NPS Form 10-900
(Expires 5/31/2012)
Wisconsin Word Processing Format (Approved 1/92)

OMB No. 10024-0018

United States Department of Interior
National Park Service

National Register of Historic Places Registration Form

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 an 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 *Meteor* (Whaleback Carrier) Additional Documentation and Boundary Decrease
other names/site number *Frank Rockefeller, South Park*

2. Location

street & number 300 Marina Drive N/A **not for publication**
city or town Superior N/A **vicinity**
state Wisconsin **code** WI **county** Douglas **code** 031 **zip code** 54880

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this X 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 X meets _ does not meet the National Register criteria. I recommend that this property be considered significant X nationally _ statewide _ locally. (_ See continuation sheet for additional comments.)

Daina S. Penkuna 4/20/2018
Signature of certifying official/Title Date

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

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

Signature of commenting official/Title Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:
X entered in the National Register.
___ See continuation sheet.
__ determined eligible for the National Register.
___ See continuation sheet.
__ determined not eligible for the National Register.
___ See continuation sheet.
__ removed from the National Register.
__ other, (explain:)

Barbara Wyatt — Signature of the Keeper
4-26-18 — Date of Action

5. Classification

Ownership of Property
(check as many boxes as as apply)
- private
- X public-local
- public-State
- public-Federal

Category of Property
(Check only one box)
- building(s)
- district
- X structure
- site
- object

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

contributing	noncontributing	
		buildings
		sites
		structures
		objects
0	0	total

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

Number of contributing resources previously listed in the National Register
1(NRIS 74000081)

6. Function or Use

Historic Functions
(Enter categories from instructions)
TRANSPORTATION – water-related

Current Functions
(Enter categories from instructions)
RECREATION AND CULTURE - museum

7. Description

Architectural Classification
(Enter categories from instructions)
OTHER – historic ship

Materials
(Enter categories from instructions)
foundation
walls
roof
other steel

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

8. Statement of Significance

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

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
(Enter categories from instructions)

MARITIME HISTORY (A)
TRANSPORTATION (A)
COMMERCE (A)
INDUSTRY (A)
ENGINEERING (C)
INVENTION (C)

Period of Significance

1896-1969 Transportation, Commerce, Industry, Maritime History (A)
1896 Invention and Engineering (C)

Significant Dates

25 April 1896
1896-1927, 1939-1942 1942-1969
1969

Significant Person
(Complete if Criterion B is marked)

N/A

Cultural Affiliation

N/A

Architect/Builder

McDougall, Alexander, Captain (naval architect)
American Steel Barge Company, Superior, WI (builder)

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

9. Major Bibliographic References

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

Previous Documentation on File (National Park Service):
- _ preliminary determination of individual listing (36 CFR 67) has been requested
- X previously listed in the National Register (reference number 74000081)
- _ previously determined eligible by the National Register
- _ designated a National Historic landmark
- _ recorded by Historic American Buildings Survey #
- _ recorded by Historic American Engineering Record #

Primary location of additional data:
- X State Historic Preservation Office
- _ Other State Agency
- _ Federal Agency
- _ Local government
- _ University
- X Other

Name of repository:
Superior Public Museums (Superior, WI)

10. Geographical Data

Acreage of Property less than 1 acre

UTM References (Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing
1	15N	571,602.7	5,174,846.9
2	15N	571,618.8	5,174,834.9
3	15N	571,538.2	5,174,742.8
4	15N	571,523.5	5,174.756

☐ See Continuation Sheet

Verbal Boundary Description (Describe the boundaries of the property on a continuation sheet)

Boundary Justification (Explain why the boundaries were selected on a continuation sheet)

11. Form Prepared By

name/title	Deborah Marx, (Deborah.Marx@noaa.gov), Tamara Thomsen, and C. Roger Pellett				
organization	NOAA Office of National Marine Sanctuaries			**date**	1/9/17
street & number	175 Edward Foster Rd.			**telephone**	781-545-8026 ex 214
city or town	Scituate	**state**	MA	**zip code**	02066

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps A USGS map (7.5 or 15 minute series) indicating the property's location.
A sketch map for historic districts and properties having large acreage or numerous resources.

Photographs Representative black and white photographs of the property.

Additional Items (Check with the SHPO or FPO for any additional items)

Property Owner

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

name/title	Jim Paine, Mayor				
organization	City of Superior, WI			**date**	1/9/17
street & number	1316 N. 14th Street			**telephone**	715-395-7200
city or town	Superior	**state**	WI	**zip code**	54880

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects, (1024-0018), Washington, DC 20503.

Narrative Description

The *Meteor* was listed in the National Register of Historic Places on 9 September 1974 at the state level of significance (NRIS # 74000081). This nomination provides additional description and historic context on the whaleback carrier *Meteor* and provides a rationale for why the property is significant at the national level based upon National Register Criteria A and C. This nomination details new scholarship about this vessel and its designer, and adds two additional areas of significance to more fully reflect the influence and impact this ship had in ship design and trade on the Great Lakes. Further, this nomination provides a more complete exterior and interior description, and corrects the record regarding the boundary of the nominated property. The original nomination from 1974 reflects a boundary of 2.0 acres; the correct boundary calculation is 0.6 acres.

SUMMARY

The steamer *Meteor*, also known historically as *Frank Rockefeller* or *South Park*, is the final surviving, above water, example of a whaleback carrier. The *Meteor* was built by the American Steel Barge Company of Superior, Wisconsin and launched as the *Frank Rockefeller* on 25 April 1896. It has an overall length of 380 feet, a length between perpendiculars of 366.5 feet, a beam of 45 feet and a 26-foot depth of hold. Its tonnage is 2,759 gross and 2,013 net. The *Frank Rockefeller* was one of 17 whaleback steamships constructed in the United States between 1888 and 1898 with another 26 unpowered whaleback barges also launched. Captain Alexander McDougall designed the whaleback ship-type that revolutionized the shipping industry with a hull of minimum dimensions, and minimum draft, but capable of carrying maximum cargo weight. The *Frank Rockefeller* was built as a bulk cargo vessel to transport iron ore from the Mesabi Range in Minnesota to ports around the Great Lakes for McDougall's American Steel Barge Company and later for U.S. Steel's Pittsburgh Steamship Company. In 1925, the steamer was sold, converted to haul sand and gravel and renamed *South Park*. During the 1930s, the *South Park* hauled automobiles on a specifically built flat deck. Lastly in 1943, the steamer was converted to an oil tanker and renamed *Meteor* serving on the Great Lakes until the end of its career in 1969. In 1972, the *Meteor* was gifted to the City of Superior, Wisconsin and moved from its temporary dock at Lakehead Pipeline to a berth on land, also in Superior, on 19 May 1973. Just a few short months later, on 19 August 1973, the City of Superior opened it as a museum and began public tours. Today, the steamer is still owned by the City of Superior, Wisconsin but managed by Superior Public Museums, Inc., a 501 (c)(3) not-for-profit organization. The *Meteor* is seasonally open to the public for tours. During the *Meteor's* 73-year career it was modified to meet changing transportation needs but those changes did not alter the unique form or structural composition of the ship, and the steamship today retains the same structural integrity as it had throughout its long career in the bulk cargo and oil trade. Due to the short time between its retirement and transition to a museum it

retains a high degree of historical integrity and is an exceptional example of a whaleback steamship. The *Meteor* retains its intact steel riveted hull, deck structures, propulsion components, vessel hardware and other associated artifacts.

SETTING

Meteor currently resides on land several feet from Superior Bay, off Lake Superior, on the northern tip of Barker's Island, Superior, Wisconsin. When it was moved there on 19 May 1973 it was pulled into a dredged lagoon, two miles south of the shipyard from which it was launched. Once in the lagoon, *Meteor's* cargo hold was filled with sand and capped with concrete to a height of 10 feet above its keel. This effectively preserved the vessel's lower hull. The lagoon was next filled in creating a landlocked berth for *Meteor*. The deck loading and unloading piping was also removed to facilitate safe visitor access and two 6-foot wide by 8-foot high holes were cut in the outer hull for an entrance and exit. No other substantial changes have been made to *Meteor* since it transitioned to a historic maritime attraction on 19 August 1973. In 2013, the concrete was removed from the forward hold and the interior space was excavated to remove the sand fill to assess the structural integrity of *Meteor*. The hull was in excellent condition with only a small degree of surface rust, and the lower hull retains not only structural, but also historic integrity.

The *Meteor* is owned by the City of Superior and managed by Superior Public Museums, Inc. It is open for public tours from mid-May through mid-October and Superior Public Museums conducts education and outreach programming throughout the year to interpret the *Meteor's* story. Additionally, the museum also features exhibits on Great Lakes shipwrecks and the history of shipbuilding in the Twin Ports of Duluth, Minnesota and Superior, Wisconsin.

PROPERTY DESCRIPTION

Captain Alexander McDougall's whaleback design is unique and unlike any other steamship design utilized in the United States. *Meteor* shares the defining characteristics of a whaleback as discussed below and is representative of one of the last whalebacks built (see Photo 1). Due to its long career, *Meteor* was modified from a bulk ore carrier to a bulk oil carrier. Despite these alterations, *Meteor* retains the identifiable features that make it an iconic example of a whaleback steamer. The longevity of its use on the Great Lakes is a testament to its designer and the shipyard that built it. The following property description includes *Meteor's* defining whaleback features as built and its current configuration. The statement of significance in section 8 will cover all of the various configurations *Meteor* had throughout its operations in greater detail.

Meteor today most closely resembles its final service as a bulk oil tanker dating to the early 1940s (see

Figure 1). During its preparation to become a museum ship much of its machinery and equipment was disabled for safety reasons. Steam cylinder heads and linkages were removed or disengaged on the engines and pumps. Any machinery components that were disassembled are present onboard and could be reinstalled. In 2004, the steamship's engine system was reassembled and operated with the assistance of an electric jacking gear (Pellett 2006:13). The present day condition of the *Meteor* represents the skill of Great Lakes shipbuilders and the ingenuity of Captain Alexander McDougall's design. The adaptive reuse of *Meteor* from bulk cargo to bulk oil to a museum clearly demonstrates the vessel's structural integrity, overall longevity, and flexibility of the whaleback steamer design.

Hull

The *Meteor's* signature feature upon first glance is a hull that continually curves above the water line, such that a cross section at amidships would reveal an oval shape rather than a U-shape of nearly all other vessels. When fully loaded with cargo only the rounded portion of the upper hull was seen above water and resembled the back of a whale, hence the name "whaleback." The bow and stern are almost identical in shape, both conical and truncated to the end in a small disc or spoon shape. The unusual bow shape was designed to reduce the tendency of whalebacks to yaw while towed (see Photo 2). The stern's narrow form in turn diminished the tendency of it to lift with passing waves. The *Meteor*, and all whalebacks, have low freeboard intended to decrease weight. The forecastle deck, found on most vessels, was eliminated, in exchange for a straight sheer (the deckline did not rise as it neared the bow or stern). The overall shape can be compared to a cigar with upturned ends. There is a convex topdeck that permits water to run over it and wash off easily reducing drag while moving. The arched deck resulted in a lighter overall structure reducing weight and construction costs. With the addition of hawse pipes for bow anchors and a guide (fairlead) for a tow cable, the bow resembles a pig snout, resulting in its alternative nickname "pigboat" (Pellett 2008:4).

The *Meteor's* steel riveted 380 foot long by 45-foot wide hull is intact and in excellent condition as previously noted. The burial of the hull in fill has supported it and there is no known active corrosion of structural wastage or loss based on a 2013 detailed assessment of the forward hold. Approximately 10 feet of the lower hull is buried in the ground from its placement on site in 1973, but the rest of its exterior hull is visible down to the floors and keelson. Overall, the outer hull plating is complete and retains the form as built with a flat bottom, round cigar-shaped hull and conical ends. In cross section, the hull shape resembles a capital "D" lying on its side with the flat part representing the bottom hull. The hull was built on the web frame system with the function of carrying bulk cargo. The interior steel framing structure consists of a flat double bottom with a small external keel, two bilge keelsons, web frames every 8 to 12 feet on center and transverse frames 28 feet on center (S.S. *Meteor* Project Historic Structures Report: hull drawing 10). Whaleback design not only focused on the economics of moving things, but also the simplification of construction techniques to reduce cost and eliminate

complex construction techniques. An example of this is, instead of using the typical "Z" shaped sections, made from two angles riveted back to back, to connect interior hull plates, *Meteor* and other whalebacks were built with bulb angle pieces for structural members such as transverse hull frames. This feature, while common in Europe, was infrequently used in the United States. The benefit of the bulb angle pieces was that they provided strength without the cost of needing to rivet two angles together (Pellett 2016:3-4; S.S. *Meteor* Project Historic Structures Report: hull drawing 10). The whaleback's curved deck also meant that there was no need to reinforce the connection between the outer hull and main deck, an area particularly subject to sea forces. To further strengthen the *Meteor's* hull, shipwrights installed continuous arched girders beneath the deck between the hatches in 1910. The arches allowed most of the internal hold beams and stanchions to be removed.

At the *Meteor's* bow there are two navy-style stockless anchors with their chain present. One anchor is in its stored position in the hawse-pipe, the second anchor is embedded in the ground just forward of its bow with its chain running from the anchor through the hawse pipe to the anchor windlass inside the hull. The *Meteor* was launched without hawse-pipes; instead the anchor chain passed directly from the bow turret (deckhouse) and out through a three-holed fairlead at the tip of the bow (still extant). The two outer holes were used for the anchors and the middle used for a tow or mooring line. The addition of traditional hawse-pipes to *Meteor* occurred at an unknown date later in *Meteor's* career possibly to accommodate the anchors currently on the ship. The *Meteor's* anchors are conventional stockless anchors and not the original McDougall patent design. Lastly, at the stern *Meteor's* single propeller is in place and partially buried along with the rudder.

Main Deck and Deckhouses

The *Meteor's* main distinguishing characteristics, besides its hull, are the turret-shaped deckhouses that allowed access to below decks. The main deck is relatively clear besides the deckhouses and structures associated with its last career hauling fuel oil. While some of the piping was removed during the retrofitting to be a museum, the main deck contributes to its structural integrity as a whaleback steamer and represents its importance to the Great Lakes bulk oil trade. The *Meteor* was built with four turrets, one at the bow and three at the stern. The bow turret housed the anchor windlass and companionway to the forecastle while the stern turrets provided a space for the galley, pilothouse and crew quarters along with access to the engine room and exhaust/ventilation shafts. The aftermost turret also had an elevated trunk for the boiler uptakes and engine room skylight (Pellett 2016). Over the course of its long career, the three independent stern turrets were modified by enlarging them and connecting them into one larger stern deckhouse (see Photo 4 and 5). Historic photographs indicate that the stern deckhouse might have been expanded in the 1940s at the same time as it was converted to a fuel oil carrier. Within *Meteor's* aft deckhouses there are three internal decks, the main deck upon which the deckhouse resides, the cabin deck and a slightly elevated wheelhouse deck. This deckhouse still

contains the pilothouse at the top in addition to crew quarters, galley and access to the engine room (see Photo 6, 7, 8, and 9). Two lifeboats sit in davits atop the stern deckhouse on either side of the single smoke stack. There was no interior passageway inside the *Meteor* so crew-members had to cross the open deck while underway and move between the sheltered turret spaces, an often dangerous job in rough seas.

The *Meteor's* main deck is open for the entire length of the vessel except for the area taken up by the forward turret and aft deckhouse (see Photo 3). The deck's center was slightly crowned, but the remaining part of the deck curved down towards the water. A system of pipes and rails were frequently installed on whalebacks to provide a safer way of moving back and forth on deck. When launched *Meteor* was outfitted with 11 steel plate hatches running down the centerline and ten side hatches on the port side with bolts and gaskets to provide a watertight fit. With the whaleback's rounded shape the traditional hatches with wooden covers used at that time would not have been secure enough to prevent water from entering the hold. The *Meteor's* 12 foot 8 inch wide hatch openings were later enlarged in the 1910s to be 20 feet 11 inches wide to allow mechanized loading and unloading equipment. At this time the side hatches were removed. The steel hatches were replaced with wooden hatches set into raised coamings (S.S. *Meteor* Project Historic Structures Report: hull drawing 10; *Marine Review* 23 April 1896). In the 1940s the hatches were changed again when *Meteor* was retrofitted to carry oil. An expansion tank was placed along the deck, covering the original hatch openings. A number of larger round access ports span the length of each side of the main deck as well as additional smaller access ports running down the centerline. *Meteor's* current configuration dated to the 1940s including a railing encircling the main deck. Additional features on the main deck include bitts, booms for handling piping and a pipe rack. A unique feature seen on whalebacks are ventilating bollards at the bow and stern, of which *Meteor* has two dating to its original construction. The bollard's top is removable, allowing cowl ventilators to be fitted to increase air flow below decks.

Cargo Hold and Interior Features

The *Meteor* was constructed to haul bulk iron ore; therefore its entire area below decks was open and devoted to cargo besides the engine and boiler room. It could transport 5,200 tons of dry cargo or 40,000 barrels worth of liquid cargo. Access to the *Meteor's* hold was initially through the hatches until it was converted for liquid cargo, then hatches were covered over and piping installed to pump the oil in and out. As the hatch system was modified, the cargo hold was modified too. After additional support was fitted under the deck in 1910, the hold's beams and stanchions were removed to permit greater access to mechanized loading and unloading equipment. Until *Meteor's* conversion into a tanker in 1943 its cargo hold remained fairly open. With the need to carry liquid cargo, the area was subdivided into sixteen oil-tight compartments through a system of transverse and longitudinal bulkheads. The bulkheads provided enough stability allowing all but one of the arches under the deck

to be removed. That last arch is present today and located directly aft of the forepeak bulkhead (Netzel 2008: hull drawing 10). *Meteor* retains the cargo hold set as modified for carrying fuel oil.

With *Meteor's* interior spaces dedicated to cargo, there was limited room for additional uses. The bow compartment, accessible through the forward turret, contains the chain locker, storage rooms and a buoyancy space. Additionally, in the forward compartment there was machinery for the steam windlass and capstan located on deck along with a small number of crew bunks in the forecastle, which were later removed. The cargo space occupied the entire rest of the hull forward of the machinery and engine spaces were located aft under the smoke stack. The *Meteor* contains all the necessary handling equipment for its liquid cargo. The network is comprised of piping above and below decks as well as a pump room between the ship's bunkers. A fire suppression system capable of dispensing foam is based around the centrifugal fire pump housed in the engine room (Pellett 2006:12).

Engine, Boilers and Other Machinery

A whaleback's engine and boiler space were located aft of the cargo holds and extended vertically through the main deck into the largest turret. The *Meteor* is outfitted with a triple expansion marine steam engine along with two scotch marine boilers. Cleveland Shipbuilding Company built the engine, number 80, and installed it just after its launch in 1896. The engine present in the *Meteor* today is its original 1896 triple expansion engine. It is an open frame design with three steam cylinders measuring 23 inches, 33 inches and 63 inches in diameter with a 40-inch stroke. When in operation *Meteor's* engine generated 1,195 indicated horsepower (Pellett 2006:1-2). The engine is positioned along the centerline aft of the boilers (see Photo 6). The *Meteor's* engine differs from the standard cylinder placement as its high-pressure cylinder is in the center with the low and intermediate pressure cylinders on either side. The low-pressure cylinder was the aftermost cylinder followed by the high, then the intermediate pressure. Typically the cylinders, from aft forward, are the low then intermediate then high. It is unclear why *Meteor's* engine cylinders are in the order they are but this cylinder arrangement was more common on the Great Lakes then on coastal waters. Original schematics for *Meteor's* engine as built in1896 have not been located. The other main engine components original to 1896 include the jet condenser and air pump (Pellett 2006:6).

The *Meteor's* present boiler compliment consists of two 15-foot 8-inch in diameter oil-fired Scotch marine boilers constructed by the American Shipbuilding Company. They were installed in 1916 and originally burned coal, but were converted to oil firing in 1943. Each boiler is of riveted construction and has three furnaces (Pellett 2006:1). The general arrangement drawings for *Meteor* from 1896 indicate it had three coal fired boilers instead of the two currently onboard.

Besides all of the supporting condensers, pumps, gears, valves, and piping associated with the engine

and boiler systems, *Meteor* is also equipped with two electrical generators dating to the 1920s and 1940s and a steering engine also updated from its launch. The 1920s era electrical plant is a Westinghouse two-stage turbine drive generator rated at 25kW at 115 volts. It is located on the upper level of the engine space on the portside outward of the engine. The *Meteor* also has a 20kW Whitin "Victory" reciprocating generator set dating to the late 1940s or early 1950s. Lastly, *Meteor* has five steam-operated winches to handle mooring lines (Pellett 2006:3, 8, 11).

Statement of Significance

The *Meteor* is currently listed in the National Register of Historic Places (NRIS # 74000081), significant in the areas of Transportation, Commerce, Invention and Industry. This nomination expands these areas of significance for the whaleback carrier *Meteor* to included Engineering and Maritime History and elevates the level of significance to the national level. The *Meteor* has exceptional significance representing transformative marine engineering design which influenced the future of all modern cargo carrier design. This design innovation, in turn, facilitated the evolution of shipping in a unique way. The innovative design of these ships impacted the types of cargoes that could be transported and influenced the transportation networks themselves; expanding possibilities, shifting from regional to national impact. The evolution of the shipment of materials supported the expansion of industrial operations, fueling a manufacturing boom and facilitating the industrial growth of the national economy.

The period of significance for Transportation, Commerce, Industry and Maritime History is defined as between 1896-1969, which includes the time from the vessel's launch through its service in the iron ore trade, conversion to an oil tanker, and ends with its discontinuation in the petroleum trade before its lay up and conversion to a museum ship. The following discussion includes the vessel's participation in bulk cargo and oil industries, its integral role in the relationship between vessel owner, industry and commerce, and contributions to transporting commodities to market on a national scale, defining its place in national maritime history.

For Invention and Engineering areas of significance, the period of significance is limited to 1896 to include the construction of the ship by the American Steel Barge Company, and the incorporation of many of the marine engineering innovations of the shipyard's owner, Master Builder Alexander McDougall. The period concludes with the vessel's launch and entry into service.

Described through the lens of attributes defining shipwrecks eligible for listing, in the Multiple Property Document *Great Lakes Shipwrecks of Wisconsin* (Cooper and Kreisa 1992) the importance of the whaleback as associated within the historical context of Wisconsin's early industries, specifically the mining industry is defined, stating that Captain Alexander McDougall's, "cigar-shaped vessels were designed to carry bulk cargos such as ore, coal or oil. Cargo was stored below the waterline, while the wheeldeck and crews quarters were above." Further stating, that the whaleback design was "one of the more innovative creations associated with the iron ore mining industry" and the *Meteor* is deemed the last whaleback in existence (Cooper and Kreisa 1992).

The significance of the whaleback carrier *Meteor* was recognized and cataloged in the early1970s and the ship was subsequently listed in the National Register of Historic Places in 1974 at the State level. Since that time, additional information has been gathered through the 2008 *S.S. Meteor Project Historic Structures Report* (Netzel) and through other scholarly pieces such as *The Machinery of the Steamship Meteor Report* (Pellet 2006) and *A History of the Whaleback Steamship Meteor* (Pellet 2016), as well as others, written for Superior Public Museums, Inc. that deliver a more focused picture of the importance of this resource within the national scope of transportation networks of bulk cargos. Additionally, the *Meteor* exemplifies a marine engineering design innovation that was the forerunner of all modern cargo carriers. This significance is national in scope, greater than the Great Lakes region, the state or local influence, as its design was duplicated 44 times over by the American Steel Barge Company in barges and steamers, and used as a baseline from which other shipbuilders would expand upon throughout the world.

SUMMARY

The *Meteor* is nominated under Criteria A and C and is the final surviving above water example of a whaleback steamship. The *Meteor* is significant at the national level in the areas of Maritime History, Transportation, Commerce, Industry, Invention and Engineering. The vessel is connected to the iron ore trade and is a representative example of a whaleback steamer, a pioneering design used throughout the Great Lakes between 1888 and 1969, makes it a unique and an important example of American entrepreneurship and industrial growth during the turn of the twentieth century.

The steel hulled whaleback steamer *Meteor* was designed and built by Alexander McDougall in 1896 as part of his fleet of 43 whaleback steamships and barges (consorts), a new and experimental vessel design intended for the Great Lakes bulk cargo trade constructed between 1888 and 1898. McDougall's whalebacks revolutionized the shipping industry and brought about much advancement in ship design and cargo handling and transport. The *Meteor*, launched as *Frank Rockefeller* and also historically known as *South Park*, participated in the iron ore trade for the majority of its career moving bulk ore from mines to processing plants between 1896 and 1943. The *Meteor* carried other bulk cargos during that period, such as coal, grain, and sand, but it was iron ore transportation that drove its construction and service until its conversion to a fuel oil tanker in 1943. The iron ore industry, centered on the ore fields and refineries along the Great Lakes shores, produced tremendous wealth for the United States in turn making it a world power and fueling the development of cities, railroads, military assets, ships, and much of the infrastructure needed throughout the nation during the Industrial Revolution. The *Meteor* played a role as one in a larger fleet of whalebacks and other bulk carriers that were an indispensable part of an overall system for moving raw materials, the building blocks for the formation of some of the largest industrial corporations. The whaleback proved to be a

durable and viable vessel design able to adapt to changing markets as *Meteor* was modified over its 73 year career from a "dry" bulk commodity carrier to a tanker. It continued to move petroleum products until 1969 when it was retired from service. *Meteor* was eventually gifted to the City of Superior, Wisconsin in 1972 and opened as a museum in August 1973.

Criterion A, in the area of Maritime History and Commerce

The *Meteor* qualifies for listing under National Register of Historic Places Criterion A and is nationally significant in the area of Maritime History and Commerce based upon the vessel's association with the iron ore trade. The *Meteor* belongs to a distinct class of whaleback steamships and barges designed in America that facilitated the transportation of iron ore and other commodities between Great Lakes ports and beyond. The unusual and unique whaleback designed was a new way of thinking about naval architecture that caused shipbuilders to rethink the characteristics needed for an economical and profitable bulk freighter at the turn of the twentieth century. The whaleback design, along with McDougall's use of a substantial number of unpowered consort barges, proved to be an efficient way of moving materials. *Meteor* represents the confluence of a number of design features and advancements that had to be embraced in order to build and operate the whaleback profitably. This shift in technology was connected to the development of the steel industry. The whaleback design evolution was intimately tied back to the steel needed for ship construction to the iron ore they carried to processing plants and smelted into iron and steel for use all over the nation. While *Meteor* was part of a fleet of whalebacks, its long and successful career demonstrated the usefulness and longevity of McDougall's design and future use of steel as the main shipbuilding material of choice. The period of significance is 1896-1969.

Criterion A, in the area of Transportation and Industry

The *Meteor* qualifies for listing under National Register of Historic Places Criterion A and is nationally significant in the area of Transportation and Industry based upon the vessel's association with the Great Lakes maritime network. The *Meteor* and the fleet of whalebacks served as an important commercial industry link hauling bulk cargoes between raw material concentrations and industrial centers in the Midwest. The Great Lakes' water highway allowed for the tremendously efficient movement of goods and materials. The overall improvement of shipping channels, locks, and loading/offloading equipment that also occurred during the whalebacks' reign, during the beginning of the twentieth century, was tied directly to the need to constantly improve the transportation avenues for profitability. Transportation limitations were solved by inventive designers and the whaleback was an engineering innovation with such a result. The *Meteor*, as an example of whaleback vessel design, represents standardization and efficiency of construction, with cargo moving capability. The *Meteor*

was a new and novel approach to maritime shipping, and played a vital role in the flow of commerce that brought America to industrial prominence in the twentieth century. The *Meteor*, as part of the whaleback fleet, played an important role in the maritime history of the Great Lakes region for both its transportation of commodities and as a forerunner of the modern Great Lakes cargo freighter. The period of significance is 1896-1969.

Criterion C, in the area of Engineering and Invention

The *Meteor* qualifies for listing under National Register of Historic Places Criterion C and is nationally significant in the area of Engineering and Invention for its innovative design and construction as a whaleback steamer, a unique and iconic example of Great Lakes watercraft and the work of a master shipbuilder, Alexander McDougall. The whaleback design, with a round-cigar shaped hull, upturned bow, and turrets instead of deckhouses, was a true departure from the standard Great Lakes bulk freighter at the end of the nineteenth century. All of the whalebacks followed the same pattern built on a web frame system with a long, open cargo hold with the engine room aft, making the most of unobstructed room below decks for bulk cargo. Whaleback design is an early example of integrated design, where distinctly different features are brought together resulting in a successful vessel produced for a specific role. The whaleback, while built at first for the iron ore trade, demonstrated it could carry a variety of bulk commodities, exemplified by *Meteor's* diverse career. *Meteor* retains the whalebacks' distinctive defining characteristics and embodies McDougall's whaleback design, one that proved to be successful and have longevity far longer than expected. The *Meteor* was one of 17 whaleback steamships constructed in the United States between 1888 and 1898 with another 26 unpowered whaleback barges also launched. The *Meteor* is the last whaleback remaining above water, and represents the pioneering design used throughout the Great Lakes between 1888 and 1969. While *Meteor* retains the whaleback features as constructed, including its original engine, it is also significant for the way it was adapted throughout its career to meet the needs of a changing market, from iron ore, coal and grain to liquid petroleum products. Its changing use over time can be seen in modifications to its cargo hold as well as on deck as the aft turrets were modified into a more traditional style of deckhouse. These small changes do not detract from vessel's eligibility under Criterion C, but reflect adaptive reuse, a common maritime practice that creates vernacular watercraft. The period of significance is 1896, the date of its construction.

There are four other whalebacks surviving today in the form of shipwrecks all located in the Great Lakes (two barges and two steamers), including the National Register listed steamship *Thomas Wilson* (listed in Minnesota, National Register number 92000844). All four vessels retain archaeological integrity, but suffered sinking damage and the looting of artifacts.

HISTORICAL SIGNIFICANCE

American Steel Barge Company of Superior, Wisconsin launched *Meteor*, as *Frank Rockefeller*, (hull number 136) on 25 April 1896 for service in the Great Lakes bulk cargo trade. Its design was that of a whaleback steamer, a unique style associated mostly with Great Lakes shipping and entrepreneur Captain Alexander McDougall. The *Meteor's* construction was connected with the final group of whaleback steamships built in response to the increasing demand for iron ore (Pellett 2016:134). The *Meteor* had an exceptionally long career and sailed until 1969, outlasting all the other 42 whaleback steamships and barges built in the United States. It is the last of its kind above water and now resides as a museum ship in Superior, Wisconsin. The confluence of several factors at the end of the nineteenth century resulted in McDougall's whaleback becoming a reality. Historian C. Roger Pellett believes four historic influences came together to facilitate the whaleback's birth: 1) the development of the Great Lakes bulk cargo trade, 2) the maturing technology to build iron and steel powered ships, 3) the availability of entrepreneurs for capital and 4) the lack of regulation (Pellett 2016:7).

The Great Lakes region's geographic position and vast transportation network makes it an important component to the United States' overall maritime history and the whaleback steamer is a unique and iconic example of the area's vernacular watercraft. The region includes portions of Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin as well as the Canadian province of Ontario. The whaleback *Meteor* and other whalebacks' used on the Great Lakes and beyond are significant to this nation's shipbuilding heritage and maritime trade network.

The Great Lakes have always been an important shipping corridor for the United States, supplying commodities such as sand, limestone, iron ore, grain, coal or salt. The limited shipping season put even more pressure on vessel owners to maximize their loads and push the limits of what naval engineers could design and what canals, locks and rivers could accommodate. In 1678, French explorer René-Robert Chevalier Sieur de La Salle and missionary Father Louis Hennepin built the first vessel on the Great Lakes, a 10-ton vessel of unknown design. The following year, La Salle constructed the 60-ton barque *Le Griffon*. The first American built vessel on the Great Lakes was the schooner *Washington* launched near Erie, Penn. in 1797. By the early 1800s sailing ships and small (paddle wheel and screw) steamers plied the inland waters engaged in the fur and lumber trade along with transporting passengers and mixed cargoes of general supplies. As the grain and iron ore market increased in importance during the 1850s, Great Lakes ship design and construction became more specialized to maximize the amount of cargo carried. This was combined with the railroads reaching all of the major cities in the Midwest such as Detroit and Chicago.

The development of the Great Lakes bulk freighter traces its birth to the *R.J. Hackett*, built in 1869 in Cleveland, Ohio. This vessel represents the first of a new design specifically constructed for service in the iron ore trade. The 208-foot long wooden-hulled propeller driven steamship *R.J. Hackett* differed from conventional steamships in that its pilothouse was all the way forward while its engine and crew cabins were aft. This allowed the center space to be completely available for cargo. The open unrestricted cargo holds also permitted easier and quicker loading and unloading. By moving the pilothouse to the bow, the captain could have better visibility over what was ahead allowing him to react more quickly if there was a problem. The narrow channels and changing shoals combined with longer hulls put the captain at a disadvantage steering from the traditional place at the stern (Devendorf 1995:7; Bowlus 2010:109).

This style of vessel is synonymous with the Great Lakes and is still constructed and used today. Prior to the development of the freighters like *R.J. Hackett*, bulk cargo was shipped on sailing craft, but by 1880 they had been replaced by engine driven freighters that did not rely on the weather, making them more dependable. The freighters could also haul more cargo making them an ideal choice for the economics of scale. The schooners still around at the time of the shipping industry's conversion from sail to steam were cut down and converted into schooner barges and then towed between ports. Between 1869 and 1879, 39 bulk carriers were built, most of them before 1875 with wooden hulled schooners still the predominate vessel type (Devendorf 1995:8).

A year after the *R.J. Hackett*'s launch, its designer, Elihu M. Peck, launched the barge *Forest City* of almost the same dimensions as the *R.J. Hackett*. The barge was built to be towed in consort by the *R.J. Hackett*, doubling the amount of cargo moved at once. "This consort system revolutionized the movement of bulk cargo by increasing the volume that could be transported and the consistency with which it was delivered. It was an important transition in lake bulk delivery and represented the culmination of wooden cargo carrier design" (Bowlus 2010:110). It was not feasible at the time to simply build larger wooden steamships since longer vessels meant more draft and the canals and locks could not accommodate deeper drafts. The most practical way to increase cargo capacity was to tow one or more barges. These were either older cut down schooners or purpose-built barges. The consort system would be intertwined with the history of the whaleback later in the century since McDougall built self-powered whaleback steamships, as well as unpowered whaleback barges.

Naval architects continued to advance ship design in the Great Lakes and as vessels got larger they exceeded the structural limits of what a wooden hull could handle. The iron-hulled steamship emerged on scene as the preferred ship type. The first iron steamship built on the Great Lakes was the *Merchant* launched in 1861 in Buffalo, New York and the first iron freighter specifically built for the iron ore trade was the 287 foot long *Onoko* launched in 1881 in Cleveland, Ohio. While there was a period of

transition from wooden to metal hulls, of the 165 bulk carriers built during the 1880s, 143 were wood or composite and the remaining 22 were iron or steel. The use of composite hulls as well as diagonal metal strapping increased the strength and longevity of wooden hulls allowing them to continue to be a viable option for bulk cargo shipping on the Great Lakes. These techniques pushed the limits and permitted shipbuilders to launch wooden hulls longer than 300 feet (Devendorf 1995:8-9).

The first steel-hulled Great Lakes vessel was the bulk carrier *Spokane* launched in 1886. Steel was more durable than wood, easier to work with and more cost effective than iron (Devendorf 1995:9). Iron was also thought to be brittle, an important concern as larger bulk carriers needed to flex transversely and longitudinally to withstand the stresses of Great Lakes storms. By 1890 steel was commercially available and shipbuilders were regularly launching steel-hulled ships. The advances in ship hull design and construction coincided with engine and boiler improvements, allowing great efficiency in vessel operations. Simple single steam engines evolved into compound engines and eventually triple expansion engines run by high pressure Scotch marine boilers making the riveted iron or steel-hulled propeller driven vessel the standard on the Great Lakes until the late 1930s.

Cargo handling equipment followed suit with continued advancements. Shoreside facilities and bulk freighters continued down the evolutionary path together relying on each other for compatibility for maximum gain with the economics of scale in mind. By the 1880s, bulk cargo freighter hatches had been standardized at eight feet, fore and aft, thirty feet athwartships, on twenty-four foot centers. These dimensions matched the dock's loading chutes and unloading conveyors ensuring compatibility and streamlining. While loading vessels by use of gravity chutes changed little, unloading techniques evolved with larger steam-powered hoists. The docks were frequently tied into railroad lines making the transportation network far-reaching. The bulk cargo freighter combined with the railroads increased accessibility of Great Lakes ports to the entire United States and contributed to the rapidly expanding wealth and development across the nation. Transportation limitations were overcome by innovative thinkers and those willing to embrace new technology spurring on a more organized and coordinated system. A synergistic relationship was crucial between dock facilities and ship designers/builders/operators to overcome obstacles and develop a system beneficial to all parties.

Pivotal to the Great Lakes maritime history is the iron ore industry and its impact on both the maritime trades and the Industrial Revolution. Historian W. Bruce Bowlus concluded that,

> …the demand for iron ore promoted many of the changes to [Great] Lakes vessels, waterways, and dockside equipment, with much of the transformation occurring in the last two decades of the 19th century…. By the late 1890s…revolutionary changes in ship

> propulsion, construction, and design resulted in the creation of the standardized Lake bulk freighter…. In fact, I argue, without the remarkable discoveries, innovations, and improvements occurring on the [Great] Lakes at that time, it is questionable whether the United States would have been able to achieve a position of economic leadership in the 20th century (Bowlus 2010:8).

Iron ore's value in the late-nineteenth century eventually resulted from the ability to efficiently mass process it into steel. The method, called the Bessemer Process, was invented by Henry Bessemer in the 1850s. During the turn of the twentieth century the Bessemer process was replaced by the open-hearth method that used higher heat to produce larger amounts of steel at a lower cost. Iron is a mixture of carbon and other impurities such as sulfur and phosphorus making it difficult to shape, while steel is a version of iron with the impurities removed making it stronger with a high tensile strength. One of the chief iron ore deposits in the United States is in Minnesota's Mesabi Range on the shores of Lake Superior. Additional deposits, the Marquette Range on Lake Superior and the Menominee Range near Lake Michigan as well as smaller ones in Michigan and Wisconsin were located. Even before steel became a viable option, iron ore was essential for the production of pig iron which was in turn manufactured by mills into railroad parts, locomotives, armaments, ship hull plating, marine engines and boilers to name just a few items. The Great Lakes' mines supplied much of the raw material sustaining the Great Lakes manufacturing region, and helped make the United States the world's leading producer of iron ore. In the late nineteenth century, more than 80 percent of the iron ore extracted in the country traveled across the Great Lakes on its way to ironworks in industrial centers like Pittsburgh, Pennsylvania and Chicago, Illinois.

Transportation by water was the easiest way to move this iron ore from mine to processing plants around the lakes. To deal with the problems moving between and out of the lakes, a complex system of canals and locks were built. Eventually, all of the Great Lakes were connected (via the St. Mary's Falls Canal, St. Clair River, Detroit River, Soo Locks and Welland Canal) along with passage to the Mississippi (via the Illinois Waterway), Hudson River (via the Erie Canal) and Atlantic Ocean (via the St. Lawrence Seaway). Known now as the Great Lakes Waterway, the system of natural and manmade canals enabled ships to navigate freely, but their dimensions were limited by the canal or lock measurements.

While not in as high a demand as iron ore, Great Lakes bulk freighters also shipped other commodities. Grain (wheat, corn and oats) was another important product along with lumber and bituminous coal. Increased demand for these items resulted in greater traffic on the Great Lakes'

waters and the bulk freighters were in high demand. Vessels plying the inland water carried three main types of cargoes consisting of passengers, package freight and bulk materials. While Captain Alexander McDougall would eventually build vessels suitable for both passenger and freight travel, he was most interested in the bulk cargo trade and that is where the whaleback design was initially employed. The whaleback was most associated with the movement of iron ore but it took some time for that trade to fully mature (Pellett 2016:8).

The United States economy was booming as a result of manufacturing and demand centered on increasing shipping speed and volume. By the 1880s, the advancements in the iron and steel industry allowed ship and engine builders around the Great Lakes the ability to launch more efficient, stronger, safer, and easier to maintain vessels. The use of metal hulls permitted naval architects and shipyards the ability to experiment with new concepts such as Captain Alexander McDougall's whaleback design.

> Changes to the Great Lakes maritime industry in the 1880s were critical in the emergence of the United States as a major industrial power in the decades that followed….if the 1880s was an innovative decade of change, the decade following appeared to be the culmination of all those changes. Ships grew larger, companies stepped up consolidation efforts, and ore unloaders of undreamed proportions appeared…all phases of the iron and steel industry continued to attract eager entrepreneurs seeking new ways to gain a share of the wealth generated by its remarkable growth. Alexander McDougall, a shipbuilder and captain from Duluth, was such an individual (Bowlus 1946:153, 155).

CAPTAIN ALEXANDER MCDOUGALL'S WHALEBACKS

The bulk transport of materials on the Great Lakes was dominated by the use of sailing canallers, barges, and freighters during the nineteenth century, but the open decks and poorly sealed holds caused cargoes to get wet and damaged during the frequent storms on the Great Lakes. Entrepreneur and inventor Captain Alexander McDougall thought that he could revolutionize ship design after his experience as a Great Lakes seaman and shipmaster. He was born in Scotland in 1845 and immigrated to Canada in 1854 near Lake Huron. In 1861, he left home and signed on as a deckhand on the Great Lakes steamer *Edith*. For the next 19 years McDougall continued on the water as a porter, second mate, mate, pilot and eventually captain. By 1881, he settled in Duluth, Minnesota focusing on marine insurance, stevedoring and the cargo business. During that time, "... the Great Lakes shipping industry

was entering a period of explosive growth, and times were right for the introduction of newly designed ships" (Pellett 2016:7). The Great Lakes shipbuilders already had a history of designing vessels specifically suited to the needs of the inland waters due to locks and canals, so it was not strange for McDougall to conceive his whaleback idea (Pellett 2016:5-7).

McDougall felt he could improve on the system of hauling bulk freight by designing a style of unpowered barge and steamship that was seaworthy and cheap to build on a large scale near his hometown of Duluth. McDougall envisioned a more efficient way to move iron ore from western Lake Superior by using a vessel with a cylindrical hull, completely covered in by a steel roof and tapered at both ends, known as a whaleback. The name whaleback comes from the vessel's rounded deck that resembled a whale. McDougall's design rode low in the water, minimizing resistance from wind and waves. A whaleback was built with a hull of minimum dimensions, with minimum draft and capable of carrying maximum cargo weight. McDougall's passion was fueled by the fact that he was unrestrained by traditional engineering and fearlessly independent (Bowlus 1946:155).

One of the key reasons why McDougall was able to follow through and make his whaleback design come to fruition was the availability of entrepreneurs willing to provide capital to the project. One such investor in the whaleback was John D. Rockefeller. This business climate also provided the means for McDougall to move forward with his design and construct his vessels with little oversight from regulators. There was minimal oversight in the shipbuilding and transportation business to ensure standards of design, stability, including load line, and operational safety. The only real regulations were focused on the boilers during the 1880s under the Steamboat Inspection Service while additional rules for building iron ships issued by insurance underwriters like Lloyds of London. "The absence of professionally trained engineers and formalized design requirements allowed untrained individuals [like McDougall] influence over the design of ships that would be unheard of today" (Pellett 2016:14).

On 23 June 1888, McDougall launched his first, and smallest whaleback, the barge *101* (dubbed "McDougall's Dream"), from Rice's Point or Railroad Street shipyard in Duluth, Minnesota. It measured 191 feet long by 21 feet wide with a cargo capacity of 1,200 tons and was the first all-steel vessel built in Duluth, Minn. It was fabricated out of steel plates and ribs riveted together which gave it tremendous strength and durability. Its conical bow and stern were prefabricated at the Pusey and Jones Shipbuilding Company in Delaware and shipped to the Great Lakes for installation since there was little infrastructure in Minnesota to support his endeavor. He personally financed the first whaleback along with shares also owned by several of his friends. Its maiden voyage carried pig iron under tow from the Minnesota ranges to Cleveland, Ohio (Agranat and Foster 1991:section 8 pp. 2-3; Lydecker 1973:6; Zoss 2007:19).

Following the success of barge *101*, McDougall received financial backing from several businessmen including John D. Rockefeller, Colgate Hoyt, James B. Colgate and John B. Trevor. They would be the venture capitalists that McDougall needed to move forward and form the American Steel Barge Company in January 1889. In 1889 and 1890, McDougall launched four more barges from his Duluth shipyard, barge *102*, *103*, *104* and *105*, based on the design of his first barge, but all were larger at 260 feet in length. These four barges were prototypes for the rest of his whalebacks. Small changes were made from barge *101* such as adding a double bottom to help with ballasting, changing the conical bow to a spoon shaped one and changing the original conical stern to a longer, tapered one with a molded deadwood and heavy sternpost. Even though the barges were unpowered they did have a steam boiler to run machinery, pumps, capstans and windlasses. Later on, the barges would also have steam-assisted steering gears (Pellett 2016:40-42, 46).

McDougall firmly believed that the whaleback would be the best way to move iron ore from the western part of Lake Superior and he continued to expand his fleet with the construction of his first whaleback steamship, the *Colgate Hoyt*. The 284-foot long steamship slid down the ways on 9 June 1890 and was the first of 17 whaleback steamships McDougall built in the United States over the next 8 years. *Colgate Hoyt* was modeled after barge *102* with the addition of a compound steam engine, two Scotch boilers, a propeller aperture and redesigned rudder. It made 14 knots, quicker than the conventional steamers on the Great Lakes and burned 40 percent less coal. Additionally, the *Colgate Hoyt* cost one third the price of building a conventional steamship of the same size and also carried more tonnage per displacement ton than a conventional Great Lakes steamer. The *Colgate Hoyt* appeared to be another success and the skeptics were now concerned about their new competition (Agranat and Foster 1991:section 8 pp. 3; Lydecker 1973:6; Zoss 2007:60).

The overall characteristics of a whaleback included:

- a spoon-shaped cut away bow to reduce yawing when towed; upturned bow also good for icebreaking
- low freeboard with straight sheer to minimize weight with the forecastle deck eliminated (deckline does not rise at the bow or stern)
- arch-shaped deck to protect cargo and shed water, reduce weight and construction cost
- tapered, narrow stern to reduce pitching when passing over waves
- curved hull sides to help with self-trimming during loading
- flat bottom for increased stability
- high integrity deck hatches comprised of bolted steel hatches sealed with gaskets
- turrets replaced traditional deck houses, located on top of the hull at its bow and stern
- pilothouse positioned at the stern for visibility

- patent anchors, skylights, towing/anchoring fairleads and ventilating bitts
- standardized design to maximize duplicate parts with easy construction, only bow and stern required complex bending of the steel

A more detailed description of a whaleback is included in section 7 of this nomination. All of the whalebacks followed the same design, built on a web frame system with a long, open cargo hold with the engine room aft, making the most unobstructed room below decks for bulk cargo. Due to the cigar-shaped hull, there was little resistance to wave action because of a rounded weather deck, no bulwarks and the superstructure built on top of turrets atop the deck. They were cheap to build with a simple design making them easy to construct. "By the mid-1880s it was becoming increasingly clear that the best method to increase cargo capacity was to standardize ship design using steel construction techniques" (Bowlus 1946:147).

The whaleback represented the best in standardized design at the time on the Great Lakes. "…by 1890, only two years from its inception, the American Steel Barge Company had mastered the technology to build efficient (for 1890) steel-hulled vessels that were competitive in Great Lakes bulk trades." Whalebacks of different lengths were built by simply adding or subtracting frames since the rest of the design was relatively the same no matter what the dimensions. There were five width and depth combinations used for the whalebacks, 36 feet by 22 feet, 38 feet by 24 feet, 42 feet by 25 feet, 42 feet by 25.5 feet, 45 feet by 26 feet and 32 feet by 20 feet. All but five of the American-built whalebacks fall into one of those categories (Pellet 2007:113). During the 1890 season the whaleback fleet moved 125,966 tons of iron ore and demonstrated they were a viable vessel type (Pellett 2016:48, 51).

After the launch of barge *111* and *112* both on 24 April 1891, McDougall purchased land and moved his shipyard across the harbor to Superior, Wisconsin, only two miles away from his original yard in Duluth. The new facilities accommodated the business and with room for the fabrication and outfitting shops along with space to build multiple whalebacks at once. The boilers and engines were supplied by outside manufacturers. The first whaleback launched from Superior was the 264-foot long steamer *Charles W. Wetmore* on 23 May 1891. In the remainder of 1891, the American Steel Barge Company turned out two more steamships and four barges. The *Charles W. Wetmore* became an international ambassador for the whaleback and sailed to England in the summer of 1891 with a cargo of wheat to raise awareness and interest in the unusual hull design. The trip resulted in the construction of one whaleback steamship, *Sagamore*, in Sunderland, England in 1893. It was the only whaleback not built in the United States and the steamship operated successfully until it was sunk by a German submarine in 1917 (Pellett 2016:85). The *Charles W. Wetmore* later went into service on the Pacific coast until its loss off Oregon in 1892. On its 14,000 mile trip to the west coast around Cape Horn its design proved

economical, with its average coal consumption of 12 tons per day over the 70-day trip, far less than the conventional steamship of the same cargo capacity at the time. McDougall expanded his business to the west coast and opened a shipyard in Everett, Washington in 1891, the Pacific Steel Barge Company. It later launched the whaleback steamship *City of Everett* in 1894, that was the first U.S. steamship to pass through the Suez Canal, as well as the first to circumnavigate the globe (Agranat and Foster 1991:section 8 pp. 3; Lydecker 1973:11, 15).

The heyday of the American Steel Barge Company was between 1890 and 1893. Of the 39 bulk cargo carrying whalebacks built on the Great Lakes, 27 were launched during a three year period between June 1890 and December 1893. New discoveries of ore fields near Lake Superior during this time period spurred on the building boom. Expansion of railroads and new uses for steel in turn allowed new whalebacks to be built. The relationship between the Great Lakes maritime transportation network and the steel industry was mutually beneficial and became solidified. In addition to minerals such as iron ore and coal, the lands to the west were farmed actively for wheat. This commodity also needed a means for transportation to the market. The demand for ships to move bulk commodities was increasing at a rapid pace and the whaleback emerged on scene at an optimal time. The whaleback steamers could sail on their own, but often times they towed whaleback barges in the consort system to increase the amount of cargo transported during a trip. The American Steel Barge Company intended from its inception to build both barges and steamships to tow those barges. It was more economical to own both parts of the consort system instead of chartering. Towing charges were expensive and it took some time for the whaleback fleet to have the capabilities to operate without needing assistance from outside towboats.

> In 1893, the cost operating one whaleback freighter with two whaleback consorts was estimated at $33.33 a ton. An 1893-model whaleback could carry 3,600 gross tons of iron ore, drawing seventeen feet of water, with a reverse buoyancy of only twenty-five percent (Agranat and Foster 1991:section 8 pp. 3).

While the cargo carrying whaleback barges and steamships are what McDougall is best known for, he built one passenger steamship, the *Christopher Columbus* for the World's Fair Steamship Company. It was launched in 1892 to ferry 4,000-5,000 passengers at a time between Chicago and the World's Fair: Colombian Exposition at Jackson Park. It was the longest whaleback launched up to that time, and was the largest vessel on the Great Lakes as well when launched. Later, the whaleback provided general transportation and excursion services until scrapped in 1936 (Lydecker 1973:7; Agranat and Foster 1991: section 8 pp. 3).

A unique aspect of American Steel Barge Company was that, unlike most other Great Lakes bulk carrier fleets where the vessels were owned as individual partnerships, this company built, owned, and managed its own ships. The company's investors owned shares in the company not in the ships themselves (Pellett 2016:62). Historical data does not indicate why the company operated in this manner. Perhaps it was because the whaleback was such a departure from the usual vessel type and the only way to go from conception to operation was to keep all the business in house. The only revenue and capital came from the money generated from freight hauling. Company records for 1891 show that the 10 whalebacks (2 steamships and 8 barges) each averaged 11 trips per season with iron ore, coal and grain as the principle cargos. For barges, grain received the highest revenue and for steamships iron ore did. The profits in 1891 totaled over $150,000 and in 1892 over $280,000 (Pellett 2016:66-67).

To expand the whalebacks' reach, McDougall envisioned that the vessels would also be part of a fleet sailing in areas beyond the Great Lakes. Whalebacks could move iron ore from mines on the upper lakes to the ports along the East Coast. In April 1890, the Hendren and Robins Atlantic Dock Company of Brooklyn, New York launched two whaleback barges, *201* and *202*. They were small, 190-feet in length, but were the longest vessels able to use the locks bypassing the St. Lawrence River rapids. At the time these were the only vessels that could transit in and out of the Great Lakes. Vessels could still sail downstream, but could not return upstream. In 1891, barge *110* and steamship *Joseph L. Colby* transited to meet barges *201* and *202*. In 1892, one of *Joseph L. Colby*'s trips was from Newport News, Virginia with 1,700 tons of coal for Galveston, Texas. From there it sailed to Cuba and loaded 1,400 tons of iron ore for Philadelphia. During 1892 the steamship made nine trips, but overall the venture was not a success. The operations continued into 1893, but it was found that insurance was very high along with steep maintenance costs combined with relatively few trips made carrying small loads (Pellett 2016:71-73).

Despite proving the whaleback was a viable bulk carrier, by the end of 1893 the American Steel Barge Company was in financial distress. There were no unencumbered assets and the only value resided in the vessels' earning potential. There was also increased competition from larger, traditionally built ships. John D. Rockefeller took over the management of the company and the company's strategy of continuous expansion along with owning all aspects of the vessel finally caught up with it. This, combined with the financial depression/panic of 1893, resulted in the ability for Rockefeller to acquire shares from others that were hurt by the economic crisis. "Alexander McDougall lost his ownership interest, and the whaleback ships lost their most effective promoter" (Pellett 2016). Rockefeller was the only one willing to pump cash into the venture, likely due to his connection to the iron ore fields in Minnesota's Mesabi Range. He could not find enough charters to ship the ore to market and could

have seen the whaleback as his temporary solution. He would go on to later form his own steamship company, the Bessemer Steamship Company, to supply the vessels (Pellett 2016:128-129). By the end of 1895 there had been 36 McDougall whalebacks built in the United States, 22 barges, 13 cargo steamships and 1 passenger steamship. In the remaining two years only 5 more whalebacks were launched, 2 barges and 3 steamships. The economy was back on its feet again, but the whaleback was unable to meet the evolutionary changes within the industry. "Whaleback construction was all but halted by the panic and when the demand for ships returned, technology had passed them by" (Pellett 2016). The whaleback could not be built long enough and still stay structurally sound. This combined with the disadvantage of having small deck hatches proved problematic when utilizing the new unloading equipment. It was getting harder, if not impossible, for whalebacks to compete head to head with conventionally-built freighters.

The following narrative describes the *Frank Rockefeller*, the *South Park*, and the *Meteor*; all are referring to the same vessel, its name simply changed over time.

Frank Rockefeller (1896-1927)

Prior to the end of 1895, and even with the American Steel Barge Company going through tough financial times, the board approved the construction of another steamship and barge consort, *Frank Rockefeller* (hull 136) and barge *137*. The *Frank Rockefeller* was launched at Superior, Wisconsin on 25 April 1896 (*Saint Paul Globe* 26 April 1896). It measured 380 feet long overall (366.5 feet between perpendiculars) by 45 feet wide with a depth of 26 feet. Its tonnage was 2,759 gross and 2,013 net with an official number of 121015. The *Frank Rockefeller* was built to carry bulk freight with a cargo capacity of 5,200 tons and tow a consort barge, barge *137*, which could transport an additional 5,100 tons. Its hold was divided into three compartments by wooden bulkheads. The whaleback cost around $210,000 or at the rate of $43.70 per ton carrying capacity (Anderson 1974; War Department 1897:3176).

During the 10-year whaleback building period, the whaleback design underwent evolutionary changes to modify the original design. As the bulk cargo trade matured and ship-builders learned what worked and what did not, McDougall revised his work to better suit industry needs. In addition to alternations made during construction, as the whaleback continued on with its career, it frequently needed modifications to extend its usefulness. The *Frank Rockefeller* was typical of the whaleback design, but had been modified from previous vessels due to its larger dimensions.

> The hull departs somewhat in appearance from the other whaleback steamers. The deck has less crown and the topsides are

> straighter. The pilot house is separate from the main cabins, the intervening space of 34 feet being occupied by fueling hatches. The old plan of placing engines and stacks in separate tunnels (turrets) has been abandoned, and one large turret protects the whole of the space. This greatly improves the ventilation of both the engine and fire rooms. The boilers are placed higher than has heretofore been the practice affording additional cargo space. There are eleven center line cargo hatches, each 12 feet x 8 feet. And ten side hatches, 6 feet x 4 feet, the later located upon the port side of the ship, this arrangement allowing 21 ore spouts to be lowered into the vessel at one time, thereby reducing the time for loading (*Journal of the American Society of Naval Engineers* 1896:426).

The FRANK ROCKFELLER was outfitted with a single triple expansion marine steam engine with cylinders measuring 23 inches, 33 inches and 63 inches with a 40 inch stroke. It operated at 72 RPM powered by 3 Scotch marine boilers 12 feet in diameter by 13 feet long. The boilers generated 175 psi and provided power for the various windlass, capstans, and other deck machinery. Cleveland Shipbuilding Company manufactured the 1,195 horsepower engine and boilers. It was outfitted with a single 13 foot 6 inch in diameter propeller with 16 feet of pitch. As with the other whalebacks, FRANK ROCKEFELER had a complete electrical plant for lighting purposes (*Marine Review* 1896). Shortly after *Frank Rockefeller* entered the trade, the end was already coming for the American Steel Barge Company. After *Frank Rockefeller*, one more whaleback steamship and barge would be built in 1896 and on 21 April 1898 the last whaleback was launched, the 413 foot long steamship *Alexander McDougall* (Zoss 2007:108).

During its early career from 1896 until 1900, *Frank Rockefeller* joined other American Steel Barge Company whalebacks and hauled bulk cargoes such as iron ore downbound and coal upbound with a homeport of Buffalo, New York. The main shipping ports on Lake Superior in Minnesota, Michigan and Wisconsin for shipping iron ore out included Escanaba, Marquette, Ashland, Two Harbors, Gladstone, Superior and Duluth. The lower lake receiving ports in Ohio and New York where iron ore was offloaded for processing at mills included Toledo, Sandusky, Huron, Loraine, Cleveland, Fairport, Ashtabula, Conneaut, Erie, and Buffalo. At the time of *Frank Rockefeller's* launch in 1896 over 9,000,000 tons of raw iron ore was moved that year by water with the freight rate being $1.10 at the highest and $0.40 at the lowest. The vessels were gravity loaded, but to unload required a Brown hoisting and conveying machine or a King ore hoist and conveyor along with a McKyler revolving steam derrick. The hoists transferred the ore from the ship's hold with buckets to a tramway that

deposited into waiting railroad cars or stockpiles (War Department 1897:3189-3190).

The *Frank Rockefeller* was involved with the grain trade during the spring and fall months between Lake Superior's lakehead fields and Lake Erie's grain ports to supplement its regular service. No lake vessels were solely engaged exclusively in the grain business; it was done seasonally as needed just after and before the navigation closed due to winter ice (War Department 1897:3177). Historical photographs of the steamship from that time period show its paint scheme matched that of Pickands, Mather & Company who focused on iron ore and coal shipping. It is likely that it might have been chartered to or managed by the company as a newspaper account from December 1898 indicated it was associated with them during a trip with a cargo of grain for Buffalo (Pellett 2016:137; *Detroit Free Press* 13 December 1898). The *Frank Rockefeller* continued to actively transport grain (corn, oats and wheat) and on 16 June 1900 a newspaper reported it was chartered to carry grain from Chicago to Buffalo (*Inter Ocean* 16 June 1900). During one of those trips it carried 180,000 bushels of corn and towed barge *130* with an additional 110,000 bushels from South Chicago (*Inter Ocean* 28 June 1900).

In 1900, *Frank Rockefeller* along with the other American Steel Barge Company vessels were bought by John D. Rockefeller's Bessemer Steamship Company. Rockefeller's purchase was likely done to prevent additional competition from rival mine operations. Even though Rockefeller controlled most of the American Steel Barge Company at that time, the sale solidified his hold on the transportation network. "For this fleet the multi-millionaire paid more than three million dollars; but the price was moderate, for once in possession of these vessels Mr. Rockefeller became, to a great extent, the master of the commerce of America's vast fresh water seas" (Fawcett 1900:508). Rockefeller used *Frank Rockefeller* and other vessels to move iron ore from his mines to the lower lake. The Bessemer Steel Company operated 15 conventional steamships, 10 whaleback steamships, 12 conventional barges and 19 whaleback barges with an annual ore carrying capacity, based on an average of 19 trips per season of 4,343,400 gross tons (American Iron and Steel Institute 1902:66).

The *Frank Rockefeller* only sailed under the Bessemer Steamship Company for one season as the company was absorbed into the Pittsburgh Steamship Company, a Great Lakes shipping subsidiary of Andrew Carnegie's U.S. Steel. The other companies with vessels amalgamated into the Pittsburgh Steamship Company were from the American Steel and Wire Company, Minnesota Steamship Company and National Steel Company. The Pittsburgh Steamship Company's vessels transported iron ore from the Mesabi Range to the company's mills on the shores of Lake Michigan and Lake Erie. In 1901, they operated 112 vessels, of which 69 were conventional or whaleback steamers, and 43 were barges with an annual ore carrying capacity of 9,488,600 tons (American Iron and Steel Institute 1902:67). The *Frank Rockefeller* stayed under the control of the Pittsburgh Steamship Company through 1927. "It was a cost company, not a profit making venture. The fleet was not expected to

make money; its operation was part of the cost of making steel" (Miller 1999:39). The fleet's goal was to simply supply the steel mills with a constant supply of high grade iron ore so that profits could be made after processing. U.S. Steel controlled mining, transportation and production and created a single network all working together for the greatest return. The *Frank Rockefeller* was one cog in the system that moved the raw materials necessary for building this nation.

In 1905, the *Frank Rockefeller* was fitted with a horizontal steam deck winch to handle wire rope cables used to moor the vessel at the dock (Pellett 2016). Between 1910 and 1915 it was heavily modified as new advancements in unloading equipment came on scene. Its midsection was altered to permit the use of hullets for unloading. A hullet was an automatic unloader with self-filling clamshell buckets that revolutionized the Great Lakes ore industry. While previous methods used hoists, buckets and hand labor at $0.18 a ton, unloading with hullets cost $0.05 a ton and sped up the process to hours instead of days. The hullets were used until the early 1990s when they gave way to the self-unloading ships that came on the scene in the two decades previous. The *Frank Rockefeller's* interior was strengthened with deck arches that in turn allowed the removal of two rows of deck stanchions and the athwartships beams. The deck arches were placed on 24 foot centers and one of these arches remains in the vessel today aft of the collision bulkhead. The small hatches on the port side were removed and the centerline hatches were enlarged from 12 feet by 8 feet to 20 feet 11 inches wide. Raised hatch coamings were also installed along with wooden covers. To compensate for larger hatch openings, straps of ½ inch plate were riveted to the deck on either side of the hatches for increased strength. Additional changes made were: the stern capstan was removed, the galley stack was extended, small cowl vents were moved up to the top of the deckhouse, a canvas dodger was put in on top of the pilot house roof for protection and two additional hatches with raised coamings were installed for the coal bunker and cargo hold behind the pilot house turret. The patent McDougall anchor was also replaced with a standard U.S. Navy stockless one anchor (Netzel 2008). The Pittsburgh Steamship Company's decision to modernize *Frank Rockefeller* shows that the whaleback design was suitable to continue in the ore trade and it was their intent to continue to operate the vessel within their fleet.

In 1916, *Frank Rockefeller* continued to be updated and it had the original three 22-foot in diameter boilers replaced with two new 15 foot 4 inch in diameters boilers fitted with a forced draft system. Two new feed water purifiers were added that removed dissolved oxygen and reduced internal corrosion. The auxiliary cargo hold under the boilers was removed along with the cargo trunk. By this time the steamship no longer participated in the grain trade so that cargo space was no longer needed. The coal bunker was extended above deck to provide additional space and plating was added to connect the bunker to the engine and boiler turret. A new dodger was placed on the forward bow turret to protect access to below decks (Netzel 2008; Miller 1999:97).

Pittsburgh Steamship Company's updates to *Frank Rockefeller* continued. In 1925 the cargo hold was again modified to maximize the use of cargo handling equipment. The hold's longitudinal sides were plated over by adding deep web frames within its internal structure. This prevented cargo from becoming stuck between the frames and the need for it to be removed manually. A new, larger turret was built to house the deckhouse, pilothouse and captain's quarters. The changes reduced the steamship gross tonnage from 2,759 to 2,646. For the next two years *Frank Rockefeller* sailed with the Pittsburgh Steamship Company until it was sold on 10 November 1927 to the Central Dredging Company and renamed *South Park* (Pellett 2016). The steamship's sale briefly ended its career hauling iron ore, but it would remain a fixture on the Great Lakes.

South Park (1927-1943)

Between 1927 and 1934, *South Park* operated as a sand dredge (Lydecker 1973:28). Little historical information exists on the activities of the steamship during this time. By 1934, the Central Dredging Company did not need the vessel and put it up for sale. *South Park's* title went to the U.S. Collector of Customs on 8 November 1934 as it had been abandoned with unpaid expenses. At that time Maurice H. Sobel of Detroit, Michigan purchased it and later sold it on 4 January 1936 to the Nicholson Transit Company of Detroit, Michigan for $15,000. The company hauled a variety of materials around the Great Lakes and specialized in transporting new cars. Due to the many business interests that Nicholson Transit Company engaged in, *South Park's* timeline during that period is unclear. They invested $25,000 to convert the steamship to carry over 200 cars on its deck and grain and ore in its hold. A wooden deck was placed on a platform over its curved hull and an elevator, powered by steam deck winches, allowed cars to be carried below decks (Netzel 2008; Pellett 2016).

After the conversion, Erie Steamship Company, a Nicholson Transit Company affiliate, bought *South Park* in June 1936 to replace a previous whaleback steamship, the *J.T. Reid*, they had used for moving new cars. A typical trip for *South Park* was from Detroit to Cleveland but other "car" ports were Milwaukee and Kewaunee, Wisconsin (*Wilmington News-Journal* 4 March 1937). One trip the *South Park* made in March 1937 consisted of transporting 250 cars from Detroit to Cleveland (*Detroit Free Press* 13 March 1937). In 1939, Nicholson Transit Company re-purchased *South Park* from its subsidiary. The car deck was removed but the elevator was not taken out until 1941 or 1942 (Netzel 2008; Pellett 2016).

World War II affected shipping around the world including the Great Lakes. The conversion of *South Park* back to its original configuration allowed it to again haul iron ore, coal and grain, valuable wartime commodities. The steamship re-entered the bulk cargo trade and indirectly fueled the war effort. The War Shipping Administration requisitioned *South Park* in 1942 with the intent of moving it

to the East Coast via the Chicago Ship and Sanitary Canal. The plan would not come to fruition as the ship ran aground in a storm near Point Betsie in mid-November 1942 after damaging its rudder and fouling the propeller en-route to Manistee, Michigan. Salvage attempts over the following two days were unsuccessful and *South Park* drifted across Lake Michigan ending up ashore near Manistique. Eventually, the steamship, with extensive damage to its hull, was saved and towed to Manitowoc, WI (Zoss 2007:114-115; Pellett 2016). This was not the first time *South Park* ran aground. Back in November 1905, the steamship, then named *Frank Rockefeller*, became stranded on Isle Royale while towing a barge and required removing a large amount of its cargo so it could be pulled off the rocks. A snowstorm had caused low visibility and the steamship hit the rocks while the barge continued its momentum and crashed into its stern, damaging its rudder and propeller (*Buffalo Evening News* 7 November 1905 and 13 November 1905).

Meteor (1942-1972)

On November 1942, the U.S. War Shipping Board laid out a plan to retrofit *South Park* for the petroleum trade. After insurance, salvage and repair costs were settled, Cleveland Tankers Inc., an affiliate of the Ashland Oil Company, purchased the steamship for $1.00. Manitowoc Shipbuilding Company converted *South Park* to an oil tanker and renamed it *Meteor* (Pellett 2016). While 179 of its bottom hull plates had to be replaced due to its grounding, more extensive work was done to change the steamship from a “dry” cargo carrier to a “liquid” carrier (*Escanaba Daily Press* 9 April 1943). Even at the time *Meteor* was being called the last of the whalebacks since only eight others were still afloat, 2 steamships and 6 barges (*Ironwood Daily Globe* 29 July 1943).

The *Meteor’s* cargo hold was modified by subdividing it into 16 oil-tight compartments with one longitudinal and eight transverse bulkheads. Cofferdams and empty buoyancy compartments were located in the forward and aft cargo holds to contain liquid cargo and fumes. The tanks’ double bottom tops and (hopper) sides were opened up to increase cargo volume. This change involved removing the arches installed in 1910 where they extended above the hoppers. Only the forward most arch, present today, was left intact. Hatch coamings were removed and a long rectangular trunk was built along the main deck to act as an expansion space for liquid cargo. An extensive system of piping and pumps were added to help load, offload and move cargo around within the hull. Two booms were placed on deck to manage hoses and/or land crew ashore (Pellett 2016; Netzel 2008).

The wooden deckhouse on the aft turrets, that housed the pilothouse and captain’s quarters, was replaced with a steel one and the new structure now held all 29 crewmen. Previously, some crew’s accommodations were located in the forecastle below the forward turret. A charthouse was also constructed aft of the enlarged pilothouse, as well as the addition of tanks on the boat deck for water

and galley fuel. The entire aft area that once was separate turrets was enclosed with plating to create one bigger deckhouse. Additionally, at the stern, new steel lifeboats with davits and a life raft were placed onboard. Besides the cargo hold, the engine room received upgrades to improve efficiency. The engine's jet condenser was modified to accept additional exhaust from the steam cargo pumps and piping permitted these pumps to expel the atmospheric exhaust system. The boilers were converted from coal to oil-fired and this required installation of oil bunkers, handling pumps, piping, valves, and heaters. The induced draft boiler fan and air heaters were removed and a new smokestack and ductwork put in place. The *Meteor's* new equipment provided enough power to drive the tanker at 12 knots. A new bilge pump and new electrical generating set, as well as associated wiring and a switchboard were installed along with a new steering engine and larger rudder. Hawsepipes and anchor chain guides were placed in the bow to handle two self-stowing stockless U.S. Navy-type anchors. Further additions included a sound-powered phone system, a fire alarm system, new navigation lights, and a new cold room and ice machine. In all it took three months and 27 days for the *Meteor* to be outfitted as a tanker (Pellett 2016; Netzel 2008; *The News Palladium* 7 December 1943).

After its retrofit, *Meteor* was ready to enter the fuel oil trade by the end of September 1943. The *Meteor's* early adoption of fuel oil for power was unusual for a Great Lakes vessel. Coal was the standard for freighters until the use of diesel engines in the 1970s due to the extensive infrastructure for coaling and the difficulty in obtaining bunker C fuel oil. The *Meteor's* frequent stops at refineries to load bulk oil ensured that it had easy access to refuel. The steamship's first trip included a cargo of kerosene from Muskegon, Michigan to Buffalo, New York. During World War II Ashland Oil reports the company shipped products up the Mississippi River and across the Great Lakes where it was then moved down the New York State Barge Canal to the Atlantic Ocean. This route avoided sailing in the Gulf of Mexico and East Coast where German U-boats were on the hunt during the Battle of the Atlantic (Pellett 2016).

While outfitted as a tanker, *Meteor* carried a variety of petroleum such as gasoline, kerosene, diesel of various grades and home heating fuels. During 1943 and 1944, it was the largest of the tanker fleet operating between refineries in Whiting, Indiana and terminals at Benton Harbor-St. Joseph, Michigan. In early December 1943, it offloaded one of the largest cargoes of gasoline ever to enter the port of Benton Harbor-St. Joseph, Michigan. The *Meteor* unloaded its 1,680,000 gallons or 40,000 barrels at the Theisen-Clemens Marine Oil Terminal in St. Joseph. Its pumps could enable it to unload at a rate of 6,000 barrels per hour. Once the gasoline was offloaded it was distributed to retail outlets by truck in the southern and central Michigan cities of Lansing, Jackson and Hillsdale (*The News Palladium* 7 December 1943, 15 December 1943 and 20 November 1944). *Meteor* continued to be an active vessel on the Great Lakes and in December 1959 it transported jet fuel to the Espada Corporation terminal at Bay View on Little Bay de Noc, Michigan. The cargo was for the K.I. Sawyer Air Force Base *(The*

Escanaba Daly Press 12 December 1959). During the 1960s, *Meteor* frequently offloaded at the Cities Services dock at River Rouge, one of southeast Michigan's largest industrial complexes on the Detroit River (Zoss 2007:119).

Cleveland Tankers Inc. owned *Meteor* for the remainder of its active career on the Great Lakes. They made few changes to the tanker over the 29 years they operated it. The main alternations resulted from the purchase of surplus equipment after World War II. One of its generating sets was replaced with a Whitin Machine "Victory" reciprocating generator from a Liberty ship and the exhaust was modified by adding a U.S. Navy surplus "Reilly" feedwater heater. The old feedwater purifiers were switched out with two tanks for injecting boiler chemicals. World War II military navigation technology was adapted for consumer use and *Meteor* received a gyrocompass, radar, and motor generator to assist the crew with navigation (Pellet 2016).

Due to the nature of the products carried, such as valuable home heating fuels, *Meteor* and the rest of the fleet operated past the seasonal shipping close date of 1 December. The colder weather brought increased risk of storms and ice. Cleveland Tankers Inc. often continued service into January and restarted sailings in March to get higher rates for the products that were in high demand. The Coast Guard removed many aids to navigation for the winter making transits by *Meteor* hazardous for the ship and crew. Newspapers dubbed the tanker fleet that included *Meteor* as "operation oilcan" since there were so many exciting stories of the Coast Guard coming to vessels' rescue after being caught in the ice (*The News-Palladium* 22 July 1972). The tanker's ability to operate late in the season had benefits to the owners for increased profits, but it also came with its risks and problems.

On 21 November 1969, *Meteor* grounded on a rocky shoal off the Keweenaw Peninsula in Lake Superior while sailing from Marquette, Michigan to Superior, Wisconsin. The Gull Rock Light was not functioning at that time and the *Meteor's* radar was broken, so it was steaming blind. While the tanker was able to finish its trip, inspections revealed damage to its keel plating from the rudder show to a point 20 feet forward. The American Shipbuilding Company in Chicago repaired the damage, but the end was near for the tanker. Cleveland Tankers Inc. chose not to continue using the *Meteor* due to concerns for safety over the vessel's design (Pellet 2016). In 1969, *Meteor* had outlived all the other whalebacks by two years. The second to last whaleback, the steamship *John Ericsson*, had been scrapped in 1967.

In 1972, after a public fundraising campaign, Cleveland Tankers Inc. gifted *Meteor* to the City of Superior, Wisconsin to operate as a museum. In 1973, the whaleback was towed to its current site at the north end of Barker's Island, two miles south of the site of the American Steel Barge Company's yard from where it was launched. A description of how *Meteor* was converted for its role as a museum

ship is included in section 7 of this nomination. After 73 years steaming on the Great Lakes, *Meteor* now earns the title as the last surviving whaleback above the water and serves as a representation of master shipwright Alexander McDougall's ingenuity and original thinking.

CONCLUSIONS

McDougall received patents on his whalebacks in the United States, Canada, Great Britain, and France. He also had patents on 40 other designs for ship construction, ore and grain loading, dredging and ships' equipment such as the McDougall Patent anchor which was carried on all of his whalebacks (Lydecker 1973:23). In the end, McDougall oversaw the construction of 44 whaleback barges (consorts) and steamships between 1888 and 1898 and his design inspired the construction of one additional whaleback steamer and over 170 "turret" ships of similar design in Great Britain (Pellett 2016:5). Of those 44 whalebacks, 43 were built in the United States and 40 of them constructed in Minnesota or Wisconsin.

Hull #	Name at Launch	Other Names	Type	Launch Year	Length (ft)	Shipyard Location	Fate
101	*101*		barge	1888	178	Duluth, MN	lost off ME 1908 with all hands
102	*102*	*Sir Joseph Whitworth, Bath*	barge	1889	260	Duluth, MN	lost off VA 1905 with all hands
103	*103*	*John Scott Russell, Berkshire*	barge	1889	260	Duluth, MN	foundered off NJ 1909
104	*104*		barge	1890	284	Duluth, MN	wrecked in Lake Erie 1899
105	*105*	*Baroness*	barge	1890	284	Duluth, MN	lost off NY 1910
107	*107*	*Bombay*	barge	1890	284	Duluth, MN	sank on Nantucket Shoals, MA 1913
109	*109*	*Baravia*	barge	1890	264	Superior, WI	sunk off NY 1924
201	*201*	*Cassie*	barge	1890	190	Brooklyn, NY	stranded off NJ 1917
202	*202*	*Fannie*	barge	1890	190	Brooklyn, NY	foundered off NJ 1908
106	*Colgate Hoyt*	*Bay City, Thurmond*	steamship	1890	284	Duluth, MN	stranded off NJ 1909
108	*Joseph L. Colby*	*Bay State*	steamship	1890	264	Superior, WI	abandoned off East Coast 1935
110	*110*	*Badger, Pure Lubewell*	barge	1891	264	Superior, WI	exploded off LA 1932
111	*111*	*Ivie*	barge	1891	264	Superior, WI	sunk off VA 1916
115	*115*		barge	1891	264	Superior, WI	lost in Lake Superior 1899
116	*116*	*Brittania, Pure Tioleene*	barge	1891	264	Superior, WI	scrapped 1946
117	*117*	*Providence*	barge	1891	284	Superior, WI	unknown, sold 1929 Britain
118	*118*	*Boston, Freeport Sulphur No. 3, Pure Oil S.S. Co. Barge No. 9, Pure Detonox*	barge	1891	284	Superior, WI	scrapped 1946
114	*A.D. Thompson*	*Bay View*	steamship	1891	264	Superior, WI	scrapped 1936
112	*Charles W. Wetmore*		steamship	1891	264	Superior, WI	wrecked off OR 1892

113	*E.B. Bartlett*	*Bay Point*	steamship	1891	264	Superior, WI	sunk off Cape Cod, MA 1916
126	*126*	*Baden*	barge	1892	264	Superior, WI	wrecked off MA 1905 with all hands
127	*127*	*Jeanie, Dallas*	barge	1892	264	Superior, WI	scrapped 1936
128	*Christopher Columbus*		steamship (passenger)	1892	360	Superior, WI	scrapped 1936
121	*James B. Cologate*		steamship	1892	320	Superior, WI	sunk in Erie 1916
123	*Pathfinder*	*Progress*	steamship	1892	340	Superior, WI	scrapped 1934
125	*Pillsbury*	*Henry Cort*	steamship	1892	320	Superior, WI	wrecked in Lake Michigan 1934
122	*Sagamore*		barge	1892	320	Superior, WI	sunk in Lake Superior 1901
120	*Samuel Mather*	*Clifton*	steamship	1892	320	Superior, WI	sunk in Lake Huron 1924
119	*Thomas Wilson*		steamship	1892	320	Superior, WI	sunk in Lake Superior 1902
124	*Washburn*	*James B. Neilson, J.T. Reid*	steamship	1892	320	Superior, WI	scrapped 1936
129	*129*		barge	1893	292	Superior, WI	sunk in Lake Superior 1902
130	*130*	*Lynn*	barge	1893	292	Superior, WI	scrapped 1924
131	*131*	*Salem, Freeport Sulphur No. 4, Pure Oil No. 10, Pure Nulube*	barge	1893	292	Superior, WI	scrapped 1946
132	*132*	*Portsmouth*	barge	1893	292	Superior, WI	sunk off TX 1927
133	*133*	*Searsport*	barge	1893	292	Superior, WI	foundered off NY 1911
134	*134*	*Bangor*	barge	1893	292	Superior, WI	stranded off VA 1912
145	*City of Everett*		steamship	1894	360	Everett, WA	lost in Gulf of Mexico 1923 with all hands
135	*John B. Trevor*	*Antikokan*	steamship	1895	320	Superior, WI	scrapped 1935
137	*137*		barge	1896	380	Superior, WI	scrapped 1965
139	*Alex. Holley*		barge	1896	376	Superior, WI	scrapped 1965
136	*Frank Rockefeller*	*South Park, Meteor*	steamship	1896	380	Superior, WI	museum 1973
137	*John Ericsson*		steamship	1896	380	Superior, WI	scrapped 1967
141	*Alexander McDougall*		steamship	1898	413	Superior, WI	scrapped 1945

Table 1. List of the 43 whaleback steamships and barges built in the United States and their fate. Whalebacks are listed in order by year of launch (Pellett 2007; Lydecker 1973).

While the whaleback design did not become a long-term viable design, its use well into the mid-twentieth century shows that the design was sound and reliable. It has been said that the whaleback of the 1890s was the direct predecessor of the modern Great Lakes bulk freighter (Lydecker 1963:4).

[McDougall's] design influenced most shipbuilding modifications

> introduced on the Great Lakes during that period, including "turtlebacks," "monitors," and "straightbacks." The whaleback freighter was also the immediate forerunner of the Doxford turretship, built in England and widely used for ocean cargo transportation. The whaleback became obsolete when their design proved incapable of adapting to developments in cargo handling machinery (Agranat and Foster 1991:section 8 pp. 2).

Meteor is the last of the 43 American-built whalebacks that survives above water. All the others either sank or were ultimately scrapped. One of those 42, barge *117*, was sold to British interests in 1929 and its fate is unknown, but it likely succumbed to scrapping or being wrecked as it does not survive today. Fourteen whalebacks (seven barges and seven steamships) were scrapped, one during 1924, six during the 1930s, four during the 1940s and three during the 1960s. The last whaleback scrapped was the steamship *John Ericsson* that was launched in 1896 and was scrapped in 1967. It has the closest operational lifespan to *Meteor* at 71 years compared with *Meteor's* 73 years.

Twenty-seven whalebacks were lost due to foundering or other wrecking related events. Of those 27 that sank, 9 were steamships and the remaining 18 were barges. Sinking events occurred throughout the main operating period of the whalebacks and happened in American waters. One was lost off Oregon, two lost in the Gulf of Mexico (Florida and Texas), 15 were lost off the East Coast (Virginia, New York, New Jersey, Massachusetts, Maine and one unknown location) and the remaining 8 were wrecked in the Great Lakes. Four whalebacks sank in Lake Superior, two sank in Lake Erie, one sank in Lake Huron, and one sank in Lake Michigan. Three whalebacks sank in the 1890s, nine sank between 1900 and 1910, eight in 1910s, four in 1920s, and three in 1930s. The last to sink was the steamship *Bay State*, launched as *Joseph L. Colby* in 1890. It was abandoned off the East Coast in 1935 and presumably sank.

Integrity

As *Meteor* is the only surviving whaleback "above water," comparable vessels are all shipwrecks. Four whaleback shipwrecks have been located in the Great Lakes, two steamships and two barges. As they all went through events leading to their sinking, and are now submerged underwater, none are as structurally intact as *Meteor*. The two whaleback steamship shipwrecks are the *Henry Cort*, launched as the *Pillsbury* in 1892, located in 30 feet of water and the *Thomas Wilson*, launched in 1892, and located in 70 feet of water. Barge *115*, launched in 1891, is located in 40 to 80 feet of water and barge *Sagamore*, launched in 1892 and located in 50 feet of water. The four whaleback shipwrecks have varying levels of integrity with some broken up with little hull remains and only the lower hull and machinery/boilers present, although others have a greater degree of extant features. The *Meteor* and

Thomas Wilson are the only two whalebacks currently listed on the National Register of Historic Places.

The *Meteor* retains the character defining features of a whaleback carrier from its date of construction, having high integrity. The alterations over time do not detract from is Engineering integrity as those alterations did not impact the design features that were innovative, nor the design overall. The changes; furthermore, are important features contributing to the ship's significance under Criterion A, in the areas of Maritime History and Commerce, Industry, and Transportation, demonstrating this vessels role and its long history in the Great Lakes maritime trade.

Hull Number	Name	Other Names	Type	Year Launched	Length	Shipyard Location	wreck location	wreck date	Listed on NRHP
115	*115*		barge	1891	264	Superior, WI	Lake Superior	1899	
125	*Pillsbury*	*Henry Cort*	steamship	1892	320	Superior, WI	Lake Michigan	1934	
122	*Sagamore*		barge	1892	320	Superior, WI	Lake Superior	1901	
119	*Thomas Wilson*		steamship	1892	320	Superior, WI	Lake Superior	1902	yes

Table 2. Whaleback shipwrecks located to date in order by launch date (Pellett 2007; Lydecker 1973).

National level of significance

The *Meteor* was originally nominated at the State level of significance. Continued scholarship and new information about the influence and importance of the *Meteor* demonstrates that it is significant at the National level. The *Meteor* is significant at the national level for its design innovations exemplifying a marine engineering design innovation that was the forerunner of all modern cargo carriers. This significance is national in scope, greater than the Great Lakes region, the state or local influence, as its design was used as a baseline from which other shipbuilders would expand upon throughout the world. A unique vessel type, designed and built by a true American entrepreneur, which transported bulk commodities at a time of tremendous industrial growth in the United States, the *Meteor* also embodies the development of ship design and construction on the Great Lakes. While the *Meteor's* career spanned 73 years, it is the 46 years it operated as a bulk freighter in the iron ore trade between 1896 and 1942, that it earns its highest recognition. The industry's success resulted in remarkable wealth at home that in turn made the United States a powerhouse abroad. The exploitation of the iron ore fields around the Great Lakes and the refineries that dotted its shores supplied the materials to build cities, railroads, military assets, ships, trains, and much of the infrastructure needed during the Industrial Revolution. McDougall's whalebacks had an important role to play and served as forerunners of the modern Great Lakes cargo freighter. The *Meteor* serves as the oldest tanker still in existence

(Anderson 1974: continuation sheet). The *Meteor's* survival today shows the adaptability and strength of the whaleback design to meet the needs of numerous trades. This nomination provides the additional background, context and rationale to upgrade its original 1974 nomination from a state to a national level of significance.

References

Anderson, Donald N.
1974 *Meteor* (whaleback carrier). National Register of Historic Places nomination. Listed 23 July 1992. On file with the National Park Service, Washington, DC.

Agrant, Brina J. and Kevin J. Foster
1991 *Thomas Wilson*. National Register of Historic Places nomination. Listed 9 September 1974. On file with the National Park Service, Washington, DC.

American Steel and Iron Institute
1902 *Directory of Iron and Steel Works of the United States and Canada*. American Steel and Iron Institute, New York, NY.

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Cooper, David J. and Paul P. Kriesa
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Devendorf, John F.
1995 *Great Lakes Bulk Carriers 1869-1985*. John Devendorf, Niles, MI.

Fawcett, Waldon
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Lydecker, Ryck
1973 *Pigbook… the story of the Whalebacks*. Sweetwater Press, Duluth, MN.

Mixter, Ric
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Pellett, C. Roger
2016 A History of the Whaleback Steamship *Meteor*, Manuscript. On file at Superior Public Museums, Superior, WI.

Pellett, C. Roger
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Pellett, C. Roger
2007 Drawings for Whaleback Barges and Steamships. Nautical Research Journal. Volume 52, No. 3 Fall 2007. pp. 131-136. Nautical Research Guild, Cuba, NY.

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1897 *Annual Reports of the War Department for the Fiscal Year Ended June 30, 1897*. Report of the Chief of the Engineers, Part 4. War Department, Washington, DC.

Zoss, Neel R.
2007 *McDougall's Great Lakes Whalebacks.* Arcadia Publishing, Charleston, SC.

Verbal Boundary Description:
This nomination corrects the record regarding the boundary of the nominated property. The original nomination from 1974 reflects a boundary of 2.0 acres; the correct boundary calculation is 0.6 acres. The boundary of Whaleback Carrier *Meteor* is limited to the steamship itself with a 10 foot buffer surrounding the ship reflecting the current confines of its location at Barker's Island, Superior, Wisconsin.

Boundary Justification:
The boundaries of Whaleback Carrier *Meteor* is the external dimensions of the steamship along with associated deck features and internal features as it is located at Barker's Island, Superior, Wisconsin. The 0.6 acre site (26,000 square-feet) in the shape of a rectangle was chosen based off the vessel's dimensions (380 feet length overall by 45 feet in width) with a 10-foot buffer around the vessel adding 20 feet to the length and width to encompass the anchor and chain embedded in the ground forward of the bow as well as one of its lifeboats located next to the vessel.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Photo Log

Name of Property:	*Meteor* (Whaleback Carrier) (Additional Documentation and Boundary Decrease)
City or Vicinity:	City of Superior
County:	Douglas
State:	Wisconsin
Name of Photographer:	As noted below
Date of Photographs:	As noted below, the vessel is unchanged from the date photographs were takenLocation of Original Digital Files: Wisconsin Historical Society, Division of Historic Preservation, Madison, WI
Total Number of Photographs:	9

Photo 1 of 9 (WI_DouglasCounty_*Meteor* (Additional Documentation and Boundary Decrease)_0001
Photographer: From the collections of the Superior Public Museums
Date Photographed: 2010
Description of Photograph: Overall view of the *Meteor*.

Photo 2 of 9 (WI_DouglasCounty_*Meteor* (Additional Documentation and Boundary Decrease)_0002
Photographer: Aaron Headly
Date Photographed: 2016
Description of Photograph: Close up of *Meteor's* bow showing the characteristic whaleback round end along with the forward turret.

Photo 3 of 9 (WI_DouglasCounty_*Meteor* (Additional Documentation and Boundary Decrease)_0003
Photographer: Henri Sauvage
Date Photographed: 2010
Description of Photograph: View looking forward along *Meteor's* deck toward the bow

Photo 4 of 9 (WI_DouglasCounty_*Meteor* (Additional Documentation and Boundary Decrease)_0004
Photographer: From the collections of the Superior Public Museums

Date Photographed: 2014
Description of Photograph: View of *Meteor's* port side along with its stern deckhouse.

Photo 5 of 9 (WI_DouglasCounty_*Meteor* (Additional Documentation and Boundary Decrease)_0005
Photographer: Henri Sauvage
Date Photographed: 2010
Description of Photograph: Close up of *Meteor's* stern showing the characteristics whaleback round end.

Photo 6 of 9 (WI_DouglasCounty_*Meteor* (Additional Documentation and Boundary Decrease)_0006
Photographer: Aaron Headly
Date Photographed: 2007
Description of Photograph: *Meteor's* original 1896 triple expansion steam engine.

Photo 7 of 9 (WI_DouglasCounty_*Meteor* (Additional Documentation and Boundary Decrease)_0007
Photographer: From the collections of the Superior Public Museums
Date Photographed: 2014
Description of Photograph: Interior view of *Meteor's* pilothouse inside the stern deckhouse.

Photo 8 of 9 (WI_DouglasCounty_*Meteor* (Additional Documentation and Boundary Decrease)_0008
Photographer: From the collections of the Superior Public Museums
Date Photographed: 2015
Description of Photograph: View of *Meteor's* crew mess inside the stern deckhouse.

Photo 9 of 9 (WI_DouglasCounty_*Meteor* (Additional Documentation and Boundary Decrease)_0009
Photographer: Henri Sauvage
Date Photographed: 2010
Description of Photograph: View of *Meteor's* officer mess inside the stern deckhouse.

Photo 1 of 9

Photo 2 of 9

Photo 3 of 9

Photo 4 of 9

Photo 5 of 9

Photo 6 of 9

Photo 7 of 9

Photo 8 of 9

Photo 9 of 9

List of Figures

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Figure 1
Drawn by: George Netzel
Date: 2008
Description: Profile drawing of *Meteor* from 1943 to present. Source: S.S. *Meteor* Project Historic Structures Report, drawing 9. On File with Superior Public Museums, Superior, WI.

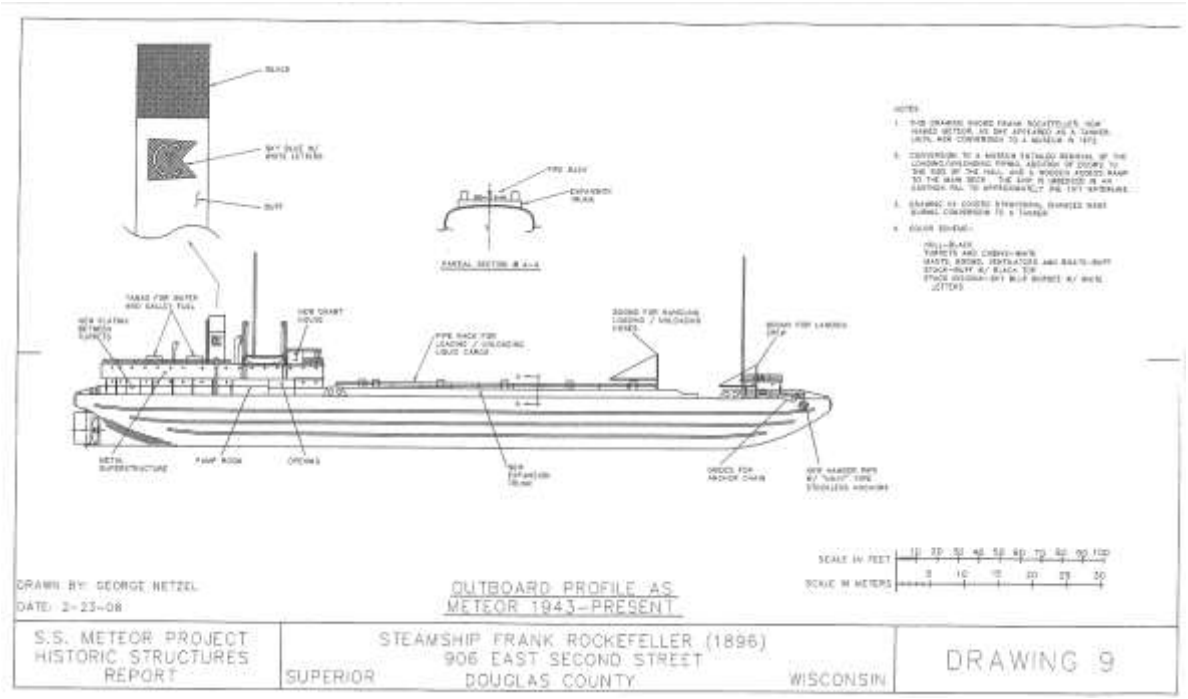


Figure 2:
Photographer: unknown. Date: 1892 or 1893.
Description of Photograph: Photo of several whalebacks in varying stages of completion at the

American Steel Barge Company shipyard in West Superior, WI. Courtesy of the Lake Superior Maritime Collection at the University of Wisconsin-Superior Archives.

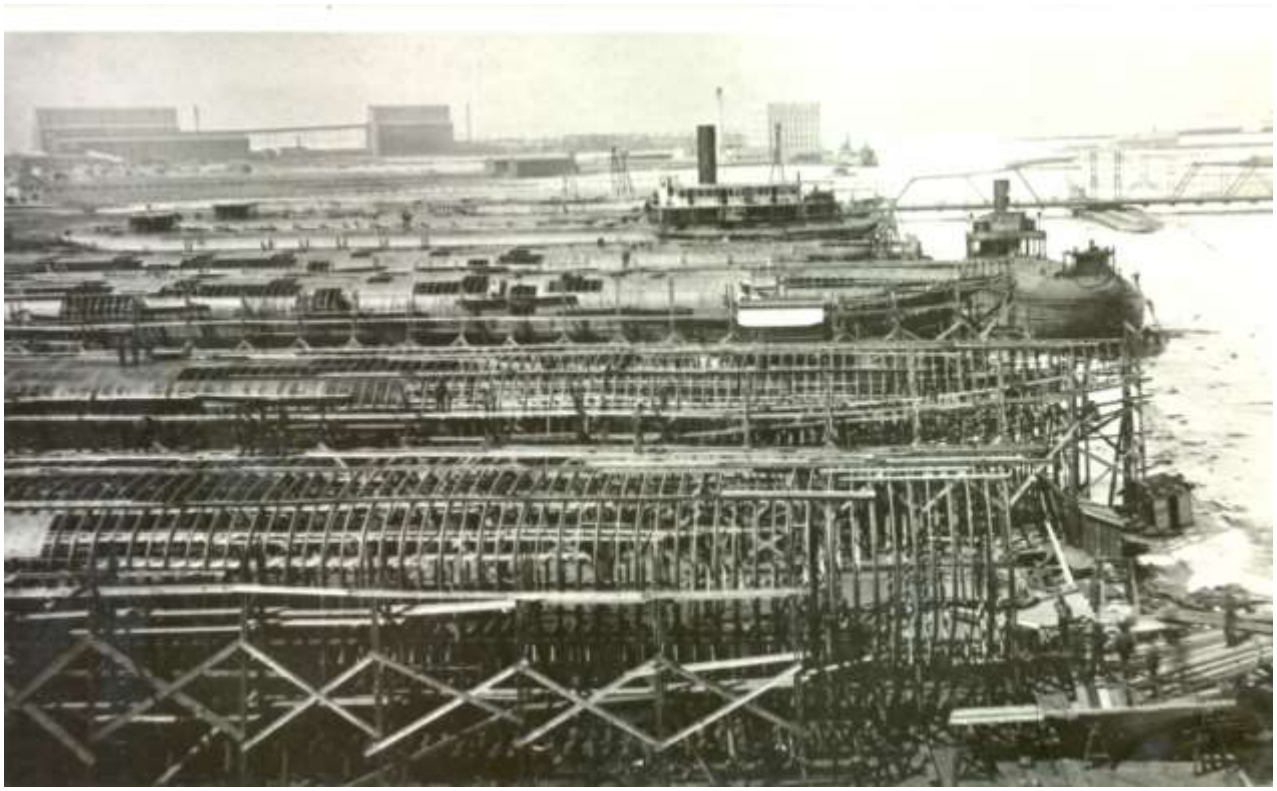


Figure 3
Photographer: unknown. Date: 1892.
Description: Photo of the whaleback steamship *Pillsbury* under construction in 1892. This photo shows the general shape the whaleback with a rounded hull, arched top deck and flat bottom.

Courtesy of the Lake Superior Maritime Collection at the University of Wisconsin-Superior Archives.

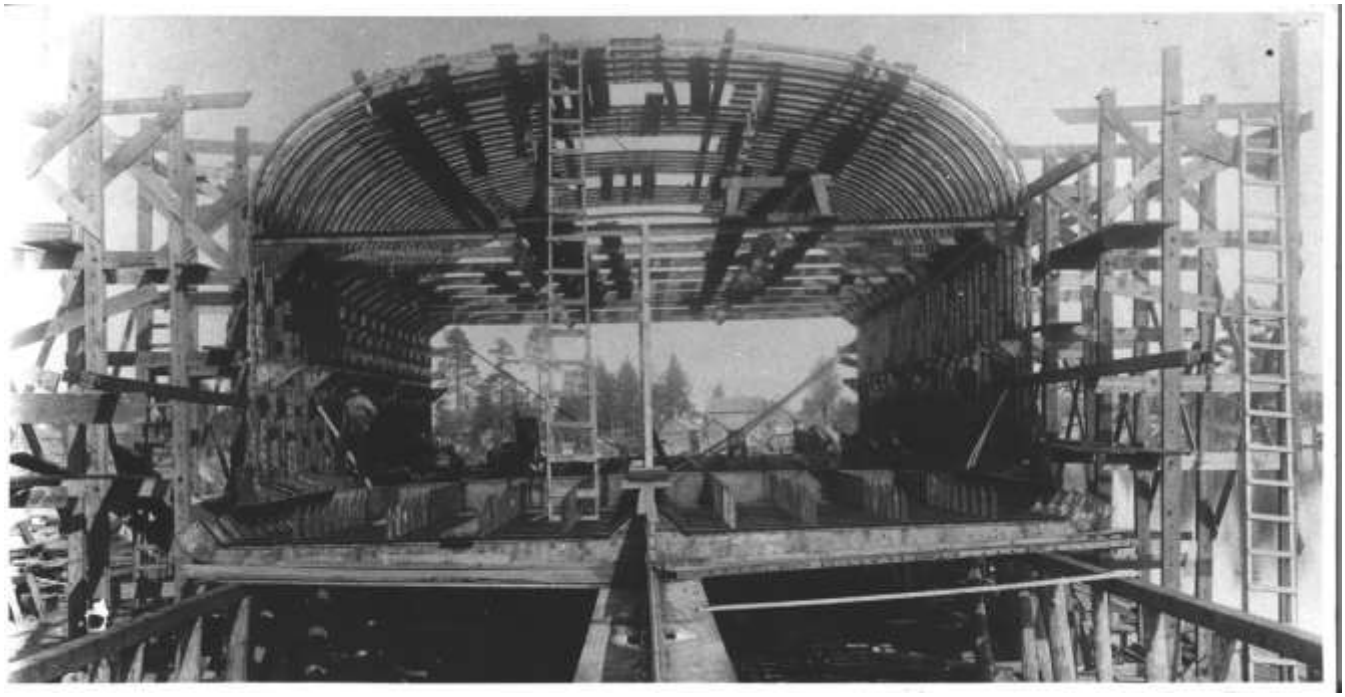


Figure 4
Photographer: unknown. Date: unknown.
Description: Photo of the whaleback steamship *Thomas Wilson*, launched in 1892, along with two other whalebacks in Poe lock. Courtesy of the Lake Superior Maritime Collection at the University

of Wisconsin-Superior Archives.

Figure 5
Photographer: unknown. Date: unknown.
Description: Photo of the first whaleback, barge 101, launched in 1888. Courtesy of the Lake Superior Maritime Collection at the University of Wisconsin-Superior Archives.

Figure 6
Photographer: unknown. Date: 1896
Description: Photo of the whaleback steamship *Frank Rockefeller's* launch in 1896. Courtesy of the Lake Superior Maritime Collection at the University of Wisconsin-Superior Archives.

Figure 7
Photographer: unknown. Date: unknown
Description: Photo taken while onboard the *Frank Rockefeller* showing the whaleback steamship *Thomas Wilson* pulling two whaleback barges. Courtesy of the Lake Superior Maritime Collection at the University of Wisconsin-Superior Archives.

Figure 8
Photographer: unknown. Date: unknown
Description: Photo taken while onboard the *South Park* while it was outfitted as an automobile carrier. Courtesy of Superior Public Museums.

Figure 9
Photographer: unknown. Date: 1942
Description: Photo of the *South Park* after it ran aground during a storm near Point Betsie, Michigan in late November 1942. Courtesy of the Lake Superior Maritime Collection at the University of Wisconsin-Superior Archives.

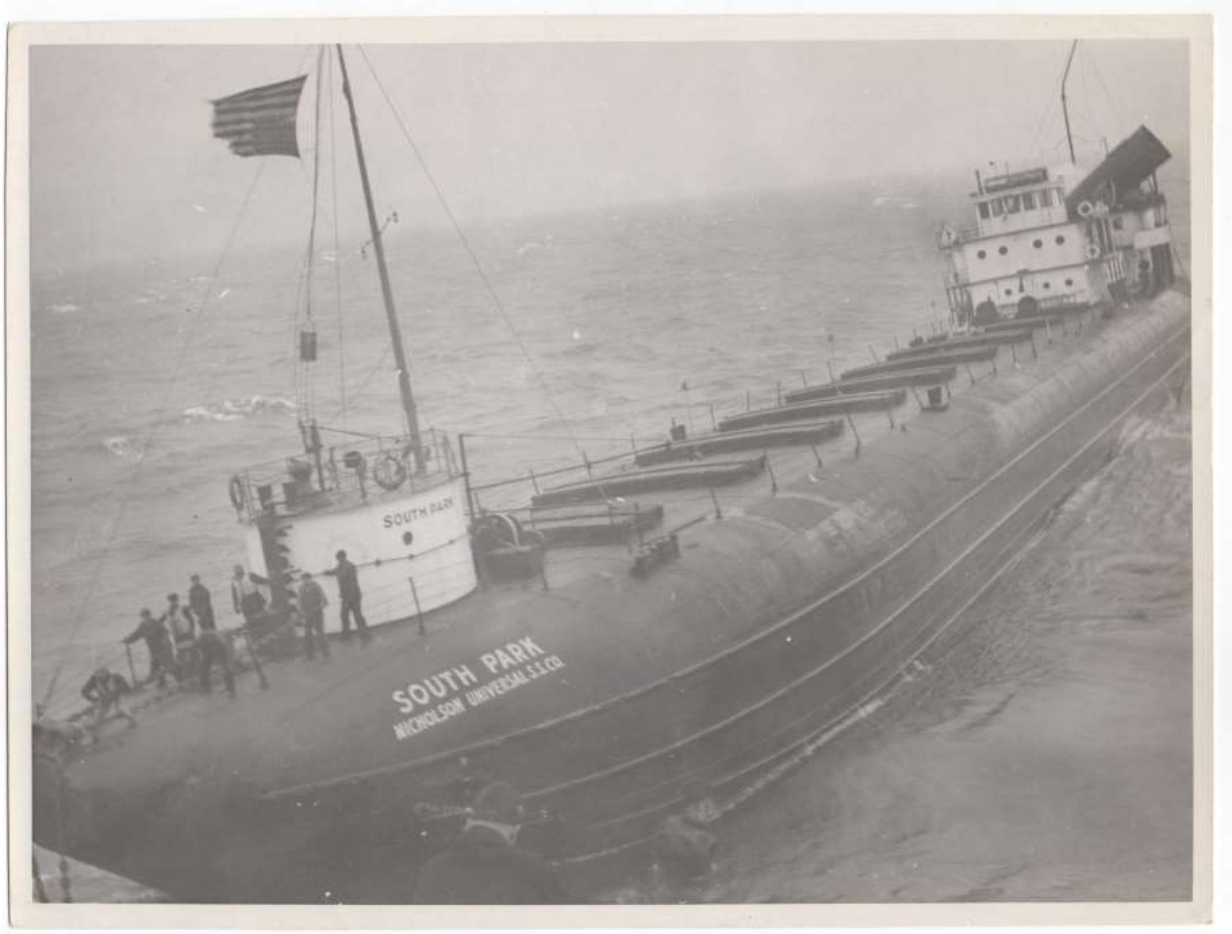
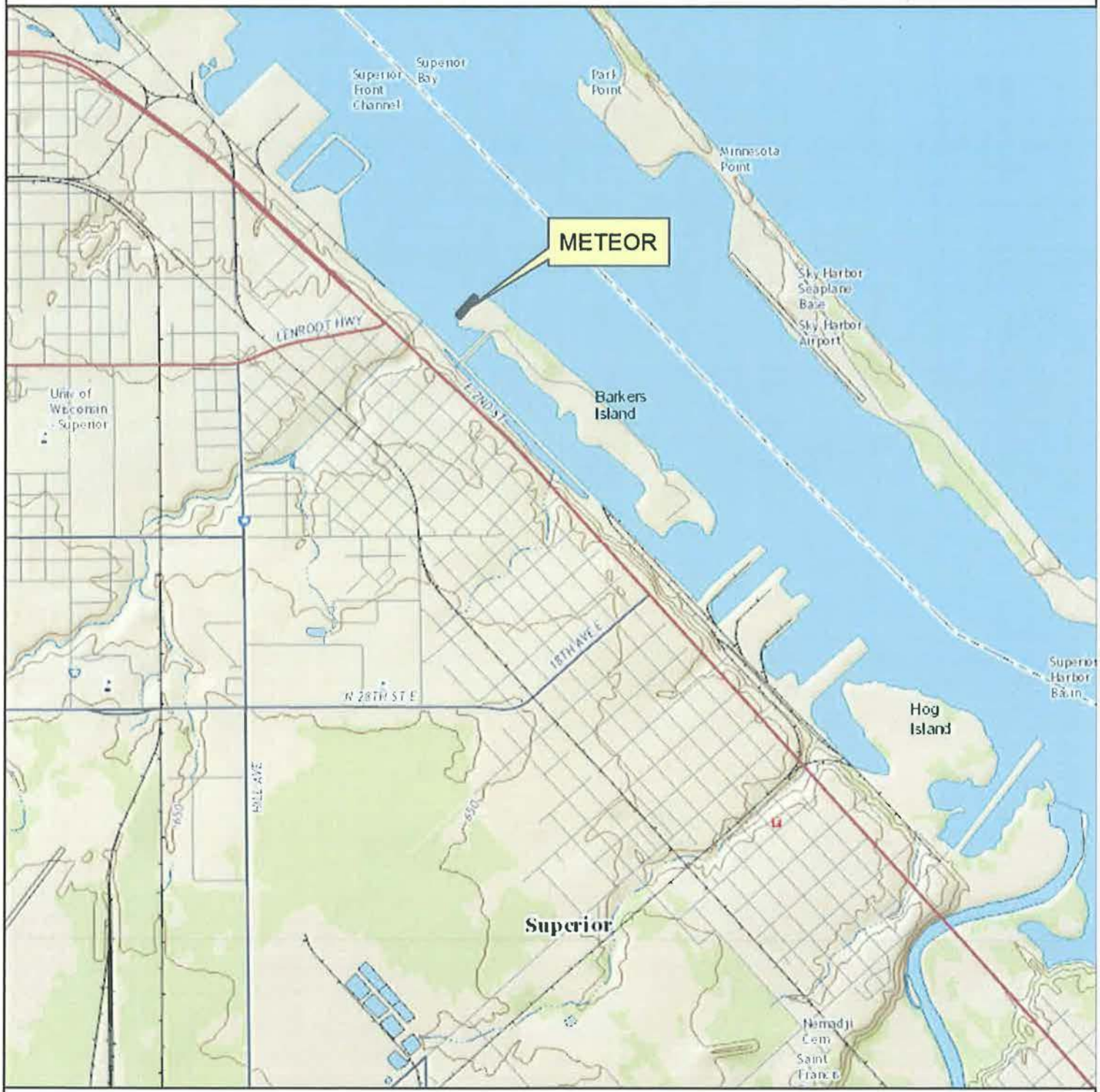


Figure 10
Photographer: unknown
Date Photographed: 1969
Description: Photo of the *Meteor* outfitted as a bulk petroleum carrier entering Duluth, Minnesota in 1969. Courtesy of Ken Thro and Superior Public Museums

End Figures

Map 1 of 2: METEOR (Whaleback Carrier)
Douglas County, Superior, Wisconsin
National Register Property Location

USGS US Topo 7.5-minute for Superior, Wisconsin Edition: 25 November 2015



METEOR NR Boundary

0 0.75 1.5

Kilometers

N

Map 2 of 2: METEOR (Whaleback Carrier)
Douglas County, Superior, Wisconsin
National Register Property Location Detail

Background: USGS US Topo 7.5-minute for Superior, Wisconsin

METEOR NR Boundary

UTM Zone 15N, NAD 1983 Datum

1. 571,602.7 E / 5,174,846.9 N
2. 571,618.8 E / 5,174,834.9 N
3. 571,538.2 E / 5,174,742.8 N
4. 571,523.5 E / 5,174,756 N

0 200 400
Meters

N


METEOR
METEOR
TOUR
The World's Last


METEOR
TOUR
The Worlds Last
WHALEBACK
SHIP


EXIT
EMERGENCY
EXIT
ONLY


STBD BOILER
SECURED


XIT


DO NOT SLAM
THIS DOOR

National Register of Historic Places
Memo to File

Correspondence

The Correspondence consists of communications from (and possibly to) the nominating authority, notes from the staff of the National Register of Historic Places, and/or other material the National Register of Historic Places received associated with the property.
Correspondence may also include information from other sources, drafts of the nomination, letters of support or objection, memorandums, and ephemera which document the efforts to recognize the property.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

Requested Action:	Boundary Update
Property Name:	METEOR (whaleback carrier) (Boundary Decrease)
Multiple Name:	
State & County:	WISCONSIN, Douglas

Date Received:	Date of Pending List:	Date of 16th Day:	Date of 45th Day:	Date of Weekly List:
3/12/2018	4/11/2018	4/26/2018	4/26/2018	

Reference number:	BC100002377
Nominator:	State

Reason For Review:

__ Appeal	__ PDIL	__ Text/Data Issue
__ SHPO Request	__ Landscape	__ Photo
__ Waiver	X National	__ Map/Boundary
__ Resubmission	__ Mobile Resource	__ Period
__ Other	__ TCP	__ Less than 50 years
	__ CLG	

__X__ Accept _____ Return _____ Reject **4/26/2018** Date

Abstract/Summary Comments:	
Recommendation/ Criteria	

Reviewer Barbara Wyatt Discipline Historian

Telephone (202)354-2252 Date 4-26-18

DOCUMENTATION: see attached comments : No see attached SLR : No

If a nomination is returned to the nomination authority, the nomination is no longer under consideration by the National Park Service.

BC10-2377

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of National Marine Sanctuaries
1305 East-West Highway, 11th floor
Silver Spring, MD 20910
301-713-3125

1/3/2017

Peggy Veregin
Division of Historic Preservation and Public History
Wisconsin Historical Society
816 State Street
Madison, Wisconsin 53706

Dear Ms. Veregin:

The National Oceanic and Atmospheric Administration (NOAA)'s Office of National Marine Sanctuaries (ONMS) is pleased to submit additional documentation on the whaleback steamship *Meteor* to amend its National Register of Historic Places nomination. *Meteor* was listed on the National Register of Historic Places on 9 September 1974 at the state level of significance. This paperwork provides additional context on the whaleback carrier METEOR and provides a rationale for why the property is significant at the national level based upon National Register Criteria A and C.

The *Meteor* is the last surviving above-water example of a whaleback carrier. It is significant at the national level in the areas of Maritime History, Transportation, and Engineering with a period of significance of 1896-1942. The vessel played an important role in the iron ore trade and retains the vernacular engineering characteristics of a whaleback carrier, a pioneering design used throughout the Great Lakes between 1888 and 1969, making it a unique example of American entrepreneurship and industrial growth during the late 19th and early 20th centuries.

The ONMS is making an investment in recognizing Wisconsin's maritime heritage. Support for protecting and interpreting the state's cultural, historical, and archaeological resources is being realized through, not only the designation of the Wisconsin-Lake Michigan National Marine Sanctuary, but also by an ongoing partnership with *Meteor*'s caretaker, Superior Public Museums. Such partnerships enhance heritage tourism across the Great Lakes region. By recognizing the *Meteor*'s level of significance at the national level, the vessel can serve as an even more significant maritime ambassador for Wisconsin's heritage whether on land or underwater.

Thank you in advance for your assistance in this matter. If you have any questions or require additional information, please feel free to contact Deborah Marx at Deborah.Marx@noaa.gov or 781-545-8026 ex 214.

Sincerely,

James P. Delgado, PhD
Director, Maritime Heritage Program
NOAA Office of National Marine Sanctuaries

Office of the Mayor

Jim Paine, Mayor
Rani Gill, Chief of Staff to the Mayor

SUPERIOR
WISCONSIN
Living up to our name

Phone: (715) 395-7212
Fax: (715) 395-7590
TDD: (715) 395-7521
E-mail: mayor@ci.superior.wi.us

1316 North 14th Street, #301
Superior, WI 54880
Website: www.ci.superior.wi.us

June 21, 2017

Mr. Jim Draeger
State Historic Preservation Officer
816 State Street Madison
Madison, Wisconsin 53706

Dear Mr. Draeger:

On behalf of the Superior Public Museums, I am pleased to write this letter of support of amending the National Register of Historic Places' listing for the Whaleback Steamer *S.S. Meteor* to more accurately reflect the national importance and architectural significance of the vessel. The *Meteor* is the last remaining above water example of a Whaleback Steamer, and only enduring representative of the work of the American Steel Barge Company of Superior. The company's owner and Master Builder, Captain Alexander McDougall revolutionized commercial bulk cargo carrier construction with his novel whaleback design.

The Meteor not only has national significance in maritime industry but is a prominent landmark for the citizens of the City of Superior. This Whaleback reflects the storied history of Superior's rise to a premier port on the Great Lakes and its continued prowess as a commercial port and gateway to American's Heartland today.

Superior Public Museums is in the process of pursuing National Landmark status for the vessel. This, along with the amended listing, will help the organization protect and preserve the *Meteor* for future generations.

For these and other reasons, City of Superior is a very enthusiastic supporter of amending the National Register of Historic Places' listing for the Whaleback Steamer *S.S. Meteor.*

Thank you for your consideration.

Sincerely,

Jim Paine
Mayor

c: Sara Blanck, Superior Public Museums Director

SENATOR JANET BEWLEY
WISCONSIN STATE SENATE

June 29, 2017

JUL 0 3 2017

Jim Draeger
State Historic Preservation Officer
816 State St
Madison, WI 53706

Dear Mr. Draeger,

I want to take this opportunity to express my wholehearted support for the Superior Public Museums' request to amend the National Register of Historic Places' listing for the whaleback steamer S.S. Meteor to more accurately reflect the national historic importance and architectural significance of the vessel.

As the State Senator for the 25th Senate District, I recognize the Meteor not only has national significance in maritime industry, it is a prominent landmark for the citizens of the City of Superior. This whaleback reflects the storied history of Superior's rise to a premier port on the Great Lakes and its continued ability to endure as a commercial port and gateway to American's Heartland today.

Superior Public Museums is in the process of pursuing National Landmark status for the vessel. This, along with the amended listing, will help the organization protect and preserve the Meteor for future generations. While emphasizing Wisconsin's maritime heritage.

I respectfully urge you to amend the National Register of Historic Places' listing for the whaleback steamer S.S. Meteor. Thank you for the opportunity to support the Superior Public Museums efforts.

Sincerely,

Janet Bewley
State Senator
25th Senate District

25th Senate District
State Capitol: P.O. Box 7882, Madison, WI 53707-7882 ★ E-mail: sen.bewley@legis.wi.gov
Web: http://bewley.senate.wi.gov ★ (608) 266-3510 ★ Toll-free: (800) 469-6562

WISCONSIN HISTORICAL SOCIETY

TO: Keeper
National Register of Historic Places

FROM: Peggy Veregin
National Register Coordinator

SUBJECT: National Register Nomination

The following materials are submitted on this Ninth day of March 2018, for the nomination of the *Meteor* (Whaleback Carrier) Additional Documentation and Boundary Decrease to the National Register of Historic Places:

1	Original National Register of Historic Places Nomination Form
1	CD with NRHP Nomination form PDF
	Multiple Property Nomination form
11	Photograph(s)
1	CD with image files
2	Map(s)
10	Sketch map(s)/figures(s)/exhibit(s)
3	Piece(s) of correspondence
	Other:

COMMENTS:

	Please ensure that this nomination is reviewed
	This property has been certified under 36 CFR 67
	The enclosed owner objection(s) do or do not constitute a majority of property owners
X	Other: Previously Listed, NRIS # 74000081

BC10-2377

NPS Form 10-900
(Expires 5/31/2012)
Wisconsin Word Processing Format (Approved 1/92)

OMB No. 10024-0018

United States Department of Interior
National Park Service

National Register of Historic Places Registration Form

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 an 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 METEOR (Whaleback Carrier) Additional Documentation and Boundary Decrease
other names/site number FRANK ROCKEFELLER, SOUTH PARK

2. Location

street & number 300 Marina Drive N/A **not for publication**
city or town Superior N/A **vicinity**
state Wisconsin **code** WI **county** Douglas **code** 031 **zip code** 54880

returned signature sheet

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this X 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 X meets _ does not meet the National Register criteria. I recommend that this property be considered significant X nationally X statewide _ locally. (_ See continuation sheet for additional comments.)

Signature of certifying official/Title — Date 3/8/18
State Historic Preservation Officer-WI

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

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

Signature of commenting official/Title — Date

State or Federal agency and bureau

WISCONSIN HISTORICAL SOCIETY

BC 2377

TO: Keeper
National Register of Historic Places

FROM: Peggy Veregin
National Register Coordinator

SUBJECT: National Register Nomination

The following materials are submitted on this Twentieth day of April 2018, for the nomination of the *Meteor* (Whaleback Carrier) Additional Documentation and Boundary Decrease to the National Register of Historic Places:

_____	Original National Register of Historic Places Nomination Form
_____	CD with NRHP Nomination form PDF
_____	Multiple Property Nomination form
_____	Photograph(s)
_____	CD with image files
_____	Map(s)
_____	Sketch map(s)/figures(s)/exhibit(s)
_____	Piece(s) of correspondence
1	Other: New, signed cover page

COMMENTS:

_____	Please ensure that this nomination is reviewed
_____	This property has been certified under 36 CFR 67
_____	The enclosed owner objection(s) do or do not constitute a majority of property owners
X	Other: Previously Listed, NRIS # 74000081