THE ANCHORAGE PORT STORY

THE BEGINNING

Every story has a beginning. The TAMS-Anchorage Port story began in February 1951 when the U.S. Army Corps of Engineers asked TAMS to make a study of the feasibility of building a tanker berthing facility in Knik Arm, about where the present port was subsequently constructed.

Although our investigations and preliminary engineering studies had developed a great deal of useful information, particularly for establishing the shear lines defining the paths of ice movements in Knik Arm, more data was needed on the effects of the severe ice conditions on the proposed wharf. We needed to know how it behaved at the dock and why, how much ice there was and how heavy it was.

In the winter of 1958, one of our more intrepid engineers, Harry Ekizian, decided that the best way to get some answers was to try to unlock Ocean Dock's secrets of survival. Tied at the end of a stout rope held by a stout fellow who had strict instructions to pull up at the first signal, Harry dropped through a hole in Ocean Dock and descended below the dock deck. Crawling in a two-foot air space between the 20-foot-thick ice and the underside of the dock, he found the piles surrounded by giant "popsicles" bridged together by ribs of ice. Harry lowered himself against the sides of these huge ice columns and chopped out ice blocks at various depths. Returning to the milder -10° temperature above, Harry took the ice blocks to the City's engineering office to determine their weight and volume.

This adventure provided important data on how the ice formed on the piles; the connection of piles with ice "bridges," and the density of the ice which, because of the way it was formed and the high air entrainment, weighed 35 to 38 pounds per square foot. These facts provided basic data on the ice load the piles would have to support, the hydrostatic uplift acting on the 20 feet of ice pack under the dock and the spacing of piles for the new wharf.

As in most engineering projects, many individuals at TAMS have contributed to the planning, design and construction of the Anchorage Marine Terminal. Robert W. Abbett was the first Partner-in-Charge, with Thomas J. Fratar responsible for feasibility studies and Harry Ekizian for design. When George Treadwell joined TAMS in 1960, he took over management of the Anchorage work and the Pacific Northwest Office. John Lowe III and Ernest Jonas were responsible for foundation investigations and designs from the beginning. Recent work has been under the direction of Austin E. Brant Jr., Executive Vice President for TAMS PC (Alaska) with the support of Philip Perdichizzi, Vice President, Tetsu Yasuda, Design Engineer and Bill Bunselmeyer, Resident Engineer.

The story of the design and construction of the Anchorage Marine Terminal is unique. It was a challenging assignment that encouraged an innovative approach to design and construction methods to overcome the natural forces imposing on the structure.

Perhaps the pioneer "can do" spirit that exists in those who live in the Great Land rubbed off; "can do" became "well done."

Port operations in Anchorage date back to 1918 when the U.S. Department of the Interior built the timber-piled Ocean Dock to bring in materials for the construction of the Alaska Railroad. Apart from several minor bulkheaded areas used for berthing barges, Ocean Dock remained, until the 1950's, the principal link for water transport serving Anchorage. By the mid-1950's, the rapid growth of the Anchorage area had created a need for a larger and more modern port.

Commissioned to make the feasibility study, several of TAMS' engineers visited Anchorage to gather data and determine some of the engineering problems that would be encountered in building a pier in the ice-covered Arm.

One of the first tasks was the implanting of flag markers out on the floe ice in the Arm so that the movement of the ice could be measured. Our records don't reveal how our engineers accomplished this difficult and hazardous task — it was probably done from the air. Shore observation stations were set up to record the movement. Studies were also made of the ice pile-up on the shore caused by 35-foot tides, and preliminary soil investigations were conducted.

A report of our investigations and findings was submitted to the Corps of Engineers on January 7, 1952. In substance, the report stated that although the construction of a major dock facility at the site was feasible, serious problems brought about by the floe ice, the extreme tidal range, poor soil conditions and an earthquake force high on the Richter scale had to be first resolved. Our report also included several preliminary designs for a cellular island docking structure.

In 1955 the City of Anchorage retained TAMS to continue investigations and draw up a master plan for the development of a general cargo port. With the acceptance of our master plan, we were commissioned in 1957 to develop designs and contract documents for the first of the planned terminals.

The design team assembled for the project had considerable preliminary information to work with. Data collected during our 1951 studies was available. Practical information on the behavior of the ice, tides and currents obtained from those who lived in the area proved most useful. There was also the Ocean Dock, a wood-pile structure which had survived the inhospitable environment for 35 years, encouraging our designers to consider a pile foundation for the proposed new wharf.

THE MASTER PLAN

The Master Plan for the Port of Anchorage presented a program for the phased development of this port to provide facilities for general cargo, containerized cargo, bulk cargo and petroleum products.

The initial development phase provided for the construction of a marginal wharf with 600 feet of berthing space and a 53,000-square-foot transit shed.

The latest element of the port construction, closely following TAMS' original concept, is now substantially complete. The port, with 2000 feet of berthing space, provides services for general, bulk and containerized cargo and petroleum products. Recently, roll-on/roll-off facilities were engineered for the berthing, loading and unloading of trailers. The world's largest trailership, the 790-foot *Great Land* took on its first load of trailers at Seattle on September 6, 1975, arriving at Anchorage to unload its cargo of trailers several days later. The success of this operation has led Totem Ocean Trailer Express, (TOTE) owner of the *Great Land*, to add a second vessel to the service.

Top — Great Land unloading trailers at Anchorage, 1975.

Bottom — Master plan developed by TAMS.