

NATIONAL REGISTER ELIGIBILITY ASSESSMENT VESSEL: USNS *Potomac* (AO-150) (T-AO-181)



Potomac at the Beaumont Reserve Fleet in January 2009. Maritime Administration photos.



Vessel History

The product tanker *Potomac* was constructed for the United States Navy's Military Sea Transportation Service (MSTS) in 1964. An earlier MSTS tanker of the same name was constructed in 1957; however it was lost to fire in 1961. The current *Potomac* incorporates the salvaged stern section, including the propulsion machinery of the earlier vessel, but is considered a new vessel for official documentation purposes. However, outside of the documentation realm, the two vessels are often considered to be one and the same, therefore, this report includes the earlier vessel for context.

The first *Potomac* was built by Sun Shipbuilding and Dry Dock Company of Chester, Pennsylvania in 1957. It was one of a class of four tankers for which Sun produced the plans and specifications for the Navy's Bureau of Ships. In keeping with the Navy's naming system, these vessels were named for American rivers; USNS *Maumee*, USNS *Potomac*, USNS *Shoshone*, and USNS *Yukon*. *Maumee* was the first ship completed and was delivered to the Navy on December 1, 1956. *Potomac* was launched on October 8, 1956 and delivered on January 30, 1957. *Potomac* was designated AO-150 and assigned to the MSTS. The MSTS was a post-World War II combination of four predecessor government agencies that handled similar sealift functions. These included the Navy's Naval Transportation Service and Fleet Support Service, the Army Transport Service, and the War Shipping Administration of the United States Maritime Commission. One of the primary MSTS missions was to supply fuel to American military bases located overseas. In 1970 MSTS was renamed Military Sealift Command (MSC). During its early years, MSTS contracted with private operators to fill its tanker tonnage requirements. However, by the mid-1950s increased world demand for oil drove costs up and reduced the number of commercial ships available for charter. In response, a series of large modern tankers

were built specifically for MSTC operation. *Potomac* was one of those tankers and the ship supplied fuel to American military bases at home and abroad.

Operational History

In April of 1960, a severe sand storm near Port Said, Egypt forced *Potomac* aground and the ship was subsequently hit by the smaller American tanker *Green Valley*. During the summer of 1961 *Potomac* and its sistership *Shoshone*, supplied U.S. bases in Greenland. In September of that year *Potomac* arrived in Morehead City, North Carolina and berthed at the Aviation Fuels Terminal pier, Radio Island to pump fuel ashore for Marine Corps Air Station Cherry Point. On September 26, aviation fuel spilled from an open suction valve.



Top left: Navy crews from the USS *Oglethorpe* spray water near the burning wreckage of the *Potomac*. Dennis McDowell, USS *Oglethorpe*. www.navsourc.org/archives/09/19/19150.htm. Right: *Potomac* continuing to burn. The ship burned for five days. Dennis McDowell, USS *Oglethorpe*. www.navsourc.org/archives/09/19/19150.htm. Bottom: *Potomac*'s bow engulfed in flames, September 1961. James L. Pittman. www.navsourc.org/archives/09/19/19150.htm

A spark caused the propellant to ignite and fire quickly engulfed the forward section. Most of the crew had already left the ship; of those left onboard, all but two escaped the flames. The bow and midship areas were reduced to a mass of twisted metal; however 200 feet of the stern remained largely intact, including all of the machinery spaces. The stern was cut free and towed to the Newport News Shipbuilding & Dry Dock Company in Newport News, Virginia. This portion was incorporated into a rebuilt vessel and the damaged parts were scrapped. The ship was offered to the Keystone Shipping Company, a major tanker operator, in partial payment for MSTS charters of their vessels. The rebuilt ship, christened *Shenandoah*, was delivered to the Keystone Shipping Company on December 11, 1964. It was approximately the same length and capacity as the original *Potomac* but was very different in appearance. By the 1960s the traditional design of a divided superstructure profile for tankers was going out of style. The *Shenandoah* had a unified superstructure at the stern five decks in height above the raised poop. *Shenandoah* was immediately placed on bareboat charter¹ to MSTS to support U.S. forces in the Far East. While it delivered fuel to locations in Asia in support of military operations in Vietnam, it apparently never visited the actual war zone. On August 10, 1967, while enroute from the Philippines to Port Arthur, Texas, it aided the Japanese fishing vessel *Shoichi Maru*, which had caught fire 100 miles north of Wake Island. With the help of paramedics and supplies dropped from a search and rescue aircraft, *Shenandoah's* crew treated the six Japanese crewmen suffering from various degrees of burns and delivered them safely to Wake Island the next morning. In 1976 the Navy reacquired *Shenandoah* from the Keystone Shipping Company for MSC operations. Because the Navy already had a ship named *Shenandoah*, it was renamed *Potomac* with the designation T-AOT-181. *Potomac* continued its normal peacetime mission of delivering fuel in support of military operations around the world. Regrettably, the vessel ran aground at Melville Bay, Greenland causing a major oil spill on August 5, 1977. A large scale cleanup effort ensued to mitigate the damage.

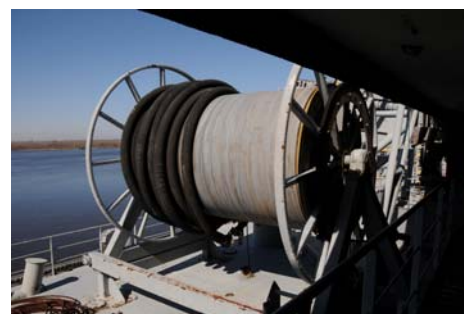
Potomac was assigned to the Ready Reserve Fleet (RRF) in Beaumont, Texas, a subset of the National Defense Reserve Fleet (NDRF) on May 3, 1984. The NDRF was established under Section XI of the Merchant Ship Sales Act of 1946 to serve as a reserve of ships for national defense and national emergencies. A RRF component was established in 1976 as a subset of the NDRF, which is composed of vessels that can be activated on short notice to provide rapid deployment of military equipment during an emergency. When activated, the ships are transferred from the Maritime Administration to the Navy's Military Sealift Command. The RRF later became known as the Ready Reserve Force. Title of the *Potomac* was transferred from the Navy to the Maritime Administration in the early 1990s.

¹ A bareboat charter is when a company charters a vessel from its owner without a crew, fuel, or other supplies. The company is responsible for all expenses required to operate the ship, thus receives it "bare."

OPDS-Offshore Petroleum Discharge System

In 1985 *Potomac* served as the prototype vessel for conversion to an Offshore Petroleum Discharge System Tanker (OPDS). The conversion was completed in Mobile, Alabama, and successfully demonstrated there and later in Cape Charles, Virginia. Following installation and trials *Potomac* returned to the Beaumont Reserve Fleet on April 29, 1986.

The OPDS is designed to transfer petroleum products directly from an offshore tanker to support military operations on shore. A pipeline is run to the beach from a mooring buoy where tankers can attach and pump fuel to onshore storage facilities. The OPDS is particularly effective at locations where fuel piers are unavailable, and tankers are unable to tie up ashore to off-load fuel. The OPDS can pump up to 1.7 million gallons of fuel per day. The OPDS was developed in the early 1980s using existing technology and was based on earlier systems. It was a U.S. government system deployed by military personnel from a government-owned contractor operated tanker.



Left to right: Piping on *Potomac*'s main deck; OPDS equipment onboard *Potomac*. Maritime Administration photos.

Major components of the system include the OPDS tanker with booster pumps and spread mooring winches; a recoverable single anchor leg mooring (SALM) to accommodate tankers of up to 70,000 deadweight tons; ship to SALM hose lines; up to four miles of six-inch (internal diameter) conduit for pumping to the beach; and two Beach Termination Units (BTUs)² to interface with the shore side systems. OPDS can support a two line system for multi-product discharge, but ship standoff distance is reduced from four to two miles. To begin the process, a support ship and a tender work together to install up to eight miles of eight-inch-diameter flexible pipe. Next, the support ship positions the tanker for safe off-load operations. While the tender holds the tanker in place, the tanker's lines connect to the flexible pipe through the support ship. Booster pumps aboard the support ship increase the pressure of fuel, pushing the fuel to shore.

² A Beach Termination Unit (BTU) is a metal enclosure containing a skid base, piping, valves, gauges, pig trap and associated fittings. The BTU acts as an anchor for the OPDS conduit on the beach at the high water mark. It passes product from the tanker to the onshore distribution system at a regulated discharge pressure. (See diagram on attachment 1).

The OPDS is the successor to Operation *Pluto* (Pipeline under the Ocean), a World War II invention where underwater pipelines were laid between England and France to supply fuel to the Allied forces in Europe. Pipelines were considered necessary to relieve dependence on oil tankers, which could be slowed by bad weather, were susceptible to German submarine attacks, and were also needed in the Pacific War.

The Maritime Administration currently has five OPDS tankers in its inventory. These include the RRF ship *Petersburg* located in Alameda, California, and the inactive NDRF vessels *Mount Washington* in Suisun Bay, and *Potomac*, *Chesapeake*, and *American Osprey* in Beaumont. The Navy is currently working on the next generation of OPDS tankers to replace the aging vessels.

Desert Shield/Desert Storm

In August 1990, the RRF consisted of 96 ships, 78 of which were activated to support Desert Shield/Desert Storm. This was the first large-scale activation and employment of the RRF since it was established within the NDRF in 1976. The vessels involved were roll-on/roll-off (Ro-Ro) vessels (which describe how cargo is handled), break-bulk cargo ships, tankers, and barge carriers.

The *Potomac* was one of three tankers recalled for Desert Shield/Desert Storm. The *American Osprey* another OPDS tanker, and the *Mission Buenaventura* were the two other tankers that were activated. *Potomac's* activation was ordered on December 9, 1990. The work was performed by Houston Ship Repair of Orange Texas. During 1991 *Potomac* was assigned to the Afloat Prepositioning Force based at the island of Diego Garcia. This would remain its home port for the next decade.

More than seventy-five percent of the RRF provided sealift to support the U.S. effort's in the Persian Gulf between August 1990 and April 1991. The ships transported 750,000 short tons of dry cargo, which was one-fifth of the total dry cargo sealifted during the conflict. The Ro-Ros proved to be the most effective vessels and they delivered nearly twenty percent of Central Command's material and other support during the first phase of the operations.

Unfortunately, there is very little published on the role of the Maritime Administration during the Gulf War. Locating information that details the operations of the individual ships has proved very difficult. One of the best books published on the subject is, *Shield and Sword: The United States Navy and the Persian Gulf War*, by Edward J. Marolda and Robert J. Schneller. While this book does not discuss details of a specific ship's operations, it does provide an excellent overview of the logistics during the build-up to the war and RRF's role in that build-up. Several of the topics that the book discusses include the difficulties encountered during the vessels' activation into the Navy's Military Sealift Command, their successes, and the amount and kind of material that they carried.

Post Desert Shield/Desert Storm

During 1994 *Potomac* assisted in the humanitarian relief efforts during a famine in Rwanda, in which it transported food and safe drinking water. In the late 1990s the *Potomac* transported fuel from Kuwait to support international military operations in Bosnia. In January 1999 it discharged cargo at Jebel Ali, United Arab Emirates and at Ahmadi, Kuwait, in preparation for drydocking at Singapore. It returned to Diego Garcia from Singapore on June 25, 1999.

Potomac left Diego Garcia for the last time on April 6, 2001. After calling at Singapore; Sasebo and Yokosuka, Japan; the Marshall Islands; and Port Arthur, Texas, the ship arrived at Galveston, Texas on June 13, 2001. It was drydocked at Tampa, Florida in November of that year and then returned to the Beaumont Reserve Fleet. The tanker was reactivated for sea trials in March 2005 and again in September 2005 to assist in relief efforts following Hurricane Katrina. *Potomac* returned the following month to the Beaumont Reserve Fleet and was subsequently reduced from the RRF to the NDRF in 2008.

Description/Characteristics of Vessel Type

Type: OPDS (Offshore Petroleum Discharge System) Tanker
 T5-S-12a
Hull Number: 599
Official Number: 297163
Previous name: *Shenandoah*
Builder: Sun Shipbuilding and Dry Dock Company of Chester, Pennsylvania.
Year: 1957
Sister Ships: *Maumee; Shoshone; and Yukon.*
Length: 661'
Beam: 89.11'
Depth: 42'
Draft: 36.1'
Displacement: Full-34,800
Deadweight: 27,467
Gross Tonnage (GRT): 15,739
Speed: 18 knots
Main Engine: Steam turbine

Potomac originally had the divided superstructure then standard for large tankers, with a multi-level deckhouse forward of amidships containing crew quarters and surmounted by the wheelhouse, and an aft deckhouse containing the upper machinery spaces and additional crew quarters. However, as stated previously, when the tanker was rebuilt after sustaining major fire damage, it retained its approximate original length and capacity; however its appearance was very different. Instead of the traditional design of a divided superstructure profile the tanker now had a unified superstructure at the stern five decks in height above the raised poop. Accommodations were provided for a crew of 52. It was a single screw vessel powered by steam turbines manufactured by the Westinghouse Electric Corporation. The engines were designed to produce 18,600 shaft horsepower for an operating speed of 18 knots.

Statement of Significance

The *Potomac* is an example of a standard design tanker built to provide transportation and storage of bulk petroleum products for the U.S. military. The vessel was not the first in its class, nor was it an early or important example of its type, the standard design having been developed and built five years earlier. The vessel does not possess important or innovative design or equipment features representative of the state-of-the-art tanker technology of its time. *Potomac* was the first tanker to be outfitted as an OPDS tanker; however, it was the system and not the vessel that was the prototype and the OPDS system was subsequently installed on other tankers, several of which are still in use today.

The activation of *Potomac* during the build-up for Operation Desert Shield/Desert Storm was the RRF's first large-scale activation since its creation in 1976. *Potomac* supplied fuel without incident and provided desperately needed services in a time of national need. *Potomac* was also involved in providing humanitarian aid during the famine in Rwanda, supported military operations in Bosnia in the late 1990s, and supported relief operations following Hurricane Katrina.

Historical Integrity

The vessel is in fair condition. The ship was converted to an OPDS tanker in 1985 but the conversion did not compromise the vessel's configuration; however the tanker's original configuration was compromised when *Potomac* was rebuilt in 1961 and renamed *Shenandoah*. All of the major OPDS equipment is still onboard the tanker; however, much of the outfitting has been transferred to other OPDS ships. The product swivel was removed from the SALM for parts needed to overhaul the other OPDS tanker, *Chesapeake's* SALM swivel overhaul. The Navy is currently working on the next generation of OPDS tankers to replace these aging vessels; therefore the OPDS tanker is quickly becoming obsolete. .

National Register Eligibility Statement

Potomac did participate in Operation Desert Shield/Desert Storm; however, it was just one of 78 RRF vessels activated by the Navy to support the operations and its role was not significant enough to qualify under criteria A, particularly considering the recent nature of the events. *Potomac* provided humanitarian aid during the 1994 Rwandan famine, supported military operations in Bosnia, and supported relief operations in New Orleans following Hurricane Katrina; however, while its role was important, it does not appear to be significant enough to qualify under criteria A, also considering the recent nature of these events. The vessel is not associated with individuals important to American history and therefore does not qualify under criteria B. The vessel does not possess the significant historical or technological characteristics, or integrity of design and materials necessary for listing under criteria C.

Date: 3 March 2009

Determination: NOT ELIGIBLE

Sources

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----- . Rebuilt Tanker, Once Victim of Fire, Rescues six burned Japanese Seamen. November 1967.

Internet Sites

American Bureau of Shipping: <https://absapps.eagle.org/safenet/record/>

House Flags of U.S. Shipping Companies: F: www.crwflags.com/fotw/flags/us~hff.html

Maritime Administration's Property Management and Archive Record System Website: www.pmars.imsmsg.com/detail.asp?Ship=6434

Maritime Business Strategies, LLC:
www.coltoncompany.com/shipbldg/ussbldrs/postwwii/shipyards/

Miramar Ship Index: New Zealand Ship & Marine Society, Inc.: www.miramarshipindex.org.nz

NavSource: Naval History, Photographic History of the U.S. Navy:
www.navsource.org/archives/

Naval Vessel Register: The Official Inventory of U.S. Naval Ships and Service Craft:
www.nvr.navy.mil/nvrships/details/

NewspaperArchive.com: <http://newspaperarchive.com>

The Ships List: www.theshipslist.com/ships/lines

United States Coast Guard Maritime Information Exchange:
<http://cgmix.uscg.mil/VesselResults.aspx?>

www.globalsecurity.org/military/systems/ship/taot-181.htm

www.navsource.org/archives/

www.pmars.imsig.com/detail.asp?ship

Other

Potomac file located at MARAD Headquarters, Washington, D.C.

Attachment 1

Historic Context

Immediately after WWII the demand for petroleum products rose rapidly leading to a swift succession of new tanker designs. Tanker capacity increased from 16,000 deadweight tons (dwt) during WWII to nearly 100,000 dwt by 1960 and to over 300,000 dwt by 1970. The following provides a summary of the history of U.S. tanker development from WWII to 1960, within which the historic significance of the *Mission Capistrano*, *Mission Buenaventura*, and *Potomac* can be evaluated.

The era of the “super-size” tankers, as they were first called, began in 1947 with the *Ulysses*, a 27,928 dwt tanker built by Welding Shipyards of Norfolk, Virginia. The *Ulysses* was the largest tanker in world, approaching twice the size of its predecessors. The ship’s construction marked the beginning of an industry trend to build increasingly larger tankers— tankers that would ultimately directly shape the future business and politics of oil. Welding Shipyards signed a contract with National Bulk Carriers to build ten identical tankers of even larger capacity and in 1948 launched the first of the fleet, the 30,000 dwt tanker *Bulkpetrol*, which established another world record.

By 1949 the major commercial shipyards were all rapidly building “supertankers” in the 27,000-28,000 dwt class, including Bethlehem Steel Company, at their Quincy, Massachusetts, and Sparrows Point, Maryland, yards, at Newport News Shipbuilding in Virginia, and at Sun Shipbuilding in Chester, Pennsylvania. Twenty-nine supertankers were launched in 1949, establishing a new peacetime record of total deadweight tonnage for self-propelled commercial vessels ships built by U.S shipyards. The Bethlehem-Quincy yard produced five 28,000 dwt tankers in 1949 and five more in 1950. New York Shipbuilding Corporation in Camden, New Jersey, entered the market in 1950 with the 30,155 dwt *Atlantic Seaman*, a new world record by a small margin. The *Atlantic Seaman* was 627’ long, 85’ wide, and 45’ in depth with 18,000 horsepower.

In 1952 Bethlehem-Quincy built the *Waneta*, a 29,250 dwt tanker with a length of 615’, a width of 84’ and a depth of 44’. The following year the horsepower was increased from 13,000 to 15,000, and the design became a standard for at least 20 more vessels over the next eight years that would be produced by the company’s yards or by Sun Shipbuilding. The design provided for deadweight capacities in the range of 28,000 to 31,000 tons.

The next major leap in tanker technology came in 1954 when the Greek shipping magnate Stavros S. Niarchos took delivery of several huge new 45,000 dwt tankers from various yards around the world, one being the Bethlehem-Quincy yard, which built the *World Glory*. With a length of 737’ and a deadweight tonnage of 45,000 tons, *World Glory* was the largest tanker in the world and the second largest merchant ship ever built in the U.S. after the passenger liner *United States*.

Also notable in 1954 was the construction of four 39,000 dwt tankers of the *W. Alton Jones* class by Newport News Shipyard that incorporated important new features and advancements in tanker technology. In 1956 the advanced features of the *W. Alton Jones* were incorporated into the Cities Service tanker *Baltimore*, the first tanker built under MARAD's "trade-in-and-build" program. Cities Service replaced seven WWII vintage T-2 tankers with three Baltimore-class tankers.

By the mid-1950s Japan had become established as a major shipbuilder competing in the world tanker construction market. In 1956 the *Universe Leader* was built in Japan's Kure Shipyard, establishing the new tanker size record with a length of 854', a beam of 125', and a deadweight capacity of 85,515 tons. In the U.S. the demand remained strong for tankers in the 30,000 and 45,000 dwt classes, the former now the U.S. coastwise workhorse, and the latter the "fleetbuilder" of choice for the expanding Greek and new South American shipping companies. In 1957 and 1958 the Bethlehem-Quincy yard built three sister ships of its standard 30,000 dwt design for use by Socony Mobil Oil Company and three tankers of its 46,000 dwt design, one for Niarchos and two for Venezuelan interests.

In 1959 the demand for American-built tankers reached its highest level to date, with 26 tankers completed with an aggregate deadweight tonnage of over 1,000,000 tons. Tankers of the 45,000 dwt class formed the largest group, but the need for 30,000 dwt tankers remained with seven delivered. The largest tanker built by an American yard to date, the 860', 71,282 dwt *Princess Sophie* was completed in 1959 by Bethlehem-Quincy for the Niarchos-owned shipping company, World Brilliance Corporation.

By 1960 the market for 30,000 dwt tankers began to wane although certain domestic carriers, including Gulf Oil, continued to purchase them for serving ports and loading/unloading facilities that could not handle the larger ships. American shipyards were now regularly producing "standard design" tankers in the 45,000 dwt and 66,000 dwt classes, but the demand for bigger ships continued. In 1962 Bethlehem-Quincy delivered the *Manhattan*, which at 106,568 dwt, redefined the meaning of "supertanker," a term coined 10 years earlier for 30,000 dwt tankers. With a length of 940' and a draft of 50', the *Manhattan* was the largest U.S. merchant ship ever built at that time.