SUPPLEMENTARY INFORMATION:

Background

In the aftermath of the EXXON VALDEZ grounding, the state of Alaska established a contingency plan that includes provisions requiring laden tankers to be escorted through Prince William Sound. The escort vessels are expected to provide immediate assistance to a tanker in the event it suffers a propulsion or steering failure. The escort vessels also have some spill response capabilities. At present, there are 11 tugs and escort vessels in this service, operating out of Port Valdez and escorting tankers to Hinchinbrook Entrance.

The Disabled Tanker Towing Study Group (DTTSG) was formed to review the present escort vessel practices in Prince William Sound. The DTTSG is formed of representatives from the Regional Citizen's Advisory Council (RCAC) for Prince William Sound, the Prince William Sound Tanker Association, the Alyeska Pipeline Service Company, the Alaska Department of Environmental Conservation, and the U.S. Coast Guard.

The DTTSG commissioned The Glosten Associates, Inc., to prepare a two-part study. The first part conducted an expert review and evaluation of the emergency towing equipment aboard the tankers and escort vessels operating in Prince William Sound. The second part determined, by means of actual tanker/tug trials and computer simulation analyses, the capabilities of the escort vessels to actually control disabled tankers within the navigational limits of Prince William Sound, under various weather and operating conditions.

Part 1 of the study was previously announced in a notice of availability published by the Coast Guard (59 FR 1411; January 10, 1994). This present notice announces the availability of Part 2 of the study.

Ordering Information

A synopsis of each part of the study is given here in order to provide the public with an overview of the study and its findings. Persons interested in obtaining full copies of the study may order it from the National Technical Information Service. The NTIS publication number for Part 1 of the study is PB94-120961 (price \$27.00 for paper copy, or \$12.50 for microfiche copy). The publication number for Part 2 is PB95-147617 (price \$119.00 for paper copy, or \$52.00 for microfiche copy). A separate shipping and handling charge of \$8.00 per order also applies. It generally takes 3 to 6 weeks to fill an

order, unless a customer opts to pay for 24-hour turnaround.

Summary of Part 1

Part 1 of the DTTS, entitled "Evaluation of Existing Equipment, Personnel and Procedures," is summarized as follows:

The DTTS is an objective evaluation by an experienced salvage towing master of the existing tugs, emergency towing equipment, towing practices, and discussion of alternate tug types.

The Part 1 investigation was performed by subcontractor Smit Tak BV, based in Rotterdam. Captain Jan ter Haar, a senior Smit Tak salvage master, conducted interviews and observed normal operations and emergency drills in the Valdez area.

All tankers calling at Valdez are required to carry specific emergency towing gear for rapid deployment and connection to a rescue tug. This "Prince William Sound Emergency Towing Package" is stowed and deployed differently on various vessels. Captain ter Haar recommends that all vessels adopt systems that can be readied for deployment in 15 minutes or less by a crew of two without using winch power.

Captain ter Haar demonstrated, in drills, several effective alternative methods of making towing connections with the tugs' own gear, without deploying the ship's Prince William Sound Towing Package. Drills were also used to assess crew skills in towing large tankers in adverse weather with multiple tugs. He concludes that additional drills and training, both in the makeup and towing operations, would be beneficial.

Captain ter Haar concludes that the vessels presently under contract are suitable for rescue towing in Prince William Sound under a full range of weather conditions. In the open waters of the Gulf of Alaska, at and beyond Hinchinbrook Entrance, he concludes that a larger salvage tug would improve the capability to prevent a major casualty.

Summary of Part 2

Part 2 of the DTTS, is entitled "Computer Simulations of Escort and Rescue Towing Scenarios." Part 2 evaluates, using computer simulations, the capability of existing escort vessels in Prince William Sound, Alaska, and examines alternatives, if any, that could enhance escort and rescue towing capabilities in a worst case failure scenario. The study was subsequently expanded to include a parametric study to investigate the consequences of variants from the worst case. The parametric variables included wind speed, tanker speed, failure rudder angle, failure recognition time and tug notification time.

Tug escort of laden tankers has been a feature of tanker operations in Valdez Narrows since the opening of Alyeska Valdez Marine Terminal in 1977. Shortly after the grounding of the EXXON VALDEZ in 1989, escorting was extended all the way through Prince William Sound to Seal Rocks in the Gulf of Alaska.

Tankers calling in Prince William Sound range in size from 60,000 to 265,000 DWT. Three representative sizes, 90,000 DWT, 170,000 DWT and 265,000 DWT, were chosen for computer simulation.

In developing the parameters of the study, it was decided that worst-case scenarios would be investigated because if the escort system was effective in worst cases it would be effective in all situations. The worst-case scenario was a combination of: a hard-over rudder failure, loss of power, extreme weather conditions, a failure recognition delay and a conservative definition of areas (red zones) where a response effort would be considered ineffective.

The study investigated (via computer simulations) five geographic locations in Prince William Sound (PWS): Valdez Narrows; Valdez Arm; central Prince William Sound; Hinchinbrook Entrance; and the Gulf of Alaska near Seal Rocks. The climatology used for this study was the worst-case wind and sea state resulting from a 25-year return period storm or the defined closure condition in each of the study's geographic areas.

The study defined the worst-case tanker failure scenario to be:

- —A 35-degree locked rudder failure.
- A time delay for failure recognition.
- —Simultaneous shutdown or loss of the propulsion system upon rudder failure recognition.

The parametric study investigated less extreme variations to the failure scenario (rudder failures at 10 and 20 degrees, shorter time delays for failure recognition and tug notification, and reversing of the tanker engine).

Each class of tugs currently on charter was modeled for use in the computer simulations, as well as four other tug designs as possible alternatives. These alternative vessels were:

- —4000 BHP vertical axis propeller tractor tug.
- —7600 BHP vertical axis propeller tractor tug.
- —7110 BHP azimuthing propeller (Zdrive) pusher tug (sometimes called a reverse tractor).
- —168-ton bollard pull deep sea salvage tug.