

I.1.5 Draft Vendor Request for Proposals

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Contact Persons

All enquiries related to this Request for Proposals (RFP), including any requests for information and clarification, are to be directed, in writing and by e-mail, to the following Contact Person:

Attention: Chris Anderson, Marine Advisor
E-Mail: chrisj.anderson@enbridge.com

Northern Gateway Pipelines Limited Partnership
Box 50, One Bentall Centre
Suite 660 Burrard Street
Vancouver, BC
V7X 1M4

Please copy all correspondence to:

Attention: Michael Cowdell, Project Engineer
E-Mail: Michael.Cowdell@WorleyParsons.com

WorleyParsons Westmar
a division of WorleyParsons Canada Ltd.
#400 - 233 West 1st Street
North Vancouver, BC
V7M 1B3

Enquiries and any responses will be recorded and may be distributed to all prospective Proponents at the option of Northern Gateway Pipelines Limited Partnership (Northern Gateway).

Delivery of Proposals

Proposals must be delivered electronically by e-mail to:

Northern Gateway Pipelines Limited Partnership
Attention: Chris Anderson, Marine Advisor
E-Mail: chrisj.anderson@enbridge.com

Please copy Michael Cowdell (Michael.Cowdell@WorleyParsons.com) when submitting proposal.

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Closing Time

Proposals must be received on or before **Thursday, March 26, 2009 by 2:00 p.m., Pacific Daylight Time.**

Proponents' Meeting

A Proponents' meeting has not been scheduled at this time.

1 Definitions and Administrative Requirements

1.1 Definitions

Throughout this Request for Proposals (RFP), the following definitions apply:

1. “Consultant” means the Proponent who enters into a written Contract with Northern Gateway as a result of this RFP.
2. “Addenda” or “Addendum” means documents of the same name that may be issued by Northern Gateway for the express purpose of amending any part of this Request for Proposal.
3. “Closing Time” means the time and date described on the cover page of this RFP as the last acceptable time and date for delivery of a Proposal.
4. “Contact Person” means the person named on the cover page as the only party authorized to communicate with prospective Proponents on behalf of Northern Gateway.
5. “Contract” means a written agreement resulting from this Request for Proposals executed by Northern Gateway and the Consultant as defined in *Section 3*.
6. “Northern Gateway” means Northern Gateway Pipelines Limited Partnership by its General Partner Northern Gateway Pipelines Inc.
7. “Must”, or “mandatory” means a requirement stated in this RFP that needs to be met in order for a proposal to be considered valid and be eligible for consideration.
8. “Project” means the entire Enbridge Northern Gateway Pipeline project.
9. “Study Budget” means the total budget for the Study, as listed in the terms of the Contract.
10. “Proponent” means an individual or a company that submits, or intends to submit, a proposal in response to this RFP.
11. “Proposal” means an offer prepared and delivered by a Proponent in a manner that substantially complies with the requirements of this RFP.

12. “Request for Proposals” or “RFP” means this document, including all appendices and attachments, as issued by Northern Gateway, as it may be amended from time to time by Addenda.
13. “Services” or “Study” means the professional, technical and other activities to be performed by the Consultant as necessary to fulfil their Contractual obligations to Northern Gateway.
14. “Should” or “shall” or “desirable” means a requirement having a significant degree of importance to the objectives of the Request for Proposals.
15. “Supplier Attachments” means those reference documents, studies and analysis that have previously been completed and that relate to the scope of work contained in this RFP.
16. “Work Package” means a deliverable at the lowest level of the project’s work breakdown structure.
17. “Working Group” is an advisory group to Northern Gateway, comprised of representatives from: environmental conservation groups, local interest groups, First Nations and local governments.

1.2 Terms and Conditions

The following terms and conditions will apply to this Request for Proposals (“RFP”). Submission of a Proposal in response to this RFP indicates acceptance of all the terms and conditions of this RFP, including any and all Addenda. Where any provisions in a Proposal contradicts or conflicts with any part of this RFP, the statement in the RFP shall prevail.

1.3 Subsequent Information Regarding this RFP

All subsequent information regarding this RFP including changes made to this document will be emailed to the same contacts the RFP is distributed to. It is solely the responsibility of the Proponent to read, and understand the entire RFP including any and all Addenda that may be issued prior to Closing Time. Interested Proponents may contact the Contact Person for additional information.

1.4 Contact Person

All enquiries related to this RFP, including any requests for information and clarification, are to be directed, in writing, to the Contact Person who will respond if time permits. Enquiries and any responses will be recorded and may be distributed to all prospective Proponents at the option of Northern Gateway. In person and telephone queries are not permitted.

1.5 Proposal Requirements

Proponents are solely responsible for ensuring that their Proposal complies with the delivery, form, and content requirements of this RFP.

1.6 Changes to Proposals

By submission of a clear and detailed written notice, the Proponent may amend or withdraw its proposal prior to the Closing Time. Upon Closing Time, all Proposals become irrevocable. The Proponent will not be permitted to clarify or change its Proposal after Closing Time unless so requested by Northern Gateway for purposes of clarification or rectification during Proposal Evaluation as anticipated by this RFP.

1.7 Proponent's Expenses

Each Proponent is solely responsible for its own costs and expenses associated with its participation in this proposal call, including but not limited to; conducting investigations, attending briefings, preparing and delivering its Proposal, communicating with the Contact Person during Proposal evaluation, and for any subsequent processes or negotiations with Northern Gateway that may occur.

1.8 Limitation of Damages and Dispute Resolution

By submitting a Proposal, each Proponent irrevocably agrees that If Northern Gateway cancels this RFP or rejects all Proposals, Northern Gateway shall not be liable to any Proponent or any person whatsoever, for any claims of any nature (in contract, in tort, or otherwise), for any costs, expenses, compensation, damages, or anything whatsoever, including without limitation, costs and expenses associated with their participation in this proposal call, for loss of revenue, opportunity, or anticipated profit, arising in connection with its Proposal or any other proposal, this RFP, any subsequent processes or opportunity, any contract, or any matter whatsoever.

1.9 Proposals Validity

Proposals will be open for acceptance forty-five (45) days from the Closing Time.

1.10 Firm Pricing

Prices will be firm for the entire Contract period unless this RFP specifically states otherwise.

1.11 Currency and Taxes

Prices quoted are to be in Canadian dollars and exclusive of Goods and Services Tax (GST).

1.12 Completeness of Proposal and Pricing

By submission of a Proposal, the Proponent warrants that all required components have been identified in the Proposal or will be provided by the Consultant at no additional charge.

1.13 Subcontracting

It must be clearly stated in the Proposal if the Proponent intends to use a subcontractor or subconsultant for any part of any services requested by this RFP.

The Proponent must provide the legal name of the subcontractor or subconsultant as well as the items of work the sub-contractor or subconsultant will be responsible for providing the Consultant.

Using a subcontractor or subconsultant not identified in the Proposal is NOT permissible without the prior written consent of Northern Gateway.

1.14 Acceptance of Proposals

This RFP shall not be construed as an agreement to purchase goods or services. Northern Gateway is not obligated to enter into a Contract with the Proponent who submits the lowest priced or highest rated Proposal or with any Proponent.

1.15 Definition of Contract

Notice in writing to a Proponent that it has been identified as the preferred Proponent and the subsequent full execution of a written Contract by both parties will constitute a Contract for the goods or services anticipated by this RFP. No Proponent will acquire any legal or equitable rights or privileges relative to the goods or services until the occurrence of both such events.

1.16 Contract

By submission of a Proposal, the Proponent agrees that should it be identified as the preferred Proponent, the Proponent will enter into a Contract on the terms set out in *Section 3* of this RFP.

1.17 Investigation and Liability for Errors

While Northern Gateway has used considerable efforts to ensure information in this RFP and otherwise provided by the Northern Gateway directly in association with this RFP is accurate, the information is supplied solely as a guideline for Proponents. The information is not guaranteed or warranted to be accurate by Northern Gateway, nor is it necessarily comprehensive or exhaustive.

Nothing in this RFP is intended to relieve Proponents from the responsibility for conducting their own investigation and forming their own opinions with respect to the subject matter of this RFP. The Proponent shall not rely on the representations or information contained in this RFP or referenced in this RFP, or otherwise obtained from the Contact Person or from any briefing as being descriptive of the risks and conditions associated with the locality, nature, and scope of the service required by Northern Gateway.

Each Proposal shall be made and shall only be accepted on the basis that:

- a) the Proponent has fully investigated and satisfied itself of all risks regarding conditions affecting the service, including but not limited to the site conditions, labour, equipment, material, and other resources to be provided.
- b) the Proponent's investigation has been based on its own independent examination, experience, knowledge, information, and judgement, and not upon any representation or information made or given by the Northern Gateway.
- c) the Proponent is willing to assume and does assume all risks regarding conditions affecting their ability to perform their obligations arising from the Contract.

1.18 Modification of Terms

Northern Gateway reserves the right to modify the terms of this RFP at any time in its sole discretion. This includes the right to cancel this proposal call at any time prior to entering into a Contract with the preferred Proponent.

1.19 Ownership of Proposals

All proposals submitted to Northern Gateway become the property of Northern Gateway. They will be received and held in confidence by Northern Gateway, subject to the provisions of the Freedom of Information and Protection of Privacy Act and with the exception of the information which will be shared publicly as stated in *Section 4* of the RFP.

1.20 Use of Request for Proposals

Any portion of this document, or any information supplied by Northern Gateway in relation to this RFP may not be used or disclosed, for any purpose other than for the submission of proposals. Without limiting the generality of the foregoing, by submission of a proposal, the Proponent agrees to hold in confidence all information supplied by Northern Gateway in relation to this RFP.

1.21 No Lobbying

Proponents must not attempt to communicate directly or indirectly with any employee, contractor or representative of Northern Gateway other than the Contact Person, or their designated representative, including the Working Group, other Consultants under contract to Northern Gateway, or with members of the public or the media, about the project described in this Request for Proposals or otherwise in respect of the Request for Proposals, other than as expressly directed or permitted by the Contact Person.

1.22 Collection and Use of Personal Information

Proponents are solely responsible for familiarizing themselves, and ensuring that they comply, with the laws applicable to the collection and dissemination of information, including resumes and other personal information concerning employees and employees of any subcontractors. If this RFP requires Proponents to provide Northern Gateway with personal information of employees who have been included as resources in response to this RFP, Proponents will ensure that they have obtained written consent from each of those employees before forwarding such personal information to Northern Gateway. Such written consents are to specify that the personal information may be forwarded to Northern Gateway for the purposes of responding to this RFP and use by Northern Gateway for the purposes set out in the RFP. Northern Gateway may, at any time, request the original consents, or copies of the original consents, from Proponents, and upon such request being made, Proponents will immediately supply such originals or copies to Northern Gateway.

2 Northern Gateway Requirements (Study Scope)

2.1 Introduction to the Enbridge Northern Gateway Pipeline Project

Northern Gateway proposes to construct and operate a twin pipeline system running from near Edmonton, Alberta, to a new tank and marine terminal (referred to as the Kitimat Terminal) in Kitimat, British Columbia, in order to export petroleum and import condensate. The marine terminal will be located on a 1,000-metre stretch of shoreline on the west side of Kitimat Arm in Douglas Channel (see Figure 1) and will include storage facilities, two marine berths, and one utility berth.



FIGURE 2-1: Kitimat Terminal Location Plan

Both marine berths (see Figure 2, below) will be used by vessels unloading condensate and loading petroleum. Each berth is designed to accommodate tankers ranging from an Aframax vessel class (minimum) to a Very Large Crude Carrier (VLCC) vessel class (maximum). The marine terminal will accommodate the simultaneous loading of vessels with petroleum, but unloading of only one condensate tanker at a time.

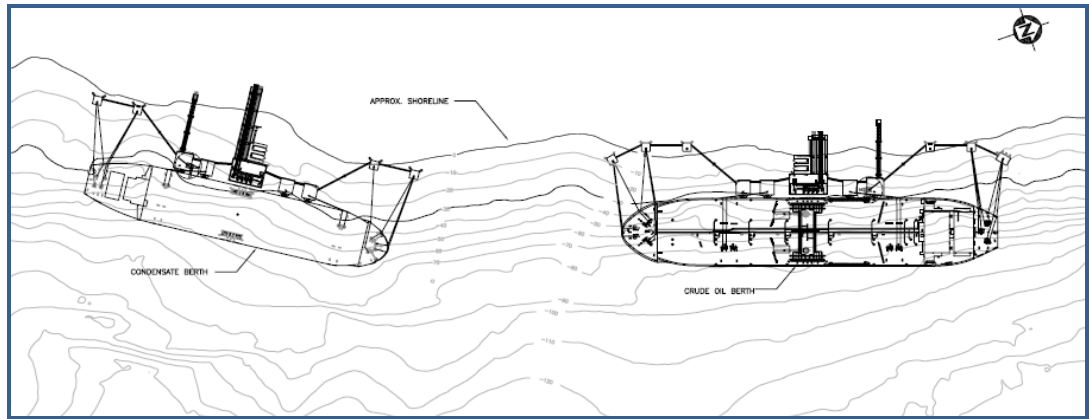


FIGURE 2-2: Proposed Tanker Berths

Estimates, by vessel class, of annual throughput and vessel numbers using the marine terminal are provided in *Table 2-1*. *Table 2-2* provides specifications for vessels forecast to use the marine terminal.

TABLE 2-1: Terminal Throughput by Vessel Class

Parameter	Vessel Class		
	VLCC Maximum Size	Suezmax Average Size	Aframax Minimum size
Annual Oil Product by Ship Class (m ³)	16,000,000	11,000,000	4,000,000
Annual Condensate Product by Ship Class (m ³)	0	9,000,000	2,000,000
Total Annual Cargo per Ship Class (m ³)	16,000,000	20,000,000	6,000,000
Total Annual Cargo (m³)	42,000,000		
Minimum / Average / Maximum Number of Vessels per Year	40 / 50 / 60	110 / 120 / 130	40 / 50 / 60

TABLE 2-2: Vessel Class Specifications

Parameter	Vessel Class		
	VLCC Maximum Size	Suezmax Average Size	Aframax Minimum size
Minimum Vessel Size (DWT ⁽⁴⁾)	200,000	120,000	80,000
Maximum Vessel Size (DWT ⁽⁴⁾)	320,000	200,000	120,000
Overall Length (m)	340	274	240
Beam (m)	58	48	42
Depth (Keel to Main Deck) (m)	30	23	20
Loaded Draft (m)	23	17	15
Average Cargo Capacity (t) ⁽¹⁾	300,000	160,000	100,000
Average Cargo Capacity (m ³)	320,000	160,000	120,000
Average Cargo Capacity (bbl)	2 million ⁽¹⁾	1 million ⁽¹⁾	0.75 million ⁽³⁾
Main Engine Power Rating (kW)	30,000	20,000	15,000

Notes:

- (1) Average capacity relates to the average ship size in the 2008 double-hulled tanker fleet (Clarkson Research Services Limited 2008).
- (2) Assumes diluted bitumen density of 0.93 t/m³ and a synthetic oil density of 0.88 t/ m3.
- (3) Assumes condensate density of 0.73 t/m³ and vessel capacity is limited by its volume capacity.

The North Route will be used by vessels arriving from or departing to Asian ports. It passes north of the Queen Charlotte Islands through Dixon Entrance, and continues via the northern end of Hecate Strait, through Browning Entrance, Principe Channel, Otter Channel, Lewis Passage, Wright Sound and Douglas Channel to the Kitimat Terminal.

The South Route will be used by vessels arriving from or departing to US west coast ports. It passes through Queen Charlotte Sound, and continues through into the southern part of Hecate Strait, through Caamaño Sound, Squally Channel, Lewis Passage, Wright Sound and Douglas Channel to the Kitimat Terminal.

There are alternatives to these basic routes, some of which are shown on the shipping route plan (*Figure 1, Appendix C*). The principal alternative to bypass Camaano Sound and transit north in Hecate Strait up the western side of Banks Island and then via Browning Entrance into Principe Channel.

Additional alternatives are:

- a) Transit of Whale Channel (as opposed to Lewis Passage);
- b) Transit of Cridge Passage (north of Fin Island);
- c) Transit of Estevan Sound (on the west side of Campania Island); and,
- d) Transit of Laredo Sound and Laredo Channel (for smaller ships).

Local pilots will board and assist all incoming vessels. Two pilot stations are currently in use in the area. Triple Islands is a permanent station and will be used by ships traversing the northern approach. Alternative boarding stations may be designated by the Pacific Pilotage Authority.

2.2 The “Working Group”

Northern Gateway is striving to have an open and inclusive planning process for the Project. To this end, Northern Gateway has undertaken a comprehensive public consultation and First Nations engagement program for the terrestrial and marine components of the Northern Gateway Project. Specific to the Study, Northern Gateway has assembled the Working Group comprised of local interest groups, First Nations, environmental conservancy organizations, and local governments to provide input to the scope for the Study and review the Study's findings.

2.3 Purpose of the QRA

As per the National Energy Board Act, Northern Gateway will file for regulatory approval from the National Energy Board (NEB) to construct new pipeline facilities and export petroleum. Northern Gateway is also proceeding with the voluntary TERMPOLE Review Process (TRP) which refers to the Technical Review Process of Marine Terminal Systems and Transshipment Sites. The TRP is managed by Transport Canada and may complement assessments under the Canada Environmental Assessment Act (CEAA) and the Navigable Waters Protection Act (NWPA).

To complete the above mentioned assessments and filings, Northern Gateway has completed and is commissioning a number of studies. One of these studies is a comprehensive marine Quantitative Risk Assessment (QRA). The purpose of the marine QRA will be to study risks associated with the marine transportation to and from, and cargo transfer operations at, the proposed marine terminal. Outcomes of the QRA will be used to address specific items in the TRP as well as the CEAA and NWPA assessments and NEB filings. Results from the QRA will also answer questions from local communities and environmental organizations.

2.4 Summary of Scope of Work

Suitable Proponents will likely assemble a team comprised of personnel experienced in marine QRA and marine tanker transportation. Proponents should include as part of their proposal, at least three relevant projects within the past 10 years, where the majority of the work undertaken was completed by the Proponent in the role of prime consultant.

The Proponent is asked to prepare separate detailed estimates and work plans for the following three basic scope items:

1. A formal QRA.
2. Obtaining local knowledge and technical input from industry groups such as British Columbia Coast Pilots Ltd.
3. Addressing items raised by the Working Group, other community members, stakeholders, and First Nations groups from the Study area.

The above three basic scope items, may require travel and in the vicinity of the Kitimat Terminal, and marine transportation routes described in *Section 2.1*. The Proponent should clearly indicate travel that has been allowed for each of the above three basic scope items and include a summary of tentative travel dates and a travel budget as described in *Sections 4.4.7 and 4.4.8*.

2.5 Formal QRA

The following tasks described in *Sections 2.5.1 and 2.5.2* shall, at a minimum, be completed as part of the Study. Not all tasks necessary for a comprehensive QRA have been described below. It is Northern Gateway's expectation that each Proponent will elaborate on the tasks below and describe in detail all tasks the Proponent believes are necessary for completing a comprehensive QRA for the operations described in *Sections 2.1 and 2.3*.

2.5.1 Phase 1 (To Be Completed Before June 30, 2009)

1. Identify hazards to marine tanker traffic transiting to and from the marine terminal near Kitimat and the open ocean, using the preferred (and alternative) routes described in *Section 2.1*.

2. Quantify the risks associated with marine tanker traffic transiting to and from the marine terminal near Kitimat and the open ocean, using the preferred (and alternative) described in *Section 2.1*, routes with existing controls (navigation aids, etc.) in place.
3. Identify hazards to tanker loading and unloading operations at the marine terminal.
4. Quantify the risks associated with loading and unloading operations at the marine terminal, with minimum acceptable controls in place.
5. Propose measures to mitigate the risks calculated in Steps 2 and 4 above and re-quantify the risks with those measures in place. Specifically, Northern Gateway wishes to determine the impact of the following on lowering risk:
 - The use of mandatory tethered escort tugs in the “Confined Channel Area” of the approach routes (the inner route sections east of Hecate Strait and Queen Charlotte Sound).
 - The impact on risk of exclusively using double hulled tankers.
 - The impact on risk of the use of enhanced navigation systems (to be determined by the Consultant in consultation with Northern Gateway’s Marine Advisor).

The above Tasks 1 through 5, inclusive, must be summarized in a draft interim report delivered by the Consultant to Northern Gateway by mid June, 2009.

If the Proponent is unable to complete Tasks 1 through 5 inclusive before the end of June 2009, this must be clearly indicated as per the requirements outlined in *Sections 4.4.6 and 4.4.8* of the RFP.

2.5.2 Phase 2 (To Be Completed By September 30, 2009)

6. Provide descriptions and probabilities for all credible scenarios of an oil and condensate spill occurring at the terminal and along the preferred (and alternative) routes.

7. Examine and provide the probabilities of credible scenarios that meet regulatory requirements of the Canada Shipping Act and all other applicable Canadian regulations including:
 - Release of 50 m³ of oil at the terminal.
 - Release of minimum 10,000 m³ (or tonne) of oil at locations chosen based on navigational hazards (the Consultant will review locations that have been suggested from previous studies and may augment the list if deemed necessary).
 - Spill volumes estimated based on the credible worst case scenario.
8. Quantify probable spill volumes based on the above scenarios developed by the Consultant in Items 5 and 6, above.

Notwithstanding any other sections of the RFP, the Consultant's Final Report must, at a minimum, satisfy the requirements outlined in Transport Canada's TERMPOL Review Process (Transport Canada Document TP 745 E) Sections 3.8 and 3.15, and Appendix 5.

Table 1, Appendix A includes a list of minimum QRA tasks that the Consultant must complete in order to satisfy Section 3.8 and 3.15, and Appendix 5 of TERMPOL. The list of tasks in *Table 1, Appendix A*, is not exhaustive and it is expected that each Proponent will elaborate on tasks they believe are necessary to meet the intent of Sections 3.8 and 3.15, and Appendix 5 of TERMPOL. At a minimum, each proponent must also state the casualty database(s) they intend to use to complete the casualty data survey requirements.

A copy of the TERMPOL document can be downloaded from the following website:

<http://www.tc.gc.ca/publications/EN/TP743/PDF/HR/TP743E.pdf>

2.6 Interaction with the Working Group and Local Communities

The Consultant must, at a minimum, attend the following meetings described in *Section 2.6* of the RFP.

2.6.1 Meetings with Working Group in Kitimat, BC

The consultant must attend a one day meeting with the Working Group in Kitimat, BC to:

1. Introduce the Consultant and key team members.
2. Review feedback from the Working Group regarding the Study scope described in *Sections 2.4 and 2.5* above.

The date of this meeting has yet to be finalized, but has tentatively been set as either April 16 or 17, 2009 in Kitimat, BC.

Note: Feedback from the Working Group will be incorporated into the Study at Northern Gateway's discretion.

Weather permitting, a second meeting will be set-up during the Study for the Working Group and Consultant to tour the proposed shipping route by boat departing Kitimat BC, arriving Prince Rupert BC. The date for this tour is to be determined and will be coordinated by Northern Gateway to meet the schedule of the Consultant and the Working Group.

Marine transport from Kitimat to Prince Rupert will be arranged by Northern Gateway. The Consultant will be responsible for travel to Kitimat and from Prince Rupert.

2.6.2 Meetings with Other Local Communities, Representatives, Stakeholders, and First Nations

Northern Gateway will arrange meetings for the Consultant to introduce the team and the Study to other community members, stakeholders, and First Nations groups from the Study area. The date for these meetings are to be determined and will be coordinated by Northern Gateway to meet the schedule of the Consultant and the Working Group.

2.6.3 Meetings with Industry Groups

It is the Consultant's responsibility to ensure that the appropriate industry groups (ship operators, pilots, and others) are contacted and interviewed to ensure a complete and comprehensive QRA. Northern Gateway may assist the Consultant in arranging the appropriate meetings. The Consultant should include a schedule and budget allowance for these meetings when completing the requirements of *Sections 4.4.7 and 4.4.8*.

2.6.4 Presentation of Draft Interim Report

The Consultant will present the interim report to the Working Group and other community members, stakeholders, and First Nations groups from the Study area, as appropriate, in Kitimat, BC. The date for this meeting is to be determined and will be coordinated by Northern Gateway to meet the schedule of the Consultant and the Working Group.

2.6.5 Presentation of Draft Final Report

The Consultant will present the draft final report to the Working Group and other community members, stakeholders, and First Nations groups from the Study area, as appropriate, in Kitimat, BC. The date for this meeting is to be determined and will be coordinated by Northern Gateway to meet the schedule of the Consultant and the Working Group.

2.7 Key Deliverables and Dates

Key deliverables and schedule:

TABLE 2-3: Key Consultant Deliverables and Deadlines

Deliverable	Date
RFP issued by Northern Gateway	March 11, 2009
Bids submitted by Proponents to Northern Gateway	March 25, 2009
Bid evaluation by Northern Gateway	March 26, 2009
Presentation of Bids to Working Group by Northern Gateway	April 3, 2009
Award of Contract to Successful Proponent	April 4, 2009
Consultant Presentation and Workshop with Working Group (Kitimat and Prince Rupert, BC)	April 16 or 17, 2009
1 st Draft Interim Report by Consultant to Northern Gateway	June 1, 2009
Consultant Draft Final Report	August 31, 2009
Consultant Completion and Delivery of Final Report to Northern Gateway	September 30, 2009

2.8 Confidentiality

Northern Gateway recognizes that Consultants may have concurrent retainers with other public and private sector clients and expects all parties to work cooperatively to ensure that potential conflicts of interests are disclosed in the proposal and avoided in a timely manner.

The Consultant retained to provide the Services anticipated by this RFP will have access to commercially significant confidential information, therefore they shall not be eligible to provide advice to or act for any other parties associated with any project for which they have performed an assignment under this Contract without the express written consent of Northern Gateway.

2.9 Roles and Deliverables

1. Prepare a draft work plan for review that will define the scope of work to be completed, the study area, schedule (with milestones), methodology and reporting.
2. Prepare a final work plan for review and acceptance by Northern Gateway.
3. Prepare interim reports for review; the number and timing of which to be decided in consultation with Northern Gateway.
4. Prepare a final report for review and acceptance by Northern Gateway.
5. Report to Northern Gateway and the Working Group as and when issues arise, recommend appropriate corrective actions, and discuss resolutions with Northern Gateway.
6. Compile existing information, identify information gaps and recommend requirements specific to this Study.

2.10 Geographical Limits for the QRA

For the purposes of the QRA, it is proposed that vessel transportation areas be segregated into three different navigation zones including:

- The Offshore Area: Seawards of Vancouver Island and Queen Charlotte Islands.
- The Open Water Area: Including Dixon Entrance, Hecate Strait and Queen Charlotte Sound.
- The Confined Channel Area: All channels east of Hecate Strait.

2.11 Reference Material to be Provided by Northern Gateway to the Consultant

Reference documents that will be made available to the Consultant upon completion of senior reviews include the following:

- Marine Traffic Studies (from a recent TERMPOL Report in the Kitimat Area)
- Ship Simulation Studies of the Confined Channel Routes
- Documentation on Oil Spill Release Modeling
- Population or Community Distribution along the Ship Route
- Verbal Review of Ship Routing Alternatives Reviewed
- Proposed Tug and Escort Systems under Development
- Climatic / Environmental Data

3 The Contract

3.1 Form of Contract

The Contract shall be drafted by Northern Gateways (for sample contract see *Appendix B*) and may include parts of this RFP and parts of the Proponent's Proposal, including any clarifications, rectifications, and negotiated changes in accordance with *Section 5.2*.

Where any part of the Proponent's Proposal, whether incorporated into the Contract or not, contradicts or conflicts with the RFP or any other part of the Contract, the RFP or other part of the Contract shall prevail.

Except as expressly permitted by the Northern Gateway, all Services must be performed personally by the Consultant(s) named in the Contract.

3.2 Term

The award of the Contract is anticipated to be April 3, 2009. The assignment is expected to extend to October 15, 2009.

3.3 Payment

Northern Gateway will pay the Consultant on a "cost reimbursable" basis according to hourly pay rates by staff classification, per the invoicing schedule agreed to in the Contract. Other authorized disbursements will be reimbursed at cost. Typically the only approved expenses will be travel and lodging at approved rates.

The Hourly Rate will remain fixed during the Term and is to be inclusive of all costs associated with performing the service including all overhead and out-of-pocket costs such as office space, copying, printing and administrative support.

The Contract will list the estimated total cost, which is the upset limit or maximum payable. No increase in overall cost for the assignment will be considered without prior justification and written approval of any extra work by Northern Gateway.

Invoices will be addressed to:

Attention: Chris Anderson, Marine Advisor
E-Mail: chrisj.anderson@enbridge.com

Northern Gateway Pipelines Limited Partnership
Box 50, One Bentall Centre
Suite 660 Burrard Street
Vancouver, BC
V7X 1M4

3.4 Location

The Consultant may be called on to travel to sites located in Prince Rupert and the Project location in and around Kitimat and Prince Rupert, BC.

3.5 Insurance

The Consultant will be required to show proof of insurance coverage consistent with the sample Contract documents provided in *Appendix B*. The terms and conditions and the coverage requirements of the Insurance Specifications Form are not negotiable.

4 Proposal Requirements

The following delivery, format, and Proposal content requirements should be followed to facilitate consistency in Proposal evaluation and to ensure each Proposal receives full consideration.

4.1 Proposal Purpose

The purpose of each Proposal should be to demonstrate to the Northern Gateway that the Proponent has the qualifications and experience necessary to achieve the Services described in *Section 2* of this RFP in a professional, timely, reliable, confidential, and cost effective manner.

During evaluation, preference will be given to Proposals that clearly demonstrate that the Proponent has the following knowledge, skills, and abilities:

1. Refer to *Section 2.5*, proven relevant experience in the areas of marine transportation QRA and marine tanker operation.
2. Past experience in assessing quantifiable risk reduction associated with modern tanker design standards, double hulled construction, tethered tug operations and modern ship navigations systems.
3. Refer to *Section 2.6* above, proven relevant experience in areas of public consultation as it results to marine transportation risk analysis.

4.2 Proposal Delivery

Proposals are to be delivered electronically, in PDF and the original file format, on or before the Closing Time.

Proposals submitted by mail, courier or facsimile will be considered invalid and will be rejected.

Late Proposals will be considered invalid and will be rejected.

In the event of a dispute regarding delivery, the Closing Time and Closing Location as determined by the Contact Person shall prevail whether accurate or not.

Proposals are to be clearly labelled with the “RFP Title”, “Contact Person”, and “Closing Location” all as shown on the RFP cover page.

4.2.1 Two Envelope System

The proponent shall submit two Proposal documents (Volume 1 and Volume 2). The following is a guide as to which proposal requirements from *Section 4.4* are to be included in each document.

Volume 1 should include proposal requirements of the following RFP sections:

- *Section 4.4.1*
- *Section 4.4.2*
- *Section 4.4.3*
- *Section 4.4.5*

Volume 2 should include proposal requirements of the following RFP sections:

- *Section 4.4.4*
- *Section 4.4.6*
- *Section 4.4.7*
- *Section 4.4.8*

Notwithstanding the above guide, Any information submitted by the proponent in Volume 1 may be, at Northern Gateway's discretion, distributed to members of the Working Group, other community members, stakeholders, and First Nations groups from the Study area.

Information contained in Volume 2 will be held in confidence by Northern Gateway and will not be shared with members of the Working Group, other community members, stakeholders, and First Nations groups from the Study area.

Any information which is proprietary, commercially sensitive, to the Proponent, as per *Section 1.19*, should be included in Volume 2. Any employee information which cannot be publicly shared, as per *Section 1.22*, should also be included in Volume 2.

4.3 Proposal Format

The Proposal should be formatted to print on 8.5 in. x 11 in. paper. Where practical, text should be 1.5 line spaced and not smaller than 11-point typeface.

Proposals must be in English to be considered valid.

4.4 Proposal Content

Each Proposal must substantially comply with the form and content requirements of *Section 5.5*, and *Section 4.4.1* and through *Section 4.4.8* inclusive to be considered valid.

4.4.1 Proponent Information

Provide the following information regarding the Consultant(s) nominated to provide the services anticipated by this RFP.

4.4.2 Details of Proponent Team

Provide an organization chart and a description of the proposed organization indicating key members / firms of the Study team, their roles and responsibilities and reporting relationships.

One person must be clearly nominated as the team lead. The team lead will be the Proponent's primary liaison with Northern Gateway and will lead the planning and delivery of all Services.

The Proponent team and team lead must be available for the term (see *Section 3.2*) of the Study. The team lead must not be changed over the duration of the Study. Other team members must only be substituted with the expressed permission of Northern Gateway.

4.4.3 Corporate Experience

Describe the Proponent's corporate experience including recent and current relevant projects that clearly demonstrates the Proponent's corporate ability to undertake some or all of the roles and deliverables and that the Proponent possesses the corporate capacity, reputation, and experience required to carry out the Services anticipated by this RFP. Proponents are encouraged to provide information on a minimum of three (3) and a maximum of six (6) relevant projects. Where the Proponent is a partnership or joint venture clearly identify which partner(s) or joint venture(s) were involved.

For each project cited, provide the information listed below.

- **The Project** - Project title, a brief description of the project including location, scope of work, start and completion date, total or capital budget, project owner, and key project challenges
- **Role** - The Proponent's corporate role / title on the project, a summary of the Proponent's specific roles and responsibilities, reporting relationships, and the estimated total time (in hours) spent in that role on that project, and any additional information that demonstrates the Proponent's relevant experience and ability.
- **References** - The name and telephone number of an employer or client contact that can and will confirm the satisfactory performance and scope of the cited roles and responsibilities. Information that cannot be confirmed may be disregarded during Proposal evaluation.

Information on any particular project should not exceed two (2) pages.

4.4.4 Proponent's Study Team

Provide the following information on individuals who have identified in *Section 4.4.2* to participate as a member of the Proponent's Study team in providing these Services.

Summary of Experience

A Summary of Experience that clearly identifies this individual's anticipated role in providing these Services and summarizes their recent relevant experience and knowledge, skills, and abilities to perform that role in the delivery of these Services.

The Summary of Experience for EACH Team member should not exceed two (2) pages.

Resume and List of Projects

A resume or curriculum vitae describing the Team member's education and work experience including recent and current relevant projects that clearly demonstrates the individual's ability to undertake the roles and deliverables and to possess the qualifications and experience described in *Section 2* of this RFP.

Provide information on a minimum of three and a maximum of six relevant projects. For each project cited, provide the information listed below.

- **The Project** - Project title, a brief description of the project including location, scope of work, start and completion date, total or capital budget, project owner, and key project challenges.
- **Role** - The Proponent's title on the project, a summary of the Proponent's specific roles and responsibilities, reporting relationships, and the estimated total time (in hours) spent in that role on that project, and any additional information that demonstrates the Proponent's experience and ability relevant to *Section 4.1* and *Section 2.3* and through *Section 2.6* inclusive of this RFP.
- **References** - The name and telephone number of an employer or client contact that can and will confirm the satisfactory performance and scope of the cited roles and responsibilities. Information that cannot be confirmed may be disregarded during Proposal evaluation.

The resume and list of projects for EACH Team member should not exceed ten (10) pages.

4.4.5 Understanding of Assignment

A summary of the Proponent's understanding of the assignment and considerations that are likely to affect the satisfactory performance of their expected roles and delivery of the Services and an explanation of how their cited qualifications and experience are particularly suitable to address those issues and Service delivery considerations.

The Understanding of Assignment should not exceed two (2) pages.

4.4.6 Proposed Work Plan

Prepare a brief work plan that addresses all scope elements identified in *Section 2*. Discuss methodology, include a schedule in table format and identify resources (including subconsultants) required to undertake the work.

4.4.7 Study Budget

Prepare a budget for the Study including fees and disbursements. Present the total estimated cost for the Study and provide details including an itemized estimate by Work Package, with hourly rates and estimated hours for each project team member or personnel class (including subconsultants) identified in the proposed work plan.

4.4.8 Proposed Schedule

The proponent should provide a detailed schedule of key dates for travel, meetings, and deliverables.

5 Proposal Evaluation

5.1 Evaluation Committee

Evaluation of Proposals will be conducted by a committee formed by Northern Gateway. In carrying out their obligations, the evaluation committee may, in confidence, obtain and rely upon any technical, managerial, and other input and direction from any third party to aid them in carrying out such obligations.

5.2 Evaluation and Selection

Notwithstanding the evaluation criteria described in this RFP and *Section 5.5*, acting on behalf of Northern Gateway, the Evaluation Committee shall review and evaluate the Proposals according to its own judgment, and shall have the right to recommend to Northern Gateway senior management the Proponent that the Evaluation Committee judges to be able to best meet Northern Gateway's needs, interests, and objectives.

Northern Gateway will check Proposals against the Mandatory Criteria listed in *Section 5.5* of this RFP. Any Proposal that fails to substantially comply with any of the Mandatory Criteria will, at the sole discretion of the Northern Gateway, be subject to disqualification from further consideration as a valid Proposal.

To assist in determining suitability, acceptability, and credibility, Northern Gateway has the right but not the obligation to conduct reference checks with some or all of the References cited in the Proposal. Northern Gateway reserves the right but not the obligation to give greater credence to information obtained from a cited Reference over information contained in the Proposal. If the experience cited cannot be verified through reference checks, or if the information provided by a cited Reference is unsatisfactory or apparently contradictory, the Northern Gateway reserves the right but not the obligation to exclude the Proponent from further consideration.

Northern Gateway reserves the right to request and negotiate changes to any part of this RFP and any part of the Proponent's Proposal including hourly rates. If a written contract cannot be negotiated with Northern Gateway and is unlikely to be achieved, Northern Gateway may terminate discussions with that Proponent, and at its discretion may select another Proponent as a preferred Proponent and enter into contract discussions with them. In such an event, the provisions of this paragraph will apply to the newly selected preferred Proponent.

The Northern Gateway reserves the full right not to select any Proponent as a preferred Proponent, and to make its selection on criteria other than as outlined in this RFP. Northern Gateway may, at its option, at any time before or after closing, cancel this competitive process.

5.3 Clarification and Presentation

As part of the Proposal evaluation process, the Northern Gateway reserves the right to request clarifications, rectifications, and additional information from any Proponent after the Closing Time and for that purpose the Northern Gateway may enter into separate and confidential discussions with individual Proponents. The Northern Gateway is not obligated to have such discussions with all Proponents nor to provide all Proponents with the same questions.

As part of the Proposal evaluation process, the Northern Gateway reserves the right to call on any Proponent, to participate in a telephone conference call presentations or interviews, including a question and answer session, on any aspect of the RFP or their Proposal. The Northern Gateway is not obligated to call on all Proponents to make such a presentation nor to provide all Proponents with the opportunity to respond to the same questions.

5.4 Debriefing

At the conclusion of the Proposal evaluation process, all Proponents will be notified of whether or not they have been selected as the preferred Proponent. Any Proponent may request a confidential debriefing with the Evaluation Committee.

5.5 Mandatory Criteria

Proposals of qualified Proponents will be evaluated based on, but not limited to, the following criteria:

- Organization of project team.
- Experience of individual team members.
- Methodology.
- Management program.
- QRA experience.
- Canadian (TERMPOL) experience.
- Experience with similar marine operations.
- Experience with similar bathymetry / geographical setting.

- Understanding of project specific issues.
- Experience working with community advisory groups.
- Ability to engage local communities.
- Schedule and availability.
- Demonstrated experience in preparing plain language technical documents.
- Proposal quality.
- References.
- Fees, costs and expenses.
- Compliance with this RFP.
- Any other relevant information.

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I.2 QRA Working Group Meeting 2 (April 3, 2009)

I.2.1 Meeting Invitation

I.2.1.1 Invitation

Sent: March-11-09 9:46 AM
To:
Subject: Invitation & RSVP materials for April 3 ENGP QRA Working Group Meeting

Hello All,

The next ENGP QRA Working Group meeting will be held from 8:30 AM – 4:00 PM on Friday, April 3, 2009 at the Crest Hotel in Prince Rupert, BC. The goals for this meeting are twofold:

1. To review the vendor proposals and select a consultant to complete the Quantitative Risk Assessment
2. To finalize working group mandate, processes and procedures

If you are interested in attending this meeting, please complete the attached RSVP form and return it to me by Friday, March 27th by email at khmckinnon@fulcrumstrategic.ca or by fax at 403-538-5691. You can also use this form to indicate whether or not you require a hotel room at the Crest Hotel.

A detailed agenda and other meeting materials will be provided in the coming weeks.

If you have any questions regarding the meeting or the QRA Working Group, please feel free to contact me at 403-538-5663.

Thanks,

Katie

Katie Havercroft-McKinnon | Partner | Fulcrum Strategic Consulting Inc. (Formerly RMC & Associates)
Suite 1100 | 815 8th Ave SW | Calgary, AB T2P 3P2
t: 403.538.5663 | c: 403.863.8113 | f: 403.538.5691
khmckinnon@fulcrumstrategic.ca | www.fulcrumstrategic.ca



I.2.1.2 Registration Form



Quantitative Risk Assessment Research Working Group Meeting RSVP

Thank you for your interest in participating in the Enbridge Northern Gateway Pipelines (ENGP) Quantitative Risk Assessment Research Working Group. The details of the second meeting are as follows:

April 3, 2009 – 8:30AM – 4:00 PM (breakfast and lunch to be provided)

The meeting will be held at the **Crest Hotel** which is located at **222 First Avenue West, Prince Rupert, BC.**

As required, ENGP will be covering accommodation and travel costs for your attendance at the meeting. A separate expense reimbursement form is attached for you to use for the reimbursement of airfare or mileage associated with travel to the meeting. ENGP will also be offering each attending organization a \$500 honorarium for your participation in the meeting if requested.

In order to provide a smooth registration process ENGP will take responsibility for booking rooms for participants at the Crest Hotel. In order to complete the room booking, we will require you to complete the attached form and return it to Katie Havercroft-McKinnon by e-mail at: khmckinnon@fulcrumstrategic.ca or by fax at 403-538-5691 **by 4 PM on Friday, March 27th.**

If you have any questions, please feel free to contact Katie at 403-538-5663.

Name: _____

Organization: _____

Telephone: _____ E-Mail: _____

Will you attend the meeting?

Yes

No

Do you require a room at the Crest Hotel?

Yes

No

If yes, please indicate which nights you will require the room for.

April 2, 2009

April 3, 2009

Would you prefer a smoking or non-smoking room?

Please indicate any food allergies or food requirements that you may have:

Is your organization interested in receiving an honorarium for your attendance at the workshop?

Yes

No

Additional questions or comments:



I.2.1.3 Reimbursement Form



QRA Working Group Expense Reimbursement Form

ENGP QRA Working Group Meeting Prince Rupert, BC April 3, 2009

Thank you for participating in our workshop. To demonstrate our appreciation for assisting Enbridge Northern Gateway Pipelines (ENGP) with this process, we would like to cover expenses incurred from attending this workshop.

Please attach all receipts to this sheet for reimbursement. You can hand it in at the end of the workshop or mail it to:

Enbridge Northern Gateway Pipelines
240 City Centre
Kitimat, BC, V8C 1T6.

Attention: Lisa Clement

Please note that accommodation reimbursements are not listed below as the Crest Hotel will automatically charge the room rate and room tax to Enbridge Northern Gateway Pipelines. Any other room charges are your own expense (i.e. long distance calls, movies, mini-bar etc.).

Travel Expenses

_____ Flight
_____ Mileage (rate of \$0.60/km)
_____ Taxi

Honorarium Requested:

Yes No

Meal Expenses

Total Expenses: \$ _____

Cheque to be mailed to:

I.2.2 Draft Agenda

QRA Working Group Meeting #2
April 3, 2009
Crest Hotel
Prince Rupert, B.C.

QRA Working Group MEETING DRAFT PROPOSED AGENDA	
8:30 am	BREAKFAST IN MEETING ROOM
8:45 am	Introductions <ul style="list-style-type: none"> ▪ Welcome & Introductions - All Participants ▪ Purpose and intended outcomes of meeting - R. McManus <ul style="list-style-type: none"> ▪ Review and finalize proposed meeting purpose, intended outcomes, and process ground rules ▪ Finalize proposed meeting agenda ▪ Initial Round Table Discussion – R. McManus/All Participants <ul style="list-style-type: none"> ▪ Review additional participant objectives for this meeting
9:15 am	Update on Consultation/Engagement Activities - Proposed Marine Community Advisory Board (CAB) Process – R. Harris/All Participants <ul style="list-style-type: none"> ▪ Update on current public consultation and First Nation engagement activities ▪ Overview of proposed Marine CAB Process ▪ Participant Q&A ▪ Discussion on linkage between QRA Working Group and Marine CAB
10:00 am	BREAK
10:15 am	Working Group Process Discussion – R. McManus/ All Participants <ul style="list-style-type: none"> ▪ Discussion on Mandate and Process for QRA Working Group <ul style="list-style-type: none"> ▪ Definition of success for the Working Group ▪ Meeting logistics and protocols ▪ Communications and confidentiality of information ▪ Feedback on Meeting Notes & Structure ▪ Other topics as required
11:30 am	Selection of Consultant to Complete the TERMPOL Quantitative Risk Assessment – R. McManus /NGP Rep <ul style="list-style-type: none"> ▪ Review and feedback received (if any) on initial Request for Proposal ▪ Review criteria for consultant selection process and finalize ▪ Review of proposals received
12:00 pm	LUNCH

QRA Working Group MEETING DRAFT PROPOSED AGENDA	
1:00 pm	CONTINUED - Selection of Consultant Team to Complete the TERMPOL Quantitative Risk Assessment – R. McManus/All Participants <ul style="list-style-type: none"> ▪ Evaluation and analysis of proposals as per selection criteria ▪ Discussion and final recommendations to Northern Gateway Pipelines
3:00 pm	BREAK
3:15 pm	Wrap Up – Review of Selection of Consultant to Complete the TERMPOL Quantitative Risk Assessment – All Participants <ul style="list-style-type: none"> ▪ Kick off process for consultant team ▪ Process for finalizing QRA scoping with QRA consultant team
4:00 pm	Review and Next Steps – R. McManus/All Participants <ul style="list-style-type: none"> ▪ Review of decisions, action items, scheduling and commitments for follow-up ▪ Scheduling & Locations – Next Meeting
4:30	Closing, thank you, acknowledgments and last thoughts – R. Harris
	ADJOURN

Proposed Agenda - Review and Analyze

QRA Working Group Meeting #2
April 3, 2009
Crest Hotel
Prince Rupert, B.C.

QRA Working Group MEETING DRAFT PROPOSED AGENDA	
8:30 am	BREAKFAST IN MEETING ROOM
8:45 am	Introductions <ul style="list-style-type: none"> ▪ Welcome & Introductions - All Participants ▪ Purpose and Intended Outcomes of Meeting - R. McManus <ul style="list-style-type: none"> ▪ Review and finalize proposed meeting purpose, intended outcomes, and process ground rules ▪ Initial Round Table Discussion – R. McManus/All Participants <ul style="list-style-type: none"> ▪ Review additional participant objectives for this meeting ▪ Finalize proposed meeting agenda – R. McManus/All <ul style="list-style-type: none"> ▪ Suggestions, recommendations or additions to the agenda from the Working Group
9:15 am	Working Group Process Discussion – R. McManus/ All Participants <ul style="list-style-type: none"> ▪ Discussion on Mandate and Process for QRA Working Group <ul style="list-style-type: none"> ▪ Review purpose and mandate for QRA Working Group ▪ Document sharing protocols and timelines ▪ Communications and confidentiality of information ▪ Feedback on Meeting Notes & Structure ▪ Other Topics as Required
10:30 am	BREAK
10:45 am	Update on Consultation/Engagement Activities - Proposed Marine Community Advisory Board (CAB) Process – R. Harris/All Participants <ul style="list-style-type: none"> ▪ Update on current public consultation and First Nation engagement activities ▪ Overview of proposed Marine CAB Process ▪ Participant Q&A ▪ Discussion on linkage between QRA Working Group and Marine CAB
11:45 pm	LUNCH
12:30 pm	Review of Proposals for Consultant to Complete the TERMPOL Quantitative Risk Assessment – M. Cowdell/ All Participants <ul style="list-style-type: none"> ▪ Overview and summary of proposals for consultants to complete the TERMPOL Quantitative Risk Assessment ▪ Q&A regarding the proposals

QRA Working Group MEETING DRAFT PROPOSED AGENDA	
2:30 pm	Review and Finalize Criteria to Evaluate Proposals to Complete the TERMPOL Quantitative Risk Assessment –M.Cowdell/R.McManus <ul style="list-style-type: none"> ▪ Review draft consultant selection criteria identified at first meeting ▪ Working group discussion on criteria to finalize
3:15 pm	BREAK
3:30 pm	Review and Next Steps – R. McManus/All Participants <ul style="list-style-type: none"> ▪ Confirmation of process to select consultant to complete the Quantitative Risk Assessment ▪ Review of decisions, action items, scheduling and commitments for follow-up ▪ Scheduling & Location – Next Meeting
4:30	Closing, thank you, acknowledgments and last thoughts – R. Harris
	ADJOURN

Proposed Agenda - Review and Finalize



I.2.3 Meeting Summary

**Northern Gateway Project QRA Working Group
April 3, 2009 Meeting Minutes**

MINUTES OF MEETING

Meeting Title:	Enbridge Northern Gateway Pipeline Quantitative Risk Assessment Working Group Meeting
Meeting Purpose:	<ul style="list-style-type: none"> ○ Develop norms for group – including: <ul style="list-style-type: none"> ● Confidentiality & communication of information ● Record of meeting & notes ● Nature of “advice” ○ Review and discuss proposals received by consultants to complete the QRA ○ Develop process for evaluating proposals ○ Establish next steps to finalize working group advice to NGP
Date of Meeting:	April 3, 2009 – Prince Rupert, BC
Attendees¹:	<p>Michael Cowdell, WorleyParsons Westmar Steve Greenaway, Enbridge Northern Gateway Pipelines Channa Pelpola, Gateway Environmental Management Team Chris Anderson, Enbridge Northern Gateway Pipelines Roger Harris, Enbridge Northern Gateway Pipelines Diane Hewlett, District of Kitimat David Latremouille, Haisla Nation Fisheries Helen Johnson, LaxK’walaams Nation Bob Thompson, City of Prince Rupert Tanya Bryan, Nature Conservancy of Canada</p> <p>Facilitation Team: Rob McManus, Fulcrum Strategic Consulting Katie Havercroft-McKinnon, Fulcrum Strategic Consulting</p>
Meeting Notes Prepared by:	Fulcrum Strategic Consulting

Agenda

- 1. Welcome & Introductions**
 - Welcome & introductions
 - Purpose and intended outcomes of meeting
 - Finalize proposed meeting agenda

- 2. Working Group Process Discussion**
 - Review and discuss mandate and process for QRA Working Group
 - Feedback on meeting notes and structure
 - Other topics as required

- 3. Review of Proposals for Consultant to Complete the TERMPOL Quantitative Risk Assessment**
 - Overview and summary of proposals for consultant to complete the TERMPOL QRA
 - Q&A regarding the proposals

¹ Persons in attendance at the meeting are referred to as Attendees. This term is not intended to designate status with respect to membership in the Working Group.

Northern Gateway Project QRA Working Group
April 3, 2009 Meeting Minutes

4. **Review and Finalize Criteria to Evaluate Proposals to Complete the TERMPOL Quantitative Risk Assessment**
 - Review draft consultant selection criteria identified at the first meeting
 - Working group discussion on draft criteria to finalize

5. **Update on Consultation/Engagement Activities – Proposed Marine Community Advisory Board (CAB) Process**
 - Update on current public consultation and First Nation engagement activities
 - Overview of proposed Marine CAB process
 - Participant Q&A
 - Discussion on linkage between QRA Working Group and Marine CAB

6. **Next Steps**
 - Confirmation of process to select consultant to complete the QRA
 - Review of decisions, action items, scheduling and commitments for follow-up
 - Scheduling & location of next meeting

Action/Follow-up Items

Id	Actions Required:	Person Assigned	Open Date	Due Date (Rev #) - Status
1.	IR 1. Who are the consultants who completed the Whiffenhead (Newfoundland) and Irving (New Brunswick) QRAs?	C. Pelpola	April 3, 2009	
2.	IR 2. Please provide a detailed diagram explaining the overlapping regulatory processes, where jurisdictional authorities lie and what studies support each piece.	R. Harris	April 3, 2009	
3.	Provide Working Group with summary and evaluation of two short-listed proposals	M. Cowdell	April 3, 2009	April 7, 2009
4.	Provide recommendation re: preferred vendor to NGP	Working Group	April 3, 2009	April 9, 2009

Shading indicates completed action item.

Italics indicate further discussion on previously raised action item.

Northern Gateway Project QRA Working Group April 3, 2009 Meeting Minutes

Decisions Made	Date
Agreed to reduce meeting minutes to summary format and to allow for in-camera discussions around items that should remain confidential	April 3, 2009
Identified a short-list of two vendors and agreed to provide feedback to NGP by April 9, 2009 regarding preferred vendor	April 3, 2009

Discussions: *List any items that need to be noted but are not "action or decision" items*

The following topics were discussed at this meeting:

1. Welcome and Introductions

- Group introduced themselves and welcomed new attendees

2. Workshop Objectives

- Develop process norms for the Working Group including:
 - Confidentiality and communication of information
 - Record of meeting and notes
 - Nature of the advice that the Working Group will provide to NGP
- Review and discuss proposals received by consultants to complete the QRA
- Develop a process for evaluating proposals from consultants to complete the QRA
- Establish next steps to finalize Working Group advice to NGP regarding consultant to complete the QRA
- Review proposal for Marine Community Advisory Board (CAB) and relationship between the QRA Working Group and the Marine CAB

3. Process Discussion – Facilitation Team

- Facilitator indicated that from a Facilitation Team standpoint it is clear that there are a lot of questions regarding the circulation of information to the Working Group and confidentiality of information and invited the Working Group members to share their concerns regarding sharing of information and confidentiality
- **NGP Comment²:** indicated that NGP is concerned about sharing materials from potential vendors that is proprietary in the event that it might be widely distributed. That said, in order to select a QRA consultant the Working Group needs to have a frank discussion about each company's qualifications, the quality of the proposals, etc. and in order for that discussion to be open, there needs to be a clear understanding as to what will happen with the notes from these meetings. The other challenge is that there is a potential consequence from a professional perspective when NGP representatives put forward an opinion that is subjective if that opinion is publicly reported.
- **Attendee Comment:** indicated that there is a need for the Working Group to receive input and guidance from the NGP's technical experts and doesn't want that guidance to be stifled in any way. Asked if there is a way that the record could reflect simply the broad concepts that were discussed and not specifics?
- **NGP Comment:** There is nothing wrong with discussing the QRA process and what we expect of the consultants. The risk arises when we get into discussions about particular proposals and the qualifications of an individual vendor.

² Note: NGP Comment denotes a comment made by either an employee of Enbridge Northern Gateway Pipelines or a consultant.

Northern Gateway Project QRA Working Group April 3, 2009 Meeting Minutes

- **Attendee Comment:** The problem is that I need a technician to give us an honest opinion because I don't understand the technical aspects of the project.
- **NGP Comment:** We could have an option open to the group to go "in camera" for certain discussions that need to remain confidential.
- **NGP Comment:** We could also structure the notes so that they are at a higher level and provide simply a summary of the discussion and how decisions were reached, however, there are some discussions i.e. the next meeting when we discuss the scope of the work, where we may want a more fulsome record. What is most important is that we have a record of the decisions that were reached and the commitments that are made.
- **Attendee Comment:** For the last meeting, it was nice to have a verbatim record of the discussions because we were all new to the subject but for future meetings a summary would be sufficient.

Decision Point:

- The Working Group agreed that the meeting minutes would provide a summary of all discussions and capture the key decisions and commitments or action items. The group also agreed to having the option to go "in camera" at any point in meetings when it is collectively felt that the discussion topic should remain confidential.
- The Working Group agreed that meeting notes would be produced in draft format by the Facilitation Team, provided to the Working Group for review and comment. Once the notes have been finalized, the Working Group agreed that it would be okay for Working Group members to share finalized notes within their communities.

4. Presentation on QRA Proposals – WorleyParsons Westmar

Review of background on why NGP is completing a QRA:

- A Quantitative Risk Assessment is needed to satisfy some of the TERMPOL requirements and to support the filing for an NEB application
- TERMPOL process is an assessment of marine aspects of the Project by a TERMPOL Review Committee (TRC). The Chair of the Review Committee is selected by Transport Canada.
- The process is intended to improve the elements of the project that could impact the integrity of the tankers' hulls, cargo containment system and the environment
- The scope of what is assessed is limited to Canadian waters
- While TERMPOL is not a regulatory requirement, it is a highly recommended process as it helps to get all potential risks and issues regarding the marine aspects of a project out on the table in front of the different regulatory bodies. The results of it can be used by Transport Canada in determining what change should be made to the marine aspects of the project i.e. marine navigation.
- There are four items that are needed to complete the QRA:
 - Casualty data survey (number of accidents)
 - General risk analysis and intended methods of reducing risk
 - Contingency planning
 - Facility requirements
- Completing the QRA is a complex task, it requires a team with high technical capabilities and significant operational experience. Consultants can come from one of three areas:
 - Classification societies
 - Research organizations
 - Engineering organizations

**** in-camera discussion regarding how a short-list of vendors was arrived at, who the vendors are and what the selection criteria for selecting a consultant should be****

Northern Gateway Project QRA Working Group April 3, 2009 Meeting Minutes

Information Requests:

- The following two information requests were identified in the course of the above-noted in-camera discussion:

IR 1. Who are the consultants who completed the Whiffenhead (Newfoundland) and Irving (New Brunswick) QRAs?

A.

- Newfoundland: Grassy Point (Placentia Bay) Liquefied Natural Gas Transshipment Terminal – Completed by: ICFI & Quest
- New Brunswick: Bear Head LNG – Lloyds and Canaport LNG - Quest

IR 2. Please provide a detailed diagram explaining the overlapping regulatory processes, where jurisdictional authorities lie and what studies support each piece.

Decision Point:

- The following decision points were established in the course of the above-noted in-camera discussion:
 - Working Group identified a short-list of two proposals
 - NGP agreed to provide the Working Group with a written technical assessment and comparison of the two short-listed proposals by Tuesday, April 7th, AM
 - Working Group members agreed to send their final recommendation to NGP by Thursday, April 9 at noon
 - Agreed to hold the next meeting in Vancouver on April 17.

5. Update on Consultation/Engagement Activities – NGP

- NGP provided a description of the proposed Community Advisory Board (CAB) process:
 - Goal of the CAB process is to provide stakeholders with an opportunity to be engaged in collaborative decision-making.
 - Discussions will include a broad range of aspects about the proposed project
 - NGP recently undertook surveys with 220 organizations (including ENGOs, First Nations, community groups and local governments) who identified an interest in the project to gather their thoughts about the CAB process
 - Currently, there are about 30 organizations who have expressed an interest in participating in a CAB focused on the marine aspects of the project.
 - There has been limited interest from the larger ENGOs in being involved in the CAB and they primarily cited a desire for a formal public inquiry as the reason
 - There has been a lot of interest from local/regional groups.
 - NGP would like to have seen more participation for the QRA Working Group and is hopeful to have increased participation for the CAB process
 - All interviewees are being asked to provide input into what they think the CAB should look like and once all this information is gathered it will be used to develop a draft structure for the CAB
 - Next Step: invitations will be circulated by the end of April and the first meeting will be held mid-June.
 - The question for the QRA Working Group is whether it would make sense for it to formally or informally roll into the Marine CAB
 - Working Group members indicated that they would be open to participating in the Marine CAB but that they didn't want to make a formal decision regarding the linkage between this process and the CAB at this point.

Northern Gateway Project QRA Working Group
April 3, 2009 Meeting Minutes

6. Meeting Adjourned

I.2.4 Presentation

Engagement and Consultation Update Establishment of Marine Community Advisory Board

QRA Working Group Meeting
April 3, 2009

Assessing Interest in Establishing a Marine Community Advisory Board (CAB)

- Approximately 220 organizations (First Nations, ENGO, community groups, other resource users, etc.) contacted by telephone
- Approximately 90 believed to have interest in marine and terminal aspects of project based on organizational interests / geographical location
 - Identify respondent questions or concerns
 - Discuss respondent's preferred engagement or consultation approach
 - Review Marine CAB concept
 - If interested in CAB, probe ideas about CAB scope, mandate, meeting schedule, structure, etc.

Results

- Direct discussions with approximately 50% of organizations (calls still ongoing)
- Currently, approximately 25 - 30 organizations already expressed interest in marine CAB
- Appears to be moderate First Nations interest in participating in a marine CAB
- Limited interest from national, provincial and regional ENGO organizations
 - Most support a "public inquiry", etc.
- Some interest from regional and local environmental organizations
- Strong interest from general community business, social service, local government and other resource users

Emerging marine CAB concept ideas from discussions

Proposed mandate where participants can:

- become better informed on issues of interest;
- provide advice to NGP to enhance social, economic and environmental outcomes;
- provide advice on mitigating social, economic and environmental impacts; and
- identify opportunities for "no net loss" concept for issue areas (legacy concept)

Emerging marine CAB concept ideas from discussions

- Broadly scoped to focus on environmental, social and economic issues
- 25 – 30 maximum participants
- Broadly representative of interests (environmental, social and economic)
- ¼ ly meetings – 1 to 2 days each
- Meetings in Kitimat

Emerging marine CAB concept ideas from discussions

Potential Scope:

- design, construction, and operations of marine terminal facilities; and
- effects on the environment, economy, human health, and communities from routine and non-routine aspects of the marine terminal and shipping.

Emerging marine CAB concept ideas from discussions

Potential Topics:

- impacts on fish population and habitats;
- impacts on marine environment;
- results of TERMPOL studies;
- regional social and economic impacts;
- marine terminal risk mitigation measures including: navigation, tug boat usage, compulsory pilotage, etc.;
- spill risk and management;
- overall marine safety;
- ensuring public access in the channel, and;
- local employment and training opportunities

Potential Next Steps

- Process meeting mid-June 2009
 - Focus on mandate, terms of reference, structure, etc.
- Roll QRA working group into broader CAB mandate (follow-up phases of QRA studies)
- Two additional 2 day marine CAB meetings in 2009

Potential Next Steps

Feedback from QRA Working Group

- Views on marine CAB concept?
- Views on rolling longer term QRA oversight into marine CAB scope?



I.2.5 QRA Working Group Vendor Evaluation Checklist

Colour Key	
●	clear and explicit
●	not clear or implicit
●	not addressed or not included

ITEM / DESCRIPTION	LLOYD'S REGISTER	DNV	COMMENTS ON LLOYD'S	COMMENTS ON DNV
GENERAL				
Were the proposals submitted on time?	●	●		
Was volume 1 submitted?	●	●		
Was technical proposal submitted? (technical proposal included commercial information the proponents wished to keep confidential)	●	●	technical proposal included background, proposed work plan, project schedule, study budget, and study team, references, and terms and conditions.	technical proposal included work plan, schedule, study budget and study team
Is the proposal concise and easy to read?	●	●	Proposal was lengthy, but contained useful information.	Concise and easy to read, although description of past TERMPOL work detailed.
Is the proposals valid for 45 days?	●	●		
Are subcontractors identified?	N/A	N/A		
Are prices in CAD dollars?	●	●		
Are all travel plans and travel costs clearly identified?	●	●		
travel invoiced at cost?	●	●	not specified	travel expenses will be charged at cost

ITEM / DESCRIPTION	LLOYD'S REGISTER	DNV	COMMENTS ON LLOYD'S	COMMENTS ON DNV
Is the cost for obtaining Canadian Coast Guard data included?	•	•	not specified	not included
Estimated hours to complete QRA:	1060	1095	estimated 1060 hours for QRA tasks	146 "man-days" - so 1095 is based on 7.5 hours per day
TRAVEL				
Introductory meeting with working group	(4 roundtrip days / 1 person)	(3 roundtrip days / 3 persons)		3 days roundtrip for travel from Europe, 1 day roundtrip for Vancouver based travel
Transit HAZID	(6 roundtrip days / 1 person)	not specified	2 workshops - one for marine transit and one for marine approach and terminal operations.	proposed to coincide with kick-off meeting to identify an initial list of possible risk mitigation measures.
Terminal HAZID	(6 roundtrip days / 1 person)	N/A		
Tour of shipping route	not specified	(3 roundtrip days / 3 persons)	the tour of the shipping route does not appear	
Presentation of draft report	(4 roundtrip days / 2 persons)	(3 roundtrip days / 3 persons)		
Presentation of final report	(4 roundtrip days / 2 persons)	(3 roundtrip days / 3 persons)		
Meetings to gather local knowledge and technical input	(10 / not specified)	(5 days / 2 persons)	Martec representatives participating is unclear.	5 days estimated
COMMERCIAL				

ITEM / DESCRIPTION	LLOYD'S REGISTER	DNV	COMMENTS ON LLOYD'S	COMMENTS ON DNV
NORMALIZED TOTAL COST	1.00	1.42		DNV 42% more expensive.
SCHEDULE				
Is phase 1 complete June 30, 2009?	●	●		
Is phase 2 complete September 30, 2009?	●	●	phase 2 indicated to finish mid-October.	
Estimated date interim report will be provided:	June-01-09	June-05-09		
Estimated date draft technical report will be provided:	August-31-09	August-31-09		
EXPERIENCE				
Does the proponent have TERMPOL experience?	●	●	no TERMPOL experience described.	experience with TERMPOL Section 3.2, 3.5, 3.8 and 3.15 - all work completed "in house" without the use of sub consultants
Does the proponent have experience in analysing oil tankers?	●	●	yes, numerous, although a specific project was not included in the detailed project descriptions.	completed a risk assessment for StatoilHydro, examining the shipping companies and fleets used to transport hydrocarbons for StatoilHydro.
Does the proponent have experience with analysing tugs as a vessel aids?	●	●	Not explicitly stated, however, MARTEN has undertaken studies where tug operations likely would have been an aspect of the project.	DNV provided a specific project where they reviewed effectiveness of tugs helping vessels in distress in severe weather.
Does the proponent have experience with large tankers or LNG / LPG vessels in confined waters?	●	●	risk analysis of LNG and LPG carriers transiting the Great Barrier Reef and Torres Strait	completed QRA study of LNG tankers transiting through the Strait of Magellan vs. Drake Passage.

ITEM / DESCRIPTION	LLOYD'S REGISTER	DNV	COMMENTS ON LLOYD'S	COMMENTS ON DNV
Does the proponent have experience working in sensitive marine environments?	●	●	Great Barrier Reef / Spill Model for BP	Norwegian tug preparedness study.
Does the proponent have experience working with community groups?	●	●	Torres Strait	2 TERMPOL studies
Does the proponent have experience working in Canada with Canadian regulations?	●	●	Martec is based in Halifax and has completed work on the Confederation Bridge, and numerous projects off the Canadian East Coast.	DNV has completed TERMPOL studies for Rabaska and Gros-Cacouna in Quebec.
PROJECT TEAM				
Is the project team clearly communicated?	●	●	Team is clearly defined, including client liaison and base location of team members. Full time team members, and internal quality control representatives not specified.	Team is clearly defined, including client liaison, full time team members, and internal quality control representatives. Base location of team members not specified.
Is the team committed to for the project	●	●	Appears team members are committed to for the project, however, this is not explicitly stated.	DNV states the team they have included in Volume 1 is "likely" to be the resources used on the project.
Is the proponent ISO 9001 certified?	●	●	audited to comply with ISO 9001:2000	ISO 9001 certified
WORK PLAN				
Are the requirements of TERMPOL clearly addressed in proposal?	●	●	how the work included will satisfy the requirements of TERMPOL is not clearly communicated.	how the work included will satisfy the requirements of TERMPOL is clearly communicated.
Is a phase 1 (before July 09) and phase 2 (after July 09) clearly identified?	●	●	analysing risk to terminal and tanker transport not separated. No phase 1 and phase 2 - showing what is completed before and after June - need to refer to schedule.	analysing risk to tanker and terminal delineated.
Is it clear that a detailed work plan will be developed?	●	●	completing a work plan not clearly identified as part of the work plan?	will start by providing a detailed work plan and schedule complete with milestones

ITEM / DESCRIPTION	LLOYD'S REGISTER	DNV	COMMENTS ON LLOYD'S	COMMENTS ON DNV
Has the proponent indicated they will review Northern Gateway's proposed tanker requirements?	●	●		
Has the proponent indicated they will review Northern Gateway's terminal operation / technical information?	●	●		DNV does not explicitly state aspects of terminal design will be reviewed.
Will the proponent review tanker traffic routes?	●	●		
Will the proponent review local climatic and environmental conditions?	●	●		
Will the proponent review population distribution along marine transportation routes?	●	●	not clearly identified as a task, however risk to populations included - so presumably will be a task.	
Has the proponent indicated if or how they will obtain local knowledge and technical input from pilots and tug operators?	●	●	How technical knowledge will be gathered is not clearly defined - budget section appears to have an estimate for contacting BC Coast Pilots and HAZID acknowledge that local expert knowledge is required.	Contacting the BC Coast Pilots has not been identified as a task, however, obtaining local technical knowledge has been clearly identified as a task.
Has the proponent indicated if or how they will address items raised by the working group, communities, stakeholders, First Nations, and / or environmental groups?	●	●	specifically state that a HAZID workshop with local stakeholders and the working group should be completed.	Experience in presenting result to the public as part of their two TERMPOL studies and specifically address the need for First Nations input.
Canadian Coast Guard Data will be incorporated?	●	●		
Will the proponent undertake a qualitative review of traffic routes, identifying potential high risk locations?	●	●	focuses more on the causes of a potential accident	focuses more on the location of a potential accident
Has the proponent indicated they will attend an introductory meeting with working group?	●	●		
Has the proponent acknowledged a 2nd meeting to tour proposed marine transportation route?	●	●	not clearly indicated when this will occur	budgeted to be in conjunction with April 16 / 17 site visit.

ITEM / DESCRIPTION	LLOYD'S REGISTER	DNV	COMMENTS ON LLOYD'S	COMMENTS ON DNV
A vessel casualty data survey will be completed?	●	●		
A terminal casualty data survey will be completed?	●	●		
Definition of casualty database to be used?	●	●	use of LR Fairplay, TNO and DNV summaries, CCG and TSB casualty records.	use of LR Fairplay that will be supplemented with information from in-house studies
Will the database be scaled to local conditions?	●	●		
Has the proponent indicated they will use Canadian Coast Guard - West Coast data?	●	●		
Has the proponent indicated they will use IMO MARPOL data?	●	●		
Hazards to marine traffic along proposed routes will be identified?	●	●		
Hazards during terminal loading / unloading will be identified?	●	●		
Risks associated with marine tanker traffic will be quantified?	●	●		
Risks associated with terminal loading / unloading will be quantified?	●	●		
The proponent will review consequence analysis completed by Northern Gateway and will suggest revisions and complete additional work as required?	●	●	not clear how the work completed by Northern Gateway will be used.	DNV will review spill scenarios, oil trajectory dimensions for worst case scenario, environmental risk analysis, and affect on public safety. Work in addition to that completed by Northern Gateway will be extra, including \$10,000 per extra oil spill model.

ITEM / DESCRIPTION	LLOYD'S REGISTER	DNV	COMMENTS ON LLOYD'S	COMMENTS ON DNV
A ranking and discussion of vessel risk to acceptable criteria agreed to be client will be completed?	•	•		
Measures to mitigate risk including tethered tugs, double hulled tankers, and enhanced nav systems will be proposed?	•	•		no reference to double hulled tankers, although DNV states that technological and regulatory improvements through the past decade will be taken into account.
Description and probabilities for credible oil spill scenarios will be provided?	•	•		
Probabilities of credible scenarios that meet regulatory requirements will be provided?	•	•		not all specific volumes were identified by DNV, however they seemed to indicate a clear understanding of what was required.
The definition of a credible worst case scenario will be provided?	•	•		
Likely spill volumes from credible scenarios will be provided?	•	•		



I.3 QRA Working Group Meeting 3 (April 17, 2009)

I.3.1 Meeting Invitation

I.3.1.1 Invitation

From: Katie Havercroft-McKinnon
Sent: April-07-09 11:14 AM
Subject: EGP QRA Working Group Upcoming Meeting Details

Hello All,

By way of follow-up to my email yesterday, I would like to confirm that the April 17, 2009 QRA Working Group meeting will be held at the **Hyatt Regency Vancouver**, located at 655 Burrard Street, Vancouver, BC. (Tel: 604-683-1234). As with the earlier two meetings, NGP will be taking care of hotel bookings and meeting arrangements. In order to facilitate this could you please complete the attached RSVP form and return it to me by **Friday, April 10 at 4PM.**

If you have any questions or concerns regarding the arrangements for this meeting, please feel free to contact me at 403-538-5663.

Thanks,
Katie

Katie Havercroft-McKinnon | Partner | Fulcrum Strategic Consulting Inc. (Formerly RMC & Associates)
Suite 1100 | 815 8th Ave SW | Calgary, AB T2P 3P2
t: 403.538.5663 | c: 403.863.8113 | f: 403.538.5691
khmckinnon@fulcrumstrategic.ca | www.fulcrumstrategic.ca



I.3.1.2 Registration Form



Quantitative Risk Assessment Research Working Group Meeting RSVP

Thank you for your ongoing participation in the Northern Gateway Pipelines (NGP) Quantitative Risk Assessment Research Working Group. The details of the next meeting are as follows:

April 17, 2009 **8:30 AM – 4:30 PM** (breakfast and lunch to be provided)

The meeting will be held at the **Hyatt Regency Vancouver** which is located at **655 Burrard Street, Vancouver, BC, (Tel: 1 604 683 1234)**.

As required, NGP will be covering accommodation and travel costs for your attendance at the meeting. A separate expense reimbursement form is attached for you to use for the reimbursement of airfare or mileage associated with travel to the meeting. NGP will also be offering each attending organization a \$500 honorarium for your participation in the meeting if requested.

In order to provide a smooth registration process NGP will take responsibility for booking rooms for participants at the Hyatt Hotel. In order to complete the room booking, we will require you to complete the attached form and return it to Katie Havercroft-McKinnon by e-mail at: k_mckinnon@shaw.ca or by fax at 403-538-5691 **by 4 PM on Friday, April 10th**.

If you have any questions, please feel free to contact Katie at 403-538-5663.

Name: _____

Organization: _____

Telephone: _____ **E-Mail:** _____

Will you attend the meeting?

Yes

No

Do you require a room at the Hyatt Hotel?

Yes

No

If yes, please indicate which nights you will require the room for.

April 16, 2009

April 17, 2009

Would you prefer a smoking or non-smoking room?

Please indicate any food allergies or food requirements that you may have:

Is your organization interested in receiving an honorarium for your attendance at the workshop?

Yes

No

Additional questions or comments:



I.3.1.3 Reimbursement Form



QRA Working Group Expense Reimbursement Form

**ENGP QRA Working Group Meeting
Vancouver, BC
April 17, 2009**

Thank you for participating in our workshop. To demonstrate our appreciation for assisting Northern Gateway Pipelines (NGP) with this process, we would like to cover expenses incurred from attending this workshop.

Please attach all receipts to this sheet for reimbursement. You can hand it in at the end of the workshop or mail it to:

Northern Gateway Pipelines
240 City Centre
Kitimat, BC, V8C 1T6.
Attention: Lisa Clement

Please note that accommodation reimbursements are not listed below as the Hyatt Regency Vancouver will automatically charge the room rate and room tax to Northern Gateway Pipelines. Any other room charges are your own expense (i.e. long distance calls, movies, mini-bar etc.).

Travel Expenses

Honorarium Requested:

_____ Flight
_____ Mileage (rate of \$0.60/km)
_____ Taxi

Yes No

Meal Expenses

Total Expenses: \$ _____

Cheque to be mailed to:

I.3.2 Draft Agenda

QRA Working Group Meeting #3
April 17, 2009
Cypress Room, 34th Floor
Hyatt Regency Vancouver
644 Burrard Street, Vancouver, B.C.

QRA Working Group MEETING DRAFT PROPOSED AGENDA	
8:15 am	BREAKFAST IN MEETING ROOM
8:30 am	Introductions – K. McKinnon/All <ul style="list-style-type: none"> • Welcome & Introductions • Purpose and Intended Outcomes of Meeting • Finalize proposed meeting agenda
9:00 am	Project Overview – C. Anderson/C. Pelpola/M. Cowdell <ul style="list-style-type: none"> • Provide a high-level overview of the aspects of the ENGP project that are relevant to supporting the scope of the QRA • High-level overview of studies that support or feed into the QRA • Q&A
10:00 am	BREAK
10:15 am	Description of What a QRA Consists of – DNV <ul style="list-style-type: none"> • Provide a high-level overview of what a QRA is • Q&A
11:00 pm	Overview of Proposed Plan for Completing Phase 1 of the QRA – DNV <ul style="list-style-type: none"> • Walk through proposed methodology and work-plan for completing the QRA • Q&A
12:00 pm	LUNCH IN MEETING ROOM
1:00 pm	Discussion Regarding Scope of QRA for Northern Gateway Pipeline Project - DNV/Group
2:00 pm	BREAK
2:15 pm	Continued Discussion Regarding Scope of QRA for Northern Gateway Pipeline Project - DNV/Group
3:15 pm	Review of Next Steps and Additional Input Required <ul style="list-style-type: none"> • Additional input required • Review of Next Steps for QRA • Identification of next meeting date and location for Working Group
4:00 pm	ADJOURN

I.3.3 Meeting Summary

Enbridge Northern Gateway Pipeline Project
DRAFT Quantitative Risk Assessment Working Group Meeting #3 Notes
April 17, 2009
Hyatt Regency, Vancouver

Meeting Title:	Enbridge Northern Gateway Pipeline Quantitative Risk Assessment Working Group Meeting
Meeting Purpose:	<ul style="list-style-type: none"> • To provide the Working Group with an opportunity to meet the consultants hired to complete the Quantitative Risk Assessment • To provide DNV with an opportunity to describe their proposed approach and methodology for completing the QRA • To provide the Working Group with an opportunity to provide input into the scope of the QRA
Date of Meeting:	April 17, 2009 – Vancouver, BC
Attendees¹:	<p>Diane Hewlett, District of Kitimat Bob Thompson, City of Prince Rupert Tanya Bryan, Nature Conservancy of Canada Michael Cowdell, WorleyParsons Westmar Steve Greenaway, Enbridge Northern Gateway Pipelines Channa Pelpola, Gateway Environmental Management Team Chris Anderson, Enbridge Northern Gateway Pipelines Roger Harris, Enbridge Northern Gateway Pipelines Sam Behramfram, Manager, Pacific District, Det Norske Veritas (DNV) Peter Hoffmann, Senior Consultant, Advisory Services, Det Norske Veritas (DNV) Mark Bentley, Manager/Principial Surveyor, Vancouver Station, Det Norske Veritas (DNV)</p> <p>Facilitation Team: Katie Havercroft-McKinnon, Fulcrum Strategic Consulting Susan Davis Schuetz, Fulcrum Strategic Consulting</p>
Meeting Notes Prepared by:	Fulcrum Strategic Consulting

Agenda

- 1. Welcome & Introductions**
 - Welcome & introductions
 - Purpose and intended outcomes of meeting
 - Finalize proposed meeting agenda

- 2. Project Overview**

¹ All individuals present at the meeting are referred to as “attendees”. The term “attendee” is not intended to confer member or observer status.

- Provide a high-level overview of the aspects of the ENGP project that are relevant to supporting the scope of the QRA
- High-level overview of studies that support or feed into the QRA
- Q&A

3. Description of QRA and Proposed Methodology and Plan

- Introduction of DNV and corporate background
- Description of Quantitative Risk Assessment
- Description of proposed methodology for completing the QRA for the Enbridge Northern Gateway Project
- Q&A

4. Discussion Regarding the Scope of the QRA

- Review draft consultant selection criteria identified at the first meeting
- Working group discussion on draft criteria to finalize

5. Next Steps

- Review of next steps for QRA
- Scheduling & location of next meeting

Action/Follow-up Items

Id	Actions Required:	Person Assigned	Open Date	Due Date (Rev #) - Status
1.	Attendees to provide recommendations regarding local stakeholders for interviews with DNV	Attendees	April 17	April 20
2.	Attendees to identify if they are interested in participating in the Hazard ID Workshop	Attendees	April 17	April 20
3.	Attendees to provide any comments on the April 3 rd meeting notes by April 29	Attendees	April 17	April 23

Shading indicates completed action item.

Italics indicate further discussion on previously raised action item.

Decisions Made	Date
QRA Working Group boat tour of the shipping lanes from Prince Rupert to Kitimat will be held on June 17, 2009	June 17, 2009
The next QRA Working Group meeting will be held on the morning of June 18, 2009 in Kitimat. At this meeting DNV will present the results of Phase 1	June 18, 2009

1. Welcome & Introductions

- Facilitator reviewed the purpose of the meeting as well as the proposed agenda. No suggested changes to the agenda were raised.
- Round table introductions were made.

2. Project Overview – C. Pelpola, Gateway Environmental Management Team (Please refer to attached power point presentation)

Project Overview presentation included a review and discussion of the following:

- study area;
- confined channel assessment area – site conditions;
- marine terminal – site conditions;
- assessment process – spills;
- key safety / design features; and
- studies completed.

The following captures participant questions / responses during this portion of the meeting.

Attendee Q: Does the key safety and design features factor in reduced visibility for ships in heavy snow fall? I would be concerned about systems turned off. How would you ensure human error won't happen?

NGP² Response: Yes, visibility is taken into account. There will be a (ship) bridge management system in place to manage the possibility of human error. It is about having multiple management systems in place – building redundancy (e.g. two pilots).

Attendee Q: Will there be two pilots in place before you come into the channel?

NGP Response: Yes.

Attendee Q: Do you know if Environment Canada might be interested in putting additional permanent systems in place? Would you consider encouraging them to have more in place to better determine general weather conditions (e.g. wave, precipitation, visibility [cloud cover], etc)? Could Environment Canada potentially fill a data gap you may have?

Attendee Q: Are these systems not already in place that assist in making the decision as to whether or not to come into the channel?

NGP Response: Yes, these systems are in place. Site assessments will also be used to make decisions.

² “NGP Response/Comment” refers to a comment or statement made by a representative of Northern Gateway Pipelines Inc. This includes both employees and consultants.

Attendee Q: I have concerns with the northern route inside Principe Channel. Why wouldn't Enbridge head out to sea at the bottom of Banks Island?

NGP Response: This may be a possibility in the summer but at the same time, there may be a problem with the concentration of whales in the area. There are options but the two scenarios here are considered the best and are currently used right now.

Attendee Comment: I would think the people living north of Banks Island would prefer you head out to sea earlier.

NGP Response: We will certainly take this under advisement but these are current recognized routes. At the end of the day, this will likely not make a difference in probability. We will not be ignoring the issues and we will rely on DNV to advise us as to what route is best.

NGP Q: What does ADCP stand for?

NGP Response: Acoustic Doppler Current Profiler

Attendee Q: Is there a temporal aspect to these sensitivity maps?

NGP Response: 9 meters were placed in 4 locations and were in place from Sept 2005 to Jan 2006. One of the meters was re-deployed at the terminal site from January – April 2006 for additional data collection. In December 2006 the data were downloaded & analysed and the instrument was refurbished to record further measurements in the PDA from December 2006 – July 2007.

Attendee Q: Were the Ministry of Forest databases used to develop these sensitivity maps? Ministry of Forest has a bunch of new information due to all the regional planning work that has been undertaken.

NGP Response: I believe their databases were used. However, it important to stress the importance of now 'ground truthing' these maps. Photos are often blurry and 'ground truthing' is needed.

Attendee Q: How far northwest does this mapping go?

NGP Response: This map is only one of many.

Attendee Q: Is it possible to have a copy of these maps?

NGP Response: Enbridge wants to 'ground truth' these maps first to get them as accurate as possible. However, the company is planning to have this knowledge be a legacy.

Attendee Q: Will these maps be part of the NEB application?

NGP Response: No. This information will be part of the supplementary filing simply because the 'ground truthing' still needs to be done. There is a need to focus on traditional use. It is envisioned that when complete a real legacy will be left.

Attendee Q: Is Enbridge interested in doing an online repository?

NGP Response: The province does have sensitivity maps but not any with this degree of detail for this particular area. Enbridge will be providing this information to the province.

Attendee Q: What are your timelines for completing this 'ground truthing'?

NGP Response: Anticipate this summer will focus on 'ground truthing' and most of the work will be completed for the supplemental filing. However, it is important to note that input can be incoming over the next two years. The filing is not the end of the process rather it is the beginning. The level of detail will far exceed that of the province's information. There is a wealth of information that sits behind these maps.

3. DNV introduction / QRA description – P. Hoffmann, Det Norske Vertias *(Please refer to attached power point presentation)*

Project Overview presentation included a review and discussion of the following:

- who is DNV
- DNV's project experience;
- what is a QRA; and
- Northern Gateway project plan and methodology.

Meeting participants discussed the following:

- Attendee interest in participating in the Hazard workshop;
- Attendee feedback on who should be engaged in the Hazard workshop and/or who should DNV contact for the purposes of gathering local knowledge;

Please refer to "6. Next Steps" for the results of these discussions.

4. Overview of Proposed Plan for Phase 1

Attendee Q: Does the geographic study include Haida Gwaii?

NGP Response: We have asked DNV to examine area external of confined channel including Dixon entrance, Hecate Strait and Queen Charlotte.

Attendee Q: Are you assessing risk twice? In other words, assessing the risk with no mitigation and then assessing the risk with mitigation?

NGP Response: Yes. Also, the Hazard workshop will likely produce a number of possible risk mitigation ideas as the discussion will be at the local level. Local conditions take general hazards and provide input into frequency. Local input also helps cover database data gaps.

Attendee Comment: I think it is important to realize that data only provides so much information. Example of Prince Rupert 'one every 100 year storms' doesn't account for all factors / variables such as how heavy it rains.

Attendee Q: Are you able to search on locations with similar features as Kitimat?

NGP Response: Yes.

Attendee Q: Will you be identifying all ports of refuge?

NGP Response: The Coast Guard has a methodology in place to assess ports of refuge according to a given context. They used to produce a document that identified areas of refuge but they don't do this anymore. Enbridge (in consultation with the Coast Guard) will review and assess POR which may be viable. What we do know is that there are a limited number of areas of refuge and there are only a few areas to ground a vessel. Therefore, it is most likely they will go first to a port. Having said all this, it is the Coast Guard that will direct how a situation should be handled.

5. Scope discussions

NGP representative asked meeting participants for feedback on the proposed scope. The question was asked as to whether something was missing and needed to be added and/or should there be greater emphasis in certain areas.

Attendee Q: What level does future shipping over next 15 years come into the analysis?

NGP Response: We look at current shipping and we factor in future projects (such as the Alcan expansion, KLNG, etc).

DNV Response: If there is a possible project that is not set in stone and projected to be in place in 50 years, likely will not be factored into the analysis.

NGP Response: There would be a sensitivity analysis done.

Attendee Comment: I believe you should conduct the study based on the suspected life capacity of pipeline / terminal which is 50 years.

NGP Response: We know that others are proposing (i.e. Alcan increase by 50%) and will factor this into the analysis. We can plug in a 50 year sensitivity analysis but it would only be a forecast. Forecasting can be challenging - look at all the changes [decline in shipping trade] that have occurred even over the past 12 months.

Attendee Comment: I agree, and these changes are exactly why using historical information is problematic.

DNV Response: There is a challenge too in that for example, tankers will likely look very different in 50 years as will mitigation measures.

Attendee Comment: Then I believe a QRA should be done every 10 years.

NGP Response: Actually, this is happening now in the Valdez area. It is important to note that as other projects come along, they will be conducting QRAs so the information is ongoing and updated. Having said this, the idea of Enbridge doing a QRA every 10 years is a good point to bring forward to the Marine Community Advisory Board.

Attendee Q: I would assume that lots of things have changed even in the past few years. Do the databases you referred to take these changes into account?

DNV Response: We will only look at the last 10 to 15 years given the vast changes.

6. Next steps

1. Attendees are to provide recommendations regarding local stakeholders that DNV should be speaking with during their information gathering meetings (week of April 27th) to Katie Havercroft-McKinnon by Monday, April 20 end of day.
2. DNV will be conducting a Hazard Identification Workshop (aiming for April 27th in Vancouver) to meet with pilots and industry representatives to discuss potential navigation hazards along the shipping route. Attendees are welcome to attend this meeting and are to let Katie Havercroft-McKinnon know if they are interested / available to attend.
3. Attendees are to provide Katie any comments they might have on the February 18th and 19th draft meeting notes by end of day April 21st.
4. Attendees are to provide Katie any comments they might have on the April 3rd meeting notes by end of day April 29th.
5. **The next QRA Working Group meeting will be held in Prince Rupert on Thursday, June 18.** This meeting will be an opportunity for DNV to present the findings of their Phase 1 QRA report. The day prior to this meeting, on **Wednesday, June 17**, there will be a boat trip to tour the proposed shipping route. This boat trip will start in Prince Rupert and end in Kitimat. Katie will provide additional details in the near future.

I.3.4 Presentations


I.3.4.1 Overview of the Marine Components



**ENBRIDGE
NORTHERN
GATEWAY PIPELINES**

Overview of Marine Components

QRA DNV Meeting
Vancouver
Apr 17, 2009



**ENBRIDGE
NORTHERN
GATEWAY PIPELINES**

Overview

- Study area
- Confined Channel Assessment Area - Site conditions
- Marine Terminal - Site Conditions
- Assessment process – Spills
- Key Design Features
- Studies completed



Confined Channel Assessment Area

North Route


- 📍 Triple Island to Browning Entrance
- 51 NM
- 📍 Browning Entrance to Terminal
- 105 NM

South Route

- 📍 QC Sound to Caamano
- 75 NM
- 📍 Outer Caamano to Terminal
- 105 NM

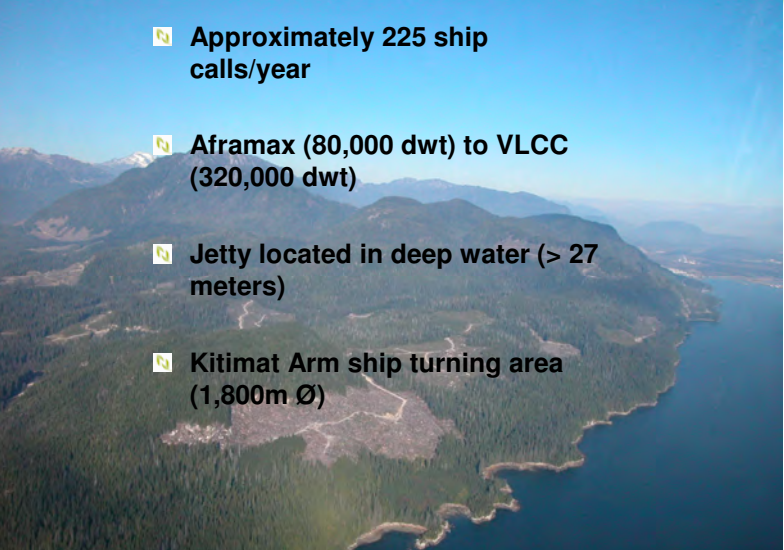
Ship Speed is 8 to 12 knots







Kitimat Marine Terminal Area

- 📍 Approximately 225 ship calls/year
- 📍 Aframax (80,000 dwt) to VLCC (320,000 dwt)
- 📍 Jetty located in deep water (> 27 meters)
- 📍 Kitimat Arm ship turning area (1,800m Ø)





Spills Assessment Process



Process:

- key design features to prevent an oil spill
- Probability of an oil spill (QRA)
- Fate and behaviour of a spill (trajectory model)
- Emergency response planning, response, and recovery
- Consequence, assessment of environmental effects
- Habitat restoration





Key Safety/Design Features

- Ship (and Crew) Vetting
- Double Hull Tanker Construction – Inert Gas System
- Ship Steering and Navigation Systems Redundancy
- Tug Escort Operations (Tethered Towing)
- Compulsory Pilotage
- Pilot-carried Electronic Navigation Systems
- Improved Aids to Navigation (including VTM radar)
- Weather Monitoring and Ship Transit Limits
- Ship and Terminal Safety Plans
- Places of Refuge and Emergency Planning
- Training of local response teams

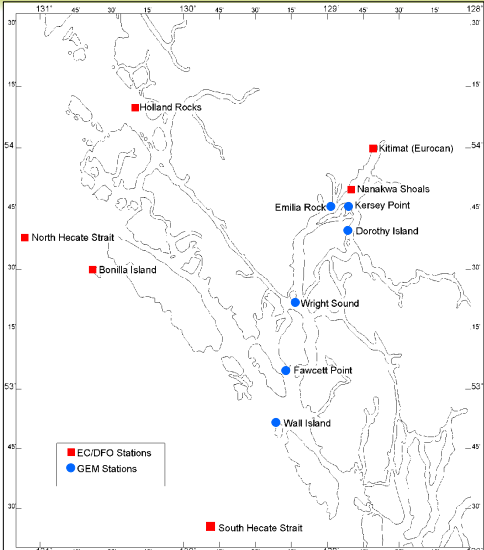



Studies related to the QRA


- Chemical and Physical Properties – fate and effects
- Weather and Oceanographic conditions (wind, wave, current)
- Route assessment and areas of increased navigation risk
- Spill trajectory maps
- Socioeconomic and Environmental sensitivity maps
- Baseline and future studies

METEOROLOGICAL DATA



- Data from:
 - GEM installed six meteorological stations
 - EC/DFO buoys/stations
 - December 2005 to present



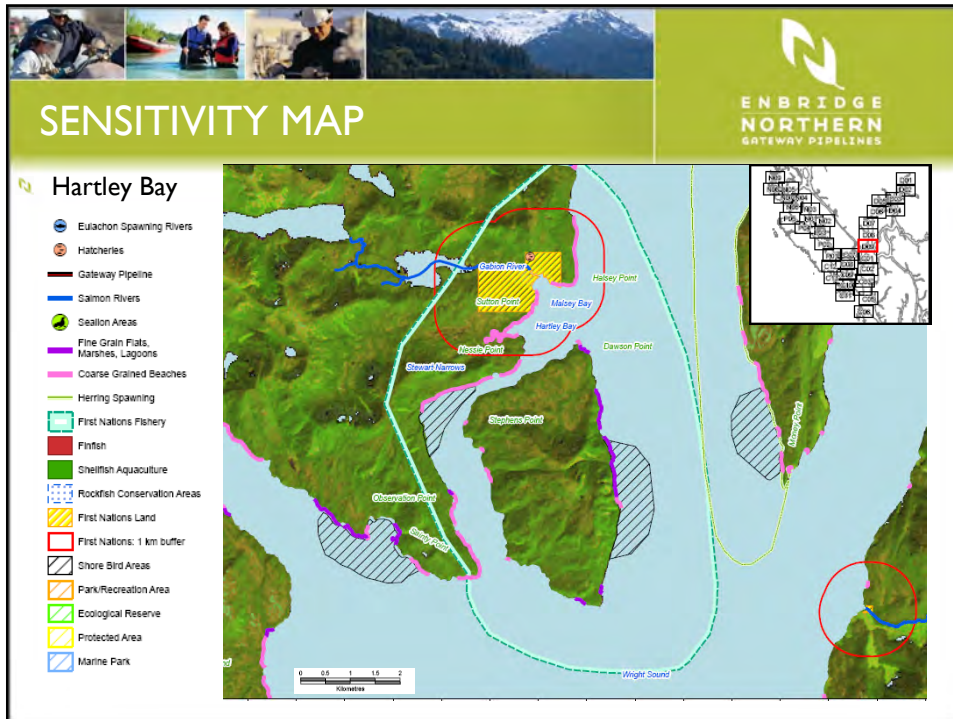
OCEANOGRAPHIC DATA

- 2 4 ADCP s instrumented
- 2 In situ for 4 seasons
- 2 Hi-resolution data





Response and Cleanup

- 2 detailed **contingency plan** for both the marine terminal and CCAA.
- 2 The plan **will** include:
 - Sensitivity maps
 - Response strategies
 - Response times
 - % product recovered






-
- BASELINE STUDIES (2005/06)**
- Marine birds & mammals (vessel & aerial presence /absence surveys)
 - Intertidal/foreshore (shoreline surveys & coastal fish sampling)
 - Subtidal surveys (underwater video surveys in PDA)
 - Acoustic field surveys (underwater noise collection at 4 locations along existing shipping routes)
 - Sediment sampling (baseline sediment chemistry gathering and describe benthic fauna)
 - Commercial fisheries (interviews with commercial and subsistence fisherman based in Kitimat)



CURRENT & FUTURE STUDIES


- Some fieldwork conducted in 2008 (intertidal survey, shore-based bird survey), but most postponed to 2009
- Further baseline field programs for marine birds, mammals, fish, invertebrates, vegetation & sediment proposed for 2009



Environmental Impact

Kitimat Terminal & Vessel Operations

- The QRA will form part of the process for the assessment of effects of an oil or condensate spill. Scenarios include:
 - Hypothetical spill scenarios at Terminal and in CCAA
 - Fate of oil and condensate in the marine environment
 - Identification of sensitive shoreline areas (atlases)
 - Assessment of potential environmental effects



Eelgrass



Questions?



I.3.4.2 Det Norske Veritas



MANAGING RISK

Quantitative Risk Assessment

Meeting with Working group

Peter Hoffmann, DNV
17 April 2009

Agenda



MANAGING RISK

- Who is DNV?
- DNV project experience
- What is QRA?
- Project plan and methodology

DNV – an independent foundation



Our Purpose

To safeguard life, property and the environment

Our Vision

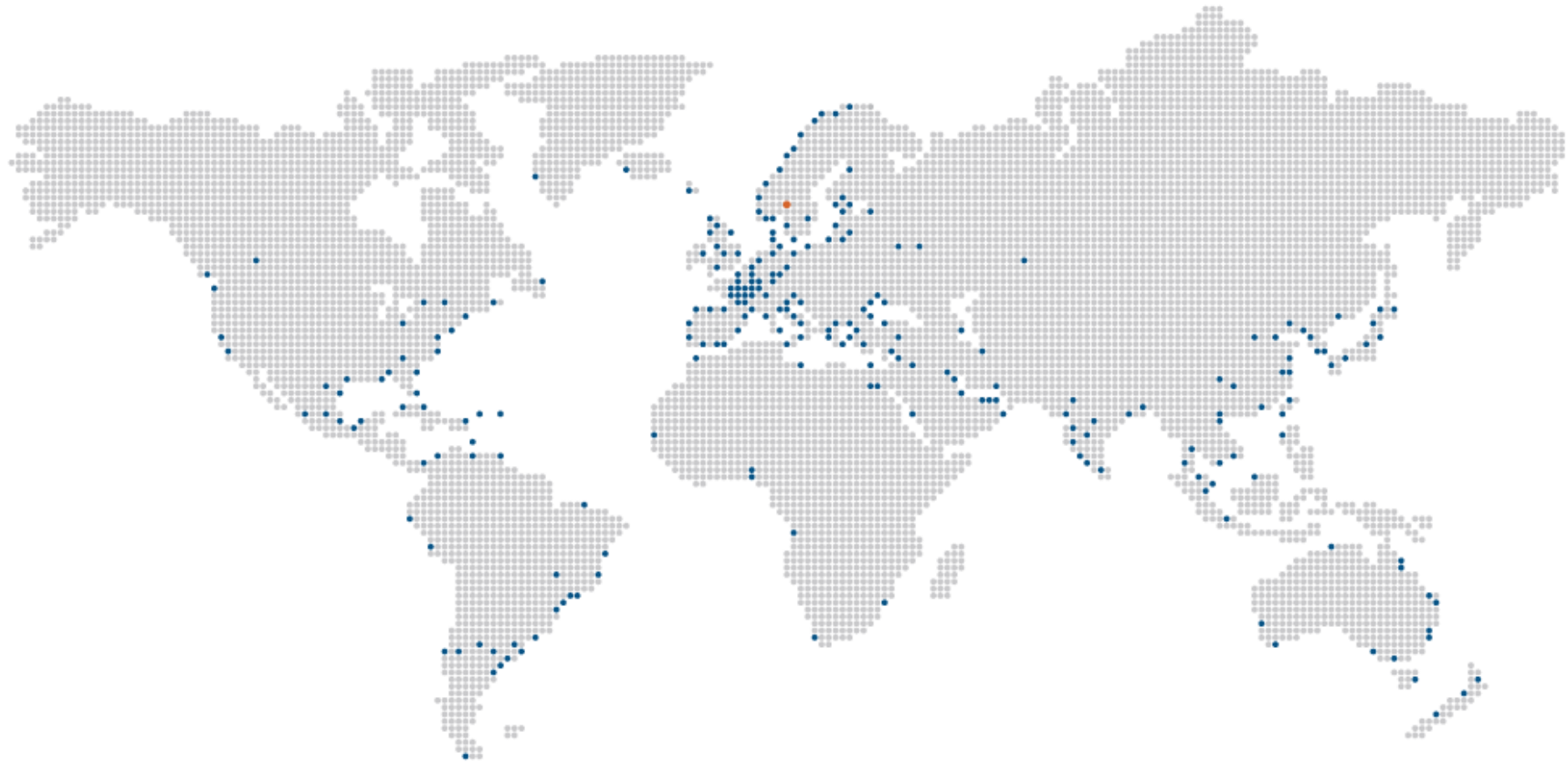
Global impact for a safe and sustainable future

More than 140 years of managing risk

- Det Norske Veritas (DNV) was established in 1864 in Norway
- The main scope of work was to identify, assess and manage risk
 - initially for maritime insurance companies



300 offices in 100 countries



● Head office ● Local offices

Core competence



Target industries

Maritime



- Ship classification
- Certification of materials and components
- Assessments and solutions
- Fuel testing
- Training
- Software

Energy



- Enterprise risk management
- Asset and SHE risk management
- Technology qualification
- Verification
- Offshore classification
- Software

Food & beverage



- Management system certification
- Product certification
- Food safety
- Traceability
- Corporate Responsibility

Other prioritised industries

Health care

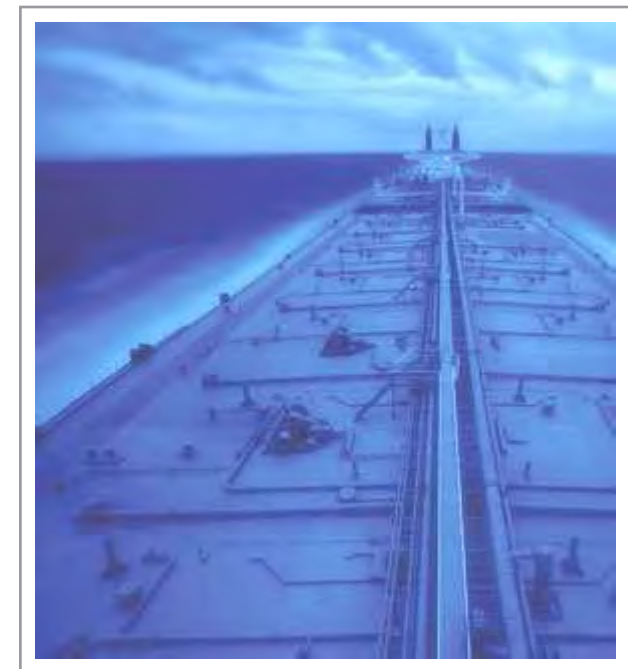


Biorisk

DNV Maritime at a glance

DNV is a world leading classification society

- 15.4% of the world fleet to DNV class
- Over 20% of ships ordered in 2008
- 70% of maritime fuel testing market
- Authorised by 130 national maritime authorities
- Continuous high performance in Port State Control worldwide



Helping unlock our clients' potential

Our goal is to make our clients winners

- We offer our clients advice on all aspects relevant to running a maritime business - from strategy and management related issues to technical and operational decisions and improvements
- We offer best practice implementation assistance


Our contribution has a proven positive impact on

- Clients' bottom line
- Asset values
- Ability to gain and maintain competitive advantages



© 2007 Det Norske Veritas AS. All rights reserved

DNV Maritime Advisory Service Areas

Clients	Practice areas
<p>Our clients include:</p> <ul style="list-style-type: none">• Ship owners and management companies• Charterers• Yards• Designers and manufacturers• Financiers• Law firms• Insurance agencies and brokers• Public authorities and administrations• Maritime organisations• Navies• Ports and terminals• Training providers and crewing agents.	 <p>DNV Maritime Advisory Services</p> <p>Strategy & Business Development Risk & Safety Excellence</p> <p>Operational Excellence Environmental Excellence Technical Excellence</p> <p>DNV Knowledge & Expertise</p>

Agenda

- Who is DNV?
- DNV project experience
- What is QRA?
- Project plan and methodology

Project references – See hyperlink for details

Quantitative Risk Assessment for Rabaska LNG terminal ([2005](#))

- TERMPOOL assessment for the transport of LNG to the terminal

Navigation Risk Assessment of the Strait of Magellan ([2008](#))

- Qualitative risk assessment of two route choices comparing the risk levels of the two

Risk analysis of oil tanker transport Varandey – Murmansk ([2005](#))

- Risk assessment of the transport of Crude oil. Objective to assess if transport in ice can be as safe as transport in non ice

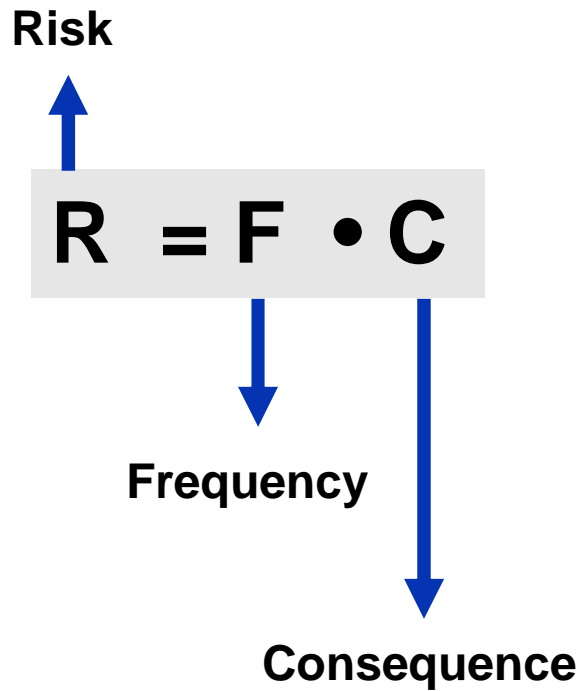
- Risk and contingency assessment of Ship to Ship transfer of condensate in a fjord in Northern Norway
 - The study included a risk analysis of the operation, oil spill modelling and environmental sensitivity analysis. The report was used as part of the approval documentation for start up of said operation
- Evaluation of tug availability along the Norwegian coast
 - The Norwegian government was looking into establishing a permanent fleet of tugs along the coast in case of emergency. DNV performed an analysis to establish the most efficient number of tugs based on: speed, probability of connection and weather conditions
- Operating procedures for a Vessel Traffic Management and Information Service (VTMIS)
 - A new VTMIS has recently been started in northern Norway and DNV designed and described best practise for operational procedures. The work included: Risk evaluation for the area of operation, personnel competence requirements, Best practice from other VTMIS and procedure structure

- Risk Analysis of Tanker Transit in the Turkish Straits Area (2006)
 - DNV was commissioned to perform further updates and enhancements of our previous risk analysis projects of tanker transits in the Turkish Straits Area (Bosphorus, Dardanelles, Sea of Mamara and connecting waterways). The key objectives of this work were to assess the effects of the following 4 potential operational changes on the company's risk profile:
 - Use of larger tankers up to Suezmax (nominally 150kdwt or 300m in length).
 - Day time versus night time transits.
 - Use of tug escorts through the Bosphorus and/ or the Dardanelles.
 - Risks for transits in ballast.

Agenda

- Who is DNV?
- DNV project experience
- What is QRA?
- Project plan and methodology

Definition of Risk



Risk is the frequency of an incident combined with its consequence!

Evaluation of risks for different stakeholders

PSC – at risk:

"Safety of the ship and the crew"

Crew – at risk:

" My monthly salary – and no personal accidents"

Banks – at risk:

" Cash flow – want my money back"

Ship owner – at risk:

"Make money, no major accidents, maintain reputation"

Class – at risk:

"No accidents due to class related issues"

Insurance – at risk:

"No accidents whatsoever on ship or environment"



Environment – at risk:

" No environmental damage"

What is QRA?

- Quantitative Risk Assessment (QRA)

- *Use of measurable, objective data to determine asset value, probability of loss, and associated risk(s)*
- *Structured approach to assess the risk involved a operation, facility or asset*

- The focus in most QRAs is to look at:

- **Potential Loss of Life (PLL)**

The expected number of lives lost over a period of time (either per ship year or ship lifetime) due to a specific risk

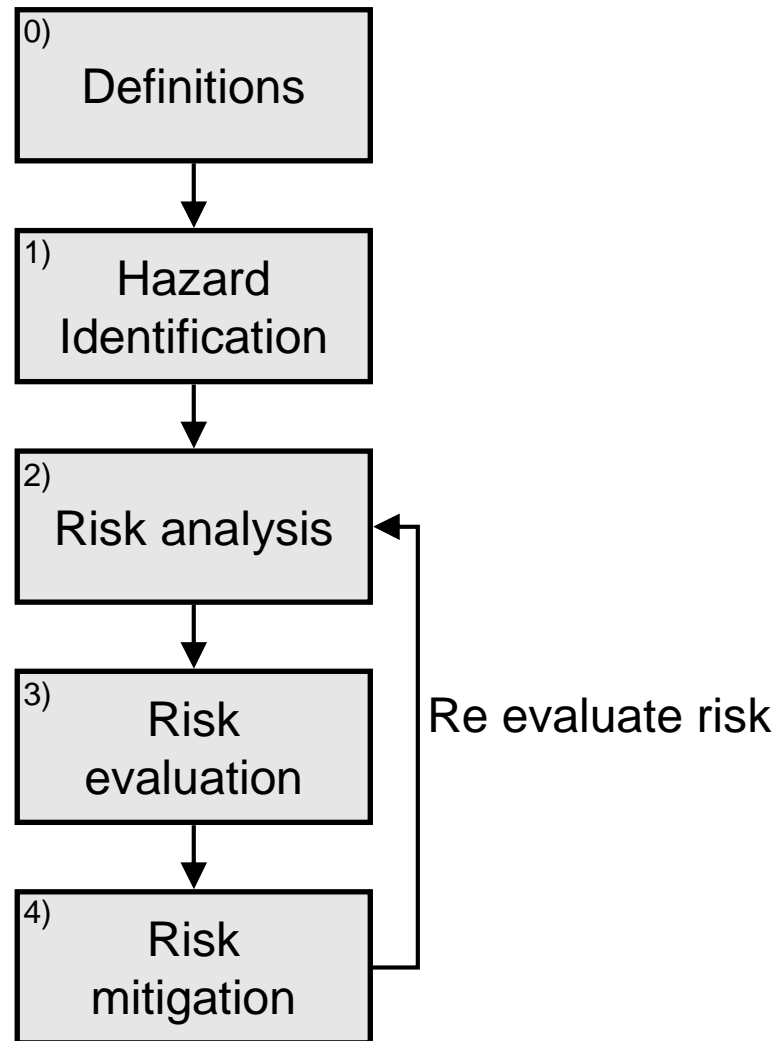
- **Potential Loss of Cargo (PLC)**

The expected volume of cargo lost (e.g. tonnes of oil) over a given time due to a specific risk (Environmental risk)

- **Potential Loss of Property (PLP)**

The expected cost of damage to the ship over a given time due to specific risk

QRA – Basic steps



QRA – Step 0: Definitions

The main points of this step is to:

- Define the risk acceptance criteria
- Define the system:
 - Geographical area
 - Type of ships
 - External factors, e.g. weather, vessel traffic system
 - Route
- Define relevant accident categories, e.g. collision, grounding, explosion
- Quantitative or qualitative?

QRA – Step 1: Hazard Identification

The main objectives of this step:

- Identify and describe all relevant hazards, such as:
 - Grounding
 - Human error
 - Mechanical failure
- Screen hazards using available data and judgement
- Rank hazards in order to prioritize
 - Ranking often done using a risk matrix

		Risk Matrix				
		Consequence				
		1	2	3	4	5
Frequency		Slight	Minor	Medium	Major	Extreme
5	Very High	5	10	15	20	25
4	High	4	8	12	16	20
3	Moderate	3	6	9	12	15
2	Low	2	4	6	8	10
1	Very Low	1	2	3	4	5

QRA – Step 2: Risk analysis

The main objectives of this step are:

- Establish the probability of occurrence of each hazard
 - Data analysis
 - Workshop
 - Expert judgement
 - Modelling

- Establish the consequence if a given hazard occur
 - Experience
 - Modelling
 - Expert judgement

- Risk = Frequency X Consequence

QRA – Step 3: Risk evaluation

The main objectives of this step are:

- Evaluate the risks in light of the acceptance criteria define in step 0
 - I.e: Is the risk level acceptable?
- If the risk is unacceptable then a set of risk control option should be analysed in order to mitigate the risk
 - Risk mitigation is part of the next step

QRA – Step 4: Risk mitigation

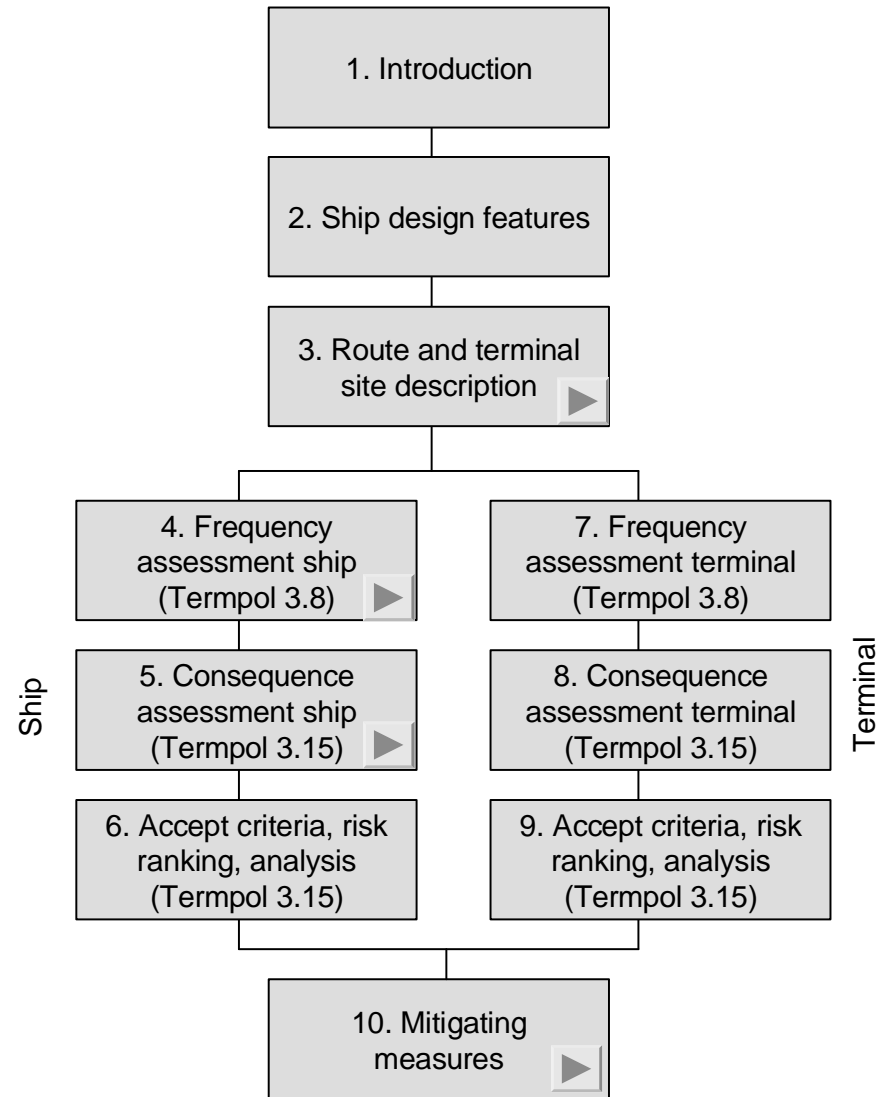
The main objectives of this step are:

- Identify Risk Control Options (RCOs) for high risk areas
 - Options to reduce frequency, e.g. Support tug, redundant propulsion
 - Options to mitigate consequence, e.g. Double hull
- Evaluate the effect of each RCO on the hazards
- Include effect of RCO in the risk analysis and re evaluate the risk level

Agenda

- Who is DNV?
- DNV project experience
- What is QRA?
- Project plan and methodology

Project plan and methodology

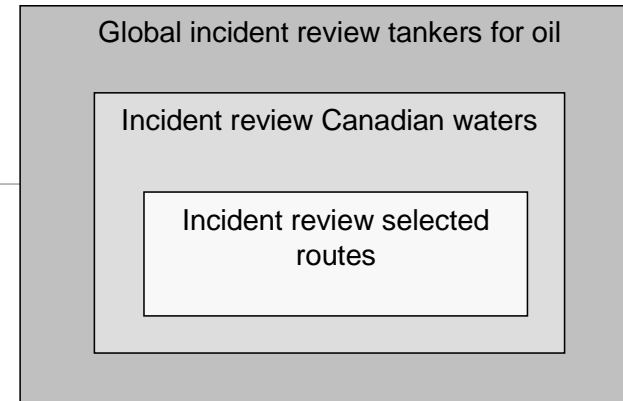


Route and terminal Site description

- Review of documents provide by Northern Gateway
 - Navigational map of routes
 - Met ocean data
 - Population along route
- Tour of the shipping lane
 - Input to Hazid workshop
 - Important for understanding and description of routes
- Local knowledge and input
 - DNV proposes to have meetings/interviews with local groups in connection with the Tour of shipping lanes
- Hazid workshop
 - A 1 day Hazid workshop facilitated by DNV in order to identify relevant hazards for the route chosen
 - Suggested participants:
 - Local pilots
 - Captain or Chief Officer with experience from area
 - Northern Gateway personnel
- DNV proposes to perform the three last points above in week 18



Casualty data analysis - ships



The analysis will be performed in three steps:

■ Global incident data

- As a baseline for the accident frequency an analysis of world wide accident data from Lloyd's Register Fairplay (LRFP) will be performed

■ Incident data for Canadian waters

- The Canadian Coast Guard (CCG) gathers incident data for Canadian waters. This combined with data from LRFP will constitute to basis for the analysis
- This exercise will reveal if there are better/worse accident rates in Canadian waters then in world wide trade

■ Incident review for selected routes

- Based on the route description and met ocean data combined with the incident data analysis in step 1 & 2, route specific incident frequencies will be developed
- In other words: the Canadian/LRFP incident frequency will be adjusted to route specific conditions



Consequence assessment for ship incidents

- DNVs main role here will be to assess/verify work already performed på Northern Gateway covering the following:
 - Definition of relevant accident scenarios
 - Incident release scenarios
 - Affect on public safety along the shipping route
- The assessment/verification will be desk top exercise utilizing DNV experts in each field
- The main focus will be on the quality of the work performed and to verify the input used and the methodology

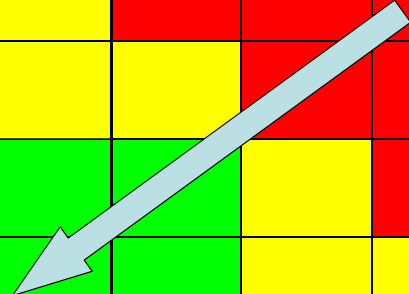


Mitigating measures

- Dependent on the results of the risk analysis, DNV will propose a set of risk mitigation measures
 - The effect of escort tugs will be assessed regardless of risk level
 - Both frequency reduction and consequence mitigation measures will be assessed as found necessary
 - The effect of the risk mitigation measure will be assessed based on previous DNV studies and expert judgement

- The risk reduction will be performed using a simple risk matrix approach

		PROBABILITY					
		1	2	3	4	5	
		Highly Unlikely	Unlikely	Possible	Quite Likely	Likely, frequent	
C O N S E Q U E N C E	5	Catastrophic / Massive	Green	Yellow	Red	Red	Red
	4	Major	Green	Yellow	Yellow	Red	Red
	3	Moderate	Green	Green	Green	Yellow	Red
	2	Slight	Green	Green	Green	Yellow	Yellow
	1	Minor	Green	Green	Green	Green	Green





MANAGING RISK

www.dnv.com



I.3.5 Aboriginal Group Update Letter



Box 50, One Bentall Centre
Suite 660, 505 Burrard Street
Vancouver, BC V7X 1M4

t 604.694.7740 f 604.694.7755
w www.northerngateway.ca

April 21, 2009

<<name>>
<<organization>>
<<address>>
<<community>>, <<prov>> <<postal code>>

Dear <<name>>,

I am writing to provide you with an update on Quantitative Risk Assessment (QRA) Working Group that Northern Gateway Pipelines has established with interested First Nations, local governments, and environmental groups.

As you know, there have been three QRA Working Group meetings to date: the first was held on February 18-19, 2009 in Prince Rupert, the second session was held on April 3, 2009 in Prince Rupert, and the third session on April 17, 2009 in Vancouver. I will forward copies of the minutes from the two sessions once they have been approved by those in attendance.

As a result of the two QRA meetings, Northern Gateway has retained a company called Det Norske Veritas (DNV) to conduct the QRA. DNV is an independent foundation based out of Norway that has been in existence since 1864. DNV will be in the Prince Rupert/Kitimat area during the week of April 27th - if you are interested in meeting with DNV to talk to them about the QRA, please let me know and I will coordinate a meeting between you and DNV.

I also wanted to let you know that on June 17th, Northern Gateway will be conducting a boat tour of the shipping lanes - the boat tour will start in Prince Rupert and end in Kitimat in time for the next QRA meeting scheduled for the morning of June 18th in Kitimat. For your information, the first Marine CAB meeting will be held on the afternoon of the 18th and all day on the 19th - separate invitations to the Marine CAB will be sent out over the next few weeks.

As always, Northern Gateway would value Gitga'at Nation's input into the QRA process and we would be pleased if you were able to attend any or all of the upcoming sessions (independent meeting with DNV, participation in the QRA on June 18, participation in the boat ride on June 17th, and/or participation in the CAB on June 18 and 19). For your information, I have attached a backgrounder document summarizing the QRA process and the work to be completed in both Phase 1 and 2 of the QRA study.

If you have any questions about the QRA process or upcoming meetings, please do not hesitate to contact me. I look forward to hearing from you.

Catherine Palmer

Director, Aboriginal Relations
Cell: 778.231.4689

Enbridge Northern Gateway Pipeline Quantitative Risk Assessment Overview Document for QRA Working Group

Purpose of the Quantitative Risk Assessment

Pursuant to the Canadian Environmental Assessment Act, Northern Gateway Pipelines Inc. (Northern Gateway/NGP) is required to consider environmental effects of malfunctions and accidents that might occur in connection with the project to construct pipeline facilities and a marine terminal for the Enbridge Northern Gateway Project (ENGP).

Northern Gateway will complete the voluntary TERMPOL Review Process (TRP) which refers to the Technical Review Process of Marine Terminal Systems and Transshipment Sites. The TRP is managed by Transport Canada and may complement assessments under the Canada Environmental Assessment Act (CEAA) and the Navigable Waters Protection Act (NWPAA).

Northern Gateway Pipelines will complete a number of studies in support of the above applications and assessments. One of these studies is a comprehensive marine Quantitative Risk Assessment (QRA). The purpose of the marine QRA is an assessment of the risks associated with the marine transportation to and from, and cargo transfer operations at, the proposed marine terminal.

Outcomes of the QRA will be used to address specific items in the TRP as well as the CEAA application. Results from the QRA will also respond to questions from local communities and environmental organizations.

Description of the Quantitative Risk Assessment

The development of a Quantitative Risk Assessment for the ENGP has been broken into two phases, designed to a series of key questions:

Phase 1 (To Be Completed Before June 30, 2009)

- Identify hazards to marine tanker traffic transiting to and from the marine terminal near Kitimat and the open ocean.
- Identify hazards to tanker loading and unloading operations at the marine terminal.
- Quantify the risks associated with marine tanker traffic transiting to and from the marine terminal near Kitimat and the open ocean using existing controls.
- Quantify the risks associated with loading and unloading operations at the marine terminal, with minimum acceptable controls in place.
- Propose measures and controls to mitigate the risks (i.e. tethered tugs) and re-quantify the risks with those measures in place.
- Provide descriptions and probabilities for all credible scenarios of an oil and condensate spill occurring at the terminal and along the marine transportation routes.

Phase 2 (To Be Completed By September 30, 2009)

- Examine and provide the probabilities of credible scenarios that meet regulatory requirements of the Canada Shipping Act and all other applicable Canadian regulations.
- Quantify probable spill volumes based on the above scenarios.

April 17, 2009 Working Group Meeting Focus

The focus of the April 17, 2009 meeting will be to learn about DNV's proposed team and methodology for completing the QRA. Objectives for the Working Group are to understand the current scope of work and decide whether changes to scope are required.

DNV may also require input from the Working Group throughout the QRA and will indicate to the Working Group how questions may be asked throughout the QRA study. The meeting will finish by planning next steps and future meetings.

The goal for the QRA study by end of June is that DNV has completed a thorough evaluation of the risks with mitigation measures in place. It is important that the Working Group and Northern Gateway agree with DNV's methodology and the techniques used.

Phase 2 will specify credible oil spill scenarios and volumes of oil that may be released. It is the GEM team's responsibility to:

- develop oil spill trajectory maps;
- determine effects based on oil spill trajectory mapping;
- develop strategies for oil spill response;
- and assess the environmental and socio-economic effects

I.4 Boat Tour and QRA Working Group Meeting 4 (June 17–18, 2009)

I.4.1 Meeting Invitation

I.4.1.1 Invitation

From: Katie Havercroft-McKinnon
Sent: May-20-09 2:29 PM
Subject: RSVP Form for June QRA Working Group Meeting

Hello All,

Please find attached an RSVP form and meeting information regarding the June QRA Working Group meeting for the Enbridge Northern Gateway Pipeline Project. As discussed the meeting details are as follows:

Boat Tour of Shipping Channel

Date: June 17, 2009

Time: 8:00 AM – 4:00 PM (to be confirmed)

Location: Depart Prince Rupert – Arrive Kitimat

Purpose: To provide the Working Group with an opportunity to tour the proposed shipping route by boat with DNV and other marine specialists

QRA Working Group Meeting

Date: June 18, 2009

Time: 9:00 AM – 1:00 PM

Location: Kitimat Valley Institute – 1352 Alexander Avenue, Kitimat, BC

Purpose: To have DNV present the preliminary results of the Phase 1 Quantitative Risk Assessment and to provide the Working Group with an opportunity to discuss any questions or concerns with DNV

We will be providing accommodation as needed in Prince Rupert for June 16th and in Kitimat for June 17th (and if needed June 18th). Please note that the timing of this meeting was designed to dovetail with the inaugural Marine Community Advisory Board meeting which will begin at 4PM on June 18th in Kitimat in the event that any of you are interested in attending both meetings.

Please complete the attached RSVP form and return it to me by fax or email by 4PM on May 28.

If you have any questions or concerns about the meeting, feel free to contact me.

Thanks,
Katie

Katie Havercroft-McKinnon | Partner | Fulcrum Strategic Consulting Inc. (Formerly RMC & Associates)
Suite 1100 | 815 8th Ave SW | Calgary, AB T2P 3P2
t: 403.538.5663 | c: 403.863.8113 | f: 403.538.5691
khmckinnon@fulcrumstrategic.ca | www.fulcrumstrategic.ca



I.4.1.2 Registration Form



Quantitative Risk Assessment Research Working Group Meeting RSVP

Thank you for your ongoing participation in the Northern Gateway Pipelines (NGP) Quantitative Risk Assessment Research Working Group. The details of the next meeting are as follows:

Boat Tour of Shipping Lanes

June 17, 2009 **8:00 AM – 4:00 PM** (Times to be confirmed)

Departure: Prince Rupert

Arrival: Kitimat

QRA Working Group Meeting, Kitimat BC

June 18, 2009 **9:00 AM – 1:00 PM**

The meeting will be held at the **Kitimat Valley Institute** which is located at **1352 Alexander Avenue, Kitimat, BC (Tel: (250) 639-9199)**.

We will also be arranging for transportation back to Prince Rupert following the meeting if required. Please advise us if you require this transportation.

As required, NGP will be covering accommodation and travel costs for your attendance at the meeting. A separate expense reimbursement form is attached for you to use for the reimbursement of airfare or mileage associated with travel to the meeting. NGP will also be offering each attending organization a \$500 honorarium for your participation in the meeting if requested.

In order to provide a smooth registration process NGP will take responsibility for booking rooms for participants as required at the Crest Hotel in Prince Rupert and at the Channels Edge Inn in Kitimat. In order to complete the room booking, we will require you to complete the attached form and return it to Katie Havercroft-McKinnon by e-mail at: khmckinnon@fulcrumstrategic.ca or by fax at 403-538-5691 **by 4 PM on Thursday, May 28th**.

If you have any questions, please feel free to contact Katie at 403-538-5663.

Name: _____

Organization: _____

Telephone: _____ **E-Mail:** _____

Will you attend the meeting?

Yes

No

Do you require a room at the Hyatt Hotel?

Yes

No

If yes, please indicate which nights you will require the room for.

Prince Rupert, Crest Hotel: June 16, 2009

Kitimat, Channels Edge Inn: June 17, 2009

Kitimat, Channels Edge Inn: June 18, 2009

Would you prefer a smoking or non-smoking room?

Please indicate any food allergies or food requirements that you may have:

Do you require transportation back to Prince Rupert?

If so, what dates?

Is your organization interested in receiving an honorarium for your attendance at the workshop?

Yes

No

Additional questions or comments:



I.4.1.3 Reimbursement Form



QRA Working Group Expense Reimbursement Form

ENGP QRA Working Group Meeting Prince Rupert & Kitimat, BC June 17 - 18, 2009

Thank you for participating in our workshop. To demonstrate our appreciation for assisting Northern Gateway Pipelines (NGP) with this process, we would like to cover expenses incurred from attending this workshop.

Please attach all receipts to this sheet for reimbursement. You can hand it in at the end of the workshop or mail it to:

Northern Gateway Pipelines
240 City Centre
Kitimat, BC, V8C 1T6.
Attention: Lisa Clement

Please note that accommodation reimbursements are not listed below as the Hyatt Regency Vancouver will automatically charge the room rate and room tax to Northern Gateway Pipelines. Any other room charges are your own expense (i.e. long distance calls, movies, mini-bar etc.).

Travel Expenses

_____ Flight
_____ Mileage (rate of \$0.60/km)
_____ Taxi

Honorarium Requested:

Yes No

Meal Expenses

Total Expenses: \$ _____

Cheque to be mailed to:



I.4.2 Draft Agenda

QRA Working Group Meeting #4
June 18, 2009
Kitimat Valley Institute
Conference Room #5
1352 Alexander Road, Kitimat, BC

QRA Working Group MEETING DRAFT PROPOSED AGENDA	
9:00 am	Introductions – R. McManus/All <ul style="list-style-type: none"> • Welcome & Introductions • Purpose and Intended Outcomes of Meeting • Finalize proposed meeting agenda
9:15 am	Summary of QRA Work Completed to Date – P. Hoffmann, DNV <ul style="list-style-type: none"> • Review of work completed to date on the Quantitative Risk Assessment including process employed • Q&A
10:15 am	BREAK
10:30 am	Summary of Preliminary Results & Next Steps for QRA - P. Hoffmann, DNV <ul style="list-style-type: none"> • Overview of preliminary results from the Quantitative Risk Assessment • Overview of planned next steps for completing the Quantitative Risk Assessment • Q&A
12:00 pm	Next Steps for QRA Working Group – R. McManus/All <ul style="list-style-type: none"> • Discussion regarding next steps for the QRA Working Group
12:30 pm	ADJOURN



I.4.3 Meeting Summary

Enbridge Northern Gateway Pipeline Project
DRAFT Quantitative Risk Assessment Working Group Meeting #4 Notes
June 18, 2009
Kitimat Valley Institute, Kitimat, BC

Meeting Title:	Enbridge Northern Gateway Pipeline Quantitative Risk Assessment Working Group Meeting
Meeting Purpose:	<ul style="list-style-type: none"> • To provide DNV with an opportunity to present their methodology and preliminary findings from the Phase 1 QRA assessment to the Working Group • To provide the Working Group with an opportunity to meet with DNV to discuss the progress of the QRA and to understand the Phase 1 preliminary findings.
Date of Meeting:	June 18, 2009 – Kitimat, BC
Attendees¹:	<p>Diane Hewlett, District of Kitimat Bob Thompson, City of Prince Rupert Tanya Bryan, Nature Conservancy of Canada Kyle Bateson*, Gtixaala Nation (Observer) Gary Alexcee*, Kitsumkalum Nation (Observer) David Latremouille, Haisla Nation, Kitimaat Village Council Oonagh O'Connor*, Living Oceans Society Michael Cowdell, WorleyParsons Westmar Steve Greenaway, Enbridge Northern Gateway Pipelines Michelle Ward, Gateway Project Team Channa Pelpola, Gateway Environmental Management Team Chris Anderson, Enbridge Northern Gateway Pipelines Roger Harris, Enbridge Northern Gateway Pipelines Peter Hoffmann, Senior Consultant, Advisory Services, Det Norske Veritas (DNV) Viktor Friberg, Consultant, Advisory Services, Det Norske Veritas (DNV)</p> <p>Facilitation Team: Katie Havercroft-McKinnon, Fulcrum Strategic Consulting Rob McManus, Fulcrum Strategic Consulting</p>
Meeting Notes Prepared by:	Fulcrum Strategic Consulting

* Indicates an attendee who requested to be noted as an observer. The absence of an asterisk does not necessarily denote formal membership as attendees were never requested to identify as such.

¹ All individuals present at the meeting are referred to as "attendees". The term "attendee" is not intended to confer formal membership in the working group or status as an observer.

Agenda

1. **Introductions – R. McManus/All**
 - Welcome & Introductions
 - Purpose and Intended Outcomes of Meeting
 - Finalize proposed meeting agenda

2. **Summary of QRA Work Completed to Date – P. Hoffmann, DNV**
 - Review of work completed to date on the Quantitative Risk Assessment including process employed
 - Q&A

3. **Summary of Preliminary Results & Next Steps for QRA - P. Hoffmann, DNV**
 - Overview of preliminary results from the Quantitative Risk Assessment
 - Overview of planned next steps for completing the Quantitative Risk Assessment
 - Q&A

4. **Next Steps – R. McManus/All**
 - Review of next steps for QRA

Action/Follow-up Items

Id	Actions Required:	Person Assigned	Open Date	Due Date (Rev #) - Status
1.	Provide details to Working Group re: how many tankers went in and out of Prince William Sound before the Exxon Valdez incident happened	DNV	June 18	July 20
2.	Share marine traffic study with Working Group participants when it is completed	ENGP	June 18	Unknown – pending completion of the study
3.	DNV's presentation indicated that the most incidents are caused by fishing vessels. What is the size of fishing vessels that lead to these accidents?	DNV	June 18	July 20
4.	Provide figures for the group of how long the stopping distance is for the VLCC and what impact if any the tethered tugs would have on this distance.	ENGP/DNV	June 18	TBC – will be made available when analysis is complete
5.	What if the ship lost power, how long would it take to stop it?	ENGP/DNV	June 18	TBC – will be made available when

Id	Actions Required:	Person Assigned	Open Date	Due Date (Rev #) - Status
				analysis is complete

Decisions Made	Date
DNV to circulate draft report to Working Group when it is complete for review and comment.	Target end of July/early August
Once draft report is circulated, Fulcrum to poll Working Group members on best way to meet with DNV to discuss the draft report	Target August pending completion and circulation of draft report

1. Welcome & Introductions

- Reviewed the purpose of the meeting as well as the proposed agenda. No suggested changes to the agenda were raised.
- Round table introductions were made welcoming the new attendees to the group.
- Reviewed norms established by the Working Group regarding communications and information sharing. Reviewed the group protocol regarding meeting notes whereby the notes are prepared by Fulcrum and circulated in draft form to all meeting attendees. Meeting attendees are given a month to review the notes and provide comment at which point they are considered final and open for distribution. Reviewed the option to have “in camera” that will remain un-documented for the purpose of the notes at any point in the meeting.

Attendee Q: Have the notes been finalized from the first meeting? I still haven't provided input.

Fulcrum Response: They are currently considered final but have not been posted publicly. We can give you more time to provide comments.

2. Summary of QRA Work Completed to Date – V.Friberg and P. Hoffmann, DNV

(Please refer to attached power point presentation for details regarding content)

- DNV's presentation incorporated the following elements:
 - Corporate description of DNV
 - Review of the method and approach used to complete the QRA which includes 6 stages:
 - System Definition
 - Hazard Identification
 - Frequency Assessment
 - Consequence Assessment
 - Risk Evaluation
 - Risk Mitigation
- Presented preliminary findings in some of these areas where available.

The following captures participant questions / responses during this portion of the meeting.

Attendee Q: You said the vision for your company is about sustainability, is there any work that you turn down because it isn't in the interests of the sustainability of the planet?

DNV Response: We have turned down work because of conflicts. Our focus in sustainability is to work to influence our clients to improve the sustainability of their projects, however, we are not the ones who make decisions about which projects the company will take on and which ones it will turn down.

Attendee Comment: This project is about facilitating the expansion of the tar sands, which does not support the sustainability of the planet. So, I'm wondering how you can have that vision and do work that contributes to the expansion of the tar sands.

Attendee Q: Am I right in understanding that you are looking at risk right now and then will examine consequences?

DNV Response: Right now, we are looking at frequency. Then we will turn those numbers over to the Gateway Environmental Management Team (GEM Team) who will do spill modeling.

Attendee Q: My assumption is that what DNV is doing is a technical job to figure out the numbers through a frequency analysis which is a neutral thing. Then people will examine the impact of an event which is where value comes into it.

DNV Response: Our job is to say that a grounding is likely to happen every x number of years and the amount of that spill is likely to be y. Those numbers are then taken by the GEM Team to determine what the impact on the local environment will be.

Attendee Q: What number are you using for ship frequency?

DNV Response: When we are doing the assessment we look at three different types of vessels. We also examine the average number of vessels projected to enter the port as well as a sensitivity analysis with much higher and lower numbers. (Note: slide 14 of DNV's presentation (attached) indicates that the total annual number of vessels used for the analysis is as follows: minimum number of vessels: 190, average number of vessels: 220, maximum number of vessels: 250)

Attendee Q: Is this just for the Enbridge project or does your assessment also look at cumulative impacts with all the other ships in the area?

DNV Response: Yes, we will cover that in a minute, but we also complete an assessment of potential future scenarios of what would happen if traffic increases.

NGP Response²: There is a separate analysis being done which is a marine traffic study.

Attendee Q: There are a number of other projects that have recently been announced – are you including those?

DNV Response: We are including all of the projects that we are aware of.

Attendee Q: Do you have a copy of the marine traffic report available for sharing?

NGP Response: It isn't finalized yet, we are in the process of doing our due diligence to check the numbers because they all come from a lot of different sources. It will be part of the Termpol submission. We are open to sharing the marine traffic study but are concerned about issuing it before it goes to Termpol.

² "NGP Response/Comment" refers to a comment or statement made by a representative of Northern Gateway Pipelines Inc. This includes both employees and consultants.

NGP Comment: I think what the attendee is asking is whether or not we as a proponent have thought about the cumulative impact of this project and the impact of increasing traffic and what I understand is that this is part of DNV's consideration.

DNV Response: Yes, our analysis has included an assessment of what the impact on risk will be from increased traffic.

Attendee Q: Are you also taking the Prince Rupert Port development into account?

DNV Response: Yes, for the northern portion of the route.

Attendee Q: Do you take seasonal variations into account?

DNV Response: Yes, in areas where it is relevant

Attendee Q: Will this data be broken into size of the vessel?

DNV Response: Yes, it is mostly done by ship type not size

Attendee Q: From my experience of living here, there are big vessels and then really small vessels, my understanding is that the majority of the route tries to avoid the areas where there are lots of small crafts. Do you compare traffic numbers with what goes into the Port of Vancouver? I don't know if I could guess how many trading vessels go in and out of Vancouver.

DNV Response: I don't know that number

Attendee Comment: There were 35 crude oil tankers last year.

NGP Comment: We have different numbers

Attendee Comment: It would be really helpful to know how many tankers went in and out of Prince William Sound before the Exxon Valdez incident happened.

DNV Response: DNV completed that risk analysis so we could provide you with that information.

Attendee Comment: I would also like to see the marine traffic study when it is available.

NGP Response: That is part of the 17 reports that are currently being finalized. We want to make sure that the data is right before sharing it. There are also some estimates involved because vessels under 35 feet don't have to report so until we get a radar system in place we won't have final numbers. The other thing to remember is that Termopol and NEB processes are ones through which the data will be questioned so there may be more gaps identified through their review.

NGP Commitment: ENGP will share the marine traffic study with the QRA Working Group participants when it is finalized.

Attendee Q: One of the other attendees said that the project is related to the tar sands, which is true, but the work that is being done is related to the marine

impacts. One analogy might be that companies that work with clients in developing countries teach them appropriate sustainable forest practices to prevent clear cutting. What appealed to the QRA Working Group in selecting DNV is the approach that they take to reviewing this project. Our hope is that their perspective will help to improve the quality of the proposed project.

DNV Response: We work with clients and international regulatory bodies to help improve maritime practices. It may not be ideal but it is a step in making things better.

Attendee Comment: There are different approaches to things and there is value in both. You can either make something better or you can take a purist approach and avoid it. There is room for both and people can move in and out of each. My understanding of DNV's role in the QRA is to make it a fairly neutral thing.

NGP Comment: The question of this project's relationship to the oil sands is one of public policy debate. The expansion of the oil sands is not tied to this project. This project has nothing to do with the future of the oil sands.

Attendee Q: What does "a class at risk mean"?

DNV Response: It speaks to a class of ships which is the way in which these types of ships are categorized.

Attendee Q: I was just wondering what kinds of information you have been given to help feed your research. Do you have a copy of the Termopol report from the 70's where they did a similar analysis?

DNV Response: We haven't read it.

NGP Response: That report has not been provided to DNV but we have provided them with other more recent Termopol reports completed in the area including the Termopol report that was done for Methenex which references the Termopol report completed in the 1970's.

Attendee Comment: It may be a good idea for DNV to have a look at the report completed in the 1970's

Attendee Comment: There are four previous Termopol reports that were completed. Only the one completed in the 1970's examined the possibility of an oil port all the others looked at oil as a hazardous good.

Attendee Q: Can you explain what Lloyd's register is?

DNV Response: It is generally regarded as the most comprehensive marine incident database in the world. It is available publicly and anyone can buy the database.

Attendee Q: So is it expensive?

DNV Response: It costs about \$30,000 - \$40,000

Attendee Q: Can you share the data with the Working Group?

DNV Response: We are not at liberty to share the data under the licensing agreement but the report will provide some of that information.

Attendee Q: When you speak of a “total loss” generally speaking does that mean that the ship has sunk to the bottom of the ocean?

DNV Response: Yes, or that there was a fire or another incident that was significant enough that the ship can't be salvaged.

Attendee Q: If the ship goes to the bottom does it stay there?

DNV Response: Not necessarily

Attendee Q: Yesterday on the boat tour, we took the northern route. There is a lot of deep water in that area. If something sinks at 11,000 m doesn't it stay there?

DNV Response: Outside of Spain, there was a tanker that went down at 3,000 – 4,000 m and they still managed to salvage the oil with a specialized balloon system.

Attendee Q: When did double hulled tankers start being used?

DNV Response: After 1996, all new tankers built have to be double hulled. 2010 is the last year that you can operate a single hulled ship.

Attendee Q: When did the Exxon Valdez go down?

DNV Response: 1989

Attendee Q: Your slide indicates that the most incidents are caused by fishing vessels. What is the size of fishing vessels that lead to these accidents?

DNV Response: I don't know but we can find that information.

Attendee Q: You are using a lot of adjectives that are making subjective assessments. What are those assessments based on? Perhaps if you could just present the numbers without the adjectives that would be better.

DNV Response: I apologize, English is not our first language so we aren't always aware of the nuances of the words.

NGP Response: You are right, there are parts of the Termpol reports where we want just the numbers reported and others where the subjective assessment is important.

Attendee Q: From what I have heard, many analysts are hesitant to draw on numbers regarding double hulled tankers because there have been so few. Because it is such a new technology, I understand that it is a bit misleading to rely on the incident frequency numbers from double hulled tankers. What are your thoughts on this?

DNV Response: The use of double hulled tankers is more of a consequence mitigation than a frequency mitigation. They should have the same probability of incident as a single hulled tanker.

Attendee Q: So why did you separate out single and double hulled tankers in your assessment?

DNV Response: There is a flip side to this which is that double hulled vessels are newer than single hulled tankers.

Attendee Comment: The other attendee has a point, in 25 years the double hulled tankers won't be new so then the numbers will likely be similar to single hulled – am I correct in this? If so, then really, the comparison in 25 years should see the same incident rates for single hulled and double hulled ships.

NGP Response: The attendees have a good point, if there should be no variation on the frequency of incidents between single and double hulled ships, do we have the right numbers? Can DNV re-examine this?

NGP Comment: I am struggling with the other attendee's question, I would have though that we would have looked at this. I am wondering if there is enough of a statistical base of double hulled tankers to make this analysis relevant? I would like to know what the frequency of risk is for the type of vessel coming into the community. Can you do a statistical analysis of the risk of this class of vessel?

DNV Response: If a single hulled and double hulled ship are both made in the same year, they should have the same incident frequency. Unfortunately, this isn't the case because single hulled ships were no longer built after 1996.

Attendee Comment: From a local perspective, there is a chronology of sentiment. 1) We want to know as much as possible about the environment that is out there. 2) Then we want to know what the route is and where the risk lies. 3) Then we want to know as much as possible about the type of vessel used and the risks associated with that. 4) Finally, we want to know what happens in the event of an incident and how would it be addressed. To me, I don't think it is appropriate to bring the single hulled tanker into the analysis, because we want to make sure that what we are assessing is really relevant.

Attendee Q: When you completed interviews with local stakeholders to inform your hazard identification, did you also speak with First Nations?

DNV Response: No

Attendee Q: When you completed interviews with local stakeholders to inform you hazard identification, did you speak with commercial fishermen and local ENGOS?

DNV Response: Yes, we spoke with local fishermen, representatives from the Kitimat Valley Naturalists and local tug boat operators. The message that we received from the tug boat operators was that as long as you are inside the channel, you are pretty much home free.

Attendee Q: Do most accidents happen near the port or out at sea?

DNV Response: Most collisions happen in confined areas where there is a lot of traffic. Grounding typically happens closer to the coast. Fire, explosions and

foundering can happen pretty much anywhere. From our point of view the biggest concern happens in close waters.

Attendee Q: In your local hazard identification conversations, did anyone tell you about the reefs in Caamano Sound?

NGP Response: Yes, they are in our charts

Attendee Q: Do tankers ever split apart at sea from structural failure?

DNV Response: It has happened in the past. The Prestige did. If tankers aren't well maintained they can suffer structural failure. Typically when this occurs, the consequences are severe, operators end up in jail and vessels like that won't run anymore. This kind of incident should not happen today. This is what is known as foundering.

Attendee Q: Was the weather that we had for the boat tour yesterday considered normal sea conditions?

DNV Response: No, that was considered very nice.

Attendee Q: Has any of your modeling taken into account climate change and increased frequency of storm incidents?

DNV Response: No, it is hard to predict how that will happen.

Attendee Comment: I don't know if there are any studies that have been done up here with respect to rising sea levels. This has been done further south in San Francisco and in Vancouver but up here there aren't any agencies that are able or willing to look at this.

NGP Response: The one tanker captain that I spoke to in Norway told me that he hadn't been in rough weather inland in coastal waters in his entire career because with the weather prediction tools that they have there are limits set and the trip is planned around weather incidents. I don't know what those are and how exact they are but the impression that I came away with was that there would be weather and visibility restrictions on how we govern the vessel traffic and what the appropriate levels are is something that we should discuss with the community.

NGP Response: One of the reasons why the incident numbers have declined in recent years is because we are a lot better at predicting weather etc. than we were 15 years ago. I won't deny that the waters in some of these passages can be really rough. When we spoke with one of the terminals in California, they told us that if they identify a risk weather pattern then they will actually stop ship traffic out at sea to prevent it from entering riskier coastal waters.

Attendee Q: One of the questions that I asked yesterday on the boat tour is that the sailing direction used to have very detailed weather, wind, fog, and wave data and they used to publish it every so often. Now they don't publish it anymore. Have you tapped into this information source?

NGP Response: We have weather data from Ocean Data Acquisition System Buoys (ODAS) as well as our own stations for wind, waves and tide. This data has been provided to DNV.

Attendee Q: What about on the approach into Kitimat?

NGP Response: There is an ODAS Buoy there as well.

Attendee Q: What about south of Costey Rocks. There is a convergence of three waterways in this area which can affect weather patterns.

NGP Response: The only other ODAS Buoy is in Douglas Channel.

NGP Response: During the conversations that DNV had with local stakeholders in April, most expressed little concern about the weather and indicated that they tend to operate year-round.

Attendee Q: My personal concern is about visibility and the impact of snow squalls on visibility. I would like to see a lot more Environment Canada data on snow squalls and their impact on visibility in this area.

NGP Response: My understanding is that with the visibility monitors, there is no distinction as to whether the impact on visibility is caused by fog, rain or snow – they measure impacts on visibility for all cases.

Attendee Q: When we are out there in October or November, you can get snow squalls that last for 6 or 7 hours.

NGP Response: Regarding my earlier anecdote about the Norwegian tanker captain it is my understanding that if a storm is bad enough to affect navigability then tanker captains are told to hold off on coming into the area.

Attendee Q: But would they really wait when there is a lot of pressure to deliver the goods on time?

NGP Response: Not really, when the risk is so significant they will hold off regardless of schedule impacts

DNV Response: All terminals have weather limits and tanker captains will adhere to them.

Attendee Q: It seems to me from your research that one of the major causes of accidents is human error.

DNV Response: It is a basic cause of all these things. Cause comes into account when looking at risk mitigation but for basic risk numbers it is lumped in all of them.

Attendee Q: Did you say that double hulled tankers are helpful for reducing incidents at the terminal?

DNV Response: They don't do anything to reduce the frequency but they do have a significant reduction in the impact or consequence if an incident were to occur.

Attendee Comment: It seems that there aren't a lot of incidents that happen to the terminal that are related to collision, it seems that more of the incidents that occur at the terminal are related to overfilling.

NGP Response: I think the context was that if you have a berthing tug with a double hulled tanker then the likelihood of an incident is significantly reduced.

Attendee Q: Were there cases where a tug punctured a tanker?

DNV Response: It has happened

Attendee Q: Are the loading arms at the terminal covered in a membrane to reduce incidents?

DNV Response: Yes. There are also spacing considerations taken into account because the ship will rise as it is unloaded. The arms are designed to take this into account.

Attendee Q: Can you give us specifics about what kind of tug escort you are looking at?

DNV Response: The tug escort will start at Caamano Sound and Browning Entrance. The recommendation is to have one tethered tug attached to the stern of the ship. They are designed to slow down and stop the ship or steer it away. We are talking about specific tugs that are made for this purpose. It is different than a docking tug.

NGP Comment: There will be different tugs for different purposes along the route.

Attendee Question: Will the traffic separation scheme be on all charts, similar to what they have at the Juan De Fuca Strait in Vancouver?

DNV Response: Yes

Attendee Q: Are these the same as what is in Prince William Sound?

NGP Response: There are two kinds of tugs that we are looking at. We haven't gone through the complete exercise of looking at our needs but here will likely be 3 or 4 large tethered tugs that will also assist the tug in berthing along with the berthing tugs. They will be designed to halt the forward motion of the ship. We don't know the full capacity yet because that is a question for naval architects but we have some information from simulations. They are similar to the ones that they are using in Valdez Alaska and in Europe.

Attendee Q: You will have three tugs? You aren't sure what the force will be but they are likely to be similar to what is in Prince William Sound? And in addition you will also have a rescue tug?

NGP Response: Yes. When I say three, I don't mean that there will be three tugs on one ship at any given time. The design is that there will be one tug per ship. We will have three at the terminal to meet the needs of tankers coming in and out. When they aren't being used for these ships they can be used for other purposes.

3. Round Table Q&A Session – Group

- Facilitator went around the room and invited Attendees to share any outstanding thoughts, questions or concerns they may have regarding DNV's presentation or any other material covered in the meeting.
- Comments included:

Attendee Comment: It was helpful to have been her to understand the work that is going on.

Attendee Comment: I found the boat tour yesterday to be really enlightening. It was extraordinary to see how large the navigational areas are and also to see where the potential holding anchorages are. A few years ago, the two communities started talking about doing an estuary management plan, there may be opportunities to actually do this work.

Attendee Comment: I appreciate the presentation from DNV and I am very interested in learning the numbers.

Attendee Comment: The one thing I would like to point out to DNV is that I think it is unfair when people do a comparison between the English Channel and Europe with here as the numbers will be really different. You are going through some new country and the area of approach and the weather conditions are really different. But all in all, I appreciate being invited to attend this meeting.

Attendee Comment: I would like to thank DNV for their presentation. I have a number of other questions that I may email because I don't want to take up the group's time.

Attendee Comment: For the next meeting could we have access to better charts?

NGP Comment: It might be useful to have the charts broken down by notes so they can be blown up a bit more and can be reviewed on a larger scale.

NGP Comment: I have one question and one comment. I am really hoping that when we get to the presentation of this to the public, I am really hoping that we can get to a place where this information can be presented in terms the public can understand.

Attendee Q: What is a Traffic Separation Scheme?

DNV Response: If you look at charts of the English Channel etc. where there is a reasonable density of shipping, the charts have lanes shown in blue – which illustrate to users where they need to physically stay when navigating the channel. If you are caught not following that you are subject to a penalty.

Attendee Q: For the Traffic Separation Scheme to be finalized you need Transport Canada to do it?

NGP Response: Yes

Attendee Q: Is that a lengthy process?

NGP Response: It takes some time – probably about 2 years.

Attendee Comment: It would be helpful to see how all the regulators are woven into this process and what they think of these suggestions.

Attendee Comment: To add to the discussion about the Traffic Separation Scheme, the shipping lanes are also useful for small craft so they know where they can expect to see large craft. It will be an education for all people handling small craft in the area.

Attendee Comment: As part of that education, it would be helpful for people to understand the relative size of these tankers. People understand the size of the cruise ships so maybe something that helps them to understand how big the tankers will be relative to those would be useful.

ENGP Comment: I just want to thank everyone for coming today. I thought the questions and comments have been great. The end product of these reports will hopefully be clear enough when we are done that most people will be able to understand them and that is to the credit of this group.

Attendee Comment: Thanks for the boat tour, it was really helpful.

Attendee Q: How big will the ships be for this project relative to what is there now?

NGP Response: The largest ship in the area is currently about 50,000 DWT with a capacity to go up to 75,000 DWT. These ships are approximately 160m-180m in length and the size is known as Aramax. The largest ship for this project will be a VLCC which is 330m long (about 3 football fields) and 60m deep.

Attendee Q: How does that compare to a cruise ship?

NGP Response: Cruise ships range in length from 330m to 350m. Their depth is typically about 10m and most of that is above water.

Attendee Q: How long does it take a VLCC to stop?

NGP Response: There is a regulated requirement that at sea speed the stopping distance must be no more than 10 times the length of the ship.

For follow-up: Provide figures for the group of how long the stopping distance is for the VLCC and what impact if any the tethered tugs would have on this distance.

Attendee Q: What if the ship lost power, how long would it take to stop it?

For follow-up: ENGP to provide the response to this question too.

4. Next steps

1. DNV is looking to complete the calculations by the end of July/early August. This could be circulated as a draft to the group under the confidentiality understanding that the group could review it and provide comment back to DNV.
2. Working Group felt that they would like to have some time to review the draft report and then would like to have a conference call or face-to-face meeting to ask questions and provide input to DNV.
3. Once the draft report has been circulated to the Working Group, Fulcrum will poll the Working Group to determine the best approach for discussing the report with DNV.

Attendee Q: Is NGP putting off filing until September?

NGP Response: I don't know. We aren't sure if the DNV report will be ready for the filing date.

Attendee Q: You haven't filed yet?

NGP Response: No. I think what we are saying is that this process is important to us.

Attendee Q: Is NGP holding off on filing until this is done?

NGP Response: We haven't landed on a filing date and these two things aren't necessarily linked. To clarify, this document is for Termpol not for the NEB filing. The reason why we are targeting July for the draft report is because this is the tentative date that we have given to Termpol but we have given them a heads up that this is likely to be delayed.



I.4.4 Presentation – DNV Study



MANAGING RISK

Quantitative Risk Assessment



Presentation of phase 1

DNV Advisory Services
June 18 2009

- Background and Introduction
- QRA method
 - System definition
 - Hazard identification
 - Frequency assessment
 - Consequence assessment
 - Risk evaluation
 - Risk mitigation
- Conclusion



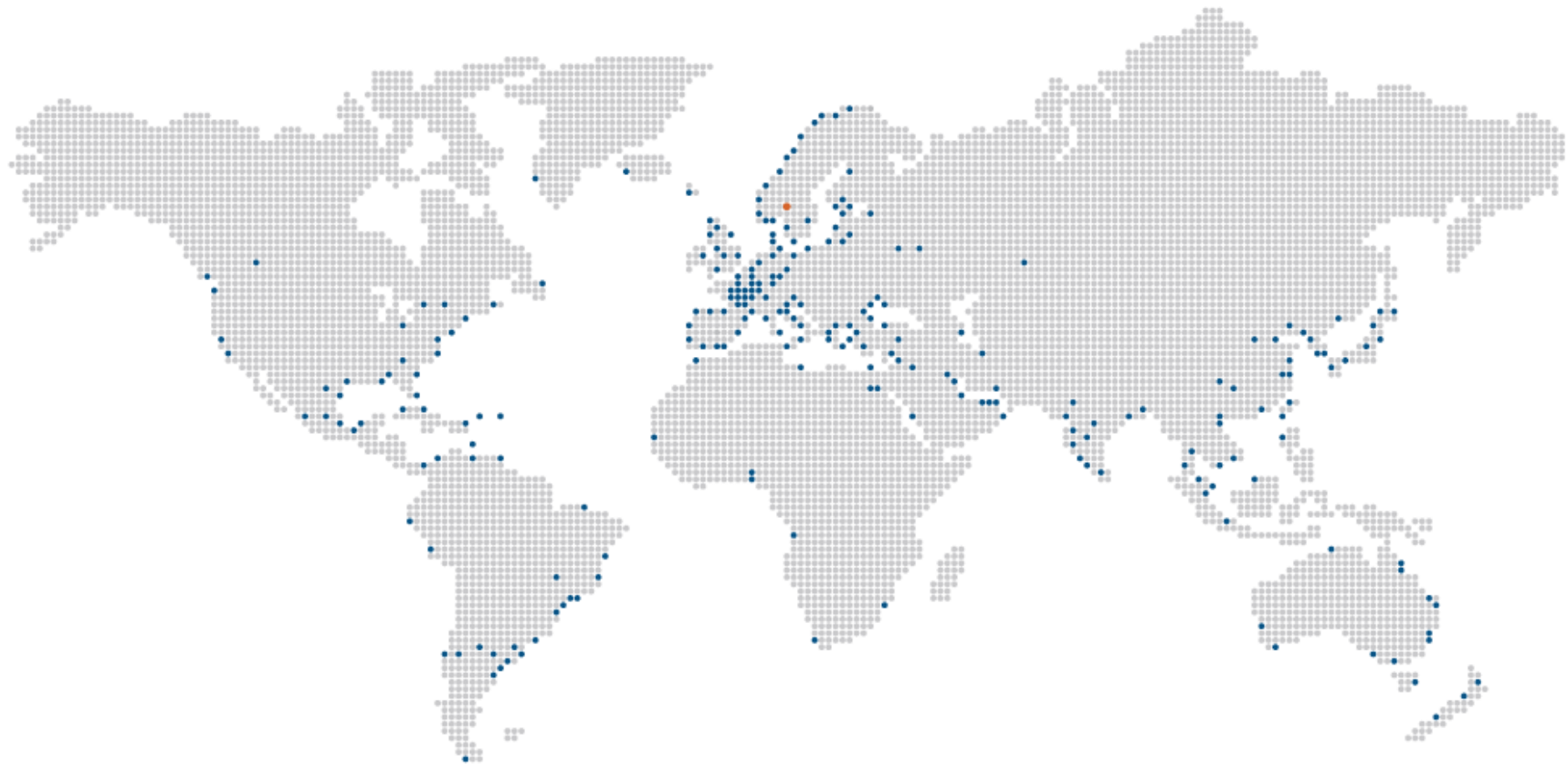
Our Purpose

To safeguard life, property
and the environment

Our Vision

Global impact for a safe
and sustainable future

300 offices in 100 countries

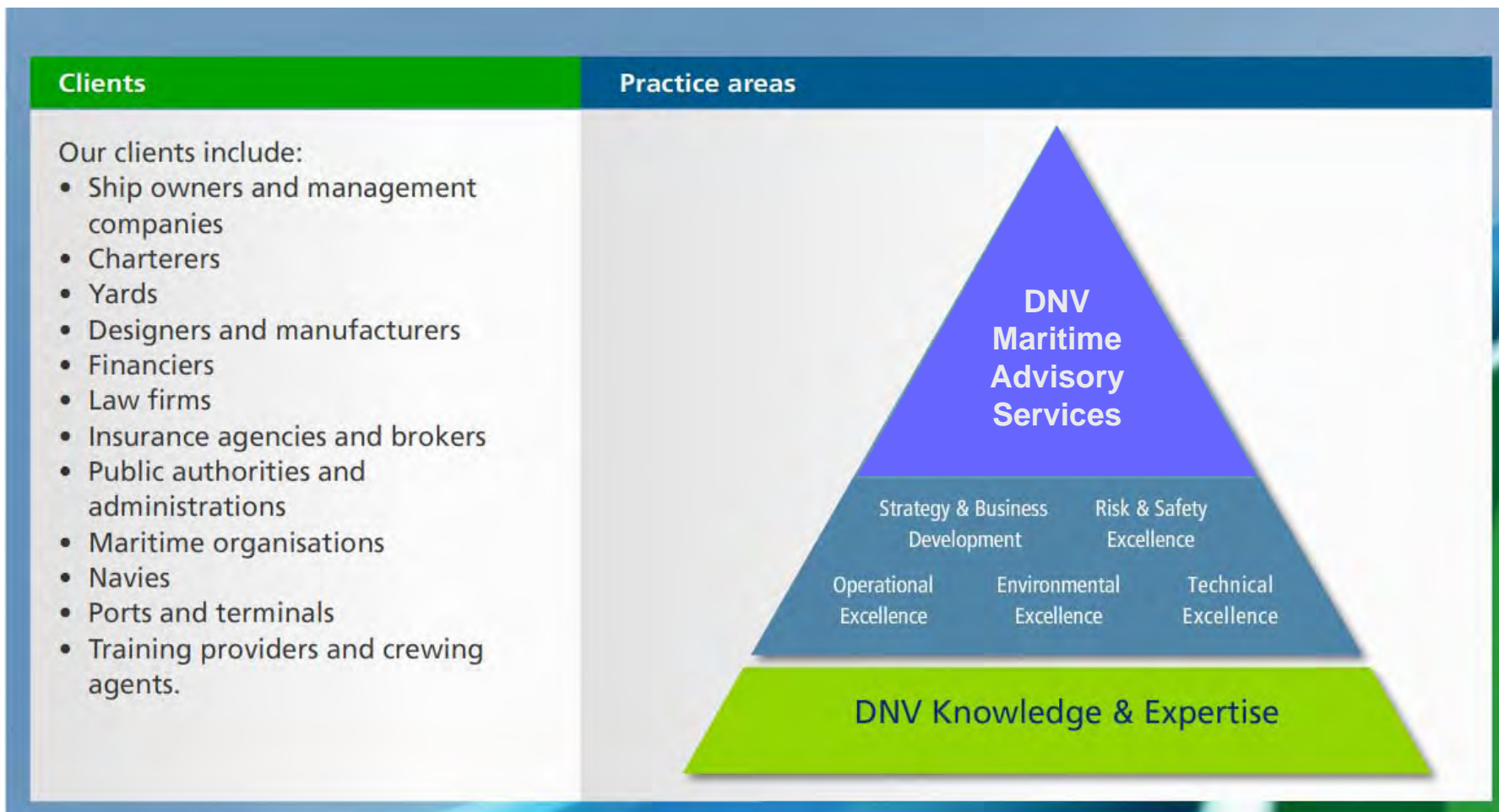


● Head office ● Local offices

Core competence



DNV Maritime Advisory Service Areas



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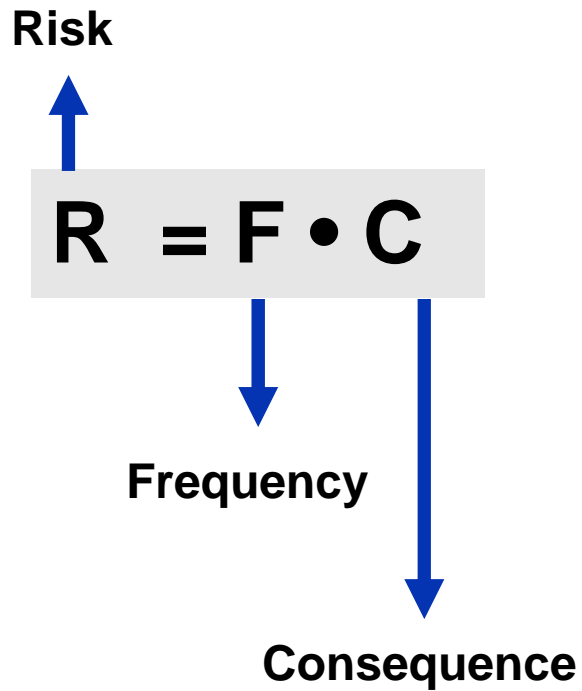
- Background and Introduction

- QRA method

- System definition
- Hazard identification
- Frequency assessment
- Consequence assessment
- Risk evaluation
- Risk mitigation

- Conclusion

Definition of Risk



Risk is the frequency of an incident combined with its consequence!

Risk perception: different, but still the same...

Evaluation of risks for different stakeholders

PSC – at risk:

"Safety of the ship and the crew"

Crew – at risk:

" My monthly salary – and no personal accidents"

Banks – at risk:

" Cash flow – want my money back"

Ship owner – at risk:

"Make money, no major accidents, maintain reputation"

Class – at risk:

"No accidents due to class related issues"

Insurance – at risk:

"No accidents whatsoever on ship or environment"



Environment – at risk:

" No environmental damage"

What is QRA?

- Quantitative Risk Assessment (QRA)

- *Use of measurable, objective data to determine asset value, probability of loss, and associated risk(s)*
- *Structured approach to assess the risk involved a operation, facility or asset*

- The focus in most QRAs is to look at:

- **Potential Loss of Life (PLL)**

The expected number of lives lost over a period of time (either per ship year or ship lifetime) due to a specific risk

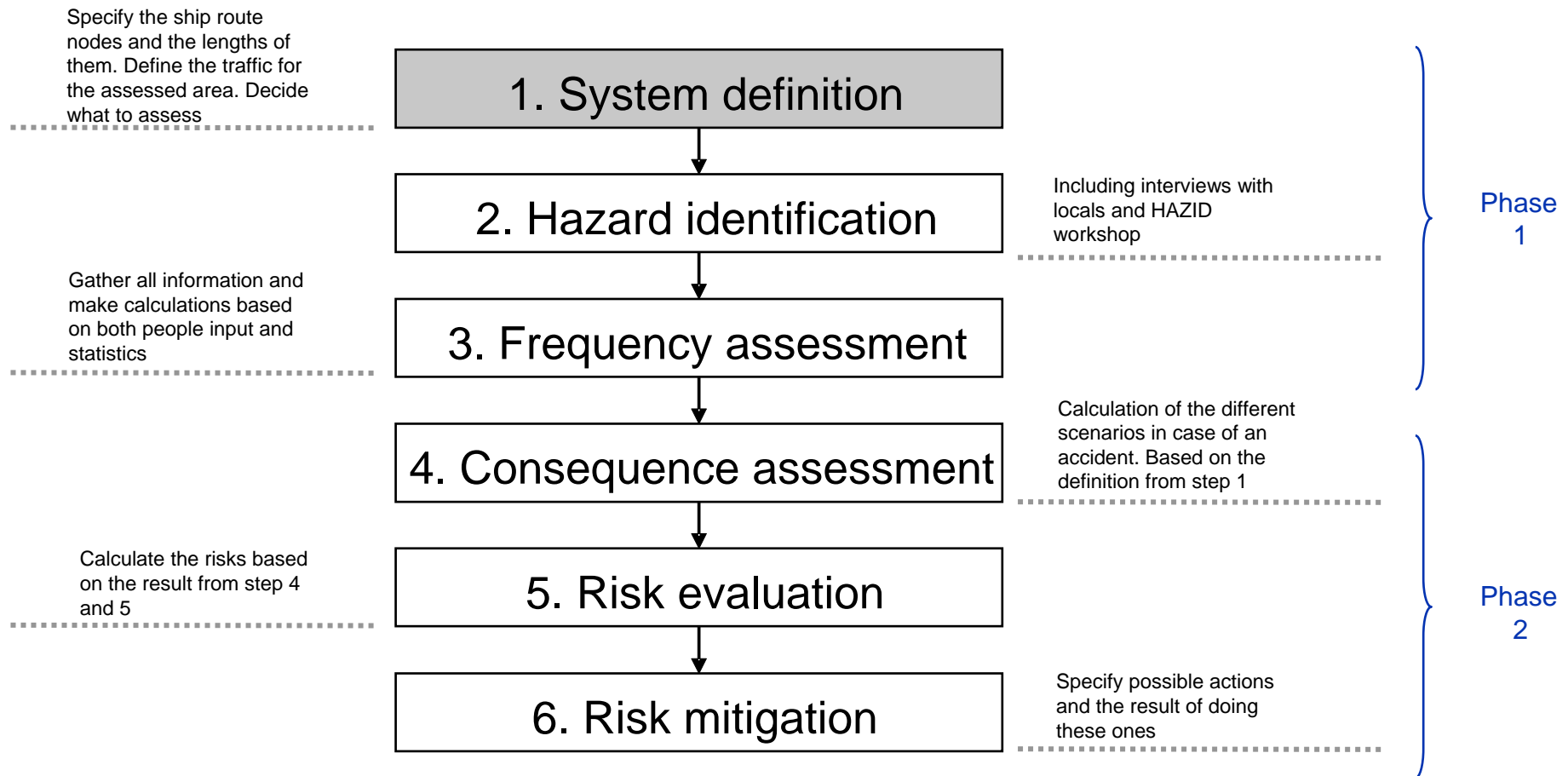
- **Potential Loss of Cargo (PLC)**

The expected volume of cargo lost (e.g. tonnes of oil) over a given time due to a specific risk (Environmental risk)

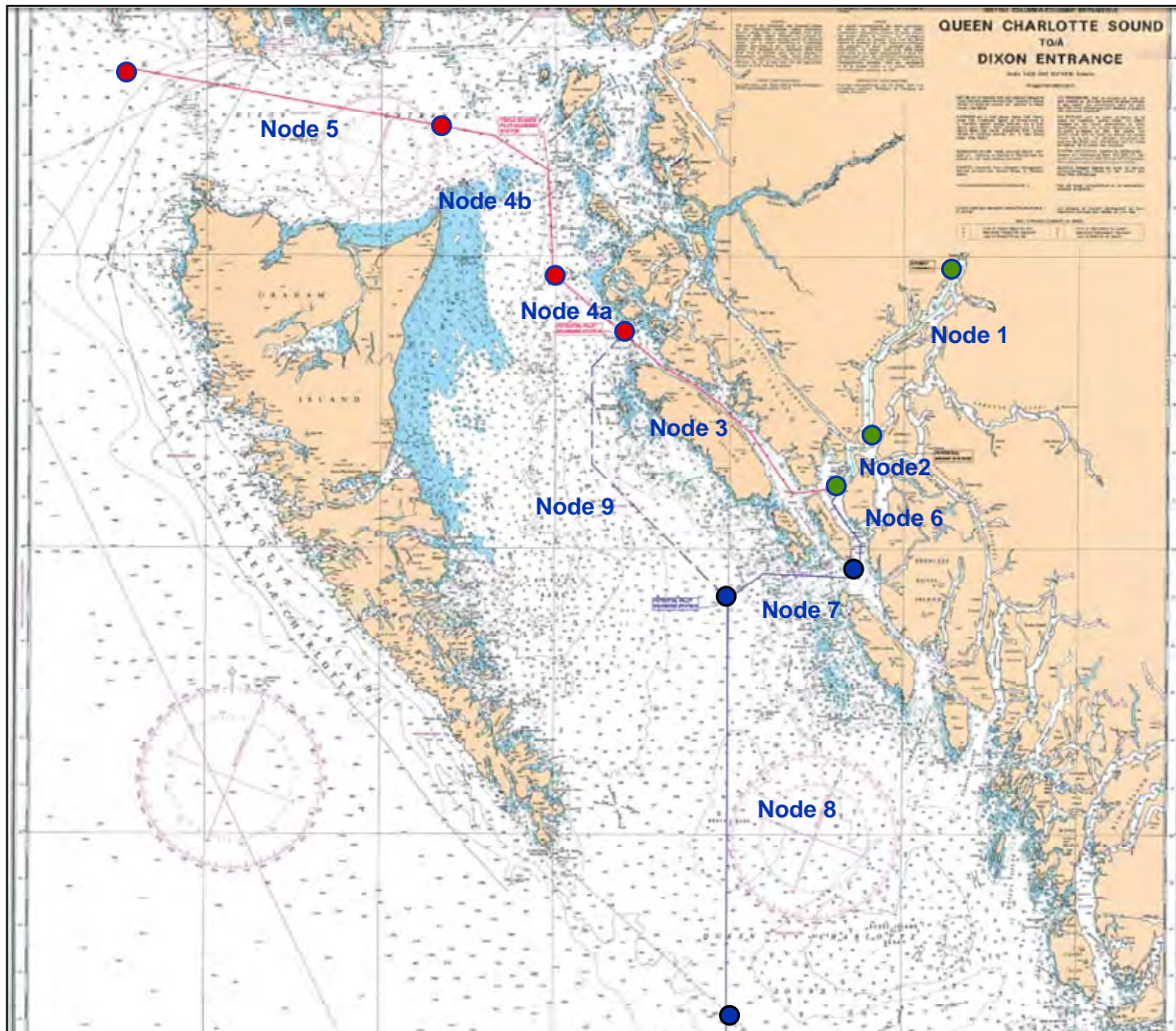
- **Potential Loss of Property (PLP)**

The expected cost of damage to the ship over a given time due to specific risk

The QRA process has 6 proven steps



In order to capture differences along the routes a set of nodes has been defined



■ Differences

- Wind
- Currents
- Waves
- Visibility
- Traffic
- Geographic differences

● North nodes

● South nodes

● Inner common nodes

Three different routes have been studied based on possible approaches to the terminal

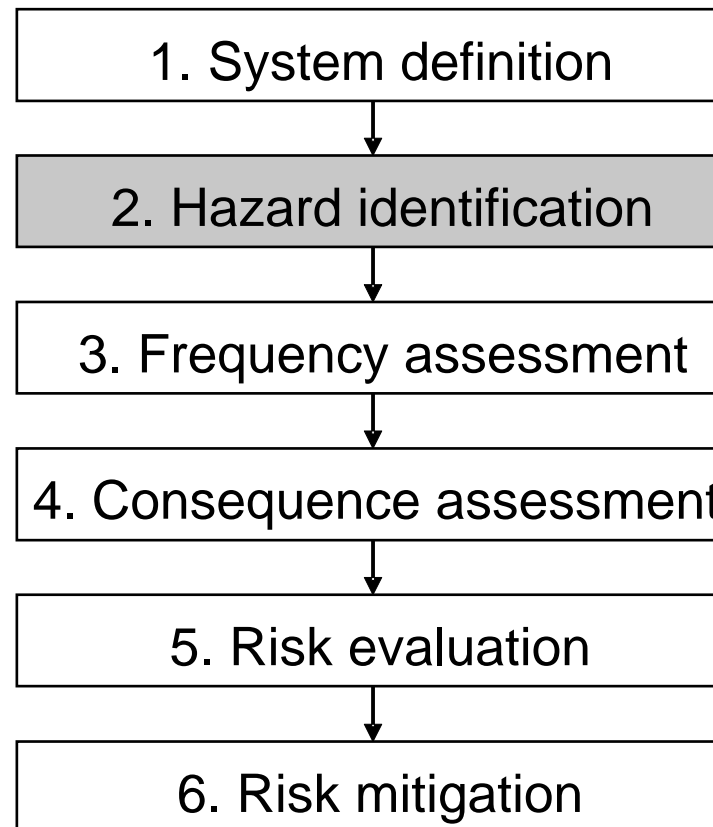
North Route	Length nm	South route via Camaaño Sound	Length nm	South route via Browning Entrance	Length nm
Node 1	45	Node 1	45	Node 1	45
Node 2	15	Node 2	15	Node 2	15
Node 3	56	Node 6	20	Node 3	56
Node 4a	25	Node 7	35	Node 9	68
Node 4b	45	Node 8	75	Node 8	75
Node 5	65				
Total	251		190		259

The terminal will export crude and import condensate and thus oil tanker traffic has been divided accordingly

Number of vessels	VLCC			SUEZMAX			AFRAMAX			Total		
	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max
Crude Oil	40	50	60	60	66	71	27	34	40	127	149	171
Condensate	0	0	0	50	54	59	13	16	20	63	71	79
Total	40	50	60	110	120	130	40	50	60	190	220	250

Capacities	VLCC	SUEZMAX	AFRAMAX
Cargo	300,000 MT	200,000 MT	120,000 MT
Bunker	7,500 MT	5,000 MT	3,000 MT

The QRA process has 6 proven steps

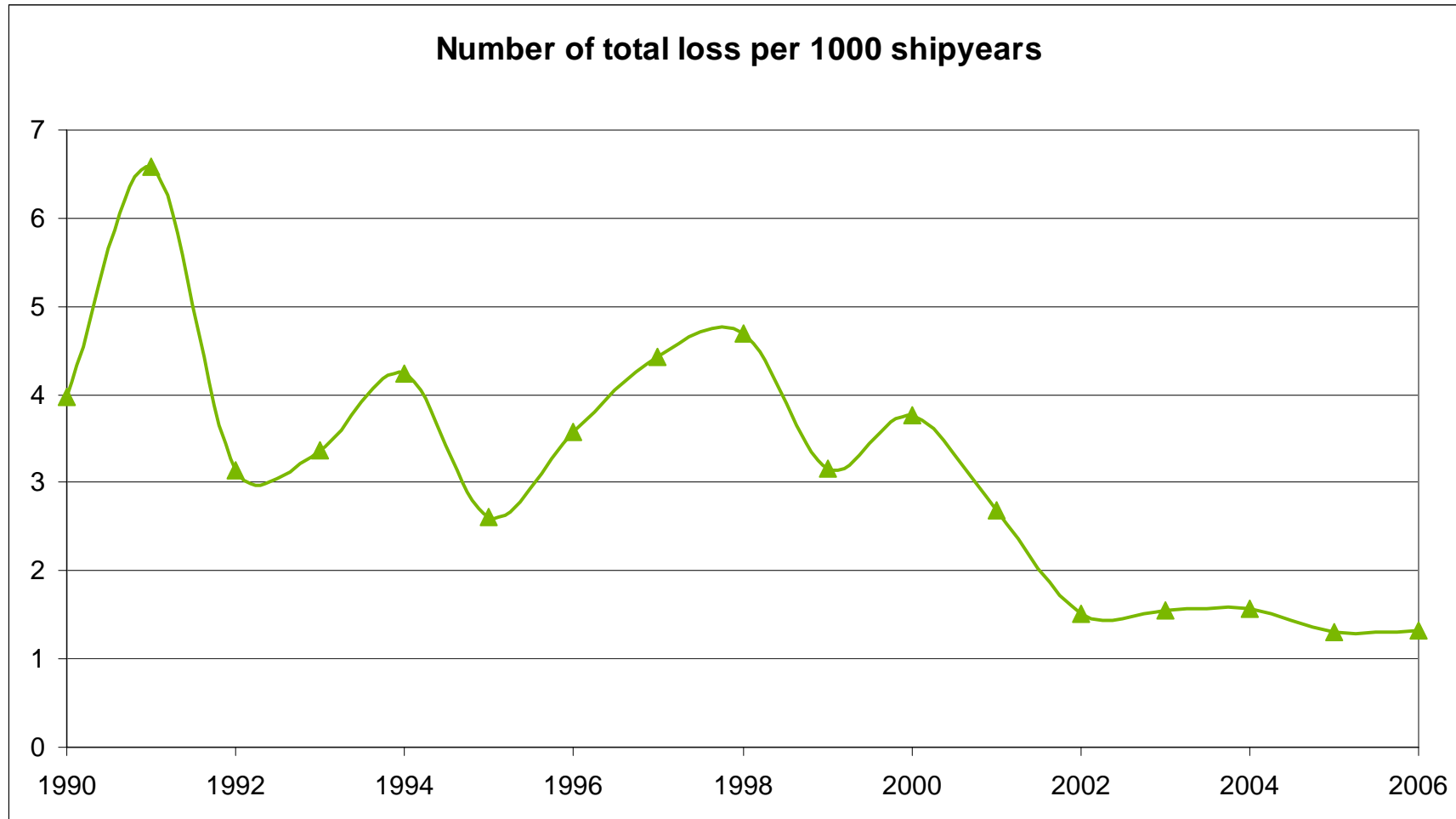




The LRFP damage category definition

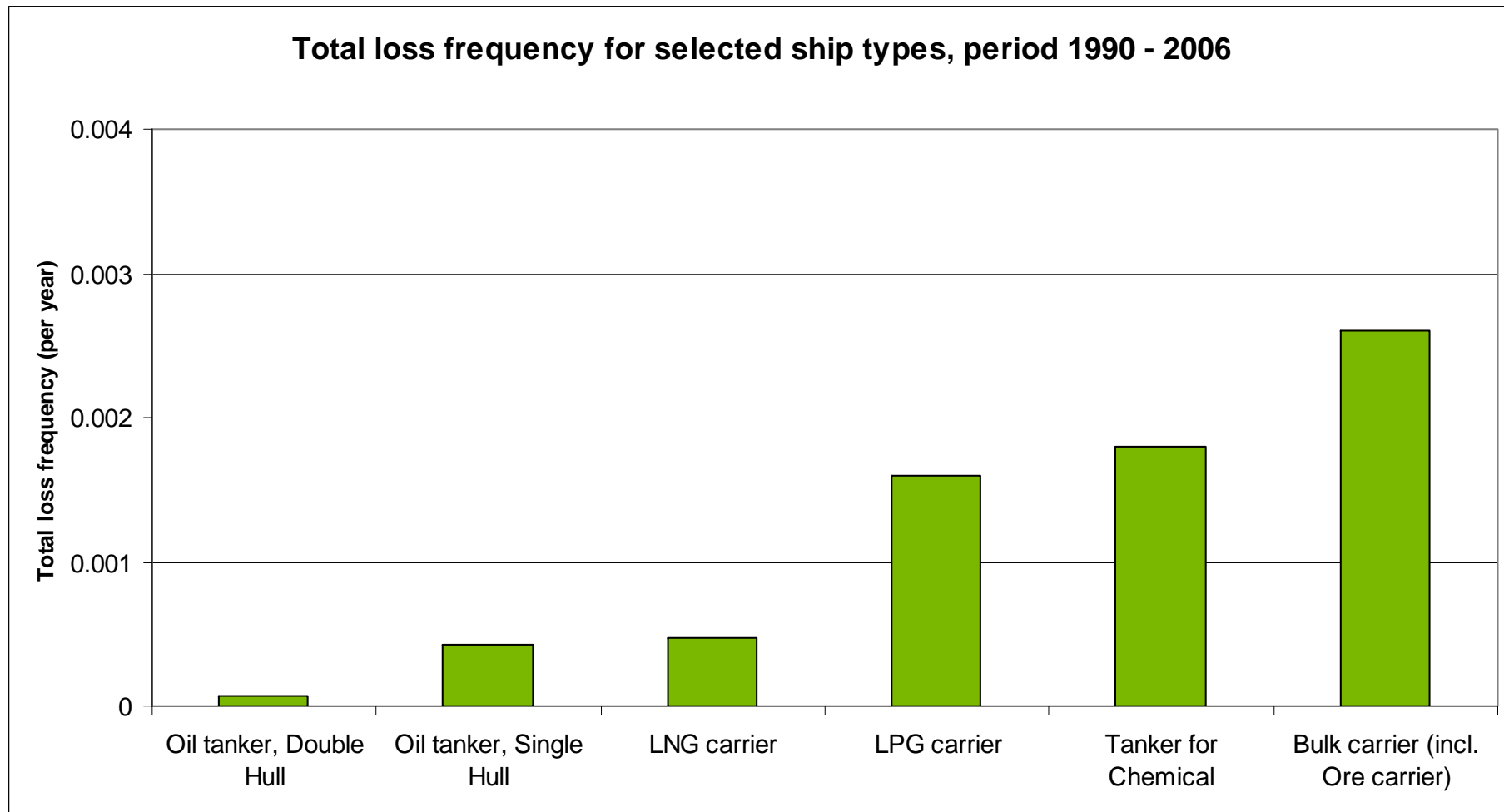
Damage category	Description LRFP damage definition
Total loss	Where the ship ceases to exist after an incident, either due to it being irrecoverable (actual total loss) or due to it being subsequently broken up (constructive total loss). The latter occurs when the cost of repair would exceed the insured value of the ship
Major damage	Breakdown resulting in the ship being towed or requiring assistance from ashore; flooding of any compartment; or structural, mechanical or electrical damage requiring repairs before the ship can continue trading. In this context, major damage does not include total loss
Minor damage	Any event reported to LRFP and included in the database, not being categorized as major damage or total loss

A declining trend in number of total losses over the last 20 years



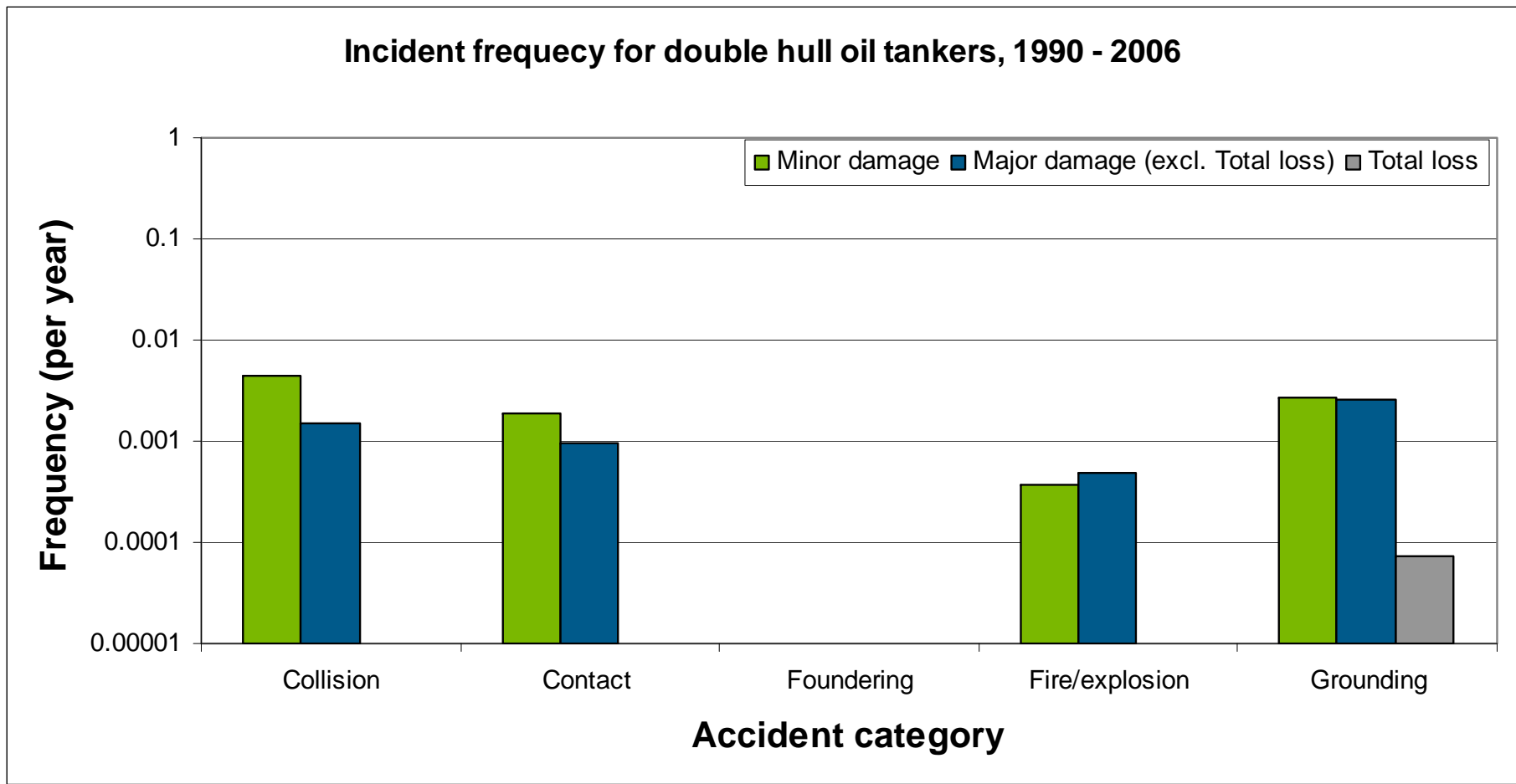
Sources: Lloyds Register Fairplay

Oil tankers have the lowest frequency of cargo carriers



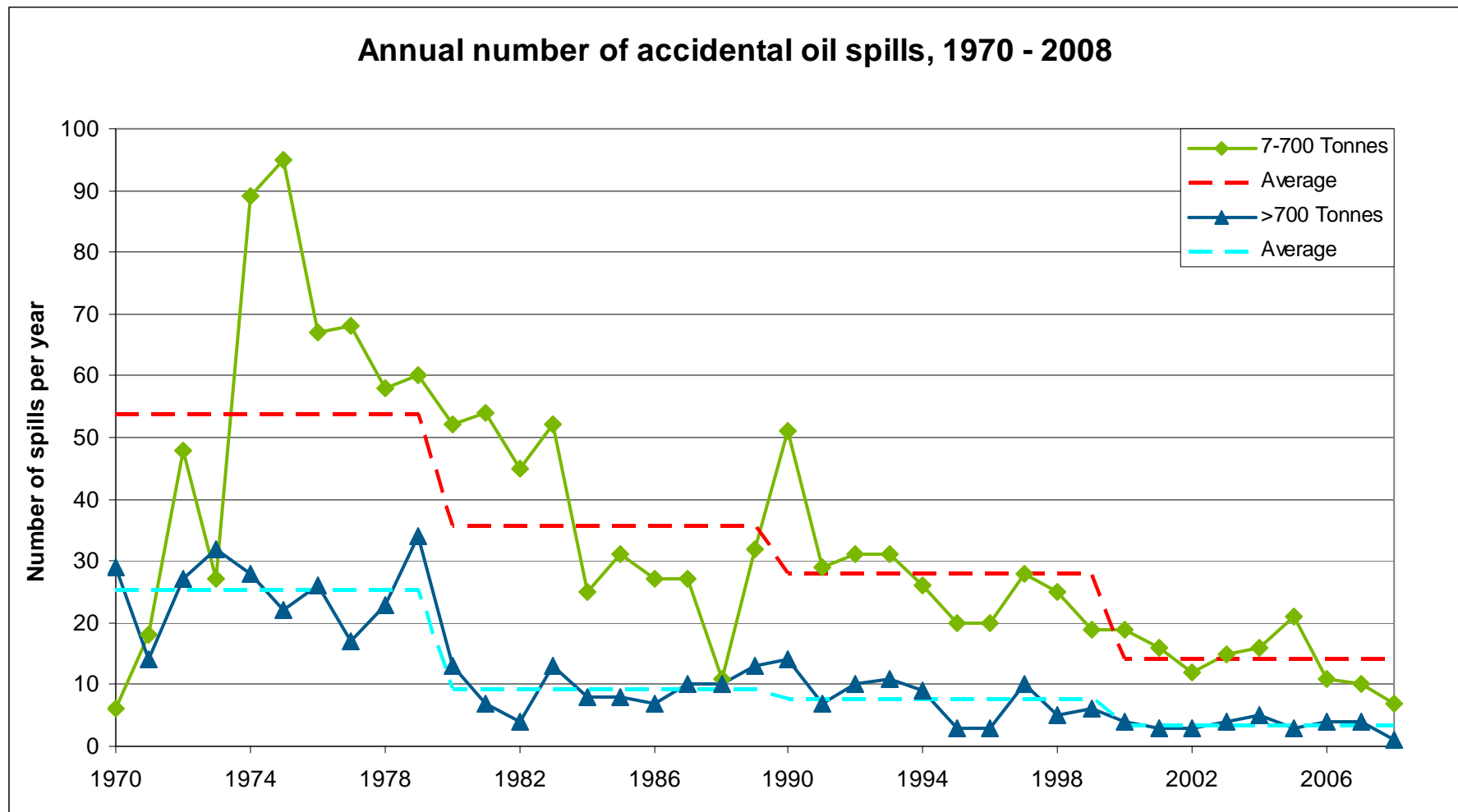
Sources: Lloyds Register Fairplay

Grounding the only cause of total loss seen for double hull oil tankers



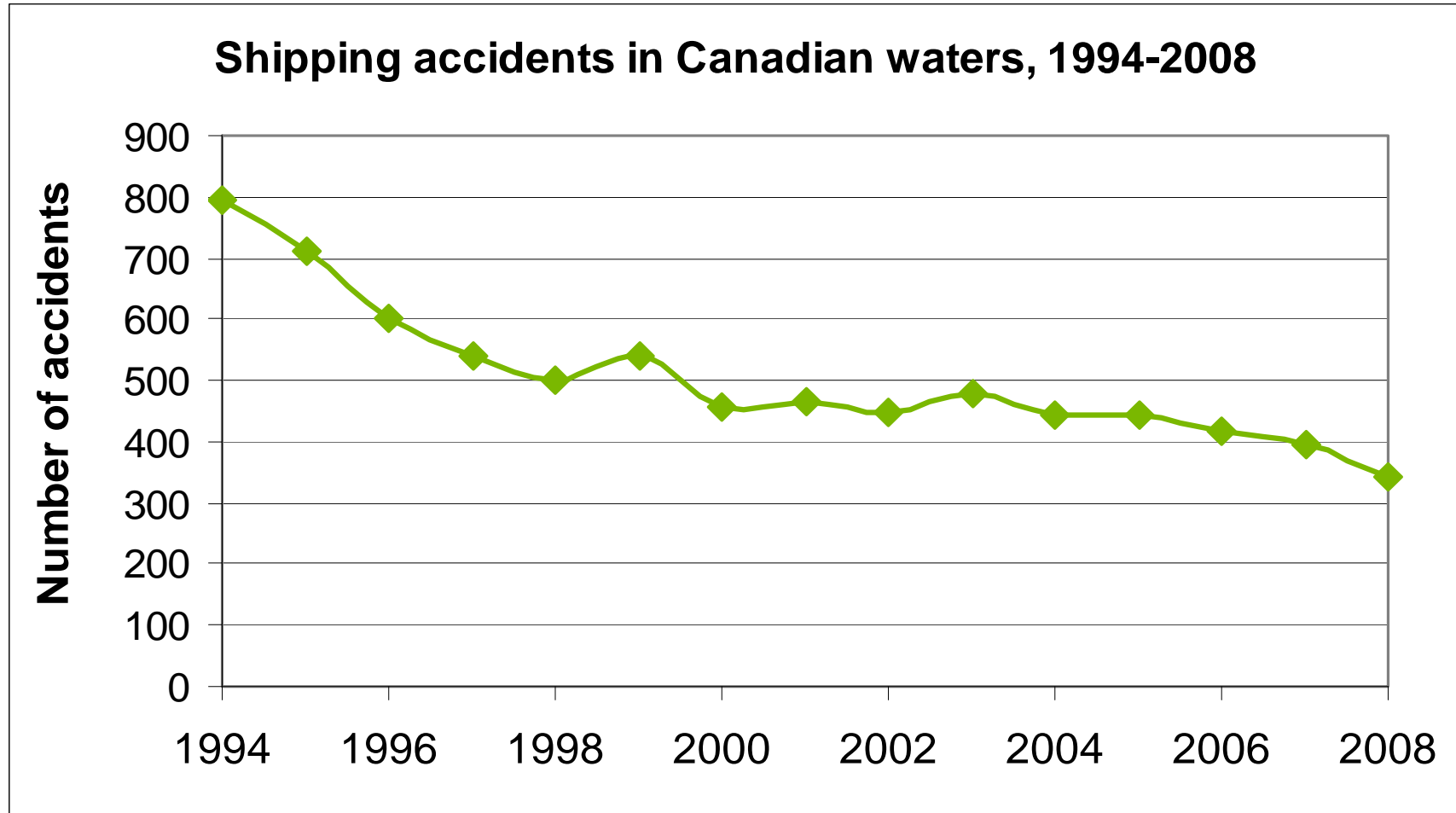
Sources: Lloyds Register Fairplay

The number of oil spills over 7 tons has never been lower since oil trading started



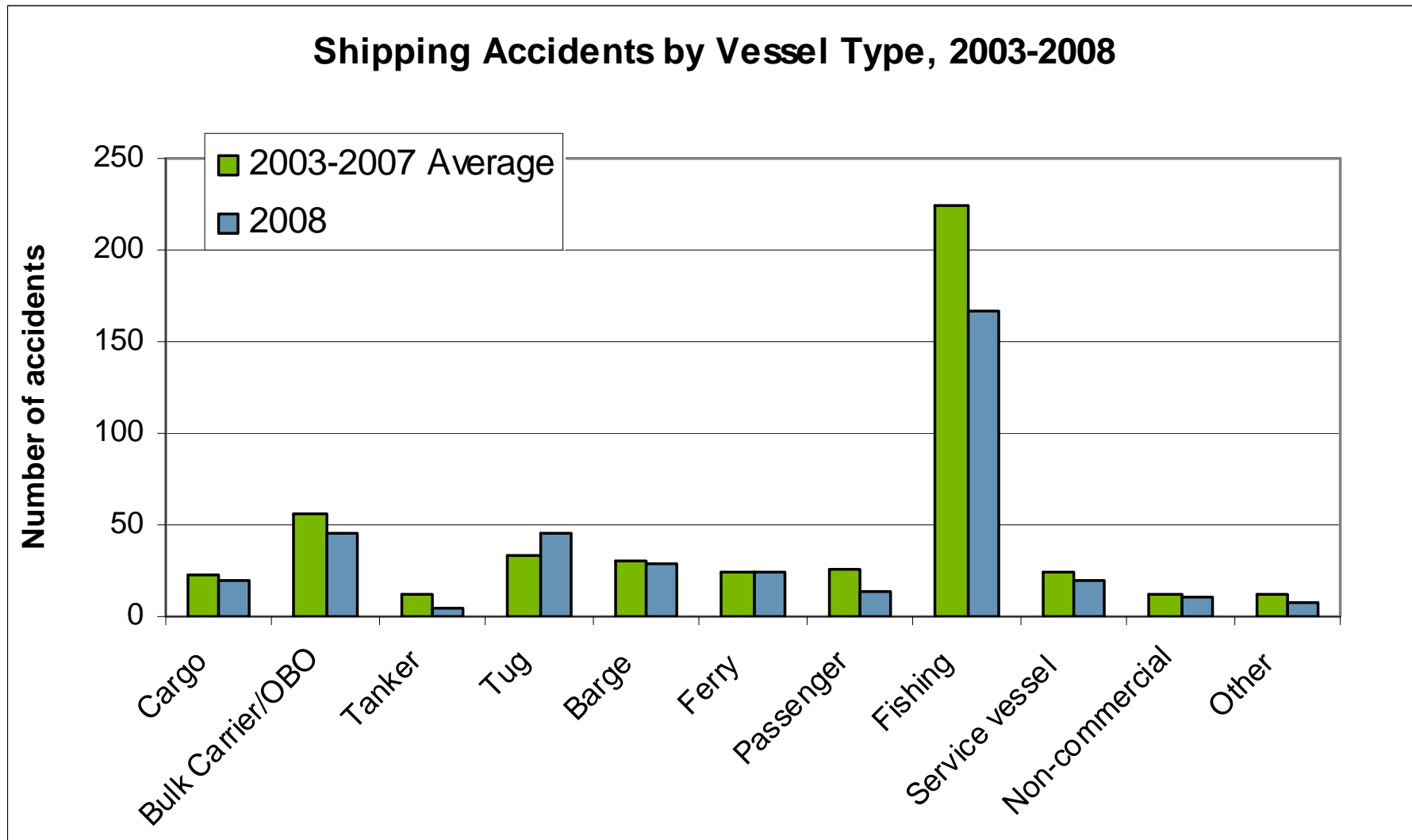
Sources: International Tanker Owners Pollution Federation Ltd. (ITOPF)

In Canadian waters there has been a declining accident trend



Sources: Transportation Safety Board of Canada

Incidents with fishing vessels constitutes a significant part of the total



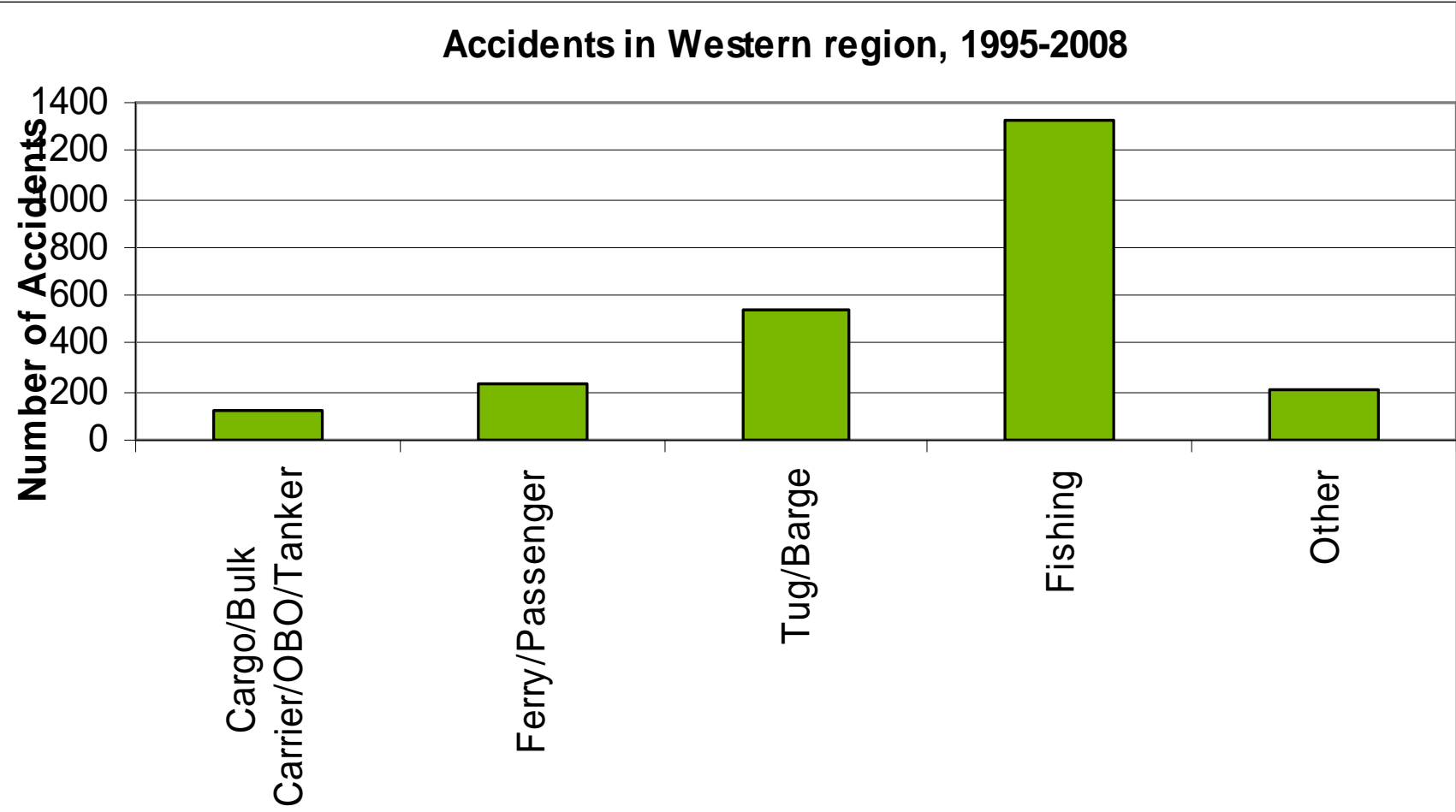
Sources: Transportation Safety Board of Canada

The Western Region has the highest number of incidents in Canadian waters



Sources: Transportation Safety Board of Canada

Most incidents in the Western Region involves fishing vessels

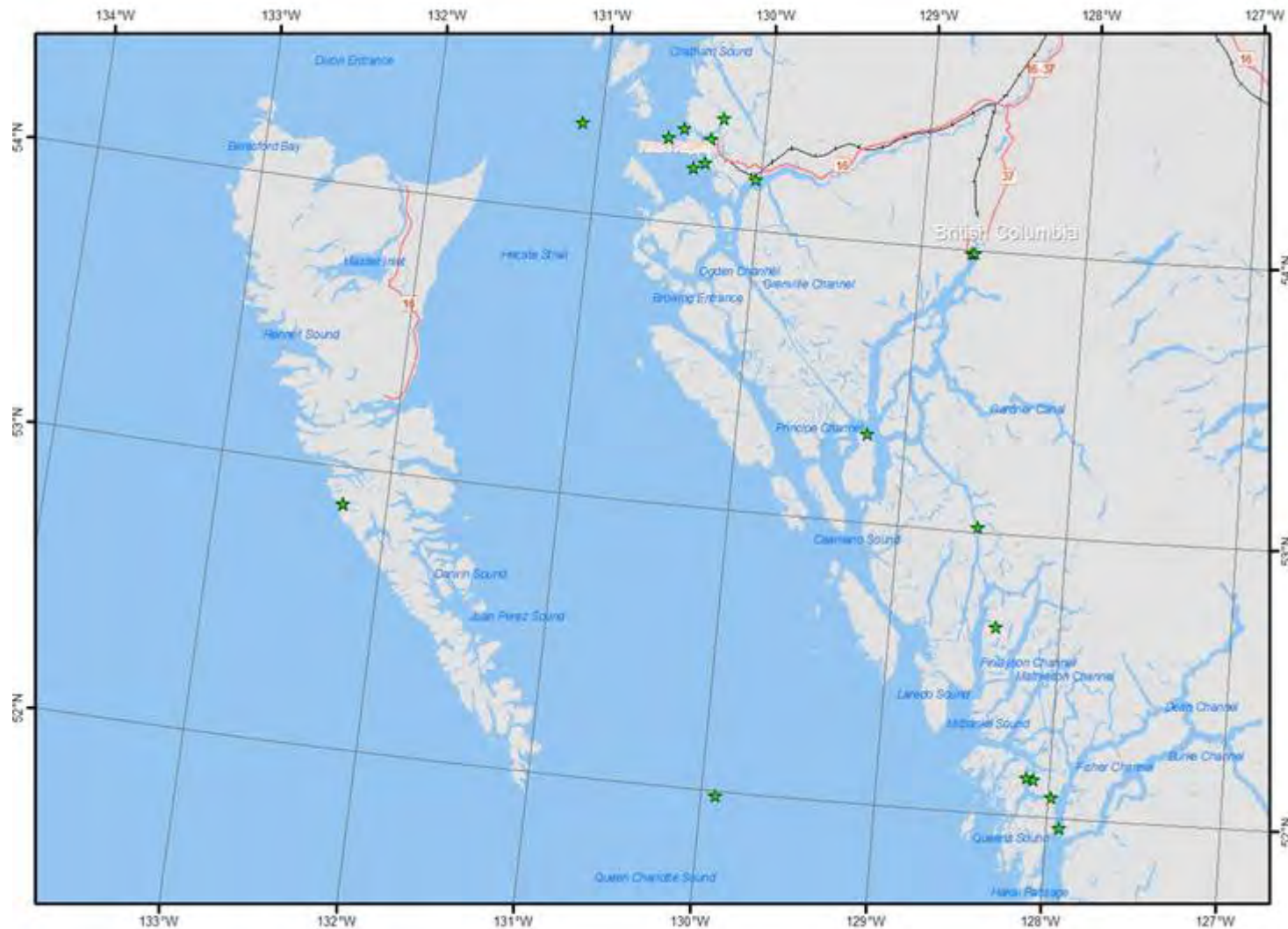


Sources: Transportation Safety Board of Canada

Very few incidents have occurred of the north west coast of BC between 1999-2008



MANAGING RISK



Sources: Transportation Safety Board of Canada



Key findings from Casualty data review

- Declining trend world'wide and in Canadian waters
- Oil tankers have the lowest total loss frequency of cargo carriers
- Grounding is the cause of total losses with double hull oil tankers
- The number of oil spills per year over 7 tons is at minimum level
- Incidents with fishing vessels are most common in Canadian waters
- Very few incidents in the study area
 - World wide incident statistics used as base frequencies and adjusted for local conditions

In order to understand how the local conditions influenced the risk, a HAZID workshop was held

- “HAZID is a thorough, systematic, multidisciplinary team oriented brainstorming”
- The specific goals of the HAZID were to:
 - Identify credible cause(s) of relevant marine accident scenarios
 - Qualitative assess the frequency and consequence of each cause in order to capture the effect of local conditions

The HAZID workshop took place in Vancouver on the 27th April 2009

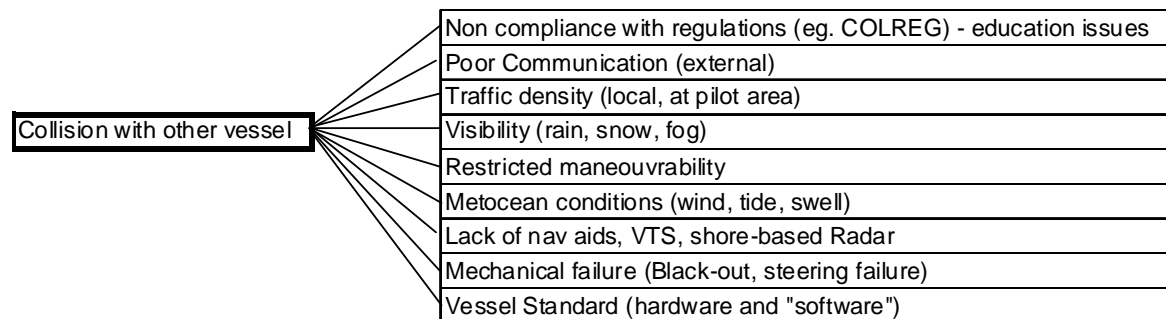
■ The participants:

- Brian Young Director Marine Operations, Pacific Pilotage Authority
- Al Ranger Pilot, British Columbia Coast Pilots (BCCP)
- Bob Lynch Pilot, BCCP
- Stan Turpin Pilot, BCCP
- Kevin Vail Pilot, BCCP
- Keith Moger VP Operations (Master Mariner), Western Stevedore
- John Chrysostom Navigational Expert (Master Mariner), DNV

The first part of the HAZID was to identify main causes of typical navigational accidents

- The first part of the HAZID was to identify the main cause for the three defined accident categories:
 - Collision with other vessel
 - Powered grounding:
i.e. the oil tanker grounding with power on main engine. Typically due to navigational errors.
 - Drifting grounding:
i.e. oil tanker grounding after loss of main engine power and drifting by wind and current onto land.

Example of results:



The next step in the HAZID was to qualitatively assessed the causes indentified

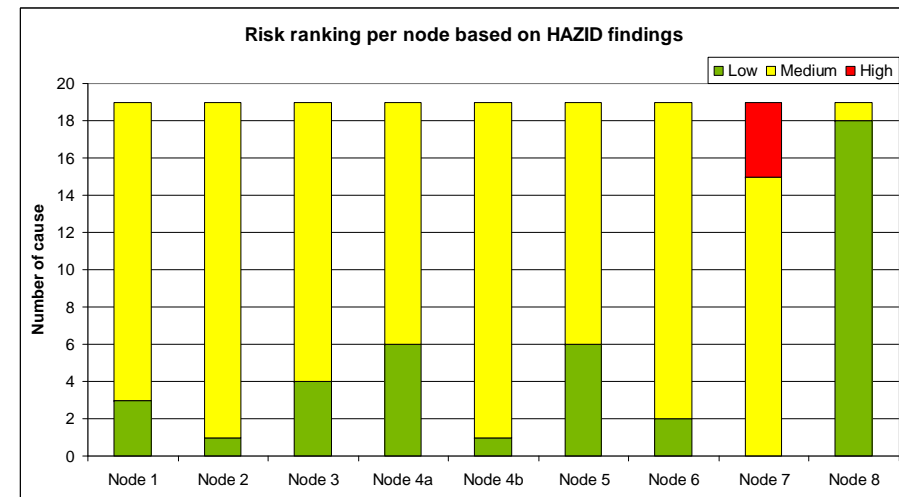
- A qualitative assessed was performed for two dimensions:
 - Consequence of occurrence
 - Frequency of occurrence
- The below scales were used in the assessment

Scale	Consequence
1	Minor (Negligible impact)
2	Slight (Small operational spill)
3	Moderate (Some spill, damage)
4	Major (Pollution outside immediate area)
5	Catastrophic (Major oil spill, significant threat)

Scale	Frequency
1	Highly unlikely (less than 1000 operating years)
2	Unlikely (less than once in 100 operating years)
3	Possible (once every 10 to 100 operating years)
4	Quite likely (once a year to once every 10 op. years)
5	Likely (Once a week to once an operating year)

The results of the HAZID indicate high risk areas

- The results from the HAZID show that node 7 (passage of Caamaño Sound) - is rated by the HAZID participants to constitute the highest risk of all the nodes evaluated.
- The concern related to node 7 is for:
 - Drifting grounding
 - Powered grounding
- Another item that is illustrated is that the risk will *decrease* as the vessels leave the Confined Channel Area and head out into more open waters.
- This is a natural result as the vessels are then in much less confined waters which minimizes the risk for grounding and also collisions.



In order to incorporate local conditions, different local stakeholders were interviewed

- The meetings were held in Prince Rupert (28th April 2009) and Kitimat (30th April 2009).

The stakeholders included:

- Local tour boat operators (Prince Rupert & Kitimat)
- Local logging companies running barges to / from logging sites (Kitimat)
- Local sports fishermen (Kitimat)
- Local environmental groups (Kitimat)
- Methanex (Kitimat)



I.5 QRA Working Group Meeting 5 (September 2009)

No documentation is available for QRA Working Group Meeting 5.

I.6 QRA Working Group Meeting 6 (November 24, 2009)

I.6.1 Meeting Invitation

I.6.1.1 Invitation

Subject: QRA Working Group Review of Draft 3.8 Report
Location: Conference Call

Start: Tue 24/11/2009 11:00 AM
End: Tue 24/11/2009 1:00 PM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Susan Davis Schuetz

Required Attendees: Diane Hewlett; Bob Thompson; tanya.bryan@natureconservancy.ca; Cowdell, Michael (Vancouver); 'chrisj.anderson@enbridge.com'; Pelpola, Channa; biologist@haisla.ca; Rob Mcmanus

Please note the conference call is 11:00 am MST and 10:00 am PST.

Telephone-ONLY access: United States / Canada Toll Free 1 866 831 2251

When prompted, enter the Meeting Number: * 7200591 *

(Be sure to enter the * star key before and after the Meeting Number)

I.6.1.2 Update

From: Susan Davis Schuetz

Sent: November-19-09 9:13 AM

To: 'Diane Hewlett'; 'Bob Thompson'; 'tanya.bryan@natureconservancy.ca';
'biologist@haisla.ca'

Cc: 'Cowdell, Michael (Vancouver)'; 'chrisj.anderson@enbridge.com'; Pelpola,
Channa; Rob Mcmanus

Subject: QRA Working Group - next steps - conference call Tuesday, November 24 &
update on 2 day meeting

Importance: High

Hello all –

Based on Fulcrum's telephone and e-mail communications with all of you, we are now proposing the following go-forward steps to review the draft 3.8 and 3.15 reports:

1. Conference call on Tuesday, November 24 from 10:00 am until 12:00 pm PST to discuss the draft 3.8 report. As we mentioned in our communications with all of you, please feel free to submit written comments, questions and/or concerns on the draft 3.8 report to Fulcrum by end of day tomorrow. We will then consolidate and issue to Working Group members prior to Tuesday's call. If you are not able to meet this deadline, please raise your comments, questions and/or concerns during the conference call.
2. As previously mentioned, the draft 3.15 report is expected to be issued to Working Group members next week. The original plan was to attempt to hold a 2 day meeting prior to the end of the year. However, based on Working Group members' schedules, we are now proposing a 2 day meeting in Vancouver either January 12 and 13 OR January 13 and 14. Fulcrum would like to use a portion of the conference call on Tuesday to finalize the 2 day meeting dates.
3. Given that we will not be able to meet to discuss the draft 3.15 report prior to the end of the year, Fulcrum is proposing that we try and schedule a conference call early to mid December so that Michael / Chris can walk Working Group members through the draft 3.15 report. Fulcrum would like to use a portion of Tuesday's call to see if a second conference call can be arranged early to mid December.

Michael – would you please arrange a conference line for us please for Tuesday’s call?

Please don’t hesitate to contact me should you have any questions.

Cheers,

Susan

Susan Davis Schuetz | Senior Associate | Fulcrum Strategic Consulting Inc.

Suite 1100 | 815 8th Ave SW | Calgary, AB T2P 3P2

t: 403.701.8018 | f: 403.538.5691

sdavisschuetz@fulcrumstrategic.ca | www.fulcrumstrategic.ca

I.7 QRA Working Group Meeting 7 (January 13-14, 2010)

I.7.1 Meeting Invitation

I.7.1.1 Invitation

Subject: QRA Working Group Meeting in Vancouver
Location: Vancouver - exact location TBC

Start: Wed 13/01/2010 12:00 AM
End: Fri 15/01/2010 12:00 AM
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Susan Davis Schuetz
Required Attendees: Diane Hewlett; Bob Thompson; biologist@haisla.ca;
tanya.bryan@natureconservancy.ca; 'Cowdell, Michael (Vancouver)';
chrisj.anderson@enbridge.com; 'Pelpola, Channa'; Rob Mcmanus

Hello all -

Again, as per our discussions yesterday, this is a formal meeting invitation for the 2 day meeting in Vancouver for the purposes of reviewing the draft 3.15 report. A proposed agenda along with other meeting materials and an exact location will follow.

Susan

I.7.1.2 Update

From: Susan Davis Schuetz
Sent: December-14-09 1:33 PM
To:
Cc: Rob Mcmanus; Cowdell, Michael (Vancouver)
Subject: QRA Working Group January 13 & 14 Meeting RSVP - please complete and return by Friday, December 18
Attachments: QRA January 13 & 14 Meeting RSVP.doc

Hello all –

As per the November 24 conference call, the next QRA Working Group meeting will be held at the Hyatt

downtown Vancouver on Wednesday, January 13 and Thursday, January 14. While a meeting invitation has

already been sent to all of you via Outlook and you all have accepted, the attached form will provide me

with your hotel room needs, etc. As discussed, the meeting will end mid-afternoon on the 14th in an effort to

accommodate catching flights back home on the 14th.

Would you please complete the attached form and return it to me by end-of-day Friday, December 18?

Please don't hesitate to contact me in the interim should you have any questions.

Thank you,

Susan

Susan Davis Schuetz | Senior Associate | Fulcrum Strategic Consulting Inc.

Suite 1100 | 815 8th Ave SW | Calgary, AB T2P 3P2

t: 403.701.8018 | f: 403.538.5691

sdavisschuetz@fulcrumstrategic.ca | www.fulcrumstrategic.ca



I.7.1.3 Registration Form



Quantitative Risk Assessment Research Working Group Meeting RSVP

Thank you for your ongoing participation in the Northern Gateway Pipelines (NGP) Quantitative Risk Assessment Research Working Group. The details of the next meeting are as follows:

January 13, 2010 **9:00 AM – 5:00 PM** (breakfast and lunch to be provided)
January 14, 2010 **8:00 AM – 2:00 PM** (breakfast and lunch to be provided)

The meeting will be held at the **Hyatt Regency Vancouver** which is located at **655 Burrard Street, Vancouver, BC, (Tel: 1 604 683 1234)**.

As required, NGP will be covering accommodation and travel costs for your attendance at the meeting. A separate expense reimbursement form is attached for you to use for the reimbursement of airfare or mileage associated with travel to the meeting. NGP will also be offering each attending organization a \$500 honorarium for your participation in the meeting if requested.

In order to provide a smooth registration process NGP will take responsibility for booking rooms for participants at the Hyatt Hotel. In order to complete the room booking, we will require you to complete the attached form and return it to Susan Davis Schuetz by e-mail at: sdavisschuetz@fulcrumstrategic.ca or by fax at 403-538-5691 **by December 18, 2009**.

If you have any questions, please feel free to contact Susan at 403-701-8018.

Name: _____

Organization: _____

Telephone: _____ E-mail: _____

Will you be attending the meeting?

Yes

No

Do you require a room at the Hyatt Hotel?

Yes

No

If yes, please indicate which nights you will require the room for.

January 12, 2010

January 13, 2010

January 14, 2010

Would you prefer a smoking or non-smoking room?

Please indicate any food allergies or food requirements that you may have:

Is your organization interested in receiving an honorarium for your attendance at the workshop?

Yes

No

Additional questions or comments:



I.7.1.4 Reimbursement Form



QRA Working Group Expense Reimbursement Form

ENGP QRA Working Group Meeting
Vancouver, BC
January 13 & 14, 2010

Thank you for participating in our meeting. To demonstrate our appreciation for assisting Northern Gateway Pipelines (NGP) with this process, we would like to cover expenses incurred from attending this meeting.

Please attach all receipts to this sheet for reimbursement. You can hand it in at the end of the meeting or mail it to:

Northern Gateway Pipelines
240 City Centre
Kitimat, BC, V8C 1T6.

Attention: Lisa Clement

Please note that accommodation reimbursements are not listed below as the Hyatt Regency Vancouver will automatically charge the room rate and room tax to Northern Gateway Pipelines. Any other room charges are your own expense (i.e. long distance calls, movies, mini-bar etc.).

Travel Expenses

Honorarium Requested:

Flight

Yes

No

Mileage (rate of \$0.60/km)

Taxi

Meal Expenses

Total Expenses: \$ _____

Cheque to be mailed to:

I.7.2 Draft Agenda

**QRA Working Group Meeting #5
January 13 & 14, 2010**

**Hyatt Regency Vancouver
Stanley Room, Floor 34
655 Burrard Street, Vancouver**

QRA Working Group Meeting #5 DRAFT PROPOSED AGENDA – DAY 1	
8:30 am	BREAKFAST
9:00 am	<p>Introductions – R. McManus/All</p> <ul style="list-style-type: none"> • Welcome & Introductions • Purpose and intended outcomes of meeting <ul style="list-style-type: none"> ▪ Review ENGP’s written responses to comments pertaining to draft 3.8 report ▪ Review draft 3.15 report ▪ Enhance QRA Working Group members’ understanding of draft 3.15 report ▪ Capture initial feedback and suggestions for enhancing the draft 3.15 report ▪ Identify next steps for both the draft 3.8 and 3.15 reports • Finalize proposed meeting agenda
9:15 am	<p>Draft 3.8 Report – Facilitated discussion with Michael Cowdell, WorleyParsons</p> <ul style="list-style-type: none"> • Review Northern Gateway’s responses to comments raised on draft 3.8 report • Q & A • Next steps
10:00 am	<p>Draft 3.15 Report – Chris Anderson, ENGP & Audun Brandsater, DNV</p> <ul style="list-style-type: none"> • Review TERMPOL Process • Review purpose, scope and objectives of the draft 3.15 report • Q & A
10:30 am	BREAK
10:45 am	<p>Draft 3.15 Report – Audun Brandsater, DNV</p> <ul style="list-style-type: none"> • Overview of draft 3.15 report • Approach to report, report structure, and overview of findings • Ongoing Q & A
11:15 am	<p>Draft 3.15 Report – Facilitated detailed report review with Audun Brandsater, DNV</p> <ul style="list-style-type: none"> • Section by section detailed review of report • Ongoing Q & A

QRA Working Group Meeting #5 DRAFT PROPOSED AGENDA – DAY 1	
12:30 pm	LUNCH
1:30 pm	Draft 3.15 Report – Continued with Audun Brandsater, DNV <ul style="list-style-type: none"> • Continuation of detailed review of report section by section • Ongoing Q & A
3:30 pm	BREAK
3:45 pm	Draft 3.15 Report – Continued with Audun Brandsater, DNV <ul style="list-style-type: none"> • Continuation of detailed review of report section by section • Ongoing Q & A
4:15 pm	Summary / Review of Feedback on Draft 3.15 Report – R. McManus <ul style="list-style-type: none"> • Questions raised • Errors, omissions or inconsistencies identified • Areas of lack of clarity identified • Recommendations to improve the clarity, readability and plain language aspects of the report
5:00 PM	ADJOURN FOR THE DAY

QRA Working Group Meeting #5 DRAFT PROPOSED AGENDA – DAY 2	
8:00 am	BREAKFAST
8:30 am	Draft 3.15 Report – Audun Brandsater, DNV <ul style="list-style-type: none"> • Continuation of detailed review of report section by section • Ongoing Q & A
10:00 am	BREAK
10:15 am	Draft 3.15 Report – Audun Brandsater, DNV <ul style="list-style-type: none"> • Continuation of detailed review of report section by section • Ongoing Q & A
11:30 pm	LUNCH
12:00 pm	Summary / Review of Feedback on Draft 3.15 Report – R. McManus <ul style="list-style-type: none"> • Questions raised • Errors, omissions or inconsistencies identified • Areas of lack of clarity identified • Recommendations to improve the clarity, readability and plain language aspects of the report
1:00 pm	Next Steps for QRA Working Group – R. McManus/All <ul style="list-style-type: none"> • Next steps for draft 3.8 report • Next steps for draft 3.15 report • Other?
2:00 pm	ADJOURN