ALASKA STANDARD (Sagamore) Suisun Bay Reserve Fleet Benicia vicinity Solano County California HAER CA-347 HAER CA-347

#### PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

HISTORIC AMERICAN ENGINEERING RECORD National Park Service U.S. Department of the Interior 1849 C Street NW Washington, DC 20240-0001

# HISTORIC AMERICAN ENGINEERING RECORD

# Alaska Standard (Sagamore)

# HAER No. CA-347

Location:	Suisun Bay Reserve Fleet, Benicia vicinity, Solano County, California			
Type of Craft:	Tanker			
Trade:	Carriage of refined liquid petroleum products			
MARAD Design No.:	Dsl/3K dwt			
Builder's Hull No.:	319			
Official Registry No.:	278320			
IMO No.:	5008071			
Principal Measurements:	Length (bp): Length (oa): Beam (molded): Depth (molded): Summer draft Displacement: Deadweight: Gross registered tonnage: Net registered tonnage: Maximum continuous shaft horsepower: Service speed: (The listed dimensions are as b draft, displacement, and tonna time as well as variations in mo	240.5' 255.6' 42.1' 21.1' 18.6' 3,857 long tons 2,657 long tons 1,947 1,132 1,700 hp 11 knots wilt, but it should be noted that ges are subject to alteration over easurement.)		
Propulsion:	Diesel			
Dates of Construction:	Launched: December 16, 1958 Delivered: April 1959			
Designer:	L. C. Norgaard and Associates, San Francisco, California			
Builder:	Albina Engine and Machine Works, Portland, Oregon			
Original Owner:	Standard Oil Company of California			
Present Owner:	Maritime Administration U.S. Department of Transportation			
Names:	Alaska Standard, 1959–1986 Sagamore, 1986–present			

Disposition:	Laid up in the National Defense Reserve Fleet		
Significance:	From 1959 to 1985, the tanker <i>Alaska Standard</i> delivered refined betroleum products – kerosene, lubricants, marine diesel fuel, nome heating oil, gasoline – to towns, canneries, and small rural wharfs along 1,000 miles of the remote Alaskan coast. An earlier ship with the same name served this market for thirty-five years; ike its predecessor, the <i>Alaska Standard</i> was the only tanker serving in the Alaskan coastal trade. Although technologically undistinguished, this "floating service station" was a familiar part of Alaska's maritime landscape for more than a quarter century and provided a vital commercial service to the state's scattered and isolated settlements.		
Author:	Michael R. Harrison, 2010		
Project Information:	This project is part of the Historic American Engineering Record (HAER), a long-term program to document historically significant engineering and industrial works in the United States. The Heritage Documentation Programs of the National Park Service, U.S. Department of the Interior, administers the HAER program. The project, which includes large-format photography by HAER photographer Jet Lowe and a historical report by historian Michael Harrison, was prepared under the direction of Todd Croteau, HAER Maritime Program coordinator. Todd Croteau generated the vessel drawing.		

#### PART I. HISTORICAL INFORMATION

#### A. Physical History

**1. Dates of construction:** 1958–59. The ship was launched December 16, 1958, and completed in late March 1959.<sup>1</sup>

**2. Designer:** L. C. Norgaard and Associates, San Francisco, California, designed the ship in cooperation with the Engineering and Construction Division of the California Shipping Company, a subsidiary of the Standard Oil Company of California. The builders, the Albina Engine and Machine Works, completed the working plans.<sup>2</sup>

**3. Builder:** The Standard Oil Company of California ordered the *Alaska Standard* from the Albina Engine and Machine Works of Portland, Oregon. The Albina Works, founded in 1904, built seventeen cargo ships for the U.S. Shipping Board during World War I. Its workers also produced 163 sub chasers, yard oilers, landing craft, and gasoline tankers for the navy during World War II, in addition to twenty-four other vessels for the army and the Maritime Commission.<sup>3</sup>

The press reported that the *Alaska Standard* was "the largest self-propelled ship built and launched in Portland since the end of the World War II shipbuilding program [in 1946]." The vessel does not appear to have been sponsored at its launch. Instead, Neva Egan, the wife of Alaska governor William Egan, christened the ship upon its completion in a shipyard ceremony held April 1, 1959, immediately prior to the ship's delivery to its owners.<sup>4</sup>

**4. Original plans and construction:** The ship is a single-hull product tanker powered by an eight-cylinder diesel engine connected through a reverse-reduction gear to a single screw. The hull is made of welded steel and subdivided by longitudinal and transverse bulkheads into thirteen liquid-cargo tanks plus a dry-cargo hold and engine, fuel, and ballast compartments. A forecastle and stern deckhouse enclose crew work and accommodation spaces. The ship was designed with a relatively shallow draft to permit calls at unimproved ports along the Alaskan coast.

5. Original cost: Unknown.

<sup>&</sup>lt;sup>1</sup> "Ship christened," *Eugene* (Ore.) *Register-Guard*, Apr. 2, 1959, 5A; "New tanker sets post-war record," *Eugene Register-Guard*, Dec. 17, 1958, 5A.

<sup>&</sup>lt;sup>2</sup> "Coastal Tanker M.V. Alaska Standard," Marine Engineering/Log 64, no. 12 (Nov. 1959): 94.

<sup>&</sup>lt;sup>3</sup> Tim Colton, "Albina Engine & Machine Works, Inc., Portland, OR,"

http://shipbuildinghistory.com/history/shipyards/2large/inactive/albina.htm (accessed Apr. 13, 2009); idem, "Albina Engine & Machine Works: Masters of Employee Relations," *Marine Log* 114, no. 10 (Oct. 1009): 48.

<sup>&</sup>lt;sup>4</sup> Quote from "New tanker sets post-war record," 5A; "Ship christened," 5A.

**6. Modifications:** No documentation has been found relating to the *Alaska Standard*'s repair and maintenance history. The original lifeboats and their launching davits were replaced at an unknown date with more modern equipment. The starboard pair of davits has elongated arms supporting the falls, which allow the boat to be swung far outboard for launching. No other significant alterations to the ship's structure or equipment are known.

**7. Names:** The name *Alaska Standard* refers to the vessel's place of service and its owner, the Standard Oil Company of California (now Chevron). The ship operated under this name for its entire service career. When Chevron sold the vessel to Sealift Tankships, Inc., in August 1986, the new owners immediately changed the name to *Sagamore*. The new name is an Anglicization of an Algonquian word for chief.<sup>5</sup>

#### **B.** Historical Context

The Standard Oil Company of California built the *Alaska Standard* to distribute refined petroleum products to over a hundred towns, canneries, and small rural wharfs along the coast of the Gulf of Alaska.<sup>6</sup> The ship replaced a somewhat smaller vessel of the same name that had plied these same waters in the same service since 1923. A 1948 article about the earlier vessel describes Standard Oil's Alaska trade, which remained basically the same when the new vessel entered service:

Large supply depots have been established at Juneau, Ketchikan, Seward, and Dutch Harbor by Standard Oil of California. . . . The *Alaska Standard* brings to her customers every petroleum product used in that far north country, from kerosene for the lamps still in common use to the specially developed greases and oils used in the canneries, in the fishing fleet, and in other industry, and including gasolines and diesel oil and fuels. . . .

The *Alaska Standard* early in the spring fills her tanks at the company's Point Wells, Washington, plant and heads north to begin the first rounds of the season. The salesman aboard takes orders by radiophone from his customers as the ship approaches many of the ports, speeding the business of unloading the products wanted....

When all of the products aboard have been unloaded, the *Alaska Standard* heads for Ketchikan, where a large bulk plant is located, and there reloads to go out again on her rounds.

<sup>&</sup>lt;sup>5</sup> Maritime Administration basic ship data and custody card for *Sagamore*, https://pmars.marad.dot.gov/detail.asp?Ship=4264.

<sup>&</sup>lt;sup>6</sup> "Coastal Tanker M.V. Alaska Standard," 94.

The large bulk plants at Ketchikan and a similar plant at Seward are supplied by one or more of the large tankers of Standard's fleet with products brought directly from the refinery at Richmond, California.<sup>7</sup>

Taking a cue from Standard Oil's own publicity, the press called the ship "a floating service station for Alaska's coastal communities."<sup>8</sup>

# **C. Operational History**

The *Alaska Standard*'s career distributing refined petroleum products was punctuated by three significant incidents: a natural disaster, a legal dispute over environmental protection, and a sinking. The first of these was the Good Friday earthquake of March 27, 1964, the strongest earthquake yet recorded in North America. The quake's epicenter was close to Unakwik Inlet in northern Prince William Sound, about 75 miles northeast of Seward, where the *Alaska Standard* was loading petroleum products at the Standard Oil Company dock.<sup>9</sup>

The three-minute main shock hit at 5:36 pm local time. With it, a strip of waterfront between 50' and 400' wide and 4,000' long, slid into the Resurrection Bay, "carrying with it oil tanks, docks, warehouses, and other harbor facilities." The water level in the bay initially receded 20' to 30', but mud boils caused by the quake subsequently sent a damaging 15' wave into the waterfront. This was followed about twenty minutes later by a 30' to 40' tsunami; additional waves rolled in until about 11:00 pm.<sup>10</sup>

The *Alaska Standard*'s crew, working under Capt. Harold Solibakke, had moved from loading stove oil and two grades of gasoline to loading diesel fuel, and five cargo hoses ran from the dock to the ship's port side. The ship suddenly dropped as the bay water receded and heeled sharply to starboard, but it did not hit bottom because of the overall subsidence caused by the quake. The mud-boil-generated wave brought the ship up again,

breaking the hose connections or pulling them out with the risers, pipeline, and pilings. Fire followed almost immediately. . . . The *Alaska Standard* got power in about five minutes and was already surrounded by flames on the

<sup>&</sup>lt;sup>7</sup> The first *Alaska Standard* was a 1,318 gross ton, steel-hulled, single-screw, diesel-electric motor vessel. Built in 1923, it was 218.5' long overall and 40' in beam and had a liquid-cargo capacity of about 525,000 gallons (12,500 barrels). World War II prevented the Standard Oil Company of California from replacing the vessel in the mid-1940s, and a new diesel engine was fitted in 1948. Upon delivery of the new *Alaska Standard* in 1959, Standard Oil sold the old one for scrap. "A New Diesel for the Alaska Standard," *Motorship* (Nov. 1948), copy in Ralph E. Cropley Scrapbooks, Maritime Collection, National Museum of American History, Washington, D.C.; *Marine Engineering/Log* 64, no. 7 (May 31, 1959): 255.

<sup>&</sup>lt;sup>8</sup> "Ship christened," 5A.

<sup>&</sup>lt;sup>9</sup> The earthquake's magnitude was placed about 8.4 on the Richter scale at the time but has since been revised to 9.2. Committee on the Alaska Earthquake, *The Great Alaska Earthquake of 1964, Engineering* (Washington, D.C.: National Academy of Sciences, 1973), 153.

<sup>&</sup>lt;sup>10</sup> Quote from *Great Alaska Earthquake, Engineering*, 153; Committee on the Alaska Earthquake, *The Great Alaska Earthquake of 1964, Human Ecology* (Washington, D.C.: National Academy of Sciences, 1970), 322.

water, an unenviable situation for a ship full of petroleum products. The ship skirted the flames on the starboard side; the flames were almost to the vessel's side. . . . The wave-generating slump probably saved the ship by cutting its ties with the dock and allowing it to quickly move into the middle of the bay. Had it remained tied to the burning dock with its load of gasoline, it almost surely would have been lost.<sup>11</sup>

Crewman Donald J. Harrington, 36, of Seattle, was washed overboard and presumed drowned.<sup>12</sup> His shipmate Theodore "Ted" Pedersen was significantly luckier. Pedersen was ashore adjusting valves between the ship and Standard Oil's bulk storage tanks. When the ground began to shake, he tried to return to the ship. "I couldn't get back," he said. "All of a sudden a corner of the dock just lifted up 10 feet. The ship went up – or maybe I went down. All the hoses parted and there was a spray of gasoline in every direction. The dock just fell in and I saw this big comber wave full of timber rolling in way above me." Pedersen lost consciousness; he came to lying on the tanker's main-deck gangway, with a broken leg and scalp and hand lacerations. He remained aboard until the next morning, when he was transferred by boat to Seward General Hospital.<sup>13</sup>

The *Alaska Standard* remained at Seward until Sunday, its radio operator relaying messages to Anchorage about conditions in the town. Unable to land and be of any further assistance, the ship departed for Cordova and Ketchikan. At the latter place, the Coast and Geodetic Survey's Seward tide gauge was recovered from the ship, having been washed aboard with other debris at the same time the waves brought Seaman Pedersen aboard. Subsequently, the ship aided recovery efforts at Homer by pumping oil into storage tanks on Homer Spit to weight them down in the event of flooding from surging tides. Although the earthquake destroyed many canneries and severely crippled industry throughout the region, it did not eliminate the need for fuel, and the *Alaska Standard* continued its accustomed service.<sup>14</sup>

The next extraordinary event in the ship's career occurred on December 5, 1977, when the *Alaska Standard*'s master, George H. Bauer, and first mate, Jon D. Ruffatto, were arrested at Valdez and briefly jailed for twice refusing to allow state pollution inspectors to board the ship. The previous year, the Alaska legislature had enacted a law aimed at controlling the operation of tankers in state coastal waters. The oil industry promptly contested the state's actions in court and Chevron USA, the division of Standard Oil of California that now owned the ship, instructed its tanker crews to turn away state inspectors. The press reported

<sup>&</sup>lt;sup>11</sup> James F. Lander, *Tsunamis Affecting Alaska*, 1737–1996, NGDC Key to Geophysical Research Documentation 31 (Boulder, Co.: National Geophysical Data Center, National Oceanic and Atmospheric Administration, Sept. 1996), 95–96.

<sup>&</sup>lt;sup>12</sup> "Earthquake toll passes 100 mark," Los Angeles Times, Mar. 31, 1964, 17; Lander, Tsunamis Affecting Alaska, 96.

<sup>&</sup>lt;sup>13</sup> Quote from "Fury of the Quake – 200,000 Megatons," *Life* (Apr. 10, 1964): 33; Committee on the Alaska Earthquake, *The Great Alaska Earthquake of 1964, Human Ecology* (Washington, D.C.: National Academy of Sciences, 1970), 322; Lander, *Tsunamis Affecting Alaska*, 96.

<sup>&</sup>lt;sup>14</sup> Lander, *Tsunamis Affecting Alaska*, 96; *Great Alaska Earthquake, Human Ecology*, 322; Joe Rigert, "Anchorage jolted by aftershock," *Sarasota Herald-Tribune*, Apr. 13, 1964, 2.

that "the arrests represented the first action taken under the law," and quoted state environmental conservation commissioner Ernst Mueller saying, "We took action because we wanted to show the industry that we mean business. Our right to inspect vessels is extremely important. If we can't go on board, we are powerless. We were afraid if Chevron got away with this others would try and that would put us out of business." Inspectors who boarded the *Alaska Standard* after the arrests found no violations.<sup>15</sup>

Nevertheless, the *Alaska Standard* continued to figure in the protracted legal battle that ensued over the state's tanker safety and pollution controls. Beginning in 1977, the state of Alaska prohibited oil tankers from discharging ballast water into state coastal waters if that water had been stored in the vessels' cargo-oil tanks. This prohibition was stricter than the Coast Guard's deballasting regulations, which allowed ballast stored in cargo-oil tanks to be discharged if it met certain requirements to be considered "clean." Oil companies operating in Alaska contended that the federal laws authorizing the Coast Guard regulations preempted the state regulations. A district court agreed and ruled the state law invalid in November 1981, but the Ninth Circuit Court of Appeals overturned this decision in February 1984. Chevron submitted a further appeal to the Supreme Court, arguing in the press that the "dispute posed a serious threat to tanker shipping because other states could follow Alaska's lead and impose more stringent dumping regulations than those required by the federal government." But state officials countered that the law was necessary to protect coastal marine organisms vital to the state's fishing industry. They also pointed out that only one tanker operating in Alaska was not able to meet the state's ballast water requirements, and that was the *Alaska Standard*. The Supreme Court refused to hear the case in June 1985, and the state law stood.<sup>16</sup>

In the midst of this legal battle, the *Alaska Standard* figured in additional, unrelated litigation. In late March 1980, the crab boat *Capella* punctured its stern after grounding on rocks at Cape Lazaref, Alaska. The *Alaska Standard* came to the boat's aid and towed it to King Cove near Fox Island, where 50-knot winds forced the two ships to anchor. The *Capella*'s skipper, Ogie Berg, refused repeated requests for him and his four-man crew to board the tanker, saying he was not in danger of sinking. When the *Capella* suddenly capsized at the end of its 600' towline – out of sight from the *Alaska Standard* – its crew escaped by kicking out a window in the wheelhouse. Berg, his brother Dagfin, Jack Fink, and Bob Connelly perished; Scott Pickering survived. Although the *Capella* was able to radio that it was capsizing, the *Anchorage Daily News* reported that

Berg did not tell the tanker crew that he and his men were going into the water, and the *Alaska Standard*'s captain, identified only as Daily in court records, was told erroneously that the five men were trapped inside the boat, the court said.

<sup>&</sup>lt;sup>15</sup> G. Michael Harmon, "Chevron upset over tanker arrests," Anchorage Daily News, Dec. 7, 1977, 1.

<sup>&</sup>lt;sup>16</sup> *Chevron USA, Inc., v. Hammond,* 726 F.2d 483 (9th Cir. 1984); "Pollution law decision challenged," *Anchorage Daily News,* Dec. 20, 1981, A3; "Court: Big oil tankers can't dump ballast water in Alaska," *Anchorage Daily News,* Feb. 4, 1984, 1; "Court won't hear challenge to laws on ballast dumping," *Anchorage Daily News,* June 4, 1985, C6.

Daily did not conduct a search or launch a lifeboat because of the storm, and also refused to put out an unmanned life raft, saying later that he thought it would have been dangerous and futile.

Another alternative, putting out lighted ring buoys, was rejected because Daily said he was trying to maneuver closer to the *Capella*. But the tanker could not get moving, and a towing line provided by the *Capella* broke.<sup>17</sup>

A court ordered Chevron (which by now was the name for all of Standard Oil of California) to pay the families of two of the victims more than \$1 million in damages for the failure of the *Alaska Standard*'s crew to search for the *Capella*'s crew after it sank. Chevron appealed the decision, and it was overturned. The original court found the tanker's crew "guilty of negligence." The appeals court, however, said in 1985 that "the conduct of a rescuer at sea should be judged by a more generous standard, finding liability only if the rescuer made the victim's situation worse or was guilty of wanton or reckless conduct."<sup>18</sup>

The appeal judgment in the *Capella* sinking was handed down in May 1985. The U.S. Supreme Court's decision not to hear further appeals in the ballast-water case came the next month, and it effectively made it impossible to safely and legally operate the Alaska Standard in Alaskan waters. The ship was not equipped with dedicated ballast-water tanks. It is not known if fitting such tanks was considered, but the ship was already twenty-six years old, and altering existing cargo tanks into dedicated ballast tanks would have reduced the ship's cargo capacity and profitability. Chevron sold the ship to Sealift Tankships, Inc., on August 26, 1986, and its name was changed to *Sagamore* on the date of sale. The latter company offered the ship to the Maritime Administration (MARAD) under the provisions of the Ship Exchange Program, an initiative created to upgrade the inventory of the National Defense Reserve Fleet. After a joint review with the navy, MARAD officials determined that the Sagamore was suitable for exchange and accepted the offer from Sealift. MARAD sold the obsolete vessels Rawlins, Victoria, and General J. C. Breckenridge for scrap on August 18, 1987, and applied the proceeds (\$350,000) to the acquisition of the Sagamore and the tanker Texaco Maryland. The purchase was finalized August 31, 1987. In October, the vessel was towed from lay-up in Seattle to the Benicia, California, where it entered the Suisun Bay Reserve Fleet. The ship has not been to sea since.<sup>19</sup>

<sup>&</sup>lt;sup>17</sup> "Tanker crew judgment overturned," Anchorage Daily News, May 22, 1985, C9.

<sup>&</sup>lt;sup>18</sup> Berg v. Chevron, U.S.A., Inc., 759 F. 2d 1424 (9th Cir. 1985); "Judge hears case against tanker," Anchorage Daily News, Apr. 7, 1984, B4; "Chevron plans appeal of \$1.1 million award," Spokane Spokesman-Review, June 30, 1984, 3; "Tanker crew judgment overturned," C9.

<sup>&</sup>lt;sup>19</sup> Maritime Administration basic ship data and custody card for *Sagamore*.

# PART II. STRUCTURAL / DESIGN INFORMATION

## A. General Description

**1. Overall:** The *Alaska Standard* is an all-welded-steel single-hull petroleum tanker. As described in the trade press when new, "the vessel has a raked bow and a modified cruiser stern with all propelling machinery, quarters, and pilot house located aft in the conventional manner." Boatswain's stores and a winch room appear in the forecastle, which is situated over the forepeak, a two-deck dry-cargo hold, and the forward fuel-oil tanks. The forward pump room and its motor room divide these bow compartments from the thirteen petroleum-cargo tanks. These tanks are arranged in four groups fore to aft, the first, second, and fourth groups comprising a center tank and two wing tanks (port and starboard), while the third group contains fore and aft center tanks and port and starboard wing tanks. The main cargo pump room sits abaft the cargo tanks and is flanked by additional fuel tanks. The engine room is built atop a fifth fuel tank, forward of the after peak and the steering-gear compartment in the stern. There is a single funnel, a forward cargo mast, and an aft navigation and signal mast. The ship is built with conventional transverse frames in the ends and longitudinal frames through its cargo tanks.<sup>20</sup>

**2. Decks:** The *Alaska Standard*'s hull has a single, upper deck. Naval architects L. C. Norgaard and Associates placed one level of crew accommodations aft on this deck, with a poop deck containing additional crew rooms and a boat deck with the pilot house in the superstructure above. A fore-and-aft gangway connects the poop deck to the base of the cargo mast forward.

**3. Cargo holds:** The ship's cargo tanks provide a total bulk-oil capacity of 772,800 gallons (18,400 barrels). The small dry-cargo hold has a bale capacity of 10,000 cu. ft. The fuel storage capacity is 45,276 gallons (1,078 barrels), and that for fresh water is 15.5 tons.<sup>21</sup>

**4. Crew accommodations:** Designers provided bunk space for twenty-six crewmen in sparsely furnished cabins that a writer for *Marine Engineering/Log* called, without further elaboration, "unusually comfortable."

**5. Safety:** The original lifesaving equipment included two 24', 30-person Welin lifeboats launched from Welin crescent davits. The boats and davits were replaced at an unknown date with more modern equipment. To allow the starboard boat to be swung far outboard, the new starboard davits have attenuated arms.

<sup>&</sup>lt;sup>20</sup> Quote from "Coastal Tanker M.V. Alaska Standard," 94.

<sup>&</sup>lt;sup>21</sup> These and subsequent details of the ship's equipment are drawn from "Coastal Tanker M.V. Alaska Standard," 95–96.

Designers included a fixed carbon-dioxide system made by the Walter Kidde Company to provide fire suppression in the cargo hold, both pump rooms, and the engine room. This system was part of the ship's original equipment.

# **B.** Mechanical Features

**1. Engine plant:** The ship's propulsion system comprises a single Nordberg Series 13 "Supairthermal" diesel engine connected through a Holset torsional damping coupling to a De Laval-Hindmarch reverse-reduction gear, all driving a single 4-blade, 11.5′ propeller. The 8-cylinder, 4-cycle, in-line engine develops 1,700 hp at 500 rpm, with a 13″ bore and a 16.5″ stroke. A Westinghouse air-brake system allows single-lever control of starting, engine speed, clutching, and shaft braking from both the engine room and the pilot house. The designers picked this efficient, medium-speed engine system "to provide a type of drive closely approaching the electric drive in the original *Alaska Standard*," which had served well in the "foul weather, strong tides, and difficult landing approaches encountered" along the coast of the Gulf of Alaska. It is now one of the few remaining Nordberg marine diesel installations in existence.

**2. Boilers:** A Cyclotherm package boiler provides steam for heating and hot water for the ship's domestic service.

**3. Electrical system:** Main electrical generation is handled through two Caterpillar turbocharged diesel engines direct connected to two 225-kW, 240/480-volt, 3-phase, 60-cycle, 1,200 rpm generators manufactured by the Electric Machinery Company. A third Caterpillar standard diesel direct connected to a 30-kW, 1,200-rpm generator provides emergency power.

**4. Cargo handling arrangements:** Seven Blackmer four-speed positive displacement cargo pumps provide a combined discharge capacity of 138,600 gallons/hour (3,300 barrels/hour). The foremast supports two five-ton booms served by two electric cargo winches and three air-operated topping winches. There were also two hose hoists. The Markey Machinery Company supplied all the winches plus the anchor windlass and mooring capstans.

**5. Steering gear:** The ship is steered through a Sperry electro-hydraulic dual pump system. It was originally equipped with a gyro compass for automatic steering.

# PART III. SOURCES OF INFORMATION

## **A. Secondary Sources**

Berg v. Chevron, U.S.A., Inc. 759 F. 2d 1424 (9th Cir. 1985)

Chevron USA, Inc., v. Hammond. 726 F. 2d 483 (9th Cir. 1984)

"Coastal Tanker M.V. Alaska Standard." *Marine Engineering/Log* 64, no. 12 (Nov. 1959): 94–96.

- Colton, Tim. "Albina Engine & Machine Works, Inc., Portland, Or." http:// shipbuildinghistory.com/history/shipyards/2large/inactive/albina.htm (accessed Apr. 13, 2009).
- Colton, Tim. "Albina Engine & Machine Works: Masters of Employee Relations." *Marine Log* 114, no. 10 (Oct. 1009): 48.
- Committee on the Alaska Earthquake. *The Great Alaska Earthquake of 1964, Human Ecology*. Washington, D.C.: National Academy of Sciences, 1970.
  - ——. *The Great Alaska Earthquake of 1964, Engineering*. Washington, D.C.: National Academy of Sciences, 1973.
- "Fury of the Quake 200,000 Megatons." Life (Apr. 10, 1964): 26-32F.
- Lander, James F. *Tsunamis Affecting Alaska, 1737–1996.* NGDC Key to Geophysical Research Documentation 31. Boulder, Co.: National Geophysical Data Center, National Oceanic and Atmospheric Administration, Sept. 1996.
- Marine Engineering/Log 64, no. 7 (May 31, 1959): 255.
- Maritime Administration ship data and custody card for *Sagamore*. https://pmars.marad.dot.gov/detail.asp?Ship=4264.
- "A New Diesel for the Alaska Standard." *Motorship* (Nov. 1948). Copy in Ralph E. Cropley Scrapbooks, Maritime Collection, National Museum of American History, Washington, D.C.

#### **B.** Newspaper Articles

"Ship christened." Eugene (Ore.) Register-Guard, Apr. 2, 1959, 5A.

"New tanker sets post-war record." Eugene Register-Guard, Dec. 17, 1958, 5A.

"Earthquake toll passes 100 mark." Los Angeles Times, Mar. 31, 1964, 17.

Rigert, Joe. "Anchorage jolted by aftershock." Sarasota Herald-Tribune, Apr. 13, 1964, 2.

- Harmon, G. Michael. "Chevron upset over tanker arrests." *Anchorage Daily News*, Dec. 7, 1977, 1.
- "Pollution law decision challenged." Anchorage Daily News, Dec. 20, 1981, A3.
- "Court: Big oil tankers can't dump ballast water in Alaska." *Anchorage Daily News*, Feb. 4, 1984, 1.
- "Judge hears case against tanker." Anchorage Daily News, Apr. 7, 1984, B4.

"Tanker crew judgment overturned." Anchorage Daily News, May 22, 1985, C9.

"Court won't hear challenge to laws on ballast dumping." *Anchorage Daily News*, June 4, 1985, C6.

"Chevron plans appeal of \$1.1 million award." Spokane Spokesman-Review, June 30, 1984, 3.

#### C. Likely Sources Not Yet Investigated

Chevron Corporate Archives, Dublin, California.

# APPENDIX I: FIGURES



Fig. 1. The *Alaska Standard* sailing north along the coast of Alaska with Mount Denson in sight, August 1974. Photograph by Dennis Cowals for the Environmental Protection Agency's Project Documerica. National Archives and Records Administration Still Picture Records Section, 412-DA-13254.



Fig. 2. The *Alaska Standard* docked at City Dock, Valdez, Alaska, August 1974. Photograph by Dennis Cowals for the Environmental Protection Agency's Project Documerica. National Archives and Records Administration Still Picture Records Section, 412-DA-13236.



Fig. 3. The *Alaska Standard* calling at the Ouzinkie Packing Company cannery, March 25, 1964. Two days later, the Good Friday earthquake destroyed the village's waterfront and the cannery. Photograph by Rev. Norman L. Smith, used by permission of Timothy Smith, Fontana, California.



Fig. 4. The *Alaska Standard* docked at Ouzinkie, Alaska, ca. 1967, after the dock was rebuilt following the 1964 earthquake. Photograph by Timothy Smith, Fontana, California, used by permission.

# HISTORIC AMERICAN ENGINEERING RECORD

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HAER CA-347

ALASKA STANDARD (Sagamore) Suisun Bay Reserve Fleet Benicia vicinity Solano County California

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Jet Lowe, photographer, July 2007

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CA-347-2	Starboard quarter view from water.
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CA-347-6	View from pilot-house roof looking forward at upper deck and forecastle.
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CA-347-8	Detail of forecastle, showing anchor windlass, bits, and cargo boom.
CA-347-9	Upper deck, port side, looking aft from forecastle, showing cargo mast and winch, cargo-handling valves, tank access hatches, and pilot house.
CA-347-10	View looking aft on the upper deck, port side, showing cargo- handling pipes and valves.
CA-347-11	Starboard lifeboat and davits.
CA-347-12	Detail view of Grouse-Hinds searchlight on pilot-house roof.
CA-347-13	Poop deck showing mooring bits and capstan drum.

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CA-347-14	Pilot house.
CA-347-15	Chartroom.
CA-347-16	Radio room.
CA-347-17	Crew's lounge.
CA-347-18	Second Engineer's stateroom.
CA-347-19	Seamen's quarters.
CA-347-20	Captain's stateroom on the bridge deck.
CA-347-21	Seamen's showers.
CA-347-22	Officers' mess room.
CA-347-23	Cargo pump room.
CA-347-24	Steering-gear compartment.
CA-347-25	Engine room, starboard side looking forward, showing right- cylinder Nordberg diesel engine.
CA-347-26	Engine room, starboard side looking aft, showing reduction gear. Machine shop located on flat above.
CA-347-27	View of flat above engine room, looking to starboard, showing machine shop.

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HAER No. CA-347-16



HAER No. CA -347-17





















HAER No. CA-347-26



HAER NO. CA - 347-27





SCALE: 
$$1/8'' = 1'-0'' \bigcirc 5 10 20$$
 FEET  
 $0 1 2 4$  METERS

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