

Report: Oil tankers pose greatest risk to inlet

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By Brian Smith

Peninsula Clarion

A recent study aimed at determining historical rates and predicting future probabilities of oil spills and other materials into Cook Inlet from marine vessels found tank ships -- those carrying oil as their primary cargo -- have the lowest baseline spill rate.

However, that same report indicates oil tank ships present the greatest risk in Cook Inlet due to their greater oil capacity and concentrated operations in the middle region of the inlet.

The Glostén Associates recently released a draft report titled "Spill Baseline and Accident Causality Study" for use in the Cook Inlet Maritime Risk Assessment project. The Cook Inlet Regional Citizens Advisory Council is one of the lead organizations on project, along with the U.S. Coast Guard and Alaska Department of Environmental Conservation.

According to a press release, the study builds on the findings of a recent Cook Inlet vessel traffic study and estimates, by vessel type, spill frequency and size. It presents a future oil spill rate for 10 years based on 16 years of historical incident data. Glostén Associates, from the vessel traffic study's projected oil movements, also estimated average spill rates. The report also characterizes more than 1,000 spill scenarios developed from seven spill factors and highlights 13 spill scenarios with the highest combined probability and consequence.

"It will help us to help all of the stakeholders in Cook Inlet navigation determine what is the current and projected level of vessel traffic, what is the likelihood of various types of accidents that can occur and it will help us determine how we avoid or eliminate the likely causes of those accidents and mitigate the consequences of the actions should they occur," said Jerry Rombach, CIRCAC Director of Public Outreach.

The results of the report were presented to the Cook Inlet Risk Assessment Advisory Panel and Management team Monday in Anchorage. The report is available for download at www.cookinletriskassessment.com. The public is also invited to comment on the report's findings through a Friday deadline to cira.comments@nukaresearch.com.

Rombach said several factors make oil tank ships most risky in Cook Inlet.

"The tide and the currents," he said. "This is the second greatest tide in North America and also the currents based not only on tidal flow, but based also on the numbers and volume from streams. ... Third would be the extreme ice conditions that occur throughout the winter months."

He added the presence of numerous oil and gas platforms also present a navigational hazard unique to the area. Projected increases in marine traffic from recent and future oil and gas exploration were also incorporated in the study, Rombach said.

Four types of vessels were looked at in the study including:

- * Tank ships carrying crude oil as their main cargo;
- * Tank barges, which carry oil but aren't self-propelling and are usually pulled by a tug;
- * Non-tank/non-workboat vessels, which do not carry oil as primary cargo, but do include cargo vessels, gas carriers, and passenger vessels;
- * Workboats, which include offshore supply vessels, oil spill response vessels, tugs and other vessels with irregular routing and schedules.

In the baseline incident report, numbers of spills and incidents were totaled among those studied vessels. An incident is defined as a mishap that requires attention or response, but may not result in a spill. A spill is not only oil, but can include any number of things that would present a hazard and require response.

The results of the 16 years of study from 1995 to 2010 indicate:

- * Tank ships had 12 spills from 24 incidents, 50 percent.
- * Tank barges had 24 spills from 31 incidents, 77.4 percent.
- * Non-tank/non-workboats had five spills from 27 incidents, 18.5 percent.

* Workboats had 14 spills from 32 incidents, 43.8 percent.

In total, about half of Cook Inlet incidents resulted in a spill during the study period: 114 incidents to 55 spills.

Although tank barges had a higher percent of spills than tank ships or workboats, just looking at the percent does not give the full picture of what's happening, said Eleanor Kirtley, engineer for Glostten Associates.

"The percent spill rate doesn't give how big the spill will be," Kirtley said. "The size of the spill is more a function of the vessel type and the accident type, so that's where a tank ship has the potential for a much larger consequence because it has the potential for a larger spill volume."

In addition, the study found workboats had the highest baseline spill rate at .96 spills per year, the non-tank/non-workboat group had the highest forecasted spill rate at 1.3 spills per year and the total spill rate of the four vessel types is projected at 3.9 per year.

The spill rate was further refined into seven subcategories in the report including vessel types, incidents, vessel movement, oil types, spill sizes, seasons and regions of Cook Inlet.

The regions of Cook Inlet are: lower (Anchor Point south), middle (East Forelands to Anchor Point) and upper (including Knik and Turnagain Arms.) All vessels except oil tank ships had their higher percentage of incidents in the upper region, respectively. Workboats had the highest incident rate in the lower region and non-tank/non-workboats had the highest incident rate in the upper region.

The report details those incident percentages by region as:

* Tank ships -- lower: 17 percent; middle: 58 percent; upper: 25 percent.

* Tank barge -- lower: 13 percent; middle: 42 percent; upper: 45 percent.

* Non-tank/non-workboats -- lower: 26 percent; middle: 26 percent; upper: 48 percent.

* Workboats -- lower: 41 percent; middle: 16 percent; upper: 44 percent.

"The loading docks on both sides of the inlet are in that middle portion," Rombach said. "Most of ... the incidents would involve loading at the ports."

Scenarios were defined for more than 2,000 unique combinations of vessel types and spill factor subcategories, according to the report. A rate and relative consequence was determined for each spill scenario. The majority of those scenarios have a relatively low or very low risk level and a selected set of the highest risk scenarios are detailed in the report, Kirtley said.

The forecasted spill rate for 2015 through 2020 indicates non-tank/non-workboats will have the highest number of spills at 1.29 per year due to an increase in vessel traffic.

Those forecasts included in the report indicate:

* Tank ships -- .0030 spills per vessel traffic day, 242 traffic days per year, with .72 spills per year.

* Tank barge --.0023 spills per vessel traffic day, 408 traffic days per year, with .93 spills per year.

* Non-tank/non-workboats -- .0016 spills per vessel traffic day, 785 traffic days per year, with 1.29 spills per year.

* Workboats -- .0003 spills per vessel traffic day, 3,653 traffic days per year, with .96 spills per year.

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Spill survey to generate recommendations

Findings indicating oil tank ships, while having the lowest historical spill rate, present the greatest risk and consequence to Cook Inlet will prompt a regional organization to develop recommendations on it and other high risk scenarios.

The recently released Spill Baseline and Accident Causality Study for use in the Cook Inlet Maritime Risk Assessment project will be used as a guide to help a panel of experts and stakeholders make suggestions on how best to prepare for, mitigate and respond to high-risk and high-consequence marine vessel incidents or spills in the inlet, said Jerry Rombach, Cook Inlet Regional Citizens Advisory Council Director of Public Outreach.

Among the various items detailed in the report were 1,000 spill scenarios ranked by probability and consequence, the bulk of which were deemed low risk. The few that were in the highest risk categories, including a major oil tank spill, will be up for review by the Cook Inlet Risk Assessment Advisory Panel and Management team this September on a priority basis, Rombach said.

"It is going to be a balancing act of incident risk and consequence and it'll be up to the project manager to lay out those scenarios so that in the course of this workshop appropriate attention is being paid to both the high risk types and the high consequence types," Rombach said.

That advisory panel met Monday in Anchorage to review the findings of the recently released study, but didn't get to the business of making recommendations just yet.

“The purpose was not to then go in and say, ‘OK, if the highest risk is tank barges in middle Cook Inlet, what can we do to mitigate those chances of an incident?’” Rombach said.

Such action falls to the project’s next step, which is its ultimate goal — make safe suggestions for the Coast Guard, oil companies, ports and other stakeholders. A combination of state and federal reviews would be needed, Rombach said, to determine which organizations would implement any recommended changes or new rules considering CIRCAC has no enforcement powers.

“The recommendations might be tougher measures in the Coast Guard’s winter ice rules, for example,” Rombach said. “Or they might be recommendations to the ports to have additional service tugs available. Or they might be recommendations to the tanker operators to upgrade their lighting so in nighttime operations they can better see ice conditions on the site.”

— *Brian Smith*

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