

dvance to engagement Even as the economic foundations for new or enhanced energy shipments from B.C. waters seem to tremble under the opposing pressures of depressed oil prices and the haste to compete in a shifting global market, enormous effort continues to be spent in cross-checking operational and environmental viabilities.

For the purposes of the upcoming NIBC conference on Maritime Energy Transport, some of the most technically interesting aspects of this effort are documented within Transport Canada's TERMPOL ("Technical Review of Marine Terminal Systems and Transshipment Sites") process.

The TERMPOL process originated in the 1970s as a result of some spectacularly noteworthy tanker accidents. The infamous *Torrey Canyon* sinking on the Cornish coast in 1967 was followed by the Chedabucto Bay grounding of the *Arrow* in 1970, thus bringing a global problem

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Planning Eldorado: TERMPOL — Hoops and hurdles, or battle of facts?

By RAdm Nigel Greenwood, RCN (Ret'd), Vice-Chair Nautical Institute BC Branch

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to Canadian shores. Subsequent deliberations by an interdepartmental committee led to the initial TERMPOL in 1977.

TERMPOL is now an established process, answering a public concern for demonstration of prudent examination of proposals in order to recognize and mitigate risks. But this is not to say that TERMPOL is without critics. Is TERMPOL now a rigorous, fair and balanced process? Or is it just a broadside of facts, in which the proponents' "weight of fire" easily overwhelms the opposition?

This article will surely not answer these questions to everybody's satisfaction, but it attempts to give a sense of the process, and the diligence of various proponents in documenting their marine risks.



How much study can make the risks real, recognizable and manageable?

Forming line of battle?

Since 1977, TERMPOL has undergone a number of revisions to accord with changing Canadian legislation respecting navigable waters, pollution and the environment. The latest of these revisions was in 2001. Throughout, the TERMPOL has maintained a focus on the integrity of the ship's hull and cargo containment systems, while being gradually extended to consider wider risks and mitigations associated with the ship's passage in and out of coastal waters. In the latest version, this has included consideration of impacts of increasing traffic levels on coastal traffic and communities.

A number of criticisms have been leveled at the TERMPOL process. Various critics have alleged that is: informal; voluntary; secretive; industry-led; toothless; and lacking in (adequate) public consultation. Further criticisms point out that it applies only to hydrocarbon/ chemical shipments (and not increased container traffic, for example) and only for new berths.

Some of these objections speak to individuals' expectations rather than to TransportCanada's (TC) intent. TERMPOL is explicitly not a regulatory instrument. It is a voluntary, informal (although very detailed!) process whereby proponents work with relevant government agencies to identify risks and appropriate mitigations within the framework of industry best practices and existing regulation. It is conducted in an "industrially confidential" manner until TC's review of the proponent's submission is complete and published. Increasingly, this has included

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voluntary public engagement, as was the case in Trans Mountain Pipeline's 44 information sessions associated with their TERMPOL between October 2012-13. This much is only good business.

Transport Canada's guidance is clear that the TERMPOL is not an end in itself: conduct of the process does not relieve the proponent of obligations for compliance with all of Canada's existing statutes on shipping and environmental protection. There are plenty of separate regulatory processes of review covering these areas. Furthermore, management of the process by TC, the responsible agency for maritime safety and marine pollution response, means that serious risks revealed in the process can be addressed by new or amended regulation as appropriate. The result is a process that, despite faults, is comprehensive and weighty.

Heavy lifting!

The TERMPOL process commences with the constitution of the Review Committee (RC). This can include as many as six directorates of TC, the Canadian Coast Guard (CCG) and Fisheries and Oceans Canada (DFO). The requirement for additional technical or regional perspectives could add as many as 10 more provincial or federal agency representative to the RC. Provision is also made for the gathering of relevant perspectives from the US Coast Guard in the case of passages crossing maritime boundaries (for instance, ships in Haro Strait inbound for Vancouver).

Under the leadership of a chair appointed by the Director General Marine Safety, the RC determines with the proponent which studies are required to cover the issues pertinent to that proponent's project. After review of the proponent's submissions, the RC then compiles a review report to summarize the scope of the project and to highlight the identified risks and mitigations. Subsequent to approval by the contributing agencies, the report is forwarded to the proponent and made available to the public.

The largest part of the TERMPOL direction (TP743E) is reserved for the outlining of various studies and surveys potentially required. There are 18 of these, ranging from ships' specifications to terminal operations, from route surveys and special under-keel clearances to casualty data plans, general risk analyses and contingency planning. The particular combination of reports is determined according to project nature and scope.

TP743E provides for each of the possible surveys the specific objectives, suggested sources of information, particular expertise and applicable methods of data analysis. Where applicable, relevant regulation is cited for compliance. Otherwise, the direction lays out required elements of the survey. In the case of the Route Analysis, Approach Characteristics and Navigability Survey, for example, there are 12 specific components; the Cargo Transfer and Transshipment Systems survey has 20 separate elements.

While there is some overlap between surveys, the combined effect is a report of exceptional volume and detail. For example, the 16 TERMPOL studies in just Volume 8C of Trans Mountain Pipeline's website of Facilities Application data (the other volumes capturing responses to other regulatory or consultative process) total 2,659 pages.

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Every aspect of the process anticipated, modeled, and simulated

The compilation and analysis leading to such massive data collection requires the co-ordination of large teams of specialists. This typically includes experts in ship-handling and simulation, consultant engineering firms, environmental analysts and oceanographers, and specialists in risk assessment. Two key studies involving the latter are the Casualty Data Survey (TERMPOL 3.8) and the General Risk Analysis and Intended Methods of Reducing Risks (TERMPOL 3.15). These two elements in particular usually involve the expertise of companies with global experience in the management of shipping risks, such as Det Norske Veritas or Lloyd's Register.

Of course, Surveys 3.8 and 3.15 are not the only sections of the TERMPOL that deal with risk. Every part of the TERMPOL weighs contributing factors against mitigating strategies.

Precision and weight of fire

So how effective is this balance, and what kind of detail is mustered in support of the proposal? Clearly there is a massive amount of information collated in the TERMPOL process, but how precisely does it target the key issues?

The answer to these questions can be one of perception. For example, to put this in context of Trans Mountain's TERMPOL (readily available on their website): approximately 480 pages deal with Route Analysis and Traffic; about 300 pages cover meteorological and oceanographic factors; and almost 240 pages address Casualty Data and General Risk Analysis. Against this, over 1,200 pages are devoted to various studies modelling oil spill propagation and response plans. This distribution of effort could be taken to suggest the balance of risk, or it could merely reflect due diligence to the most probable occurrence, even if this is only remotely likely.

The Enbridge Northern Gateway Pipeline (ENGP) project is also well-known to be advanced in the application and review process. Their wealth of TERMPOL reports are available on the National Energy Board's Regulatory Document Index, accessed through the Joint Review Panel site. The former site covering ENGP's TERMPOL contains 18 separate studies, 15 files representing a Technical Data Report (TDR) on maneuvring tankers with tug escort, and an additional 10 TDR on various risk, environmental, and contingency issues. The full remit of ENGP's application runs to 215 folders each containing two to 43 items, thus dwarfing the TERMPOL studies. There is clearly a lot of horsepower being applied to steer this "supertanker" of a project!



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It would be fair to ask at this point if there is any aspect of the proponent's project that has not been subject to intense scrutiny. I would guess not. The scope of $\frac{6}{2}$ the TERMPOL process, as revealed in the couple examples cited here and readily available to the public, is both exhaustive and microscopic. Not only is the project completely detailed, but the environment has been documented in a way that advances our overall knowledge of the coast. The extraordinary wealth of bathymetric, oceanographic, meteorological, zoological and marine-use data captured in the various TERMPOLs amounts to an almost unprecedented scientific evaluation of our watery margin.

In addition to the studies detailing the broad environmental context of the proposed projects, the modelling of ship behaviours and ship-handling techniques contained in the TERMPOL reports provides a fascinating insight into the scientific rigour being applied to the modern execution of traditional seafaring skills. This alone should be enough to encourage interested individuals to examine for themselves the incredible work of the TERMPOL authors.

Join the discussion

Is the TERMPOL process enough to foresee and forestall every harmful potentiality of increased energy shipments on the B.C. coast? I would not make this assertion, nor I believe would any prudent individual. However, this process (along with the other regulatory requirements) goes as far as anyone reasonably can to resolve key issues in what can never be a truly zero-risk enterprise.

How close to "zero-risk" the energy transport business becomes in B.C. waters is a function of engaged and informed debate which understands the motivations and capabilities of industry while respecting the concerns of coastal inhabitants. This therefore is the objective of the BC Branch of the Nautical Institute's May conference: to foster this debate in a climate of professional exchange and collegial engagement.

"Maritime Energy Transport: Today and Tomorrow in the Pacific NW" will take place in Victoria, May 7-8, 2015. Further information, registration, or sponsorship opportunities are available at www.nibcconference2015.com.

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