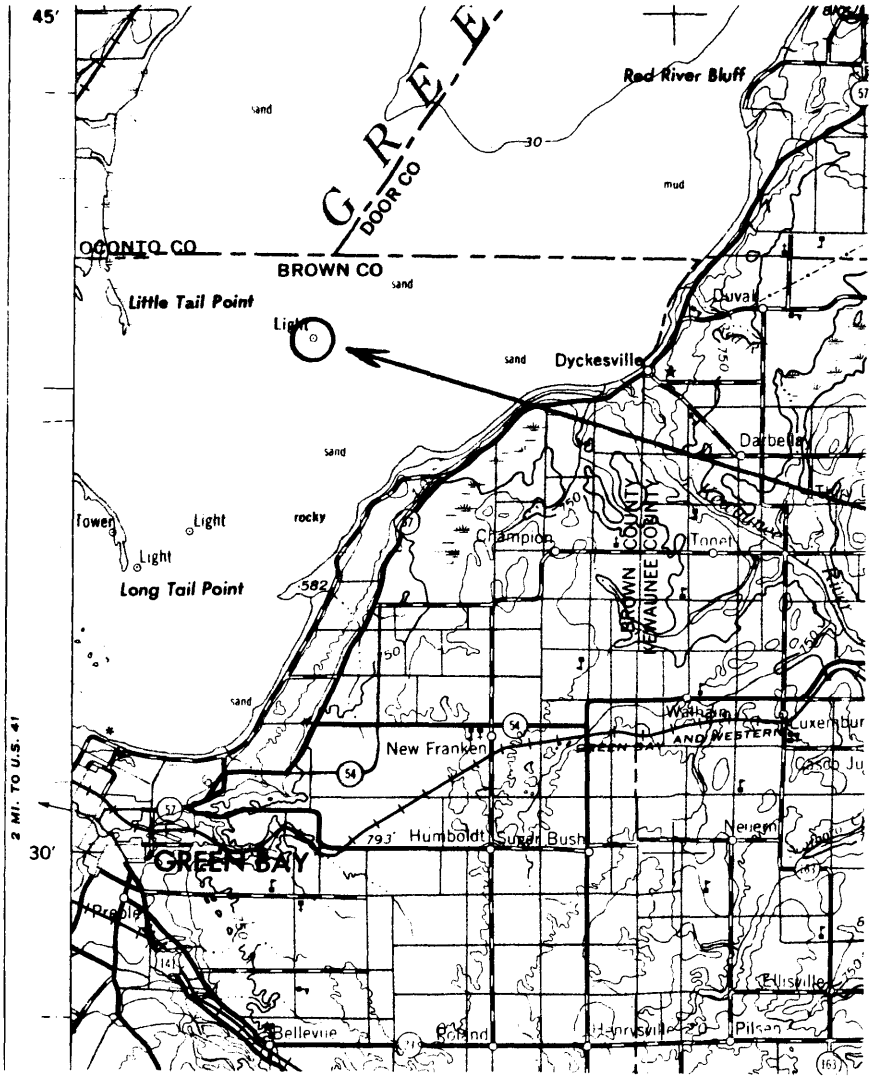
street & number 2100 Second Street SW telephone 202.267.1587

city or town Washington state DC zip code 20593

This is a portion of the "Manitowoc, Wisconsin; Michigan - NL 16-11" topographic map, scale 1:250,000 (United States Geological Survey 1954, limited revision 1967).

0 5
Miles

North



Green Bay Harbor
Entrance Light
Brown County, WI
UTM 16 428642 / 4944611

PHOTOGRAPHS

The following information is common to all the photographs:

Name of property: Green Bay Harbor Entrance Reef Light
County and state: Brown County, Wisconsin
Photographer: Timothy McGrath
Date of photographs: 28 October 2005
Original negatives at: U.S. Coast Guard Historian's Office
U.S. Coast Guard Headquarters, Washington, DC

Photograph Number	Description
1.	Lighthouse northeast façade, looking southwest.
2.	Lighthouse southwest façade and entry, looking northeast.
3.	Lighthouse east façade, looking west.
4.	Basement interior, view of foyer from stairway, looking northeast.
5.	First story interior, view of stairway and entry from foyer, looking east.
7.	Lantern room floor, view of trapdoor and ladder from fifth story, looking west.
8.	Lantern room, view of optic, glazing, parapet wall and floor with trapdoor, looking west.