

SUBMARINES, BLIMPS, TRAINS, AND SHIPS: TRANSPORTATION PROPOSALS FOR PRUDHOE BAY CRUDE OIL, 1968-77.

Ross Coen, University of Alaska – Fairbanks, P.O. Box 82718, Fairbanks, AK 99708

Upon discovery in 1968 of the Prudhoe Bay (Alaska) oil field, North America's largest at 20 billion barrels, the immediate challenge facing the oil industry was how to bring these vast reserves to market. Alaska's North Slope is a notoriously unforgiving environment with long winters of continual darkness punctuated by temperatures of 65 degrees Fahrenheit below zero. The subsurface of the tundra remains permanently frozen, even in summer, while the surface layer becomes spongy and fragile from June to September.

Within months of the strike, the industry began surveying a pipeline route from the North Slope south toward Fairbanks. Other transportation ideas received consideration, however, including a fleet of nuclear submarines crossing under the polar ice cap, jumbo jet tankers and dirigibles, rail cars and tanker trucks, and even an aerial tramway. One proposal, the use of ice-breaking tankers to ship the crude oil through the Northwest Passage to the U.S. east coast, merited enough serious consideration that the industry spent \$40 million testing its feasibility. Commissioned by Humble Oil (now Exxon) in 1969-70, the *S.S. Manhattan* was reconfigured with ice-breaking capabilities and became the first commercial vessel to complete the Northwest Passage.

The intent of this paper is to detail some of the proposals for bringing Prudhoe Bay crude oil to market. These transportation ideas – whether meritorious or outlandish – fall squarely within Alaska's frontier myth and pioneer spirit where daring and ingenuity in the face of the natural environment are both encouraged and rewarded.

A CENTURY OF OIL IN LOUISIANA

Don Davis, Center for Coastal Energy and Environmental Resources, Room E302, Howe-Russell Geoscience Complex, Baton Rouge, LA 70803, 225-578-3481

Louisiana's first producing oil well was completed in 1901. From this beginning, the industry expanded throughout Louisiana, with all 64 parishes (counties) being involved. In 1947 the industry discovered marketable hydrocarbon offshore in Ship Shoal Block 32. This event gave birth to the offshore industry. Although production numbers declined in the 1980s and early 1990s, the lure of large finds in deepwater off Louisiana's coast rekindled interest in this hydrocarbon province. Auger, Mars, Mensa, Neptune, Thunder Horse, Ursa and many other deepwater fields are now part of the country's oil and gas inventory.

Recent technological innovations, coupled with new state incentives, have lowered the costs to find hydrocarbon reserves and improved the probability of discovering these reserves. As a result, there is renewed interest in Louisiana prospects. In this regard, oil companies are investing millions in leasing and exploration programs. The state is

undergoing a mini oil boom. With little to no fanfare, indeed in relative anonymity, the industry has been reborn.

TREADWELL WHARF IN THE SUMMERLAND, CALIFORNIA OIL FIELD: THE FIRST SEA WELLS IN PETROLEUM EXPLORATION

Alan Grosbard, 10100 Santa Monica Boulevard, Suite 950, Los Angeles, California 90067, (310) 277-0505, alan@alangrosbard.com

Literature on the history of petroleum exploration often notes without attribution that Summerland, California was the location of the world's first offshore oil wells. Seldom mentioned is the fact that in the late 1800's at the identical moment in time another group of petroleum explorers were pursuing oil reservoirs past the shoreline and into the sea.

In California, exploration was led by H.L. Williams, a land developer who had purchased 1,050 acres of land in Summerland, south of Santa Barbara, California. Williams originally intended to profit by selling small lots to fellow members of a small sect named Spiritualists. Sales proved difficult and few, buyers too demanding. Under pressure from his mortgage holder and in fear of losing his investment due to dwindling sales and increasing costs, Williams actively pursued discovery of oil wherever it could be found, using the potential for oil discovery to sell lots at higher prices to oil speculators.

In contrast to Williams and his ambitious plans for personal gain and the loose coalition who followed him, was the highly evolved bureaucracy of the government of Czar Nicholas II, Emperor of Russia. It intended to exploit oil in the Caspian Sea, offshore of the Baku field in Azerbaijan. To accomplish its goal, it turned to its principal contractor, the Nobel Brothers.

In 1898, Williams and his fellow leading citizens approved an application by J.B. Treadwell, a railroad engineer, to build the Treadwell wharf at Summerland and to construct on it a series of wells extending out into the Pacific Ocean. There were no governmental regulations of any kind, local, state or federal, to prevent drilling into the sea or to charge the driller a tariff on the oil that was extracted, beyond a single \$101 payment to Santa Barbara County for the right to construct the pier. Treadwell relied upon the Darling Brothers' local machine shop to engineer conduit to prevent these sea wells from flooding. Treadwell was quickly joined by a rush of individuals and small firms, many of them antecedents to today's well known oil companies. In total 412 sea wells were constructed in four years at Summerland, California. Due to the limited nature of the reservoir, production quickly peaked, then declined steadily. During its years of operation, the Summerland field produced an estimated 1.3 million barrels of oil. By contrast, the Caspian field holds an estimated 2 billion barrel reservoir.

This paper reports the history of the Czarist government's project to explore the Caspian Sea at Baku, then reports the unique factors that motivated and made possible the petroleum exploration of the sea at Summerland and the operation, ownership and history of its sea wells.