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Northern Gateway pipeline poses unacceptable risk to B.C.: environmental groups

CP News

Tuesday, November 29, 2011.

By James Keller

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Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
Alexander First Nation FILE COPY	Northern Gateway	https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/701754/716156/A2C405 - Alexander First Nation - InfoRequest1 - August 25 2011 to Northern Gateway.pdf?nodeId=710259&vernum=0	Intervenor	1.1 CALCULATION OF ALEXANDER FIRST NATION INTEREST IN CAPITAL COST	i) Table 2-3, Exhibit B1-2, Application Volume 1, Part 1 (A1S9XS), Section 2.8 - Project Cost Estimate page 2-13	https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/723530/A2E404 - Northern Gateway Response to Alexander FN IR No. 17?nodeId=723622&vernum=0
				1.2 ALEXANDER FIRST NATION'S ROE	ii) Exhibit B1-4, Application Volume 2 (A1SPX7), Section 3	
				1.3 KEY PROJECT ISSUES FOR NON-TRADITIONAL LAND USE OF THE ALEXANDER FIRST NATION	iii) NGP Response to JRP Information Request No. 2.8 iv) Exhibit B3-17, Application Volume 6C (A1T0G7) Section 5.2.1 - Key Project Issues for Non-traditional Land Use page 5-4	
		https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/749233/A2H203 - Information Request No. 2 and 3 to Northern Gateway?nodeId=749234&vernum=0		2.1 Confirmation of Alexander First Nation interest in project, pending confirmation of pipelines route selection	i) Northern Gateway Response to Alexander First Nation Information Request No. 1	https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/763949/A2H203 - Northern Gateway Pipelines Limited Partnership - Northern Gateway Response to Alexander FN IR No. 12?nodeId=764099&vernum=0
BC Nature and Nature Canada	Northern Gateway	https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624910/701517/709904/A2C412 - Information Request 1 - BC Nature and Nature Canada Aug 25, 2011.pdf?nodeId=709905&vernum=0	Intervenor	Marine Avian Species		https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/725347/A2F88 - Northern Gateway Response to BC Nature - Nature Canada IR No. 17?nodeId=725435&vernum=0
				1.1 Marine Avian Key Indicator Species	i) Gateway Application, V 6B Environmental and Socio-economic Assessment - Marine Terminal, Part 4, Section 12 (A1T0G5); page 12-3 ii) Gateway Application, V 8B Marine Transportation ESA, Part 9, Section 11 (A1T0I4); page 11-3 iii) Gateway Application, V 8C Risk Assessment and Management of Spills - Marine Transportation, Part 3, Section 8 (A1T0I9); page 8-42 iv) Gateway Application, V 8C Risk Assessment and Management of Spills - Marine Transportation, Part 6, Section 11 (A1T0J2); page 11-13 and 11-14 v) Marine Birds Technical Data Report, Part 4 (A1VSU2); page 5-2 vi) Gateway Application, V8B Marine Transportation ESA, Part 1, Section 6 (A1T0H6); pages 6-2, 6-3, 6-5	
				1.2 Commitment to Environment Canada	i) B-15-1 Northern Gateway Responses to the Submission filed by Government of Canada Departments (A1V7R3); page 32 ii) B-27-8-Attachment NEB IR12 Commitment Tracking (A2A4Q0)	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				1.3 Project Inclusion List	i) Gateway Application, V 6B Environmental and Socio-economic Assessment – Marine Terminal, Part 1 (A1T0G2); page 3A-4 ii) Gateway Application, V 6B Environmental and Socio-economic Assessment – Marine Terminal, Part 1 (A1T0G2); page 4-13 iii) Gateway Application, V 6B Environmental and Socio-economic Assessment – Marine Terminal, Part 4, Section 12 (A1T0G5); page 12-25 iv) Gateway Application, V 8B Marine Transportation ESA, Part 1, Section 4 (A1T0H6); pages 4-14 and 4-21 v) Gateway Application, V 8C Risk Assessment and Management of Spills – Marine Transportation (A1T0I7)	
				1.4 Climate Change	i) Gateway Application, V 6A Pipeline and Tank Terminal ESA, Part 1, Section 4.5 (A1T0F1); page 4-67	
				1.5 Mitigation related to hydrocarbon spills	i) Gateway Application, V 8C Risk Assessment and Management of Spills – Marine Transportation, Part 1, Section 5 (A1T0I7)	
				1.6 Marbled Murrelets	i) Gateway Application, V 6B Environmental and Socio-economic Assessment – Marine Terminal, Part 4, Section 12 (A1T0G5); pages noted in preamble. ii) B-15-1 Northern Gateway Responses to the Submission filed by Government of Canada Departments (A1V7R3); page 33. iii) Gateway Application, V 8B Marine Transportation ESA, Part 9, Section 11 (A1T0I4); page 11-13	
				1.7 Expertise and Professional Judgement	i) Gateway Application, V 6B Environmental and Socio-economic Assessment – Marine Terminal, Part 1 (A1T0G2); pages 4-7 and 4-13 ii) Gateway Application, V 8B Marine Transportation ESA, Part 1, Section 4 (A1T0H6); pages 4-6 and 4-13	
				1.8 Thresholds	i) Gateway Application, V 6B Environmental and Socio-economic Assessment – Marine Terminal, Part 1 (A1T0G2); page 4-12	
				1.9 Marine Bird Surveys	i) Marine Birds Technical Data Report, Part 1 (A1V5T9); pages 1-1 and 2-8 ii) B-15-1 Northern Gateway Responses to the Submission filed by Government of Canada Departments (A1V7R3); pages 32 and 50 iii) Marine Birds Technical Data Report, Part 2 (A1V5U0); Sections 3.16 and 3.17 iv) Marine Birds Technical Data Report, Part 4 (A1V5U2); Appendix A v) Gateway Application, V 6B Environmental and Socio-economic Assessment – Marine Terminal, Part 4, Section 12 (A1T0G5); page 12-10, 12-51 vi) Gateway Application, V 8B Marine Transportation ESA, Part 9, Section 11 (A1T0I4); pages 11-7, 11-17 and 11-22	
				1.10 Supporting Documentation	i) Gateway Application, V 6B Environmental and Socio-economic Assessment – Marine Terminal, Part 4, Section 12 (A1T0G5); page 12-2 ii) Gateway Application, V 8B Marine Transportation ESA, Part 1, Section (A1T0H6); page 3A-8 iii) Gateway Application, V 8B Marine Transportation ESA, Part 9, Section 11 (A1T0I4); pages 11-3, 11-12, 11-13, 11-17, 11-19, 11-22	
				1.11 Hydrocarbon Spills	i) Gateway Application, V 8A Overview and General Information – Marine Transportation, Part 2 (A1T0H4); pages 4-83, 4-85 and 4-86 ii) B-15-1 Northern Gateway Responses to the Submission filed by Government of Canada Departments (A1V7R3); pages 32, 38, 39, 50 and 51 iii) Gateway Application, V 8C Risk Assessment and Management of Spills – Marine Transportation, Part 1 (A1T0I7); pages 5.8, 5.11, 5.12 and 5.13 iv) Gateway Application, V 8C Risk Assessment and Management of Spills – Marine Transportation, Part 3, Section 8 (A1T0I9); pages 8-2, 8-46, 8-47 and 8-48. v) Gateway Application, V 8C Risk Assessment and Management of Spills – Marine Transportation, Part 6, Section 11(A1T0J2); pages 11-10, 11-14 and 11-29 vi) Gateway Application V 8C Risk Assessment and Management of Spills – Marine Transportation, Part 6, Section 10 (A1T0J2); page 10-32	

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				Terrestrial and Freshwater Avian Species		
				1.12 Species at Risk Excluded from Assessment	i) Gateway Application, V 6A Pipelines and Tank Terminal ESA, Part 2, Section 9 (A1T0F6); page 9-27 – 9-30	
				1.13 Yellow Rail (listed as Special Concern under SARA)	i) Gateway Application, V 6A Pipelines and Tank Terminal ESA, Part 2, Section 9 (A1T0F7); page 9-77	
				1.14 Waterbird Survey Periods	i) Gateway Application, Wildlife Data and Field Surveys TDR, Part 1, Section 2 (A1V6J1), page 2-2	
				1.15 Reviews of Existing Waterbird Data	i) Gateway Application, Wildlife Data and Field Surveys TDR, Part 1, Section 2 (A1V6J1), page 2-2	
				1.16 Songbird Surveys	i) Gateway Application, Wildlife Data and Field Surveys TDR, Part 3 of 5, Section 2 (A1V6J3), pp 5-1 to 5-28	
				1.17 Wildlife Habitat Modelling Technical Data Report	i) Gateway Application, V 6A Pipelines and Tank Terminal ESA, Part 2, Section 9.5 (A1T0F7); page 9-64 – 9-98 ii) Gateway Application, Wildlife Habitat Modelling: Approach, Methods and Species Accounts TDR Part 1 of 1 (A1V6J7)	
				1.18 Use of Terrestrial and Freshwater Avian Key Indicator Species	i) Gateway Application, V 6A Pipelines and Tank Terminal ESA, Part 2, Section 9 (A1T0F6); page 9-20	
				Terrestrial Wildlife Species		
				1.19 Terrestrial Wildlife Species—Caribou	i) Gateway Application, V 6A Environmental and Socio-economic Assessment—Pipelines and Tank Terminal, Section 9 Wildlife (A1T0F6); 9.1.2 Key Wildlife Areas; 9.2.7 Determination of Significance for Wildlife; 9.5.24 Woodland Caribou; Section 9.2.7 Table 9-73, Table 9-78 ii) Seip 2011; Comments on Wildlife Component of Roman Coal EAO Assessment; Dale Seip, B.C. Ministry of Environment, February, 2011 (attached as Appendix 1 and available at http://a100.gov.bc.ca/appsdata/epic/documents/p308/1299198111558_1f801dfb64544a6f69a3134bbe645e006281fa8a7100da19f01fd5901ab9e9f9.pdf)	
		https://www.pcb-onc.gc.ca/llp-cop/ovlink.cfm?atch/2000/90464/90552/384492/620827/624476/748435/A2E8I8-InformationRequest2-BCNatureandNatureCanadaNov13_2012.pdf?nodeId=748435&version=0		Marine Avian Species		https://www.pcb-onc.gc.ca/llp-cop/ovlink.cfm?atch/2000/90464/90552/384492/620827/624476/748435/A2E8I8-InformationRequest2-BCNatureandNatureCanadaNov13_2012.pdf?nodeId=748435&version=0
				2.1 Key indicators	i) BC Nature and Nature Canada: Information Request No. 1; IR 1.1 (b), (c) and (g); (A30928) ii) Northern Gateway Response to BC Nature & Nature Canada IR 1; (A2E8I8) iii) Northern Gateway Response to Federal Government of Canada Information Request No. 1 (A2E8J0) iv) B-15-1 Northern Gateway Responses to the Submission filed by Government of Canada Departments (A1V7R3); page 32	
				2.2 Surf Scoter as Key Indicator	i) BC Nature and Nature Canada: Information Request No. 1; IR 1.1 (a) (A30928) ii) Northern Gateway Response to BC Nature & Nature Canada IR 1; (A2E8I8) iii) Gateway Application, V 6B Environmental and Socio-economic Assessment - Marine Terminal, Part 1, Section 4 (A1T0G2); page 4-19 iv) Gateway Application, V8B Marine Transportation ESA, Part 1, Section 4 (A1T0H6); page 4-21	

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				2.3 Marbled Murrelets (COSEWIC listed as threatened)	References: i) BC Nature and Nature Canada: Information Request No. 1; IR 1.6 (e) and (j); (A30928) ii) Northern Gateway Response to BC Nature & Nature Canada IR 1; (A2E818) iii) Steventon, J.D. and N. Holmes. 2002. A Radar-based Inventory of Marbled Murrelets (<i>Brachyramphus marmoratus</i>), Northern Mainland Coast of British Columbia. Draft Technical Report; copy received from J.D. Steventon. iv) Information Concerning Wildlife Habitat for the Survival of Species at Risk in the Kalum Forest District. http://www.env.gov.bc.ca/esd/dis:data/ecosystems/srpa/Approved_FRPR_scc7_WLPPR_sec9_Notices_and_Supporting_Info/Species_at_Risk/Kalum_FD/Supporting_Info/Supporting_Info_Doc/Supporting_info_KalumFD_SAR.pdf v) Donaldson, A and B. Smart. 2009. Summary Report: Airphoto Interpretation of 92 Landscape Units on the Central Coast, Mid Coast and North Coast 2007 – 2009. http://archive.lmb.gov.bc.ca/slrp/lm/p/ranalmo/cenccost/ebnwg_docs/ci02a_marbled_murrelet_report.pdf	
				2.4 Marine Bird Surveys	i) BC Nature and Nature Canada: Information Request No. 1; IR 1.9 (b) (A30928) ii) Northern Gateway Response to BC Nature & Nature Canada IR 1; (A2E818)	
				2.5 Hydrocarbon Spills	i) BC Nature and Nature Canada: Information Request No. 1; IR 1.1 (c) and 1.11; (A30928) ii) Northern Gateway Response to Federal Government of Canada Information Request No. 1 (A2E810) iii) Gateway Application, V 8C Risk Assessment and Management of Spills - Marine Transportation, Part 6, Section 11(A1T0J2) iv) Northern Gateway Response to BC Nature & Nature Canada IR 1; (A2E818)	
Beckett, Doug	Northern Gateway	https://www.pcb-spc.gc.ca/lr-rcp/llc/link.cfm?lclsh/2000/90464/90557/394197/670327/674798/723561/729687/A2E818-Doug%20Beckett-AUGUST%202011%20Information%20Request%201%20to%20Northern%20Gateway.pdf?docid=709373&version=0	Intervenor	Pipelines	"Pipeline Routing in Landslide-prone Terrain" by Dr Marten Geertsema PGeo and Dr John J Clague PGeo, July/August, 2011 edition of "Innovation" (a Journal produced by the Association of professional Engineers and Geoscientists of B.C.) "Pipeline routing in landslide prone terrain" by Dr Marten Geertsema PGeo, June 21, 2011 Research Seminar Series Chapter 8 on Hillslope Processes from the "Compendium of forest hydrology and geomorphology in British Columbia" by R.G. Pike, T.E. Redding, R.D. Moore, R.D. Winkler, and K.D. Bladen. http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh66/Lmh66_ch08.pdf The rainfall event that occurred in the Peace region of British Columbia earlier this summer. In part documented by the images and maps I identified as evidence for presentation and consideration to the Joint Review Panel in an email of 9:05 pm on June 28, 2011.	https://www.pcb-spc.gc.ca/lr-rcp/llc/link.cfm?lclsh/2000/90464/90557/394197/670327/674798/723561/A2E818-Northern%20Gateway%20Response%20to%20Beckett%20IR%20No.%201%20revised%202011%20version=0

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Bergman, Carey	Northern Gateway	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/748974/A2H1U6 - Bergman, Carey - Information Request no. 1 to Northern Gateway ?model=748759&vernum=0	Intervenor		<p>Volume 6A - Application dated May 2010, Section 4</p> <p>Volume 6A - Application dated May 2010, Section 4, Table 4-1, Page 4-8</p> <p>Volume 8A - Application dated May 2010, Section 13.6.1 page 13-16</p> <p>Technical Data Report. Human Health Risk Assessment Enbridge Northern Gateway Project. 2010. 658 pages</p> <p>Alberta Ambient Air Quality Objectives and Guidelines, Issued December 2010.</p> <p>Canadian Medical Association. 2008. No breathing room: national illness costs of air pollution. 123 pp.</p> <p>Health Canada. 2004. Estimated number of excess deaths in Canada due to air pollution. 10 pp.</p> <p>Royal Society of Canada. 2010. Environmental and health impacts of Canada's oil sands industry. 438 pp.</p> <p>World Health Organization. 2006. Air quality guidelines: global update 2005. 496 pp.</p> <p>World Health Organization. 2000. Evaluation and use of epidemiological evidence for environmental health risk assessment. 39 pp.</p>	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/748974/Northern Gateway Pipeline Limited Partnership - Northern Gateway Response to C. Bergman IR No. 1 ?model=748759&vernum=0
Brown, Cheryl	Northern Gateway	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624910/692604/710035/A2CAG5 - Cheryl Brown Information request No. 1 ?model=710036&vernum=0	Intervenor			https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/A2F4J1 - Northern Gateway Response to C. Brown IR No. 1 ?model=723574&vernum=0
				1.1	Route Atlas -- Location of pipeline from Hout tunnel to the Kitimat estuary	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/A2F4J1 - Attachment C. Brown IR 1.1 ?model=723438&vernum=0 - REQUEST 1.1
		https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/748974/A2G8F6 - Information Request No. 2 - 1.pdf ?model=746973&vernum=0		1.2	Vol 7B risk Assessment and management of spills - Section 9.5.4 Pg 28	
				2.1 - 2.9	The technical data report of the Marine Shipping Quantitative Risk Analysis for Northern Gateway TERMPOL -- tool by Det Norske Veritas (DNV).	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/748974/Northern Gateway Pipeline Limited Partnership - Northern Gateway Response to C. Brown IR No. 2 ?model=746973&vernum=0
				2.2 - 2.9	The technical data report of the Marine Shipping Quantitative Risk Analysis for Northern Gateway TERMPOL	
				2.1	Technical data report Hydrogeology - figure B 11	
				2.11	Technical data report - Freshwater fish and Fish Habitat 3.5.4 Pg 3-97	
				2.12	Technical data report - Geology and Terrain Coastal Mountain section Pg 3-44	
				2.13	Vol. 6C Environmental and Socio-economic assessment	
				2.14	Vol. 6C Environmental and Socio-economic assessment	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/748974/Attachment - Details of Proposed Construction Projects in the Coastal BC Region - DNV E111111
				2.15	Vol. 6C Environmental and Socio-economic assessment	
C.J. Peter	Northern		Intervenor	Engineering		https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/748974

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Associates Engineering	Gateway			1.1 Pipeline Hydraulic Design and Specifications	i) Exhibit B32-4 Attachment JRP IR 3.1 b) (Part 1 of 4) A2C5T5 dated August 30 2011, (Adobe Page 1 and 2). ii) Exhibit B32-5 Attachment JRP IR 3.1 b) (Part 2 of 4) A2C5T6 dated August 30 2011, (Adobe Page 1 of 1). iii) Exhibit A2D9W2 - October 3 Response to Enbridge's Request for Confidentiality, Enbridge Specification EES103-2006, Submerged-Arc Welded Steel Pipe Specification Supplementary to API 5L: Section 6.2.1.1 Body Tensile Range. iv) Exhibit A2D9W2 - CJPAAE October 3 Response to Enbridge's Request for Confidentiality, Enbridge Specification EES103-2006, Submerged-Arc Welded Steel Pipe Specification Supplementary to API 5L: Section 7.2 Diameter. v) Exhibit A2D9W2 - CJPAAE October 3 Response to Enbridge's Request for Confidentiality, Enbridge Specification EES103-2006, Submerged-Arc Welded Steel Pipe Specification Supplementary to API 5L: Section 7.3 Wall Thickness.	http://www.northern-gateway.com/Link.aspx?linkid=7000/90464/90552/384192/620327/624476/723530/A2E4Q5 - Northern Gateway Response to Coastal First Nations' Request for Confidentiality, Enbridge Specification EES103-2006, Submerged-Arc Welded Steel Pipe Specification Supplementary to API 5L: Section 6.2.1.1 Body Tensile Range.
Coastal First Nations	Northern Gateway	https://www.northern-gateway.com/Link.aspx?linkid=7000/90464/90552/384192/620327/624476/723530/A2E4Q5 - CFN Information Request 1 to Enbridge.pdf?nodeid=707770&version=0	Intervenor	Project Economics 1.1 Financial Responsibility for a Spill Response and Compensation First Nations Consultation 1.2 Aboriginal Impact Assessment Accident Prevention 1.3 Tanker Age, Oil Tankers and Spill Prevention 1.4 Tanker Redundancy, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 5, p. 5-1; Vol. 8A, Section 4.8.2.4, p. 4-90; Vol. 8C, page 5-5 & Sections 5-8 and 5-9: p. 5-15 to 5-17). iii) Commitment Tracking Table (A2A4Q0). i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 5B, Section 4.1.6 & Appendix C; Vol. 8B, Section 4.2.3.1: pp. 4-12, 4-13; Vol. 6A, Section 3.2.2.5 & 3.2.3.1; Vol. 8B, Section 12.1: p. 12-1 & Section 13.8.4.2p. 13-49; Vol. 8C, Section 9.3.1: p. 9-5 to 9-7; Vol. 8C, Section 11.3: pp. 11-20 to 11-22; Section 11.3.2.1p. 11-22) iv) TERMPOL STUDY NO. 3.15: General Risk Analysis and Intended Methods of Reducing Risk, s.11 Effects of Hydrocarbons on the Human Environment. v) Northern Gateway Pipelines Limited Partnership - Northern Gateway Additional Evidence - Updates to Volume 5A - Aboriginal Engagement and 5B - Aboriginal Traditional Knowledge (A29573) i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.1.6: p.4-13) iv) Commitment Tracking (A2A4Q0) i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.1.3.4: p. 4-6.) iv) Commitment Tracking (A2A4Q0)	https://www.northern-gateway.com/Link.aspx?linkid=7000/90464/90552/384192/620327/624476/723530/A2E4Q5 - Northern Gateway Response to Coastal First Nations' Request for Confidentiality, Enbridge Specification EES103-2006, Submerged-Arc Welded Steel Pipe Specification Supplementary to API 5L: Section 6.2.1.1 Body Tensile Range.

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				1.5 Double Hull Tankers, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.1.3.2: p. 4-4) iv) Commitment Tracking (A2A4Q0) v) TERMPOL STUDY NO. 3.15: General Risk Analysis and Intended Methods of Reducing Risk; 3 Operational and Design Measures to Prevent, Hydrocarbon Spills and Reduce Risk. 3.1.1 Hull and Cargo Tank Components.	
				1.6 Tanker Vetting, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.1.1: p. 4-2.) iv) Commitment Tracking (A2A4Q0)	
				1.7 Tanker Ballast, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.7.11.4 P. 4-67.)	
				1.8 Bunker Fuel, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 2.3: pp. 2-2, 2-3, Table 2-2).	
				1.9 Tanker Manoeuvrability	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 3: pp. 3-1, 3-2; Vol. 8A, Section 4.8 & Vol. 8C, Section 3 and Section 11) iv) TERMPOL Study No. 3.15: General Risk Analysis and Intended Methods of Reducing Risk v) Technical Data Report, Marine Shipping Quantitative Risk Analysis Det Norske Veritas vi) TERMPOL, Section 3.2: Origin, Destination & Marine Traffic Volume Survey, TERMPOL Surveys and Studies vii) TERMPOL, Section 3.5 and 3.12: Route Analysis, Approach Characteristics and Navigability Survey viii) TERMPOL, Section 3.8: Casualty Data Survey ix) Real-time Simulations of Escorted Tankers bound for a Terminal at Kitimat, Part 1: Executive Summary, Final Report, FORCE Technology no. 108 – 29930 - ES Version 4.0	
				1.10 Transit Speeds, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 1.1: p. 1-1, 1-2) iv) Commitment Tracking (A2A4Q0)	Pacific Pilgrimage Authority - REQUEST 1.10a Sullom Voe - REQUEST 1.10a Alvøenka - REQUEST 1.10a

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				1.11 Escort Tugs, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, 4.2.10: p. 4-28.) iv) TERMPOL STUDY NO. 3.15: General Risk Analysis and Intended Methods of Reducing Risk, 3.4 Vessel Operations and Environmental Protection. v) Commitment Tracking (A2A 4Q0) vi) Real-time Simulations of Escorted Tankers bound for a Terminal at Kitimat, FORCE Technology no. 108 – 29930 – ES Version 4.0	
				1.12 Pilots, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, 4.2.10: p. 4-28.) iv) QRA, Section 8.2 The Northern Gateway Tug Escort Plan	
				1.13 Pilots, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Sections 4.4.2.2, 4.4.2.3, 4.4.2.4: pp. 4-36 to 4-39) iv) Marine Shipping Quantitative Risk Analysis A1Z6L8 v) TERMPOL Surveys and Studies - Section 3.15 - General Risk Analysis and Intended Methods of Reducing Risk A1Z6J9 vi) Weather and Oceanographic Conditions at sites in CCAA A1Z6Q4 vii) TERMPOL, Section 3.5 and 3.12: Route Analysis, Approach Characteristics and Navigability Survey; Section 3.2: Origin, Destination & Marine Traffic Volume Survey, Section 3.7: Transit Time and Delay Survey, TERMPOL Surveys and Studies	
				1.14 Weather, Anchorages, Holding Areas, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Sections 4.4.2.2, 4.4.2.3, 4.4.2.4: pp. 4-36 to 4-39; Vol. 8B, Section 3.1.2: p. 3-2; Section: 3.1.4: p. 3-3) Marine Shipping Quantitative Risk Analysis A1Z6L8 iv) TERMPOL Surveys and Studies - Section 3.15 - General Risk Analysis and Intended Methods of Reducing Risk A1Z6J9 v) Weather and Oceanographic Conditions at sites in CCAA A1Z6Q4 vi) Termpol, Section 3.5 and 3.12: Route Analysis, Approach Characteristics and Navigability Survey; Section 3.2: Origin, Destination & Marine Traffic Volume Survey	<u>Corrected 100-year return value estimates of Hs based on ERA-40 data from 1958 to 2000 and Corrected 100-year return value estimates of U10 based on ERA-40 data from 1958 to 2000 - REQUEST 1.14g</u>
				1.15 Navigational Charts, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Sections 4.2.5, 4.2.6, 4.2.7: pp. 4-19 to 4-27) iv) Commitment Tracking (A2A4Q0)	<u>Chart Scheme Status - REQUEST 1.15a</u>
				1.16 Vessel Traffic, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Sections 2.5 to 2.10: pp.2-9 to 2-19) iv) Marine Shipping Quantitative Risk Analysis A1Z6L8 v) TERMPOL Surveys and Studies - Section 3.15 - General Risk Analysis and Intended Methods of Reducing Risk A1Z6J9; vi) Table 3-2 Frequency of vessels passing Wright Sound; Table 7-7 Assumed distribution of ship traffic to and from the Kitimat Terminal. TERMPOL 3.2 Origin, Destination & Marine Traffic Volume Survey.	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				1.17 Marine Incidents/Casualty, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Volume 4, Appendix M; Vol. 8A, Section 1.2: p.1-2 & S. 4: p. 4-1; Section 4.8.1.2: pp. 4-78 to 4-83) iv) Marine Shipping Quantitative Risk Analysis A1Z6L8 v) TERMPOL Surveys and Studies - Section 3.15 - General Risk Analysis and Intended Methods of Reducing Risk A1Z6J9 vi) TERMPOL, Casualty Data Survey	
				1.18 Rescue and Salvage Tugs, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 2: pp. 2-2 to 2-9) iv) Vol. 5A, Aboriginal Engagement Update	
				Oil Spill Scenarios		
				1.19 Mass Balance Examples for Response Planning	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 10: pp. 10-1 to 10-39; Section 10.5: pp. 10-6 to 10-12; Section 11.2.1: pp. 11-3 to 11-10; Section 11.2.4.1pp. 11-10 to 11-12). iv) Vol. 5A, Aboriginal Engagement Update, 5-367 v) Technical Data Report, Hydrocarbon Mass Balance Estimates: Inputs for Spill Response Planning	
				Oil Spill Response		
				1.20 Oil Spill Response - Kitimat	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 5.6: p.5-11; Section 5.8: p. 5-15; Section 9.1: p. 9-1; Section 9.3: p.9-2)	
				1.21 Oil Spill Response - CCCA and OWA	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 9.3, p.9-2; Vol. 7C, Appendices A, B, C and D; Vol. 8C, Section 5, pp. 5-1, 5-2) iii) General Oil Spill Response Plan (A28715) iv) Commitment Tracking (A2A4Q0) v) Vol. 5A, Aboriginal Engagement Update, page 5-368	
				1.22 Oil Spill Response Plan (GOSRP)	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 9.3, p.9-2; Vol. 7C, Appendices A, B, C and D; Vol. 8C, Section 5, pp. 5-1, 5-2) iii) General Oil Spill Response Plan (A28715) iv) Commitment Tracking (A2A4Q0) v) Vol. 5A, Aboriginal Engagement Update, page 5-368	
				Marine Environment		
				1.23 Environmental Sensitivity Atlas	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 5.7.1: p. 5-13)	
				1.24 Heritage Resources	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 9.2.3: p. 9-3).	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				1.25 Scope of CCAA, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Figure 1.1: p. 1-2; Section 9.2.2: p. 9-1)	
				1.26 Assessment Methodology	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 6A, Section 3, 3.2.3.1; Vol. 8B, Section 2: pp. 2-2 to 2-9).	
				1.27 Effects of Hydrocarbons on the Biophysical Environment (Exxon Valdez)	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 8.1: p. 8-3).	
				1.28 Whale Impact Prevention, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.3.3: p. 4-35)	
				1.29 Impacts of Noise on Whales, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 10.6.2.3p. 10-37, Figure 10-12; Section 10.6.2.5p. 10-59; Sections 10.7.2.310.7.2.4p. 10-77, p. 10-82; Section 13.7.3: page 13-28; Figure 10-8: p. 10-79, 80).	
				1.30 Stellar Sea Lions, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 10.8.4.2p. 10-97).	
				1.31 Marine Fish, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 9.6.2.3: p.9-16; Section 9.6.3: p. 9-34; Section 12.1: p. 12-1; Application (Vol. 8C, Section 8.7.4: p. 8-37). iv) Vol. 5A, Aboriginal Engagement Update, page 5-369	
				1.32 Marine Birds, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 11; Section 11.7: p. 11-22).	
				1.33 Effects of Hydrocarbons on Plankton and the Biophysical Environment	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 8.4.1: p. 8-7).	
				1.34 Fisheries, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 12.6.2.3 p. 12-30; Sections 12.3, p.12-9; 12.6.2. pp. 12-29; Section 12.9, p. 12-40; Section 12.6.2.3, pp 12-31-12-33; Section 12.6.3, p 12-34).	
				1.35 Commercial Fisheries, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 13.8.4.1, pp. 13-45 to 13-52; Section 13.10: p. 13-56).	
				1.36 Fishing Gear, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 12.7.1: p. 12-34; Section 12.7.3: p 12-39; and Section 13.8.5: p. 13-54).	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				1.37 Socio-economic Impacts	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 9.5).	
				1.38 Acid Rock Drainage	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Volume 6A: Environmental and Socio-Economic Assessment, page 7-40)	
				Risk Assessment		
				1.39 Risk Assessment, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 3: pp. 3-1, 3-2; Vol. 8A, Section 4.8 & Vol. 8C, Section 3 and Section 11) iv) TERMPOL Study No. 3.15: General Risk Analysis and Intended Methods of Reducing Risk v) Technical Data Report, Marine Shipping Quantitative Risk Analysis Det Norske Veritas vi) TERMPOL, Section 3.2: Origin, Destination & Marine Traffic Volume Survey, TERMPOL Surveys and Studies vii) TERMPOL, Section 3.5 and 3.12: Route Analysis, Approach Characteristics and Navigability Survey viii) TERMPOL, Section 3.8: Casualty Data Survey ix) Real-time Simulations of Escorted Tankers bound for a Terminal at Kitimat, Part 1: Executive Summary, Final Report, FORCE Technology no. 108 – 29930 - ES Version 4.0 x) QRA Methodology, 4 Hazard Identification, 4.1 HAZID Workshop, 4.1.1 Methodology	
				Conclusions		
				1.40 Summary and Conclusions	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 12: p.12-1).	
		https://www.nor-one.gc.ca/lt-enr/live-link.exe/fetch/2000/90454/90552/384192/620327/624476/747600/82H045...		2.1 Financial Responsibility for a Spill Response and Compensation	i) NGP Response to CFN IR#1.1 (A2E4Q5). ii) NGP Response to JRP 6.5 (c).	https://www.nor-one.gc.ca/lt-enr/live-link.exe/fetch/2000/90454/90552/384192/620327/624476/747600/82H045...
		Coastal First Nations Great Bear Initiative - Letter and Information Request no. 2 to Northern Gateway2hodokv747601&vernum=0		2.2 Aboriginal Impact Assessment	i) NGP Response to CFN IR#1.2 (A2E4Q5). ii) NGP response to JRP IR 5.8	Northern Gateway Pipelines Limited Northern Gateway Response to Coastal First Nations IR#1.2 - A2E4Q5
				2.3 Tanker Age, Oil Tankers and Spill Prevention	i) NGP Response to CFN IR#1.3 (A2E4Q5). iii) NGP response to Gitxaala IR 1.6	
				2.5 Double Hull Tankers, Oil Tankers and Spill Prevention	i) NGP Response to CFN IR#1.5c) and d) (A2E4Q5) ii) Response to Gitxaala 1.66	
				2.6 Tanker Vetting, Oil Tankers and Spill Prevention	i) NGP Response to CFN IR#1.6	
				2.7 Tanker Manoeuvrability	i) NGP Response to CFN IR#1.9	
				2.8 Transit Speeds, Oil Tankers and Spill Prevention	i) NGP Response to CFN IR#1.10	
				2.9 Escort Tugs, Oil Tankers and Spill Prevention	i) NGP Response to CFN IR#1.11 ii) NGP Response to Gitxaala-1.7.2.4	
				2.10 Pilots, Oil Tankers and Spill Prevention	i) NGP Response to CFN IR#1.12	
				2.11 Pilots, Oil Tankers and Spill Prevention	i) NGP Response to CFN IR#1.13	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				2.12 Marine Incidents/Casualty, Oil Tankers and Spill Prevention	i) NGP Response to CFN IR#1.17	
				2.13 Rescue and Salvage Tugs, Oil Tankers and Spill Prevention	i) NGP Response to CFN IR#1.18	
				2.14 Oil Spill Response Plan (GOSRP)	i) NGP Response to CFN IR#1.22 Preamble:	Attachment - Example of the GOSRP for Marine Spill Response
				2.15 Fisheries, Oil Tankers and Spill Prevention	i) NGP Response to CFN IR#1.34f	
				2.16 Risk Assessment	i) NGP Response to CFN IR#1.3	
District of Fort St. James	Northern Gateway	https://www.nwb-one.gc.ca/lt-cng/ltvlink.exe/fetch/2000/90464/99552/384192/620327/624476/725339/A2E4819 - District of Fort St. James - Information Request 1 to Northern Gateway?model=725339&vernum=0	Government Participant	1 Construction	i) Sec. 53, Vol. 3, Engineering, Construction and Operations, S. 10.1.1 Construction, pg. 10-1. ii) Sec. 53, Vol. 3, Engineering, Construction and Operations, S. 6.3 Watercourse Crossing Method Selection, p. 6-3.	https://www.nwb-one.gc.ca/lt-cng/ltvlink.exe/fetch/2000/90464/99552/384192/620327/624476/725339/A2E4819 - Northern Gateway Response to District of Fort St. James IR No. 1?model=725339&vernum=0
				2 Community Investment and Benefits	Sec. 52, Vol. 5 Public Consultation, S. 3.1.3, p. 3-3.	
				3 Liability and Vehicle/Equipment Crossings	National Energy Board Act, Part V, S. 112.	
				4 Logistics, Safety and Emergency Response	i) Sec. 52, vol. 5A, S. 4.1.3. ii) Sec. 52, Vol. 3, S. 8.1.	
				5 Forest Fire Mitigation	Sec. 52, Vol. 3, Section 8, Pump Stations, P. 8-4.	
East Prairie Metis Settlement	Northern Gateway	https://www.nwb-one.gc.ca/lt-cng/ltvlink.exe/fetch/2000/90464/99552/384192/620327/624476/725339/A2E4819 - East Prairie Metis Settlement IR No. 1 to NG A2C4D5.pdf?model=709399&vernum=0	Intervenor	1 Aboriginal Traditional Knowledge Study	Exhibit B24-18, Application Volume 5B, Aboriginal Traditional Knowledge Update, (A1Z6S7), Page 1-7.	https://www.nwb-one.gc.ca/lt-cng/ltvlink.exe/fetch/2000/90464/99552/384192/620327/624476/725339/A2E4819 - Northern Gateway Response to East Prairie Metis IR No. 1?model=725339&vernum=0
				2 Aboriginal Consultation and Engagement	Exhibit B24-18, Application Volume 5A. Exhibit B24-18, Application Volume 5B, Aboriginal Traditional Knowledge Update (A1Z6S7) Page 3-1.	
				3 Aboriginal Harvesting	Exhibit B24-18, Application Volume 1, Section 11, page 11-15. Exhibit B24-18, Application Volume 6B. Exhibit B24-18, Application Volume 6B, page 9-205.	
		https://www.nwb-one.gc.ca/lt-cng/ltvlink.exe/fetch/2000/90464/99552/384192/620327/624476/725339/A2H165 - 2011-12-03 IR No. 7 FPVS to NG.pdf?model=748425&vernum=0		1 - Aboriginal Harvesting	Northern Gateway Response to East Prairie Metis IR No. 1, Answer 3.2	https://www.nwb-one.gc.ca/lt-cng/ltvlink.exe/fetch/2000/90464/99552/384192/620327/624476/725339/A2H165 - Northern Gateway Response to East Prairie Metis IR No. 1?model=763944&vernum=0
				2 - Aboriginal Harvesting	Northern Gateway Response to East Prairie Metis IR No. 1, Answer 3.5	
				3 - Aboriginal Harvesting	Northern Gateway Response to East Prairie Metis IR No. 1, Answer 3.10	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
Enoch Cree Nation #440, Ermineskin Cree Nation, Louis Bull Tribe, Montana First Nation, Samson Cree Nation, and the Whitefish (Goodfish) Lake First Nation	Northern Gateway	https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/702197/710149/A2C4L9 - Alberta First Nations IRs to Enbridge.pdf?nodeId=710251&vernum=0	Intervenor	1.1 Aboriginal Consultation		https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/723590/A2E4SS - Northern Gateway Response to Six Nations IR No. 1?nodeId=723661&vernum=0
				1.2 Traditional Land Use Impacts and Aboriginal Traditional Knowledge	i) Application Volume 5A, Table B-1 ii) Application Volume 5A, 2.5	
				1.3 Enoch ATK Study	i) Application Volume 5A, pp. 2-13 to 2-14 ii) Application Volume 5A, p. 5-12 to 5-13 iii) Application Volume 5A, p. 5-2 to 5-3 iv) Application Volume 5A, p. 5-27 to 5-33 v) Application Volume 6C, p. 6-30 vi) Application Volume 5A, Appendix M	
				1.4 Benefits	i) Application Volume 5B, Appendix C ii) Application Volume 5B, p. 5-9	
				1.5 Interests and Concerns of Whitefish	i) Project Update Volume 5A, 4.1 ii) Project Update Volume 5A, pp. 4-2 to 4-4 iii) Project Update Volume 5A, pp. 4-5 to 4-6	
				1.6 Interests and Concerns of Enoch	i) Project Update Volume 5A, pp. 5-7 to 5-8	
				1.7 Interests and Concerns of Samson	i) Project Update Volume 5A, pp. 5-28 to 5-30	
				1.8 Interests and Concerns of Ermineskin	i) Project Update Volume 5A, p. 5-70 ii) Project Update Volume 5A, p. 5-71	
				1.9 Interests and Concerns of Louis Bull	i) Project Update Volume 5A, p. 5-72	
				1.10 Interest and Concerns of Montana	i) Project Update Volume 5A, p. 5-73 ii) Project Update Volume 5A, p. 5-75	
Fort St. James Sustainability Group	Northern Gateway	https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/702152/710238/A2C4L2 - Fort St. James Sustainability Group Information Request No. 1.pdf?nodeId=710239&vernum=0	Intervenor	1. 1 Location, Fort St. James Pump Station 1. 2 Noise Levels, Fort St. James Pump Station	i) Project Update Volume 5A, p. 5-77 i) Sec. 52 Application, Vol. 3: Engineering, Construction, and Operations, Section 8: Pump Stations, pps; 8-1, 8-2, 8-6 ii) Sec. 52 Application, Vol 6A: Environmental and Socio-Economic assessment (ESA) -- Pipelines and Tank Terminal, Section 5: Acoustic Environment, p.5-15 iii) Sec. 52 Application, Vol. 3 Engineering, Construction, and Operations, Section 2: Alternative Means to Construct the Project, Sec. 2.5, Intermediate Pump Station Locations, pps. 2-12, 2-13 iv) Update to Sec. 52 Application, Vol. 4, 2010 Update, Appendix Q -- Landowner Concerns Table, p. Q-3	https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/725847/A2E8K4 - Northern Gateway Response to Fort St. James Sustainability IR No. 1?nodeId=725857&vernum=0 Attachment Attachment - Table 1(a). The sound levels at 50-metre increments within and including the border of a 1.5km corridor during construction of Fort St. James pump station

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
					i) Sec. 52 Application, Vol. 6A: Environmental and Socio-Economic assessment (ESA) – Pipelines and Tank Terminal, Sec. 5 – Acoustic Environment, p. 5-1, Table 5-11, p. 5-28	Attachment - Table 11a, the sound levels at 50-metre increments within and including the border of a 1.5 km corridor during construction of Fort St. James Pump station
				1. 3 Hazardous Storage Building, Fort St. James Pump Station		
				1. 4 Potential Spills and Spill Response, Fort St. James Pump Station	i. Sec. 52 Application, Vol. 3: Engineering, Construction, and Operations, Sec. 8, Pump Stations, p.8-6	Enbridge Liquid Pipeline Spills at Mainline Pump Stations Over Past 5 Years - REQUEST 1.4
				1. 5 Security, Fort St. James Pump Station	i) Sec. 52 Application, Vol. 3: Engineering, Construction, and Operations, Section 8: Pump Stations, p. 8-1 ii) GOSRP_11-031-090_REV0 A-91 - Potential Full-Bore Rupture Releases and Spill Extents - KP 823 to KP 834 iii) General Oil Spill Response Plan, March 2011, Section 6: Land Response, Section 6.5 Recovery and Removal, p. 6-6 iv) Looking at Enbridge's 2009 Spill Record, http://www.enbridge.com/AboutEnbridge/CorporateSocialResponsibility/Environment/LookingAtEnbridgesSpillRecord.aspx	
				1. 6 Emergency Response, Fort St. James Pump Station	i) Sec. 52 Application, Vol. 6A: Environmental and Socio-Economic assessment (ESA) – Pipelines and Tank Terminal, Sec. 2.1.22 – Project Description, p.2-5 ii) Sec. 52 Application, Vol. 3: Engineering, Construction, and Operations, Sec.11 – Security, pps. 11-2, 11-4, Table 11-1 iii) Pump Stations Fact Sheet, Northern Gateway, Document No: NGP-FS-03-005, rev. Jan. 2011	
				1. 7 Consultation, Fort St. James Pump Station	i) Sec. 52 Application, Vol. 3: Engineering, Construction, and Operations, Section 9: Kitimat Terminal, p. 9-13, 14, 15, 16 ii) Sec. 52 Application, Vol. 3: Engineering, Construction, and Operations, Section 8: Pump Stations, p. 8-3	Attachment - REQUEST 1.7
		https://www.northern-gateway.ca/en/links/2000/90464/90552/384192/620327/624476/764513/A2E8K4-Northern-Gateway-Response-to-Fort-St-James-Sustainability-Group-IR-No-1-p-3-Attachment-Fort-St-James-Sustainability-Group-IR-1.1.7v		2.1 Location, Fort St James Pump Station	A2E8K4-Northern Gateway Response to Fort St. James Sustainability Group IR No. 1, p. 3, response No. 4	https://www.northern-gateway.ca/en/links/2000/90464/90552/384192/620327/624476/764513/A2E8K4-Northern-Gateway-Response-to-Fort-St-James-Sustainability-Group-IR-No-1-p-3-Attachment-Fort-St-James-Sustainability-Group-IR-1.1.7v
				2.2	A2E8K4-Northern Gateway Response to Fort St. James Sustainability Group IR No. 1, p. 3, response No. 4	
				2.3	A2E8K4-Northern Gateway Response to Fort St. James Sustainability Group IR No. 1, p. 3, Attachment Fort St. James Sustainability IR 1.1.7v	
				2.4	A2E8K4-Northern Gateway Response to Fort St. James Sustainability Group IR No. 1, Attachment 1.2.1 (a)	
				2.5 Fort St James Pump Station – Hazardous Storage Building	A2E8K4-Northern Gateway Response to Fort St. James Sustainability Group IR No. 1, p. 7, response No. 1(a)	
				2.6 Fort St James Pump Station – spill response	A2E8K4-Northern Gateway Response to Fort St. James Sustainability Group IR No. 1, p. 7, response No. 1(d-j)	https://www.northern-gateway.ca/en/links/2000/90464/90552/384192/620327/624476/764513/A2E8K4-Northern-Gateway-Response-to-Fort-St-James-Sustainability-Group-IR-No-1-p-3-Attachment-Fort-St-James-Sustainability-Group-IR-1.1.7v
				2.7 Fort St James Pump Station – spill response	A2E8K4-Northern Gateway Response to Fort St. James Sustainability Group IR No. 1, Attachment IR 1.4	
				2.8 Pump Station Security	A2E8K4-Northern Gateway Response to Fort St. James Sustainability Group IR No. 1, p. 14, responses No. 2, 3, 4; p. 15, response No. 5	

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				2.9 Emergency Response	A2ESK4-Northern Gateway Response to Fort St. James Sustainability Group IR No. 1, p. 18, response No. 2-4, 5	
				2.10 Consultation	A2ESK4-Northern Gateway Response to Fort St. James Sustainability Group IR No. 1, p. 21-22, response No. 1	
		https://www.nrb-one.gc.ca/ile-eng/linked/attach/2009/90464/90552/384192/620327/524476/748684/A2H1K0-IR-3-ESI_Sustainability_Group%20NOV3.pdf?nodeId=748684&version=0		3.1 Transportation during Construction, Fort St. James Pump Station and Pipeline Portion	i. Sec. 52 Application, Vol 6C: Environmental and Socio-Economic Assessment (ESA) – Section 4.4.9: Transportation	https://www.nrb-one.gc.ca/ile-eng/linked/attach/2009/90464/90552/384192/620327/624476/748684/Northern_Gateway_Pipeline_Limited_Partnership-Northern_Gateway_Response_to_Fort_St_James_Sustainability_IR_No_3-A2H1K0-IR-3-ESI_Sustainability_Group%20NOV3.pdf?nodeId=748684&version=0
		https://www.nrb-one.gc.ca/ile-eng/linked/attach/2009/90464/90552/384192/620327/524476/748684/A2H1K0-IR-4-ESI_Sustainability_Group%20NOV3.pdf?nodeId=748684&version=0		3.2 Transportation of Pipe from Rail Loadout to RoW and Stockpile Location, Fort St. James	ii. Sec. 52 Application, Vol 6C: New Material, Environmental and Socio-Economic Assessment (ESA) Human Environment– Section 4.4, p. 224	
				4.1 Consultation with Affected Landowners and Occupants, Fort St. James	i. Northern Gateway Response to Fort St James Sustainability Group IR No. 1, p. 21-22, response No. 3	https://www.nrb-one.gc.ca/ile-eng/linked/attach/2009/90464/90552/384192/620327/624476/748684/Northern_Gateway_Pipeline_Limited_Partnership-Northern_Gateway_Response_to_Fort_St_James_Sustainability_IR_No_4-A2H1K0-IR-4-ESI_Sustainability_Group%20NOV3.pdf?nodeId=748684&version=0
Gitga'at First Nation	Northern Gateway	https://www.nrb-one.gc.ca/ile-eng/linked/attach/2009/90464/90552/384192/620327/524476/749504/A2H1X8-Gitga-at_ENGP_IR_1.pdf?nodeId=748660&version=0	Intervenor	1. Cumulative Impacts: Additional Oil Export and Marine Transportation	i) Application Volume 2: Economics, Commercial and Financing. ENGP. Sec. 52 Application. ii) Canadian Environmental Assessment Act. iii) Application Volume 8B: Environmental and Socio-Economic Assessment (ESA)- Marine Transportation. Sec 52 Application.	https://www.nrb-one.gc.ca/ile-eng/linked/attach/2009/90464/90552/384192/620327/624476/749504/Northern_Gateway_Pipeline_Limited_Partnership-Northern_Gateway_Response_to_Gitga-at_ENGP_IR_No_1-A2H1X8.pdf?nodeId=748660&version=0
				2. Regionally Important Resources	i) Application Volume 7C: Gateway Application - Risk Assessment and Management of Spills - Kitimat (Part 1 of 1) [specific sections indicated in brackets]; Registry Reference Number A1T0H2 ii) Application Volume 8C: Risk Assessment and Management of Spills - Marine Transportation; Registry Reference Numbers A1T0I7 through A1T0I9 and A1T0J0 through A1T0J2 iii) Technical Data Report: Risk Assessment of Hypothetical Spill Examples at the Kitimat Terminal and in Wright Sound (Stantec 2010); Registry Reference Numbers A1V8G1 and A1V8G2 iv) Northern Gateway Response to Gitxaala First Nations Information Request 1.10.8	
				3. Oil Spill Calculations	i) Application Volume 8C: Risk Assessment and Management of Spills-Marine Transportation ii) Anderson, C. and LaBelle, R. 2000. Update of Comparative Occurrence Rates for Offshore Oil Spills. Spill Science and Technology Bulletin 6: 303-321.	
				4. Analysis of Public Interest	i) Gateway Application Volume 2 – Economics, Commercial and Financing, Appendix B.	
				5. Local Community Well-Being	i) Application Volume 8B: Environmental and Socio-Economic Assessment (ESA)- Marine Transportation. ii) Canadian Environmental Assessment Act.	
				6. Risk and Environmental Sustainability	i) Volume 7C: Risk Assessment and Management of Spills - Kitimat Terminal	
				7. Marine Mammal Distribution and Abundance	(i) Wheeler et al. (2010) Technical Data Report: Marine Mammals. Stantec Consulting Ltd.	

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				8. Terrestrial Mammal Impact Assessment	i) Valued Environmental Components ("VECs") are defined as components of the biophysical and human environments, which, if altered by the Project, may be of concern to regulators, participating Aboriginal groups, resource managers, scientists and the public (Application (Volume 8B, Section 3). ii) NGP Response to Gitksaala IR# 1.12.2.1 (A2E4R2)	
				9. Selecting Valued Environmental Components (VECs), Key Indicators (KI)	i) Application Volume 8B: Environmental and Socio-Economic Assessment (ESA) - Marine Transportation	
				10. Economic Impacts: Tourism	i) Application Volume 8B: Environmental and Socio-Economic Assessment (ESA) - Marine Transportation	
				11. Marine Transportation	i) Application Volume 8C: Risk Assessment and Management of Spills-Marine Transportation	
				12. Quantitative Risk Assessment	i) Application Volume 8C: Risk Assessment and Management of Spills-Marine Transportation ii) Application Section 3.8: Casualty Data Survey, TERMPOL Survey and Studies iii) Lloyd's Register Fairplay Marine incident database (LRFP 2007, Internet site)	
				13. Fish, Risk Assessment and Management of Spills	i) Volume 8C: Risk Assessment and Management of Spills - Marine Transportation ii) Technical Data Report: Marine Fish and Fish Habitat iii) NGP Response to Coastal FN IR# 1.31 (A2E4Q5) iv) NGP Response to Gitksaala IR#1, 1.10.5 (A2E4R2)	
Gitksaala Nation	Northern Gateway	https://www.nwb-one.gc.ca/ll-ene/llwlink.exe?etch/2003/90454/90552/384192/620327/674476/723530/720047/A2E4R2 - Gitksaala Information Requests No. 1 to Enbridge?nodeid=710046&vernu m=0	Intervenor			https://www.nwb-one.gc.ca/ll-ene/llwlink.exe?etch/2003/90454/90552/384192/620327/674476/723530/A2E4R2 - Northern Gateway Response to Gitksaala Nation IR No. 1?nodeid=723637&vernum=0
				1.1 Aboriginal Engagement & Assessment of Impacts	i) Application Vol. 1: Overview and General Information, [specific sections indicated in brackets]; Registry Reference Numbers A1S9X5 and A1S9X6 ii) Application Vol. 5A including update: Aboriginal Engagement, [specific sections indicated in brackets]; Registry Reference Numbers A1T0D3 through A1T0D9, A1T0E0, A1Z6R2 through A1Z6R9 and A1Z6S0 through A1Z6S7 iii) Application Vol. 5B: Aboriginal Traditional Knowledge, [specific sections indicated in brackets]; Registry Reference Number A1T0E1 iv) Application Vol. 7C: Risk Assessment and Management of Spills - Kitimat Terminal [specific sections indicated in brackets]; Registry Reference Number A1T0H2	Attachment - REQUEST 1.1.1
				1.2 Economic Opportunities	i) Application Vol. 1: Overview and General Information, [specific sections indicated in brackets]; Registry Reference Numbers A1S9X5 and A1S9X6 ii) Application Vol. 5A: Aboriginal Engagement, [specific sections indicated in brackets]; Registry Reference Numbers A1T0D3 through A1T0D9 and A1T0E0 iii) Application Vol. 6C: Environmental and Socio-Economic Assessment (ESA) - Human Environment, [specific sections indicated in brackets]; Registry Reference Numbers A1T0G6, A1T0G7 and A1T0G8	Community Advisory Boards - REQUEST 1.1.2
				1.3 Tanker Traffic	i) Application Volume 8A: Overview and General Information [specific sections indicated in brackets]; Registry Reference Numbers A1T0H3, A1T0H4, and A1T0S6 ii) Application Volume 8B: Marine Transportation ESA [specific sections indicated in brackets]; Registry Reference Numbers A1T0H6 through A1T0H9 and A1T0I0 through A1T0I6	

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				1.4 Third Party Tanker Operator Responsibility	i) Application Volume 7C: Gateway Application – Risk Assessment and Management of Spills – Kitimat (Part 1 of 1) [specific sections indicated in brackets]; Registry Reference Number A1T0H2 ii) Application Volume 8A: Overview and General Information [specific sections indicated in brackets]; Registry Reference Numbers A1T0H3, A1T0H4, and A1T0H5 iii) Application Volume 8C: Risk Assessment and Management of Spills – Marine Transportation [specific sections indicated in brackets]; Registry Reference Numbers A1T0I7 through A1T0I9 and A1T0J0 through A1T0J2	
				1.5 Spill Prevention	i) Application Volume 8B: Marine Transportation ESA [specific sections indicated in brackets]; Registry Reference Numbers A1T0H6 through A1T0H9 and A1T0I0 through A1T0I6	
				1.6 Spill Likelihood	i) Application Volume 8A: Overview and General Information [specific sections indicated in brackets]; Registry Reference Numbers A1T0H3, A1T0H4, and A1T0H5 ii) Application Volume 8B: Marine Transportation ESA [specific sections indicated in brackets]; Registry Reference Numbers A1T0H5 through A1T0H9 and A1T0I0 through A1T0I6 iii) Application Volume 8C: Risk Assessment and Management of Spills – Marine Transportation [specific sections indicated in brackets]; Registry Reference Numbers A1T0I7 through A1T0I9 and A1T0J0 through A1T0J2 iv) Technical Data Reports - Marine (1 of 7) for Enbridge Northern Gateway Project [specific sections indicated in brackets]; Registry Reference Number A25986	
				1.7 Spill Response	i) Application Volume 7C: Gateway Application – Risk Assessment and Mgmt of Spills – Kitimat (Part 1 of 1) [specific sections indicated in brackets]; Registry Reference Number A1T0H2 ii) Application Volume 8A: Overview and General Information [specific sections indicated in brackets]; Registry Reference Numbers A1T0H3, A1T0H4, and A1T0H5 iii) Application Volume 8B: Marine Transportation ESA [specific sections indicated in brackets]; Registry Reference Numbers A1T0H6 through A1T0H9 and A1T0I0 through A1T0I6 iv) Application Volume 8C: Risk Assessment and Management of Spills – Marine Transportation [specific sections indicated in brackets]; Registry Reference Numbers A1T0I7 through A1T0I9 and A1T0J0 through A1T0J2	

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				1.8 Spill Characteristics – Chemistry and Fate	<p>i) Application Vol. 1: Overview and General Information, [specific sections indicated in brackets]; Registry Reference Numbers A1S9X5 and A1S9X6</p> <p>ii) Application Volume 7B: Risk Assessment and Management of Spills – Pipelines, [specific sections indicated in brackets]; Registry Reference Numbers A1T0H0 and A1T0H1</p> <p>iii) Application Volume 7C: Gateway Application – Risk Assessment and Mgmt of Spills – Kitimat (Part 1 of 1) [specific sections indicated in brackets]; Registry Reference Number A1T0H2</p> <p>iv) Application Volume 8A: Overview and General Information [specific sections indicated in brackets]; Registry Reference Numbers A1T0H3, A1T0H4, and A1T0H5</p> <p>v) Application Volume 8B: Marine Transportation ESA [specific sections indicated in brackets]; Registry Reference Numbers A1T0H6 through A1T0H9 and A1T0I0 through A1T0I6</p> <p>vi) Application Volume 8C: Risk Assessment and Management of Spills – Marine Transportation [specific sections indicated in brackets]; Registry Reference Numbers A1T0I7 through A1T0I9 and A1T0J0 through A1T0J2</p>	2010 Spill Characteristics - REQUEST 1.8.2
				1.9 Spill Characteristics – Release and Transport	<p>i) Application Volume 7C: Gateway Application – Risk Assessment and Mgmt of Spills – Kitimat (Part 1 of 1) [specific sections indicated in brackets]; Registry Reference Number A1T0H2</p> <p>ii) Application Volume 8A: Overview and General Information [specific sections indicated in brackets]; Registry Reference Numbers A1T0H3, A1T0H4, and A1T0H5</p> <p>iii) Application Volume 8B: Marine Transportation ESA [specific sections indicated in brackets]; Registry Reference Numbers A1T0H6 through A1T0H9 and A1T0I0 through A1T0I6</p> <p>iv) Application Volume 8C: Risk Assessment and Management of Spills – Marine Transportation [specific sections indicated in brackets]; Registry Reference Numbers A1T0I7 through A1T0I9 and A1T0J0 through A1T0J2</p>	
				1.10 Spill Effects – Species and Ecosystems	<p>i) Application Vol. 1: Overview and General Information [specific sections indicated in brackets]; Registry Reference Numbers A1S9X5 and A1S9X6</p> <p>ii) Application Volume 6B: Marine Terminal ESA [specific sections indicated in brackets]; Registry Reference Numbers A1T0G2 through A1T0G5</p> <p>iii) Application Volume 7C: Gateway Application – Risk Assessment and Mgmt of Spills – Kitimat (Part 1 of 1) [specific sections indicated in brackets]; Registry Reference Number A1T0H2</p> <p>iv) Application Volume 8A: Overview and General Information [specific sections indicated in brackets]; Registry Reference Numbers A1T0H3, A1T0H4, and A1T0H5</p> <p>v) Application Volume 8B: Marine Transportation ESA [specific sections indicated in brackets]; Registry Reference Numbers A1T0H6 through A1T0H9 and A1T0I0 through A1T0I6</p> <p>vi) Application Volume 8C: Risk Assessment and Management of Spills – Marine Transportation; Registry Reference Numbers A1T0I7 through A1T0I9 and A1T0J0 through A1T0J2</p> <p>vii) Technical Data Report: Risk Assessment of Hypothetical Spill Examples at the Kitimat Terminal and in Wright Sound (Stantec 2010); Registry Reference Numbers A1V8G1 and A1V8G2</p>	Species of Importance Identified in The Glenora Use Study (Callow 2011) - REQUEST 1.10.8.1

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				1.11 Spill Response Effects	i) Application Volume 7C: Gateway Application – Risk Assessment and Mgmt of Spills - Kitimat (Part 1 of 1) [specific sections indicated in brackets]; Registry Reference Number A1T0H2 ii) Application Volume 8A: Overview and General Information [specific sections indicated in brackets] [specific sections indicated in brackets]; Registry Reference Numbers A1T0H3, A1T0H4, and A1T0H5 iii) Application Volume 8B: Marine Transportation ESA [specific sections indicated in brackets]; Registry Reference Numbers A1T0H6 through A1T0H9 and A1T0I0 through A1T0I6 iv) Application Volume 8C: Risk Assessment and Management of Spills – Marine Transportation [specific sections indicated in brackets]; Registry Reference Numbers A1T0I7 through A1T0I9 and A1T0J0 through A1T0J2	
				1.12 Impact Assessment Methodology		
				1.12.1 Project Description and Scoping	i) Application Volume 3: Engineering, Construction and Operations [specific sections indicated in brackets]; Registry Reference Numbers A1S9X8 through A1S9Z629 ii) Application Volume 4: Public Consultation [specific sections indicated in brackets]; Registry Reference Numbers A1S9Z8 through A1T0D2 iii) Application Vol. 7C: Risk Assessment and Management of Spills - Kitimat Terminal [specific sections indicated in brackets]; Registry Reference Number A1T0H2 iv) Application Volume 8B: Marine Transportation ESA [specific sections indicated in brackets]; Registry Reference Numbers A1T0H6 through A1T0H9 and A1T0I0 through A1T0I6	
				1.12.2 Assessing Significance	i) Application Volume 1: Overview and General Information [specific sections indicated in brackets]; Registry Reference Number A1S9X5 ii) Application Vol. 7C: Risk Assessment and Management of Spills - Kitimat Terminal [specific sections indicated in brackets]; Registry Reference Number A1T0H2 iii) Application Volume 8A: Overview and General Information [specific sections indicated in brackets]; Registry Reference Numbers A1T0H3, A1T0H4, and A1T0H5 iv) Application Volume 8C: Risk Assessment and Management of Spills – Marine Transportation [specific sections indicated in brackets]; Registry Reference Numbers A1T0I7 through A1T0I9 and A1T0J0 through A1T0J2	
				1.12.3 Comparison of Alternatives	i) Application Volume 1: Overview and General Information; Registry Reference Number A1S9X5, page 4-3	
				1.12.4 Adaptive Management	i) Application Volume 1: Overview and General Information; Registry Reference Number A1S9X5, Section 6.3.3	
				1.12.5 Emergency Response Plans	i) Application Volume 1: Overview and General Information; Registry Reference Number A1S9X5, Page 11-44	
				1.12.6 Professional Judgment	i) Application Volume 6B: Marine Terminal ESA; Registry Reference Number A1T0G2	Attachment - REQUEST 1.12.6.1
				1.12.7 Duration of Impact	i) Technical Data Report: Risk Assessment of Hypothetical Spill Examples at the Kitimat Terminal and in Wright Sound (Stantec 2010,), Sections 2.5.4 and 2.5.6; Registry Reference Numbers A1V8G1 and A1V8G2	
				1.12.8 Cumulative Effects	i) Application Volume 8C: Risk Assessment and Management of Spills – Marine Transportation; Registry Reference Numbers A1T0I7 through A1T0I9 and A1T0J0 through A1T0J2, Section 11	

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		https://www.nwb-ens.gc.ca/llc-eng/llc/link.asp?etch/2000/90464/90552/384192/620327/624476/701018/749706/A2H2A7 - Gitxaala Nation Information Request No. 2 of Nov. 3, 2011 modelid=742206&vernum=0		1.12.9 Data Collection and Management Mapping	i) Technical Data Report: Coastal Operations and Sensitivity Mapping for the Confined Channel Assessment Area (Polaris 2010) - Section 3.3.2, Section 3.3.3, Figure 3.3.3, and operational map legends; Registry Reference Numbers A1V8C6 through A1V8D5	https://www.nwb-ens.gc.ca/llc-eng/llc/link.asp?etch/2000/90464/90552/384192/620327/624476/701018/749706/A2H2A7 - Northern Gateway Pipeline Limited Partnership - Northern Gateway Response to Gitxaala Nation IR No. 12 modelid=742206&vernum=0
				1.12.10 Data Collection and Management - Tanker Traffic	i) Application Volume 8A: Overview and General Information; Registry Reference Numbers A1T0H3, A1T0H4, and A1T05	
				2.1 Spill Chemistry and Fate	i. NGP Response to Gitxaala LR 1.8.2, "Attachment Gitxaala Nation LR 1.8.2" ii. NGP Response to Gitxaala Nation LR No. 1.8.7 iii. Gitxaala LR No. 1.8.10	
				2.2 Spill Effects	i. Technical Data Reports - Coastal Operations and Sensitivity Mapping, Polaris 2010 ("TDR") ii. NGP Responses to Gitxaala LR Nos. 1.6.23, 1.6.4, 1.6.5, 1.9.1 and 1.12.5.1	
				2.3 Spill Response	i. NGP Responses to Gitxaala LR Nos. 1.7.3.1, 1.7.6.1, 1.7.6.3, 1.7.7.1, 1.7.7.3, 1.10.8.6	
				2.4 Escort and Tether Tugs and Piloting Stations	ii. NGP Responses to Gitxaala LR No. 1.3.1, 1.4.3, 1.4.4, 1.5.1, 1.5.2, 1.5.3, 1.6.13, 1.6.15, 1.7.2.4 iii. TERMPOL Surveys and Studies - Sections 3.5 and 3.12 - Route Analysis Approach Characteristics and Navigability Survey, 2010 ("Route Analysis"), Section 8.2, Page 8-1 iv. TERMPOL TDR - Marine Shipping Qualitative Analysis ("Marine TDR"), Det Norske Veritas, 2010, Section 8.2 Page 8-119	
				2.5 Tanker Operations	i. NGP Responses to Gitxaala LR Nos. 1.4.2, 1.4.7 and 1.4.10.	
				2.6 Aboriginal Engagement	i. Gitxaala LR No. 1.1.1 and NGP "Attachment Gitxaala Nation IR 1.1.1" ii. Gitxaala LR No. 1.1.2 and NGP "Attachment Gitxaala Nation IR 1.1.2"	
				2.7 Assessment of Impacts to Aboriginal Rights and Interests	i. Application Vol. 1: Overview and General Information, [specific sections indicated in brackets] ii. Application Vol. 5A including update: Aboriginal Engagement, [specific sections indicated in brackets] iii. Application Vol. 5B: Aboriginal Traditional Knowledge, [specific sections indicated in brackets] iv. Application Vol. 7C: Risk Assessment and Management of Spills - Kitimat Terminal [specific sections indicated in brackets]	
				2.8 Project Benefits	i. NGP responses to Gitxaala LR Nos. 1.2.1, 1.2.7, 1.2.11 and 1.1.6. ii. Application Vol. 1, s. 1.4	
Government of Canada	Northern Gateway	https://www.nwb-ens.gc.ca/llc-eng/llc/link.asp?etch/2000/90464/90552/384192/620327/624476/701018/A2E810 - Government of Canada Letter and Information Request No. 1 to Northern Gateway.pdf modelid=719006&vernum=0	Government Participant	GENERAL		https://www.nwb-ens.gc.ca/llc-eng/llc/link.asp?etch/2000/90464/90552/384192/620327/624476/701018/A2E810 - Northern Gateway Response to Federal Government IR No. 12 modelid=725499&vernum=0
				Engineering, Construction and Operations		

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				1 Managing known and unknown contaminated sites and materials	Volume 3, Section 10, Construction	
				2 Line Pipe and Weld Material Properties	Volume 3 : Engineering, Construction and Operations, Section 5.1 and 5.2, Pages 5-1 to 5-2	
				3 External and Internal Corrosion Control	Volume 3 : Engineering, Construction and Operations, Section 5.3, Page 5-2.	
				4 Sporadic or Mountain Permafrost	Volume 3 : Engineering, Construction and Operations, Section 5.4, Page 5-3.	
				5 Tank and marine terminal alternatives	Volume 3: Engineering, Construction and Operations Chapter 2 Alternative Means to Construct the Project 2.2 Edmonton Area Station and Terminal Locations 2.2.2 Kitimat: Terminal Location, page 2-2	Kitimat Terminal - Site Selection Summary - REQUEST 5a
				6 Proposed Site Development / Marine Clay Considerations	Volume 3: Engineering, Construction and Operations, Appendix E Supporting Geotechnical Reports Appendix E-3 Preliminary Geotechnical Report Proposed Kitimat Terminal Enbridge Northern Gateway Project Kitimat, British Columbia Chapter 5 Geotechnical Considerations and Comments for Proposed Site Development Section 5.2 Marine Clay Considerations	
				7 Marine Terminal Sedimentation effects prediction	Volume 6B: Environmental and Socio-economic Assessment – Marine Terminal Chapter 8 Section 8.7 Effects on Marine Vegetation – Habitat Quality Subsection 8.7.2 Effects on Marine Vegetation – Habitat Quality 8.7.2.1 Effect Mechanisms page 8-18 and 8-19 [page 8-18]	
				8 Marine Environment Environmental Protection and Management Plan	Volume 7A: Construction Environmental Protection and Management Plan Chapter 6 Communication; pages 6-1 to 6-7	
				9 Stream Crossings - Valves	Volume 3 Appendix F Table F-1	
				10 Wildfire	Volume 6A, Section 14.4, Page 14-19	
				Socio-Economic		
				11 Public consultation	Exhibit B22-2 (Volume 4 - 2010 Update, Section 11 - Landowner Consultation, page 11-1, PDF page 41)	
				12 Economics, Commercial, Financing	Exhibit B1-4-Vol 2, Economics, Commercial, Financing. Appendix A-1, Muse Stancil report: <u>Market Prospects and Benefits Analysis for the Northern Gateway Project</u> .	
				13 Economics, Commercial, Financing	Exhibit B1-4-Vol 2, Economics, Commercial, Financing. Appendix B-1, Wright Mansell Research report, <u>Public Interest Benefits of the Enbridge Northern Gateway Pipeline Project</u>	Attachment - REQUEST 13
				WATER		
				Navigability		
				14 Navigable Waters	Volume 1, Section 6.1.2, Table 6-1, Page 6-2.	
				15 Navigable Waters	Volume 1, Section 6.2, Page 6-1	
				16 Navigable Waters	Volume 3, Section 8.4, Page 8-3.	
				17 Navigable Waters	Volume 3, Section 10.5.4, pg. 10-12	
				18 Environmental Effects	Volume 6A: Part 1: Environmental and Socioeconomic Assessment – Pipelines and Tank Terminal, Section 10.3, page 10-12	
				Aquatics		
				19 Watercourse Crossings	Volume 6A, 6B, NGP Response to JRP IR No. 1, Section 1.1C	Estimated Values for High risk Watercourse Crossings - REQUEST 19
				20 Watercourse Crossings	Volume 6A, Section 11, Appendix 11D	
				21 Watercourse Crossings	Volume 6A, Section 11	
				22 Marine Mammals	Volume 8B, Sections 10, 10.7.3, 10.7.4. Pg 10-15, 10-91	
				23 Mitigation Measures	Volume 6A, Section 11	Draft Mitigation Measures for Watercourse Crossings - REQUEST 23

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				24 Cumulative Effects Assessment	Volume 6A, 6B	
				24 Monitoring Plans: Fish and Fish Habitat	Volume 6A, 6B	
				25 Marine Environment baseline - Reefs	Volume 6B: Environmental and Socio-economic Assessment – Marine Terminal Chapter 9 Marine Invertebrates Section 9.5 Ecology and Habitat Requirements for Marine Invertebrates Subsection 9.5.3 Hexactinellid Sponges, page 9-12	
				26 Water sources	Volume 6A, Section 11	
				27 Marine Terminal Sedimentation baseline	Volume 6B: Environmental and Socio-economic Assessment – Marine Terminal Chapter 3 Setting for the Marine Environment Section 3.1 Physical Marine Environment, page 3-1	
				28 Marine Terminal Sedimentation significance determination	Volume 6B: Environmental and Socio-economic Assessment - Marine Terminal Chapter 7 Sediment and Water Quality Section 7.2 Scope of Assessment for Sediment and Water Quality Subsection 7.2.7 Determination of Significance for Sediment and Water Quality page 7-7	
				29 Marine Terminal Sedimentation mitigation	Volume 6B: Environmental and Socio-economic Assessment - Marine Terminal Chapter 7 Sediment and Water Quality Section 7.3 General Mitigation Measures for Sediment and Water Quality page 7-7	
				30 Marine Terminal Sedimentation: effects prediction	Volume 6B: Environmental and Socio-economic Assessment - Marine Terminal Chapter 7 Sediment and Water Quality Section 7.5 Effects on Suspended Sediment Levels Subsection 7.5.2 Effects on Suspended Sediment Levels 7.5.2.1 Effect Mechanisms, page 7-11	
				31 Marine Environment	Volume 8B, Environmental and Socio-Economic Assessment (ESA) - Marine Transportation Appendix 3B, Tanker Wake Study page	
				32 Water Quality: Acid rock drainage	Confirmation that Environment Canada is considered by the proponent as being an 'appropriate regulatory authority' that would be engaged in the development of final acid rock management procedures and mitigative measures - With reference to point 7.29 on page 67 of its October 2010 Response.	
				33 Disposal at Sea	Re-affirm that in the case of any blasted rock which is recovered, disposal at sea as defined under the Canadian Environmental Protection Act, 1999 is not planned.	
				34 Hydrologic parameters	Correct the regression equations for peak discharges for Central Interior hydrologic zone.	
				35 Effects of the environment on the project	Include elements in the assessment of changes to the project that may be caused by the environment.	
				TERRESTRIAL		
				Vegetation		
				36 Vegetation diversity	Vol. 6A, Section 8.5 (Follow-up and Monitoring for Vegetation Diversity), p. 8-152 to 8-153.	
				37 Vegetation diversity	Vol. 6 A, Section 8.2.7 (Scope of Assessment for Vegetation: Determination of Significance for Vegetation), p. 8-15 to 8-16 and Section 8.4.3.4 (Residual Effects), p. 8-103- to 8-112.	
				38 Assessment Methods for Vegetation Diversity and Regional Effects	Volume 6A, Section 8.4.2 (Assessment Methods for Vegetation Diversity) pages p. 8-22 to 8-27; vegetation preclassification page 8-29	
				39 Mountain Pine Beetle (MPB)	Volume 6C, Section 5.4.7: Effects on the spread of mountain pine beetle, pages 5-42 to 5-45	
				40 Mountain Pine Beetle (MPB)	Volume 6C, Section 5.4.7: Effects on the spread of mountain pine beetle, pages 5-42 to 5-45	Pine Mountain Beetle Infestation Severity in the Route 1 REAA, BC, Attachment 1 - REQUEST 40
				41 Bark Beetles	Volume 6C, Section 5.4.7: Effects on the spread of mountain pine beetle, pages 5-42 to 5-45	Attachment 2 - REQUEST 40

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				42 Forest Pests and Pathogens	Volume 6C, Section 5.4.7.1, Page 5-42	
				43 Wildfire	Volume 7A, Appendix A, Section A.2.2.9, Page A-36	
				44 Wildfire	Volume 7A, Appendix A, Section A.2.2, Pages A-30 to A-37	
				45 Wildfire	Volume 7A, Appendix A, Section A.2.2.2, Page A-31	
				46 Forestry – Sustainable timber supply	Vol. 6C, Section 5.4 (Forestry) and Section 5.12.1 (Summary of Effects on Non-traditional Land Use: Forestry)	
				47 Forestry – permanent sample plots	Vol. 6C, Sections 5.11.1 (Follow-up and Monitoring for Non-traditional Land Use: Forestry) and 5.12.1 (Summary of Effects on Non-traditional Land Use: Forestry)	
				48 Forestry – reclamation through reforestation	Vol. 7A, Section 8.5.2 Clearing, Section 8.5.8 Reclamation: Project Revegetation Program	
				49 Vegetation reclamation	Volume 7A, Section 8.5.8 (Reclamation) and Appendix A, Section A.3.24 (Vegetation Reclamation and Protection)	
				50 Vegetation reclamation	Vol. 7A, Section 8.5.8 (Reclamation) and 8.5.9 (Enhanced Reclamation and Post-Construction Monitoring)	
				51 Mitigation measures for rare plants and old-growth forests	Vol. 6A, Section 8.4.3.3 (Mitigation and Effects Management), p. 8-101 to 8-103, Vol. 7A, App. A, Section A.3.24 (Vegetation Protection and Management Plan)	
				52 Reserve Lands	Volume 3, Appendix C, Pipeline Route Atlas	
				53 Landscape Ecology	Vol. 6A, Appendix 3A: Project Inclusion List within the REAA in Alberta and British Columbia (p. 3A1 to 3A-15); Vol. 6A, Section 6.2.5 (Administrative boundaries), Table 6-1, p. 6-8	Land Use Plans in the REAA – REQUEST 53
				54 Pipeline Crossings	Volume 3: Engineering, Construction and Operations Section 5.9 Pipeline Crossings (Page 5-6)	
				55 Soils Impact Assessment	TDR Soils, Section 2.3.6, p. 2-12	
				56 Acid Deposition	TDR Soils, Section 2.10, p. 2-37 to 2-39	
				57 Acid Deposition	Volume 6A, Section 6.5.2 (Assessment Methods for Nonagricultural Soils), p. 6-43 to 6-45	
				58 Soil Mitigation Strategies	Vol. 6A, Section 6, Appendix 6A (Mitigation Strategies for Soil), p. 6-A1 to 6-A21	
				Terrain and Geological Hazards		
				59 Earthquake Hazards	Volume 7A Appendix A Contingency Plans and Environmental Management Plans, Section A.3.23 Geology and Terrain Protection and Management Plan A. Subsection 3.23.2 Summary of Geohazards by Physiographic Region, page A116	
				60 Earthquake Hazards	Geology and Terrain Technical Data Report, chapter 3 Results of Baseline investigations, section 3.6 Coast Mountains, subsection 3.6.4 Geohazards PDA, 3.6.4.10 Seismicity, page 3-55	
				61 Marine Environment Effects of Landslide-Induced Tsunamis on Marine Transport	Volume 8B Environmental and Socio-Economic Assessment (ESA) - Marine Transportation Chapter 14 Effects of the Environment on Marine Transportation Section 14.3 Effects of Slope Stability on Marine Transportation page 14-2 and Section 14.5 Effects of Tsunamis on Marine Transportation Subsection 14.5.2 Landslide-Induced Tsunamis page 14-5	
				62 North Saskatchewan River Crossing	Update to Volume 3, Appendix G.2 Preliminary HDD Feasibility Assessments Enbridge Northern Gateway Project	
				63 Stream Crossings without Geohazards Assessment	Table B-1 Preliminary Summary of Geotechnical Conditions-Rev R; Geology and Terrain Technical Data Report – Terrain Atlas Surficial Geology Mapping	
				64 Geohazards – gullies	Volume 3: Engineering, Construction and Operations Appendix E Supporting Geotechnical Reports E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC Appendix C	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				65 Geohazards – Smoky River	Volume 3: Engineering, Construction and Operations Appendix E Supporting Geotechnical Reports E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC Appendix C	
				66 Geohazards – Missinaka River	Volume 3: Engineering, Construction and Operations Appendix E Supporting Geotechnical Reports E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC Appendix C	
				Wetlands		
					General context for IRs relation to wetland - The Federal Policy on Wetland Conservation (Wetland Policy). See IR submission.	
				67 Baseline information regarding the extent and conservation status of wetlands	Requesting general data and map.	
				68 Quality of baseline information related to the extent and conservation status of wetlands	Requesting map, indication of how many wetlands were sampled and method details.	
				69 Baseline information regarding wetland functions	Requesting a detailed assessment of wetland functions likely to be adversely impacted.	
				70 Assessment of impacts from construction and routine operations and associated mitigation	Requesting identification of specific wetlands and associated riparian areas, and right of way information.	Conceptual Sequence of Pipeline Construction for a Wetland Bog and Bog - Attachment 1 - REQUEST 70 Conceptual Sequence of Pipeline Construction for a Swamp, marsh and Shallow Water and Riparian Areas - Attachment 2 - REQUEST 70
				71 Monitoring and follow up	Requesting a wetland and riparian monitoring plan and habitat compensation plan.	
				Species at Risk and Migratory Birds	Context for IRs related to Species at Risk and Migratory Birds - purpose of the <i>Species at Risk Act</i> .	
				72 Key indicators – pipeline and Kitimat terminal	Provide additional information on how potential impacts on species assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or listed on the List of Wildlife Species set out in Schedule 1 of SARA with the potential to be found in the Project Effects Assessment Area, but not included as Key Indicators were considered.	
				73 Baseline information for species at risk and migratory birds – pipeline and Kitimat terminal	Pursuant to Information Request 72 above, assessment of impacts to SARA-listed species that have not been considered to date and identification of measures to avoid or reduce potential effects on them.	
				74 Habitat suitability rating and impact analysis for migratory birds and species at risk – pipeline and Kitimat terminal	Provide mapping associated with the Habitat Suitability Rating Analysis.	
				75 Mitigation for species at risk and migratory birds – pipeline and Kitimat terminal	Request for further information.	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				76 Caribou assessment and mitigation	Requested associated risks, site-specific location, on the right of way, maps, and justification or reference for the 1.8 km/km ² linear density threshold used to assess effects of habitat fragmentation.	https://www.neb-one.gc.ca/11-one/11vlink.exe/fetch/2000/90464/90552/384192/620327/624476/725347/A2E8R0-Attachment_Federal_Government_1R_75b1.pdf?nodeId=725454&version=0-REQUEST 76b
				77 Construction and environmental management plan – pipeline and Kitimat terminal	Provide an amended Construction and Environmental Management Plan that provides assurance that wildlife populations, including SARA-listed species, migratory birds and key habitats, would be managed broadly and thoroughly in the short and long-term.	
				78 Key indicators – marine terminal and marine transportation	The rationale supporting the suite of Key Indicators selected to account for impacts on marine bird species groups and SARA-listed species in the Project Environmental Assessment Area is requested.	
				79 Preconstruction and preoperations baseline data – marine terminal and marine transportation	With respect to marine birds, provide rigorous preconstruction and pre-operations baseline data.	
				80 Coastal sensitivity mapping	The inclusion of areas of importance to marine birds in the Coastal Sensitivity Atlas Maps is requested.	
				Air Quality		
				81 Air Quality	Context - Environment Canada's mandate for managing air quality and greenhouse gas emissions is derived from the Department of the Environment Act, and the Canadian Environmental Protection Act, 1999 (CEPA 1999).	
				82 Air Quality including Greenhouse Gas Emissions	Provide confirmation that the project will be designed and operated using Best Available Technology and Best Management Practices to minimize the degradation of air quality and to minimize greenhouse gas emissions due to new emissions sources associated with pipeline/terminal construction and terminal operations.	
				83 Air Quality including Greenhouse Gas Emissions	Provide confirmation that, as the project progresses through the design stages, should there be any significant alteration to emission sources or should any significant new emission sources be introduced, a revised air quality (modeling) assessment will be undertaken to determine the environmental impact of the planned changes.	
				84 Air Quality including Greenhouse Gas Emissions	Requests that the applicant provides a commitment to design and implement an air quality and emissions management plan for project activities in the Kitimat area.	
				85 Air Quality including Greenhouse Gas Emissions	Requests that the applicant provides a commitment to participate in ongoing monitoring in Kitimat of SO ₂ and H ₂ S (and others to be determined in consultation with the Province of British Columbia).	
				86 Air Quality including Greenhouse Gas Emissions	Provide methodology/assessment used to extract the data shown in Table 4-5 – Total Existing Criteria Air Contaminant Emissions in the Kitimat Terminal PEAAI on page 4-26 in Volume 6A of the Assessment Report from the British Columbia 2000 Emissions Inventory	
				87 Air Quality including Greenhouse Gas Emissions	Provide information on assessments conducted (including professional judgment) to rule out potential dispersion to Terrace.	
				88 Air Quality including Greenhouse Gas Emissions	Include wetlands in Table 4-21 on page 4-67 of Section 4 of Volume 6A of the Assessment Report and assess whether mitigation measures are needed.	
				Accidents and Malfunctions		
				89 Oil spills	Response to general oil spill response plan.	Wildlife Rescue and Rehabilitation Organization - REQUEST 89
				90 Accidents and Malfunctions	Volume 7B	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				91 Ecosystem-level Impacts of Spills Resulting from Accidents and Malfunctions	Technical Data Reports (Marine Environmental Risk Assessment, SL Ross Environmental Research Ltd., Open Water & Confined Channel/Marine Terminal)	
				92 Effects of hydrocarbon spills on vegetation	Vol. 7B, Section 7.6 (Effects of Hydrocarbon Spills on the Biophysical Environment: Vegetation), p. 7-11 to 7-13	
				93 Effects of hydrocarbon spills on tree growth	Vol. 7B, Section 7.6 (Effects of Hydrocarbon spills on biophysical environment: Vegetation)	
				94 Near shore sediment properties and oil spills	Volume 1 Section 11.12 Executive Summary of Volume 7C Risk Assessment and Management of Spills - Kitimat Terminal (Tank and Marine Terminals): pages 11-29 to 11-33 Volume 1 Section 11.15 Executive Summary of Volume 8C Risk Assessment and Management of Spills - Marine Transportation: pages 11-41 to 11-46	
				95 River plumes in the marine environment	Volume 1 Appendix M Technical Data Report Summaries Chapter M.2 Marine TDRS (in support of Volumes 6B and 8B) Section M.2.7 Marine Physical Environment Subsection M.2.7.3 Findings and Conclusions, Page M-21	
				96 Near shore sediment properties and oil spills	Volume 1 Appendix M Technical Data Report Summaries Chapter M.3 Risk TDRs (in support of Volumes 7B, 8B and 8C) Section M.3.1 River Control Points for Oil Spill Response Subsection M3.1.2 Methods Page M-24	
				97 Near shore sediment properties and oil spills	Volume 1 Appendix M Technical Data Report Summaries Chapter M.3 Risk TDRs (in support of Volumes 7B, 8B and 8C) Section M.3.6 Properties and Fate of Hydrocarbons from Hypothetical Spills at Three Sites in the Open Water Area Subsection M.3.6.3 Findings and Conclusions and Section M.3.7 Properties and Fate of Hydrocarbons from Hypothetical Spills in the Confined Channel Assessment Area and at the Marine Terminal	
				98 Physical property data	Requesting additional data.	
				99 Emulsion formation tendency	Recommending further study.	
				100 Chemical distribution data	Requesting additional data.	
				101 Estimates of weathering processes	Improve the evaporative model used for the CRW condensate and ensure that predicted evaporation rates and volumes are realistic and reflect measured values.	
				102 Mass-balance scenarios	Recalculate Scenario 7 using a more realistic model for the condensate evaporation (related to Information Request 101).	
				103 Mass-balance scenarios	Include additional CRW Condensate scenario(s) for ship-source spills.	
				104 Mass-balance scenarios	Include emulsified oil fate in compartment model. Spill scenario reporting should subdivide the "surface oil" compartment into "floating oil" and "emulsified oil".	
				105 Mass-balance scenarios	Include or provide environmental information to model oil-sediment interaction fate. Information on sediment characterization in the vessel traffic areas (marine terminal, Wright Sound and Hecate Strait at a minimum) should be provided. Information should include sediment size (e.g., volume mean diameter, size distribution profiles), concentrations, and sediment type, including seasonal variability of these sediment characteristics. Ideally, sediment interactions would be included in the model.	
				106 Mass-balance scenarios	Include sinking/sunken oil fate: A sunken oil compartment should be included in the model scenarios, particularly for those scenarios involving the diluted bitumen product.	
				107 Response counter-measures	Include time required for response.	Area of focused Marine Response - REQUEST 107
				108 Response counter-measures	Consider appropriateness of dispersant use more carefully.	
				109 Response counter-measures	Consider use of in situ burning.	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				110 Response counter-measures	Consider alternate low-impact beach cleaning techniques.	
				111 Response counter-measures	Provide a framework for clean-up endpoints.	
				112 Risk assessment modeling	Show better linkages between models used for spill scenarios and for risk assessment.	
				113 Risk assessment modeling	Chose oil-appropriate chemicals for risk assessment.	
				114 Composition of condensate	Provide information on the composition of condensate, specifically with respect to the substances listed in Schedule 1 of the Environmental Emergency Regulations under the Canadian Environmental Protection Act, 1999, including concentrations, minimum quantities, and whether the mixture is flammable.	Compositions of Project relevant hydrocarbons with regard to Environmental Emergency Regulations SQP/2003-307 - Schedule 1 - REQUEST 114
				115 Follow-up and monitoring program – marine terminal and marine transportation	As part of the Follow-up and Monitoring Program, details on provisions for monitoring migratory bird and habitat impacts that could result from any chronic minor spills and leaks from routine operations associated with marine transportation and the Kitimat Terminal operations.	
				116 Assessment of risks from spills to species at risk and migratory birds – marine terminal and marine transportation	Additional worst case scenario based on the risk of a tanker fire/explosion. Additional worst case spill scenarios for condensate	
				Aboriginal		
				117 Aboriginal engagement	Exhibit B2-26, Volume 5A, Section 2.3, Page 2-3 and Exhibit B22-27, Volume 4, 2010 Update, Appendix P: Sample Project Fact Sheets, pdf pages 39-46 (fact sheets on Aboriginal Engagement, Aboriginal Benefits, Aboriginal Traditional Knowledge).	
				118 Aboriginal Consultation	The Applicant's Section 52 Application and Updates.	
		https://www.nec-one.gc.ca/ll-eng/livellink.cfm/fetch/2000/90464/90552/394192/520327/674476/749108/A2H1Y2-CH-4-2011_NGP_GOC_IR_Package_2.pdf?nodeld=749109&vernum=0		GENERAL		https://www.nec-one.gc.ca/ll-eng/livellink.cfm/fetch/2000/90464/90552/394192/520327/674476/749108/A2H1Y2-CH-4-2011_NGP_GOC_IR_Package_2.pdf?nodeld=749109&vernum=0 Northern Gateway Pipelines Limited Partnership Northern Gateway Response to Federal Government IR No. 1 A2H1Y2-CH-4-2011_NGP_GOC_IR_Package_2.pdf?nodeld=749109&vernum=0
				Engineering, Construction and Operations		
				1 Disposal at Sea	GOC IR 1.85,	
				2 Pipeline Routing	Vol. 1, Section 4 (Alternatives and Justification) Issue : Pipeline routing alternatives not discussed	
				3 Pipeline Crossings	Volume 3: Engineering, Construction and Operations Chapter 5 Pipeline Design Section 5.9 Pipeline crossings, page 5-6	Attachment 4 Route/Traffic Crossing Locations at Adjacent Pipelines, Nov. 9, 2011
				Socio-Economic		
				4 Economics, Commercial, Financing	Northern Gateway Response to Federal Government IR No. 1, page 24 of 246	
				WATER		
				Aquatics		
				5 Economics, Commercial, Financing	Exhibit B22-27, Volume 4, 2010 Update, Appendix P: Sample Project Fact Sheets, pdf pages 50-51 (Fact Sheet on Socio-Economic Benefits)	Attachment 4
				Aquatics		
				6 Mitigation Measures (Definitions)	Volume 6B, Section 10.8.2.2. Mitigation and effects management.	

Submitted by:	Sent to:	Link to Submission	Status	Subject	Reference	Link to Response
				7 Mitigation Measures	Volume 6B, Section 10.8 Effects on marine fish from acoustic disturbance.	Attachment Table 1: Impact and Mitigation Table for Eulachon and Pacific Herring in the PEAA
				8 Mitigation Measures (Fish Habitat Compensation Plan)	Volume 6B, Section 5, Page 5-1 to 5-2, Volume 6A Part 2, Section 11.3.6, Page 11-25 to 11-26 and Appendix 11B and Response to Government of Canada Submission, September 2010 (October 28, 2010) submitted by Northern Gateway Pipeline Limited Partnership.	
				9 Mitigation Measures (Watercourse Crossings)	Volume 6A, 6B, NGP Response to JRP IR No. 1, section 1.1c, NGP Response to Government of Canada IR No 1, Questions 19, 20.	
				10 Watercourse Crossings	Volume 6A, 6B, NGP Response to Government of Canada IR No 1, Question 19.	
				11 Watercourse Crossings	Volume 6A, Section 11, NGP Response to Government of Canada IR No 1, Question 21.	
				12 Impact on Fisheries (Baseline characteristics of commercial invertebrate fisheries within the Project Effects Assessment Area (PEAA) and Confined Channel Assessment Area (CCAA))	Marine Fisheries TDR, Section 3, pp. 3-58 through 3-141.	Attachment - Data acquisition fisheries
				13 Impact on Fisheries (Baseline characteristics of marine fish communities within the PEAA and CCAA)	B9-25: Marine Fisheries TDR, Section 3.2.2, pp. 3-15 through 3-20.	
				14 Impact on Fisheries (Baseline characteristics of commercial invertebrate fisheries within the CCAA)	B9-40: Marine Fisheries TDR, Section 3.2. and 3.3, pp. 3- 20 through 3-41.	
				15 Impact on Fisheries [Effect of acoustic pollution on commercial Groundfish species and fisheries within the CCAA & Open Water Area (OWA)]	Volume 8B: Environmental and Socio-Economic Assessment (ESA) - Marine Transportation (Chapter 9).	
				16 Impact on Fisheries (Effect of tanker traffic on commercial Groundfish fisheries within the CCAA & OWA)	Volume 8B: Environmental and Socio-Economic Assessment (ESA) - Marine Transportation (Chapter 13).	
				17 Impacts to fish and fish habitat (Estuarine sediment and water samples)	B9-25 Marine Fish and Fish Habitat Technical Data Report; B9-19 Marine Ecological Risk Assessment for Kitimat Terminal Technical Data Report.	
				Species at Risk		
				18 Species at Risk Watercourse crossings)	IR #1 Response page 38.	
				19 Species at Risk (Protection of individuals)	Volume 8b, Invertebrate, Fish, and Marine Mammal sections.	
				20 Species at Risk (Protection of Critical Habitat – Northern abalone)	Volume 6B – ESA Marine Terminal, Section 9.2.5.	
				21 Species at Risk (Ecology and Habitat Requirements of eulachon)	Volume 6B, Section 10.5.1. Eulachon.	

Submitted by:	Sent to:	Link to Submission:	Status:	Subject:	Reference:	Link to Response:
				22 Species at Risk (Marine Mammals)	Volume 6B, Section 11.8.1.2. Baseline conditions for Steller Sea Lion.	
				23 Species at Risk (Marine Mammals - Ship strikes)	Volume 8B, Section 10 : Marine Mammals, subsection 10.3, page 10-9; 10.7.3, pp. 10-84 to 10-92; Northern Gateway Response to Federal Government IR 1.22 2(a); Technical Data Report, Marine Mammals.	
				24 Species at Risk (Marine Mammals - Terminal operations)	Volume B9, Section 14 and Volume B9, Sections 1 to 4.	
				25 Species at Risk (Marine Mammals - Vessel traffic)	Volume B9, Marine Acoustics, Section 8.	
				26 Species at Risk/Marine Mammals/Mitigation Measures (Vessel traffic)	Volume B9 Marine Acoustics.	
				27 Species at Risk (Marine Mammals - Terminal Construction)	Volume B9 Marine Acoustics.	
				28 Species at Risk (Impact on Fisheries and Fish Habitat - Sediment Loading)	Technical Data Report (TDR) Marine Fish and Fish Habitat Appendix A, ASL Sediment Dispersion Model.	
				29 Accidents and Malfunctions (Definitions)	Volume 8C B3-40 Section 8.9.2., B3-42 section 10.8.3.1.	
				30 Species at Risk/Accidents and Malfunctions (Duration of environmental effects)	Volume 8C B3-42 Section 11.2.4.1.	
				31 Species at Risk/Accidents and Malfunctions (Marine mammals)	Volume 8B Section 4.2.2.5.	
				32 Species at Risk/Accidents and Malfunctions (Marine Mammals - Sensitive Habitats)	Volume 8C, B3-37 Section 5.6.1; Volume 8C, B3-39 Table 8-1, Section 8.1, section 8.9.15, Table 8-5, B3-40 Figure 8-4. Section 8.9.2.4, Volume B3-42 Section 11.2.4.1.	
				33 Species at Risk/Accidents and Malfunctions (Marine Mammals - Oil spill mitigation and response for marine mammals)	B3-40 Section 8.9, 8.9.4 Mitigation Measures.	
				34 Species at Risk/Accidents and Malfunctions (Marine Mammals - Oil Spill Response)	Volume 8 B3-42 Section 10.2 and 10.5.	
				35 Species at Risk/Accidents and Malfunctions (Marine Mammals population estimates)	Technical Data Report (TDR): Marine Mammals.	
				36 Species at Risk/Accidents and Malfunctions (Marine Mammals - characterization of risk)	Technical Data Report: Marine Mammals.	
				Hydrology		

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				37 Hydrologic parameters	For the crossing of Stuart River (crossing no. 3076), confirm that the design flood value at the detailed design stage will be based on stream specific Water Survey of Canada (WSC) records rather than on the estimates from the regional analysis.	
				38 Effects of the environment on the project	Provide a tabulated comparison of design flood estimates obtained by the proponent's regionally derived peak discharge equations and the Coulson and Obedkoff study.	
				39 Effects of the environment on the project	Discussion of design flood events in view of potential climate change.	
				TERRESTRIAL		
				Land Use		
				40 Reserve Lands	Northern Gateway Response to Federal Government IR No. 1 (Page 105 of 246)	
				Forestry		
				41 Forestry - Sustainable timber supply	Vol. 6C, Section 5.4 (Forestry) and Section 5.12.1 (Summary of Effects on Non-traditional Land Use: Forestry) Northern Gateway Response to Federal Government IR No.1 – IR#46, p. 94-5.	
				42 Reforestation	Vol. 7A, Section 8.5.2 Clearing, Section 8.5.8 Reclamation: Project Revegetation Program. Northern Gateway Response to Federal Government IR No. 1 p. 98 # 48	
				43 Forest Pests and Pathogens	Volume 6C, Section 5.4.7.1, Page 5-42 Northern Gateway Response to Federal Government IR No. 1, # 42, p. 89.	
				Terrain and Geohazards		
				44 Earthquake Hazards	Volume 7A Appendix A Contingency Plans and Environmental Management Plans, Section A.3.23 Geology and Terrain Protection and Management Plan A.Subsection 3.23.2 Summary of Geohazards by Physiographic Region, page A116	
				45 Earthquake Hazards	Geology and Terrain Technical Data Report, chapter 3 Results of Baseline Investigations, section 3.6 Coast Mountains, subsection 3.6.4 Geohazards PDA, 3.6.4.10 Seismicity, page 3-55 "Seismic motion (shaking) is a potential geohazard in the Coast Mountains physiographic region between KP 1060.1 and KP 1172.2." Round 1 request (IR #60)	
				46 North Saskatchewan River Crossing	Update to Volume 3, Appendix G.2 Preliminary HDD Feasibility Assessments Enbridge Northern Gateway Project Round 1 request (IR #62)	
				47 Stream Crossings without Geohazards Assessment	Volume 3: Engineering, Construction and Operations Appendix E Supporting Geotechnical Reports Appendix C, Table B-1 Preliminary Summary of Geotechnical Conditions-Rev R, Geology and Terrain Technical Data Report – Terrain Atlas Surficial Geology Mapping Round 1 request (IR #63)	
				48 Terrain and Geological Hazards	Volume 3: Engineering, Construction and Operations Appendix E Supporting Geotechnical Reports Appendix C, Table B-1 Preliminary Summary of Geotechnical Conditions-Rev R, Geology and Terrain Technical Data Report – Terrain Atlas Surficial Geology Mapping	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				49 Terrain and Geological Hazards	Volume 3: Engineering, Construction and Operations Appendix E Supporting Geotechnical Reports Appendix C; Table B-1 Preliminary Summary of Geotechnical Conditions-Rev R; Geology and Terrain Technical Data Report – Terrain Atlas Surficial Geology Mapping	
				50 Terrain and Geological Hazards	Volume 3: Engineering, Construction and Operations Appendix E Supporting Geotechnical Reports Appendix C; Table B-1 Preliminary Summary of Geotechnical Conditions-Rev R; Geology and Terrain Technical Data Report – Terrain Atlas Surficial Geology Mapping	
				51 Terrain and Geological Hazards	Volume 3: Engineering, Construction and Operations Appendix E Supporting Geotechnical Reports Appendix C; Table B-1 Preliminary Summary of Geotechnical Conditions-Rev R; Geology and Terrain Technical Data Report – Terrain Atlas Surficial Geology Mapping	
				52 Terrain and Geological Hazards	Volume 3: Engineering, Construction and Operations Appendix E Supporting Geotechnical Reports Appendix C; Table B-1 Preliminary Summary of Geotechnical Conditions-Rev R; Geology and Terrain Technical Data Report – Terrain Atlas Surficial Geology Mapping	
				Wetlands		
				53 Wetlands	Environment Canada continues to request all of the information outlined in Government of Canada Information Requests Round 1 Questions 67 and 68 (GOC IR 1.67 and 1.68, typical).	Attachment Part 1-27
				54 Wetlands	Environment Canada continues to request all of the information outlined in GOC IR 1.69 and 1.71.	Attachment - Draft Wetland Function Assessment Framework May 2011
				55 Wetlands	Environment Canada continues to request all of the information outlined in GOC IR 1.70. Specifically, Environment Canada continues to request all of the information described in the rationale for GOC IR 1.70.	
				Vegetation		
				56 Vegetation reclamation	Volume 7A, Section 8.5.8 (Reclamation) and Appendix A, Section A.3.24 Northern Gateway Response to Federal Government IR No. 1 p. 100 # 49	
				57 Vegetation reclamation	Vol. 7A, Section 8.5.8 (Reclamation) and 8.5.9 (Enhanced Reclamation and Post-Construction Monitoring) Northern Gateway Response to Federal Government IR No. 1 p. 102 # 50	
				58 Rare plants and old growth	Vol. 6A, Section 8.4.3.3 (Mitigation and Effects Management), p. 8-101 to 8-103, Vol. 7A, App. A, Section A.3.24 (Vegetation Protection and Management Plan) Northern Gateway Response to Federal Government IR No. 1 p. 103 # 51	
				Species at Risk and Migratory Birds		
				59 Species at Risk and Migratory Birds	Environment Canada requests that Horned Grebe (COSEWIC, Special Concern), Cryptic Paw (SARA Schedule 1, Special Concern) and Band-tailed Pigeon (SARA Schedule 1, Special Concern) be assessed as Key Indicators.	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				60 Baseline Information - Species at Risk and Migratory Birds - Pipeline and Kitimat Terminal	Environment Canada requests a list of surveys for species at risk and migratory birds (including Yellow rail and Cryptic paw) that would be completed subsequent to Project approval and prior to finalization of the pipeline centerline. The proposed timing and standards to be followed for the surveys should also be provided.	
				61 Habitat Suitability Rating and Impact Analysis for Migratory Birds and Species at Risk - Pipeline and Kitimat Terminal	Environment Canada requests that digital atlases of the habitat suitability models described in the Wildlife Habitat Modeling be provided for our review.	
				62 Mitigation for Species at Risk and Migratory Birds - Pipeline and Kitimat Terminal	Environment Canada continues to request that a mitigation framework for species at risk and migratory birds, coupled with worst case scenarios be developed (as outlined in GOC IR 1.75).	
				63 Caribou	Environment Canada requests the following: <input type="checkbox"/> a meeting with the proponent and the province of British Columbia to identify a path forward for assessing and mitigating and/or compensating Project effects on southern mountain woodland caribou herds <input type="checkbox"/> maps overlaying the proposed pipeline route and associated infrastructure with key caribou habitat, including Ungulate Winter Ranges (proposed and finalized) and Wildlife Habitat Areas <input type="checkbox"/> further justification of the 1.8 km/km2 linear development threshold used to assess cumulative impacts to caribou	Attachment - Linear Feature Management and Removal Plan Phase 1: Collaboration with Agencies, Draft Nov 23, 2011
				64 Construction and Environmental Management Plan - Pipeline and Kitimat Terminal	Environment Canada continues to request that a Construction and Environmental Management Plan that provides assurance that wildlife populations, including SARA-listed species and migratory birds, would be managed broadly and thoroughly in the short and long-term be provided. Alternatively, mitigation frameworks for Key Indicators and/or their habitats, coupled with examples of worst case scenarios (as outlined in GOC IR 1.75) could be provided.	
				65 Key Indicators - Migratory Birds and Species at Risk - Marine Terminal and Marine Transportation	Environment Canada continues to require that the rationale supporting the suite of Key Indicators used in the Environmental Assessment and, more crucially, the rationale for the selected representative bird species used in the Risk Assessment to account for impacts on marine bird species groups and SARA-listed species be provided	Attachment - Marine Risk Key Indicators and Potential Effects from Routine Project Activities, Nov 2011
				66 Baseline Data and Follow-up and Monitoring Program - Marine Terminal and Marine Transportation	Environment Canada requests the framework for the Marine Environmental Effects Monitoring Program, as outlined in the response to GOC IR 1.79, be provided for review. In addition, we request that the framework include a proposed list of the indicator species, groups and functions that would be assessed in the baseline studies and follow-up studies, and the proposed methodology and timing associated with proposed surveys/studies.	Attachment - Framework for the Marine Environmental Effects Monitoring Program, Draft Nov 22, 2011
						Attachment - Framework for Pipeline Environmental Effects Monitoring Program, Draft Nov 23, 2011
AIR QUALITY						

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				67 Air Quality	Provide listing of any Best Available Technology Economically Achievable (BATEA) reference documents and best industry standards that are to be used. Related Information Request: GOC IR 1.82	
				68 Air Quality	Any revised air quality/dispersion modeling assessments in future should also factor in anticipated regulatory changes e.g. Air Quality Management System (AQMS) including, for example, revised Canadian Ambient Air Quality Standards (CAAQS) and Air Zones (in consultation with Province of BC). Related Information Request: GOC IR 1.83	
				69 Air Quality	Collaborate with stakeholders (as appropriate) in the design and implementation of the Air Quality and Emissions Management Plan. Related Information Request: GOC IR 1.84	
				70 Air Quality	Include results of "ongoing monitoring of SO ₂ , H ₂ S, and potentially other parameters" in the Air Quality and Emissions Management Plan. Related Information Request: GOC IR 1.85	
				ACCIDENTS AND MALFUNCTIONS		
				71 Accidents and Malfunctions (Oil Fate)	B16-32 - Properties and Fate from Spills at OWA_TDR_Part (1 of 1) A1V8G0; SL Ross Technical Data Report on Properties and Fate of Hydrocarbons Associated with Hypothetical Spills in the Open Water Area (Tanker Spills); B23-15 - TERMPOL Surveys and Studies - Section 3.15 - General Risk Analysis and Intended Methods of Reducing Risk A1Z6J9.	Attachment - Tank Tests to Evaluate the Effectiveness of Corexit 9500 dispersant on Synthetic Crude Oil and Mackinac River Bitumen (Dec 2010)
				72 Accidents and Malfunctions (Oil Fate)	Volume 8C (May 2010), B3-42.	
				73 Accidents and Malfunctions (Mass Balance Examples for Response Planning)	B21-2 - General Oil Spill Response Plan - Enbridge Northern Gateway (March 2011) - A1Y3Y8, Section 8.6 on the use of chemical dispersants.	
				74 Accidents and Malfunctions (Risk Assessment and Management of Spills - Marine Transportation)	Volume 8C (May 2010), B3-38, Section 6, Figure 6-2.	
				75 Accidents and Malfunctions (Risk of an oil spill occurring)	Volume 8B B3-37, Section 3; Volume 8B-39 Section 8.1, B23-4_TERMPOL_TDR_-_Marine_Shipping_Quantitative_Risk_Analysis_A1Z6L8_.pd	

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				76 Assessment of Risks from Spills to Species at Risk and Migratory Birds – Marine Terminal and Marine Transportation	Environment Canada continues to require the following: <input type="checkbox"/> Additional spill scenarios, the selection of which gives consideration to areas along the marine transportation route that have relatively higher ecological values. <input type="checkbox"/> Spatio-temporal spill trajectory figures and additional model outputs which reflect various tidal states, winds and temperatures in each of the spill locations. <input type="checkbox"/> A more comprehensive assessment of region-specific impacts (including particular sensitivities) for each of the spill scenarios on bird groups. <input type="checkbox"/> Provision of spill trajectory and consequence data in an integrated fashion, with ecological consequences as part of the overall risk assessment (as opposed to the spill probability-based method). <input type="checkbox"/> Further analysis of potential chronic effects of oil exposure on marine birds, which considers the range of available scientific literature on the subject. Related Information Request: GOC IR 1.116	Attachment – Marine Birds Summary to GOC, Nov 2011
				77 Petroleum Product Variability	Provide information on the range of oil physical property and chemical concentration variabilities of relevant petroleum products to be shipped. This data should include ranges for: densities; viscosities; and some chemical data (e.g., BTEX, PAH, simulated distillation/yield on crude).	Attachment – Crude Oil Data Summary, Aug 23, 2011
				78 Condensate Evaporation	Related Information Request: GOC IR 1.101	Attachment – St. Bonr Model Model on Condensate
				79 Larger Condensate Spill Scenario	Provide quantitative information on large scale CRW Condensate scenario(s) for ship-source spills for summer and winter seasons.	
				80 Oil aggregate formation and submergence	Related Information Requests: GOC IR 1.105 and 1.106	
				81 Inconsistencies between fate and effects models	Related Information Request: GOC IR 1.112	
				82 Provision of Samples for Assessment and Future Research	Provide samples of examples of all types of products (e.g., condensate, syncrude, dilbit) proposed to be transported by marine traffic and in the Northern Gateway pipelines. A minimum of 200L of each product is required.	
				83 Effects of spills on vegetation and tree growth	Vol. 7B, Section 7.6 (Effects of Hydrocarbon Spills on the Biophysical Environment: Vegetation), p. 7-11 to 7-13 Northern Gateway Response to Federal Government IR No. 1 – IR#92, p.196-7.	Attachment – Table 3-4 (Rev 1) Ecologic Phases in the Eastern Alberta Plains
				84 Effects of spills on tree growth and ecosystem productivity	Vol. 7B, Section 7.6 (Effects of Hydrocarbon spills on biophysical environment: Vegetation) Northern Gateway Response to Federal Government IR No. 1 p. 198 # 93	
				ABORIGINAL		
				85 Aboriginal engagement	Exhibit B2-26, Volume 5A, Section 2.3, Pages 2-3 and Exhibit B22-27, Volume 4, 2010 Update, Appendix P: Sample Project Fact Sheets, pdf pages 39-46 (Fact Sheets on Aboriginal Engagement, Aboriginal Benefits, Aboriginal Traditional Knowledge).	
				Aboriginal Consultation	The federal Crown is relying, to the extent possible, upon the Joint Review Panel (JRP) process to fulfill its duty to consult with Aboriginal groups. The federal Crown acknowledges that the JRP asked information requests of the proponent in information request Round 1 and information was provided by the proponent in response. The federal Crown is requesting additional information on Aboriginal interests as they relate to specific areas of expertise and departmental mandates in this second round of information requests.	
				86 Aboriginal Consultation	Northern Gateway Response to Federal Government IR No. 1 and Response to JRP 5.9	Attachment – Northern Gateway Approach to Assessment of Potential Project Effects on Aboriginal Rights and Interests
				87 Aboriginal Consultation	Volume 3, Section 11: System Operations	

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				88 Aboriginal Consultation	Volume 6A: Environmental and Socio-Economic Assessment (ESA) – Pipelines and Tank Terminal, Section 12: Hydrogeology	
				89 Aboriginal Consultation	Vol 8B, Sect. 12.5.2, 12.6.3, 12.6.4, 12.9.	
				90 Aboriginal Consultation	Related Information Requests: GOC IR 1.118 (Aboriginal IR - Whole of Government) GOC IR 1.116 (Assessment of risks from spills to species at risk and migratory birds – marine terminal and marine transportation)	
Haisla Nation	Northern Gateway	https://www.nrb-one.gc.ca/lr-eng/livelink.exe/fetch/2000/90464/90552/384192/620377/624910/693037/710254/A2C4Q1 - Haisla Nation -- IR 1 Information Request FINAL to Northern Gateway.pdf?model=710255&version=0	Intervenor	Public Interest		https://www.nrb-one.gc.ca/lr-eng/livelink.exe/fetch/2000/90464/90552/384192/620377/624476/725715/A2E8Y0 - Northern Gateway Response to Haisla Nation IR No. 1?model=725646&version=0
				1.1 Approved Production	i) Exhibit B1-2 Volume 1- Application dated May 2010, Section 1.2, p. 1-3 (A1S95X) ii) Exhibit B1-2 Volume 1- Application dated May 2010, Section 3, p. 3-1 (A1S95X) iii) Exhibit B1-4 Volume 2 - Application dated May 2010, Section 1.6, p. 1-13 (A1S9X7)	
				1.2 Need	i) Exhibit B1-2 Volume 1- Application dated May 2010, Section 1.2, p. 1-3 (A1S95X) ii) Exhibit B1-2 Volume 1- Application dated May 2010, Section 3, p. 3-1 (A1S95X) iii) Exhibit B1-4 Volume 2 - Application dated May 2010, Section 1.6, p. 1-13 (A1S9X7)	
				1.3 Project Alternatives	Reference: i) Exhibit B1-2 Volume 1- Application dated May 2010, Section 4.2, p. 4-1, and figure 4-1 (A1S95X)	
				1.4 Alternative Means of Carrying out the Project – Transportation Method	i) Exhibit B1-2 Volume 1- Application dated May 2010, Section 4.3, p. 4-4 (A1S95X)	
				1.5 Alternative Means of Carrying out the Project – Terminal Location	i) Exhibit B1-2 Volume 1- Application dated May 2010, Section 4.2, p. 4-4 (A1S95X) ii) Potential Pacific Oil Ports: A Comparative Risk Analysis, Fisheries and Environment Canada, Vancouver, BC, February 1978	
				Information Required to Assess Project		
				1.6 Assessment of Project	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 1.1, p. 1-1 (A1S9X8) ii) Terms of Reference, Joint Review Panel Agreement (A1R4D5) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 4.1, p. 4-1 (A1S9X8)	
				Enbridge's Spill History, Environmental Record and Response to Incidents		
				1.7 Enbridge Spills History	i) Exhibit B24-2 Volume 5A – Additional Evidence June 2011, Section 5.9.3, p. 5-316 (A1Z6R1)	Attachment - Reportable Enbridge Liquids Pipeline Spills for Past 10 Years - REQUEST 1.7c
				1.8 Commitment to "extended responsibility"	i) Exhibit B21 – Additional Evidence June 2011 - General Oil Spill Response Plan, p. 1-1 (A28715) ii) Exhibit B27-8 – NGP Response to JRP IR No. 1, Attachment JRP IR 1.2 Commitments Table (A2A4Q0)	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				1.9 Ruptures and Leaks	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12, p. 12-1 (A1S9X8) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12.1, p. 12-1 (A1S9X8) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 1.6.1, p. 1-3 (A1S9X8) iv) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	Attachment - Selected Enbridge Liquid Pipeline Spills Over the Past Decade - REQUEST 1.9 (a-d)
				1.10 Kalamazoo, Michigan Line 6B Spill - July, 2010	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12, p. 12-1 (A1S9X8) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12.1, p. 12-1 (A1S9X8) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 1.6.1, p. 1-3 (A1S9X8) iv) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	Attachment - REQUEST 1.10c Attachment - REQUEST 1.10x
				1.11 Wisconsin Spill - February, 2007	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12, p. 12-1 (A1S9X8) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12.1, p. 12-1 (A1S9X8) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 1.6.1, p. 1-3 (A1S9X8) iv) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	Return to Normal Operations - REQUEST 1.11b Line 14 Closure Report - REQUEST 1.11b Line 14 Closure Letter - REQUEST 1.11b
				1.12 Cheecham, Alberta Spill - January, 2009	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12, p. 12-1 (A1S9X8) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12.1, p. 12-1 (A1S9X8) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 1.6.1, p. 1-3 (A1S9X8) iv) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.13 Northern Gateway Project and Keystone Diluted Bitumen Pipelines	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12, p. 12-1 (A1S9X8) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12.1, p. 12-1 (A1S9X8) iv) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 1.6.1, p. 1-3 (A1S9X8)	
				Aboriginal and Treaty Rights		
				1.14 Adverse Effects on Aboriginal Rights	i) Exhibit B24-2 Volume 5A - Additional Evidence June 2011, Section 5.9.3, p. 5-317 (A1Z6R1)	
				1.15 Socio-Economic Impacts - Direct and Indirect	i) Exhibit B24-2 Volume 5A - Additional Evidence June 2011, Section 5.9.3, p. 5-321 (A1Z6R1) ii) Exhibit B3-16 Volume 6C - Application dated May 2010, Section 4 (A1T0G6)	
				1.16 Archaeological permits for Haisla Territory	i) Exhibit B3-16 Volume 6C - Application dated May 2010, Section 3, p. 3-6 (A1T0G6)	
				1.17 Haisla Heritage Sites	i) Exhibit B3-18 Volume 6C - Application dated May 2010, Section 6, pp. 6-28 to 6-36 (A1T0G8)	
				1.18 Socio-Economic Impacts on Traditional Land Use	i) Exhibit B3-16 Volume 6C - Application dated May 2010 (A1T0G6) ii) Exhibit B3-17 Volume 6C - Application dated May 2010 (A1T0G7) iii) Exhibit B3-18 Volume 6C - Application dated May 2010 (A1T0G8)	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				1.19 Environmental Bonding	Reference N/A The Project has the potential to cause severe environmental degradation to Haisla Nation lands and waters.	
				Pipeline		
				Pipeline Location and Route		
				1.20 Location and Route	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 2.3.3, p. 2-5 (A1S9X8) iii) Exhibit B 19-4 Volume 3 Application Update dated December 2010, Section 2.4, p. 13-14 (A1W8Y6) iv) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 2.2.2, p. 2-1 and 2-2 (A1S9X8)	
				Pipeline Design and Safety		
				1.21 Valve Locations	i) Exhibit B1-22 Volume 3 - Application dated May 2010, Appendix F, p. F-5 (A1S9Z5)	
				1.22 Pipeline Design and Materials	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 3.1, p. 3-1 (A1S9X8) ii) Exhibit B 20-2, Northern Gateway response to request for additional information, dated March 2011, Section C.I.I, p. 14 (A1Y3U9) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.1, p. 5-1 and 5-2 (A1S9X8) iv) Exhibit B 19-4 Volume 3 Application Update dated December 2010, Section 5.1, Table 5-1 and Table 5-2, p. 5-1 (A1W8Y6) v) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.10, p.5-7 (A1S9X8) vi) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.14, Table 5-7, p. 5-8 (A1S9X8) vii) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.23 Pipeline Product Characterization	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 4.2.2, p. 4-1 (A1S9X8) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Table 4-2, Section 4.2.2, p. 4-2 (A1S9X8) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 4.3.2, p. 4-3 (A1S9X8) iv) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	<p>Attachment - Spill-Related Properties of:</p> <ul style="list-style-type: none"> - Mackay Heavy Bitumen Diluted with Synthetic Light Oil - Syn crude Synthetic Light Oil - Cold Lake Bitumen Diluted with Condensate (C) - CRW Condensate - REQUEST 1.23g <p>Attachment - Revision to Quarterly Specifications for Component Streams to the Enbridge Condensate (CRW) Pool - REQUEST 1.23h</p> <p>Attachment - 2010 Crude Characteristics - REQUEST 1.23m</p> <p>Attachment - Canadian Crude Quick Reference Guide - REQUEST 1.23n</p> <p>Attachment - Colhoun County Health Dept - Health Department Recommendations Evaluation of Residents REQUEST 1.23t</p>

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				1.24 Corrosive Nature of Diluted Bitumen	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 4.2.2, p. 4-1 (A1S9X8) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Table 4-2, Section 4.2.2, p. 4-2 (A1S9X8) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.3, p.5-2 (A1S9X8) iv) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	Attachment - Energy Resources Conservation Board Addresses Statements on Natural Resources Defense Council Pipeline Safety Report - REQUEST 1.24
				1.25 Pipeline Integrity	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.3, p. 5-2 (A1S9X8) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12.1.2, p. 12-2 (A1S9X8) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 10.2.5, p. 10-5 (A1S9X8) iv) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.26 Cathodic Protection	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.4, p. 5-3 (A1S9X8) ii) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.27 Welding, Valves and Fittings	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 1.6.3, p. 1-3 (A1S9X8) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.2, p. 5-2 (A1S9X8) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.5, p. 5-4 (A1S9X8) iv) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				Pipeline Monitoring	i) Exhibit B24-2 Volume 5A - Additional Evidence June 2011, Section 5.9.3, p. 5-321 (A1Z6R1)	
				1.29 Effectiveness of SCADA	i) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 11, p.11-2 (A1S9X8)	
				1.30 Aerial Monitoring - Snow	i) Exhibit B3-1 Volume 6A - Application dated May 2010, Section 2.5.1, p. 2-14 (A1T0F1)	
				1.31 Inspection and Maintenance	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.6, p. 5-4 (A1S9X8) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.6, Table 5-3 and Table 5-4, p. 5-5 (A1S9X8) iii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 5.12, p. 5-7 (A1S9X8) iv) Exhibit B 1-5 Volume 3 - Application dated May 2010, Sections 8.5 - 8.7 p. 8-4 and p. 8-5 (A1S9X8) v) Exhibit B 19-4 Volume 3 Application Update dated December 2010, Sections 8.5 - 8.7, p. 20 - 22 (A1W8Y6) vi) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 9.3, p. 9-12 (A1S9X8) vii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 10.2.8, p. 10-6 (A1S9X8) viii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12.1.1, p. 12-1 (A1S9X8) ix) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.32 Monitoring and Supervisory Control and Data Acquisition (SCADA)	i) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 12.1, p. 12-1 (A1S9X8) ii) Exhibit B 1-5 Volume 3 - Application dated May 2010, Section 11.1, p. 11-1 (A1S9X8) iii) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.33 Land Acquisition	i) Exhibit B1-3 Volume 1 - Application dated May 2010 Section 8, pp. 8-1 to 8-4 (A1S9X6).	

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				1.34 Impacts to Marine Species in Upper Kitimat Arm	i) Exhibit B3-12 Volume 6B – Application dated May 2010, Section 3, p. 3-3 (A1T0G2) ii) Exhibit B3-12 Volume 6B – Application dated May 2010, Section 5, p. 5-1 (A1T0G2) iii) Exhibit B3-13 Volume 6B – Application dated May 2010, Section 10, p. 10-27 to 10-29 (A1T0G3)	
				1.35 Restrictions on Access for Fishers	i) Exhibit B3-15 Volume 6B – Application dated May 2010, Section 13, p. 13-26 (A1T0G5)	
				1.36 Kitimat Terminal Storage Tanks	i) Exhibit B 1-5 Volume 3 – Application dated May 2010, Section 9.1, p. 9-2 (A1S9X8) ii) Exhibit B 1-5 Volume 3 – Application dated May 2010, Section 9.2.4, p. 9-8 (A1S9X8) iii) Exhibit B 1-23 Volume 3 – Application dated May 2010, Appendix I, p. 9-8 (A1S9Z6) iv) Exhibit B 1-5 Volume 3 - Application dated May 2010, Appendix B, Table B-1 p. B-3 (A1S9X8) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	Preliminary Seismic Evaluation of Enbridge Northern Gateway Pipelines Project - REQUEST 1.36:
				Marine Transportation		
				1.37 Use of Double Hulled Tankers	i) Exhibit B24-2 Volume 5A – Additional Evidence June 2011, Section 5.9.3, p. 5-313 (A1Z6R1)	
				Impacts of Oil on Fish		
				1.38 Impacts on Fish from Oil Spills in Other Ecosystems	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	Attachment - Median PAH concentration (ppb) in fish collected from impoundments of the Kitimatco River 2010 - REQUEST 1.38c
				1.39 Pine River Spill	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.40 Kitimat River	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.41 Other Studies	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.42 Freshwater Fish and Fish Habitat of the Kitimat River	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	

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				1.43 Nature of Petroleum Products to be Transported Via Pipeline	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	Attachment - Crude Petroleum Tariff - Rules and Regulations Governing the Transportation of Crude Petroleum, March 23, 2008 - REQUEST 1.43c
				1.44 Distribution of Oil in the Kitimat River	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.45 Establishing Baselines	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.46 Contamination of Sediments by Spilled Oil	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.47 Acute and Chronic Effects of Oil Exposure	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	Attachment - Surface Water Guidelines and Sediment Guidelines in effect in Alberta, BC and Nation-wide - REQUEST 1.47c
				1.48 Chemical Constituents that Cause Toxicity	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.49 Life Stage and Species Sensitivities	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	Attachment
				1.50 Effects of Weathering on Toxicity	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.51 Effects of Submerged Oil That Persists After a Spill	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				1.52 Long-Term Consequences of Toxicity	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.53 Effectiveness of Booms and Skimmers in a Fast-Flowing River	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.54 Can Oil Spills be Detected and Intercepted Before They Travel Down River?	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.55 Mitigation of Oil That Becomes Entrained in Sediments	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.56 Recovery of Fish and Fish Habitat	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-25 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.57 Objectives for Post-Spill Monitoring	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.58 Management of Post-Spill Monitoring	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.59 Delayed and Cumulative Effects	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				1.60 Other Delayed and Cumulative Effects	i) Exhibit B 3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A1T0F6) ii) Exhibit B 19-29 Volume 6A Application Update December 2010 (A1W9C1) iii) Exhibit B 3-20 Volume 7B - Application dated May 2010 (A1T0H0) iv) Exhibit B 3-21 Volume 7B - Application dated May 2010 (A1T0H1) v) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	

Submitted By	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				Effects of Hydrocarbons on the Biophysical Environment		
				1.61 Approach to Assessing Effects of Hydrocarbon on Biophysical Environment	i) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.1, p. 8-1 to 8-3 and Table 8.1 (A1T019)	Attachment - Stack and Emission Parameters of Project Emission Sources at the Kiltmat Terminal - REQUEST 1.62a
				1.62 Exposure Through Air	i) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.2, p. 8-5 (A1T019)	
				1.63 Effects of Hydrocarbons on Plankton	i) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.4, p. 8-6 to 8.7 (A1T019)	
				1.64 Effects of Hydrocarbons on Marine Vegetation	i) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.5, pp. 8-7 to 8.12 (A1T019)	
				1.65 Effects of Hydrocarbons on Marine Invertebrates	i) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.6.2, pp. 8-18 to 8-19 (A1T019)	
				1.66 Effects of Condensate on Marine Invertebrates	i) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.6.3, pp. 8-18 to 8-19 (A1T019)	
				1.67 Effects of Hydrocarbons on Fish, Fish Habitat and Marine Fisheries Management	i) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.7, pp. 8-21 to 8-38 and Table 8.3 (A1T019)	
				1.68 Effects of Hydrocarbons on Marine Birds	i) Exhibit B3-40 Volume 8C – Application dated May 2010, Section 8.85, p. 8-51 (A1T010)	
				1.69 Mitigation Measures	i) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.5.4, pp. 8-11 (A1T019) ii) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.6.4, pp. 8-20 (A1T019) iii) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.8.4, pp. 8-50 (A1T010)	
				1.70 Follow-up and Monitoring	i) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.5.5, pp. 8-11 to 8-12 (A1T019) ii) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.6.5, p. 8-20 (A1T019) iii) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.7.5, p. 8-38 (A1T019) iv) Exhibit B3-39 Volume 8C – Application dated May 2010, Section 8.8.5, p. 8-51 (A1T010) v) Exhibit B3-42 Volume 8C – Application dated May 2010, Section 11.4, p. 11-29 (A1T012)	
		https://www.nob-one.gc.ca/lr-ene/livelink.exe/fetch/2000/90454/90552/394392/620277/624476/7A92501A2E2E8-IR No.2 FINAL17nodeId=749251&vcrnum=0		2.1 Project Need	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	https://www.nob-one.gc.ca/lr-ene/livelink.exe/fetch/2000/90454/90552/394392/620277/624476/763943Northern Gateway Pipe Line Limited PartnershipNorthern Gateway Response to Haisla Nation IR No.2A2E8Y0nodeId=753950&vcrnum=0
				2.2 Embridge Spills	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B3-20 – Volume 7B – Application dated May 2010, Section 3, pp. 3-1 – 3-3 (A1T0H0)	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				2.3 Kalamazoo, Michigan Line 6B Spill – July, 2010	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.4 Kalamazoo, Michigan Spill – NTSB Investigation	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.5 Cheecham, Alberta Spill – January, 2009	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.6 Pipeline Design and Materials	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B 1-5 Volume 3 - Application dated May 2010, Section 1.1, p. 1-1 (A1S9X8) v) B1-18 Volume 3 – Appendix E – Preliminary Geotechnical Report (A1S9Z1)	
				2.7 Cathodic Protection	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.8 Pipeline Costs	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.9 Kitimat Terminal Storage Tanks	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B41-17 Attachment Haisla Nation IR 1.36j) (A2E8Z4) v) Malhotra, P., Wenk, T., and Wieland, M., (2000). Simple Procedure for Seismic Analysis of Liquid-Storage Tanks. J. Struct. Eng. International, IABSE, 10(3), 197-201 http://www.iabse.org/journalsci/onlinecopies/index.php	
				2.10 Project Risk	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B 1-5 Volume 3 - Application dated May 2010, Section 1.1, p. 1-1 (A1S9X8)	
				2.11 Studies on Effects of Sulphur	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	Attachment: CAPP Response to US Department of State Submission on Draft Environmental Impact Statement Assessment - Keystone XL Pipeline Project
				2.12 Studies on Cumulative Impacts	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.13 Northern Gateway Project and Keystone Diluted Bitumen Pipelines	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.14 Location and Route	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.15 Seismic Concerns - Design Standards	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B 1-5 Volume 3 - Application dated May 2010, Section 1.1, p. 1-1 (A1S9X8) v) Malhotra, P. K. (2006). Seismic Risk and Design Loads. Earthquake Spectra, 22(1), 115-128 http://scitation.aip.org/EarthquakeSpectra/	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				2.16 Seismic Concerns - Hazards	<ul style="list-style-type: none"> i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B1-5 Volume 3 - Application dated May 2010, Section 1.1, p. 1-1 (A1S9X8) v) B41-17 Attachment Haisla Nation IR 1.36(j) (A2E8Z4) vi) Malhotra, P. K. (2008). Seismic Design Loads from Site-Specific and Aggregate Hazard Analyses, Bulletin of the Seismological Society of America, 98(4), 1849-1862, August 2008: (http://bssa.geoscienceworld.org/cgi/reprint/98/4/1849) 	
				2.17 Geotechnical Hazards	<ul style="list-style-type: none"> i) B1-5 Volume 3 - Application dated May 2010, Section 3.1 and Section 3.1.6, p. 3-1 and p. 3-6 (A1S9X8) ii) B20-2, Northern Gateway response to request for additional information, dated March 2011, Section C.1.2, p. 15 (A1Y3U9) iii) B20-2, Northern Gateway response to request for additional information, dated March 2011, Section C.1.3, p. 15 (A1Y3U9) iv) B20-2, Northern Gateway response to request for additional information, dated March 2011, Section C.2, p. 19 and p. 24 (A1Y3U9) v) B20-2, Northern Gateway response to request for additional information, dated March 2011, Table C-3, Section C.3.6.1.3, p. 40 (A1Y3U9) vi) B1-5 Volume 3 - Application dated May 2010, Section 3.1, p. 3-1 (A1S9X8) vii) B1-5 Volume 3 - Application dated May 2010, Section 7.3, p. 7-2 (A1S9X8) viii) B1-5 Volume 3 - Application dated May 2010, Section 4.1, p. 4-1 (A1S9X8) ix) Terms of Reference, Joint Review Panel Agreement (A1R4D5) x) Bray, Jonathan D. and Sancio, Rodolfo B, Assessment of the Liquefaction Susceptibility of Fine-Grained Soil, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, pp. 1165-1177, September, 2006. (http://classes.engr.oregonstate.edu/ce/winter2011/ce570-001/References/04%20SITE%20-%20%20LIQUEFACTION/2006%20Bray%20%26%20Sancio%20-%20Assessment%20of%20Liquefaction%20of%20Fine-Grained%20Soils.pdf) 	
				2.18 Route-Specific Geotechnical Hazards	<ul style="list-style-type: none"> i) B1-5 Volume 3 - Application dated May 2010, Section 3.1 and Section 3.1.6, p. 3-1 and p. 3-6 (A1S9X8) ii) B20-2, Northern Gateway response to request for additional information, dated March 2011, Section C.1.2, p. 15 (A1Y3U9) iii) B20-2, Northern Gateway response to request for additional information, dated March 2011, Section C.1.3, p. 15 (A1Y3U9) iv) B20-2, Northern Gateway response to request for additional information, dated March 2011, Section C.2, p. 19 and p. 24 (A1Y3U9) v) B20-2, Northern Gateway response to request for additional information, dated March 2011, Table C-3, Section C.3.6.1.3, p. 40 (A1Y3U9) vi) B1-5 Volume 3 - Application dated May 2010, Section 3.1, p. 3-1 (A1S9X8) vii) B1-5 Volume 3 - Application dated May 2010, Section 7.3, p. 7-2 (A1S9X8) viii) B1-5 Volume 3 - Application dated May 2010, Section 4.1, p. 4-1 (A1S9X8) ix) Terms of Reference, Joint Review Panel Agreement (A1R4D5) x) Schwab, James W., Hillslope and Fluvial Processes Along the Proposed Pipeline Corridor, Burns Lake to Kitimat, West Central British Columbia, Bulkley Valley Research Centre, September, 2011 (Schwab, 2011) (http://bvcentre.ca/files/research_reports/11-03Schwab_Pipeline-geomorphology_Sept2011.pdf) xi) Haisla Nation Information Request No. 1 (A2C4Q1) xii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) 	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				2.19 Geotechnical Hazards - Sackung	(i) JRP IR No. 4 to Northern Gateway (A30818) (ii) B35-2 Northern Gateway Response to JRP IR No. 4 (A2D2Z9) (iii) Terms of Reference, Joint Review Panel Agreement (A1R4D5) (iv) Schwab, James W., Hillslope and Fluvial Processes Along the Proposed Pipeline Corridor, Burns Lake to Kitimat, West Central British Columbia, Bulkley Valley Research Centre, September, 2011 (Schwab, 2011) (http://bvcentre.ca/files/research_reports/11-03Schwab_Pipeline-geomorphology_Sept2011.pdf)	
				2.20 Pipeline Product Characterization	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	Attachment - Trace Sulphur Compound Analysis
				2.21 Corrosive Nature of Diluted Bitumen	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) Alberta Energy and Utilities Board, Pipeline Performance in Alberta, 1990-2005, April 2007, pp. 9, 28, 30 and 32: http://www.ercb.ca/docs/documents/reports/r2007-a.pdf . Preamble: In reference ii), Haisla Nation IR No. 1.24(e) asked if Northern	
				2.22 Pipeline Products -- Knowledge of Constituents	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B9-2 Technical Data Report - Human Health Risk Assessment (A1V5S6)	
				2.23 Tankers	i) Coastal First Nation IR No. 1 to Enbridge (A2C2S9) ii) B38-2-Northern Gateway Response to Coastal FN IR No. 1 (A2E4Q5)	
				2.24 Tugs	i) B1-2 - Volume 1 - Application dated May 2010, Section 2.5.2-6, p. 2-7 to 2-9 ii) B3-355 - Volume 8B - Application dated May 2010, Section 13.5.2.3, p. 13-15 (A1T0I5)	
				2.25 Project Hazards and Risks - Baseline Data Collection for Fish and Fish Habitat	i) B1-3 - Volume 1 - Application dated May 2010, Appendix M (A1S9X6) ii) B3-9 - Volume 6A - Application dated May 2010, Section 11.4.3 (A1T0F9) iii) B3-20 - Volume 7B - Application dated May 2010, Section 7.5.4 (A1T0H0) iv) B3-20 - Volume 7B - Application dated May 2010, Section 7.8.1 (A1T0H0) v) B3-26 - Volume 8B - Application dated May 2010, Section 4.2.2.1 (A1T0H6) vi) B3-26 - Volume 8B - Application dated May 2010, Section 9.6.1.1 (A1T0H6) vii) B3-33 - Volume 8B - Application dated May 2010, Section 10.9 (A1T0U3) viii) B11-1 - Technical Data Report: Freshwater Fish and Fish Habitat (A1V5Z7) ix) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				2.26 Project Hazards and Risk - Marine Weather	i) B23-34 - Technical Data Report: Marine Shipping Quantitative Risk Analysis (A1Z6L8) ii) B23 - Northern Gateway Additional Evidence: TERMPOL Surveys and Studies (A2S571) iii) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				2.27 Risk Assessment	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) Northern Gateway Response to JRP IR No. 4.32 (A31684) v) Northern Gateway Response to JRP IR No. 5.8 (A30838) vi) Northern Gateway Application, Volumes 7C: Risk Assessment and Management of Spills - Kitimat Terminal (A1T0H2) vii) Northern Gateway Application, Volume 7B: Risk Assessment and Management of Spills - Pipelines (A1T0H0 and A1T0H1) viii) B41-4 - Northern Gateway Response to Federal Government IR No. 1 (A2E8J0)	
				2.28 General Oil Spill Response Plan	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) B21-2 - Technical Data Report: General Oil Spill Response Plan (A1Y3Y8)	

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				2.29 Project Hazards and Risks – Spill Planning and Response	i) B21-2 - Technical Data Report: General Oil Spill Response Plan (A1Y3Y8) ii) B23 - Northern Gateway Additional Evidence: TERMPOL Surveys and Studies (A29571) iii) B20-24 - Appendix A: Figures A123-128 (A1Y3X1) iv) B20-23 - Appendix A: Figures A117-122 (A1Y3X0) v) B25-2 - Technical Data Report: Hydrocarbon Mass Balance Estimates: Inputs for Spill Response Planning (A1Z6T0) vi) Terms of Reference, Joint Review Panel Agreement (A1R4D5)	
				2.30 Valve Spacing - Risk	i) Joint Review Panel IR No. 3 (A2A9D3) ii) Northern Gateway Response to Joint Review Panel Information Request No. 3 (A2C5T3)	
				2.31 Valve Spacing - Response Issues	i) Joint Review Panel IR No. 3 (A2A9D3) ii) Northern Gateway Response to Joint Review Panel Information Request No. 3 (A2C5T3)	
				2.31 Valve Spacing - Response Issues	i) Joint Review Panel IR No. 3 (A2A9D3) ii) Northern Gateway Response to Joint Review Panel Information Request No. 3 (A2C5T3)	
				2.32 Valve Spacing - Loss of Containment	i) Joint Review Panel IR No. 3 (A2A9D3) ii) Northern Gateway Response to Joint Review Panel Information Request No. 3 (A2C5T3)	
				2.33 Valve Spacing - Residual Geohazards	i) Joint Review Panel IR No. 3 (A2A9D3) ii) Northern Gateway Response to Joint Review Panel IR No. 3 (A2C5T3)	
				2.34 Valve Spacing - 2000m3 Spills	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) B32-10 - JRP IR 3.3a - Preliminary Valve Location Engineering Assessment, Section 5.1, pp. 6 to 7 (A2C5U1) iii) B40-4 - Northern Gateway Response to Federal Government IR 1.9 iv) Haisla Nation Information Request No. 1 (A2C4Q1) v) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.35 Spills - Valve Placement	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B3-6 Volume 6A - Application dated May 2010, Section 11, p. 11-1 (A10F6) v) B19-29 Volume 6A Application Update December 2010 (A1W9C1) vi) B3-20 Volume 7B - Application dated May 2010 (A1T0H0) vii) B 3-20 Volume 7B - Application dated May 2010 (A1T0H1)	
				2.36 Ultimate Carrying Capacity	i) Northern Gateway Response to Joint Review Panel IR No. 3 (A2C5T3) ii) B32-2 - Northern Gateway Response to JRP IR No. 3.2(f) - Flow Diagrams (A2C5U0) iii) B625 - Northern Gateway Pipelines Limited Partnership - Northern Gateway Additional Evidence - Hydrocarbon Mass Balance Estimates - Inputs for Spill Response Planning TDR (A29574) iv) B20-4 - Appendix A - Figures A-2 through A-9 (KP 0 to KP68) (A1Y3V1) to B20-28 - Appendix B - Figures B-98 through B-132 (KP 866 to KP 1176.87) - (A1Y3X5)	
				2.37 Kitimat River Control Points - Distance	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B17-1 - River Control Points TDR Part (1 of 17) (A1V8H3) v) B17-12 - River Control Points TDR Part (12 of 17) (A1V8I4) vi) B17-13 - River Control Points TDR Part (13 of 17) (A1V8I5)	
				2.38 Kitimat River Control Points - Spill Response	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B17-1 - River Control Points TDR Part (1 of 17) (A1V8H3) v) B17-12 - River Control Points TDR Part (12 of 17) (A1V8I4) vi) B17-13 - River Control Points TDR Part (13 of 17) (A1V8I5)	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				2.39 Spills – Distribution of Oil in the Kitimat River Reference:	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.40 Spills Modelling – General NOAA Operational Modelling Environment (GNOME)	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.41 Spill Detection – Commencement of Leak	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.42 Spill Response Time	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) Northern Gateway Response to JRP Information Request No. 3 (A31029)	
				2.43 Monitoring and Supervisory Control and Data Acquisition (SCADA)	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0) iv) B41-4 Attachment Haisla Nation No. 1.7(e) (A2E8Y1)	
				2.44 Aerial Monitoring – Efficacy	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.45 Oil in Sediments	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.46 Impacts to Fish	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	Attachment – Draft Bina River 2011 Recovery Update: Recovery Post-2009 Pipeline Rupture
				2.47 Approach to Assessing Effects of Hydrocarbon on Biophysical Environment	i) B3-39 Volume 8C – Application dated May 2010, Section 8.1, p. 8-1 to 8-3 and Table 8.1 (A1T019) ii) B3-40 Volume 8C – Risk Assessment and Management of Spills (A1T0J0) iii) Terms of Reference, Joint Review Panel Agreement (A1R4D5) iv) Haisla Nation Information Request No. 1 (A2C4Q1) v) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.48 Effects of Hydrocarbons on Plankton	i) B3-39 Volume 8C – Application dated May 2010, Section 8.4, pp. 8-6 to 8.7 (A1T019) ii) Terms of Reference, Joint Review Panel Agreement (A1R4D5) iii) Haisla Nation Information Request No. 1 (A2C4Q1) iv) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.49 Effects of Hydrocarbons on Marine Vegetation	i) B3-39 Volume 8C – Application dated May 2010, Section 8.5, pp. 8-7 to 8.12 (A1T019) ii) Terms of Reference, Joint Review Panel Agreement (A1R4D5) iii) Haisla Nation Information Request No. 1 (A2C4Q1) iv) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.50 Effects of Hydrocarbons on Marine Invertebrates	i) B3-39 Volume 8C – Application dated May 2010, Section 8.6.2, pp. 8-18 to 8-19 (A1T019) ii) Terms of Reference, Joint Review Panel Agreement (A1R4D5) iii) Haisla Nation Information Request No. 1 (A2C4Q1) iv) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.51 Effects of Condensate on Marine Invertebrates	i) B3-39 Volume 8C – Application dated May 2010, Section 8.6.3, pp. 8-18 to 8-19 (A1T019) ii) Terms of Reference, Joint Review Panel Agreement (A1R4D5) iii) Haisla Nation Information Request No. 1 (A2C4Q1) iv) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	

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				2.52 Effects of Hydrocarbons on Fish, Fish Habitat and Marine Fisheries Management	i) B3-39 Volume 8C – Application dated May 2010, Section 8.7, pp. 8-21 to 8-38 and Table 8.3 (A1T019) ii) Terms of Reference, Joint Review Panel Agreement (A1R4D5) iii) Haisla Nation Information Request No. 1 (A2C4Q1) iv) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.53 Follow-up and Monitoring	i) B3-39 Volume 8C – Application dated May 2010, Section 8.5.5, pp. 8-11 to 8-12 (A1T019) ii) B3-39 Volume 8C – Application dated May 2010, Section 8.6.5, p. 8-20 (A1T019) iii) B3-39 Volume 8C – Application dated May 2010, Section 8.7.5, p. 8-38 (A1T019) iv) B3-39 Volume 8C – Application dated May 2010, Section 8.8.5, p. 8-51 (A1T010) v) B3-42 Volume 8C – Application dated May 2010, Section 11.4, p. 11-29 (A1T012) vi) B41-4 Northern Gateway Response to Federal Government IR No. 1 (A2E8J0)	
				2.54 Insurance	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) A2A9C7 Letter and Information Request No. 2 to Northern Gateway Pipelines Inc. (A30533) iii) B31-2 Northern Gateway Response to JRP IR No. 2 (A2C2V5) iv) B41-17 Attachment Haisla Nation IR No. 1.36(j) (A2E8Z4)	
				2.55 Compensation for Losses of a Cultural Nature	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.56 Habitat Compensation	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.57 Risk Allocation	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Haisla Nation Information Request No. 1 (A2C4Q1) iii) Northern Gateway Response to Haisla Nation IR No. 1 (A2E8Y0)	
				2.58 Compensation for Community Impacts	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) Coastal First Nation IR No. 1 to Enbridge (A2C2S9) iii) B38-2 – Northern Gateway Response to Coastal FN IR No. 1 (A2E4Q5)	
Horse Lake First Nation (HLFN)	Northern Gateway	https://www.nob-one.gc.ca/it-cmp/livelihoods/fetch/2000/30464/50552/384192/620327/524910/700583/709785/term Lake First Nation - IR No 1 to Northern Gateway A2C4Q1.pdf?nodeId=709785&version=0	Intervenor	1 Aboriginal Traditional Knowledge Study	Exhibit B24-18, Application Volume 5B, Aboriginal Traditional Knowledge Update, (A1Z6S7), Page 1-7.	https://www.nob-one.gc.ca/it-cmp/livelihoods/fetch/2000/30464/50552/384192/620327/524910/700583/709785/term Lake First Nation - IR No 1 to Northern Gateway A2C4Q1.pdf?nodeId=709785&version=0
				2 Aboriginal Consultation and Engagement	Exhibit B24-18, Application Volume 5A. Exhibit B24-18, Application Volume 5B, Aboriginal Traditional Knowledge Update (A1Z6S7) Page 3-1.	
				3 Aboriginal Harvesting	Exhibit B24-18, Application Volume 1, Section 11, page 11-15. Exhibit B24-18, Application Volume 6B. Exhibit B24-18, Application Volume 6B, page 9-205.	
		https://www.nob-one.gc.ca/it-cmp/livelihoods/fetch/2000/30464/50552/384192/620327/524910/700583/709785/term Lake First Nation - IR No 1 to Northern Gateway A2C4Q1.pdf?nodeId=709785&version=0		1 - Aboriginal Harvesting	Northern Gateway Response to Horse Lake FN IR No. 1, Answer 3.2	https://www.nob-one.gc.ca/it-cmp/livelihoods/fetch/2000/30464/50552/384192/620327/524910/700583/709785/term Lake First Nation - IR No 1 to Northern Gateway A2C4Q1.pdf?nodeId=709785&version=0
				2 - Aboriginal Harvesting	Northern Gateway Response to Horse Lake FN IR No. 1, Answer 3.4	
				3 - Aboriginal Harvesting	Northern Gateway Response to Horse Lake FN IR No. 1, Answer 3.8	

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Izzard, Kelly		https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624910/701335/709600/Izzard_Kelly_-_Info_request_number_1_to_Northern_Gateway?nodeId=709601&vnum=0	Intervenor	1. Systems Operations	i) SCADA system s. 11.1, Volume 3 Engineering, Construction, and Operations A1S9X8 pg. 11-3 – 11-9	https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/A224J7_-_Northern_Gateway_Response_to_K_Izzard_IR_No_1?nodeId=723577&vnum=0
				2. Oil Spill Response Planning	ii) Spill Sources, Risks, and Effects, s. 4, General Oil Spill Response Plan A1Y3Y8 pg 4-1 – 4-8 iii) Emergency Response, s.5.2, Risk Assessment and Management of Spills – Pipelines, Volume 7B, A1T0H0 pg. 5-1- 5-9 iv) Map A – 90, Appendix A, Risk Assessment and Management of Spills – Pipelines, Volume 7B, A1Y3W5 v) Figure C-S5, River Control Points for Oil Spill Response, Technical Data Report, A1V8I vi) Objectives s.1.1, River Control Points for Oil Spill Response, Technical Data Report, A1V8H3 vii) Figure B-93, Appendix B, Risk Assessment and Management of Spills – Pipelines, Volume 7B, A1Y3X4	
		https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/748361/A2H1C9_-_Info_request_number_2_K_Izzard.pdf?nodeId=748362&vnum=0		1. Oil Spill Response Planning	i. Spill Sources, Risks, and Effects, s. 4, General Oil Spill Response Plan A1Y3Y8 pg 4-1 – 4-8 ii. Emergency Response, s.5.2, Risk Assessment and Management of Spills – Pipelines, Volume 7B, A1T0H0 pg. 5-1- 5-9 iii. Map A – 91, Appendix A, Risk Assessment and Management of Spills – Pipelines, Volume 7B, A1Y3W5 iv. Figure B-93, Appendix B, Risk Assessment and Management of Spills – Pipelines, Volume 7B, A1Y3X4	https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/763997/Northern_Gateway_Planning_Limited_Partnership_-_Northern_Gateway_Response_to_K_Izzard_IR_No_2_-_A2H1C9?nodeId=763917&vnum=0
Joint Review Panel		https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/574909/695844/A1Z9A4_-_Letter_and_Information_Request_No_1_to_Northern_Gateway?nodeId=695793&vnum=0		Environmental Matters		https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/701209/B27-2_-_NGP_Response_to_IR_IR_No_1_-_A2A4I4?nodeId=701213&vnum=0
				1.1 Effects Assessment of Powerline Facilities	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) Exhibit B, Northern Gateway Project Application	
				Operational Matters		
				1.2 Commitments Table	i) Exhibit B, Northern Gateway Project Application	
				Emergency Management		https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/707581/A2C2V5?nodeId=707581&vnum=0
		https://www.nwb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624909/704666/A2A9C7_-_Letter_and_Information_Request_No_2_to_Northern_Gateway?nodeId=704697&vnum=0		2.1 Status of TERMPOL Process	i) Exhibit B3-23, Application Volume 8A, (A1T0H3) page 1-5 (Adobe page 17 of 44) ii) Exhibits B15-2 and B15-3, Northern Gateway's Response to Public and Aboriginal Remarks Regarding Information (Gateway's response to Panel Sessions) dated 28 October 2010: Exhibit B15-2, page 40 of 69 (Adobe page 40 of 70) and Exhibit B15-3, Row 19.1, page 26 of 42 (Adobe page 26 of 42) iii) Exhibit B23 Northern Gateway Additional Evidence filed 8 June 2011, TERMPOL surveys, studies, and technical data reports. Covering letter (A1Z6I5), page 1.	
				Supply, Markets, Financing and Tolls		

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				2.2 Supply	i) Exhibit B1-4, Application Volume 2 (A1S9X7), Section 1.1.2, Western Canadian Crude Oil Supply, Figure 1-2 and Figure 1-3 Pages 1-4 and 1-5 (Adobe pages 14-15 of 166) ii) Exhibit B1-4, Application Volume 2 (A1S9X7), Appendix A Page 39, Tables A-1 (Adobe page 87) iii) NEB Filing Manual, Guide A Facilities Applications, Section A.3.1 Supply, Page 4A-66 (Adobe page 110 of 260) (see attached Schedule A, or http://www.neb-one.gc.ca/efnsi/rpblctn/ctsndrgltn/flngmnl/flngmnl-eng.html)	https://www.nrb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/520327/624798/707580/831-3-Attachment-JRP-IR-2.2(a)-Supply-Forecast-through-2035-A2C2V6?nodeId=737851&vernum=0 https://www.nrb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/520327/624798/707580/831-3-Attachment-JRP-IR-2.2(a)-Supply-Forecast-through-2035-A2C2V6?nodeId=707891&vernum=0
				2.3 Supply	Exhibit B1-4, Application Volume 2 (A1S9X7), Section 1.4, Condensate Supply Pages 1-10 and 1-11 (Adobe page 20-21 of 166)	
				2.4 Supply	Exhibit B1-4, Application Volume 2 (A1S9X7), Appendix A Pages 50 - 62, Tables A-12-A-21 (Adobe pages 98-110 of 166)	
				2.5 Transportation Matters	i) Exhibit B1-4, Application Volume 2 (A1S9X7), Section 1.2, Transportation Page 1-7 (Adobe page 17 of 166) ii) CAPP Crude Oil: Forecast, Markets, and Pipelines (June 2010), Page ii, Paragraph on "Crude Oil Pipelines and Expansions" (see attached Schedule B) iii) Exhibit B1-2, Application Volume 1 (A1S9X5), Section 2: Project Description, Page 2-12, Table 2-2: Project Milestones (Adobe page 36 of 44)	https://www.nrb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/520327/624798/707580/831-4-Attachment-JRP-IR-2.2(b)and-2.5-2011-2025-CAPP-Crude-Oil-Forecast-Markets-Pipeline-Report-A2C2V7?nodeId=707584&vernum=0
				2.6 Markets	Exhibit B1-4, Application Volume 2 (A1S9X7), Section 1: Economics - Supply, Transportation, and Markets Page 1-1 (Adobe page 11 of 166)	
				2.7 Markets	i) Exhibit B1-4, Application Volume 2 (A1S9X7), Section 1: Economics - Supply, Transportation, and Markets Pages 1-8 to 1-10, Section 1.3: Markets for Crude Oil (Adobe pages 18 -20 of 166) ii) Exhibit B1-4, Application Volume 2 (A1S9X7), Appendix A: Market Prospects and Benefit Analysis for the Northern Gateway Project	Attachment - E A International Energy Outlook 2010
				Financing and Tolls		
				2.8 Business Structure and Financial Responsibility	i) Exhibit B1-4, Application Volume 2 (A1S9X7), Section 4, pages 4-1 to 4-4 (Adobe pages 33 and 34 of 166) ii) Exhibit B1-2, Application Volume 1, Part 1 (A1S9X5), Section 2, pages 2-12 and 2-13 (Adobe pages 36 and 37 of 44) iii) Exhibit B1-4, Application Volume 2 (A1S9X7), Section 3, page 3-3 (Adobe page 31 of 166)	Attachment Attachment - Northern Gateway Ownership Attachment - Pro Forma Income
				2.9 Toll Principles	i) Exhibit B1-2, Application Volume 1 (A1S9X5), Section 11, pages 11-2 and 11-3 (Adobe pages 32 and 33 of 146) ii) Exhibit B1-4, Application Volume 2 (A1S9X7), Section 3, pages 3-1 to 3-3 (Adobe pages 29 - 31 of 166) iii) Exhibit B1-4, Application Volume 2 (A1S9X7), Section 2, page 2-3 (Adobe page 27 of 166) iv) National Energy Board Act, sections 62 and 67	Attachment
				2.10 Toll Principles Affecting Return on Common Equity	i) Exhibit B1-4, Application Volume 2 (A1S9X7), Section 3, page 3-2 (Adobe page 30 of 166) ii) Exhibit B1-4, Application Volume 2 (A1S9X7), Section 4, pages 4-2 to 4-4 (Adobe pages 34 - 36 of 166)	

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Northern Gateway		https://www.nob-one.gc.ca/ll-eng/livelink.exe/fetch/2002/80464/90552/384192/620327/624909/704599/A2A9D3-Letter and Information Request no. 3 to Northern Gateway?nodeId=704600&version=0		Environment and Economic Matters		
				2.11 Abandonment	i) Exhibit B1-5, Application, Volume 3 (A1S9X8), Section 13 Decommissioning, page 13-1 (Adobe page 117 of 132). ii) Panel letter dated 19 January 2011, Response to Panel Sessions Enbridge Northern Gateway Project, (A1X2L7) Section 2.1.1. (Adobe page 3 of 24) iii) Revised NEB Filing Manual, Section A.2 Environmental and Socio-Economic Assessment, Section A.2.6.1 Identification and Analysis of Effects, Guidance, Abandonment, Deactivation and Decommissioning, Page 4A-35 (Adobe page 79 of 250) http://www.nob-one.gc.ca/clf-nsi/rplctn/ctsnrgltn/flngmnl/flngmnleng.html , attached as Schedule C. iv) NEB Reasons for Decision RH-2-2008 (A21835), and related documents, including 4 March 2010 Revisions to Base Case (A24600), 21 December 2010 Base Case Unit Cost Estimates (A27778) and 8 March 2011 letter adjusting timelines (A1W9T3), attached as Schedule C.	Attachment - NEB: Land Matters Consultation Initiative - Stream 3, Enbridge Pipelines Inc. Abandonment Physical Plans, May 25, 2011
				Engineering		https://www.nob-one.gc.ca/ll-eng/livelink.exe/fetch/2002/80464/90552/384192/620327/624798/711052/A2C5T3-Northern Gateway Response to IR 2 IR No. 3?nodeId=710963&version=0
				3.1 Pipeline Design and Specifications	i) Exhibit B19-4 Volume 3 Application Update dated December 2010, Section 5.1 Line Pipe, page 18 (A1S9X8) (Adobe Page 6 of 10) which is an update of Exhibit B1-5 (Adobe Pages 41 & 42 of 132) ii) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 8.5, page 8-4 (A1Y3U9) (Adobe Page 62 of 132). iii) Exhibit B20-2, Northern Gateway response to request for additional information dated March 2011, Section C1.1, page 14 (A1Y3U9) (Adobe Page 18 of 66) iv) Exhibit B20-2, Northern Gateway response to request for additional information dated March 2011, Table C-1, pages 16 to 18 (A1Y3U9) (Adobe Pages 20 to 22 of 66)	https://www.nob-one.gc.ca/ll-eng/livelink.exe/fetch/2002/80464/90552/384192/620327/624798/711078/B33-1-Letter to IRP re Northern Gateway Request for Confidentiality (IRP IR No. 3) - A2C5V6?nodeId=711078&version=0
				3.2 Hydraulic Design	i) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 4.2.3, page 4-2 (A1S9X8) (Adobe Page 38 of 132) ii) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 5.1, page 4-3 (A1S9X8) (Adobe Page 39 of 132) iii) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 4.2.1, page 4-1 (A1S9X8) (Adobe Page 37 of 132) iv) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 4.3.1, page 4-3 (A1S9X8) (Adobe Page 39 of 132)	
				3.3 Valve spacing	i) CSA standard Z662-07, Section 4.4 ii) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 5.5, page 5-3 (A1S9X8) (Adobe Page 43 of 132) iii) Exhibit B20-25 to B20-28 inclusive, Northern Gateway response to request for additional information dated March 2011, Section B (A1Y3X2, A1Y3X3, A1Y3X5)	
				3.4 Valve selection, installation and maintenance	i) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 10.2.6, page 10-6 (A1S9X8) (Adobe Page 94 of 132) ii) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 12.2, page 12-4 (A1S9X8) (Adobe Page 116 of 132) iii) Occupational Health and Safety Code, Part 10, Section 215.4, under the Alberta Occupational Health and Safety Act	
				3.5 Pipeline coating	Exhibit B1-5 Volume 3 - Application dated May 2010, Section 5.3, page 5-2 (A1S9X8) (Adobe Page 42 of 132)	

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				3.6 Qualification of NDE personnel	i) Exhibit B20-2 Northern Gateway response to request for additional information from the JRP Session Results and Decision dated 19 January 2011, Section C, page 33, "Line Pipe Welding Design and Quality Control in Geotechnical and Seismic Areas" (A1Y3U9) (Adobe Page 37 of 66) ii) CSA standard Z662-07, Sections 7.14.8.1 and 7.15.6	
				3.7 Air testing	i) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 5.11, page 5-7 (A1S9X8) (Adobe Page 47 of 132) ii) CSA standard Z662-07, Sections 8.4.3	
				3.8 Crossings	i) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 5.8, page 5-6 (A1S9X8) (Adobe Page 46 of 132) ii) Exhibit B3-8 Volume 6A, Part 2 - Application dated May 2010, Tab 10, Section 10.4.3, page 10-19 to 10-21 (A1TOF8) (Adobe Pages 19 to 21 of 256) iii) Exhibit B1-23 Volume 3 - Northern Gateway Application dated May 2010, Appendix J, page J-1 (A1TOH3) (Adobe Page 29 of 49)	
				3.9 Quality Assurance and Quality Control	i) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 1.6, page 1-3 (A1S9X8) (Adobe page 13 of 132) ii) Department of Transportation, Pipeline and Hazardous Materials Safety Administration, Docket No. PHMSA-2009-01481, Advisory ADB-09-01, Potential Low and Variable Yield and Tensile strength and Chemical Composition Properties in High Strength Line Pipe	
				3.10 Kitimat Area Facilities	i) KM LNG Hearing GH-1-2011, Response to NEB IR 1.2 Exhibit B 9-7 (A1S9X8) (Adobe page 10 of 53) ii) KM LNG Hearing GH-1-2011, Exhibit 9-9 (Adobe page 19 of 281) iii) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 8.4, page 8-3 (A1S9X8) (Adobe page 61 of 132) iii) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 9.5.1, page 9-13 (A1S9X8) (Adobe page 77 of 132)	
				3.11 Operations and Maintenance	Exhibit B1-5 Volume 3 - Application dated May 2010, Section 11.6, page 11-4 (A1S9X8) (Adobe Page 106 of 132)	
				3.12 SCADA and Leak Detection	i) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 11.9, page 11-7 (A1S9X8) (Adobe Page 109 of 132) ii) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 11.2, page 11-2 (A1S9X8) (Adobe Page 104 of 132)	https://www.norcan.gc.ca/leak-detection/2009/09464/90552/384192/620327/624476/764131/Northern-Gateway-Pipelines-Limited-Partnership-Northern-Gateway-Response-to-IR-P-IR-No-3120-A20852667readid=764132&version=0
				3.13 Alberta Facilities provided by Others	i) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 1.2, page 1-2 (A1S9X8) (Adobe Page 12 of 132) ii) Exhibit B1-2 Volume 1 - Application dated May 2010, Section 4.1, page 4-1 (A1S9X5) (Adobe Page 41 of 44)	
				3.14 Regulatory changes	Exhibit B1-5 Volume 3 - Application dated May 2010, Section 1.4, page 1-2 (A1S9X8) (Adobe Page 12 of 132)	

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Northern Gateway		https://www.nwb-one.gc.ca/it-eps/ibvlink.exe?fetch/2000/50454/90552/384197/620377/624939/707611/A2C773 - Letter and Information Request re. 4 to Northern Gateway (noelc=707612&version=0)		3.15 Pipe Strain Capacity and Loading in Geotechnical and Seismic Areas	i) Exhibit B1-5 Volume 3 - Application dated May 2010, Section 5, page S-2 (A1S9Y2) (Adobe Page 42 of 132) ii) Exhibit B20-2 Northern Gateway response to request for additional information from the JRP Session Results and Decision dated March 2011, Section C.3.1, page 32, "Line Pipe Material Properties Including Effective Strain Capacity After construction" (A1Y3U9) (Adobe Page 36 of 66) iii) Duan D., Zhou J., "A Systemic Material Evaluation Program for High Grade Line Pipe Materials", ASME IPC 2008-64426, October 2008 iv) Suzuki N., Igi S., Masamura K., "Seismic Integrity of High Strength Pipelines", JFE Technical Report No. 12, 2008 (http://www.jfesteel.co.jp/en/research/report/012/pdf/012-02.pdf)	
				Environment Matters		
				3.16 Mitigation of Cumulative Effects on Grizzly Bear	i) Exhibit B3-7, Volume 6A, page 9-229, (A1T0F7) Adobe page 166 of 233 ii) Exhibit B3-7, Volume 6A, page 9-232, (A1T0F7) Adobe p.170 of 233 iii) Exhibit B3-6, Volume 6A page 9-38, (A1T0F6) Adobe p. 56 of 81 iv) Exhibit B3-7, Volume 6A page 9-233, Table 9-83, (A1T0F7) Adobe p. 170 of 233 v) Exhibit B3-6, Volume 6A, page 9-19, (A1T0F6) Adobe p. 37 of 81 vi) Exhibit B3-7, Volume 6A, page 9-243, (A1T0F7) Adobe p. 180 of 233 vii) Exhibit B3-7, Volume 6A, page 9-258, (A1T0F7) Adobe p. 195 of 233	
				3.17 Incremental Project Contribution to Cumulative Effects on Caribou	i) Exhibit B3-1, Volume 6A, page 3-16, (A1T0F1) Adobe page 66 of 184 ii) Exhibit B3-7, Volume 6A, page 9-225 and 9-259, (A1T0F7) Adobe page 162 and 196 of 233	
				3.18 Threshold Selection for Cumulative Effects on Caribou	i) Exhibit B3-1, Volume 6A, page 3-16, (A1T0F1) Adobe page 66 of 184 ii) Exhibit B3-7, Volume 6A, page 9-225, (A1T0F7) Adobe page 162 of 233 iii) Exhibit B3-7, Volume 6A, page 9-259, (A1T0F7) Adobe page 196 of 233	
				Engineering		https://www.nwb-one.gc.ca/it-eps/ibvlink.exe?fetch/2000/50454/90552/384197/620377/624939/716902/B33-2 - Northern Gateway Response to JR P IR No. 4 A2D3297 (noelc=716902&version=0)
				4.1 Geohazards: Submarine Landslides	i) Exhibit B3-1 - Application Volume 6A (A1T0F1) P1- Pipelines and Tank Terminal ESA (Part 1 of 5), Section 2.7 Kitimat Terminal Construction Page 2-22 (Adobe page 42 of 184) ii) Exhibit B3-4 Application Volume 6A P1 - Pipelines and Tank Terminal ESA (Part 4 of 5), Section 7 Terrain (A1T0F4) (Adobe pages 14-21 of 117) iii) Exhibit B1-5 - Application Volume 3 - Engineering, Construction and Operations (Part 1 of 19), Section 3.3 Kitimat Terminal (A1S9X8) (Adobe pages 35-36 of 132) iv) Exhibit B1-10 - Application Volume 3 - Engineering, Construction and Operations (Part 6 of 19), Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 3.4 Tsunamis (A1S9Y3) (Adobe pages 41-43 of 74)	Attachments on landslides
				4.2 Geohazards: Avalanche	i) Exhibit B1-5 - Application Volume 3 - Engineering, Construction and Operations (Part 1 of 19), (A1S9X8) Section 3 Geotechnical Conditions, Table 3-2 (Adobe page 30 of 132) ii) Exhibit B1-10 - Application Volume 3 - Engineering, Construction and Operations (Part 6 of 19), (A1S9Y3) Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 3.2.1.5 Avalanches (Adobe page 34 of 74)	Attachments on location and Properties of Avalanche Paths

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				4.3 Geohazards: Permafrost	i) Exhibit B3-4 Application Volume 6A P1 - Pipelines and Tank Terminal ESA (Part 4 of 5), (A1T0F4) Section 7 Terrain ii) Exhibit B1-10 - Application Volume 3 - Engineering, Construction and Operations (Part 6 of 19), (A1S9Y3) Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC	
				4.4 Geohazards: Debris Flows	i) Exhibit B1-10 - Application Volume 3 - Engineering, Construction and Operations (Part 6 of 19) (A1S9Y3), Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 3.2.1.3 Debris Flows (Adobe page 33 of 74) ii) Exhibit B1-5 - Application Volume 3 - Engineering, Construction and Operations (Part 1 of 19) (A1S9X8), Section 3 Geotechnical Conditions, Table 3-2 (Adobe page 30 of 132) iii) Exhibit B3-4 Application Volume 6A P1 - Pipelines and Tank Terminal ESA (Part 4 of 5) (A1T0F4), Section 7.2.2.1 Terrain Integrity (Adobe page 4 of 117)	
				4.5 Unstable Landforms - Sackung	i) Exhibit B1-10 - Application Volume 3 - Engineering, Construction and Operations (Part 6 of 19) (A1S9Y3), Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 3.2.1.6 Mountain Spreading (Sackung) Page 24 (Adobe page 34 to 35 of 74) ii) Exhibit B1-16 - Application Volume 3 - Engineering, Construction and Operations (Part 12 of 19) (A1S9Y9), Appendix E-2 Preliminary Geotechnical Report on the Proposed Coast Mountain Tunnels Route (Rev. R KP 1072 to KP 1087), Section 4.0 Tunnel Alignment Selection and Details Page 12 (Adobe page 18 of 36) iii) Appendix A (attached) containing two images of potential gravity displacement lineament (possibly sackung) at Nimbus Mountain (above the Hault Tunnel East Portal)	Attachment
				4.6 Terrain Stability	Exhibit B1-19 - Application Volume 3 - Engineering, Construction and Operations (Part 15 of 19) (A1S9Z2), Appendix E-3 Preliminary Geotechnical Proposed Kitimat Terminal Enbridge Northern Gateway Project Kitimat, British Columbia (Adobe page 30-31 of 53)	
				4.7 Geohazards: Seismic Issues	i) Exhibit B1-5 - Application Volume 3 - Engineering, Construction and Operations (Part 1 of 19) (A1S9X8), Section 3 Geotechnical Conditions, Table 3-2 (Adobe page 31 of 132) ii) Exhibit B1-10 - Application Volume 3 - Engineering, Construction and Operations (Part 6 of 19) (A1S9Y3), Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 3.3 Seismic Conditions (Adobe page 36 of 74) iii) Exhibit B3-4 Application Volume 6A P1 - Pipelines and Tank Terminal ESA (Part 4 of 5) (A1T0F4), Section 7.2.2.1 Terrain Integrity (Adobe page 4 of 117)	
				4.8 Design and Construction: Slope Cuts	Exhibit B1-23 - Application Volume 3 - Engineering, Construction and Operations (Part 19 of 19) (A1S9Z6), Appendix J, Figure J-7 Right-of-way Configuration, Extreme Side Slope Rock Cut (Adobe page 36 of 49)	
				4.9 Design and Construction: Slope Cuts	Exhibit B1-23 - Application Volume 3 - Engineering, Construction and Operations (Part 19 of 19) (A1S9Z6), Appendix J, Typical Construction Sketches (Adobe pages 29-49 of 49)	
				4.10 Operation: River Crossing Monitoring	Exhibit B1-5 - Application Volume 3 - Engineering, Construction and Operations (Part 1 of 19), Section 12.1.2 Monitoring Programs (A1S9X8) (Adobe page 114 of 132)	

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				4.11 Design: Hydrology	Exhibit B3-8 – Application Volume 6A P2 - Pipelines and Tank Terminal ESA (Part 3 of 6) (A1T0F8), Section 10.4.5 Effects on Channel Geomorphology (Adobe page 41 of 256)	
				4.12 Operation: Access	Exhibit B1-15 – Application Volume 3 – Engineering, Construction and Operations (Part 12 of 19) (A1S9Y9), Appendix E2, Geotechnical Report on Proposed Coast Mountain Tunnels Route, Section 4.3 Regional Access Roads (Adobe pages 24-25 of 36)	
				4.13 Clore and Houtt Tunnels – Design Considerations	i) Exhibit B1-5 – Application Volume 3 – Engineering, Construction and Operations (Part 1 of 19), 7.1 General Description (A1S9X8) (Adobe page 55 of 132) ii) Exhibit B1-5 – Application Volume 3 – Engineering, Construction and Operations (Part 1 of 19), 7.3 Construction (A1S9X8) (Adobe page 56 of 132) iii) Exhibit B3-1 – Application Volume 6A P1- Pipelines and Tank Terminal ESA (Part 1 of 5), 2.5.3 Clore and Houtt Tunnels (A1T0F1) (Adobe page 35 of 184)	
				4.14 Clore and Houtt Tunnels – Groundwater Considerations	i) Exhibit B3-8 – Application Volume 6A P2 – Pipelines and Tank Terminal ESA (Part 3 of 6), 10.4.4.2 Effects Mechanisms (A1T0F8) (Adobe page 36 of 256) ii) Exhibit B1-5 – Application Volume 3 – Engineering, Construction and Operations (Part 1 of 19), 3.2 Houtt and Clore Tunnels (A1S9X8) (Adobe page 35 of 132) iii) Exhibit B1-16 – Application Volume 3 – Engineering, Construction and Operations (Part 12 of 19) (A1S9Y9), Appendix E-2 Preliminary Geotechnical Report on the Proposed Coast Mountain Tunnels Route (Rev. R KP 1072 to KP 1087), Section 4.1.4 Clore Tunnel East Portal Page 16 (Adobe page 22 of 36) iv) Exhibit B3-19 – Application Volume 7A, – Construction Environmental Protection and Management Plan, Section A.3.13 Tunnel Installation Plan Pages A-86 to A-90 (Adobe page 178 - 182 of 258)	
				4.15 Marine Facility	Exhibit B1-5 – Application Volume 3 – Engineering, Construction and Operations (Part 1 of 19) (A1S9X8), (Adobe pages 29-36 of 132)	
				4.16 Risk Assessment: Consequence	i) Exhibit B1-10 – Application Volume 3 – Engineering, Construction and Operations (Part 6 of 19) (A1S9Y3), Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 4.2.4 Consequences (Adobe page 51 of 74) ii) Exhibit B1-10 – Application Volume 3 – Engineering, Construction and Operations (Part 6 of 19) (A1S9Y3), Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 4.2.6 Limitations of the Risk Assessment (Adobe page 53 of 74)	
				4.17 Risk Assessment: Probability	Exhibit B1-10 – Application Volume 3 – Engineering, Construction and Operations (Part 6 of 19) (A1S9Y3), Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 4.2.3 Hazard Probabilities, Table 4.1 Hazard Likelihood Categories (Adobe page 50 of 74)	
				4.18 Risk Assessment: Limitations	Exhibit B1-10 – Application Volume 3 – Engineering, Construction and Operations (Part 6 of 19), Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 4.2.6 Limitations of the Risk Assessment (A1S9Y3) (Adobe page 53 of 74)	
				4.19 Adjacent Right-of-way	Exhibit B3-4 Application Volume 6A P1 - Pipelines and Tank Terminal ESA (Part 4 of 5) (A1T0F4), Section 7 Terrain (Adobe page 1 of 117)	Attachments – Maps 1-11

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				4.20 Risk Assessment Mitigation	Exhibit B1-10 – Application Volume 3 – Engineering, Construction and Operations (Part 6 of 19) (A1S9Y3), Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 4.3.1 Overall Risks (Adobe pages 55-61 of 74)	
				4.21 Preliminary Geotechnical HDD Feasibility Assessment: All Crossings	Exhibit B07 - Updates to Northern Gateway Pipelines s. 52 Application re. Preliminary HDD and HDD Geotechnical Feasibility Assessments (A25952)	
				4.22 Preliminary Geotechnical HDD Feasibility Assessment: Athabasca River	Exhibit B7-15 – Application Volume 3 – Appendix G.2 - Athabasca River Preliminary Geotechnical HDD Feasibility Assessment – Rev R (Part 1 of 2) (A1U0W5), Section 4.1 Horizontal Directional Drill (HDD) Crossing (Adobe page 18 of 56)	
				4.23 Preliminary Geotechnical HDD Feasibility Assessment: Hook Creek	Exhibit B7-17 – Application Volume 3 Appendix G.2 - Hook Creek Preliminary Geotechnical HDD Feasibility Assessment - Rev R (A1U0W7) Section 3.3 Geology (Adobe page 10 of 26)	
				4.24 Preliminary Geotechnical HDD Feasibility Assessment: Hook Creek	Exhibit B7-5 – Application Volume 3 Appendix G.2 - Hook Creek Preliminary HDD Feasibility Assessment - Rev 1 (Part 2 of 2) (A1U0V5)-Attachment 4: Hydrofracture Analysis D-5.8-HDD-390R-HYD (Adobe page 4 of 9)	
				4.25 Preliminary Geotechnical HDD Feasibility Assessments: All Crossings	i) Exhibit B19-4 - Volume 3 Application Update - December 2010 – (A1W8Y6) (Adobe page 1 of 10) ii) Exhibit B20-2 - Northern Gateway Response to Request for Additional Information from the JRP Session Results and Decision (A1Y3U9) (Adobe pages 10-11 of 66) iii) Exhibit B07 - Updates to Northern Gateway Pipelines s. 52 Application re Preliminary HDD and HDD Geotechnical Feasibility Assessments (A25952)	
				4.26 Preliminary Geotechnical HDD Feasibility Assessment: Morice River	Exhibit B7-19 – Application Volume 3 Appendix G.2 - Morice River Preliminary Geotechnical HDD Feasibility Assessment - Rev R – (A1U0W9) Section 3.3 Geology (Adobe page 11 of 28) and Drawing No: 08-3000-1037-3 (Adobe page 27 of 28)	
				4.27 Preliminary Geotechnical HDD Feasibility Assessment: Hunter Creek	Exhibit B7-18 – Application Volume 3 Appendix G.2 - Hunter Creek Preliminary Geotechnical HDD Feasibility Assessment - Rev R (A1U0W8) Section 3.3 Geology (Adobe page 10 of 42)	
				4.28 Preliminary Geotechnical HDD Feasibility Assessment: All Crossings	Exhibit B07 – Application Volume 3 - Updates to Northern Gateway Pipelines s. 52 Application re Preliminary HDD and HDD Geotechnical Feasibility Assessments (A25952)	
				4.29 Preliminary Geotechnical HDD Feasibility Assessment: All Crossings	Exhibit B07 – Application Volume 3 - Updates to Northern Gateway Pipelines s. 52 Application re Preliminary HDD and HDD Geotechnical Feasibility Assessments (A25952)	
				4.30 VEC Marine Mammals – Selection and Use of Key Indicators	i) Exhibit B3-14 - Application Volume 6B – Marine Terminal ESA (Part 3 of 4) – (A1T0G4), Section 11 Marine Mammals. ii) Exhibit B3-29 - Application Volume 8B Application – Marine Transportation ESA (Part 4 of 11) – (A1T0H9) Application, Section 10 Marine Mammals. iii) Exhibit B3-35 - Application Volume 8B – Marine Transportation ESA (Part 10 of 11) – (A1T0I5) Application Volume 8B, Section 13.7 Marine Mammals. iv) Exhibit B15-3 - Northern Gateway's Responses to Public and Aboriginal Remarks Regarding Information (A1V7R4), Row 18.3, Page 24 of 42 (Adobe page 24 of 42)	Attachment - Marine mammal Occurrence - REQUEST 4.30a

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Northern Gateway		https://www.nwb-one.gc.ca/lt-eng/livelink.exe/fetch/2000/90464/90552/384192/520327/524909/708043/A2C319-Letter and Information Request no. 5 to Northern Gateway?nodeId=708226&version=0		4.31 Eastern Pacific Grey Whale Migration	i) Exhibit B3-29, Application Volume 8B, Section 10, (A1T0H9), page 10-6 (Adobe page 6 of 32) ii) Exhibit B3-35, Application Volume 8B, Section 13.7 (A1T0IS), page 13-23 (Adobe page 23 of 42)	Attachment - SES Risk Assessment Details - REQUEST 4.32
				4.32 Letter of Comment from the Dogwood Initiative	Exhibit A1Z9Z4 - Letter of Comment from the Dogwood Initiative dated 24 June 2011, Memorandum prepared by Swanson Environmental Strategies contained in (Adobe pages 25 - 50 of 50), Review of Risk Assessment and Management of Spills - Pipeline and Kitimat Terminal: Northern Gateway Project	
				Aboriginal Matters		https://www.nwb-one.gc.ca/lt-eng/livelink.exe/fetch/2000/90464/90552/384192/520327/524476/724934/A2E7C0-Northern Gateway Response to PIR No. 5?nodeId=725064&version=0
				5.1 Status of Aboriginal Traditional Knowledge (ATK) Studies	i) Exhibit B24-18, Application Volume 5B, Aboriginal Traditional Knowledge Update, (A1Z6S7) Page 1-2 to 1-6 (Adobe pages 6-10 of 82) ii) Exhibit B24-18, Application Volume 5B, Aboriginal Traditional Knowledge Update, (A1Z6S7) page 1-2 (Adobe page 6 of 82) iii) Exhibit B24-18, Application Volume 5B, Aboriginal Traditional Knowledge Update, (A1Z6S7) page 1-5 (Adobe page 9 of 82)	Attachment - ATK Program Status Overview, Sept. 30, 2011 - REQUEST 5.1a
				Socio-economic		
				5.2 Aboriginal participation target	Exhibit B24-2, Application Volume 5A, Aboriginal Engagement Update, (A1Z6R1) page 4-2 (Adobe page 46 of 424)	
				5.3 Plans for monitoring regional and Aboriginal employment, training and purchasing	i) Exhibit B8-2, Application Volume 6C (A1D5V2) Section 4.4, Regional Socio and Economic Effects, Table 4.4-27 page 4.4-105 (Adobe page 119 of 273) ii) Exhibit B8-2, Application Volume 6C (A1D5V2) Section 4.4, Regional Socio and Economic Effects, Table 4.4-33 page 4.4-117 (Adobe page 131 of 273) iii) Exhibit B24-2, Application Volume 5A, Aboriginal Engagement Update, (A1Z6R1) page 4-5 (Adobe page 45 of 424) iv) Exhibit B24-2, Application Volume 5A, Aboriginal Engagement Update, (A1Z6R1) page 4-6 (Adobe page 46 of 424)	
				5.4 Construction camp policies	Exhibit B8-2, Application Volume 6C (A1D5V2) Section 4.4, Regional Socio and Economic Effects, Table 4.4-38 page 4.4-133 (Adobe page 147 of 273)	
				5.5 Aboriginal language retention initiatives	Exhibit B8-2, Application Volume 6C (A1D5V2) Section 4.4, Regional Socio and Economic Effects page 4.4-239 (Adobe page 253 of 273)	
				5.6 Monitoring work camp conditions	Exhibit B8-2, Application Volume 6C (A1D5V2) Section 4.4, Regional Socio and Economic Effects pages 4.4-239 and 4.4-241 (Adobe pages 253 and 255 of 273)	
				5.7 Aboriginal Economic Benefits Package	i) Exhibit B24-2, Application Volume 5A, Aboriginal engagement Update, (A1Z6R1) pages 4-1 and 4-2 (Adobe pages 41-42 of 424) ii) Exhibit B24-2, Application Volume 5A, Aboriginal engagement Update, (A1Z6R1) pages 4-2 to 4-4 (Adobe pages 42-44 of 424) iii) Exhibit B24-2, Application Volume 5A, Aboriginal engagement Update, (A1Z6R1) page 4-5 (Adobe Page 45 of 424)	
				5.8 Methods to evaluate potential effects of the Project on Aboriginal interests	i) Exhibit B24-18, Application Volume 5B, Aboriginal Traditional Knowledge Update, (A1Z6S7) pages 1-2 to 1-6 (Adobe pages 6-10 of 82) ii) Exhibit B24-2, Application Volume 5A, Aboriginal engagement Update, (A1Z6R1) page 4-8 (Adobe page 48 of 424) iii) Panel Session Results and Decision, Appendix A Revised List of Issues, (A1X2L7) pages 22-23 (Adobe pages 22-23 of 24)	

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				5.9 Standard mitigation measures for traditional land use sites	i) Exhibit B2-34, Application Volume 5B, Aboriginal Traditional Knowledge, Appendix C, ATK Summary of Potential Project Effects and Mitigation Measures, (A1T0E1) pages C-1 to C-354 (Adobe pages 75-428 of 428) ii) Exhibit B24-18, Application Volume 5B, Aboriginal Traditional Knowledge Update, Update to Appendix C (A1Z6S7) pages C-4 to C-71 (Adobe pages 14-82 of 82) iii) Exhibit B24-2, Application Volume 5A, Aboriginal Engagement Update, (A1Z6R1) page 4-8 (Adobe page 48 of 424) iv) Exhibit B24-2, Application Volume 5A, Aboriginal Engagement Update, (A1Z6R1) page 5-8 (Adobe page 60 of 424)	Attachment - Listing of Aboriginal Groups follows Vol 5A Update - REQUEST 5.9
				5.10 Post-AD 1846 culturally modified tree (CMT) sites	i) Exhibit B3-18, Application Volume 6C Human Environment, (A1T0G8) page 6-36 (Adobe page 140 of 156) ii) Exhibit B3-18, Application Volume 6C Human Environment, (A1T0G8) page 6-37 (Adobe page 141 of 156) iii) Exhibit B24-2, Application Volume 5A, Aboriginal Engagement Update, (A1Z6R1) pages 5-309 to 5-310 (Adobe pages 361-362 of 424)	Attachment - Summary of post-1846 CMTs Along the Proposed Pipeline, Reverts in EC - REQUEST 5.10a
	Northern Gateway	https://www.nab-one.gc.ca/livelink.exe/fetch/2009/92664/90552/384192/620327/624909/739787/A2C4C9 - Letter and Information Request no. 6 to Northern Gateway?nodeId=709789&version=0		Marine Environment		https://www.nab-one.gc.ca/livelink.exe/fetch/2009/92664/90552/384192/620327/624909/739787/A2C4C9 - Northern Gateway Response to IR P 5 No. 6?nodeId=724941&version=0
				6.1 Shading and Obstruction Effects of Marine Terminal on Migratory Fish Species	Exhibit B3-13 - Application Volume 6B - Marine Terminal Environmental and Socio-Economic Assessment (ESA), Part 2 of 4 - Sections 10.5 and 10.7: Effects on Marine Fish - Habitat Quality and Habitat Availability, (A1T0G3) (Adobe pages 1 to 62 of 62)	
				Environment and Socio-economic Matters		
				6.2 Mitigation for Potential Effects on Groundwater	Economic Assessment (ESA) - Pipelines and Tank Terminal (Part 6 of 6) - Hydrogeology (A1T0G1), page 12-7 (Adobe page 7 of 120)	
				6.3 Low Impact Construction Techniques	i) Exhibit B3-19 Application, Volume 7A, Construction Environmental Protection and Management Plan (A1T0G9) ii) Exhibit B3-1 Application, Volume 6A, Environmental and Socioeconomic Assessment, Sec 2.2 Pipeline Construction (A1T0F1) iii) NEB Filing Manual, Section A. 2 Environmental and Socio-Economic Assessment, Section A.2.3 Scope of the Environmental and Socio-economic Assessment, Guidance - "Alternatives to" and "Alternative Means" under the CEA Act iv) NEB Filing Manual, Section A. 2 Environmental and Socio-Economic Assessment, Section A.2.6.2 Mitigation Measures, Guidance - Construction Methods v) CSA Z662-07, Oil and Gas Pipeline Systems, Sections 6.2.1.1 and 6.2.7.4	
				Commercial Third Party Transportation Matters		
				6.4 Precedent Agreements	Volume 2 - Economics, Commercial and Financing Update - August 2011, Section 2.4	
				Emergency Management		

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Northern Gateway		https://www.nrg-ong.gc.ca/~/media/1384192/520927/624476/45746/A2G4YQ-Letter and Information Request No. 7 to Northern Gateway Pipelines/eng/?media=743722&vernum=0		6.5 Financial Responsibility and Compensation in the Event of a Spill	i) Exhibit B3-20 - Application Volume 7B - Risk Assessment and Management of Spills - Pipelines (Part 1 of 2) (A1T0H0), Page 5-9 (Adobe page 39 of 78) ii) Exhibit B3-37 - Application Volume 8C - Risk Assessment and Management of Spills - Marine Transportation (Part 1 of 6) (A1T0I7), Pages 5-16 to 5-18 (Adobe pages 48 - 50 of 50) iii) Exhibit B15-3 - Northern Gateway's Responses to Public and Aboriginal Remarks Regarding Information (A1V7R4), Sections 9 and 10, Pages 11 and 12 of 42 (Adobe pages 11 and 12 of 42)	Attachment - Chlores Manual - REQUEST 6.5(a.1) The International Regime for Compensation for Oil Pollution or Damage - REQUEST 6.5(a.4)
				Socio-Economic Matters		
				7.1 Consultation Dates	Northern Gateway Response to Joint Review Panel Information Request 5.9 (Attachment) (A2E7Q02)	
Northern Gateway		https://www.nrg-ong.gc.ca/~/media/1384192/520927/624476/47387/A2G2Y6-Letter and Information Request No. 8 to Northern Gateway Pipelines/eng/?media=73852&vernum=0		Engineering		https://www.nrg-ong.gc.ca/~/media/1384192/520927/624476/47387/A2G2Y6-Letter and Information Request No. 8 to Northern Gateway Pipelines/eng/?media=73852&vernum=0
				8.1 Risk Assessment: Consequence Analysis	Exhibit B35-2, Northern Gateway Response to JRP Information Request No.4 dated 22 September 2011 (A2D2Z9), Response to IR 4.16 (Adobe Page 29 of 74)	Attachment - Framework for Sample Quantitative Risk Evaluation, Nov 2011
				8.2 Risk Assessment: Combined Events	i) Exhibit B1-10, Application Volume 3 - Engineering, Construction and Operations (Part 6 of 19) (A1S9Y3), Appendix E-1 Overall Geotechnical Report on the Pipeline Route Rev. R for the Enbridge Northern Gateway Project, Bruderheim, Alberta to Kitimat, BC, Section 4.2.6 Limitations of the Risk Assessment (Adobe Page 53 of 74) ii) Exhibit B35-2, Northern Gateway Response to JRP Information Request No.4 dated 22 September 2011 (A2D2Z9), Response to IR 4.18 (Adobe Page 31 of 74)	
				8.3 Construction Feasibility Assessment for the Clore and Hoult Tunnels	i) Exhibits B32-15 and B32-16, Northern Gateway Response to JRP Information Request No.3 dated 30 August 2011 (A2CSU6 and A2CSU7), Response to IR 3.8 d), Attachments to JRP IR 3.8 d-3 and d-4 (Typical sections for a Bored Tunnel and Drill and Blast Tunnel) ii) Exhibit B1-2, Volume 1, Northern Gateway Application, Overview and General Information (A1S9X5) (Adobe Page 35 of 44) iii) Exhibit B1-2, Volume 1, Northern Gateway Application, Overview and General Information (Map depicting area in the vicinity of the Clore and Hoult Tunnels) (A1S9X5) (Adobe Page 27 of 44)	Attachment 2 Clore and Hoult Tunnels and Pipeline Feasibility Assessment

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				8.4 Head and Temperature Profiles and Wall Thickness Determination	i) Exhibit B32-2, Northern Gateway Response to JRP Information Request No.3 dated 30 August 2011 (A2C5T3), Response to IR 3.1 (Adobe Page 3 of 68) ii) Exhibit B32-6, Northern Gateway Response to JRP Information Request No.3 dated 30 August 2011 (A2C5T7), Response to IR 3.1, Attachment JRP IR 3.1 b)(Part 3 of 4) iii) Exhibit B32-7, Northern Gateway Response to JRP Information Request No.3 dated 30 August 2011 (A2C5T8), Response to IR 3.1, Attachment JRP IR 3.1 b)(Part 4 of 4) iv) Exhibit B32-2, Northern Gateway Response to JRP Information Request No.3 dated 30 August 2011 (A2C5T3), Response to IR 3.2 (Adobe Pages 5 to 11 of 68)	
				8.5 Valves and Valve Spacing	i) CSA standard Z662-11, Section 4.4.8, Note 1 ii) Exhibit B32-2, Northern Gateway Response to JRP Information Request No.3 dated 30 August 2011 (A2C5T3), Response to IR 3.3 (Adobe Pages 12 to 18 of 68) iii) Exhibit B32-10, Northern Gateway Response to JRP Information Request No.3 dated 30 August 2011 (A2C5U1), Response to IR 3.3 (Attachment JRP IR 3.3a - Preliminary Valve Location Engineering Assessment) iv) Exhibits B20-2 to B20-28, Northern Gateway Response to Request for Additional Information from the Panel Session Results and Decision (19 January 2011) (A28714)	
				8.6 Mines and Minerals	i) Exhibit B1-14, Northern Gateway Application - Volume 3 Engineering, Construction and Operations dated May 2010 (A1S9X8), Appendix B (Part 10 of 19) (Adobe Pages 26, 33 and 73 of 93) ii) National Energy Board Act (R.S.C., 1985, c. N-7) (NEB Act), Sections 79 to 83	
				8.7 Probability of Failure over Time	Exhibit B32-2, Northern Gateway Response to JRP Information Request No.3 dated 30 August 2011 (A2C5T3), Response to IR 3.3 (Adobe Pages 15 and 16 of 68)	
				Socio-Economics		
				8.8 Housing Plans for Kitimat Construction Workers	i) Exhibit B3-16, Application Volume 6C, Human Environment (A1T0G6) (Adobe Page 42 of 168) ii) Exhibit B8-2, Application Volume 6C, Section 4.4 - Human Environment (A1V5D2) (Adobe Page 145 of 273) iii) Exhibit B8-2, Application Volume 6C, Section 4.4 - Human Environment (A1V5D2) (Adobe Page 166 of 273) iv) Exhibit B8-2, Application Volume 6C, Section 4.4 - Human Environment (A1V5D2) (Adobe Pages 264-267 of 273)	
				8.9 Impacts to Trappers	Letter of Comment from Mr. Robert J. Frederick of DBA "R" Lake Holdings Trapline dated 4 September 2011 (A2C7G0)	Attachment
				8.10 Archaeological Sites	Northern Gateway Response to Haisla Nation IR 1.17(b) (A2E8Y0) (Adobe Page 63 of 252)	
				8.11 Fisheries	8.12 Human Health Risk Assessment (HHRA) - Source Modeling	
				8.13 Human Health Risk Assessment (HHRA) - Monitoring Traditional Food Consumption		
				Environment		
				8.14 Powerline Extent and Maps	i) Joint Review Panel (Panel) Information Request (IR) 1.1 dated 21 June 2011 (A1Z9A4) ii) Exhibit B27-2, Northern Gateway Responses to JRP IR No.1 dated 12 July 2011 (A30172) iii) Exhibit B3-6, Application Volume 6A, Pipelines and Tank Terminal ESA (A1T0F6) (Adobe Page 75 of 81)	Attachment-Part 1

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						Attachment - Part 2
				8.15 Pipeline Routing in Undisturbed and Relatively Undisturbed Areas	i) Exhibit B1-5, Application Volume 3 – Engineering, Construction and Operations (Part 1 of 19) (A1S9X8), Section 2 – Alternative Means to Construct the Project, Adobe Pages 15 to 27 of 132 ii) Exhibits B19-8 to B19-27, December 2010 Updated Application Volume 3 (A27738), Appendix C.2 – New Route Atlas Imagery Maps (Maps 0 through 65)	
				8.16 Access Management	i) Panel Information Request 3.16 dated 28 July 2011 (A2ASD3) ii) Exhibit B32-2, Northern Gateway Response to JRP Information Request No.3 dated 30 August 2011 (A2C5T3), Response to IR 3.16 (Adobe Pages 54 to 60 of 68) iii) Exhibit B3-19, Application Volume 7A (A1TOG9), Section 8.6.1.1 – General Wildlife Mitigation Measures (Adobe Pages 62 to 64 of 258)	
				8.17 Potential Project Effects on Marine Mammals	i) Exhibit B3-14, Application Volume 6B – Marine Terminal ESA (A1TOG4), Section 11 – Marine Mammals (Adobe Page 47 of 94) ii) Exhibit B3-29, Application Volume 8B – Marine Transportation ESA (A1TOH9), Section 10 – Marine Mammals (Adobe Pages 2 and 15 of 32) iii) Exhibit B3-35, Application Volume 8B – Marine Transportation ESA (A1TOL5), Section 13.7 – Marine Mammals (Adobe Page 34 of 42) iv) Exhibit B9-5, Marine Acoustics Technical Data Report, 2006 (A1V5S9) (Adobe Page 45 of 55)	Attachment - Mitigation
				8.18 Marine Fish Habitat Compensation Plan	i) Exhibit B3-12, Application Volume 6B (A1TOG2), Section 5 (Adobe Pages 125 and 126 of 253) ii) Exhibit B15-2, Northern Gateway's Response to the Submission Filed by the Government of Canada Departments (A1V7R3) (Adobe Pages 15 to 18 of 70)	Attachment - Meetings with Fisheries and Oceans Canada
				8.19 HADD Riparian Calculations	Exhibit B40-4, Northern Gateway Response to Federal Government Information Request 19 dated 6 October 2011 (A2E8J0) (Adobe Pages 33 to 36 of 246)	Attachment - Table 2 Summary of Estimated HADD for Temporary Losses or Alterations of Habitat
				8.20 Watercourse Crossings Field Surveys	Exhibit B40-4, Northern Gateway Response to Federal Government Information Request 21 dated 6 October 2011 (A2E8J0) (Adobe Pages 39 and 40 of 246)	Attachment - Major Drainages Crossed by the ROW in Alberta and Unserved Sites
				8.21 Crossing Methods for Watercourses with no Least Risk Period	i) Exhibit B11-1, Technical Data Report on Freshwater Fish and Fish Habitat (A1VSZ7) (Adobe Pages 32 and 140 of 178) ii) Exhibit B3-9, Application Volume 6A – Environmental and Socio-Economic Assessment – Pipelines and Tank Terminal (A1TOF9), Section 11 – Freshwater Fish and Fish Habitat (Adobe Page 19, 84, 95, 96, 121 and 122 of 140)	
				Combined Environment/Engineering		
				8.22 Pipeline Construction and Right of Way Reclamation in Mountainous Areas	i) Exhibit B1-5 to B1-23, Application Volume 3 – Engineering, Construction and Operations (A2S244) ii) Exhibit B3-19, Application Volume 7A – Construction Environment Protection Management Plan (A1TOG9)	
				Emergency Management		

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				8.23 Incorporation of Northern Gateway Commitments into Marine Emergency Management Measures	i) Northern Gateway Response to Federal Government Information Request 116 dated 6 October 2011 (A2E8J0) (Adobe Pages 238 and 249 of 246) ii) Exhibit B35-37, Attachment to JRP IR 4.32 – SES Risk Assessment (A2D3E4) (Adobe Pages 7 to 10 of 20) iii) Exhibit B39-6, Northern Gateway Response to JRP Information Request No.6 dated 6 October 2011 (A2E7Q4), Response to IR 6.5 d) – Information provided at the Community Advisory Board Meetings (Adobe Page 22 of 22) iv) Exhibit B3-37, Application Volume 8C – Risk Assessment and Management of Spills – Marine Transportation (Part 1 of 6) (A1T0I7) (Adobe Pages 48 to 50 of 50)	
				8.24 Incorporation and Enforcement of Northern Gateway Marine Shipping-Related Commitments	Northern Gateway response to Coastal First Nations (A2E4Q5) IRs 1.6, 1.10, and 1.28 (Adobe Pages 26 to 30, 39 to 42, and 125 to 140 of 213)	
				8.25 Letter of Comment from Mr. Chris Hunt on the Hours of Daylight in Kitimat	Letter of Comment from Mr. Chris Hunt dated 23 August 2011 and supporting information regarding Kitimat hours of daylight (A30890 and A30788)	
				8.26 Mass Balance Modeling at the Kitimat Terminal	i) Exhibit B3-22, Application Volume 7C – Risk Assessment and Management of Spills – Kitimat Terminal (A1T0H2), Section 9 (Examples for Response Planning) and Section 10 (Risk Assessment Related to Hydrocarbons in the Marine Environment) (Adobe Pages 109 to 141 of 194) ii) Northern Gateway Response to Government of Canada Information Request 116 dated 6 October 2011 (A2E8J0) (Adobe Page 239 of 246)	Attachment - Part 2: Hydrocarbon Mass Balance Estimates, Inputs for Spill Response Planning Technical Data Attachment - Part 2: Spill 10,000 Unmitigated Attachment - Part 2: Example of Spill 10,000 cubic meters of diluted bitumen Attachment - Part 4: Example of a Spill 36,000 cubic meters of diluted bitumen Attachment - Part 5: Spill 36,000 Unmitigated Attachment - Part 6: Spill 10,000 Unmitigated
	Transport Canada	https://www.nrb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624475/745648/A2G7L1-Letter and Information Request No. 1 to Transport Canada?nodeId=745648&vernum=0		1.1 Status of TERMPOL Review Process	Exhibit B31-2, Northern Gateway Response to Joint Review Panel Information Request 2.1 (Adobe Pages 1 and 2 of 29)	https://www.nrb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624475/745648/Transport Canada-Response to IR No. 1 from the Joint Review Panel-A28TG.pdf?nodeId=764146&vernum=0
				Regulation of Marine Shipping in Canada	i) Exhibit B3-23, Application Volume 8A – Overview and General Information – Marine Transportation ii) Exhibit B23, Northern Gateway Additional Evidence filed 8 June 2011, TERMPOL Surveys, Studies, and Technical Data Reports.	
Kinder Morgan Canada Inc.	Northern Gateway	https://www.nrb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624475/745648/710144/A2C4L6-Kinder Morgan Canada Information Request No. 1 to Northern Gateway?nodeId=710245&vernum=0	Intervenor	Open Season Process		https://www.nrb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624475/745648/A2E8K9-Northern Gateway Response to Kinder Morgan IR No. 1?nodeId=725353&vernum=0

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				1.1	i) Northern Gateway Project Application, Volume 2 (A1S9X7), Section 2.1.1, page 2-1. ii) Northern Gateway Project Application, Volume 2 (A1S9X7), Section 2.1.3, page 2-1.	Attachment - Enbridge Announces Open Season on the Gateway Project's Condensate Import Pipeline
				1.2	i) Northern Gateway Project Application, Volume 2 (A1S9X7), Section 2.1.3, page 2-1.	
				1.3 Funding Participants and Funding Support Agreements	i) Northern Gateway Project Application, Volume 2 (A1S9X7), Section 2.1.3, pages 2-1 to 2-2. ii) Northern Gateway Project Application, Volume 1 (A1S9X6), Section 5.1.2, page 5-1. iii) August, 2011 Update to Northern Gateway Project Application, Volume 2, Appendix C(1) (A2C1L8).	
				Precedent Agreements		
				1.4	i) Northern Gateway Project Application, Volume 2 (A1S9X7), Section 2.2, pages 2-2 to 2-3.	
				1.5	i) August, 2011 Update to Northern Gateway Project Application, Volume 2, Appendix C(1) (A2C1L8).	
				1.6	i) August, 2011 Update to Northern Gateway Project Application, Volume 2 (A2C1L7), Section 2.4, page 3. ii) August, 2011 Update to Northern Gateway Project Application, Volume 2, Appendix C(1) (A2C1L8).	
				1.7 Average Throughput	i) Northern Gateway Project Application, Volume 3 (A1S9X8), Section 1.2, page 1-1. ii) Northern Gateway Project Application, Volume 2 (A1S9X7), Section 3.4, page 3-3. iii) Northern Gateway Project Application, Volume 2 (A1S9X7), Section 1, pages 1-1 to 1-14. iv) Northern Gateway Project Application, Volume 2 (A1S9X7), Section 2.1.3, page 2-2.	
Kitsumkalum First Nation	Northern Gateway	https://www.nrb-one.gc.ca/llc-ong/llvlink.exe/fetch/2000/90464/90552/384192/670327/674910/702128/702781/Kitsumkalum_First_Nation_-_KKPD_Information_request_to_Northern_Gateway_A2C4C7.pdf?nodeId=709845&version=0	Intervenor	Tanker Management	Q1 - How would these winds affect the turning radius of these tankers (esp. in "lightship" conditions) travelling through these treacherous and twisted routes? Q2 - How would currents affect the turning radius of tankers (esp. in "loaded" conditions) travelling through these treacherous and twisted routes? Q3 - What is the expected wind shear and changes to momentum and intended direction of these tankers, both laden and light? Q4 - What wind and weather transit restrictions are on tanker traffic today, what restrictions will be placed on tanker traffic if Enbridge Gateway is approved, and will it be legislated? Q5 - What are the slowest speeds that laden VLCC tankers can travel at and still maintain steerage? Q6 - What speed restrictions will be placed on VLCC tankers, and will this be legislated? Q7 - How will any and all of these weather and speed restrictions be enforced? Q8 - What will be the consequences if any of these restrictions are broken? Q9 - What will happen when a large tanker tries to intersect all this traffic (every 2-3 days on average), where some traffic will be constrained by an inability to maneuver due to restrictions of fishing gear? Will a Vessel Traffic Management (VTM) zone be created? How and When?	https://www.nrb-one.gc.ca/llc-ong/llvlink.exe/fetch/2000/90464/90552/384192/670327/574476/723530/A2E4R9_-_Northern_Gateway_Response_to_Kitsumkalum_IR_No_17?nodeId=723540&version=0
				Marine Safety Protocols	Q10 - Does Transport Canada have similar LEGISLATED requirements as the requirements for tug escorts in Valdez? Q11 - What are the comparisons of horsepower and bollard pull requirements for tanker escorts operating in Alaska, as compared to BC? Q12 - Where are the current tugs based out of, what is their current response time, and what are their horsepower and bollard pull specifications? Q13 - Will radar coverage be made mandatory and legislated for tanker traffic? If so, under which legislation? Who will pay for this radar installation and operation?	

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				Financial Capacity - oil spills	Q14 - What is the financial capacity of these charter operators to pay the costs of a major oil spill?	
				"Pollution damage" is defined as: "loss or damage...limited to costs of reasonable measures of reinstatement"	Q15 - What is a "reasonable measure of reinstatement"? Q16 - If no baseline testing is performed on traditionally-harvested foods before a spill happens, how do you assess "reinstatement"? Q17 - Who gets to make the decision on what "reinstatement" means or defines?	
				Canada Shipping Act 2011 - "reasonable assistance"	Q18 - How is "reasonable assistance" defined? Are First Nations concerns addressed within a decision-making process under the CSA, 2001?	
				1992 Fund Convention	Q19 - What is the combined maximum amount of funding available for clean-up in the event of a tanker accident, utilizing the maximum available from the Civil Liability Convention and Protection & Indemnity Insurance, the International Oil Pollution Compensation Fund, 1992, the International Oil Pollution Compensation Supplementary Fund, and Canada's Ship Source Oil Pollution Fund? Is it ~\$1.8B?	
				Oil Spills	Q20 - What are the cost estimates for spill clean-up and associated damages if a VLCC ruptures anywhere in the approaches to Kitimat? Q21 - What is the oil spill workforce capacity available on the North Coast for any potential spills, how quickly could they be deployed? Q22 - Is there enough oil booms available, and where are they stored? Q23 - What is the percentage of oil normally recovered from an oil spill, as compared to what was spilled? Q24 - What oil spill modelling is employed, and were First Nations directly involved in the development of the model and the identification of sensitive habitats? Which First Nations?	
				Spill equipment and response	Q25 - What is the duration of time that oil spill clean-up attempts would be ineffective in Douglas Channel and adjoining approach channels during the fall and winter when outflow wind velocities commonly breach 30 knots, and may even reach 50+ knots? Q26 - What are the consequences of this lack of ability to respond to an oil spill? Q27 - What is the increase in area of contamination from an oil spill if wind and weather conditions precluded effective deployment of oil booms and oil spill equipment? Q28 - Would oil booms be an effective strategy to protect traditional First Nations harvesting areas during the outflow period? Q29 - Would any strategy be effective in protecting Section 35 rights for First Nations harvesting against a potential oil spill when wind velocities are commonly over 30 knots, as during the fall and winter outflow periods?	
				Bitumen verses other petrochemical spills	Q30 - What is the specific gravity of the diluted bitumen after the volatile hydrocarbon thinning component has evaporated? Would the resultant remaining bitumen hydrocarbon float or sink in fresh water? Has oil spill response for bitumen been tested?	
				Ship-source Oil Spill Fund (SSOSF)	Q31 - Will Enbridge pay a per barrel levy into Canada's Ship-source Oil Spill Fund? Q32 - Will other pipelines that depend upon tanker export/import of oil products also ante-up and pay a per barrel levy? Q33 - What are the maximum benefits that the SSOPF will pay-out? \$155M CAD? Q34 - What happens when the SSOPF is exhausted, and the clean-up costs still accumulate?	

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				Food and economic resources	Q35 - What is that socioeconomic cost of a VLCC oil spill? Q36 - Will this project be assessed using socioeconomic filters in a cost/benefit analysis? Q37 - How much is the fishing industry worth (commercial, sports and First Nations) that is put at risk? Q38 - How does one put an exact dollar figure on a loss of a lifestyle, or a loss of cultural significance?	
				Compensation	Q39 - What happens to First Nations communities if they cannot "prove" through income tax forms and other associated financial records that their livelihoods and cultural lifestyles have been affected? Q40 - If Canada is dependent upon the international marine funds that require income tax and financial records (that would be irrelevant and unavailable in the context of aboriginal food harvest) to compensate First Nations for infringement of their rights - How then will Canada compensate First Nations for infringement of their rights in the case of an oil spill? Q41 - How can Canada claim that it is fulfilling its fiduciary duty to protect First Nations rights and title if First Nations not only lose their right to harvest due to contamination from an oil spill, but also lose their right for compensation of that harvest due to lack of financial records to submit a claim to the international funds?	
				Legally defined limit of financial responsibility - Exxon Valdez case	Q42 - How would that scenario be different here in Canada?	
				Oil spills 1992 Fund Convention - compensation - registered owner of the ship	Q43 - Does this mean that non tankers are exempt from this convention, irrespective of oil/fuel carrying capacity since they do not carry oil as "cargo", but rather for their own propulsion needs? Q44 - Are the condensate tankers covered through this fund? Q45 - If condensate tankers and/or non-tanker marine traffic are not covered through this fund, then what happens if this marine traffic has a spill of fuel oil?	
				1992 Fund Convention additional compensation	Q46 - If no baseline testing is completed on traditionally-harvested First Nations foods (e.g. shellfish) for PAHs, benzene, toluene, ethylbenzene, xylene, phenolic compounds and other potential petrochemical pollutants from oil spills; how can First Nations prove that the contamination of those foods resulted from such a single-source incident, particularly if there are prior cumulative impacts from small-scale non point-source petrochemical releases from multiple bilge-pumping incidents or other industrial releases? Q47 - What constituents are found in bitumen, and are the safe limits for these contaminants in First Nations food sources? Q48 - How does the federal government intend to fulfil their fiduciary duty to protect Section 35 harvesting rights for First Nations against potential oil contamination from any spill? Q49 - How does Canada plan to assess potential infringement of aboriginal rights and title without prior baseline testing on traditionally-harvested foods? Q50 - Have all potentially-affected First Nations been meaningfully consulted and their concerns addressed and accommodated with respect to being involved at the planning stages of spill trajectory modelling, oil spill clean-up response, and risk assessment within the TERMPOL Pacific States/British Columbia Oil Spill Task Force, and the Regional	

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				1.3 High-current Watercourse Booms	i) Exhibit B21-2 – General Oil Spill Response Plan – Enbridge Northern Gateway (March 2011) – A1Y3Y8, Section 8.4, Containment, Table 8-1 Boom Selection Matrix, page 8-7 (Adobe page 81 of 117)	
				1.4 Laden or Ballast Transits	i) Exhibit B3-26 – Vol 8B – Gateway Application – Marine Transportation ESA (Part 1 of 11) – A1T0H6, Section 2.5, Assumptions for the ESA page 2-9 (Adobe page 29 of 123) ii) Exhibit B3-26 – Vol 8B – Gateway Application – Marine Transportation ESA (Part 1 of 11) – A1T0H6, Section 2.3, Oil and Condensate Tanker Specifications and Traffic, page 2-2 (Adobe page 22 of 123)	
				1.5 Limit of Financial Liability at Marine Terminal	i) Exhibit B3-22 - Vol 7C – Gateway Application – Risk Assessment and Management of Spills – Kitimat (Part 1 of 1) – A1T0H2, Section 5.9 Financial Responsibility, page 5-15 (Adobe page 43 of 194) ii) Exhibit B3-22 - Vol 7C – Gateway Application – Risk Assessment and Management of Spills – Kitimat (Part 1 of 1) – A1T0H2, Section 5.9.3 Ship Owner Liability, page 5-16 (Adobe page 44 of 194)	
				1.6 Majority of Tankers Serving West Coast U.S.	i) Exhibit B1-2 - Vol 1 – Gateway Application – Overview and General Information (Part 1 of 2) – A1S9X5, Section 1.2 Purpose of Project, page 1-3 (Adobe page 15 of 44) ii) Exhibit B3-26 - Vol 8B – Gateway Application – Marine Transportation ESA (Part 1 of 11) – A1T0H6, Section 2.5 Assumptions for the ESA, page 2-8 (Adobe page 28 of 123) iii) Exhibit B3-26 - Vol 8B – Gateway Application – Marine Transportation ESA (Part 1 of 11) – A1T0H6, Section 2.4.1 Oil and Condensate Tankers, page 2-5 (Adobe 25 of 123) iv) Exhibit B3-26 - Vol 8B – Gateway Application – Marine Transportation ESA (Part 1 of 11) – A1T0H6, Section 2.4.1 Oil and Condensate Tankers, page 2-3 (Adobe 23 of 123)	
				1.7 Manoeuvring Studies – Towing Rope and Weather Conditions	i) Exhibit B23-18 – TERMPOL TDR – Manoeuvring Study of Escorted Tankers to and from Kitimat Part 1 Executive Summary (FORCE Technology) – A1Z6K2, Section 4.2 Navigational routes, page 44 (Adobe page 47 of 64)	
				1.8 Manoeuvring Studies – Response Times	i) Exhibit B23-18 – TERMPOL TDR – Manoeuvring Study of Escorted Tankers to and from Kitimat Part 1 Executive Summary (FORCE Technology) – A1Z6K2, Section 4.9 Emergency manoeuvres, page 53 (Adobe 56 of 64)	
				1.9 Manoeuvring Studies – Weather Conditions	i) Exhibit B23-18 – TERMPOL TDR – Manoeuvring Study of Escorted Tankers to and from Kitimat Part 1 Executive Summary (FORCE Technology) – A1Z6K2, Section 5.3 Approach via Caamaño Sound, page 57 (Adobe 57 of 64)	
				1.10 Manoeuvring Studies – Poor Visibility	i) Exhibit B23-22 - Appendix C – TERMPOL TDR – Manoeuvring Study of Escorted Tankers Part 2 Main Report (FORCE Technology) A1Z6K6 ii) Exhibit B3-35 - Vol 8B – Gateway Application – Marine Transportation ESA (Part 10 of 11) – A1T0I5, Section 13.5.3 Climate and Oceanographic Factors, page 13-15 (Adobe page 15 of 42)	
				1.11 Operational Safety Limits	i) Exhibit B3-23 - Vol 8A – Gateway Application – Overview and General Information – Marine Transportation (Part 1 of 3) – A1T0H3, Section 1.1 Overview of Tanker Operations and Environmental Protection, page 1-1 (Adobe page 13 of 44) ii) Exhibit B3-35 - Vol 8B – Gateway Application – Marine Transportation ESA (Part 10 of 11) – A1T0I5, Section 13.5.3 Climate and Oceanographic Factors, page 13-15 (Adobe page 15 of 42) iii) Exhibit B3-24 – Vol 8A – Gateway Application – Overview and General Information – Marine Transportation (Part 2 of 3) – A1T0H4, Section 4.2 Route Analysis, Approach Characteristics, and Navigability Survey (T3.5), page 4-15 (Adobe page 15 of 92) iv) Exhibit B23-18 – TERMPOL TDR – Manoeuvring Study of Escorted Tankers to and from Kitimat Part 1 Executive Summary (FORCE Technology) A1Z6K2, page 42 (Adobe page 45 of 64)	

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				1.12 Pilot Boarding Station Locations and Use	i) Exhibit B3-24 – Vol 8A – Gateway Application – Overview and General Information – Marine Transportation (Part 2 of 3) – A1T0H4 , Section 4.2.14 Pilotage Requirements, page 4-32 (Adobe page 32 of 92) ii) B3-26 – Vol 8B – Gateway Application – Marine Transportation ESA (Part 1 of 11) – A1T0H6, Section 2.4.1 Oil and Condensate Tankers, page 2-5 (Adobe page 25 of 123) iii) Pacific Pilotage Authority, "Pine Island to Northern Ports 2009 to present," attached as Schedule A	
				1.13 Places of Refuge Contingency Plan	i) Exhibit B21-2 – General Oil Spill Response Plan – Enbridge Northern Gateway (March 2011) – A1Y3Y8, Section 4.7.3 Places of Refuge, page 4-8 (Adobe page 54 of 116)	
				1.14 Properties and Fate of Hydrocarbons – Exclusion of CLB	i) Exhibit B16-31 – Properties and Fate from Spills at CCAA TDR Part (1 of 1) – A1V8F9, Section 4.2 General Fate of the Three Oils, page 4-4 (Adobe page 40 of 132) ii) Exhibit B16-32 – Properties and Fate from Spills at OWA TDR Part (1 of 1) – A1V8G0	
				1.15 Rabaska 2004 report	i) Exhibit B23-34 – TERMPOL TDR – Marine Shipping Quantitative Risk Analysis – A1Z6L8 , Section 2 Methodology, page 2-7 (Adobe page 19 of 151) ii) Exhibit B23-34 – TERMPOL TDR – Marine Shipping Quantitative Risk Analysis – A1Z6L8 , Section 5.1.2 Assumptions on Sailing Time Relevant to Incidents, page 5-51 (Adobe page 63 of 151)	
				1.16 Response Capacity for OWA	i) Exhibit B3-37 – Vol 8C – Gateway Application – Risk Assessment and Management of Spills – Marine Transportation (Part 1 of 6) – A1T0I7 , Section 5.5 Equipment and Personnel, page 5-11 to 5-13 (Adobe page 43 to 45 of 50)	
				1.17 Route for Condensate Tankers	i) Exhibit B1-2 – Vol 1 – Gateway Application – Overview and General Information (Part I of 2) – A1S9X5, Section 1.2 Purpose of Project, page 1-3 (Adobe page 15 of 44) ii) Exhibit B3-26 – Vol 8B – Gateway Application – Marine Transportation ESA (Part 1 of 11) – A1T0H6 , Section 2.4.1 Oil and Condensate Tankers, page 2-5 (Adobe page 25 of 123) iii) Exhibit B3-37 – Vol 8C – Gateway Application – Risk Assessment and Management of Spills – Marine Transportation (Part 1 of 6) – A1T0I7 , Section 3 Probability of Hydrocarbon Spills, Table 3-1 Return Period of a Spill Associated with the Tanker Traffic for the Northern Gateway Project, page 3-4 (Adobe page 26 of 50) iv) Exhibit B23-34 – TERMPOL TDR – Marine Shipping Quantitative Risk Analysis – A1Z6L8 , Table 7-7 Assumed distribution of ship traffic to and from the Kitimat Terminal, page 7-105 (Adobe page 117 of 151)	
				1.18 Tanker Acceptance Program	i) Exhibit B3-24 – Vol 8A – Gateway Application – Overview and General Information – Marine Transportation (Part 2 of 3) – A1T0H4 , Section 4.1.4.1 Kitimat Terminal Tanker Acceptance (Vetting) Program, page 4-12 (Adobe page 12 of 92) ii) Exhibit B3-24 – Vol 8A – Gateway Application – Overview and General Information – Marine Transportation (Part 2 of 3) – A1T0H4 , Section 4.1.4.1 Kitimat Terminal Tanker Acceptance (Vetting) Program, page 4-13 (Adobe page 13 of 92)	
				1.19 Tug Escort Study	i) Exhibit B3-24 – Vol 8A – Gateway Application – Overview and General Information – Marine Transportation (Part 2 of 3) – A1T0H4, Section 4.2 Route Analysis, Approach Characteristics, and Navigability Survey (T3.5), page 4-14 (Adobe page 14 of 92) ii) Glosten Associates, "Manoeuvring Simulations," attached as Schedule B	

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				1.20 Worst-case Scenario Spill	i. Exhibit B23-34 – TERMPOL TDR – Marine Shipping Quantitative Risk Analysis – A1Z6L8, Section 6.3 Conditional Probability of a Spill from Incidents Occurring during Transits to and from the Marine Terminal, page 6-78 (Adobe page 90 of 151) ii. Exhibit B23-15 – TERMPOL Surveys and Studies – Section 3.15 – General Risk Analysis and Intended Methods of Reducing Risk – A1Z6J9, Section 12 Mass Balance Examples for Response Planning, page 12-5 (Adobe page 215 of 388) iii. B3-42 – Vol 8C – Gateway Application – Risk Assessment and Management of Spills – Marine Transportation (Part 6 of 6) – A1T0J2, Section 10.4 Selection of Mass Balance Examples for the CCAA and OWA, page 10-5 (Adobe page 5 of 176)	
				1.21 Probability of Oil Spills from Pipeline	i) Exhibit B3-20 – Vol 7B – Risk Assessment and Management of Spills – Pipelines (Part 1 of 2) – A1T0H0, Section 3 Probability of Hydrocarbon Spills, page 3-1 to 3-3 (Adobe page 19 to 21 of 78)	
				1.22 Pipeline Risk Assessment	i) B1-10 – Vol 3 – Gateway Application – Engineering, Construction and Operations (Part 6 of 19) – Appendix E, Report E-1 – A1S9Y3, Section 4.2.6 Limitations of the Risk Assessment, page 42 (Adobe page 52 of 74) ii) B1-10 – Vol 3 – Gateway Application – Engineering, Construction and Operations (Part 6 of 19) – Appendix E, Report E-1 – A1S9Y3, Section 4.2.3 Hazards probabilities, page 39 (Adobe page 49 of 74)	
				1.23 Risks to Pipeline from Earthquakes	i) B1-10 – Vol 3 – Gateway Application – Engineering, Construction and Operations (Part 6 of 19) – Appendix E, Report E-1 – A1S9Y3, Section 3.3.1 Geologic Settings, page 26 (Adobe page 36 of 74) ii) B1-10 – Vol 3 – Gateway Application – Engineering, Construction and Operations (Part 6 of 19) – Appendix E, Report E-1 – A1S9Y3, Section 3.3.3 Natural Hazards due to Seismic Events, page 29 (Adobe page 39 of 74)	
				1.24 Pipeline Monitoring and Emergency Response	i) B1-5 – Vol 3 – Gateway Application – Engineering, Construction and Operations (Part 1 of 19) – A1S9X8, Section 10.1.4: Construction Infrastructure, page 10-3 (Adobe page 91 of 132) ii) B20-2 – Northern Gateway Response to Request for Additional Information from the JRP Session Results and Decision (Jan 19, 2011) – A1Y3U9, Section C.2.7, Difficult access to pipeline right of way (terrain and in tunnels) in all seasons, page 30 (Adobe page 34 of 66) iii) B2-1 – Vol 4 – Gateway Application – Public Consultation (Part 1 of 25) – A1S9Z8, Section 2.5.1 Identification of Stakeholders, page 2-5 (Adobe page 15 of 153) iv) B1-5 – Vol 3 – Gateway Application – Engineering, Construction and Operations (Part 1 of 19) – A1S9X8, Section 5.1: Tables 5-1 and 5-2, page 5-1 (Adobe page 41 of 132)	
				1.25 Climate Adaptation – Ongoing Changes	i) Whitfield, P.H., 2003, “Retrospective and Modelling Recent Changes in Streamflow in Northern BC,” Proceedings of the Adapting to Climate Change in Northern British Columbia Workshop, February 20, 2003, Prince George, B.C., page 18 (Adobe page 21 of 71), http://www.env.gov.bc.ca/cas/pdfs/adapt-wshpforest.pdf , attached as Schedule C ii) Exhibit B1-14 – Vol 3 – Gateway Application – Engineering, Construction and Operations (Part 10 of 19), Appendix E, Report E-1, Table B-1 – A1S9Y7, Km 492.7 to 493.15, page 28 (Adobe page 30 of 93) iii) DeGeer, D. and Nessim, M., “Arctic Pipeline Design Considerations,” Proceedings of the ASME 27th International Conference on Offshore Mechanics and Arctic Engineering, June 15-20, 2008 Estoril, Portugal. OMAE 2008-57802, attached as Schedule D	

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				1.26 Climate Adaptation – Increased Risk of Natural Disasters	i) Carroll, Allan L.; Taylor, Steve W.; Regniere, Jacques; and Safranyik, 2003, Les; "Effect of climate change on range expansion by the mountain pine beetle in British Columbia," The Bark Beetles, Fuels, and Fire Bibliography, Paper 195, http://digitalcommons.usu.edu/barkbeetles/195 , attached as Schedule E ii) Exhibit B3-11 – Vol 6A P2 – Gateway Application – Pipelines and Tank Terminal ESA (Part 6 of 6) – A1TOG1, Section 14 Effects of the Environment on the Pipelines and Tank Terminal, page 14-17 (Adobe page 113 of 120) iii) Exhibit B3-11 – Vol 6A P2 – Gateway Application – Pipelines and Tank Terminal ESA (Part 6 of 6) – A1TOG1, Section 14 Effects of the Environment on the Pipelines and Tank Terminal, page 14-2 (Adobe page 98 of 120) iv) Geertsema, M.; Schwab, J.W.; Blais-Stevens, A. and M.E. Sakais, 2009, "Landslides impacting linear infrastructure in west central British Columbia," Natural Hazards 48:59-72, attached as Schedule F	
				1.27 Pipeline Oil Spill Scenarios	i) Management of Spills – Pipelines (Part 1 of 2) – A1TOH1, Section 9 Examples of Hypothetical Spills Along the Pipelines, page 9-1 to 9-29 (Adobe page 1 to 29)	
				1.28 Effects of Decommissioning on Freshwater Fish	i) Exhibit B3-9 – Vol 6A P2 – Gateway Application – Pipelines and Tank Terminal ESA – (Part 4 of 6), Section 11, Freshwater Fish and Fish Habitat, page 11-124 (Adobe page 124 of 140)	
				1.29 Commercial Support	i) Exhibit B1-4 – Vol 2 – Gateway Application – Economics, Commercial and Financing (Part 1 of 1) – A1S9X7, Section 2 Commercial Considerations, page 2-1 to 2-2 (Adobe page 25 to 26 of 166) ii) Exhibit B1-4 – Vol 2 – Gateway Application – Economics, Commercial and Financing (Part 1 of 1) – A1S9X7, Section 1.4 Condensate Supply, page 1-10 to 1-12 (Adobe page 20 to 22 of 166)	
		https://www.norcan.ca/Link.aspx?link=/2009/90454/90552/384192/620327/624913/695919/747519/A2H005-Living Oceans Society, Raincoast Conservation Foundation, ForestEthics Information Request 2, Nov 2, 2011.pdf?nodeId=747586&version=0		2.1 HAZID Workshop Participants	Exhibit B23-34 – TERMPOL TDR – Marine Shipping Quantitative Risk Analysis, Section 4.3 Local Meetings and Interviews, page 4-46 (Doc. No. A1Z6L8)	https://www.norcan.ca/Link.aspx?link=/2009/90454/90552/384192/620327/624476/764513/Northern Gateway Pipelines Limited Partnership – Northern Gateway Response to Justice IR No. 2 – A2H012?nodeId=764580&version=0
				2.2 Manoeuvring Studies – current shear	i. Exhibit B23-18 – TERMPOL TDR – Manoeuvring Study of Escorted Tankers to and from Kitimat Part 1 Executive Summary (FORCE Technology), Section 3.4 Combination of environmental parameters, page 12 (Doc. No. A1Z6K2).	
				2.3 Manoeuvring Studies – poor visibility	i. Northern Gateway Response to Living Oceans, Raincoast and ForestEthics Information Request No. 1, Section 1.10 Manoeuvring Studies – Poor Visibility, page 14 of 48 (Doc. No. A2E8L1).	
				2.4 Properties and Fate of Hydrocarbons – condensate explosion risk	Exhibit B16-31 – Properties and Fate from Spills at CCAA_TDR_Part (1 of 1), Table 3-2 Spill Related Properties of CRW Condensate, page 3-5 (Doc. No. A1V8F9)	
				2.5 Properties and Fate of Hydrocarbons – SYN stable emulsions	i. Exhibit B16-31 – Properties and Fate from Spills at CCAA_TDR_Part (1 of 1), Section 3.1 Properties of Syncrude Synthetic Oil, page 3-1 (Doc. No. A1V8F9) ii. Exhibit B16-31 – Properties and Fate from Spills at CCAA_TDR_Part (1 of 1), Table 3-1 Spill-Related Properties of Syncrude Synthetic Light Oil, page 3-2 (Doc. No. A1V8F9)	
				2.6 Properties and Fate of Hydrocarbons – CLB stable emulsions	i. Exhibit B16-31 – Properties and Fate from Spills at CCAA_TDR_Part (1 of 1), Section 3.3 Properties of Cold Lake Bitumen Diluted with Condensate, page 3-8 (Doc. No. A1V8F9) ii. Exhibit B16-31 – Properties and Fate from Spills at CCAA_TDR_Part (1 of 1), Table 3-3 Spill-Related Properties of Cold Lake Bitumen Diluted with Condensate, page 3-9 (Doc. No. A1V8F9)	

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				2.7 Properties and Fate of Hydrocarbons – MKH stable emulsions	i. Exhibit B16-31 - Properties and Fate from Spills at CCAA_TDR_Part (1 of 1), Section 3.4 Properties of MacKay River Heavy Bitumen Diluted with Synthetic Light Oil, page 3-11 (Doc. No. A1V8F9) ii. Exhibit B16-31 - Properties and Fate from Spills at CCAA_TDR_Part (1 of 1), Table 3-4 Spill-Related Properties of MacKay Heavy Bitumen Diluted with Synthetic Light Oil, page 3-12 (Doc. No. A1V8F9) iii. Exhibit B16-31 - Properties and Fate from Spills at CCAA_TDR_Part (1 of 1), Section 2.5 Pour Point, page 2-4 (Doc. No. A1V8F9)	
				2.8 Properties and Fate of Hydrocarbons – temperature of 20°C	i. TDR: Properties and Fate of Hydrocarbons Association with Hypothetical Spills at the Marine Terminal and in the Confined Channel Assessment Area, Section 2 Physical Property Tests: Methods, Page 2-1 (Doc. No. A1V8F9)	
				2.9 Water Quality: Acid Rock Drainage	i. Terms of Reference, Joint Review Panel Agreement (Doc. No. A1R4D5) ii. Scope of the Factors – Northern Gateway Pipeline Project. CEAA (August 2009) (Doc. No. A2F2V2) iii. A Framework for the Application of Precaution in Science-Based Decision Making about Risk. Canada. 2003, attached as Schedule A iv. Canadian Environmental Assessment Act v. NEB Filing Manual (2009) vi. Sec. 52 Northern Gateway Project Application (Vol. 6C: Environmental and Socio-Economic Assessment – Human Environment), page 2-5 (Doc. No. A1T0G6) vii. Sec. 52 Northern Gateway Project Application (Vol. 7A: Construction Environmental Protection and Management Plan – A3.3.10) (Doc. No. A1T0G9) viii. Sec. 52 Northern Gateway Project Application (Vol. 3: Engineering, Construction and Operations – E-1, E-1-1, E-1-2, and E-2) (Doc. No. A1S9Y3) ix. Policy for Metal Leaching and Acid Rock Drainage at Minesites in British Columbia. Price & Errington. 1998, attached as Schedule B. x. Draft guidelines and recommended methods for the prediction of metal leaching and acid rock drainage at minesites in British Columbia. Price. 1997, attached as Schedule C.	Attachment - Acid Rock Drainage Testing Results Core and Pout Tunnel Arrangements NIMBUS Model 10.0C Nov 15, 2011
				2.10 Freshwater Fish and Fish Habitat	i. Terms of Reference, Joint Review Panel Agreement (Doc. No. A1R4D5) ii. Scope of the Factors – Northern Gateway Pipeline Project. CEAA (August 2009) (Doc. No. A2F2V2) iii. A Framework for the Application of Precaution in Science-Based Decision Making about Risk. Canada. 2003, attached as Schedule A iv. Canadian Environmental Assessment Act v. NEB Filing Manual (2009) vi. Sec. 52 Northern Gateway Project Application (Vol. 7A: Construction Environmental Protection and Management Plan – A3.3.29) (Doc. No. A1T0G9) vii. Sec. 52 Northern Gateway Project Application (Vol. 6A: ESA – Pipelines and Tank Terminal, Section 11 Freshwater Fish and Fish Habitat) (Doc. No. A1T0F9) viii. Sec. 52 Northern Gateway Project Application. B11-1. Technical Data Report B11 - Terrestrial (3 of 7) (Doc. No. A1V5Z7)	
				2.11 Basis for claim of no impact from decommissioning pipelines	i. Northern Gateway Response to Living Oceans, Raincoast and Forest Ethics Information Request No. 1, Section 1.28 Effects of Decommissioning on Freshwater Fish, page 47 of 48 (Doc. No. A2E8L1)	
Metis Nation of Alberta - Regions 4 and 6	Northern Gateway	https://www.nrb-ong.ca/ile/ara/linked.exe/fetch/2000/90464/90552/384192/628327/674476/723510/710431/A2C4TS-Metis Nation of Alberta - IR No 1 to NGP - Aug 25 2011.pdf?nodeId=723510&vernum=0	Intervenor	1.1 Aboriginal Consultation	Application Volume 5A, Application Volume 5A Update	https://www.nrb-ong.ca/ile/ara/linked.exe/fetch/2000/90464/90552/384192/628327/674476/723510/A2F4SC-Northern Gateway Response to Metis Nation of Alberta (IR No 1 to NGP - Aug 25 2011.pdf?nodeId=723543&vernum=0

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Michel First Nation	Northern Gateway	https://www.nrb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/764588/A2H1C5-Michel_Frst_Nation-IR_August_25_2011_to_NGP.pdf?recordId=710089&vernum=0	Intervenor	Volume 5B – Section 5.3.4 “Engagement Activities Update”	i. Volume 5B, Section 5.3.4, page 5-79 ii. Volume 5B, Section 5.3.4 page 5-79 iii. Volume 5B, Section 5.3.4, page 5-80 iv. Volume 5B, Section 5.3.4, page 5-80 v. Volume 5B, Section 5.3.4, page 5-83 vi. Volume 5B, Section 5.3.4 pages 5-79 to 84	https://www.nrb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/723530/A2E451-Northern_Gateway_Response_to_Michel_FN_IR_No_17?recordId=723467&vernum=0 Attachment - REQUEST 1.1.6
Minchin, Murray (Douglas Channel Watch)	Northern Gateway	https://www.nrb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/764513/A2H1C5-IR_-_Questions_DCW_MM.pdf?recordId=748263&vernum=0		1.1	i. http://www.ccaa.gc.ca/050/documents_staticpost/ccaref_21799/3085/09_Att_4-2.pdf (as of Nov 1st, 2011) Attachment JRP IR 4.2 Location and Properties of Avalanche Paths that Affect the Proposed Northern Gateway Pipeline Alignment through the Coast Mountains 3.5. W portal of Hault tunnel at KP 1085 page 8 ii. http://www.ccaa.gc.ca/050/documents_staticpost/ccaref_21799/3085/09_Att_4-2.pdf (as of Nov 1st, 2011) Attachment JRP IR 4.2 Location and Properties of Avalanche Paths that Affect the Proposed Northern Gateway Pipeline Alignment through the Coast Mountains 3.5. W portal of Hault tunnel at KP 1085 page 9	https://www.nrb-one.gc.ca/ll-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624476/764513/Northern_Gateway_Pipeline_Limited_Partnership-Northern_Gateway_Response_to_Douglas_Channel_Watch_IR_No_17?recordId=764577&vernum=0
				1.2	i. http://www.ccaa.gc.ca/050/documents_staticpost/ccaref_21799/2293/PA-U.pdf (as of Nov 1st, 2011) Hunter Creek Preliminary HDD Feasibility Assessment Report 3.6 Contingency Plan page 10	
				1.3	i. http://www.northerngateway.ca/files/application/MASTER_Vol%207B_Final_14May10.pdf (as of Nov 1st, 2011) Volume 7B: Risk Assessment and Management of Spills - Pipelines 9.5.1 Spill Characteristics page 9-23 ii. http://www.northerngateway.ca/files/application/MASTER_Vol%207B_Final_14May10.pdf (as of Nov 1st, 2011) Volume 7B: Risk Assessment and Management of Spills - Pipelines 9.5 Example 4: Large Hydrocarbon Release in a High-Gradient Watercourse (KP 1098.7, Hunter Creek) page 9-22 iii. http://www.northerngateway.ca/files/application/MASTER_Vol%207B_Final_14May10.pdf (as of Nov 1st, 2011) Volume 7B: Risk Assessment and Management of Spills - Pipelines Table 9-4 Response Action Example in High-Gradient Watercourses (cont'd) page 9-26	
				1.4	i. http://www.ccaa.gc.ca/050/documents_staticpost/ccaref_21799/2293/PA-WE.pdf (as of Nov 1st, 2011) Wedene River Preliminary HDD Feasibility Assessment Report 3.1 Site Location and Access Details page 6 ii. http://www.ccaa.gc.ca/050/documents_staticpost/ccaref_21799/2293/PA-WE.pdf (as of Nov 1st, 2011) Wedene River Preliminary HDD Feasibility Assessment Report 3.6 Contingency Plans page 10	
				1.5	i. http://www.northerngateway.ca/files/NGP-FS-04-001_Commitment%20to%20Public%20Engagement.pdf (as of Nov 1st, 2011) Commitment to Public Engagement, fact sheet	
				1.6	i. http://www.northerngateway.ca/jrp-maps (as of Nov 1st, 2011) Potential Full-Bore Rupture Releases Potential Full-Bore Rupture Releases and Spill Extents - KP 1105 to KP 1114 ii. http://www.northerngateway.ca/jrp-maps (as of Nov 1st, 2011) Potential Full-Bore Rupture Releases Potential Full-Bore Rupture Releases and Spill Extents - KP 1076 to KP 1085	

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North Coast Cetacean Society	Northern Gateway	https://www.net-one.gc.ca/ll-eng/liveLink.exe/fatch/2000/80464/50552/384192/620327/624919/700068/710059/A2C412 - North Coast Cetacean Society - Information Request 1.pdf?nodeId=710123&version=0	Intervenor	1.1 Navigational Hazards in Camano Sound Entrance	i) Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socio-economic Assessment (ESA)-Marine Transportation. Section 10.1: Setting, page 10-5, figure 10-1. ii) Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socio-economic Assessment (ESA)-Marine Transportation. Section 2.3: Oil and Condensate Tanker Specifications and Traffic, page 2-2, Table 2-2,	https://www.net-one.gc.ca/ll-eng/liveLink.exe/fatch/2000/80464/50552/384192/620327/624919/725347/A2F9L2 - Northern Gateway Response to North Coast Cetacean IR No. 17.pdf?nodeId=725523&version=0
				1.2 Proposed Mitigation: Whale Monitoring Vessel	i) Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socio-economic Assessment (ESA)-Marine Transportation. Section 5.1: Vessel Operations, page 5-2, paragraph 3. ii) Northern Gateway Pipelines Inc. Application, Volume 8b Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socioeconomic Assessment (ESA)-Marine Transportation., Section 10.3: General Mitigation Measures, Page 10-10, paragraphs 4 and 5. iii) Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socio-economic Assessment (ESA)-Marine Transportation. Section 10.3: General Mitigation Measures, page 10-10, paragraph 5.	
				1.3 Proposed Mitigation: Remote Detection Techniques for Whale Monitoring	i) Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socio-economic Assessment (ESA)-Marine Transportation, Section 10.3: General Mitigation Measures, Page 10-10, paragraph 3.	
				1.4 Cumulative underwater noise effects on Baleen Whales in OWA	i) Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socio-economic Assessment (ESA)-Marine Transportation. Section 13.7.5.2: Effects on Behaviour due to Underwater noise (on Baleen Whales) Page 13-13.	
				1.5 Maximum Wind Speeds for Hecate Strait	i) Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socio-economic Assessment (ESA)-Marine Transportation. Section 3.1.4, paragraph 5.	
				1.6 Tides and currents in CCAA	i) Northern Gateway Pipelines Inc. Application, Volume 8b, Section 3.1.5: Tides.	
				1.7 Whale Channel	i) Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socio-economic Assessment (ESA)-Marine Transportation. Section 2.4.1: Oil and Condensate Tankers, page 2-3 to 2-5. ii) Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socio-economic Assessment (ESA)-Marine Transportation. Section 2.4.1: Oil and Condensate Tankers. Figure 2-1: Northern and Southern Approaches in the Territorial Sea of Canada, page 2-4. iii) Northern Gateway Pipelines Inc. Sec. 52 Application, Volume 8b: Environmental and Socio-economic Assessment (ESA)-Marine Transportation. Section 2.4.1: Oil and Condensate Tankers. Figure 2-2: Confined Channel Assessment Area and Vessel Speed Restrictions, page 2-7.	
				1.8 Fishing Lodge Area of Operation in Open Water Area	i) Northern Gateway Pipelines Inc. Application, Volume 8b, Section 13.8.4.4: Residual Effects, page 13-53, figure 13-8: Recreational and Commercial recreational Use in the Open Water Area.	

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Northwest Institute for Bioregional Research	Northern Gateway	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/699699/710910/A2C459 - Northwest Institute - Information Request 1.pdf?modelid=710911&vernum=0	Intervenor		Pages 1 and 5 of Northern Gateway Response (March 2011) to Request for Additional Information from the Joint Review Panel Session Results and Discussion, January 19, 2011	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/725347/A2F813 - Northern Gateway Response to Northwest Institute IR No. 1?modelid=725266&vernum=0
	Northern Gateway	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/742346/A2G300 - Information Request No. 2 and 3 to Northern Gateway?modelid=742346&vernum=0&redirect=3		Request 2 - Maps showing consequence areas of potential volume release		https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/754513/A2H473 - Northern Gateway Pipeline Partnership - Northern Gateway Response to Northwest Institute IR No. 2 - A2H473?modelid=754743&vernum=0
Physicians of Haida Gwaii	Northern Gateway	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/710631/A2C5C6 - Information Request 1: Physicians of Haida Gwaii.pdf?modelid=710632&vernum=0		IR 1.1: Probability of Hydrocarbon Spills	i) Exhibit B3-37 - Vol 8C - Gateway Application - Risk Assessment and Mgmt of Spills - Marine Transportation (Part 1 of 6) - A1T0I7, Section 3: Probability of Hydrocarbon Spills (Adobe p 23-25) ii) Exhibit B3-37 - Vol 8C - Gateway Application - Risk Assessment and Mgmt of Spills - Marine Transportation (Part 1 of 6) - A1T0I7, Section 3, Table 3-1 (Adobe p26): Return Period of a Spill Associated with the Tanker Traffic for the Northern Gateway Project iii) Exhibit B23-34 - TERMPOL TDR - Marine Shipping Quantitative Risk Analysis A1Z6L8	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/A2I9K57 - Northern Gateway Pipeline Partnership - Northern Gateway Response to Physicians of Haida Gwaii IR No. 1 - A2I9K57?modelid=754745&vernum=0
				IR 1.2: Incident Prevention & Response	i) Exhibit B3-37 - Vol 8C - Gateway Application - Risk Assessment and Mgmt of Spills - Marine Transportation (Part 1 of 6) - A1T0I7, Section 5, Incident Prevention and Response, Table 5-4 Proposed Hydrocarbon Recovery Capability (Adobe p45) ii) Exhibit B21-2 - General Oil Spill Response Plan - Enbridge Northern Gateway (March 2011) - A1Y3Y8, Section 8, Marine Response, Figure 3-2 (Adobe p79)	
				IR 1.3: Hydrocarbon Mass Balance Estimates	i) Exhibit B3-41 - Vol 8C - Gateway Application - Risk Assessment and Mgmt of Spills - Marine Transportation (Part 6 of 6) - A1T0J2, Section 10, Mass Balance Examples for Response Planning ii) Exhibit B25-2 - Hydrocarbon Mass Balance Estimates - Inputs for Spill Response Planning TDR - A1Z6T0; Page 4-1 to 4-27.	
				IR 1.4: Compensation for those affected by Spills	i) B3-41 - Vol 8C - Gateway Application - Risk Assessment and Mgmt of Spills - Marine Transportation (Part 5 of 6) - A1T0J1	
Saulteau First Nations	Northern Gateway	https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/710450/A2C4V5 - Saulteau First Nations - Northern Gateway Pipeline - Saulteau FN Request 1 - Aug 25 11.pdf?modelid=710454&vernum=0	Intervenor			https://www.nwb-one.gc.ca/ll-eng/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/723530/A2E4S8 - Northern Gateway Response to Saulteau FN IR No. 1?modelid=723653&vernum=0
				1.1 Aboriginal Engagement and Assessment of Impacts	i) Application Vol. 1: Overview and General Information; Registry Reference Numbers A1S9X5 and A1S9X6 ii) Application Vol. 5A including update: Aboriginal Engagement [Specific Sections in Brackets]; Reference Number A1Z6R1 iii) Application vol. 5B: Aboriginal Traditional Knowledge; Registry Reference Number A1Z6S7	Attachment - REQUEST 1.1.1
				1.2 Comparison of Alternatives	i) Application Volume 1: Overview and General Information; Registry Reference Number A1S9X5, page 4-3	

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Shannon, David	Northern Gateway	https://www.northern-gateway.ca/links/link.exe?fetch/2009/90454/90552/384192/620327/624228/773567/7099R2/AZC453 - David Shannon letter and IR to Northern Gateway.pdf?nodeId=709983&version=0	Intervenor	1.1	i) Enbridge Northern Gateway Consultant's Report, Risk Technical Data Report "Properties and Fate of Hydrocarbons Associated with Hypothetical Spills at the Marine Terminal and in the Confined Channel Assessment Area", S.L. Ross Environmental Research Limited, 2010. ii) RP595 Sunken and Submerged Oils - Behaviour and Response, BMT Cordah, (A Report for the Maritime and Coastguard Agency) Feb. 2009 iii) Photo-oxidation of Petroleum, Mark Bobra, Consultant Ottawa Ont., E.J. Tennyson, Minerals Management Services, Reston Virginia. iv) Enbridge Northern Gateway Project General Oil Spill Response Plan Section 8: Marine Response.	https://www.northern-gateway.ca/links/link.exe?fetch/2009/90454/90552/384192/620327/624228/773567/7099R2/AZC453 - Northern Gateway Response to Dr. Shannon IR No. 17?nodeId=773567&version=0
				1.2	i) Enbridge Northern Gateway Project General Oil Spill Response Plan, Section 10: Shoreline Cleanup	
Swan River First Nations	Northern Gateway	https://www.northern-gateway.ca/links/link.exe?fetch/2009/90454/90552/384192/620327/624228/773567/7099R2/AZC453 - 2011-11 Enbridge Northern Gateway Information Requests, MSES.pdf?nodeId=748315&version=0		1.0 Cumulative Effects		Regulatory Document, Northern Gateway Pipeline, Information Partnership of Northern Gateway Pipeline Limited Partnership 2010-05-27 Application for the Enbridge Northern Gateway Pipeline Project (01-4-20-1) Index
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				3	Volume 6A, Section 9	
				4	Volume 6A, Section 9	
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				6	General - REAA, current baseline conditions	
				7	General - REAA, remote places	
				2.0 SRFN Specific Requests		
				8	Volume 5B, Appendix C, Table C-15	
				9	General - effects and key thresholds	
				10	General - traditional rights now and in the future	
				11	Volume 5B, Appendix C, Table C-15	
				12	Volume 1, Section 11, page 11-28	
				13	General - restrict access to traditional travel corridors and trails or to traditional resources	
				3.0 Vegetation and Conservation and Reclamation		
				14	Vol 6A, Sec 8.3, Table 8-7, pg 8-18	
				15	Vol 6A, Sec 8.3, Table 8-7, pg 8-18	
				16	Vol 6A, Sec 8.4.2.1, pg 8-22	
				17	Vol 6A, Sec 8.4.2.2, pg 8-27	
				18	Vol 6A, Sec 8.4.2.2	
				19	Vol 6A, Table 8-13, pg 8-39	
				20	Vol 6A, ESA, pg 8-102	
				21	Vol 7A, Sec 8.5.8, pg 8-19	
				22	Vol 7A, Sec 8.5.8	
				23	Vol 7A, Sec 8.5.8 and Vol 6A, Sec 8.3	
				24	Vol 7A, Sec 8.5.8	
				3.2 Wildlife and Biodiversity		
				25-26	Volume 6A, Section 9	
				27-30	Wildlife Field Data and Field Surveys TDR, Section 6	
				31-33	Volume 6A, Section 9.2.7, p.9-38	
				34	Section: 9.4.2.2, p. 9-57 and Northern Gateway Response to Horse Lake FN IR No. 3.2	
				35-36	Section 9.3, Table 9-10, p. 9-44.	
				37	Section 9.6.3.2, p.9-150	
				38	Section 9.6.3.2, p. 9-161, Table 9-62.	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				39	Section 9.6.3.2, p. 9-162	
				40	Section 9.6.4.1, Table 9-73, p. 9-188 – Grizzly Bear	
				41	Section 9.8.4.2 – Grizzly Bear	
				42	Volume 6A, Section 9, Pages 9-243-244	
				43	Section 9.6.4.1, Table 9-73, p. 9-188 – Woodland Caribou	
				44	Section 9.6.4.1, p. 9-162 – Woodland Caribou	
				45	NGP Response to JRP IR No. 3, page 66	
				46	Volume 6, Section 9 – Woodland Caribou	
				47	Volume 6, Section 9.10.4, p. 9-259	
				48	General - Beavers	
				49	Volume 6, Section 9.4.4.1, p. 9-60	
				50	Volume 6A, Section 9, page 9-259	
				51	General - ESA	
				52	General - regional containment levels in the Swan Hill region	
				4.0 Aquatic Resources		
				4.1 Surface Water Resources		
				53-56, 60	Volume 6A, Section 10	
				57	Volume 6A, Section 10, page 10-25	
				58-59	Volume 6A, Section 10, page 10-33	
				61	Volume 6A, Section 10, page 10-5	
				4.2 Fish and Fish Habitat		
				62-63, 66	Volume 6A, Section 11	
				64	Volume 6A, Section 11, Table 11-1	
				65	Volume 6A, Section 11, Tables 11-14/11-18/11-28	
				67	Volume 6A, Section 11, page 11-26 and Update to Volume 6A, pg 298	
				68	Volume 6A, Section 11, Tables 11-23 and 11-29	
				69	Volume 6A, Section 10, page 10-6	
				70	Volume 6A, Section 11, Table 11-2	
				5.0 Monitoring		
				71	General - residual or cumulative impact significant ratings	
				72	Vol 1, Section 6, page 6-8	
				73	General - assessing and mitigating regional and cumulative effects and setting management goals	
				74	General - surface water and resulting traditional resource contamination via spills from the pipelines or through release of chemicals into the environment	
				75	General - conceptual level of follow-up commitment	
				76	Vol 1, Section 1, page 1-6	
				77	Volume 6A, Section 10	
				6.0 General Oil Spill Response Plan and Risk Management		
				78	GOSRP, Section 3.4 and Section 3.5, page 3-11 and 3-12.	
				79	1) GOSRP, Section 4.6 and Section 4.6.1, pages 4-5, 4-6. 2) Joint Review Panel (JRP) Information Request, Section A.3, pages 8-10 and maps showing consequence areas of potential volume releases (Figures A-24 through A-30) 3) Volume 5B, Table C-15, pages 313-320.	
				80	Volume 7A, Section 8.5.8 and Section 8.5.9, pages 8-19 and 8-23. Volume 7B, Section 5	
				81	Volume 7B, Section 5.6 and JRP Information Request, Part C	
				82	General Oil Spill Response Plan (GOSRP), Section 2.2, page 2-3	
				83	GOSRP, Section 2.3, page 2-2	
				84	1) GOSRP, Section 6, page 6-1. 2) Volume 7B, Section 2.3, page 2-2. 3) JRP Information Request, Section C.3.7, page 58.	
				85	1) Volume 7B, Tables 3-1 through 3-3, pages 3-2 and 3-3.	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				86	General - operational spill response plans	
				87	1) Volume 7B, Section 9.3, page 9-8.	
				88	Volume 7B, Section 9	
				89	Volume 6A, Section 10	
		https://www.nrb-one.gc.ca/ll-one/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/746311/A2H0X6-2011-11_Eubalder_Northern_Gateway_Information_Request_Aboriginal_Engagement_and_Traditional_Knowledge.pdf?nodeId=748313&vnum=0		Volume 5B, Aboriginal Engagement and 5B, Aboriginal Traditional Knowledge		
				90	Volume 5A update, section 5.4.1.2, Geographic Setting	
				91	Volume 5A update, section 5.4.1.2, Participation in the Environmental and ATK Processes	
				92	Volume 5A update, section 5.4.1.2, Environmental Standards and Regulations Compared with Community Standards	
				93	Volume 5A update, section 5.4.1.2, Aboriginal and Treaty Rights	
				94	Volume 5A update, section 5.4.1.2, Aboriginal and Treaty Rights	
				95	Volume 5B, Appendix C, Table C-15	
				Comments on NGPP Volume 6C, Section 6, Heritage Resources		
				96	Volume 6C, Section 6, Heritage Resources, 6.2.7 Determination of Significance for Heritage Resources	
				97	Volume 6C, Section 6, Heritage Resources	
				98	Volume 6C, Section 6, Heritage Resources	
				99	Volume 6C, Section 6, Heritage Resources, 6.4.2.1	
Village of Queen Charlotte	Northern Gateway	https://www.nrb-one.gc.ca/ll-one/llvlink.exe/fetch/2000/90464/90552/384192/620327/624491/695835/71D404/A2C5A2-Village_of_Queen_Charlotte-Information_Request_no.3?nodeId=710405&vnum=0	Government Participant	1.1 Aboriginal Engagement	i) Northern Gateway B24-2 0 Volume 5A - Aboriginal Engagement Update 2011, page 418, A1Z6R1	https://www.nrb-one.gc.ca/ll-one/llvlink.exe/fetch/2000/90464/90552/384192/620327/624476/746311/Northern_Gateway_Pipelines_Limited_Northern_Gateway_Response_to_Village_of_Queen_Charlotte_IR_No.1-A2H0X6?nodeId=746601&vnum=0
Vulcano, Terry	Northern Gateway	https://www.nrb-one.gc.ca/ll-one/llvlink.exe/fetch/2000/90464/90552/384192/620327/624491/695835/705790/A2C0K3-Information_Request_no.1_from_T.Vulcano?nodeId=705791&vnum=0	Intervenor	Clarify, expand or be specific about the wording	i) Information Response from Northern Gateway to JRP IR No. 1, File No. OF-Fac-Oil-N304-2010-01 01 ii) Attachment JRP IR 1.2 Commitments Table (pages 1-14 of attachment) • B1, B2, B3, B4 • C1, C2, C3, C4 • E8, E10 • G1, G2, G3, G7, G9, G13, G15, G18, G19, G20, G24 • H1, H3 • J1, J2, J7, J10, J11, J23, J24 • K1, K2, K4, K5 • L2 & L4	https://www.nrb-one.gc.ca/ll-one/llvlink.exe/fetch/2000/90464/90552/384192/620327/624491/723567/A2E4J4-Northern_Gateway_Response_to_T.Vulcano_IR_No.1?nodeId=723568&vnum=0
	Northern Gateway	https://www.nrb-one.gc.ca/ll-one/llvlink.exe/fetch/2000/90464/90552/384192/620327/624491/695835/705616/A2C0K5-Information_Request_no.2_from_T.Vulcano?nodeId=705699&vnum=0		Forecast document	i) A2A9D1 Schedule B-Supporting Information for JRP IR2.5 ii) two page document from Canadian Association of Oil Producers forecasting oil demand in the future titled "Crude Oil Markets"	https://www.nrb-one.gc.ca/ll-one/llvlink.exe/fetch/2000/90464/90552/384192/620327/624491/723567/A2E4J5-Northern_Gateway_Response_to_T.Vulcano_IR_No.2?nodeId=723568&vnum=0

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	Northern Gateway	https://www.nab-one.gc.ca/lt-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/703840/Terry_Volcano_-_Information_Request_no.3_to_Northern_Gateway_-_A2C4A8?nodeid=709923&version=0		Pipeline operations - environment standards	i) sections about providing good installation and ii) sections about environmentally sound practices iii) 1.6 Quality Management iv) 1.6.1 Design The Enbridge standards, specifications and manuals meet or exceed the OPR-99 regulations. ... As a builder and operator will also follow Enbridges Quality Assurance and Quality Control (QA/QC) program to ensure the pipelines and facilities are designed, constructed and operated in accordance with the OPR and other applicable environmental, regulatory and corporate standards and guidelines.	https://www.nab-one.gc.ca/lt-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/A2E4J6_-_Northern_Gateway_Response_to_T_Volcano_IR_No.3?nodeid=723592&version=0
	Northern Gateway	https://www.nab-one.gc.ca/lt-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/703840/Terry_Volcano_-_Information_Request_no.4_to_Northern_Gateway_-_A2C4C0?nodeid=709772&version=0		Pipeline construction	i) Section 52 Application Volume 1 Section 2 Project Description 2.6 Construction Spreads ii) Section 52 Application Volume 3 Engineering, Construction and Operation	https://www.nab-one.gc.ca/lt-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/A2E4J7_-_Northern_Gateway_Response_to_Volcano_IR_No.4?nodeid=723592&version=0
Wier, Josette	Northern Gateway	https://www.nab-one.gc.ca/lt-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/705557/A2C0D6_-_IR_1_Josette_Wier.pdf?nodeid=705558&version=0	Intervenor		i) Enbridge Northern Gateway Project Sec. 52 Application [complete], May 2010- CD distributed by Kevin Brown, Enbridge representative, at the Enbridge presentation to the Smithers District Chamber of Commerce, July 7, 2010. ii) Vol 6A-Sec.52 Enbridge Northern Gateway Application-Environmental and Socio Economic Assessment, May 2010 Appendix 3A: Project Inclusion List within the REAA in Alberta and British Columbia, page 3A-9.	https://www.nab-one.gc.ca/lt-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/A2E4J9_-_Northern_Gateway_Response_to_J_Wier_IR_No.1?nodeid=723595&version=0
				1.2 KSL Footprint areas	i) Enbridge Northern Gateway Project Sec. 52 Application [complete], May 2010- CD distributed by Kevin Brown, Enbridge representative, at the Enbridge presentation to the Smithers District Chamber of Commerce, July 7, 2010. ii) Vol 6A-Sec.52 Enbridge Northern Gateway Application-Environmental and Socio Economic Assessment, May 2010 Appendix 3A: Project Inclusion List within the REAA in Alberta and British Columbia, page 3A-9.	
				1.3 KSL and Northern Gateway routes	i) Vol 6A- Sec. 52- Enbridge Northern Gateway Application-Environmental and Socio-Economic Assessment, May 2010- Section 7 Terrain-p.7-48. ii) Vol 6A-Sec. 52- Enbridge Northern Gateway Application-Environmental and Socio-Economic Assessment, May 2010- Section 7 Terrain- p.7-34 (iii) Vol 6C- Sec. 52- Enbridge Northern Gateway Application-Environmental and Socio-Economic Assessment, May 2010- Human Environment p.5-80.	
				1.4 Surface Water Quality	i) Vol 6A-Sec. 52- Enbridge Northern Gateway Application-Environmental and Socio-Economic Assessment, May 2010- Section 10-Surface Water Resources-p.10-75. ii) Vol 6A-Sec. 52- Enbridge Northern Gateway Application-Environmental and Socio-Economic Assessment, May 2010- Section Terrain- p. 7-40 and 41.	
	Northern Gateway	https://www.nab-one.gc.ca/lt-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/705580/A2C3X2_-_IR2-Josette_Wier.pdf?nodeid=709561&version=0		2.1 Oil spills	Vol 7B: Risk Assessment and Management of Spills- Section 2 p.2-1	https://www.nab-one.gc.ca/lt-eng/livelink.exe/fetch/2000/90464/90552/384192/620327/624798/723567/A2E4J9_-_Northern_Gateway_Response_to_J_Wier_IR_No.2?nodeid=723598&version=0
				2.2	Vol 7B: Risk Assessment and Management of Spills- Section 2 p.2-2.	
				2.3	Vol 7B: Risk Assessment and Management of Spills- Section 2 p.2-3.	
				2.4	Vol 7B: Risk Assessment and Management of Spills- Section 2 p.2-3.	
				2.5	Vol 7B: Risk Assessment and Management of Spills- Section 3 p.3-3.	
						Attachment - Total Length of Liquids Pipe Lines - Dec 31, 2010
						Attachment - Spills Statistics for Enbridge's Liquids Pipeline Systems (2005-2009)

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				2.6	Vol 7B: Risk Assessment and Management of Spills- Section 4 p.4-1 and 4-2	
				2.7	Vol 7B: Risk Assessment and Management of Spills- Section 4 p.4-1 to 4-2.	
				2.8	Vol 7B: Risk Assessment and Management of Spills- Section 4 p.4-6.	
				2.9	Vol 7B: Risk Assessment and Management of Spills- Section 5 p.5-3.	
				2.1	Vol 7B: Risk Assessment and Management of Spills- Section 5 p.5-6.	
				2.11	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-1.	
				2.12	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-5 and 6.	
				2.13	(i) Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-6 (ii) Northern Gateway Response to request for Additional Information from the Joint Review Panel Session Results and Decision, dated January 19, 2011- March 2011	
				2.14	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-6	
				2.15	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-7 and 8	
				2.16	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-8	
				2.17	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-15	
				2.18	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-21	
				2.19	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-21	
				2.20	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-24	
				2.21	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-24	
				2.22	Vol 7B: Risk Assessment and Management of Spills- Section 7 p.7-26	
				2.23	General Oil Spill Response Plan, March 2011 p.1-8	
				2.24	General Oil Spill Response Plan, March 2011 p.1-9 and 10	
				2.25	General Oil Spill Response Plan, March 2011 p.1-14	Attachment - Incident Reporting
				2.26	General Oil Spill Response Plan, March 2011 p.3-11	
				2.27	General Oil Spill Response Plan, March 2011 p.4-2	
				2.28	General Oil Spill Response Plan, March 2011 p.4-6	
				2.29	General Oil Spill Response Plan, March 2011 p.4-7	
				2.30	General Oil Spill Response Plan, March 2011 p.4-7	
				2.31	General Oil Spill Response Plan, March 2011 p.5.1	Attachment - Impact Oil Material Safety Data Sheet
				1.1 Financial Responsibility for a Spill Response and Compensation	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 5, p. 5-1; Vol. 8A, Section 4.8.2.4, p. 4-90; Vol. 8C, page 5-5 & Sections 5-8 and 5-9: p. 5-15 to 5-17). iii) Commitment Tracking Table (A2A4Q0).	
				First Nations Consultation		
				1.2 Aboriginal Impact Assessment	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 5B, Section 4.3.6 & Appendix C; Vol. 8B, Section 4.2.3.1: pp. 4-12, 4-13; Vol. 6A, Section 3.2.2.5 & 3.2.3.1; Vol. 8B, Section 12.1: p. 12-1 & Section 13.8.4.2p. 13-49; Vol. 8C, Section 9.3.1: p. 9-5 to 9-7; Vol. 8C, Section 11.3: pp. 11-20 to 11-22; Section 11.3.2.1p. 11-22) iv) TERMPOL STUDY NO. 3.15: General Risk Analysis and Intended Methods of Reducing Risk, s.11 Effects of Hydrocarbons on the Human Environment v) Northern Gateway Pipelines Limited Partnership - Northern Gateway Additional Evidence - Updates to Volume 5A - Aboriginal Engagement and 5B - Aboriginal Traditional Knowledge (A29573)	
				Accident Prevention		
				1.3 Tanker Age, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.1.6: p.4-13) iv) Commitment Tracking (A2A4Q0)	

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				1.4 Tanker Redundancy, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.1.3.4: p. 4-6.) iv) Commitment Tracking (A2A4Q0)	
				1.5 Double Hull Tankers, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.1.3.2: p. 4-4) iv) Commitment Tracking (A2A4Q0) v) TERMPOL STUDY NO. 3.15: General Risk Analysis and Intended Methods of Reducing Risk; 3 Operational and Design Measures to Prevent Hydrocarbon Spills and Reduce Risk. 3.1.1 Hull and Cargo Tank Components.	
				1.6 Tanker Vetting, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.1.1: p. 4-2.) iv) Commitment Tracking (A2A4Q0)	
				1.7 Tanker Ballast, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.7.11.4 P. 4-67.)	
				1.8 Bunker Fuel, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 2.3: pp. 2-2, 2-3, Table 2-2).	
				1.9 Tanker Manoeuvrability	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 3: pp. 3-1, 3-2; Vol. 8A, Section 4.8 & Vol. 8C, Section 3 and Section 11) (iv) TERMPOL Study No. 3.15: General Risk Analysis and Intended Methods of Reducing Risk (v) Technical Data Report, Marine Shipping Quantitative Risk Analysis, Det Norske Veritas vi) TERMPOL, Section 3.2: Origin, Destination & Marine Traffic Volume Survey, TERMPOL Surveys and Studies vii) TERMPOL, Section 3.5 and 3.12: Route Analysis, Approach Characteristics and Navigability Survey viii) TERMPOL, Section 3.8: Casualty Data Survey ix) Real-time Simulations of Escorted Tankers bound for a Terminal at Kitimat, Part 1: Executive Summary, Final Report, FORCE Technology no. 108 – 29930 – ES Version 4.0	
				1.10 Transit Speeds, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 1.1: p. 1-1, 1-2) (iv) Commitment Tracking (A2A4Q0)	

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				1.11 Escort Tugs, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEEA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, 4.2.10: p. 4-28.) iv) TERMPOL STUDY NO. 3.15: General Risk Analysis and Intended Methods of Reducing Risk, 3.4 Vessel Operations and Environmental Protection. v) Commitment Tracking (A2A 4Q0) vi) Real-time Simulations of Escorted Tankers bound for a Terminal at Kitimat, FORCE Technology no. 108 – 29930 – ES Version 4.0	
				1.12 Pilots, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEEA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, 4.2.10: p. 4-28.) iv) QRA, Section 8.2 The Northern Gateway Tug Escort Plan	
				1.13 Pilots, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEEA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Sections 4.4.2.2, 4.4.2.3, 4.4.2.4: pp. 4-36 to 4-39) iv) Marine Shipping Quantitative Risk Analysis A1Z6L8 v) TERMPOL Surveys and Studies - Section 3.15 - General Risk Analysis and Intended Methods of Reducing Risk A1Z6J9 vi) Weather and Oceanographic Conditions at sites in CCAA A1Z6Q4 vii) TERMPOL, Section 3.5 and 3.12: Route Analysis, Approach Characteristics and Navigability Survey; Section 3.2: Origin, Destination & Marine Traffic Volume Survey, Section 3.7: Transit Time and Delay Survey, TERMPOL Surveys and Studies.	
				1.14 Weather, Anchorages, Holding Areas, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEEA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Sections 4.4.2.2, 4.4.2.3, 4.4.2.4: pp. 4-36 to 4-39; Vol. 8B, Section 3.1.2: p. 3-2; Section: 3.1.4: p. 3-3) Marine Shipping Quantitative Risk Analysis A1Z6L8 iv) TERMPOL Surveys and Studies - Section 3.15 - General Risk Analysis and Intended Methods of Reducing Risk A1Z6J9 v) Weather and Oceanographic Conditions at sites in CCAA A1Z6Q4 vi) TERMPOL, Section 3.5 and 3.12: Route Analysis, Approach Characteristics and Navigability Survey; Section 3.2: Origin, Destination & Marine Traffic Volume Survey	
				1.15 Navigational Charts, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEEA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Sections 4.2.5, 4.2.6, 4.2.7: pp. 4-19 to 4-27) iv) Commitment Tracking (A2A4Q0)	
				1.16 Vessel Traffic, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEEA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Sections 2.5 to 2.10: pp. 2-9 to 2-19) iv) Marine Shipping Quantitative Risk Analysis A1Z6L8 v) TERMPOL Surveys and Studies - Section 3.15 - General Risk Analysis and Intended Methods of Reducing Risk A1Z6J9; vi) Table 3-2 Frequency of vessels passing Wright Sound; Table 7-7 Assumed distribution of ship traffic to and from the Kitimat Terminal. TERMPOL 3.2 Origin, Destination & Marine Traffic Volume Survey.	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				1.17 Marine Incidents/Casualty, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Volume 4, Appendix M; Vol. 8A, Section 1.2: p.1-2 & S. 4: p. 4-1; Section 4.8.1.2: pp. 4-78 to 4-83) iv) Marine Shipping Quantitative Risk Analysis A1Z6L8 v) TERMPOL Surveys and Studies - Section 3.15 - General Risk Analysis and Intended Methods of Reducing Risk A1Z6J9 vi) TERMPOL, Casualty Data Survey	
				1.18 Rescue and Salvage Tugs, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 2: pp. 2-2 to 2-9) iv) Vol. 5A, Aboriginal Engagement Update	
				Oil Spill Scenarios		
				1.19 Mass Balance Examples for Response Planning	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 10: pp. 10-1 to 10-39; Section 10.5: pp. 10-6 to 10-12; Section 11.2.1: pp. 11-3 to 11-10; Section 11.2.4.1 pp. 11-10 to 11-12). iv) Vol. 5A, Aboriginal Engagement Update, 5-367 v) Technical Data Report, Hydrocarbon Mass Balance Estimates: Inputs for Spill Response Planning	
				Oil Spill Responses		
				1.20 Oil Spill Response - Kitimat	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 5.6: p.5-11; Section 5.8: p. 5-15; Section 9.1: p. 9-1; Section 9.3: p.9-2).	
				1.21 Oil Spill Response - COCA and OWA	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 9.3, p.9-2; Vol. 7C, Appendices A, B, C and D; Vol. 8C, Section 5, pp. 5-1, 5-2) iii) General Oil Spill Response Plan (A28715) iv) Commitment Tracking (A2A4Q0) v) Vol. 5A, Aboriginal Engagement: Update, page 5-368	
				1.22 Oil Spill Response Plan (GOSRP)	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 9.3, p.9-2; Vol. 7C, Appendices A, B, C and D; Vol. 8C, Section 5, pp. 5-1, 5-2) iii) General Oil Spill Response Plan (A28715) iv) Commitment Tracking (A2A4Q0) v) Vol. 5A, Aboriginal Engagement Update, page 5-368	
				Marine Environment		
				1.23 Environmental Sensitivity Atlas	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 5.7.1: p. 5-13)	
				1.24 Heritage Resources	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 9.2.3: p. 9-3).	
				1.25 Scope of CCAA, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Figure 1.1: p. 1-2; Section 9.2.2: p. 9-1)	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				1.26 Assessment Methodology	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 6A, Section 3, 3.2.3.1; Vol. 8B, Section 2; pp. 2-2 to 2-9).	
				1.27 Effects of Hydrocarbons on the Biophysical Environment (Exxon Valdez)	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 8.1; p. 8-3).	
				1.28 Whale Impact Prevention, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8A, Section 4.3.3; p. 4-35)	
				1.29 Impacts of Noise on Whales, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 10.6.2.3p. 10-37; Figure 10-12; Section 10.6.2.5p. 10-59; Sections 10.7.2.310.7.2.4p. 10-77, p. 10-82; Section 13.7.3; page 13-28; Figure 10-8; p. 10-79, 80).	
				1.30 Stellar Sea Lions, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 10.8.4.2p. 10-97).	
				1.31 Marine Fish, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 9.6.2.3; p.9-16; Section 9.6.3; p. 9-34; Section 12.1; p. 12-1; Application (Vol. 8C, Section 8.7.4; p. 8-37). iv) Vol. 5A, Aboriginal Engagement Update, page 5-369	
				1.32 Marine Birds, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 11; Section 11.7; p. 11-22).	
				1.33 Effects of Hydrocarbons on Plankton and the Biophysical Environment	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 8.4.1; p. 8-7).	
				1.34 Fisheries, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 12.6.2.3 p. 12-30; Sections 12.3, p.12-9; 12.6.2. pp. 12-29; Section 12.9, p. 12-40; Section 12.6.2.3, pp 12-31-12-33; Section 12.6.3, p 12-34).	
				1.35 Commercial Fisheries, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 13.8.4.1, pp. 13-45 to 13-52; Section 13.10; p. 13-56).	
				1.36 Fishing Gear, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8B, Section 12.7.1; p. 12-34; Section 12.7.3; p 12-39; and Section 13.8.5; p. 13-54).	
				1.37 Socio-economic Impacts	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 9.5).	
				1.38 Acid Rock Drainage	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEAA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Volume 6A: Environmental and Socio-Economic Assessment, page 7-40)	

Submitted by	Sent to	Link to Submission	Status	Subject	Reference	Link to Response
				Risk Assessment 1.39 Risk Assessment, Oil Tankers and Spill Prevention	i) Terms of Reference, Joint Review Panel Agreement (A1R4D5) ii) CEEA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 7C, Section 3: pp. 3-1, 3-2; Vol. 8A, Section 4.8 & Vol. 8C, Section 3 and Section 11) iv) TERMPOL Study No. 3.15: General Risk Analysis and Intended Methods of Reducing Risk v) Technical Data Report, Marine Shipping Quantitative Risk Analysis Det Norske Veritas vi) TERMPOL, Section 3.2: Origin, Destination & Marine Traffic Volume Survey, TERMPOL Surveys and Studies vii) TERMPOL, Section 3.5 and 3.12: Route Analysis, Approach Characteristics and Navigability Survey viii) TERMPOL, Section 3.8: Casualty Data Survey ix) Real-time Simulations of Escorted Tankers bound for a Terminal at Kitimat, Part 1: Executive Summary, Final Report, FORCE Technology no. 108 – 29930 - ES Version 4.0 x) QRA Methodology, 4 Hazard Identification, 4.1 HAZID Workshop, 4.1.1 Methodology	
				Conclusions 1.40 Summary and Conclusions	i) Terms of Reference, Joint Review Panel Agreement, (A1R4D5) ii) CEEA Scope of Factors (7.5 Potential Accidents and Malfunctions) iii) Exhibit B, Northern Gateway Project Application (Vol. 8C, Section 12: p.12-1).	
		<i>This information request #3 concerns mostly the applicant's response to the Panel's IR#3. The response was posted on August 30, 2011 File A2CST3. The pages referred to are given as Adobe page numbers. Other references are quoted from the Section 52 application of May 2010 and additional filings</i>		3-1	(i) File A2CST3 Adobe p.2-3 (ii) Volume 3: Engineering, Construction and Operations Section 5: Pipeline design p.5-1, Tables 5-1 and 5-2	https://www.norcan.ca/it-ops/linked/2006/8464/90552/846492/620327/624475/753997/Northern%20Gateway%20Pipeline%20Application%20-%20IR%20No.%203%20-%20Northern%20Gateway%20Response%20to%20IR%20No.%203%20-%20A21817nodeid=763897&version=0
	Northern Gateway	http://www.norcan.ca/it-ops/linked/2006/8464/90552/846492/620327/624475/753997/Northern%20Gateway%20Pipeline%20Application%20-%20IR%20No.%203%20-%20Northern%20Gateway%20Response%20to%20IR%20No.%203%20-%20A21817nodeid=763897&version=0		3-2	File A2CST3 Adobe p.7 and 8	
				3-3	Volume 3: Engineering, Construction and Operations Section 5: Pipeline design p.5-1	
				3-4	(i) File A2CST3 Adobe p.13 (ii) File A2CST4 Attachment JRP IR3.1 a)- Line Pipe Description	
				3-5	File A2CST3 Adobe p.14	
				3-6	File A2CST3 Adobe p.14	
				3-7	(i) File A2CST3 Adobe p. 14 (ii) Northern Gateway response to Request for Additional Information from the JRP Session results and Decision dated January 19, 2011 Section A p.6	
				3-8	File A2CST3 Adobe p.15	
				3-9	File A2CST3 Adobe p.14	
				3-10	File A2CST3 Adobe p.15	
				3-11	File A2CST3 Adobe p.16	
				3-12	File A2CST3 Adobe p.16	
				3-13	(i) File A2CST3 Adobe p.16 (ii) Northern Gateway response to Request for Additional Information from the JRP Session results and Decision dated January 19, 2011 Appendix B	

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				3-14	File A2C5T3 Adobe p.16	
				3-15	File A2C5T3 Adobe p.16	
				3-16	File A2C5T3 Adobe p.17	
				3-17	File A2C5T3 Adobe p. 17	
				3-18	File A2C5T3 Adobe p.17	
				3-19	File A2C5T3 Adobe p. 17	
				3-20	File A2C5T3 Adobe p. 18	
				3-21	File A2C5T3 Adobe p. 45	
				3-22	(i) File A2C5T3 Adobe p. 54 (ii) Volume 6A: Table 9-83 p.9-233	
				3-23	File A2C5T3 Adobe p. 60	
				3-24	A2CSV4 JRP IR3.16 (a) Attachment: Summary of Consultations	
Northern Gateway		https://www.nor-gate.ca/ir-002/irlink.exe/fetch/2000/90464/90552/384-92/620327/624910/692343/744524/A2D4U5 - IR4-Josette Wier.pdf?nodeId=744524&version=0		4-1	(i) Vol 7B: Risk Assessment and Management of Spills-Pipelines Section 5: Emergency Response Approaches and Capabilities-p.5.9 (ii) IR#4 Attachment 1	https://www.nor-gate.ca/ir-002/irlink.exe/fetch/2000/90464/90552/384-92/620327/624910/692343/744524/A2D4U5 - IR4-Josette Wier.pdf?nodeId=744524&version=0
				4-2 Construction	3.4-1 to 4-6 (ii) Wisconsin Department of Justice Press Release, Jan 2, 2009 (iii) Attachment #3 to IR#4 (iv) The Keystone Debate http://www.cbc.ca/news/business/story/2011/09/23/keystone-xl-pipelineoilsands.html	https://www.nor-gate.ca/ir-002/irlink.exe/fetch/2000/90464/90552/384-92/620327/624910/692343/744524/A2D4U5 - IR4-Josette Wier.pdf?nodeId=744524&version=0
				4-3	(i) Vol 7B: Risk Assessment and management of spills-pipelines Section 4: Table 3-3 p. 3-3 (ii) Enbridge corporate and social responsibility score card4	
				4-4	Northern Gateway response to JRP IR#4.16 p.27	
				4-6	Northern Gateway response to JRP IR#4.16 p.29	
				4-7	Northern Gateway response to JRP IR#4.16 p.29	
				4-8	Northern Gateway response to JRP IR#4.16 p.32	
				4-9	Northern Gateway response to JRP IR#4.32 p.4	
		https://www.nor-gate.ca/ir-002/irlink.exe/fetch/2000/90464/90552/384-92/620327/624910/692343/744524/A2GSX7 - IR5-Responses.pdf?nodeId=744524&version=0		5-1	A2EAJ8 Response to J.Wier IR#1 Question 1.3 p. 3-4	https://www.nor-gate.ca/ir-002/irlink.exe/fetch/2000/90464/90552/384-92/620327/624910/692343/744524/A2GSX7 - IR5-Responses.pdf?nodeId=744524&version=0
				5-2	A2EAJ8 Response to J.Wier IR#1 p. 4	
				5-3	A2EAJ8 Response to J.Wier IR#1 Question 1.4.a p.5	
				5-4	A2EAJ9 Response to J.Wier IR#2 Question 2.1.a p. 1	
				5-5	Reference A2EAJ9 Response to J.Wier IR#2 Question 2.2.c p. 5	
				5-6	A2EAJ9 Response to J.Wier IR#2 Question 2.3.b p. 6	
				5-7	A2EAJ9 Response to J.Wier IR#2 Question 2.3.d p. 7	
				5-8	Northern Gateway's response to JRP Request for Additional Information (March 2011), Section A, p.6	
				5-9	A2E4K0 Attachment J. Wier IR 2.5.a	
				5-10	(i) A2E4K1 Attachment J. Wier IR 2.5b (ii) Vol 7B: Risk Assessment and Management of Spills- Pipelines- Section 3 p. 3-3 Response to Eco Justice Question. 1.21d p.33 (iii) Analysis of Worst-Case Spills from the Proposed Keystone XL Pipeline, John Stanbury2	

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				5-11	A2EAJ9 Response to J.Wier IR#2 Question 2.5.c p. 9	
				5-12	A2EAJ9 Response to J.Wier IR#2 question 2.6a p. 11 SL Ross. 2010a. Properties and Fate of Hydrocarbons associated with Hypothetical Spills at the Marine Terminal and in the Confined Channel Assessment Area Technical Data Report	
				5-13	Reference (i) A2EAJ9 Response to J.Wier IR#2 p. 12 (ii) Volume 7B: Risk Assessment and Management of Spills- Pipelines- Section 4 p. 4-4	
				5-14	A2EAJ9 Response to J.Wier IR#2 Question 2.8c p. 13	
				5-15	A2EAJ9 Response to J.Wier IR#2 question 2.9b p. 15 Response to Haisla Nation IR#1 Question 1.12a and b p.45	
				5-16	(i) A2EAJ9 Response to J.Wier IR#2 question 2.9c p. 15 (ii) Response to Haisla Nation question 1.32d p.112	
				5-17	A2EAJ9 Response to J.Wier IR#2 question 2.9e p. 15-16	
				5-18	A2EAJ9 Response to J.Wier IR#2 question 2.9d p. 16	
				5-19	A2EAJ9 Response to J.Wier IR#2 question 2.10b p. 17	
				5-20	A2EAJ9 Response to J.Wier IR#2 question 2.11 p. 18	
				5-21	(i) A2EAJ9 Response to J.Wier IR#2 question 2.12 a-b-c-d p. 20-21 (ii) Section 52 Application Vol 6C Section 4 p.4-4-108 (iii) Response to Haisla Nation IR#1 question 1.60c p. 207	
				5-22	A2EAJ9 Response to J.Wier IR#2 question 2.13 p.22	
				5-23	A2EAJ9 Response to J.Wier IR#2 question 2.14 p.25	
				5-24	A2EAJ9 Response to J.Wier IR#2 question 2.15 p.27	Attachment: Aquifer in BC
				5-25	(i) A2EAJ9 Response to J.Wier IR#2 question 2.16 p.28 (ii) Response to JRP IR6.2a	
				5-26	A2EAJ9 Response to J.Wier IR#2 question 2.19b p.32	
				5-27	A2EAJ9 Response to J.Wier IR#2 question 2.19f p.33	
				5-28	(i) A2EAJ9 Response to J.Wier IR#2 question 2.20a p.34 (ii) Response to Dave Shannon IR#1 question 1.1.iv p.4	
				5-29	(i) A2EAJ9 Response to J.Wier IR#2 question 2.21a p.35 (ii) Response to Haisla Nation IR#1 question 1.39a p. 137 (iii) Response to Haisla Nation IR#1 question 1.49f p. 174 (iv) Response to Haisla Nation IR#1 question 1.47d p. 173	
				5-30	A2EAJ9 Response to J.Wier IR#2 question 2.23a p.37	
				5-31	A2EAJ9 Response to J.Wier IR#2 question 2.24a p.38	
				5-32	(i) A2EAJ9 Response to J.Wier IR#2 question 2.25a p.39 (ii) A23K2- Attachment J. Wier IR2-25	Attachment: Incident Reporting
				5-33	A2EAJ9 Response to J.Wier IR#2 question 2.27a p.4 A2E8Y0 Response to Haisla Nation IR#1 1.21d p.74	
				5-34	A2E8Y0 Response to Haisla Nation IR#1 1.21d p.74	
				5-35	A2EAJ9 Response to J.Wier IR#2 question 2.27d p.43 General Oil Spill Response Plan, March 2011 p.4-2	
				5-36	(i) A2EAJ9 Response to J.Wier IR#2 question 2.28 p.43 (ii) Northern Gateway's response to JRP Request for Additional Information (March 2011) p.8-Appendix A (iii) Northwest Institute IR#1 p.2	
				5-37	A2EAJ9 Response to J.Wier IR#2 question 2.29 p. 46 A2EAJ9 Response to J.Wier IR#2 question 2.31 p. 48- Attachment 2.31 Northern Gateway response to Federal Government IR39 and Attachment Federal Government 89	
				5-38	A2EAJ9 Response to J.Wier IR#2 question 2.31p. 48 and Attachment 2-31	
				5-39	Response to Haisla Nation Attachment IR#1 question 1.47e	
				5-40	(i) Technical Data Report - Human Health Risk Assessment- D.Yee (ii) Response to Federal Government IR#1 question 1.118 p.246	

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				5-41	Response Gibaala Nation IR#1 question 1.10.5.1 p.90	
				5-42	Response Haisla Nation IR#1 question 1.59e p. 201-203	
				5-43	(ii) Response Haisla Nation IR#1 Attachment 1.10c (iii) Attachment #3 J.Wier IR#4 (iv) Response Haisla Nation IR#1 Question 1.10 a to p (v) Enbridge Management Information: Circular of February 2011 www.enbridge.com/InvestorRelations/FinancialInformation	
				5-44	(i) Attachment Haisla Nation IR1 1.11b p.1 (ii) Response Haisla Nation IR#1 Question 1.21b p. 73 and 1.21c p.74 (iii) Response Haisla Nation IR#1 Question 1.11c p.44	
				5-45	(ii) Press Release Feb 16, 2011; "ERCB Responds to Natural Defense Resources Council" (iii) Press release Feb 18, 2011; ERCB Oops: Alberta Government Response to Tar Sands Pipeline Safety Report Riddled with Errors (iv) Attachment Haisla Nation IR1 1.9a-c	
				5-46	(i) Haisla Nation IR1 Question 1.24c p.50 (ii) Haisla Nation IR1 Question 1.23n p.85	
				5-47	Response to BC nature & Nature Canada IR1 Question 1.16a p.63	
				5-48	Response to BC Nature & Nature Canada IR1 Question 1.17a p.65	
				5-49	Response to Federal Government IR1 Question 13.17a p.65	
				5-50	Response to Federal Government IR1 Question 51 p.104	
				5-51	Response to Ecojustice IR1 Question 1.21d p.33	
				5-52	Response to C.Brown Question 1.2 p.3	
				5-53		
		https://www.nob-one.ca/co/ll-cnp/live/nk.exe/fetch/2020/50464/99557/384192/620327/624476/745748/A267U7 - Justice Wier - IRS to Northern Gateway.cd?modid=745749&version=0		6-1	(i) Section 52 Vol 4- Public Consultation p.2.1 (ii) Section 52 Vol 4- Public Consultation p.2.2	https://www.nob-one.ca/co/ll-cnp/live/nk.exe/fetch/2020/50464/99557/384192/620327/624476/745748/A267U7 - Justice Wier - IRS to Northern Gateway.cd?modid=745749&version=0
				6-2	Reference (i) Section 52 Vol 4- Public Consultation p.2.5 (ii) Section 52 Vol 4- Public Consultation p.2.6 (iii) Friends of Wild Salmon Press Release, Feb 21, 2011 "Enbridge ducks community forums planned by university"1	Attachment 6.1 - Regulatory Process
				6-3	Reference (i) Section 52 Vol 4- Public Consultation p.3.2 (ii) Friends of Wild Salmon Press Release, Feb 21, 2011 "Enbridge ducks community forums planned by university"2 (iii) Letter from Coastal First Nations to Enbridge, October 20, 2011, JRP website #A34090	
				6-4	Section 52 Vol 4- Public Consultation Appendix B: Stakeholder by Category p. B-16	
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				6-6	Section 52 Vol 4- Public Consultation Appendix M p.M-10	
				6-7	Section 52 Vol 4- Public Consultation Appendix M p.M-10	
				6-8	(i) Update to Section 52 Vol 4- March 2011- p.3-1 (ii) Update to Section 52 Vol 4- March 2011- p.3-2 (iii) Update to Section 52 Vol 4- March 2011 Appendix G.2 (iv) Response to J.Wier IR#2 Response 2c p.6	
				6-9	Update to Section 52 Vol 4- March 2011- Appendix N	
				6-10	Update to Section 52 Vol 4- March 2011- Appendix O	

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		https://www.nor-onc.gc.ca/llc-enc/llvlink.exe?fetch/2060/90456/92552/384192/620327/624476/747621/A2H062-IR7.pdf?model=747622&version=0		7.1	(i) Section 52 Vol 1- Overview and General Information p. 6-7 (ii) Response to J.Wier IR#2 question 2.13 p.22	https://www.nor-onc.gc.ca/llc-enc/llvlink.exe?fetch/2060/90456/92552/384192/620327/624476/747621/A2H062-IR7.pdf?model=747622&version=0
				7.2	(i) Section 52 Volume 2 -Muse Report, p.5 (ii) Section 52 Volume 2 - Muse Report, p. 7 (iii) Response to federal Government IR1 Question 13.17a p.22	
				7.3	Section 52 Vol 2 p.4-5 Wright Mansell Research Ltd	
				7.4	Section 52 Vol 2- Wright Mansell Research Lt-p.6 and 7	
				7.5	Section 52 Vol 6C- October 2010-p.4.4.54	
				7.6	Section 52 Vol 6C- October 2010-p.4.4.68	
				7.7	Section 52 Vol 6C- October 2010-p.4.4.72	
				7.8	(i) Section 52 Vol 6C- October 2010-p.4.4.73 (ii) Section 52 Vol 6C- October 2010-p.4.4.68	
				7.9	Section 52 Vol 6C- October 2010-p.4.4.74	
				7.10	(i) Section 52 Vol 6C- October 2010-p.4.4.78	
				7.11	Section 52 Vol 6C- October 2010-p.4.4.102	
				7.12	Section 52 Vol 6C- October 2010-p.4.4.110	
				7.13	Section 52 Vol 6C- October 2010-p.4.4.114	
				7.14	Section 52 Vol 6C- October 2010-p.4.4.113	
				7.15	(i) Section 52 Vol 6C- October 2010-p.4.4.113 (ii) Section 52 Vol 1 - Overview and General Information - p. 1-4	
				7.16	Section 52 Vol 6C- October 2010-p.4.4.173	
				7.16	Section 52 Vol 6C- October 2010-p.4.4.178	
				7.17	Section 52 Vol 6C- October 2010-p.4.4.203-204	Attachment - Community Information Session Survey
Wong, Darlene	Northern Gateway	https://www.nor-onc.gc.ca/llc-enc/llvlink.exe?fetch/2060/90456/92552/384192/620327/624476/747621/A2H062-IR7.pdf?model=747622&version=0	Intervenor	1.1 Level of interest from the open season processes held in 2005	Vol 2 (A1S9X7) Northern Gateway Project Application	https://www.nor-onc.gc.ca/llc-enc/llvlink.exe?fetch/2060/90456/92552/384192/620327/624476/747621/A2H062-IR7.pdf?model=747622&version=0
				1.2 Funding support agreement	Northern Gateway Project application Vol 2 Appendix c(1) (A2CIL8)	
				1.3 Parties who have entered into precedent agreements for the pipeline	August 2011 update to Northern Gateway Project application Vol 2 (A2CIL7)	
				1.4 Agreements - long term use of facilities	News Release - "In a news release August 24, 2011, Enbridge stated after negotiations with Canadian producers, the confidential parties agreed on commercial terms relating to the long term use of the facilities".	
				1.5 Environmental Regulations	What protections are there to prevent bitument being shipped to countries with weaker environmental regulations?	
				1.6 Pipeline capacity	Is there a need for more pipeline capacity?	
				1.7 Effects on selected terrestrial valued environmental components and agriculture land	SE 1/4-22-56-23-W4, Alberta, my land and my residence.	

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Thank you for your letters regarding fossil fuels, renewable energy and pipelines. I note you have also written to Honourable Pat Bell, Minister of Jobs, Tourism and Innovation, on the above noted issues and Site C.

The provincial government is committed to ensuring that any energy development is economically, socially and environmentally responsible in order to benefit British Columbians and meet our future energy needs. The Province collects royalties from the production of its oil and gas resources with the objective of maximizing revenue to the Province and creating a competitive environment to attract capital investment and generate jobs.

Environmentally responsible natural gas development is taken very seriously by the Province. Under the new *Oil and Gas Activities Act* there are legislated safeguards with respect to oil and gas development and production. For additional information about the Act and its enforcement, you may contact the British Columbia Oil and Gas Commission via its website at www.bcogc.ca.

The provincial government has also taken steps to encourage the development of renewable energy options to help meet current and future provincial demands for clean energy. The Innovative Clean Energy (ICE) Fund was put in place to accelerate the development of new energy technologies. Since 2008, 41 projects have been approved. The LiveSmart BC: Efficiency Incentive Program, regulated standards under the *Energy Efficiency Act*, green building code changes, and BC Hydro's PowerSmart and FortisBC's PowerSense demand side management programs, are other examples of government support to reduce the demand for fossil fuels and encourage the renewable energy sector.

Site C and clean and renewable generation are very much compatible initiatives. Many clean and renewable technologies are intermittent and rely on BC Hydro's firming and shaping capacity to take over when these projects are unable to deliver power to the system (for example, wind projects). Site C creates the necessary space to incorporate additional clean and renewable projects into British Columbia's electrical system while ensuring reliable and consistent power.

.../2

On May 27, 2010, Enbridge Inc. filed an application with the National Energy Board of Canada for the construction and operation of the Northern Gateway Pipeline. The proposed project is undergoing a federal environmental assessment to meet the requirements of the *Canadian Environmental Assessment Act* and the *National Energy Board Act* through a Joint Review Panel process. Further information on how the public can participate in the Panel process can be found at <http://gatewaypanel.review-examen.gc.ca>.

Thank you, again, for writing.

Sincerely yours,

A handwritten signature in black ink, appearing to be 'Rich Coleman', with a long horizontal line extending to the right.

Rich Coleman
Minister

pc: Honourable Pat Bell
Minister of Jobs, Tourism and Innovation



Telephone: 250-952-6507
Facsimile: 250-356-7440
File: 30050-35 / ENGP-05-06

November 7, 2011

Kenneth MacDonald
VP, Law and Regulatory Affairs
Northern Gateway Pipelines Inc.
Suite 3000, 425 – 1st Street SW
Calgary AB T2P 3L8

Abby Dorval
Manager, Regulatory Affairs
Northern Gateway Pipelines Inc.
Suite 3000, 425 – 1st Street SW
Calgary AB T2P 3L8

Richard Neufeld, Q.C.
Barrister and Solicitor
Fraser Milner Casgrain
15th Floor, 850 – 2nd Street SW
Calgary AB T2P 0R8

Dear Sirs and Madame:

Re: Northern Gateway Pipelines Inc. (Northern Gateway)
Enbridge Northern Gateway Project Application of May 27, 2010
Hearing Order OH-4-2011 File No. OF-Fac-Oil-N304-2010-01 01
Information Request Number 2 to Northern Gateway - AMENDMENTS

Please find attached amended sections 2.2, 2.13, 2.22 and 2.28 to the Information Request submitted by the Province of British Columbia on November 3, 2011, with respect to the above referenced matter.

Upon review of the Information Request, errors were discovered in the request and the Province of British Columbia would appreciate the replacement of these sections in the submission.

. . . /2

- 2 -

Please contact me if you have any questions or require any additional information with respect to this Information Request.

Yours truly,

A handwritten signature in black ink, appearing to read 'K. Klear'.

Krishna Klear
Project Lead

Attachment

Information Request
To: Enbridge Northern Gateway Pipelines Inc.
From: Her Majesty in right of British Columbia (the Province)

**Enbridge Northern Gateway Pipelines Inc.
Enbridge Northern Gateway Project**

**Information Request No. 2
Amendment Sections**

2.2 Impacts to Existing and Future Infrastructure

Reference:

- i) Volume 3 A – Engineering, Construction and Operations

Preamble:

The proposed pipeline corridor will cross several provincial highways, secondary roads, forest service roads and other utilities. The province values its road infrastructure as this is a key provincial asset. As it is difficult to predict where future developments may occur it is critical that the depth of the pipe does not create an economic barrier to future developments along the corridor. The province wishes to better understand the implications of designing new crossing of the pipeline corridor and has an interest in ensuring that any planned crossings will meet existing and future infrastructure needs.

Request:

- a) Where no road crossing is presently planned, it is understood that the pipelines will generally be buried at a minimum depth of 90 cm. If built as proposed the pipelines would not meet crossing specifications to allow for the construction of future public and industrial roads over the pipelines. As the pipelines route travels through portions of British Columbia that presently have little or no road access, this proposal would result in increased costs to access lands beyond the pipelines. It is anticipated that this increased access cost will have a negative impact on future economic development such as, mining, forestry and private development. How does the proponent propose to construct the pipelines to allow for future public and industrial traffic to cross the pipelines at any point?
- b) How does the proponent plan to address the need to register existing and future roads within the pipeline right-a-way as defined under the *Transportation Act* and registration of these roads under the *Land Title Act*?
- c) The Utility Policy Manual requires pipelines to cross all Highway infrastructure (including numbered routes, side roads and unconstructed right of way) at 90%

degrees. A review of the submitted topographic mapping shows the proposed pipelines to be crossing highway right of way at angles that do not meet the 90% degree requirement, i.e., areas surrounding Fort St James and Burns Lake. Would the Proponent be prepared to alter its plan in order to conform with this policy?

BC Ministry of Transportation and Highways Utility Policy Manual
<http://www.th.gov.bc.ca/permits/Utility%20Permit%20Manual.pdf>

- c) How has the proponent identified possible hydrological impacts to the highway's and other road infrastructure, such as culverts and ditches as a result of clearing for the proposed pipeline right of way?
- e) Permanent pole lines for pump stations and temporary pole lines for camps and staging areas will be required for the proposed project. Where will these lines be located in relation to any provincial road infrastructure?

2.13 Geotechnical Report

Reference:

- i) Volume 3, Report E-1 Overall Geotechnical Report on the Pipeline Rev. R
- ii) NGP Responses to JRP IR No. 4, 4.3 Geohazards: Permafrost, pages 5-6
- iii) NGP Responses to JRP IR No. 4, 4.6 Terrain Stability, pages 12-13

Preamble:

Some landslides within the Interior Plateau and Coast Mountains regions have runout distances greater than the 1km corridor (section 4.2.3). Geertsema et al. (2009 and 2011) and Geertsema and Cruden (2008) imply a 1km corridor is too narrow. In our opinion more work should be done to characterize landslide hazard and risk, including magnitude frequency relationships, depth of scour, and travel distance, incorporating climate change scenarios.

In NGP Responses to JRP No. 4, page 5 the proponent responds as follows: "No significant alpine permafrost has been identified during investigations to date including on-ground work on portions of the route through the highest parts of the route through the Rocky Mountains and the Coast Mountains as well as extensive aerial reconnaissance along the route."



pfglobal3layer.kmz

Recent work, such as this global permafrost layer () based on Gruber et al. (2011a) indicates much potential alpine permafrost along the pipeline route. Many of the large, long runout, rock slides in northern BC initiated within these permafrost zones. As climate continues to warm we can expect mountain

permafrost to degrade. In a keynote address at an international landslide conference, Gruber (2011b) states "while some of the effects caused by transient cryosphere systems will conform to previous knowledge and expectations, we also have to expect types of events and landslides that have not or only rarely been observed and described before". Over the expected lifetime of the pipeline, careful consideration and monitoring of alpine permafrost and its derivative movements can be incorporated into early warning systems.

Permafrost does not have to be ice-rich to create stability problems. Unsaturated material can also be ice bonded, and moss cover is not required as an insulating layer. Figure 4 in Gruber (2011b) shows an example of permafrost under 3m of unvegetated rubble in northeastern BC. Not only does this example reinforce the fact that vegetative cover is not required, it also illustrates that boreholes and/or geophysical methods may be required to confirm or reject the presence of permafrost. (Hand digging a soil pit to a depth of 3 m in angular rubble is unreasonable.) Establishing whether or not alpine permafrost is present at depth is crucial for long term hazard and risk analysis.

Much can be learned from the European permafrost/landslide researchers in this respect (Gruber et al 2007; Noetzli and Gruber 2009; Huggel et al. 2010; Ravelle et al. 2010). Slope movements that are influenced by permafrost in mountain areas include rock slides, topples and falls, as well as, flows and slides in soil and rubble. Movements in rubble as demonstrated by Wirz et al (2011), can load topples and lead to cliff collapse. Dilation of rock fractures is also common and led to a massive rock fall from the Matterhorn in Switzerland. Remote sensing, GPS, and other in-the-ground monitoring systems are useful to determine movement vectors on these slopes.

In NGP Responses to JRP IR No. 4, page 13 the proponent responds as follows: **"The sensitive layers found to date have generally been located at depths well below potential trench depths.** As noted above, areas where stability issues are found will be avoided or suitable mitigation methods will be used."

If deep sensitive layers are found – their presence well below trench depths does not diminish slope stability concerns. Indeed, deeper sensitive layers might result in larger landslides than those generated in shallower layers. Deep sensitive clays can liquefy, and if the slope geometry allows it, result in large low gradient flowslides. This happened at Khyex River between Terrace and Prince Rupert in 2003 (Schwab et al. 2004). In this case a natural gas pipeline was ruptured.

Even seemingly minor construction fill placements have triggered landslides tens of hectares in area, and millions of cubic meters in volume. The most famous of these was perhaps the Rissa landslide in Norway, captured on videotape (Gregersen 1981), but there are also two local examples. Placement of a berm along HWY 37 between Terrace and Kitimat triggered two large flowslides in 1962. These two landslides had travel angles of 1.5° and each involved more than 10 million m³ of glaciomarine sediment (Geertsema and Cruden 2008).

A review of methods for predicting flowslide dimensions is provided by Geertsema and Schwab (1997) and by Carson and Geertsema (2002: pages 689-692). Both papers discuss approaches by Bjerrum et al. (1969), Levebvre (1996), Leblais and Rissman (1983), Mitchell (1978), Mitchell and Markell (1984), and Viberg (1984). Landslide triggers may result from dynamic or static loading as well as bank erosion. Climate change could exacerbate bank erosion.

LiDAR (light detection and ranging) data appears to be sparse for the corridor. Geertsema and Clague (2011) have stressed the importance of obtaining LiDAR data to recognize and characterize landslide hazard along pipeline corridors. Many subtle details, diagnostic of instability, as well as landslides themselves, can be missed during field and aerial photo analysis. Shallow debris slides and flows, as well as low gradient landslides, common in glaciomarine and glaciolacustrine sediments (especially those buried by tills) can be difficult to detect under forest cover. Brardinoni et al. (2003) show that up to 85% of landslides escape detection with airphoto analysis.

Request:

- a) Please provide an estimate of landslide return intervals (magnitude/frequency data), potential depth of scour, and potential runout distance using future climate scenarios.
- b) Please describe where mitigation measures, such as groundwater control, debris flow and rock fall containment structures, will be used.
- c) Please describe how the presence or absence of permafrost at depth will be confirmed in areas of permafrost potential according to the provided kmz layer (



pfglobal3layer.kmz

- d) Please propose and describe a system for monitoring movements and subsurface temperatures of high elevation rock and rubble slopes. Please comment on how the temperature driven slope destabilization processes in areas with permafrost may affect the alignment [of the pipeline?]. Have the secondary effects of climate change been considered?
- e) Please use the methods of Mitchell (1978), (or similar accepted methods) to predict potential flowslide dimensions where sensitive clays exist below the pipeline corridor using dynamic and static loading triggers as well as bank erosion, bearing in mind that travel distances may be as much as 3 km (as at one of the Lakelse landslides).
- f) Please provide details on the proposed extent of future LiDAR, coverage you intend to collect, bearing in mind the recommendations of Geertsema and Clague (2011). Include details on how future LiDAR data would be made available to the Province of BC.

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2.22 Permitting and Agency Consultation

Reference:

- i) Volume 7A – Construction Environmental Protection & Management Plan

Preamble:

Volume 7A provides a description of proposed management plans and potential regulatory requirements of affected agencies. The Province would like clarification regarding the potential highway crossing methods and review timelines.

Volume 7A indicates that plans, such as but not limited to: the Access Management Plan, Traffic Control Plan, Erosion and Sediment Control Plan, Blasting Management Plan and Weed Management Plan, and numerous other plans will be submitted to the Province for review sixty days prior to commencement of construction.

Request:

- a) What methods of construction is the Proponent proposing to use where the pipelines cross through major and minor highways? What are the Proponent's proposed design criteria for a typical road crossing.
- b) What will be the impact on the proposed construction schedule if the sixty days referenced does not provide adequate time to consider the issuance of necessary provincial authorizations?

2.28 Environmental and Socio-Economic Assessment – Pipelines and Tank Terminal

Reference:

Volume 6A: Environmental and Socio-Economic Assessment – Pipelines and Tank Terminal, Section 8: Vegetation

- i) Pages 8-24 – Pages 8-26: Mapping in British Columbia
- ii) Page 824: Old Growth Forests

Preamble:

Regarding Reference (i): Terrestrial ecosystem mapping is indicated as the method used in BC. This mapping includes Biogeoclimatic site series estimation as a foundation for identifying ecological elements such as rare plants, rare ecosystems, wildlife habitat ratings, wetlands and other features. It is essential that ecological mapping is conducted with a resolution consistent with the accurate description of the ecological element in question. It is stated that a Level 5, 1:20,000-1:50,000, BC RISC survey intensity was used. In order for BC provincial ecologists to assess whether the probability of a rare ecosystem or any other map based ecological elements occurring in a particular map polygon is high, details concerning survey intensity are required.

Regarding Reference (ii): It is stated that Old Growth Forest areas were determined using VRI stand origin data. Different phases of BC's VRI can have varying levels of accuracy and require ground verification. Also, in BC the Non-spatial Old Growth Biodiversity Order and Government Action Regulation (GAR), under the *Forests and Range Practices Act*, are in force. In addition, government is working toward the establishment of Spatial Old Growth Management Areas (OGMA). The non-spatial and spatial landscape objectives in these documents

are essential elements in maintaining the current existence of old natural forest and the recruitment potential of future natural forest.

Request:

Regarding Ref. (i):

Please provide:

- a) All field data, methods and procedures associated with this mapping in BC.
- b) Please provide total area (ha) of wetland ecosystems within the PEAA and REAA.

Regarding Ref. (ii):

- a) Has a determination been made as to whether the PDA or PEAA will impact any spatially defined OGMA or non-spatial OG recruitment area?
- b) What phases of VRI/FC were used?
- c) What was the level of confidence associated with stand origin data?
- d) Was field validation carried out to estimate VRI data accuracy?
- e) Explain how stand origin data was used to estimate Old Growth forest/structure.



Environmental Assessment Office

Visit our website for information about the environmental assessment process and projects under review. The address is: www.eao.gov.bc.ca

MAILING ADDRESS:
PO Box 9426 Stn Prov Govt
Victoria BC V8W 9V1

LOCATION:
1st Fl - 836 Yates St
Victoria BC V8W 1L8

2nd Fl - 836 Yates St
Victoria BC V8W 9V1

Facsimile Cover Sheet

Date:	November 7, 2011
To:	Secretary to the Joint Review Panel Enbridge Northern Gateway Project 444 – Seventh Avenue S.W. Calgary, Alberta T2P 0X8
Fax#:	403-292-5503
From:	Krishna Klear, Province of British Columbia
Telephone:	250-387-9412
Fax#:	250-387-6762
E-mail address:	Krishna.Klear@gov.bc.ca
Confidential:	No
Urgent:	Yes
Original to Follow:	
Total Pages (including this page)	13

Northern Gateway Pipelines Inc. (Northern Gateway)
Enbridge Northern Gateway Project Application of May 27, 2010
Hearing Order OH-4-2011 File No. OF-Fac-Oil-N304-2010-01 01
Information Request Number 2 to Northern Gateway

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FILING RECEIPT

Joint Review Panel-Enbridge Northern Gateway Project

444 Seventh Avenue SW
Calgary, Alberta
T2P 0X8

Filing ID: A35623**Filing Date:** 2011/11/07, 11:21 AM MST*

*Mountain Standard Time

Submitter Information:**Role:** Other

Krishna Klear
Project Lead
Province of British Columbia
On behalf of: Province of BC
krishna.klear@gov.bc.ca
Telephone: (250) 387-9412

PO Box 9426 Stn Prov Govt
Victoria, BC
V8W 9V1

Filing Information:

Project:

Title: Province of BC Amendment to Information Request #2

NEB File Number:

Hearing Order:

Additional Contact(s):

Electronic Documents in this submission:

ID	Document Type	File Name
A2H4I6	Letter	Cover Letter - Information Request 2, Province of BC AMENDMENTS.pdf
A2H4I7	Information Request	Province of BC Information Request #2 AMENDMENTS.pdf

Paper Documents in this submission:

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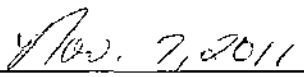
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Acceptance of Submission/Responsibility

I understand the terms and conditions of submitting electronic documents with the National Energy Board and the Enbridge Northern Gateway Project Joint Review Panel (the Panel). I waive copyright for use by the NEB, the Panel and third parties of documents contained in this submission only for the purpose for which the information was provided.

I hereby certify that I have electronically submitted the above documents to the Panel. I also certify that the paper submission attached hereto is complete and contains accurate renditions of the electronic documents listed above and, where applicable, the requisite number of hard copies for each paper document listed above.


Signature


Date



Environmental Assessment Office

Visit our website for information about the environmental assessment process and projects under review. The address is: www.eao.gov.bc.ca

MAILING ADDRESS:
PO Box 9426 Stn Prov Govt
Victoria BC V8W 9V1

LOCATION:
1st Fl - 836 Yates St
Victoria BC V8W 1L8

2nd Fl - 836 Yates St
Victoria BC V8W 9V1

Facsimile Cover Sheet

Date:	November 3, 2011
To:	Secretary to the Joint Review Panel Enbridge Northern Gateway Project 444 - Seventh Avenue S.W. Calgary, Alberta T2P 0X8
Fax#:	403-292-5503
From: Telephone: Fax#: E-mail address:	Krishna Klear, Province of British Columbia 250-387-9412 250-387-6762 Krishna.Klear@gov.bc.ca
Confidential: Urgent: Original to Follow:	No Yes
Total Pages (including this page)	45

Northern Gateway Pipelines Inc. (Northern Gateway)
Enbridge Northern Gateway Project Application of May 27, 2010
Hearing Order OH-4-2011 File No. OF-Fac-Oil-N304-2010-01 01
Information Request Number 2 to Northern Gateway

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FILING RECEIPT

Joint Review Panel-Enbridge Northern Gateway Project

444 Seventh Avenue SW
Calgary, Alberta
T2P 0X8

Filing ID: A35404**Filing Date:** 2011/11/03, 12:23 PM MDT*

*Mountain Daylight Time

Submitter Information:**Role:** Other

Krishna Klear
Project Lead
Province of British Columbia
On behalf of: Province of BC
krishna.klear@gov.bc.ca
Telephone: (250) 387-9412

PO Box 9426 Stn Prov Govt
Victoria, BC

V8W 9V1

Filing Information:

Project:

Title: Province of BC Information Request #2 - Northern Gateway

NEB File Number:

Hearing Order:

Additional Contact(s):

Electronic Documents in this submission:

ID	Document Type	File Name
A2H2F5	Letter	Cover Letter - Information Request 2, Province of BC.pdf
A2H2F6	Information Request	Province of BC Information Request #2.pdf

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I hereby certify that I have electronically submitted the above documents to the Panel. I also certify that the paper submission attached hereto is complete and contains accurate renditions of the electronic documents listed above and, where applicable, the requisite number of hard copies for each paper document listed above.


Signature

Nov. 3, 2011
Date



Telephone: 250-952-6507
Facsimile: 250-356-7440
File: 30050-35 / ENGP-05-06

November 3, 2011

Kenneth MacDonald
VP, Law and Regulatory Affairs
Northern Gateway Pipelines Inc.
Suite 3000, 425 – 1st Street SW
Calgary AB T2P 3L8

Abby Dorval
Manager, Regulatory Affairs
Northern Gateway Pipelines Inc.
Suite 3000, 425 – 1st Street SW
Calgary AB T2P 3L8

Richard Neufeld, Q.C.
Barrister and Solicitor
Fraser Milner Casgrain
15th Floor, 850 – 2nd Street SW
Calgary AB T2P 0R8

Dear Sirs and Madame:

Re: Northern Gateway Pipelines Inc. (Northern Gateway)
Enbridge Northern Gateway Project Application of May 27, 2010
Hearing Order OH-4-2011 File No. OF-Fac-Oil-N304-2010-01 01
Information Request Number 2 to Northern Gateway

Please find attached Information Request No. 2 submitted by the Province of British Columbia, with respect to the above referenced matter.

Please contact me if you have any questions or require any additional information with respect to this Information Request.

Yours truly,

Krishna Klear
Project Lead

Attachment

Information Request
To: Enbridge Northern Gateway Pipelines Inc.
From: Her Majesty in right of British Columbia (the Province)

**Enbridge Northern Gateway Pipelines Inc.
Enbridge Northern Gateway Project**

Information Request No. 2

2.1. Overview and General Information

Reference:

- i) Volume 1, Overview and General Information, Section 1.3 Project Benefits, (Page 1-3 and continued in 1.4 and 1.5)

Preamble:

In the application, the following are listed as benefits of the project:

- Increased prices for Canadian oil would result in annual producer revenues increasing by \$2.39 billion in the first full year of operations to over \$4.47 billion by 2025.
- Over a 30-year operating period, Canadian gross domestic product (GDP) would increase by \$270 billion.
- Federal and Provincial governments could collect an additional \$81 billion in revenue.
- Government Revenue from pipeline operations will exceed \$85 million per year
- Canadian Oil industry would benefit by \$28 billion over the Project's first 10 years of operations.
- Taxes paid during construction are estimated to exceed \$913 million.

Request:

- a) Please provide a listing of the key elements for each sector (industry, federal government, and provincial governments) which will result in the benefits listed above.
- b) With regard to the figures listed above, please provide the detailed worksheets for each figure by listing how this dollar amount was reached. For example what is the break down elements of the \$81 billion in revenue, and what is the distribution between the federal and provincial governments?
- c) Some of the elements did not specify if the figures would be annual or over the whole duration of the project life, for example taxes paid during construction are estimated to exceed \$913 million. Please provide clarification around the timing of monetary benefits.

2.2 Impacts to Existing and Future Infrastructure

Reference:

- i) Volume 3A – Engineering, Construction and Operations

Preamble:

The proposed pipeline corridor will cross several provincial highways, secondary roads, forest service roads and other utilities. The province values its road infrastructure as this is a key provincial asset. As it is difficult to predict where future developments may occur it is critical that the depth of the pipe does not create an economic barrier to future developments along the corridor. The province wishes to better understand the implications of designing new crossing of the pipeline corridor and has an interest in ensuring that any planned crossings will meet existing and future infrastructure needs.

Where no crossing is presently planned, it is understood that the pipelines will generally be buried at a minimum depth of 90 cm. It is further understood that road crossing will require a minimum depth of 120 cm. As a consequence, any future road construction over the right of way will require one of the following: that the two pipelines be dropped to an appropriate depth, a ramp of earth or bridge be constructed over the two pipelines to achieve depth of coverage or a concrete pad be laid over the pipes to meet the protective requirements.

Request:

- a) For future road crossing please provide more information on the [process envisioned] including notification procedures, standards, and clarification of who will bear the specific costs associated with the crossings.
- b) How does the proponent plan to address the need to register existing and future roads within the pipeline right-a-way as defined under the *Transportation Act* and registration of these roads under the *Land Title Act*?
- c) The Utility Policy Manual requires pipelines to cross all Highway infrastructure (including numbered routes, side roads and unconstructed right of way) at 90% degrees. A review of the submitted topographic mapping shows the proposed pipelines to be crossing highway right of way at angles that do not meet the 90% degree requirement, i.e., areas surrounding Fort St James and Burns Lake. Would the Proponent be prepared to alter its plan in order to conform with this policy?
BC Ministry of Transportation and Highways Utility Policy Manual
<http://www.th.gov.bc.ca/permits/Utility%20Permit%20Manual.pdf>
- d) Please identify when the proponent can share any information related to possible impacts to highway's and other road infrastructure, such as culverts and ditches, as a result of Pipeline crossing?

- e) Permanent pole lines for pump stations and temporary pole lines for camps and staging areas will be required for the proposed project. Where will these lines be located in relation to any provincial road infrastructure?

2.3 Public Consultation

Reference:

- i) Volume 4, Public Consultation & Volume 7 A – Construction Environmental Protection & Management Plan

Preamble:

Volume 4 identifies the stakeholders, First Nations and interested parties that may be affected by the proposed project. This includes a description of the engagement process with 525 British Columbia Land Owners and 76 Occupants. The province values public engagement and has an interest in ensuring that an accurate listing of the existing rights or authorizations along the route is known. This generally includes provincial authorizations in the following subject matters: Lands, Forests, Range, Agriculture, Trappers, Guides, Road Users, Mines, Clean Energy, Commercial Recreation, etc. Provincial authorizations are very dynamic and given the time lag between the issuance of a certificate, final route changes and the start of construction there will be a need for a final Provincial review and status check.

Request:

- a) Given the number of impacted Land Owners and Occupants the province would like more information on how disputes between the proponent and the parties involved could be resolved. Please provide a description of the conflict resolution process available to land holders and holders of provincial authorizations and any dispute mechanisms that are available. This should also address the unintended circumstances such as Land Owner or Occupant trespass during construction or operations.
- b) With regard to any specific commitments made to Land Owners or Occupants (holders of provincial authorizations), please explain how such commitments will be tracked, implemented, and reported.
- c) The Province requests a detailed plan from the Proponent concerning engagement and consultations with relevant provincial ministries with respect to the construction and operation of the pipeline.

2.4 Public Consultation – Post Application

Reference:

- i) Volume 4: Public Consultation, Section 5: Post-Application Consultation Activities

Preamble:

It is cited in the Application that the Proponent will continue consultation activities through all phases until the project is completed.

Request:

- a) Please provide a summary of information related to consultation activities with forest industry user groups. This should include the forest licence holders that will be affected by the project.

2.5 Volume 6C - Regional Social and Economic Effects

Reference:

- i) Update to Sec. 52, Volume 6C, Environmental and Socio-economic Assessment, Section 4.4, Table 4.4-11 Annual Project Operating Expenditures (Page 4.4-52)

Preamble:

Table 4.4-11 provides Typical Yearly Expenditures for Operations and Maintenance, and Taxes at the Alberta, British Columbia and Federal levels. Annual expenditures for power in BC are estimated at \$25.4 million; with expenditures for property taxes in BC being estimated at \$28.5 million. There is a note in the Table for each value briefly explaining how these have been estimated.

Request:

- a) With regard to expenditures for power in BC and Alberta, please provide their individual total power requirements, the expected rate classification, and the rates or prices anticipated to be in effect.
- b) With regard to expenditures for property taxes in BC, please provide the detailed worksheets or estimating technique used to calculate the taxes. This should include, for example, property values, anticipated tax rates, and a description of the land area expected to be subject to taxes (whether it is width of right of way or other corridor width, etc.).

2.6 Employment

Reference:

New Material Volume 6C: Environmental and Socio-economic Assessment (ESA)
– Human Environment Section 4.4: Regional Social and Economic Effects,
(Page 4.4-129 – Executive Summary)

Preamble:

The net economic benefit to the province for increased employment generated by the proposed project's construction or continuing operations, whether measured by local area, region, province, or total project, depend upon the employment being incremental – that is, it is not just drawing resources from other projects. This will happen when new jobs are filled by unemployed resources. The three regions of the proposed project vary dramatically – both in the availability of skills that are required by the proposed project, and in the levels of current and projected employees.

The current (September 2011) regional labour market statistics are:

- North Coast and Nechako development region: employment is 44,800; unemployment rate is 8.6% (highest among all regions); and
- Northeast development region: employment is 35,800; unemployment rate is 4.3% (lowest among all regions).

(Source: Labour Force Survey <http://www.bcjobtrendtracker.ca>)

Northeast BC

Construction in Northeast BC will consist of two pipeline spreads. One contractor will construct the BC portion of Spread 5 starting in winter 2015–2016, and a second contractor will construct Spread 6 during the following summer (2016). A peak workforce of about 225 people will be required in Q1, 2016 for Spread 5, and a second peak of 820 people will be required in Q3, 2016 for Spread 6 and the associated pump station. Regional residents will account for 27% of the total on-site construction workforce in this region. This means that, during the peak quarter of construction, there may be 600 workers from other parts of BC and Alberta in the region.

Central BC

Construction of the five pipeline spreads in Central BC will collectively require a large construction workforce, most of whom will be employed during four consecutive construction seasons. Four of the five spreads will be built sequentially by one contractor using a crew that will be housed in construction camps. The number of workers directly employed on-site for these spreads will vary from quarter to quarter but will peak at more than 1,050 people in Q3, 2015.

Regional residents are expected to account for 28% of the total workforce in Central BC. This means that an average of 630 workers from other parts of BC and Alberta will be employed in the region over a two-year period, although greater numbers of workers

from outside the region will be employed in Q1, 2015 (750 workers), Q3 and Q4, 2014 (940 to 960 workers), Q1, 2016 (610 workers) and Q3, 2016 (600 workers).

Coastal BC

Coastal BC will experience a noticeable short-term population increase during construction. Construction in the region will occur over four years and will provide about 12 quarters of continuous employment for at least 300 people, with another 100 people being continuously employed for nine of those 12 quarters. Regional residents are expected to account for 30% of labour requirements in this region. Therefore, an average of 230 workers from outside the region will have to be brought in for 10 of the 12 quarters, starting in Q4, 2013, with an extra 535 workers from outside the region required in Q2 and Q3, 2016 for construction of Spread 12."

Request:

- a) With regard to employment of regional residents in the various stages of pipeline construction in the three regions in BC:
 - i) Please provide descriptions of the types of skilled and unskilled trades that will make up the 70% + of employees from outside the region; and
 - ii) Please provide a detailed assessment of the potential [proponents intentions?] to provide training to local residents, including training measures the Proponent intends to introduce to improve workforce participation by First Nations in the central and coastal regions where they represent the majority of the population and the unemployed.

2.7 Pipeline Corridors

Reference:

- i) Volume 3 A – Engineering, Construction and Operations, section 2.3

Preamble:

Volume 3A provides a description of the route and the various alternatives explored. The western route from the northeast BC border to near Houston proposes to establish a new utility corridor where the Proponent will be the primary utility using the corridor. The Proponent will share a corridor with Pacific Trails Natural Gas Pipeline from Buck Flats to Kitimat. Pacific Trails Natural Gas proposes to construct their pipeline from Kitimat to Summit Lake starting in 2012 and will could be in production by the time the Proponent would be ready to start construction. This should present a number of opportunities and challenges.

Request:

- a) With regard to the pipeline route in BC, provide a rationale as to why the use of existing utility corridors was not considered as a selection criteria in the report.

- b) Given the shared portion of the corridor with Pacific Trails Pipeline please provide further information on efforts to collaborate on routing, construction and ongoing access management.

2.8. Engineering Construction and Operations

Reference:

Volume 3, Engineering, Construction and Operations, Section 1.4 Regulations, Codes and Standards, (Page 1-2)

Preamble:

As the Project falls under the Jurisdiction of the NEB, it will be designed, constructed and operated to comply with the latest NEB regulations, including the Onshore Pipeline Regulations, 1999 (OPR-99), which incorporate, by reference, the Canadian Standards Association (CSA Z662-07, Oil and Gas Pipelines Systems. These standards in turn reference other standards and publications, which will be followed as appropriate in the design. The pipelines and facilities will be designed and built in accordance with Enbridge's Engineering Standards and Construction Specifications.

Request:

- a) With regard to CSA Z662-07 mentioned above, the province notes that the Federal government in Information Request 1, noted that the new edition of CSA Z662-11 is in effect. For such, the province would also requests that the CSA Z662-11 replace CSA Z662-07.
- b) With regard to "the pipelines and facilities will be designed and built in accordance with Enbridge's Engineering Standards and Construction Specifications", mentioned above the following sentence is requested to follow after:
the pipelines and facilities will be designed and built in accordance with Enbridge's Engineering Standards and Construction Specifications which comply to the latest versions of NEB regulations, including the Onshore Pipeline Regulations, 1999 (OPR-99), which incorporate, by reference, the Canadian Standards Association (CSA Z662-11), Oil and Gas Pipelines Systems including all amendments for such references.

2.9 Engineering, Construction and Operations – Geotechnical Conditions

Reference:

- i) Volume 3, Engineering, Construction and Operations, section 3, Table 3-2, Page 3-3

Preamble:

Volume 3, Section 3, provides an overview of geotechnical conditions. Table 3-2 provides general comments on primary geotechnical conditions and mitigation strategies.

Given the geology and geomorphology of the route in BC is complex and there is potential for destructive landslides."

Request:

- a) Please confirm the current seismic standards used for design of the pipeline.
- b) Please indicated, based on hazard mapping completed to date, how the proponent intends to avoid natural hazards, or minimize their effect on the proposed pipeline.
- c) Please provide all hazard mapping performed to date.

2.10 Acid Rock Drainage and Metal Leaching Field Investigation

Reference:

- i) Volume 3, Report E-1-1 – Acid Rock Drainage and Metal Leaching Field Investigation

Preamble:

Section 14.2.2 of this document recommends that a percent sulphide (%S) cut-off should not be used as the only means of assessing acid rock drainage (ARD) potential unless the minimum neutralizing potential (NP) value is known. Even low levels of sulphide can lead to ARD if the NP is insufficient to neutralize the resulting acid. This section is significant when considering the Red Rose formation where both the NP and S% values of the unit have been screened [by the proponent?] as not acid generating due to the low sulphide values.

The screening criteria to determine ARD came from the 1997 Price publication, referenced below. Price has recently published a new document in December 2009.

Sampling only rock outcrops which show visible sulphides (section 4.2) may be inaccurate. There are examples of units that have generated acid where the sulphides were not visible with a hand lens. Kinetic testing will provide the requisite data to ascertain the potential for neutral drainage metal leaching (ML) and potentially acid generating (PAG) units.

Request:

- a) Are the changes or updates in the 2009 Price document being incorporated into the conclusions in the referenced investigation? Explain how the screening criteria for ARD prediction may change the conclusions of which rock units are potentially acid generating.
- b) How comfortable is AMEC with the accessibility to rock units specifically within the coast mountains? Please describe any additional work that is planned in this area to determine ARD classification given the lack of access to some rock units.
- c) Have any kinetic tests been commenced on materials identified as PAG? If so, please provide the results of these tests. If not, why not?
- d) Has a hydrogeology evaluation been completed for the areas identified as having PAG issues? If so, please provide the evaluation.
- e) Will pH level of surface water samples be done to confirm background levels?

Cited References:

Price W (2009) Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials. MEND Report 1.20.1.

Preamble:

The statement in section 2.1, 'neutral pH metal leaching is generally only a concern if discharge is into a sensitive resource and/or with little dilution' is true but may be optimistic. If there are sensitive receptors in an area identified in a possible metal leaching (ML) area, then kinetic testing should be completed to verify the ML issue.

Limestone Lined Ditches: In section 2.2.1 the description of the BC Ministry of Transportation (MoT) history at Pennask Creek is true; however, it should be clarified that the limestone lined ditches have not been a successful long-term mitigation option. It was concluded that the mitigation measure employed at the site was inappropriate for the site conditions and required frequent monitoring and maintenance.

The management guidelines for acid rock drainage (ARD) came from the 1998 Price publication. However Price has recently published a new document in December 2009.

Encapsulation/Covers: The BC MoT experience with encapsulated PAG rock (at VIHP) is that it is a mitigation option that can have significant long-term monitoring and maintenance requirements. The use of shotcrete as a cover on exposed PAG rock would also require frequent maintenance.

Blending: Table 9-1 suggests blending of limestone sand/gravel with excavated PAG rock and emplacing mixture as trench backfill is a mitigation option. This

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would require monitoring and possible maintenance. If the NP of the limestone is utilized before the AP is depleted then the problem is concentrated within the trench.

The BC MoT experience at its longest ARD site (at Pennask Creek) is that blending limestone with the acid generating rock to neutralize low pH drainage is a short-term option which requires high monitoring and maintenance.

In section 4.1 it is stated that uncertainties and complications exist when extrapolating surface grab samples. This would suggest the further need for further testing.

Request:

- a) Please comment on the reliability of sulphide content through visual assessment given the referenced paper by Prince, 2004.
- b) Please clarify the terminology PAG with respect to classification as potentially ARD releasing?
- c) Please confirm if Figure 6.1 is correct? Should it not be total sulphide <0.1% instead of total sulphur <0.1%?
- d) What is the basis for the recommended blending ratio is 4:1 NP to AP (acid potential)?
- e) Please provide examples of long-term success stories using blending mitigation, specifically for linear corridor applications.
- f) Please provide an analysis of the long-term monitoring and maintenance requirements for each mitigation option identified in the referenced report.
- g) Will additional corrosion protection be added to the pipe in areas where PAG rock is used as trench backfill? If so, please describe the proposed protection. If not, why not?
- h) Please confirm whether AMEC plans to do further testing given the uncertainties and complications noted in the preamble when extrapolating from surface grab samples.

Cited References:

Price W (2009) Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials. MEND Report 1.20.1.

Price, W.A. & D. Yeager. 2004. Case Studies of ML/ARD Assessment and Mitigation: Johnny Mountain Gold Mine. MEND Report 9.1a. 67p

Reference:

- i) Volume 3, Report E-3 Preliminary Geotechnical Report Proposed Kitimat Terminal

Preamble:

Landslide hazards such as rock fall and debris flows have been identified to occur in the area of the proposed Kitimat Terminal. Displacement waves from subaerial and subaqueous landslides may also occur. A recent example is provided by Brideau et al (2011) where a rock slide that entered Chehalis Lake (Lower Mainland) generated a 38m high tsunami. There is no discussion of the affects of a seismic event either on landslide generation, the engineering properties of the materials or the hazards at the terminal site which lies within an identified active seismic zone. The provided climatic data for the Kitimat area shows snow is common during the winter (section 2). Additionally, the area is described as having significant steep slopes.

Request:

- a) Please provide what seismic design code or design criteria will be applied to the terminal site? What is the expected affect of a design seismic event on the foundation stability, as well as, the expected effect on natural hazards, and potential for derivative displacement waves.
- b) Please confirm whether snow avalanches are a concern at the site or along the access road due to the steep slopes surrounding the area.

2.11 Geotechnical Report on Tunnels

Reference:

- i) Volume 3, Report -2 Preliminary Geotechnical Reports on Proposed Coast Mountain Tunnels Route (Rev R KP 1072 to KP 1087)

Preamble:

Natural hazard conditions at the site are known to consist of steep slopes with avalanche and rock fall hazards. Large boulders on the slope and scarring on trees have been observed at portal locations indicating existing rock fall and slide hazard issues. Tunnelling is an appropriate mitigative measure; however, careful assessment of slope hazards, such as rock fall, rock slides, debris slides, debris flows, and snow avalanches must be made at portal sites.

Request:

- a) Please describe how the natural hazards at the portals will be addressed.
- b) Will the pipeline be buried, or above ground at the portals?

2.12 Geotechnical Report

Reference:

- i) Volume 3, Report E-1 Overall Geotechnical Report on the Pipeline Rev. R
- ii) NGP Responses to JRP IR No. 4, 4.3 Geohazards: Permafrost, pages 5-6
- iii) NGP Responses to JRP IR No. 4, 4.6 Terrain Stability, pages 12-13

Preamble:

Landslides are complicated and generally the site parameters are not well defined or understood. Successful mitigation requires a thorough identification of the hazard and its parameters.

The historic record shows landslides within the Interior Plateau and Coast Mountains regions where runout distances have frequently been greater than the 1km corridor (section 4.2.3). Other papers (Geertsema et al. 2009 and 2011; Geertsema and Cruden 2008) suggest 1km is too narrow. [In our opinion more work should be done to characterize landslide hazard and risk, including magnitude frequency relationships, depth of scour, and travel distance, incorporating climate change scenarios.]

In section 3.2.1.3, it is stated 'a few streams in the Rocky Mountains and Coast Range may be subject to debris flows'.

In NGP Responses to JRP No. 4, page 5 the proponent responds as follows: "No significant alpine permafrost has been identified during investigations to date including on-ground work on portions of the route through the highest parts of the route through the Rocky Mountains and the Coast Mountains as well as extensive aerial reconnaissance along the route." Recent work, such as this global



permafrost layer (X-Sense.kmz) based on Gruber et al. (2011a) indicates much potential alpine permafrost along the pipeline route. Many of the large, long runout, rockslides in northern BC initiated within these permafrost zones. As climate continues to warm we can expect mountain permafrost to degrade. In a keynote address at an international landslide conference, Gruber (2011b) states "while some of the effects caused by transient cryosphere systems will conform to previous knowledge and expectations, we also have to expect types of events and landslides that have not or only rarely been observed and described before". Over the expected lifetime of the pipeline, careful consideration and monitoring of alpine permafrost and its derivative movements should be made.

Permafrost does not have to be ice-rich to create stability problems. Unsaturated material can also be ice bonded, and moss cover is not required as an insulating layer. Figure 4 in Gruber (2011b) shows an example of permafrost under 3m of unvegetated rubble in northeastern BC. Not only does this example reinforce the

fact that vegetative cover is not required, it also illustrates that boreholes and/or geophysical methods may be required to confirm or reject the presence of permafrost. (Hand digging a soil pit to a depth of 3 m in angular rubble is unreasonable.) Establishing whether or not alpine permafrost is present at depth is crucial for long term hazard and risk analysis.

Much can be learned from the European permafrost/landslide researchers in this respect (Gruber et al 2007; Noetzli and Gruber 2009; Huggel et al. 2010; Ravelle et al. 2010). Slope movements that are influenced by permafrost in mountain areas include rock slides, topples and falls, as well as, flows and slides in soil and rubble. Movements in rubble as demonstrated by Wirz et al (2011), can load topples and lead to cliff collapse. Dilation of rock fractures is also common and led to a massive rock fall from the Matterhorn in Switzerland. Remote sensing, GPS, and other in-the-ground monitoring systems are useful to determine movement vectors on these slopes.

In NGP Responses to JRP IR No. 4, page 13 the proponent responds as follows: **"The sensitive layers found to date have generally been located at depths well below potential trench depths.** As noted above, areas where stability issues are found will be avoided or suitable mitigation methods will be used."

If deep sensitive layers are found – their presence well below trench depths does not diminish slope stability concerns. Indeed, deeper sensitive layers might result in larger landslides than those generated in shallower layers. Deep sensitive clays can liquefy, and if the slope geometry allows it, result in large low gradient flowslides. This happened at Khyex River between Terrace and Prince Rupert in 2003 (Schwab et al. 2004). In this case a natural gas pipeline was ruptured.

Even seemingly minor construction fill placements have triggered landslides tens of hectares in area, and millions of cubic meters in volume. The most famous of these was perhaps the Rissa landslide in Norway, captured on videotape (Gregersen 1981), but there are also two local examples. Placement of a berm along HWY 37 between Terrace and Kitimat triggered two large flowslides in 1962. These two landslides had travel angles of 1.5° and each involved more than 10 million m³ of glaciomarine sediment (Geertsema and Cruden 2008).

A review of methods for predicting flowslide dimensions is provided by Geertsema and Schwab (1997) and by Carson and Geertsema (2002: pages 689-692). Both papers discuss approaches by Bjerrum et al. (1969), Levebvre (1996), Leblais and Rissman (1983), Mitchell (1978), Mitchell and Markell (1984), and Viberg (1984).

Loading triggers and bank erosion triggers (especially in a climate change scenario context) need to be considered.

The pipeline will be subject to different corrosion rates in different geologic settings. Additionally lateral pressures resulting from seismic shaking or ground movement can be expected, therefore the pipe design must consider stiffness and corrosion over the design life.

LIDAR (light detection and ranging) data appears to be sparse for the corridor. Geertsema and Clague (2011) have stressed the importance of obtaining LIDAR data to recognize and characterize landslide hazard along pipeline corridors. Many subtle details, diagnostic of instability, as well as landslides themselves, can be missed during field and aerial photo analysis. Brardinoni et al. (2003) show that up to 85% of landslides escape detection with airphoto analysis.

Request:

- a) Please provide hazard maps prepared to date for the corridor.
- b) Please provide comment on how you will utilize the information available from technical papers on the frequency of debris flows in the coast mountains.
- c) Please confirm the level of risk which has been deemed acceptable to the project.
- d) Please provide an estimate of landslide return intervals (magnitude/frequency data), potential depth of scour, and potential runout distance using future climate scenarios.
- e) Please provide an analysis of the effectiveness of mitigation measures, such as groundwater control, debris flow and rock fall containment structures, to reduce the consequence of the hazard to the degree expected.
- f) Please describe how the presence or absence of permafrost at depth will be confirmed in areas of permafrost potential according to the provided kmz layer



(X-Sense.kmz).

- g) Please propose and describe a system for monitoring movements and subsurface temperatures of high elevation rock and rubble slopes. Please comment on how the temperature driven slope destabilization processes in areas with permafrost may affect the alignment [of the pipeline?]. Have the secondary effects of climate change been considered?
- h) Please use the methods of Mitchell (1978), (or similar accepted methods) to predict potential flowslide dimensions where sensitive clays exist below the pipeline corridor using dynamic and static loading triggers as well as bank erosion, bearing in mind that travel distances may be as much as 3 km (as at one of the Lakelse landslides).
- i) Please confirm the design life of the pipeline for engineering purposes. Please describe how pipeline corrosion will be tracked. Please confirm whether calculations involving time take into consideration the expected level of corrosion.
- j) How will the presence of the pipeline impact resources (e.g. timber harvesting, mining, etc) on the slopes adjoining the pipeline? Will the values and vulnerability of the pipeline restrict resources values on the slopes above the corridor (for fear of landslides generated from those activities?).
- k) How are you dealing with hazard levels the pipeline will negatively affect on adjacent and/or dependent properties?

- l) Please provide details on the proposed extent of future LiDAR, coverage you intend to collect, bearing in mind the recommendations of Geertsema and Clague (2011). Include details on how future LiDAR data could be made available to the Province of BC.

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2.13 Vehicle and Equipment Crossings Associated with Access

Reference:

- i) Volume 3 – Engineering, Construction and Operations, Section 6.4

Preamble:

The Proponent has not identified the types of stream crossing structures to be used to access the construction component of the project. The types of temporary structures that will be used, and their method of deployment, are also not identified. As many of these temporary structures will be in place for multiple

seasons or years, the Province wishes to understand their potential for failure, and their potential impact on fish migration and water quality.

Request:

Please provide:

- a) the types of stream crossing structures to be used to access the construction component of the project;
- b) which access structures intended to be permanent and which will be temporary; and
- c) the specific types of temporary structures that will be used and their method of deployment.

2.14 Locations of Control Valves

Reference:

- i) Volume 3 Appendix F Table F-1

Preamble:

The Proponent has identified preliminary locations of control valves for both the crude oil and condensate pipelines. The Proponent has identified several 'crossing of concern'. These were identified by using the criterion that there was risk of important resource values. The Province wishes to have a better understanding of the decision not to include valves on both the right and left banks of the identified crossings of concern.

Request:

- a) Please provide the basis for the decision for including valves only on one bank of the crossings that the Proponent has identified to be of concern.
- b) Please provide any studies or reports related to this decision.

2.15 Watercourse Crossing Methods of Review

Reference:

- i) Volume 3 Appendix G Table G-1

Preamble:

The Proponent has identified preliminary crossing methods for several tributaries. At KP 1109.4 the Proponent has indicated an open cut method. The Proponent does not indicate a timing window of least risk for the construction of the pipeline at

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this crossing. This tributary is directly linked to the Kitimat River which is an important salmonid river. The decision tree in figure G-6 does not include a link in decision making where the non-fish bearing tributary is directly linked to a fish bearing stream.

Throughout the construction section from KP 1086 to KP 1121 the pipelines parallel the Kitimat River and cross numerous direct tributaries.

Request:

Please provide:

- a) information as to how the decision to use an open cut method at KP 1109.4 was made using the figure G-6, including any reports prepared by or for the Proponent;
- b) information with respect to the plans, if any, the Proponent has to mitigate downstream effects on water quality and fish habitat directly linked to the crossing location at KP 1109.4 should an open cut be used outside of a window of least risk, and
- c) information on mitigation of construction effects on the water quality and fish habitat of the Kitimat River and the Proponent's rationale for selecting the type of crossing for each of the tributaries crossed between KP1086 and KP 1121.

2.16 Discharge Pressures for the Crude Oil Pipeline

Reference:

- i) Volume 3 Application Update December 2010, Table 4-3

Preamble:

The Proponent identifies a range of typical discharge pressures for the crude oil pipeline as 8,893-14,893 kPa and a maximum pipeline design pressure range of 8,707-16,755 kPa. Therefore, there is a possibility of a discharge pressure to exceed the design pressure.

Request:

Please provide:

- a) information respecting the plans for reducing the potential for pipeline failure in the event that the discharge pressure exceeds the design pressure

2.17 Discharge Pressures for the Condensate Pipeline

Reference:

- i) Volume 3 Application Update December, Table 4-6

Preamble:

The Proponent identifies a range of typical discharge pressures for the condensate pipeline as 4,072-11,604 kPa and a maximum pipeline design pressure range of 9,650-12,040 kPa. Therefore, there is a possibility of a discharge pressure to exceed the design pressure.

Request:

- a) Please provide information respecting the plans for reducing the potential for pipeline failure in the event that the discharge pressure exceeds the design pressure [same addition as above?].

2.18 Pipeline Operations

Reference:

- i) Volume 7B Risk Assessment and Management of Spills, 2.3 Pipeline Operations

Preamble:

The Proponent has identified the implementation of a Remote Leak Detection System. The Province understands that this system, as proposed, would detect a release of +/- 5% of the volume. At 500,000 BPD, 5% equates to 25,000 BPD.

Request:

- a) Is the Province's understanding correct?
- b) Is the Proponent prepared to increase the sensitivity of the system such that it would detect a smaller percentage of the volume?
- c) If yes, what does the Proponent propose as that percentage?
- d) If not, why not?

2.19 General Oil Spill Response Plan (GOSRP), JRP receipt A1Y3Y8

Reference:

- i) GOSRP, March 2011, 1.1.3
- ii) GOSRP, March 2011, 4.7.1

- iii) GOSRP, March 2011, 7.2.1
- iv) GOSRP, March 2011, glossary page X
- v) GOSRP, March 2011, page 1-9
- vi) GOSRP, March 2011, page 1-10

Preamble:

In section 1.1.3, the Proponent does not refer to the recovery and rehabilitation of injured fish/wildlife. The Proponent also does not identify provincial permits and authorizations required for the handling and transport of injured fish and wildlife. Other authorizations are noted.

In section 4.7.1, the Proponent states that within the Watercourse Tactics Plan, control points will be identified for each key watercourse in the pipeline OSRP's. The Proponent does not set out criteria for determining the control points in each key watercourse or the specific criteria for identifying what a key watercourse is.

In section 7.2.1, the Proponent identifies strategies for containment and recovery of hydrocarbon release as it applies to surface movement and "slicks". The Proponent does not identify methods for recovery and containment of hydrocarbons that would not be present on the surface, but could be present in the sub-surface. The proposed product that the Proponent will transport is heavy crude which can also be neutrally buoyant. When combined with suspended sediments (Volume 7B Risk Assessment and Management of Spills – Section 4 Sedimentation) the product can travel sub surface and sink.

Request:

Please provide:

- a) information on the plans the Proponent has for the recovery and rehabilitation of injured fish/wildlife and the necessary permits and authorizations needed for handling and transport of injured fish and wildlife;
- b) the steps and criteria the Proponent will use to identify control point sites and the preparation of an appropriate preparedness plan including field verification and testing of those control points;
- c) information on the criteria used by the Proponent to identify and define key watercourses; and
- d) additional information on mitigating the effects and proposed containment, recovery and clean-up of the product that is present in the sub-surface if the product is no longer buoyant.
- e) Regarding reference (iv) please respond to the following:
 - (i) will the Spill Management Team (SMT) be employed fulltime?
 - (ii) what training will its members receive?
 - (iii) what will be the SPTs availability for spill response? [e.g. based on the standard corporate/agency model of using and training their existing management/technical staff to be available for exercises and incidents].

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- f) Regarding the reference in the Glossary to "Tiered Response", please explain what this will entail. Specifically, what equipment will be involved, and what [performance ratings, availability, agreement terms etc that can be fully assessed, transparent and tested in Canadian waters.]
- g) Regarding reference (v), with regards to a large oil spill, please provide information as to how the Proponent would establish an oil spill workforce for on-water response, shoreline cleanup, oiled wildlife rescue/rehab and oily waste management, including requesting, registering, screening, hiring, assigning, training, equipping, supervising, evaluating, and demobilizing that workforce.
- h) Please provide the following plans:
 - i) Salvage Response Plan;
 - ii) Places of Refuge Plan;
 - iii) Wildlife Response Plan; and
 - iv) Shoreline Workforce Cleanup Plan.

2.20 Insurance

Reference:

- i) Enbridge Northern Gateway Project, General Oil Spill Response Plan Section 3: Response Organization, B21-2 - General Oil Spill Response Plan - Enbridge Northern Gateway (March 2011) - A1Y3Y8, 03/31/2011, 3.3 Incident Command System p. 39/118.
- ii) Northern Gateway Pipelines Inc., TERMPOL STUDY NO. 3.15: General Risk Analysis and Intended Methods of Reducing Risk, Section 7: Incident Prevention and Response P 40/388

Preamble:

Insurance related to payment for the cost of clean-up of oil spills is covered in some detail in terms of responsibility and the value of insurance in the TERMPOL STUDY NO. 35 for marine spills. The discussion for insurance coverage for land-based spills, found in the discussion of oil spill response plans mentions insurance, but no details are provided of scope, liability and total value of insurance funds available.

Request:

- a) With regard to insurance coverage for oil spills:
 - on the pipeline right of way;
 - that affect properties outside of the pipeline right of way; and
 - for third party claimants, say for loss of access or business losses.
 Please provide details on the proposed insurance value or bonding and claim procedures.

2.21 Tunnel Construction – Waste Disposal

- i) Volume 7A, Construction Environmental Protection and Management Plan, A.3.13.6 Waste Disposal page A-88 and A.3.13.1 Waste Disposal page A-86

Preamble:

(A-3.13.6) Constructing the two tunnels is estimated to generate about 400,000 m³ of waste rock (including a 30% bulking factor). (A.3.13.1) Each Tunnel will have a finished width of approximately 5.5 m, and will result in an estimated 400,000 m³ of waste rock being generated.

Request:

- a) Is it 400,000 m³ for both tunnels (A-3.13.6) or 400,000 m³ for each tunnel as per (A.3.13.1)?
- b) More information about the final expected materials gradation and state
- c) What are the proponent's plans for disposal of this material?
- d) Please provide the proponent's plan for waste rock disposal, specifying the final locations and the disposal methodology for the materials.

2.22 Permitting and Agency Consultation

Reference:

- i) Volume 7A – Construction Environmental Protection & Management Plan

Preamble:

Volume 7A provides a description of proposed management plans and potential regulatory requirements of affected agencies. The Province would like clarification regarding the potential highway crossing methods and review timelines.

Volume 7A indicates that plans, such as but not limited to: the Access Management Plan, Traffic Control Plan, Erosion and Sediment Control Plan, Blasting Management Plan and Weed Management Plan, and numerous other plans will be submitted to the Province for review sixty days prior to commencement of construction.

Request:

- a) What methods of construction is the Proponent proposing to use where the pipelines cross through major and minor highways? What are the Proponent's proposed design criteria for a typical crossing?
- b) What will be the impact on the proposed construction schedule if the sixty days referenced does not provide adequate time to consider the issuance of necessary provincial authorizations?

2.23 Hypothetical Spills Along the Pipelines

Reference:

- i) Volume 7B: Risk Assessment and Management of Spills, Section 9

Preamble:

The Proponent has provided four examples of spill scenarios. All of the spill scenarios identified were modeled during the same "optimal period". The scenarios do not include components that should be considered as part of planning and mitigation. Examples of this are: large organic debris moving through the system at freshets; the likelihood of a highly turbid watercourse transporting and mixing with the product making it neutrally or negatively buoyant; and the effect of local climate and weather events. This list is not intended to be exhaustive of all potential components that could be included in a spill scenario.

Similarly, the four examples do not include a large, higher energy system, such as the Morice River that is habitat to both resident fishes and anadromous species. The range of flows on that river (20m^3 - 250m^3 at the WSC site of the Morice example) is different from that considered in the scenarios. It is not clear in the project description that the proponent has considered in detail (to the level of modeling) the effects of a large spill on a system such as the Morice and explained proposed measures that would be required to adequately mitigate such an event.

Request:

Please provide:

- a) a revision of each of the four spill scenarios in order to represent the conditions present outside of an "optimal period" by including, at a minimum, the components set out in the preamble; and
- b) expansion of the "hypothetical spills modelling" to include a wider array of the types of systems the project may affect;
- c) more detailed consideration of mitigative and restorative efforts that could be expected by the proponent in terms of impacts to anadromous fish and their habitat; and
- d) a spill scenario that represents a range of releases under an array of snow and ice levels that could be expected across the terrain that the project may affect.
- d) a spill scenario [full release of both pipes] in which the spill occurs in a large, high energy river, having a flow rate of between 20m^3 and- 250m^3 including measures proposed to mitigate the effects of the spill.

2.24 Flow of the Crude Product

Reference:

- i) Volume 7B: Risk Assessment and Management of Spills

Preamble:

The Proponent asserts that the crude oil product does not "flow" at low temperatures and that a release would be confined to the origin of the release. However, the temperature of the product as it is transported is much higher than the ambient temperature of the air due to pressure, friction and insulation values of the ground and ground cover.

Request:

Please provide:

- a) a hydrocarbon release scenario and information associated with a hydrocarbon release under low temperatures using the higher than ambient temperatures of the product to model impact, distribution, and clean-up that would not be confined to the origin of the release; and
- b) a hydrocarbon release scenario and information associated with a hydrocarbon release and clean-up where the release is carried by a stream covered with ice.

2.25 Contingency Plans and Environmental Management Plans

Reference:

- i) Volume 7A: Construction Environmental Protection and Management Plan, Appendix A
- ii) Section 52 Application Volume 7A – Construction Environmental Protection and Management Plan
- iii) Appendix A: Contingency Plan and Environmental Management Plan Pages A-20 "Response Action
- iv) Appendix A: Contingency Plan and Environmental Management Plan A-2.1.6 Response to Spills in Wetlands Pages A24

Preamble:

Reference i and ii - the Proponent has outlined mitigative measures associated with Key Identified Winter Range for mountain goats [in areas that have been mapped]. Due to resource constraints, not all of the mountain goat winter range has been spatially available or mapped.

The proposed project will be crossing or in close proximity to both Caribou and Mountain Goat critical seasonal periods including calving and kidding areas and important natal habitat.

Reference iii and iv - Application Volume 7A – The Construction Environmental Protection and Management Plan provided by the Proponent, dated May 2010, outlines the Proponent's approach to environmental protection and management measures that will be implemented during the construction of the pipeline, Kitimat Terminal and associated facilities.

Request:

Please provide:

- a) additional information on the Proponent's intention to [map?] currently unmapped winter range in proximity to the local effects zone of the proposed pipeline corridor;
- b) information on the Proponents intention to adhere to mitigative measures for both the mapped and unmapped winter range areas; and
- c) additional information on mitigating disturbance effects on ungulates during critical seasonal periods outside of winter range occupation.
- d) Regarding reference (iii), the "Response" states - "the contractor in consultation with Northern Gateway will direct the response effort". With respect to spills of hazardous materials, please confirm that the Proponent will be responsible for the actions of all contractors/subcontractors/ consultants employed by the Proponent during the construction phase of the project.
- e) Regarding Reference (iv), it is stated that "Northern Gateway will consult with local government agencies as necessary to determine whether natural recovery is acceptable in the jurisdiction". Please provide clarification on what is meant by local government agencies.

2.26 Pipeline Local Climate Change

Reference:

- i) Northern Gateway Pipelines Application

Preamble:

Pipelines can effectively increase the temperature of the ground directly adjacent to the pipeline.

Request:

Please provide:

- a) information that outlines the effect of increased temperature on wetlands, local ground cover, vegetation change, and seasonal availability of vegetation; and
- b) plans for mitigation measures associated with wildlife attraction due to changes in local conditions associated with the pipeline.

2.27 Incremental Commitments

Reference:

- i) Northern Gateway Pipelines Application

Preamble:

It is cited in several locations in the Application that the Proponent will be increasing the requirements for shipping companies to use higher than standard shipping practices when navigating the waters in proximity to Douglas Channel and inland waters (tethered tugs, on board pilots, speed restrictions, whale watchers, etc.).

Request:

Please provide:

- a) information on how the Proponent will monitor and enforce the adherence to this incremental standard,
- b) information on the action the Proponent will take in the event of non-compliance to the incremental standards; and
- c) Identify which shipping standards referred to in the Application are the current legal standards and which are incremental to them.

2.28 Environmental and Socio-Economic Assessment – Pipelines and Tank Terminal

Reference:

Volume 6A: Environmental and Socio-Economic Assessment – Pipelines and Tank Terminal, Section 8: Vegetation

- i) Pages 8-24 – Pages 8-26: Mapping in British Columbia
- ii) Page 824: Old Growth Forests

Preamble:

Regarding Reference (i): Terrestrial ecosystem mapping is indicated as the method used in BC. This mapping includes Biogeoclimatic site series estimation as a foundation for identifying ecological elements such as rare plants, rare ecosystems, wildlife habitat ratings, wetlands and other features. It is essential that ecological mapping is conducted with a resolution consistent with the accurate description of the ecological element in question. It is stated that a Level 5, 1:20,000-1:50,000, BC RISC survey intensity was used. In order for BC provincial ecologists to assess whether the probability of a rare ecosystem or any other map based ecological elements occurring in a particular map polygon is high, details concerning survey intensity are required.

Regarding Reference (ii): It is stated that Old Growth Forest areas were determined using VRI stand origin data. Different phases of BC's VRI can have varying levels of accuracy and require ground verification. Also, in BC the Non-spatial Old Growth Biodiversity Order and Government Action Regulation (GAR), under the *Forests and Range Practices Act*, are in force. In addition, government is working toward the establishment of Spatial Old Growth Management Areas (OGMA). The non-spatial and spatial landscape objectives in these documents are essential elements in maintaining the current existence of old natural forest and the recruitment potential of future natural forest.

Request:

Regarding Ref. (i):

Please provide:

- a) All field data, methods and procedures associated with this mapping in BC.

Regarding Ref. (ii):

- a) Has a determination been made as to whether the PDA or PEAA will impact any spatially defined OGMA or non-spatial OG recruitment area?
- b) What phases of VRI/FC were used?
- c) What was the level of confidence associated with stand origin data?
- d) Was field validation carried out to estimate VRI data accuracy?
- e) Explain how stand origin data was used to estimate Old Growth forest/structure.
- f) Please provide total area (ha) of wetland ecosystems within the PEAA and REAA.

2.29 Right of Way

Reference:

- i) Volume 6 A: Environmental and Social Assessment, Section 2.22: Right of Way and Section 2.23 Clearing

Preamble:

- a) It is cited in the Application that the Proponent will be using existing road access to the Pipeline Right of Way during construction.
- b) It is cited in the Application that the Proponent will be salvaging merchantable timber.

Request:

- a) Please provide information related to the effects on Forest Road users groups during road construction and use for pipeline access.
- b) Please provide:
 - i) For each management unit (Timber Supply Area, Tree Farm Licence, Community Forest Agreement, & Woodlot Licence) information related to the effects on short and long-term Allowable Annual Cuts from removal of timber from land that is growing trees (Timber Harvesting Land Base) during pipeline construction and life of project.
 - ii) Information related to the effects of construction on Forest Industry operations during and after pipeline construction. Specifically road delays or closures and any new measures the industry would need to use for safe operations when operating in or around the right of way.
- c) The right of way is proposing to cross numerous forest cut blocks where licence holders have statutory obligations (*Forest & Range Practices Act*) to reforest the opening. Please provide information related to effects of destruction of forest plantations for the statutory obligations by pipeline construction activities along with any mitigative measures;
- d) Information related to effects on Range tenures and users from pipeline construction, and;
- e) Information related to the Timber Salvage Plan showing how proponent will maximise usage of timber rather than waste.

2.30 Risk Assessment and Management of Spills – Pipelines

Reference:

- i) Section 52 Application Volume 7B – Risk Assessment and Management of Spills – Pipelines

- ii) Section 1 Background - Page 1-1
- iii) Section 3 Probability of Hydrocarbon Spills: Table 3-2 pages 3-2 and Table 3-3 pages 3-3
- iv) Section 4 Properties and Weathering of Liquid Hydrocarbons: Table 4-1 Physical Properties of Hydrocarbons in the Marine Environment page 4-1, Table 4-2 Chemical Properties of Liquid Hydrocarbons page 4-2 & 4-3
- v) Section 5 Emergency Response Approaches and Capabilities pages 5-1
- vi) Section 9.

Preamble:

Application Volume 7B – Risk Assessment and Management of Spills – Pipelines provided by the Proponent, dated May 2010, outlines the Proponent's approach to limiting the risks of accidents and malfunctions, including hydrocarbon spills from the pipeline.

The following request, regarding additional preparedness, prevention and response mitigation measures, is necessary for the BC Ministry of Environment, Environmental Emergency Program, to review the proposal.

Syncrude, according to the SLR study, has an adherence (stickiness) approximately 4 to 5 times that of Alaska Northslope Crude. Surface washing agents (Corexit) was used for the Kinder-Morgan Pipeline spill in Burnaby due to the difficulty of removing product from cobbles and rip-rap. For diluted bitumen, the condensate may drive the bitumen deep into the sediment, evaporate, and leave a very heavy residue.

Tables 9-3 and 9-4 state that Local Police and Fire Departments provide EMS [and?] security. Local Police and Fire Departments do not provide these services outside their jurisdictional boundaries in British Columbia.

The product planned to be transported is not conventional oil. The spill plans and equipment proposed are based on shipment of conventional oil.

Request:

- a) Section 1 – Please specify what the Proponent considers a low, moderate, high probability spill.
- b) Section 3 - Please provide the following:
 - i) data for number of spills and methodology used to calculate spill return period (Reference Table 3-3);
 - ii) spill release statistics for Enbridge Liquids Pipeline system for the period 1998-2010 (Reference Table 3-3);
 - iii) information for pipeline spills occurring at stream crossing vs non stream crossings for the period 1998-2010 (Reference Table 3-3);
 - iv) spill release information for pipelines carrying conventional oil vs non conventional oil (diluted bitumen) for the period 1990–2005; and

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- v) information whether non conventional oil (diluted bitumen) pipelines are more susceptible to corrosion/spill releases than conventional oil pipelines.
- c) Section 4 - Please provide:
- i) the anticipated bitumen (undiluted) products proposed to be transported, including the area from which the products to be derived;
 - ii) a description of the physical properties, including API, specific gravity, boiling point, solubility, viscosity, flash point, fire point, and ignition temperature of the following products (if they will be transported by the pipeline?):
 - a) Bitumen product (undiluted), including;
 - Cold Lake Bitumen
 - Mackay River Heavy Bitumen
 - Athabasca bitumen
 - iii) the bitumen (undiluted %) to condensate (%) ratio for proposed transported products;
 - iv) the bitumen (undiluted %) to Syncrude synthetic oil (%) ratio for proposed transported products; and
 - v) the chemical properties, including H₂S, content metals (mercury, lead, vanadium, nickel, arsenic) for the following (if they will be transported by the pipeline?):
 - a) Bitumen product (undiluted), i.e.:
 - Cold Lake Bitumen
 - Mackay River Heavy Bitumen
 - Athabasca Bitumen
 - b) Diluted bitumen, including.
 - Cold Lake Bitumen
 - Mackay River Heavy Bitumen
 - Athabasca Bitumen
 - c) Condensate
 - d) Syncrude Synthetic Light Oil
- d) Section 5:
- i) the spill response treatments suggested in this section address hydrocarbons that have specific gravities less than 1. Please provide Spill Response Objectives and Strategies for hydrocarbons that have specific gravities greater than 1, assuming that they are released into:
 - Freshwater (inland)
 - Marine water
 - ii) Table 5-3 states the proposed location of equipment caches. What volume of spill would these equipment caches be equipped to deal with?
 - iii) please provide a description of actual instances of spilled unconventional oil (for example diluted bitumen and syncrude synthetic oil) in freshwater environments and what the outcomes were regarding cleanup and remediation including what issues were encountered, fate and behaviour of diluted bitumen and the lessons learned;
 - iv) one of the potential impediments to any hydrocarbon spill response and recovery operations is waste management and waste minimization. Please

- provide more detail on how the Proponent plans to address these components; and
- v) section 5.6 and 5.7– as part of the Proponent's Emergency Response Preparedness, please explain how the Proponent will pre identify protection of sensitive areas and what processes will be used to achieve this.
 - e) Section 7:
 - i) please describe the mitigation measures for a release into a watercourse including the use of flushing techniques for diluted bitumen.
 - f) Section 9:
 - i) 9.4.4 on page 9-20 states that 1200 to 1440 m³ (60 – 72%) of diluted bitumen could remain in the system. How much of this product would end up as submerged product, i.e., end up on the freshwater river/lake bed or marine seabed?
 - ii) Re: 9.4.1 - description of Hydrocarbon Mass Balance for the Marine Terminal. pardon? is the hydrocarbon mass balance of theoretical amount of weathered diluted bitumen that would end up as submerged product on marine sea bed after:
 - 72 hours
 - 96 hours
 - 1 week
 - 1 month?
 - iii) Please provide a revised response plan in light of the final paragraph in the preamble above.
 - iv) How will the Proponent respond to a spill in freshwater/marine waters where the weathered product has a specific gravity greater than 1? What recovery techniques will the Proponent use to recover spilled product and mitigate impacts?

2.31 Risk Assessment and Management of Spills - Pipelines

Reference:

- i) Volume 7B, Risk Assessment and Management of Spills - Pipelines, Section 9. Examples of hypothetical spills along the pipelines, 9.1, and (9.2 to 9.5) which covers example 1 to 4 Pages 9-1 to 9.28

Preamble:

9.1 Development of Hypothetical Examples – the following hypothetical examples and locations are provided in Volume 9.2-9.5

The hypothetical examples listed did not calculate the response time.

Request:

- a) Please re-run the four hypothetical examples 9.2-9.5 to include the response time.
- b) Please provide a further hypothetical example for a fire control initiated scenario which is extended to agricultural land or to mountainous forests including the following assumptions:
 - i) Consequence Category (I) with its four considerations as per table 1 and shall address the probability category of at least B as per table 2 below.
Table 1 and 2 are just illustrative tables:
 - ii) Characteristics with a consequence category (i) (using Table 1) and probability category B (using Table 2).
 - iii) Conceptual Emergency response plan is needed with response time calculated.
 - iv) Additional Mitigation plan with complete procedures is needed to show how to reduce the consequences down from category (i) to minimum category (iii) and minimum probability to D, listing actions taken to do so.
 - v) Potential effects on Key resources at risk including financial impact.

Further, all hypothetical examples 9.2 to 9.5 together with the additional example to address:

- i) Health and Safety
- ii) Public Disruption
- iii) Environmental Impact
- iv) Financial Impact

Table 1. Risks Consequences Categories vs. Considerations (Ref.1)

Consequence Category	Health and Safety	Public Disruption	Environmental Impact	Financial Impact
I	Fatalities or Serious Health Effects	Significant to a Large Community	Major/Extended Duration/Full Scale Response	>\$Million 10 Cad
II	Serious Injury or Moderate Health Effects	Significant Disruption to small community	Serious/Significant Resource Commitment	\$Million 1-10 Cad
III	Medical Treatment or Minor Health Effects	Minor Disruption	Moderate/Limited Response of Short Duration	\$Million 0.1-1 Cad
IV	Minor Impact	Minimal to no Disruption	Minor/Little or No Response Needed	<\$Million 0.1 Cad

Table 2. Probabilities Categories (Ref.1)

Probability Category	Definitions*	Consequences	Probability				
			A	B	C	D	E
A	Possibility of repeated incidents						
B	Possibility of isolated incidents		I				
C	Possibility of occurring sometime		II				
D	Not Likely to occur		III				
E	Practically very rare to happen		IV				

References

1. Mahdi H. Arafat, El-Shabassy Y. Abdelghany, and El-Kadi, A. F., (2001) **"Modeling, Reliability Assessment, Rehabilitation And Optimization For Aged Industrial Plant, The Art Of Repair Under The Umbrella Of Risk Management"**, Proceedings The 29th International Conference On Computers And Industrial Engineering (ICC&IE), Montreal, Quebec, Canada 1st-3rd Nov 2001.
2. EL-Shabassy Y. Abdelghany, (2002) **"Decision Support System for Risks Management of International Construction Joint Ventures – The Art Of Tendering Overseas"**, Proceedings The 30th International Conference On Computers And Industrial Engineering (ICC&IE), Tinos Island, Greece 29th June –2nd July 2002.
3. EL-Shabassy Y. Abdelghany, Eid M. S., (2003) **"Optimum Reliability Assessment For Rehabilitation Of Installations Without Disrupting Operations"**, Proceedings The 31st International Conference On Computers And Industrial Engineering (ICC&IE), San Francisco, USA 2nd-4th Feb 2003.
4. El-Shabassy Y. Abdelghany; Ezeldin S. A; (2010) **"Classification of Risks for International Construction Joint Ventures Projects"** 2010 ASCE and University of Alberta Construction Research Congress "Innovation for Reshaping Construction Practice", May 8th-11th, 2010 Banff, Alberta, Canada.

2.32 Risk Assessment and Management of Spills – Kitimat Terminal

Reference:

- i) Volume 7C, Risk Assessment and Management of Spills – Kitimat Terminal, Section 5. Figure 5.3 Typical Emergency response Activities for the marine environment Page 5-10 and Section 9 Examples for Response Planning,

Example 1 and Example 2 (pages 9-5 to 9-9) and pages (9-10 to 9-14) respectively

Preamble:

The following is requested to obtain more information on the response time for each phase of the Emergency Response Plan.

Request:

- a) Please provide an action plan that includes the estimated actions response time calculation for each action (considering the cumulative response time calculation) from the time that the spill occurs and is made known to Enbridge (which is the top box on the figure 5.3) to the final steps of clean up. The information is requested for only Example 1 and Example 2 using the same Examples Circumstances listed in 9.5.1 pages 9-5 and in 9.6.1 page 9-6 respectively for Examples 1 and 2 by Enbridge.
- b) Please provide an estimated action response time calculation along the whole process including the cumulative total action response both Examples 1 and 2 listed. (e.g. Example 1 Medium Size Diluted Bitumen Spill and Example 2 Medium – Size Condensate Spill (pages 9-5 to 9-9) and pages (9-10 to 9-14) respectively).

Please address the following aspects in both examples:

1. Risk Consequence Category (II) with its four considerations as per table 1 and address the probability category of at least B as per table 2 below.
2. Typical Emergency response plan based on Figure 5.3 is needed with response time calculated on Examples 1 and 2.
3. Additional Mitigation plan complete procedures and preventative measures is needed to show how to reduce the consequences down from category (II) to minimum category (III) and minimum probability to D, listing actions taken to do so.
4. Potential effects on Key resources at risk including financial impact.
5. Both examples shall address the impact on:
 1. Health and Safety
 2. Public Disruption
 3. Environmental Impact
 4. Financial Impact

Table 1. Risks Consequences Categories vs. Considerations (Ref.1)

Consequence Category	Health and Safety	Public Disruption	Environmental Impact	Financial Impact
I	Fatalities or Serious Health Effects	Significant to a Large Community	Major/Extended Duration/Full Scale Response	>\$Million 10 Cad
II	Serious Injury or Moderate Health Effects	Significant Disruption to small community	Serious/Significant Resource Commitment	\$Million 1-10 Cad
III	Medical Treatment or Minor Health Effects	Minor Disruption	Moderate/Limited Response of Short Duration	\$Million 0.1-1 Cad
IV	Minor Impact	Minimal to no Disruption	Minor/Little or No Response Needed	<\$Million 0.1 Cad

Table 2. Probabilities Categories (Ref.1)

Probability Category	Definitions*	Consequences		Probability				
A	Possibility of repeated incidents			A	B	C	D	E
B	Possibility of isolated incidents		I					
C	Possibility of occurring sometime		II					
D	Not Likely to occur		III					
E	Practically very rare to happen		IV					

References:

1. Mahdi H. Arafat, El-Shabassy Y. Abdelghany, and El-Kadi, A. F., (2001) "Modeling, Reliability Assessment, Rehabilitation And Optimization For Aged Industrial Plant, The Art Of Repair Under The Umbrella Of Risk Management", Proceedings The 29th International Conference On Computers And Industrial Engineering (ICC&IE), Montreal, Quebec, Canada 1st-3rd Nov 2001.



2. EL-Shabassy Y. Abdelghany, (2002) "Decision Support System for Risks Management of International Construction Joint Ventures – The Art Of Tendering Overseas", Proceedings The 30th International Conference On Computers And Industrial Engineering (ICC&IE), Tinos Island, Greece 29th June – 2nd July 2002.
3. EL-Shabassy Y. Abdelghany, Eid M. S., (2003) "Optimum Reliability Assessment For Rehabilitation Of Installations Without Disrupting Operations", Proceedings The 31st International Conference On Computers And Industrial Engineering (ICC&IE), San Francisco, USA 2nd-4th Feb 2003.
4. EL-Shabassy Y. Abdelghany; Ezeldin S. A; (2010) "Classification of Risks for International Construction Joint Ventures Projects" 2010 ASCE and University of Alberta Construction Research Congress "Innovation for Reshaping Construction Practice", May 8th-11th, 2010 Banff, Alberta, Canada.

2.33 Marine Transportation - General

Reference:

- i) Volume 8A Environmental and Socio-Economic Assessment – Marine Transportation, Section 1 and 4

Request:

- a) Page 1-1 – bullet indicates that state of the art tug escorts will be used. Will this apply to in-bound condensate tankers as well? If no, please explain why not.
- b) Are current condensate tankers coming in to Kitimat under the purview of Enbridge? If yes, are they currently being escorted by tug? If no, please explain why not?
- c) Page 1-2 - bullet indicates that operational environmental limits will be identified for tanker and cargo handling at the berth. Will there be operational environment limits set for transit through internal waters to minimize the risk of incidents? Please provide what the operational limits are going to be.
- d) Page 1-3 - will the Province of BC and, more specifically, the BC Ministry of Environment's Environmental Emergency Program be invited to participate in the TERMPOL review?
- e) Page 4-3 - the section on vessel ownership indicates the tanker owner is responsible for safety of the tanker. Please explain the responsibility of the Proponent for any costs resulting from an incident involving a tanker including response, restoration and salvage costs for both the tanker its cargo.
- f) Page 4-7 and 4-8 - information on emergency and escort towing indicates requirements for tankers. It is unclear from the information provided whether or not each tanker will carry a tow-line or only be equipped to receive a tow line. Please advise on the availability of towlines and information on whether or not helicopter deployable tow packages similar to those used in Alaska will be readily available.

- g) Page 4-15 - tanker route options. Has a comparison of tanker traffic navigational (and environmental) risks been made with current tanker traffic to and from Vancouver? Can Enbridge provide a comparative analysis of the navigational and environmental risks between the proposed Kitimat routes and the existing Vancouver route (to the western entrance of Juan de Fuca Strait)?
- h) Page 4-70 and 4-71 - oil spill response plans. Why will the oil spill response plan not be considered through the current application? What is the basis for the assertion that a 250 m³ response capacity is a suitable planning standard for a stand-alone capability? How does this compares to the Alaska pipeline terminals stand-alone capacity?

2.34 Marine Transportation - Spills

Reference:

- i) Volume 8C Risk Assessment and Management of Spills – Marine Transportation, Section 2, 5, and 8

Request:

- a) Page 2-4, section 2.3 - the applicable acts and regulations are listed but there is no mention of relevant provincial legislation (i.e., *Environmental Management Act*, *Wildlife Act*, *Spill Reporting Regulation*, *Spill Cost Recovery Regulation*). Please advise as to why relevant provincial legislation has been omitted from this section.
- b) Page 5-1 – the Proponent indicates in section 5 that it will provide "extended responsibility" to cover the northern and southern approaches. Please provide a more fulsome description of what this actually means and the full extent of this commitment. Why is the Proponent only willing to provide this commitment to the north and south approaches and not the entire coastline of British Columbia?
- c) Page 5-1 – the Proponent commits to a 6 to 12 hour response time in the CCAA in this section. Please provide how this compares to Alaska's response time commitment in Valdez and Prince William Sound. Please explain why this is a suitable response time frame given the potential impacts from an incident and the wind and tidal effects that would spread any released hydrocarbons.
- d) Page 5-3- the Proponent indicates that they will provide NEB and Transport Canada with project specific emergency response plans for their review. Will the Proponent be providing these to the BC Ministry of Environment as the lead provincial agency for spills to review?
- e) Page 5-7 – the Proponent outlines the role of the BC Ministry of Environment in this section. A provincial Incident Commander would be appointed in the event of a significant spill (or potential spill) to enter into Unified Command. Does Enbridge foresee any issues with the establishment of a Unified Command with the province?
- f) Page 5-9- the Proponent outlines spill response objectives and indicates the use of volunteers. What occupational health and safety issues arise with respect to the use of volunteers?

- g) Page 8-3 – The Proponent indicates a number of potential impacts to terrestrial wildlife in table 8-1. Why does the table omit the potential impact to terrestrial wildlife from scavenging of oiled wildlife?

2.35 Marine Transportation – General Questions

Reference:

- i) Volume 8C, Risk Assessment and Management of Spills – Marine Transportation

Preamble:

Information is requested in order for the Ministry of Environment to review on behalf of the Province of BC.

In order to ensure appropriate response to marine and terrestrial spills the province of BC is planning to begin industry and stakeholder consultations on the establishment of:

- an industry funding model (which would establish fees for those companies transporting, using and storing significant amounts of hazardous materials) to support the province's spill response program by providing funding for additional program staff, establish a provincial spill response fund, and provide funding for prevention and preparedness activities; and
- a Terrestrial Spill Cooperative (which would require those companies transporting, using and storing significant amounts of hazardous materials) to belong to a provincially regulated spill response cooperative (akin to Western Canada Marine Response Corporation).

Request:

Please provide information on the following:

- a) What are Proponent's plans for a rapidly deployable chemical dispersant capability?
- b) What are the Proponent's plans for a rapidly deployable in-situ burning capability?
- c) How does the Proponent's 32,000 ton planning scenario compare to the Alyeska pipeline's marine and terrestrial planning standards?
- d) What would the Proponent's issues and concerns be with the implementation of these mechanisms that would help protect the economy, environment and social fabric from spills in the province?

2.36.Risk Assessment and Management of Spills – Marine Transportation

Reference:

- i) Volume 8C, Risk Assessment and Management of Spills – Marine Transportation, Section 2. Operational measures to prevent tanker-based hydrocarbon spills Page 2-

Preamble:

During the operational life of the project, incidents could occur because of accidents or malfunctions (e.g. ship grounding, ship collision), human error, vandalism, third party damage or natural events such as severe weather. The potential for, and effects of, spills would be reduced through measures such as implementing modern tanker specifications, tanker operational plans and emergency response plans. Detailed versions of the tanker specifications and operational plans will be prepared before the commissioning and operations of the marine terminal, and for tankers calling on the Kitimat terminal.

Request:

- a) In the light of preamble Listed above, the following is requested:
 - i) An implemented Action plan for a **hypothetical risk management example of ship grounding or ship collision** very close to the Kitimat terminal which results in a major Oil spill, the example shall address the following aspects:
 - 1) The estimated actions response time calculation for each action (considering cumulative response time calculation) from time Spill Occurs and known to Enbridge to the following two phases
 - a. Controlling the spill and re-opening the approaches again
 - b. Reduction of the spill to its minimum limit
 - Note:** The estimated action response time calculation is needed along the whole process including the cumulative total action response for the example chosen ship grounding or ship collision. The hypothetical example shall address Consequence Category (II) with its four considerations as per table 1 and shall address the probability category of at least B as per table 2 below.
 - 2) Characteristics with a consequence category (II) (using Table 1) and probability category B (using Table 2).
 - 3) Conceptual Emergency response plan is needed with response time calculated.
 - 4) Additional Mitigation plan including complete procedures and preventative measures is needed to show how to reduce the consequences down from category (II) to minimum category (III) and minimum probability to D, listing actions taken to do so.
 - 5) Potential effects on Key resources at risk including financial impact.

Further, the hypothetical examples need to address:

- 1) Health and Safety
- 2) Public Disruption
- 3) Environmental Impact
- 4) Financial Impact due to closing the approaches for some time

Table 1. Risks Consequences Categories vs. Considerations (Ref.1)

Consequence Category	Health and Safety	Public Disruption	Environmental Impact	Financial Impact
I	Fatalities or Serious Health Effects	Significant to a Large Community	Major/Extended Duration/Full Scale Response	>\$Million 10 Cad
II	Serious Injury or Moderate Health Effects	Significant Disruption to small community	Serious/Significant Resource Commitment	\$Million 1-10 Cad
III	Medical Treatment or Minor Health Effects	Minor Disruption	Moderate/Limited Response of Short Duration	\$Million 0.1-1 Cad
IV	Minor Impact	Minimal to no Disruption	Minor/Little or No Response Needed	<\$Million 0.1 Cad

Table 2. Probabilities Categories (Ref.1)

Probability Category	Definitions*	Consequences		Probability				
A	Possibility of repeated incidents			A	B	C	D	E
B	Possibility of isolated incidents		I					
C	Possibility of occurring sometime		II					
D	Not Likely to occur		III					
E	Practically very rare to happen		IV					

References:

- 1) Mahdi H. Arafat, El-Shabassy Y. Abdelghany, and El-Kadi, A. F., (2001) **"Modeling, Reliability Assessment, Rehabilitation And Optimization For Aged Industrial Plant, The Art Of Repair Under The Umbrella Of Risk Management"**, Proceedings The 29th International Conference On Computers And Industrial Engineering (ICC&IE), Montreal, Quebec, Canada 1st-3rd Nov 2001.
- 2) EL-Shabassy Y. Abdelghany, (2002) **"Decision Support System for Risks Management of International Construction Joint Ventures – The Art Of Tendering Overseas"**, Proceedings The 30th International Conference On Computers And Industrial Engineering (ICC&IE), Tinos Island, Greece 29th June –2nd July 2002.
- 3) EL-Shabassy Y. Abdelghany, Eid M. S., (2003) **"Optimum Reliability Assessment For Rehabilitation Of Installations Without Disrupting Operations"**, Proceedings The 31st International Conference On Computers And Industrial Engineering (ICC&IE), San Francisco, USA 2nd-4th Feb 2003.
- 4) El-Shabassy Y. Abdelghany; Ezeldin S. A; (2010) **"Classification of Risks for International Construction Joint Ventures Projects"** 2010 ASCE and University of Alberta Construction Research Congress "Innovation for Reshaping Construction Practice", May 8th-11th, 2010 Banff, Alberta, Canada.

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Environmental Assessment Office

Northern Gateway Project

Workplan

Creation Date	August 4, 2011
Last Updated	October 18, 2011
Version	V 1.5

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EXECUTIVE SUMMARY

This workplan describes a review to undertake a provincial technical analysis of the Northern Gateway Project (Project), proposed by Northern Gateway Pipelines Limited Partnership (Proponent), and is being reviewed by a federal environmental assessment (EA) process by the National Energy Board (NEB) and the Canadian Environmental Assessment Agency (CEAA). This process is identified as a Joint Review Panel (JRP).

The EAO and the NEB have signed an Environmental Assessment Equivalency Agreement that specifies that where a proposed Project requires both a BC EA Certificate and an approval under the *National Energy Board Act*, the assessment completed by the NEB is considered equivalent to a BC EA process.

The EAO has been directed by the BC Minister of Environment to coordinate the Province's participation in the JRP process and conduct a technical review of the Proponent's Project. A Northern Gateway Working Group (NGWG) has been established to undertake this work. The Terms of Reference for the NGWG are attached as Appendix 1.

The JRP for the proposed Project is an independent body, established by the Minister of the Environment and the NEB. The Panel will assess the effects of the proposed Project and review the application under both the *Canadian Environmental Assessment Act* and the *National Energy Board Act*.

The proposed Project is to construct and operate a twinned pipeline from near Edmonton, Alberta to Kitimat, BC to carry condensate diluted oil from the Alberta oil sands for export offshore and import condensate to Alberta. The proposed Project also includes pump stations along the pipeline and a marine terminal at Kitimat with 2 ship berths and 14 tanks for the storage of oil and condensate.

Review Objectives

Review Scope

The review will bring together technical experts from key ministries to provide technical expertise on all relevant sections of the Proponent's submissions contained in the Northern Gateway Technical Experts Matrix attached as Appendix 2. The review will focus on:

- undertaking a technical analysis by experts of the proposed Project's application and other material, and determining how and to what extent provincial interests may be impacted and mitigation measures;

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- establishing smaller sub-groups to provide more focused and detailed discussions on specific technical issues (e.g. archaeology and heritage, aquatic and terrestrial resources, geochemistry and water quality); and
- providing an update to the Natural Resources Board when a draft report is developed.

Review Governance

This review will be coordinated and led by the BAO. A Northern Gateway Working Group will be established with technical experts from the following Ministries/Agencies:

- Aboriginal Relations and Reconciliation;
- Attorney General;
- Energy and Mines;
- Environment;
- Forests, Lands and Natural Resource Operations;
- Health – Northern Health;
- Jobs, Tourism and Innovation;
- Transportation and Infrastructure; and
- Oil and Gas Commission.

Review Timelines

Deadline for written evidence to the JRP panel is noon, Mountain Time, December 22, 2011.

Detailed timelines are outlined in the Northern Gateway Technical Experts Matrix (Appendix 2).

Component	2011					2012					2013
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Working Group											
Request Ministry Leads and Establish											
Information Requests to Northern Gateway – Round 1		25									
Responses				6							
Hold 2-day Meeting			12 13								
Review Submissions and Provide Input											
Information Requests to Northern Gateway – Round 2					3						
Responses						24					
Complete 1 st Draft Report											
Review by Natural Resources Board and Working Group											
Complete 2 nd Draft Report											
Review 2 nd Draft Report											
Final Report											
Government											
Sign-off by EAO Associate Deputy Minister											
Present to Minister of Environment											
Deadline for Written Evidence						22					
Panel, Northern Gateway, Intervenor's Information Requests to Intervenor and Government Participants									20		
Responses to Information Requests										15	
Northern Gateway or Intervenor's Request to Question Government Participants during Final Hearings										15	
Comments on request to be questioned											29
Reply to comments											12
Final Hearings											26

Project Expenditures

The review will use existing government personnel and resources.

SECTION 1: PROJECT OVERVIEW

1.0 Review Purpose

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2.0 Review Background

The Proposed Project

In 2008, the Proponent reactivated its \$5.5B proposed Project to construct two 1,172 km pipelines in the same right-of way. About 670 km of this right-of-way is situated in BC is attached as Appendix 3. The proposed Project consists of:

- A 36 inch west line from near Edmonton to Kitimat carrying 525,000 barrels per day (bpd) of condensate diluted oil from the Alberta oil sands for export offshore;
- A 20 inch east line from Kitimat to Edmonton carrying 193,000 bpd of imported condensate;
- 10 associated pump stations, 7 of which are situated in BC; and
- A marine terminal at Kitimat with 2 ship berths and 14 tanks for the storage of oil and condensate.

Federal Review Process

The proposed Project is being reviewed by the federal EA process as required by the *CEAA and NEB Acts*. This process is identified as a JRP process.

The NEB and the Minister of the Environment have finalized a Joint Review Panel Agreement concerning the proposed Project which includes the terms of reference for the review process and defined scope of the review attached as Appendix 4. On January 20, 2010, announced the three-member JRP that will lead the review process and review all aspects of the proposed Project

JRP Process

When a project may cause significant adverse environmental effects or there is a high degree of public concern, it can be referred to a JRP process. The Minister of the

Environment has decided that this proposed Project would be assessed using a JRP. This process is the most rigorous environmental review possible under the *Canadian Environmental Assessment Act*.

The three member panel is as follows:

- Ms. Shelia Leggett, Vice Chair of the NEB;
- Mr. Hans Matthews, a professional geologist; and
- Mr. Kenneth Bateman, an energy lawyer.

JRP members will conduct a public process where they receive and consider all the information on the record. The record will include information submitted by the Proponent and other participants. The review process will include a formal information request process on the application and oral hearings.

Based on the record, the JRP will issue an environmental assessment report which contains its conclusions and recommendations. The report will include the JRP's rationale for its conclusions and recommendations. The report will also include any mitigation measures, follow-up programs and a summary of comments received from participants. The environmental assessment report will be submitted to the Minister of the Environment for a government response.

Once the government has responded to the report, the JRP will make a final decision on whether or not to approve the proposed Project under the *National Energy Board Act*. The JRP's decision will include its reasons and any terms or conditions to be included in an approval if granted.

Transport Canada, Fisheries and Oceans Canada, Indian Northern Affairs Canada, Natural Resources Canada, Health Canada and Environment Canada are also participating in this review.

The EAO and the NEB have signed an Environmental Assessment Equivalency Agreement (2010) that specifies that where a proposed Project requires both a BC EA Certificate and an approval under the *National Energy Board Act*, the assessment completed by the NEB is considered equivalent to a BC EA process. As a result, a provincial EA process is not required for the proposed Project. In addition, the proposed Project is not subject to a BC EA because the EAO, by way of a December 2005 letter to the NEB, advised that the Province considered the *Environmental Assessment Act* to be inapplicable to this proposed Project.

The Proponent filed their application with the NEB and CEAA on May 27, 2010. The NEB/CEAA scope of the review includes:

- the need for the proposed Project;
- alternatives to the proposed Project;
- cumulative environmental effects;
- potential marine effects of increased tanker traffic; and
- public comments.

On July 5, 2010, the JRP issued a Procedural Direction which outlines the way in which interested persons or groups may provide comments to the JRP on three specific topics regarding the Proponent's Application before the JRP issues a Hearing Order. Also on July 5, 2010 and September 8, 2010, the JRP sought public and First Nation comments on:

- the draft List of Issues;
- additional information which the Proponent should file; and
- locations of oral hearings.

Open houses were held in 2010:

- Whitcourt, Alberta – August 10;
- Kitimat, BC – August 31, 2010; and
- Prince George, BC – September 8, 2010.

On January 19, 2011, the JRP released the Panel Session Results and Decision based on comment received and decided that:

- additional information on the design and risk assessment of the proposed Project is required;
- changes to the draft List of Issues will be made;
- hearing locations will be in proximity to the pipeline and marine components; and
- once information has been received from the Proponent, a Hearing Order will be issued.

On May 5, 2011, the JRP issued Hearing Order OH-4-2011, attached as Appendix 5, which outlines the options and timelines for interested parties, including governments and First Nations, to participate in the EA process.

The deadlines for each step of the JRP process are summarized in Appendix II of the Hearing Order, pages 26-27.

Provincial Review Process

The BC Minister of Environment stated on May 18, 2011, that the BC Government, through the EAO, intends to fully participate in the JRP process for the proposed Project.

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On June 29, 2011, the Province of BC registered with the JRP for Intervenor Status because it was not clear what role government wanted to play in the proceedings, and

seeking the provision of oral evidence had not been ruled out. If government is only to provide written evidence in the JRP proceedings, then it could be changed to Government Participant (GP) through the JRP. The EAO is currently investigating this option with the Ministry of Attorney General.

3.0 Review Objectives

The objectives of this review are:

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4.0 Critical Success Factors

The internal factors required to ensure this review is successful are:

- adequate staff resources to deliver within tight timelines;
- successful and timely coordination of relevant subject matter experts across multiple regions and multiple agencies; and
- timely approval processes when required.

The external factors required to ensure this review is successful are:

- availability of technical experts and resources across multiple agencies;
- timely input from technical experts within the tight timelines;
- coordination with the federal EA process to avoid duplication; and
- timely approval processes within agencies when required.

5.0 Review Scope

In Scope

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Detailed scope is outlined in Appendix 2.

Out of Scope

- This review does not include coordinating any subsequent provincial permitting decisions and related First Nations consultation activities. It is important that appropriate government leads are identified separately from this review. The Ministry of Forests, Lands and Natural Resource Operations is leading these two processes.
- This review does not include developing the Province's position regarding the proposed Project, but will only inform the BC Government. The Ministry of Energy and Mines is leading this process.

6.0 Links and Dependencies

Success of this review is linked to the following:

- adequate resources at the EAO and government resources working in partnership to undertake delivery of the review under tight timelines;
- timely access by the EAO to information and delivery and access of the information by the technical experts;
- timely interactions by the EAO and WG with other key stakeholders/experts internally and externally; and
- timely approval processes internally at the EAO and WG organizations.

SECTION 2: PROJECT GOVERNANCE AND MILESTONE

7.0 Stakeholders

The following stakeholders' (internal and external) interests must be considered throughout the Project.

Stakeholder	Lead Representative
EAO	Krishna Klear
Ministry of Aboriginal Relations and Reconciliation	Giovanni Puggioni
Ministry of Attorney General	Chris Jones
Ministry of Energy and Mines	Linda Beltrano Olga Klimko
Ministry of Environment	Mark Zacharias Anthony Danks
Ministry of Forests, Lands and Natural Resource Operations	Patrick Russell
Ministry of Health (Northern Health)	Doug Quibell
Ministry of Jobs, Tourism and Innovation	Peter Fisher
Ministry of Transportation and Infrastructure	Bill Eisbrenner John Shaw
Oil and Gas Commission	Mandy Nelson
Canadian Environmental Assessment Agency National Energy Board	Analise Saely Erin Groulx Brent Maracle
Enbridge	Randy Kerr

8.0 Deliverables

The major deliverables for this review are:

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9.0 Communication

Communication of documents to the Working Group will be done by e-mail. Members will also have access to all documents on the Groove site that will be updated on a

regular basis. Information on the proposed Project is also available, and may be duplicated, on the National Energy Board website at <http://gatewaypanel.review-examen.gc.ca/clf-nsi/dcmnt/intrvwpnlgrmnt-eng.html>.

10.0 Project Budget

The review will use existing government personnel and resources to minimize expenditure (e.g., meeting organization and facilitation, updating material on Groove, project management, and provision of subject matter expertise). Any travel expenditures are outside the scope of the budget and will be the responsibility of each individual organization.

SECTION 3: PROJECT ORGANIZATION

10.0 Review Resources

(As the review proceeds additions/changes will occur around resources)

Names	Role	Organization	Duration
Archie Riddell	EAO Lead	EAO	Full
Krishna Klear	Project Lead	EAO	January 2011
Giovanni Puggioni	Technical Lead	Ministry of Aboriginal Relations and Reconciliation	June 2012
Chris Jones Brian Dorrian	Legal Counsel	Ministry of Attorney General	June 2012
Linda Beltrano Olga Klimko	Advisory Leads	Ministry of Energy and Mines	June 2012
Mark Zacharias Anthony Danks Kenneth Howe Lisa Paquin	Ministry Intergovernmental and External Relations	Ministry of Environment	June 2012
Bob Andrews Gordon Knox	Environmental Protection		
Mike Peterson	Land Base Stewardship		
Patrick Russell	Timber Tenures Specialist		
Marten Geertsema	Terrain Specialist	Ministry of Forests, Lands and Natural Resource Operations	June 2012
Bruce Rogers	Terrestrial Ecosystems Specialist		
John McClary	Forestry Specialist		
Troy Larden	Land Base Stewardship		
Kristina Anderson	Water Stewardship		
Chelton van Geloven	Surface and Ground Water		
Wayne Giles	Ground Water		
Wayne Giles	First Nations Consultation		
Jennifer Pollard	First Nations		
Doug Quibell	Technical Lead	Ministry of Health (Northern Health)	June 2012
Peter Fisher	Technical Lead	Ministry of Jobs, Tourism and Innovation	June 2012

Name	Role	Organization	Duration
Bill Eisbrenner John Shaw	Engineering (GeoTech and Materials)	Ministry of Transportation and Infrastructure	June 2012
Kristen Johnson Gordon Hunter Lee Burton			
Mandy Nelson	Technical Lead	Oil & Gas Commission	June 2012

11.0 Review Workplan Overview

See Appendix 2.

13.0 Risk Assessment

Risk	Mitigation
Technical experts not available to provide timely input.	<ul style="list-style-type: none"> Ministries/agencies need to commitment key technical experts to provide information within specified timelines to meet government's commitment.
No clear government direction.	<ul style="list-style-type: none"> Continue to seek what the Province wants to achieve. Continue to meet government's commitment for the EAO to coordinate the technical review.
Duplication of work and resources.	<ul style="list-style-type: none"> Where possible coordinate with the federal review and keep communications open between the two processes.
Technical experts are not the right experts.	<ul style="list-style-type: none"> Ministries/agencies need to ensure input is provided by the correct experts within each organization within specified timelines. EAO to engage consulting resources with technical expertise, when required.
Conflicting technical advice.	<ul style="list-style-type: none"> Ministries/agencies providing information need to take responsibility that their advice is vetted and approved by other relevant ministries/agencies/experts.
Deadlines missed.	<ul style="list-style-type: none"> Ministries/agencies need to take ownership of the timelines. Constant follow by the EAO will be a priority to ensure timelines are met. Engage consulting resources with technical expertise, when required.

ENVIRONMENTAL ASSESSMENT OFFICE
INFORMATION NOTEREF: 100713
October 12, 2011

Not Responsive

ISSUE: EAO's role in the review of the proposed Northern Gateway Project, and the status of British Columbia's participation in the Joint Review Panel's process.

BACKGROUND:

In 2008, Northern Gateway Pipelines Limited Partnership (Proponent) reactivated its proposed \$5.5 billion Northern Gateway Project (proposed Project) which includes two 1,170 kilometre pipelines in the same right-of-way. About 670 kilometres of this right-of-way crosses British Columbia (BC). The proposed Project also includes pump stations along the pipeline and a marine terminal at Kitimat with 2 ship berths and 14 tanks for the storage of oil and condensate.

The proposed Project does not require an environmental assessment under the BC *Environmental Assessment Act* because the Environmental Assessment Office (EAO) and the National Energy Board (NEB) signed a Memorandum of Understanding allowing EAO to accept an NEB-led review and decision as equivalent to a provincial environmental assessment.

The proposed Project is being reviewed by the NEB and the Canadian Environmental Assessment Agency (CEAA) through a Joint Review Panel (JRP).

The JRP for the proposed Project is an independent body, established by the federal Minister of the Environment and the NEB. The Panel will assess the effects of the proposed Project and review the application under both the *Canadian Environmental Assessment Act* and the *National Energy Board Act*.

On May 5, 2011, the JRP issued Hearing Order OH-04-2011, which outlines the options and timelines for interested parties to participate in the JRP, including "Intervenor" and "Government Participant" status. On June 29, 2011, BC registered with the JRP for Intervenor Status.

The EAO has been directed by the BC Minister of Environment to coordinate the participation of the BC government in the process and to protect the interests of British Columbia.

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DISCUSSION:

The EAO and the Ministry of Energy and Mines (MEM) are working to coordinate their roles

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It is the EAO's understanding that:

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EAO has filed for Intervenor status on behalf of BC. The other option available is to file for Government Participant status. The Province may withdraw or change its status at any time throughout the process by providing written notice to the JRP. Provided the deadline for submission has not already passed, participants may provide comments using their desired participant method. The differences between the Intervenor and the Government Participant roles are outlined in Appendix 1.

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NEXT STEPS:

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The EAO continues to work with MEM to clearly define the roles and responsibilities in the JRP process.

ATTACHMENTS:

- Appendix 1: Role of Intervenor vs Government Participant

Contact:

Name: Rachel Shaw
Title: A/Project Assessment Director
Phone: 250-952-6501

Prepared by:

Name: Krishna Klear
Title: Project Lead
Phone: 250-387-9412

Reviewed by	Initials	Date
Minister		
EPAD (if required):		
Project Lead or Director:		

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Appendix 1: Role of Intervenor vs Government Participant

The following table outlines the differences between the Government Participant role and the Intervenor role:

INTERVENOR	GOVERNMENT PARTICIPANT	JRP Process Stage	Timelines
Must register to be considered a Party and receive 1 complimentary copy of the transcript	Must register to be considered a Party and receive 1 complimentary copy of the transcript	Registration for Intervenor or Government Participant status	July 14, 2011
Receives all documentation relating to the review	Receives all documentation relating to the review	During the full JRP Process	July 14, 2011 – end of JRP process
Ability to submit information requests to any Party	Ability to submit information requests to Northern Gateway; must receive prior Panel approval to question other Parties	Prior to submission of written evidence (Dec. 22)	Northern Gateway: Aug. 25, 2011 and Nov. 3, 2011
Ability to submit written evidence	Ability to submit written evidence; can be questioned by Panel even if no written evidence is submitted	Prior to June 2012 JRP Hearings	Dec. 22, 2011
Ability to submit a portion of evidence orally at the community hearings, must request permission of the Panel and register by Oct. 6, 2011	Can only observe at community hearings.	Prior to June 2012 JRP Hearings	Jan. 10, 2012
May receive information requests from any Party on evidence and must provide response to any information requests received	May receive information requests from any Party on evidence and must provide response to any information requests received	Following Dec. 22 deadline for written evidence and prior to June 2012 JRP Hearings	Receive: Mar. 20, 2012 Responses: May 15, 2012
Can be questioned on evidence during final hearings	Can be questioned on evidence during the final hearings with permission of the Panel	JRP Hearings	June 26, 2012
Ability to question other Parties during final hearings on evidence that has been submitted; require prior approval of Panel to question Government Participants at final hearings	Ability to question Northern Gateway during the final hearings on evidence that has been submitted; require prior approval of Panel to question other Parties at final hearings	JRP Hearings	June 26, 2012
Ability to submit motions and make submissions on motions	Ability to submit motions and make submissions on motions	JRP Hearings	June 26, 2012
Ability to make final argument during the final hearings	Ability to make final argument during the final hearings	JRP Hearings	June 26, 2012



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Environmental Assessment Office

Northern Gateway Working Group

Terms of Reference

Creation Date	August 4, 2011
Last Updated	September 19, 2011
Version	V 1.4

NORTHERN GATEWAY WORKING GROUP

TERMS OF REFERENCE

The Environmental Assessment Office (EAO) has been directed by the Minister of Environment to coordinate the Province's participation in, and technical review of, the proposed Northern Gateway Project (proposed Project). The proposed Project is inter-provincial in nature, and is subject to the federal environmental review process. The National Energy Board is administering the environmental assessment through a Joint Review Panel (JRP) process with the Canadian Environmental Assessment Agency.

The EAO will coordinate the provincial technical analysis with the assistance of experts from relevant ministries and agencies (see "Membership" below). A report will be developed to potentially inform the development of the Province's position, and potential written evidence to the JRP by the December 22, 2011 deadline.

PURPOSE

The EAO has developed a workplan to guide the Province's strategic and operational involvement in the JRP process. As part of this workplan, a Northern Gateway Working Group (Working Group) has been established to review and provide input into the technical issues associated with the proposed Project in order to:

1. Determine how and to what extent the proposed Project may impact provincial interests;
2. Develop measures to avoid, reduce or manage those potential impacts;

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4. Provide an update to the Natural Resources Board when a draft report is developed.

SCOPE OF WORKING GROUP RESPONSIBILITIES

The Working Group is responsible for:

- Assessing the technical contents of the Proponent's submissions to the JRP (including the Proponent's Application and relevant responses to Information Requests from Interveners and Government Participants);
- Developing any information requests regarding the proposed Project to Northern Gateway by the deadline date November 3, 2011 to inform the review; and
- Provide technical expert input into the development of a report.

The Working Group will also provide input into the finalization of:

- Terms of Reference;
- Workplan;

- Meeting agendas;
- Meeting summaries; and
- Review timelines.

The Working Group will *not* be responsible for:

- Coordinating any subsequent provincial permitting decisions and related First Nation consultation activities. However, it is important that appropriate government leads are identified separately from this review and the Ministry of Forests, Lands and Natural Resource Operations is taking this lead; and
- Developing the Province's position regarding the proposed Project, but will only inform the BC Government. The Ministry of Energy and Mines is leading this process.

MEMBERSHIP

Members of the Working Group will include subject matter experts from all relevant provincial government ministries/agencies:

- Aboriginal Relations and Reconciliation
- Attorney General
- Energy and Mines
- Environment
- Forests, Lands and Natural Resource Operations
- Health (Northern Region)
- Jobs, Tourism and Innovation
- Oil and Gas Commission
- Transportation and Infrastructure

Each ministry/agency will be asked to assign a person to lead their organization's participation in the review of material submitted to the JRP by the Proponent in relation to the federal assessment of the proposed Project.

Working Group members must be able to provide advice/input to the EAO on technical issues related to the proposed Project, relevant to their mandate. It is important that the representatives on the Working Group:

- are able to represent the mandate of their ministry/agency and provide advice/input and respond to information requests within their organizations' mandates and established policies, procedures and standards;
- have the authority to co-ordinate and consolidate feedback on issues from various program areas of their mandate;
- have access to appropriate members of their organization's leadership in order to obtain policy direction when needed; and
- have the authority to provide the EAO with their organization's advice/input on the adequacy of proposed avoidance, mitigation and, where applicable and

required, compensation measures to address potential adverse effects relevant to their mandate.

The Proponent is not a member of the Working Group but may be invited to meetings to provide information on the proposed Project and issues related to the proposed Project.

During the review process, smaller sub-groups may be established to provide more focused and detailed discussions on specific technical issues (e.g. archaeology and heritage, aquatic and terrestrial resources, geochemistry and water quality).

TIMEFRAME

The Working Group is considered active from the date of the JRP's issuance of the Hearing Order (May 5, 2011), until the Final Hearings scheduled for June 26, 2012.

Public hearings do not start until January 2012, however, there are deadlines associated with participating in the JRP that the province will need to track. The following deadlines have been established by the JRP that requires input and/or action from Working Group members:

- August 25, 2011 – Information Requests to Northern Gateway (Round 1) – optional;
- November 3, 2011 – Information Requests to Northern Gateway (Round 2);
- December 22, 2011 – Deadline for Written Evidence;
- May 15, 2012 – Responses to Information Requests to Intervenor and Government Participants;
- May 29, 2012 – Comments on request to be questioned; and
- June 26, 2012 – Final Hearings.

Each member of the Working Group should be committed to helping the Province meet the deadlines established by the JRP and complete the above-noted activities, on behalf of their agency.

The EAO will be respectful of members' time and obligations to other priorities and have developed a work plan which provides an estimated timeline for all critical activities. The EAO is committed to providing adequate time for members to review documents and provide meaningful input but must meet the timelines established by the JRP.

ADMINISTRATION

The Working Group will be chaired and coordinated by the EAO. Meetings will be held in locations to best accommodate attendees and to reduce overall travel requirements. Conference/video calling will be used in between formal regularly scheduled meetings, when appropriate. EAO will prepare and distribute draft agendas, meeting summaries,

and relevant background documents to Working Group members for review and comment with specific timelines.

A Groove Site will be created to house all information pertaining to the proposed Project, the JRP process, and other updates and/or materials requiring the Working Group's attention.

Any questions or comments regarding the technical review process for the proposed Project should be directed to Krishna Klear, Project Lead, at Krishna.Klear@gov.bc.ca or 250-213-7232.

The following members of the Northern Gateway Working Group have read and understood the terms of membership as described in this Terms of Reference (*as the review proceeds additions/changes will occur around membership*):

- Archie Riddell, Krishna Klear, Lindsay McDonough – EAO
- Gio Puggioni – Aboriginal Relations and Reconciliation
- Chris Jones, Brian Dorrian – Attorney General
- Linda Beltrano, Olga Klimko – Energy and Mines
- Mark Zacharias, Anthony Danks, Lisa Paquin, Kenneth Howes, Mike Peterson, Troy Larden, Gordon Knox, Bob Andrews – Environment
- Patrick Russell, Marteen Geertsema, Bruce Rogers, John McClary, Kristina Anderson, Wayne Giles, Chelton Van Geloven, Jennifer Pollard – Forests, Lands and Natural Resource Operations
- Doug Quibell – Health (Northern Health)
- Peter Fisher – Jobs, Tourism and Innovation
- Mandy Nelson – Oil and Gas Commission
- Bill Eisbrenner, John Shaw, Kirsten Johnson, Lee Burton – Transportation and Infrastructure

Enbridge Northern Gateway Project

Joint Review Panel

Information Request Template

IR COPY

Information Request

To: [company name] or [intervenor]

From: [your name or organization that intervened]

Northern Gateway Pipelines Inc.
Enbridge Northern Gateway Project

Information Request No. XX

Tip: Your Information Request (IR) may include several questions. For each IR, number sequentially showing the IR number first. For example: IR #1, 1.1, 1.2, 1.3 (as shown in this sample)

1. Reference:

- i. Application, page number, registry reference number....
- ii. Information Response from Northern Gateway to JRP, IR #, registry reference number...

Preamble:

Tip: The preamble provides the context for your question. It summarizes the parts of the evidence you are relying on and it should indicate where your question is coming from.

Request:

Tip: Be as specific as you can with your request. You will get more useful information if you are clear and specific.



Information Request Sample

Information Request
To: ABC Company Inc.
From: Joe and Carol Intervenor

ABC Company Inc.
XYZ Pipeline Project

Information Request No. 1

Tip: Your Information Request (IR) may include several questions. For each IR, number sequentially showing the IR number first. For example: IR #1.1, 1.2, 1.3 (as shown in this sample)

1.1 Nice Beach: Noise & Consultation

Reference:

- i. ABC Company Inc Application, s.2.4.3.1, General Installation Procedure, Land to Marine Transition, p.75-77, A34829
- ii. Drilling Feasibility Study, p.2, A24302
- iii. Drilling Feasibility Study, p.11-12, A24302

Tip: Your references will usually be to evidence that has already been filed (ie the application or evidence from other intervenors). Your references should be as specific as possible, so everyone can find the evidence relied upon. You should also indicate the registry number for the document (Axxxxx).

Preamble:

Reference (i) indicates that the drilling equipment will be set up in the parking lot of the Nice Beach boat launch and the drilling will last approximately 27 days. It also indicates that, given favourable geological conditions, drilling could be suspended during evening and overnight and that drilling will take between two and four weeks.

Reference (ii) indicates that to the west, east and north there are residential homes within a 40 m radius of the drill site and that summer boat traffic is significant.

Reference (iii) provides some information about noise abatement measures that could be employed and gives an example of measures that reduce drilling noise to 45 dBA at a distance of 180 m from the site. This reference also states that the drilling is estimated to take 5-7 weeks.

Request:

Tip: Be as specific as you can with your request. You will get more useful information if you are clear and specific.

Please provide:

- a. the noise level from the drill site at a 40 m radius;
- b. clarification of the expected duration of the drilling at the Nice Beach boat launch;
- c. the noise level in decibels caused by the drilling at the most affected residences;
- d. a description of the noise abatement measures that will be used for the drilling program;
- e. a description of the consultation undertaken with residents in the area about the drilling program; including but not limited to:
 - i. the anticipated noise level;
 - ii. the expected duration of the drilling;
 - iii. the possibility that the drilling may need to take place during the evenings and overnight;
 - iv. any outstanding concerns raised by residents and how they will be addressed.

1.2 Noise at the converter station

Reference:

- j) ABC Company Inc. Application, s.2.4.4.3, Acoustic Design, p.80-81, A34829

Preamble:

ABC Company Inc's application indicates that the reactors and converters are the main source of noise at the converter station, and it suggests that metal wall cladding can be installed with sound barriers to achieve lower noise levels. However, the application does not state that ABC Company Inc will in fact install sound barriers at the converter station.

Request:

- a) Please clarify if ABC Company Inc will use metal wall cladding installed with sound barriers. If not, please provide a justification.

- b) Please provide the noise level in decibels caused by the operation of the converter at the most affected residences. Please include the distances to the most affected residences.

1.3 Water Wells

Reference:

- i. ABC Company Inc. Application, s.4.5.1.1.3 Zoning, p.278, A34829
- ii. ABC Company Inc. Application, s.4.7.2 Monitoring, p.309, A34829

Preamble:

Reference (i) indicates that there are approximately 11 water wells within 200 m of the project, that most of the wells are near the Pike substation and that only three to five of those water wells are currently listed as being used for domestic use.

Reference (ii) indicates that where blasting or spills occur, the project's Environmental Monitor may determine that groundwater in the vicinity of the wells will be tested.

Request:

Please confirm that the water wells listed as being for domestic use will be tested prior to commencement of construction in order to provide baseline data for water well quality.

Process Advisory Team

The Process Advisory Team is available to answer questions about the joint review process and how to effectively participate in the joint review process. You can contact the Process Advisory Team at:

Email: GatewayProcessAdvisor@ceaa-acee.gc.ca

Toll-free Telephone: 1-866-582-1884



ENVA 30050-35
ENGP-057
Agricultural Land Commission
133-4940 Canada Way
Burnaby, BC V5G 4K6
Tel: 604-660-7000
Fax: 604-660-7033
www.alc.gov.bc.ca

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Krishna Klear
Project Lead
Environmental Assessment Office
1st Floor 836 Yates St
PO Box 9426 Stn Prov Govt
Victoria BC V8W 9V1

ePIC	DM
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	PAM
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Log #	
Environmental Assessment Office	

Proposed Northern Gateway Pipeline Project and Provincial Participation In the Northern Gateway Project Working Group (ALC File 232-20/EAO)

The Provincial Agricultural Land Commission appreciates the invitation to participate in the Working Group, however with limited resources, our capacity to do so is restricted.


The Commission writes to confirm that a portion of the proposed route for the above noted pipeline is within the Agricultural Land Reserve (ALR). It is important to note the limited supply of agricultural land in our province is protected for current and future agricultural use and non-farm land uses are restricted within in this zone. While the Agricultural Land Commission has provincial jurisdiction over the ALR designated zone, it acknowledges NEB regulated pipelines are federal jurisdiction. The Commission encourages all proponents to ensure that agricultural lands are treated sensitively during the development phase and are reclaimed appropriately once the pipeline has been installed with the hope the impacted lands can continue to be used for agricultural purposes. For guidance you may wish to review the Commission's regular reporting and reclamation requirements for oil and gas uses that are not NEB regulated at this link: http://www.alc.gov.bc.ca/Commission/oil-gas_ALR.htm (see the Schedule A and B reporting documents).

In general, the Commission requests that the land be returned to an equivalent agricultural standard that existed prior to pipeline development.

The Commission also points out information about ALR maps on our website in case EAO wishes to plot the ALR boundary on any maps indicating provincial interests. You can view ALR maps at (http://www.alc.gov.bc.ca/mapping/ALR_maps.htm) as well as access GIS shape file data from our ftp site. (http://www.alc.gov.bc.ca/mapping/GIS_data.htm)

Yours truly,

PROVINCIAL AGRICULTURAL LAND COMMISSION


Brian Underhill, Executive Director

NORTHERN GATEWAY WORKING GROUP

ATTENDEES

September 12-13, 2011

UBC Robson Square

Room C680 (HSBC Hall), 800 Robson Street

Vancouver BC

Province of BC

September 12-13	Agency
Krishna Klear	Environmental Assessment Office
✓ Lindsay McDonough	
✓ Chris Jones	Ministry of Attorney General
✓ Patrick Russell	Ministry of Forests, Lands and Natural Resource Operations
✓ Mike Peterson	
✓ Troy Larden - Envir.	
✓ Marten Geertsema - Terrain issues	
✓ John McClary	
✓ Chelton Van Geloven	
✓ Kristina Anderson - Trans.	
Bruce Rogers (via phone afternoon Sept. 12)	
Ian Sharpe or Graham Knox	Ministry of Environment
✓ Bob Andrews - Org. rep.	
✓ Bill Eisbrenner - Engineering aspects	Ministry of Transportation and Infrastructure
✓ John Shaw - assist	
Gordon Hunter Grey Woolacott	
✓ Peter Fisher	Ministry of Jobs, Tourism and Innovation
✓ Olga Klimko	Ministry of Energy and Mines
✓ Ken Paulson	Oil and Gas Commission
✓ Doug Quibell (via phone Sept. 12)	Northern Health

Federal Government

Date	Department
September 12 (noon)	Aboriginal Affairs and Northern Development Canada
	Natural Resources Canada
	Canadian Environmental Assessment Agency
	Justice
September 12 (noon) and September 13	Fisheries and Oceans
September 12 (1pm) noon	Environment Canada
	Transport Canada

Enbridge Inc.

✓ Randy Kerr	September 13
Others TBA	

✓ Ken MacDonald ✓ Jody Whitney ✓ Capt Chris Anderson ✓ Paul Anderson
 ✓ Ray Doering, Engineering ✓ Jeff. Puetz ✓ Owen McHugh, Standards ✓ Marie Sick
 ✓ Tiff. Brown ✓ Richard Newfield ✓ Jeff Bates, Land Rights

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Name (please print)	Title/ Agency
Andrew M. Donough	Project Assessment Officer / EAO (BC)
Kristen Johnson	BC MOTI
Bill Fishburner	BC MOTI
John Shaw	MOTI
Josh Rossiter	MOTI
Olga Klimko	MEM
Mohsin Zaiedi	OGC
Peter Fisher	STI
John McClary	FLNRO
Patrick Russell	FLNRO
Jennifer Pollard	FLNRO
JODY WHITNEY	ENBRIDGE
RAY DOERING	ENBRIDGE
Amy Arila	HARR BC
COLLEEN BRYDEN	STANTEC
JEFF GREEN	STANTEC
Ken Mac Donald	Enbridge - Northern Gateway
Rick Neufeld	Fraser Milner Casgrain
JEFF PAETZ	ENBRIDGE
Bob Anderson	M O E
TROY HARDEN	FLNRO Smithers
Mike Petum	FLNRO - PG
Kristina Andersen	FLNRO - Water Stewardship
Michael Cowell (Cowell)	Workup/Assess (Worley)
Owen McHugh (McHugh)	Started.
Randy Kerr	Enbridge
Rick NEUFFELD	FMC
CHRIS ANDERSON	ENGP
Paul Anderson	Enbridge
Chelton van Geloven	FLNRO

September 12, 2011
UBC Robson, Vancouver, BC

THE COM

- * Conference call (left early)

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

Meeting Objectives:

- High level overview of the proposed Project by Northern Gateway Pipelines Ltd.;
- Discussion and questions from participants following presentation of each volume of the Application.

Attendees: see "Appendix 1."

1. Welcome and Introductions

- It was noted that the role of the Northern Gateway Working Group is to review and provide input into the technical issues associated with the proposed Project.
- The Working Group will not be determining the Province's (BC) position regarding the proposed Project.
- The BC Environmental Assessment Office (EAO) is the lead agency with respect to coordination of the Working Group.

2. Northern Gateway Project Presentation

Overview of proposed Northern Gateway Project – Ken MacDonald (Northern Gateway)

- See PowerPoint presentation
- Presentation highlights:
 - Over 7500 pages of evidence submitted in the following subjects:
 - Impact on the environment
 - Marine traffic
 - Aboriginal concerns and participation
 - Community concerns
 - Project need and benefits
 - Additional 11,000 pages of technical data reports submitted
 - Regulatory Process:
 - TERMPOL Code – a voluntary process overseen by a committee appointed by Transport Canada; requires filing of detailed studies by the Proponent.
 - Various federal Department approvals will be obtained.
 - The following issues were identified as out of scope by the Joint Review Panel following the 2011 preliminary hearings:
 - Environmental effects of oil sands development;
 - Environmental effects of downstream use of oil;
 - Additional Aboriginal consultation information before a hearing order is issued;
 - Completed Aboriginal Traditional Knowledge (ATK) information before a hearing order is issued.

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

- The final pipeline route and centre line (1 km wide) will not be confirmed until the detailed route hearings are completed.

Question & Answer (Q&A):

Q: At what point in the process will you obtain the required permits for export of oil?

A: Oil permits are now obtained through a series of orders rather than previous long-term authorizations which will be determined by shippers closer to the date.

Project engineering – Ray Doering (Enbridge Inc.)

- See PowerPoint presentation
- Presentation highlights:
 - Identified temporary land rights required to construct the pipeline
 - The actual estimated construction footprint of the project is 50 meters
 - Other footprint estimates identified in the Application:
 - Location of construction camps
 - Pipe stockpile sites
 - Powerline routes to supply pump stations
 - The current pipeline route either parallels, or is in close proximity to, the KSL pipeline project which was assessed by the BC EAO.
 - A 30 meter "notification zone" on either side of the pipeline right-of-way has been proposed; includes requirement that anyone doing work in this area must notify the operator of their activities.
 - Ships will range in size from 80,000 dwt (dead weight tonnes) to 320,000 dwt. The largest ships can carry up to 2 million barrels.
 - Approximately 450 ship transits per year
 - A worst case scenario for potential spills document (e.g. watercourses impacted) was presented to the JRP and is available on the NEB website.
 - Developed Google Earth tool: shows all data the proponent has gathered regarding water for all sites.

Question & Answer (Q&A):

Q: How often will the resources being imported/exported flow through the pipeline?

A: The pipelines will flow continuously.

Q: How much storage will be at Kitimat?

A: Around 6 million barrels will be stored at Kitimat, of which 1.5 million includes condensate. The remainder would include a variety of oil products.

Northern Gateway Working Group

Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

Q: Was the 1 km wide corridor based on assumed alignment?

A: Yes. This is a preliminary route as we obtain feedback on the proposed Project. The route will be finalized post-certificate.

Q: Are there intersection points along the corridor that must be followed?

A: Yes. There are some points within the proposed corridor that have little flexibility (e.g. tunnels proposed through coastal mountain range).

Q: What will happen with future developments around the proposed pipeline area (e.g. subdivisions)?

A: There will be various municipal setbacks. Future development is a key topic being discussed during consultations. Ways to accommodate this, where possible, will be included in the pre-planning stage. Future development proposals that occur after the pre-planning stage will likely require funding from the developer.

Q: Does the NEB have requirements regarding highways crossing the pipeline area and construction of the pipeline itself?

A: This is typically driven by CSA standards.

Q: If you have to reroute the pipeline, what mechanisms are in place to do so?

A: All route deviations can be applied for through Section 45 of the NEB Act. This would include a mini assessment undertaken by the proponent to illustrate that the new route is as good, or better, than the original proposal.

Q: Does the forecasted pipeline disturbance costs include loss of business due to disruption?

A: We haven't looked at business disruption to date. Lowering the pipeline doesn't necessarily mean a new section of the pipeline would be required. There may be instances where you would have to update the pipeline but those would be undertaken with the least amount of disturbance.

Q: What would it cost to shut the pipeline down?

A: The average annual rate of 525,000 barrels assumes that the pipeline would not be flowing for approximately 10% of the year (e.g. maintenance).

Q: How many valves are currently estimated?

A: Approximately 100 valves are estimated for the pipeline at this point in time.

Q: What is the cost per valve?

A: The cost of the valves and all of the equipment required to operate them (in addition to access to power, pressure/ temperature checks, etc.) is in the millions.

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

Q: What about other utilities using that corridor? Will there be a need to expand the right-of-way?

A: Northern Gateway's bundle of rights generally refers to hydrocarbon movement across the pipeline. The utility would have to negotiate with us to relinquish part of the right-of-way and seek agreement from the landowner, if applicable.

Q: If the project is approved, at what point in time would you begin to consider/ apply for concurrent permitting?

A: The permitting process will likely be considered when the detailed engineering process is undertaken (anticipated for 2013 to 2015). Timing will depend on funding partners.

Q: If you want to increase your pipeline capacity, what would you do?

A: The expansion options for Northern Gateway Project at this time include an annual average capacity of up to 850,000 barrels/day of crude oil, and up to 275,000 barrels/day condensate.

Q: Could you define condensate?

A: Condensate is derived as liquids extracted from natural gas (hydrocarbons).

Q: How many water crossings are along the proposed pipeline route?

A: There are 773 water crossings along the proposed route; including both Alberta and BC. 83 are considered "major crossings" determined by both size and potential impact.

Q: In your modelling, what is your detection opportunity?

A: There are four different forms of leak detection or system integrity:

- A Control Center – monitoring of valve sites, pump stations, etc.;
- Routine flight observations;
- Local operations staff on the ground;
- An awareness program – education provided to landowners and stakeholders living in proximity of pipeline.

Q: Have you modelled any responses and/or conditions associated with snow or freezing?

A: The detailed response planning will not be solidified until environmental issues and mitigation measures are discussed; however, these issues will be included.

Q: What is the freezing point for bitumen?

A: Bitumen doesn't freeze completely but may impact flow.

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

Q: Literature suggests that pipelines are in their best integrity within the first 30 years (average life cycle for pipelines is 50 years). What is your proposal for replacement of the pipeline beyond the 30 year mark?

A: In the Application, we assumed a 30 year economic life and 30 years of operation. Some of the older pipelines are experiencing accelerated rates of corrosion but modern technology (e.g. codings, steel) can help prevent this. We're also developing a rigorous integrity management program to ensure the pipeline is in good condition for the life of the project.

Marine Transportation & Operations – Owen McHugh (Santec) & Michael Cowell

- See PowerPoint presentation
- Presentation highlights:
 - Tanker traffic – top issue of public concern (currently responding to 150+ Information Requests on this topic)
 - Internationally driven process
 - Enbridge will address issues relating to marine operations by:
 - Inclusion of marine transportation matters in NEB application;
 - Addressing oil release risk in NEB application and TERMPOL review, through leading experts;
 - Integrating marine transportation strategy with environmental and Aboriginal engagement strategies.
 - A number of TERMPOL surveys and studies have been undertaken and submitted to the Joint Review Panel (see Forest Technologies Report). These are publicly available on the [NEB website](#).
 - 3 marine transportation routes have been proposed, all of which are along existing deep sea fishing routes.
 - Narrowest points: Principe and Douglas channels (1.4 km wide)
 - Compared to current levels, reporting traffic will increase in the Kitimat area as follows:
 - Douglas channel – 86%
 - Wright Sound – 13%
 - BC North Coast – 3%
 - Marine initiatives:
 - Voluntary TERMPOL process (large volume of work)
 - Quantitative Risk Analysis & Working Group
 - Tanker and Tug Full Mission Bridge Simulation
 - First Response – General Oil Spill Response Plan (filed with JRP and available on public registry)
 - Tug Escort Study

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

- Response Centers – primary bases in Prince Rupert, Kitimat and Shearwater. Optional local response centers in local communities (subject to community agreement to participate).
- A General Oil Spill Response Plan (GOSRP) was filed March 2011 – not the actual response plan but a framework and list of commitments.

Question & Answer (Q&A):

Q: It is suggested that the arresting distance for some of the VLCC's proposed at 5-8 knots is greater than 50% of the channel width (Douglas). Can you comment on this?

A: There is an impact ratio for all ships, in addition to different manoeuvres that can be made to avoid a full arrest (see public registry, "Forest Technologies Report," for a list and description of emergency manoeuvre exercises).

Environment – Paul Anderson (Enbridge Inc.)

- See PowerPoint presentation
- Presentation highlights:
 - **Watercourse crossings**
 - 773 watercourses in AB and BC with defined bed and banks ranging from very small creeks to rivers; 669 fish bearing.
 - Developing risk management framework to consider sensitivity of every watercourse into crossing.
 - **Fisheries and fish habitat**
 - Salmon (cultural and commercial impacts).
 - Developing risk management framework to determine which watercourses require detailed investigations; pipeline route modified in certain areas to avoid sensitive fisheries habitat; site specific mitigation requirements (e.g. use of trenchless methods).
 - **Access management**
 - Loss of biodiversity and abundance of key wildlife species; fragmentation and disruption of movement of core wildlife habitat.
 - Strict access control will be in place to limit human use of the right-of-way during operations; working with government agencies and First Nations to achieve a no net gain in linear access for critical habitats (threatened species).
 - **Marine mammals and vessel strikes**
 - Vessel strikes of marine mammals within the confined channel area, as well as in open water area.

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

- Will develop and implement operational practices to minimize vessel strikes; speed control for ships in certain areas; whale spotters; research on Passive Acoustical Monitoring.
- Marine biota and underwater noise
 - Effects of underwater noise on marine mammals and fish.
 - Will incorporate low noise technology into built escort tugs, in addition to lower speeds; undertaking additional research.
- Marine oil spills
 - Environmental consequences of potential oil spills at the marine terminal.
 - Operational protocols for all tankers (e.g. tanker vetting system, vessel speeds, tethered tug and escort tug, pre-booming of tankers, etc.); developing spill response plans
- Opportunities for engagement with the BC government on:
 - Access Management Framework
 - Detailed routing within corridor
 - Watercourse crossing locations and mitigation strategies

Question & Answer (Q&A):

Q: Has there been any discussion around subsidizing the province for their involvement in access management planning?

A: No discussions have occurred to date regarding compensation for provincial government involvement in access management planning; however, we are open to this. Some discussion has occurred around hiring third party consultants for advice/input.

Q: Are there any preconceived barriers to access outside the proposed right-of-way?

A: No.

Q: Will there be a commitment to make some of that reporting transparent?

A: Yes, it will be on the public record as part of the GVRD process.

Aboriginal Affairs Update – Jody Whitney (Enbridge)

- See PowerPoint presentation
- Presentation highlights:
 - Applying holistic approach to consultation: social, economic, and environmental.
 - Not proposing to cross any First Nations reserve land without prior support.
 - Alberta context:

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

- 31 First Nations; engagement with Métis Nation on behalf of Métis zones.
- BC context:
 - 19 First Nations (terrestrial) and 10 First Nations (coastal); engagement with Métis Nation on behalf of five Métis associations.
- Benefits package components: equity offering, including 30+ years profit generation/ ownership; and negotiated components (e.g. capacity assessment and development, training, employment, procurement).
- Aboriginals will have equity ownership in the project of 10% through a loan from the proposed Project (\$230 million paid over 30 years).
- Two separate agreements totalling \$300 million, including construction and 30-year marine terminal.
- For each 100 km of pipelines, approximately 500-600 employees will be required for 2.5 years of consecutive work.
- Proposed job estimates:
 - 200 direct jobs (terminal)
 - 1150 direct and indirect jobs (operations)
- Total person years for construction over 3.5 years:
 - 60,000 (BC and Alberta)
 - 31,000 (BC only)

Question & Answer (Q&A):

Q: Will you be hiring locally for construction?

A: Yes. We are proposing 3 contractors to build the pipeline who would hire both locally and out-of-province. This would include 30% Aboriginal participation overall.

Q: Could you provide more detail on the First Nations consultation area?

A: The consultation area includes First Nations that have a reserve within 8 km of either side of the proposed Project.

Q: How many BC First Nations have declined participation in the process?

A: Approximately 10 First Nations groups from BC have declined participation to date.

Q: How can the province (BC) become involved in First Nations consultations, especially given the focus is typically on asserted rights and title and not reserve lands?

A: CEAA (Canadian Environmental Assessment Agency) is filtering government participation around First Nations consultation.

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

Q: Could you speak to some of the equity agreements?

A: Some equity agreements have recently been released (see NEB website) but more dialogue and information will come in the months ahead.

Q: How much will you spend per year on contingency plans?

A: There is an annual budget that will pay for emergency response personnel and training for other emergency response providers. The exact numbers are not known at this time.

Public consultation – Ray Doering

- See PowerPoint presentation
- Presentation highlights:
 - Educating and soliciting feedback from communities since 2005
 - Engagement opportunities include:
 - Face to face meetings
 - Presentations
 - Public forums
 - Technical meetings
 - Community meetings
 - Community Advisory Boards
 - Sponsorship events
 - Other tools (website, direct mail-outs, emails, brochures, social media, project fact sheets)
- Community Advisory Board sessions (CAB):
 - 5 communities
 - 4 rounds of regional CAB meetings held in 2010 (each regional CAB meets quarterly)
 - Round 2 of meetings beginning Sept 2011
 - Hired independent facilitator
- Technical meetings:
 - 3 held in 2010; 5 held in 2011
 - Panel presentations on pipeline integrity/ safety; Aboriginal engagement; and local opportunities/ benefits
- Over 4,000 exchanges with stakeholders since 2009
- Discussions with the public have occurred along the entire length of the proposed pipeline but are focussed on BC central and BC coastal regions.

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

Question & Answer (Q&A):

Q: How were the CABs formed and how many members?

A: We sent an open invitation to a broad cross-section of stakeholders from five different communities. Each CAB group ranges in size from 15 to 30+ members. All presentations and notes are available on the CAB website.

Q: Will CAB members participate in the Joint Review Panel process in the way of Information Requests and/or participation in hearings?

A: Some members have signed up as Intervenor to speak from their own perspective. CABs can also dialogue directly with senior management.

Q: In what ways has public input influenced the project proposal?

A: It has influenced the proposal in a variety of areas, primarily access management and watercourses.

Land requirements and rights acquisition – Jeff Paetz (Enbridge Inc.)

- See PowerPoint presentation
- Presentation highlights:
 - Land acquisition – see Volume 6B of Application
 - Two components: consultation and land acquisition
 - Alberta: 50% Crown and 50% freehold
 - BC: 90% Crown and 10% freehold
 - Landowner consultation:
 - Inform and solicit feedback
 - Obtain consent for studies/ surveys
 - Record comments, concerns and recommendations
 - Develop and implement strategies to address concerns
 - Staff of land agents that meet with landowners directly (one-on-one)
 - July-Oct 2010, met with 99% of landowners and occupants within the applied for 1km wide pipeline corridor.
 - Majority of landowners were neutral or positive about the Project.
 - Primary issues and concerns:
 - Detailed routing of the pipeline
 - Compensation for land rights (next phase: 2013)
 - Potential environmental effects
 - Safety
 - Effects on development

Northern Gateway Working Group

Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 13, 2011

Question & Answer (Q&A):

Q: How does Northern Gateway acquire rights for access?

A: We require easements (the fee simple right remains with the landowner).

Q: Have any discussions taken place with provincial Crown landowners? A: There has been a lot of discussion with the Crown to date, primarily the BC Integrated Land Management Bureau.

3. Wrap up

ACTION:

- EAO to solicit feedback from Working Group regarding interest in participating in an additional session with Northern Gateway, re: Google Earth tool – completed.
- EAO to upload final PowerPoint presentations (Northern Gateway) to Groove site – completed.
- EAO to work with each individual lead to start work on the review of the Application.

APPENDIX 1: LIST OF ATTENDEES

NAME	AGENCY
<i>BC Government</i>	
Amy Avila	Aboriginal Relations and Reconciliation
Olga Klimko	Energy and Mines
Bob Andrews	Environment
Krishna Klear	Environmental Assessment Office
Lindsay McDonough	Environmental Assessment Office
Patrick Russell	Forests, Lands and Natural Resource Operations
Troy Larden	Forests, Lands and Natural Resource Operations
Mike Peterson	Forests, Lands and Natural Resource Operations
John McClary	Forests, Lands and Natural Resource Operations
Jennifer Pollard	Forests, Lands and Natural Resource Operations
Chelton van Geloven	Forests, Lands and Natural Resource Operations
Kristina Anderson	Forests, Lands and Natural Resource Operations
Peter Fisher	Jobs, Tourism and Innovation
Mohsin Zaidi	Oil and Gas Commission
John Shaw	Transportation and Infrastructure
Bill Eisbrenner	Transportation and Infrastructure
Kristen Johnson	Transportation and Infrastructure
Josh Rossite	Transportation and Infrastructure
<i>Industry</i>	
Randy Kerr	Enbridge Inc.
Jody Whitney	Enbridge Inc.
Ray Doering	Enbridge Inc.
Jeff Paetz	Enbridge Inc.
Chris Anderson	Enbridge Inc.
Paul Anderson	Enbridge – Northern Gateway Pipelines
Ken MacDonald	Enbridge – Northern Gateway Pipelines
Rick Neufeld	Fraser Milner Casgrain
Colleen Bryden	Stantec Inc.
Jeff Green	Stantec Inc.
Owen McHugh	Stantec Inc.
Michael Cowell	WorleyParsons Ltd.
<i>Federal Government</i>	
Kathy McPherson	Natural Resources Canada
Sandy Allen	Natural Resources Canada

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British Columbia EAO Meeting

September 13, 2011 Vancouver, British Columbia



Proposed Agenda



- 1. Introductions
- 2. Meeting Objectives
 - NGP - BC EAO
- 3. NGP Presentation
 - Engineering
 - Environment
 - Aboriginal
 - Public Consultation
 - Marine
 - Land
- 4. Questions

Northern Gateway Pipeline (NGP)



Major Scope Items:

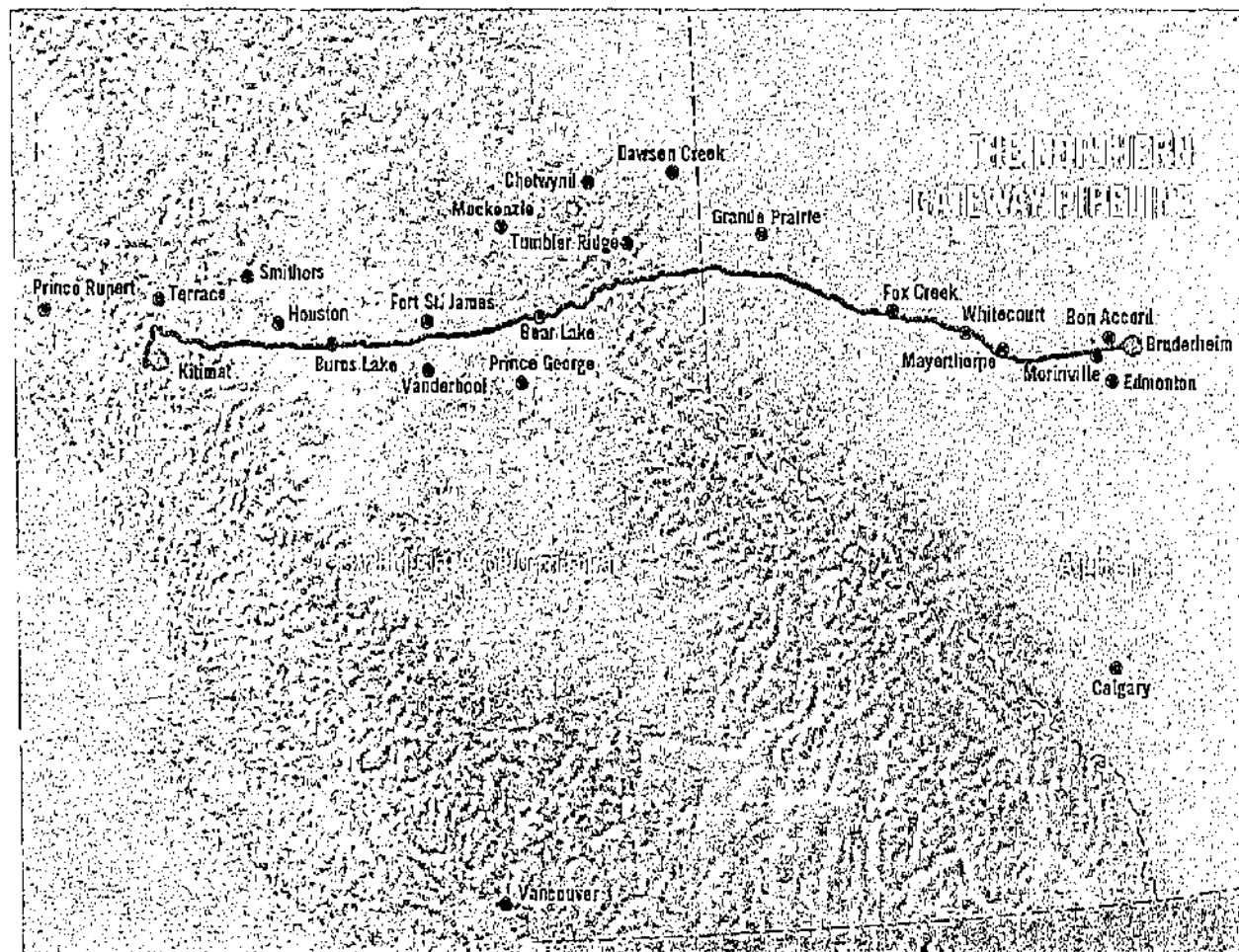
- 1,177 km oil export and condensate import pipelines, marine terminal

Design:

- 36" 525,000 bpd oil
- 20" 193,000 bpd condensate
- 10 electric pump stations
- Kitimat, B.C.
 - 14 tanks / 5.6MM barrels
 - 2 ship berths

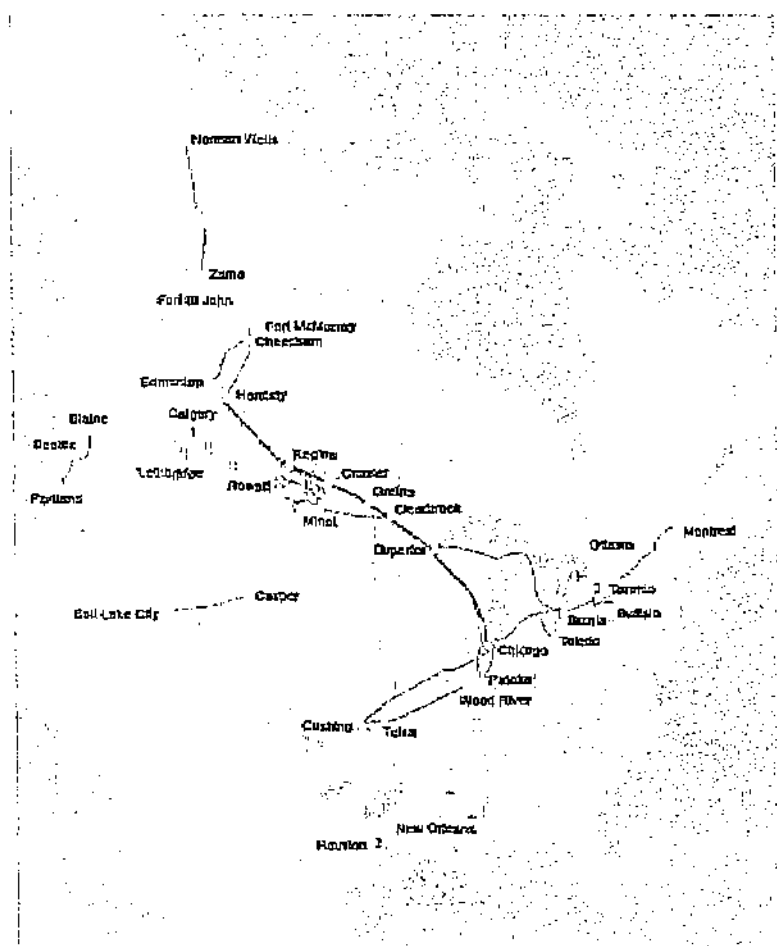
Other:

- Project Filed May 27, 2010
- \$5.5 billion project
- Two tunnels, each approximately 6.5 km long, between the Clore River and Hoult Creek Valleys



The pipelines will be buried at a depth of approximately one metre in a 25 metre right-of-way.

Enbridge: Energy Transportation & Sustainability



- A Canadian company
- 60 years in liquids transportation and 150 years in gas distribution
- World's longest liquids pipeline transporting 2 million barrels/day
- Canada's largest gas distribution company with 1.9 million customers
- Over \$1 Billion invested in wind power, solar energy and fuel cells
- A Global 100 Most Sustainable Corporations in the World
- Named to Canada's 50 Greenest Employers and Top 100 Employers

Northern Gateway (NGP) Application



- Application filed with the National Energy Board (NEB) on May 27th, 2010
- Over 7,500 pages of evidence submitted in the following subjects:
 - Impact on the Environment
 - Marine traffic
 - Aboriginal concerns & participation
 - Community concerns
 - Project need and benefits
- An additional 11,000 pages of technical data reports support the application

Regulatory Process



- National Energy Board Application for a Certificate of Public Convenience and Necessity (CPCN)
- Canadian Environmental Assessment Act (CEAA)– Review Panel to determine whether project is likely to cause significant adverse environmental effects
- TERMPOL Code – Recommended Standards for the Safety and Prevention of Pollution for Marine Transportation Systems and Related Assessment Procedures
- Various Federal Departmental approvals required – Fisheries and Oceans Canada, Transport Canada, Indian and Northern Affairs, Natural Resources Canada, Environment Canada and Health Canada

Joint Review Panel Process



- NEB and CEAA decided to conduct their reviews via a single Joint Review Panel (JRP)
- On December 4, 2009 a JRP Agreement, Terms of Reference and Scope of Factors (JRPA) were issued
- JRPA incorporated most of the Aboriginal comments on the draft agreement – Government rejected call for separate Aboriginal review process
- Scope of project extended beyond CCAA to include Hecate Strait and shipping lanes to 12 mile limit – first time a hearing on a NEB Application has expanded the scope to include marine issues

JRP Members Appointed



- January 20, 2010 – Environment Minister Prentice and NEB Chair Caron announced the appointment of the Joint Review Panel members:
 - Panel Chair: Ms. Sheila Leggett currently Vice Chair of the National Energy Board – environmental background
 - Panel Member: Mr. Hans Matthews – appointed a temporary member of the NEB – professional geologist – Founding president of Canadian Aboriginal Mining Association – Member Wahnapiatae First Nation, Ontario
 - Panel Member: Mr. Kenneth M. Bateman – NEB Board Member since 2006 – former VP Law and Regulatory with Enmax

Separate Marine Safety Review



- TERMPOL is a voluntary* process overseen by a committee appointed by Transport Canada and requires the filing of a very detailed set of studies by a proponent
- NGP has filed 19 required studies with the Termpol Review Committee including two Quantitative Risk Assessment (QRA) studies
- The QRA was prepared by a Norwegian firm, Det Norske Veritas (DNV)
- DNV, a world renowned expert in the area, was selected by a group of interested parties who also determined the scope of their study and reviewed and commented on drafts of the report
- NGP included any party who wished to participate in the selection and overview process for the QRA

JRP Hearing Order OH-4-2011



- Key dates:
 - Round 1 Information Requests (IRs) to NGP – Aug. 25, 2011 deadline
 - NGP has received approximately 2100 IRs
 - Round 1 IR Responses by NGP – Oct. 6, 2011
 - Round 2 IRs to NGP – Nov. 3, 2011 deadline
 - Round 2 IR Responses by NGP – Nov. 24, 2011
 - Deadline for Intervenor Written Evidence
 - **Community Hearings (oral presentations) start – Jan. 10, 2012**
 - Letters of Comment Due Date – March 13, 2012
 - IRs to Intervenors and Gov't Participants by NGP – March 20, 2012
 - Responses to NGP IRs by Intervenors – May 15, 2012
 - NGP Reply Evidence – May 29, 2012
 - **Final Hearing starts – June 26, 2012**

Hearing Order OH-4-2011



- Provisions with respect to Government Participants
- Government Participant Status – July 14, 2011 date for registration
 - submit IRs to NGP
 - ask information requests of other intervenors with panel permission
 - submit evidence and final argument
 - question Northern Gateway at the public hearing
 - participate in processes for notices of motion
 - required to respond in writing to written information requests and answer oral questions during the final hearings (if Parties receive prior Panel approval to ask oral questions) (Section 7.3.2)
- Federal Departments have registered as Government Participants
 - Environment, Transport, Natural Resources, Indian Affairs and Fisheries and Oceans - all have indicated that they will file evidence
- A number of B.C Municipalities and Regional Districts have registered as Intervenors or Government Participants

JRPA - Aboriginal Provisions



- NGP required to provide evidence on concerns of Aboriginal groups
- JRP will receive information from Aboriginals on nature and scope of rights that may be affected
- The JRP shall reference in its report the information provided by Aboriginals on strength of claim
- NGP must include Aboriginal Traditional Knowledge which it may reasonably be expected to acquire through appropriate due diligence
- Government of Canada will rely on the consultation efforts of NGP and on the JRP process to assist in meeting the Crown's duty to consult
- A separate Crown Consultation Framework has been issued with CEAA appointed Crown Consultation Coordinator – a first for an NEB Project

JRP Jan 19 Decision on Issues List



- Following preliminary hearings on the draft list of issues the JRP requested additional information on:
 - how the risk factors resulting from geotechnical and geographic aspects will be taken into account
 - the integration of the risk factors with the environmental and socio-economic consequences from potential releases
 - maps showing maximum potential release/rupture for every kilometer of the line and potential areas of consequence impacted
 - demonstration that risk-based approach to design was used to account for the unique Project characteristics such as geotechnical and seismic areas

JRP Jan 19 Decision on Issues List



- JRP did not require NGP to file the following information which had been requested by intervenors:
 - the environmental effects of oil sands development
 - the environmental effects of the downstream use of oil
 - additional Aboriginal consultation information before a hearing order is issued
 - completed Aboriginal Traditional Knowledge (ATK) information before a hearing order is issued

Initial JRP Decision



- JRP accepted NGP position regarding the sufficiency of evidence on a number of important areas including:
 - watercourse crossing details,
 - habitat compensation details,
 - marine bird surveys, and
 - spill trajectory model results
- JRP acceptance of the sufficiency of this information acknowledges difficulty of providing this type of information prior to the detailed design stage which occurs only after a route has been selected (If a CPCN is granted to NGP, it is required to file its plans, profile and book of reference and obtain NEB approval of the detailed route)

Regulatory – Interventions in OH-4-2011



- Interventions were due on July 14, 2011 – the JRP accepted interventions later than the 14th. The filings included:
 - 215 total interventions*
 - 14 Government Participants
 - 34 Industry Corporations and Associations
 - 35 Aboriginal Groups and Organizations
 - 24 Municipalities, Councils, Committees and Unions
 - 18 Environmental Organizations, Societies and Institutes
 - 69 Individuals
 - 5 Government Agencies and MPs

*total subject to change if additional interventions accepted

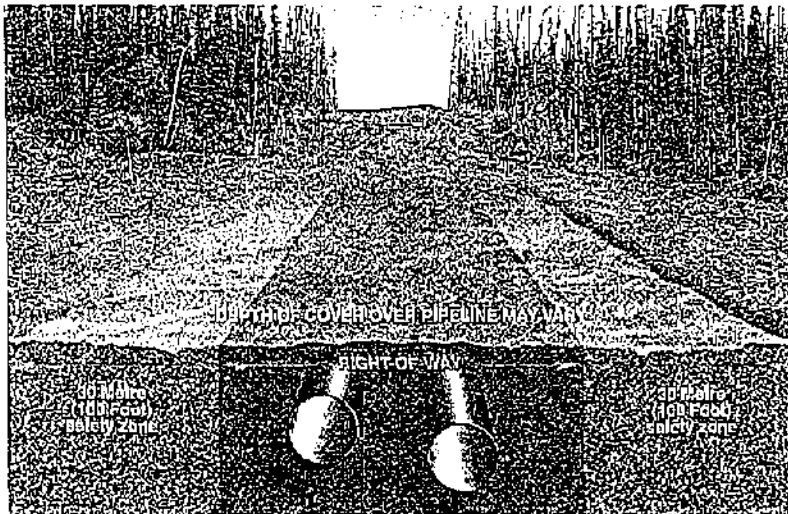
Regulatory – JRP Information Requests

Requesting Party	Length of Request	Date Filed	Response Date – Status
JRP – IR #1	2 Questions – 3 Pages	June 21 – 11	July 12 - 11 Filed
JRP – IR #2	11 Questions – 11 Pages	July 28 -11	Aug. 18 – 11 Filed
JRP – IR #3	18 Questions – 23 pages	July 28 -11	Aug. 31 – 11 Filed
JRP – IR #4	31 Questions – 24 pages	Aug. 18 - 11	Sept. 22 – 11
JRP – IR #5	10 Questions – 14 pages	Aug. 19 – 11	Oct. 6 – 11
JRP – IR #6	5 Questions – 6 pages	Aug. 24 – 11	Oct. 6 - 11
Intervenors	2000 Questions	Aug. 25 - 11	Oct. 6 - 11



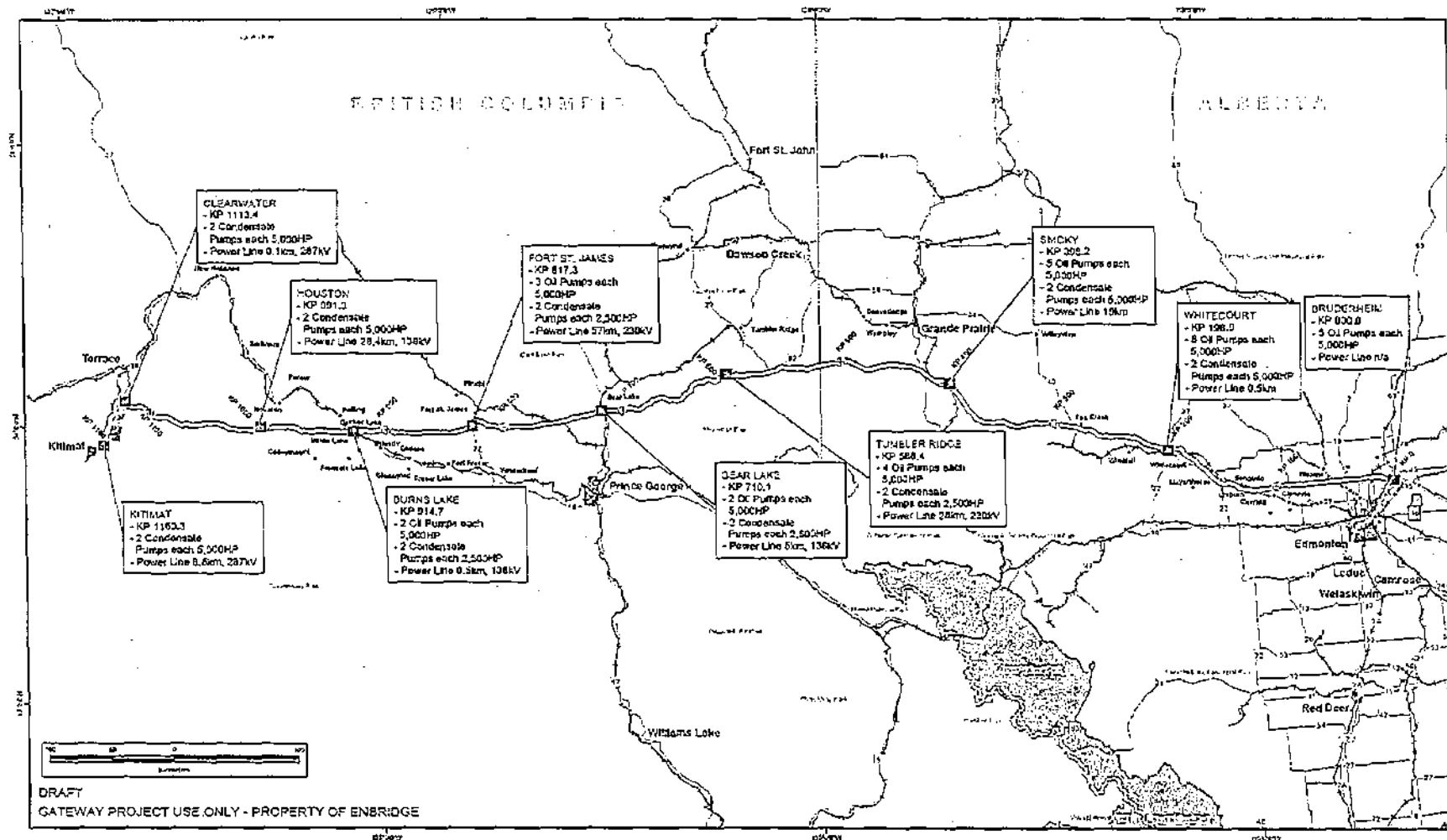
NGP Project Footprint

- General project study corridor width is 1000 m *-> 50m construction footprint*
- Temporary and permanent construction and operations access will be identified
- Construction camps, marshalling sites and pipe stockpile sites to be identified where possible
- Powerline routes to supply Pump stations will be identified where possible
 - (10) - electrically driven
 - near to existing powerlines
- Micro-routing within 1000 m study corridor is expected as a result of consultation activities and detailed Engineering/Constructability review phase
- NGP Route either parallels or is in close proximity to the KSL pipeline project that has been assessed by the BC – EAO (Recent strength of claim analysis for the Non-Treaty First Nations along route)

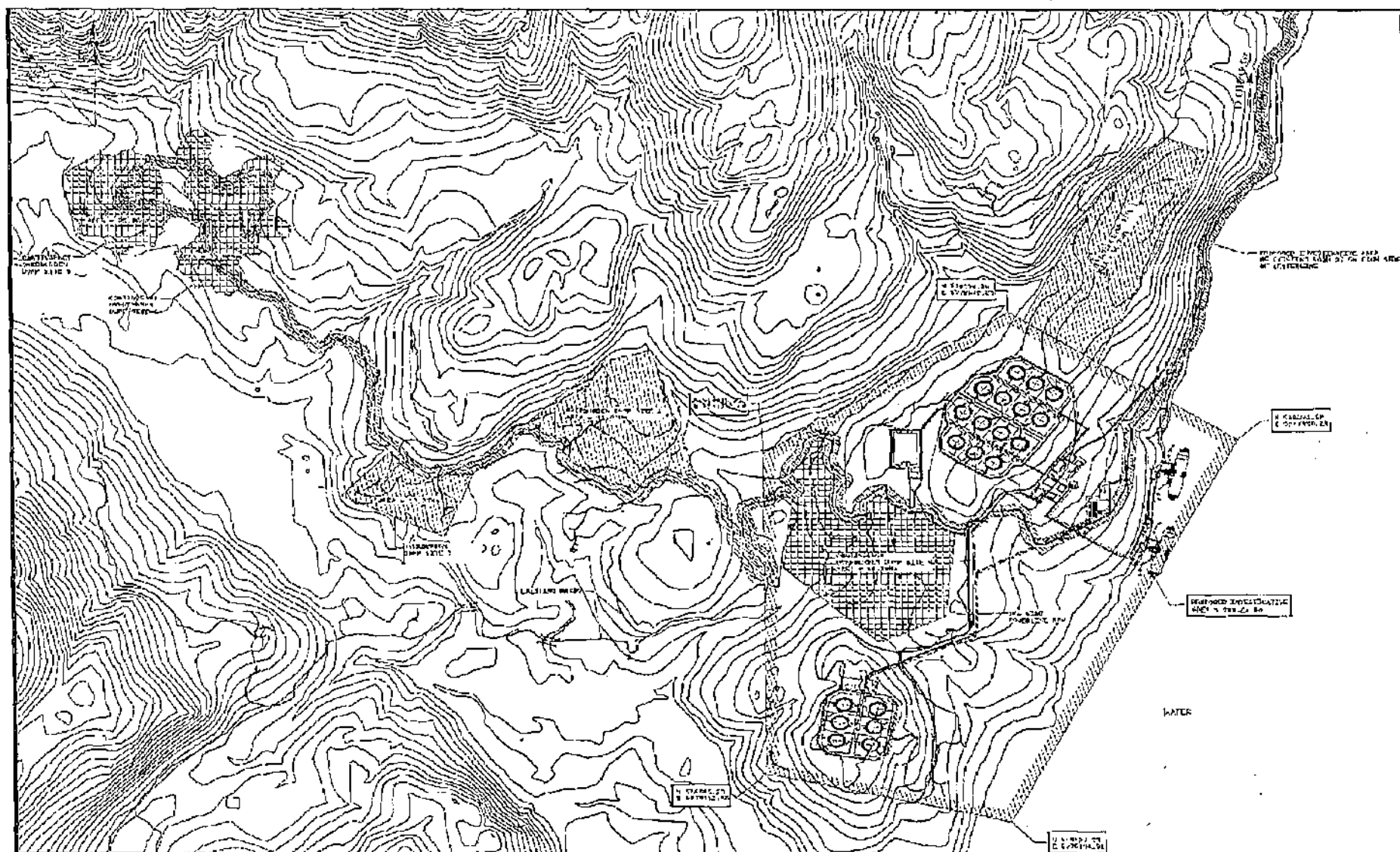


- Construction ROW width ~50 m
- Permanent ROW width ~25 m
- Where appropriate, route will parallel existing pipeline rights-of-ways, roads and power lines
- Minimum 0.9 m depth of cover (overland)
- Pipelines typically constructed with 8 to 10 m separation

Pump Stations



Q
QUALITY
QUESTIONS



Kitimat Marine Terminal



- Constructed south of Kitimat on the northwest side of Kitimat Arm
- On-land tankage on benchlands above the Arm, inter-connected to the marine tidewater infrastructure with pipelines
- Douglas Channel and Kitimat Arm are deep-water channels capable of handling Very Large Crude Carrier (VLCC) ships
- Confined Channel route lengths are 100 to 120 nautical miles

Kitimat Marine Terminal Area

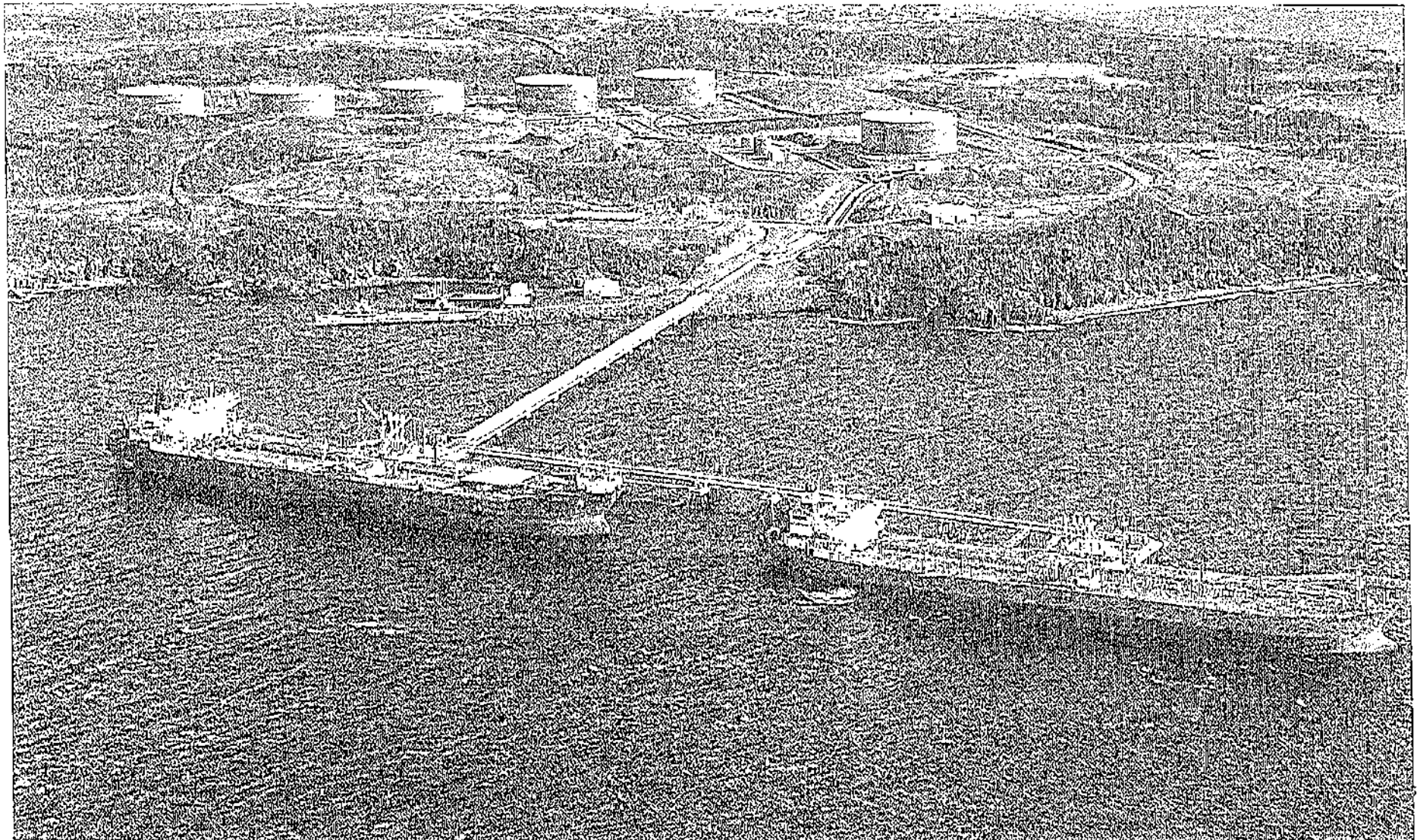


Kitimat Marine Terminal



- Jetty located in deep water (> 27 meters)
- Utility corridor for pipelines, power and road access
- Kitimat Arm ship turning area (1,800m Ø)
- Aframax (80,000 dwt) to VLCC (320,000 dwt) *2 m barrels*
- Approximately 450 ship transits/year

Whiffen Head Terminal Newfoundland



JRP Request for Additional Information



- Maps Showing Consequence Areas of Potential Volume Releases
 - 1:25,000 scale maps
 - Geographical extent of oil pipeline release
 - Consequence areas defined and mapped
- Assumptions for spill extent modeling include:
 - Release volumes determined based on maximum full-bore rupture release for each km of the oil pipeline
 - Northern Gateway Route Revision T
 - Watercourse flow velocities calculated from discharge, channel gradient and drainage area data
 - Release rate based on maximum pipeline throughput
 - Modeling based on 12 hour duration post rupture
- Caveats and Cautions include:
 - No response measures applied to control spill extent
 - Assumptions are conservative and represent worst case scenarios



Consequence Areas

- JRP provided a guideline for Consequence Area determination
- Northern Gateway elaborated on this guideline:
 - Officially designated Protected areas
 - Settlements
 - Indian Reserves
 - Water use
 - Watercourses
 - Wildlife
 - Wetlands

NGP Response to JRP - Additional Information

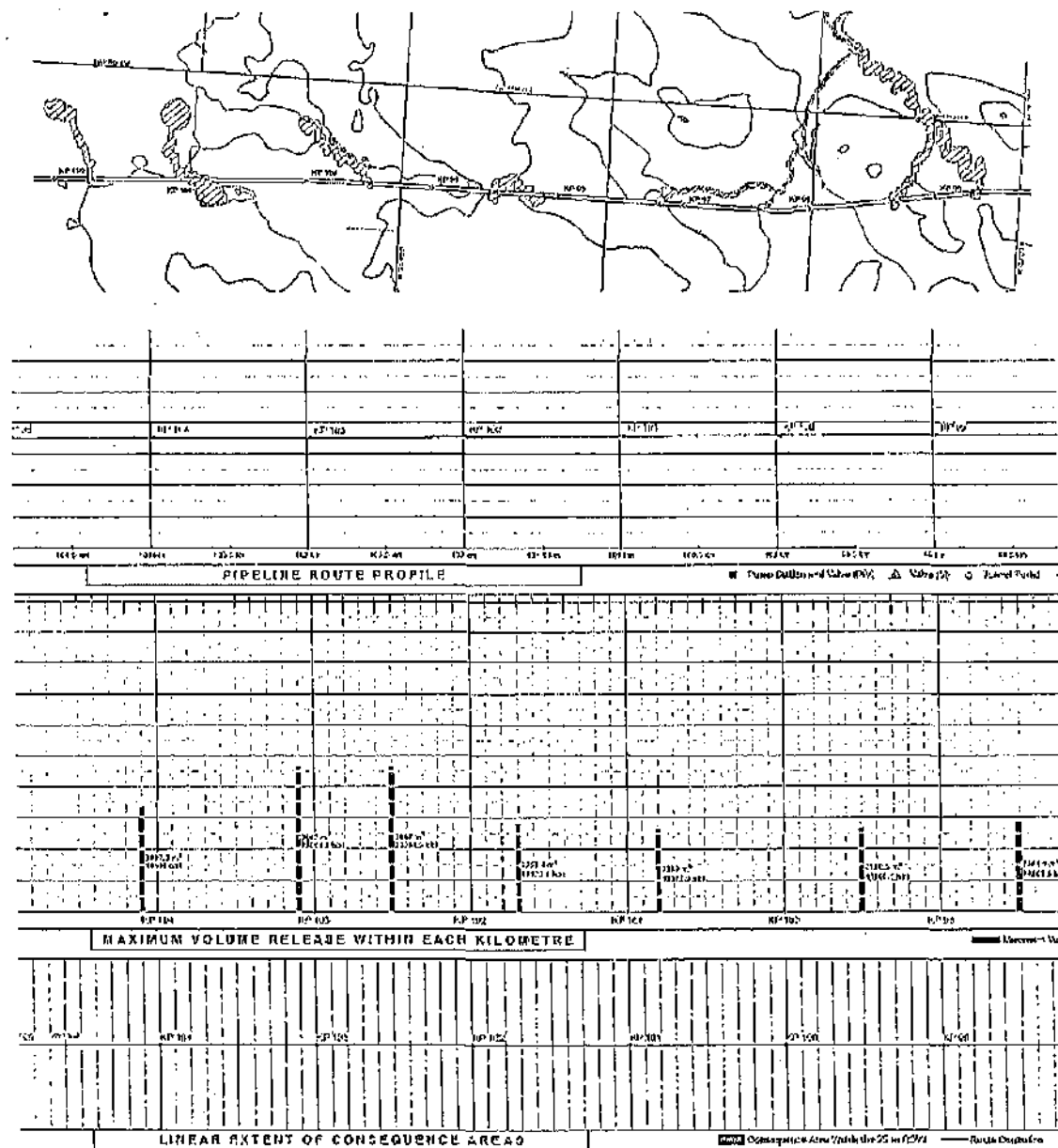


Pipeline Plots showing elevation and potential volume from releases
– 1:25,000 scale

The Plots show:

- The pipeline elevation profile and facility locations
- Maximum potential full-bore rupture release for each 1 km segment
- Lineal extent of consequence areas (where they intersect the pipeline ROW)

NGP Response to JRP- Additional Information Part A

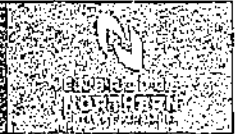




Risk-Based Approach to Design and Operation

- Risk based approach to design and operations and Enbridge Design Standards for the Project
- Unique Project characteristics
 - "Much of the route traverses mountainous terrain"
 - "The route crosses areas of high geotechnical risk..."
 - "Routing is through rocky and coastal mountains with areas of mass wasting"
 - "...requires the construction of tunnels through mountains (approx. 13 km of potential ARD and uncertain ground stability)"
 - "High transportation and potential release volumes"
 - "Potential for far-reaching environmental and human consequences in the event of a hydrocarbon release"
 - "Difficult access to pipeline ROW in all seasons"

NGP Response to JRP- Additional Information



- Project Life-cycle components and/or challenges
 - Line pipe material properties
 - Line pipe welding design and quality control in geotechnical and seismic areas
 - ROW monitoring in geotechnical and seismic areas
 - Tank capacity at stations for potential pipeline repairs
 - Valve design and location for spill consequence reduction
 - Pipeline and facility risk assessment and associated risk reduction strategies in consequence areas
 - Spill containment structures and emergency response strategies in consequence areas

Other Engineering Updates

- Route updates since May 2010 filing:

- May 2010 Route R
- December 2010 Route T
- Q4 2011 will file Route U update

*Most majority small (from or dry)
669 fish bearing includes Alberta
773 83 individual review sites*

- Ongoing Strategic Watercourse Assessment Team (SWAT) work *alternatives/backups*

- Multidisciplinary assessment of proposed pipeline crossing location *methods identified* and crossing method at selected watercourses
- Recommendations to relocate, redesign and mitigate to lower risk

- Watercourse Crossings Individual Review Sites

- Ongoing assessment and evaluation of methods and timings
- Database with link to Google Earth

Spill Risk Mitigation - Examples



- Pipeline Frequency Mitigation
- Marine Terminal Frequency Mitigation
- Pipeline Consequence Reduction and ERP

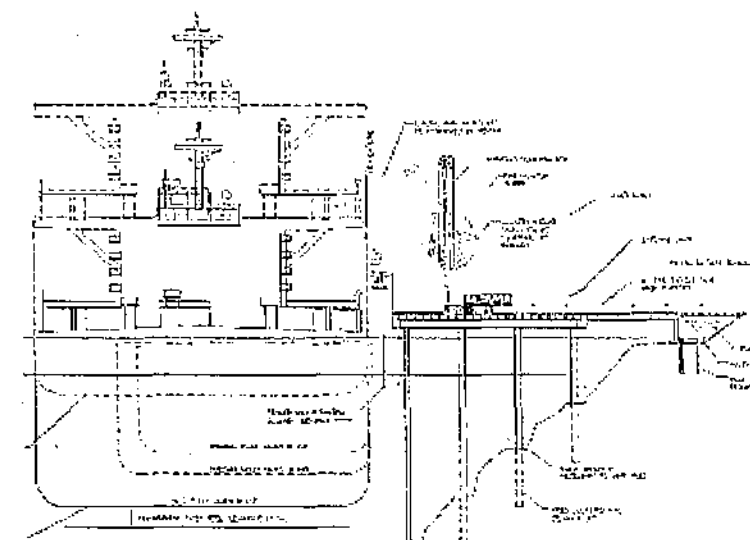
Frequency Mitigation of Pipeline Spills



- Measures are aimed at minimizing risk to the greatest possible extent through the entire lifecycle of the project
- Northern Gateway will design, construct and operate the Project consistent with, or exceeding the NEB Regulations, CSA Z662-07 and the Enbridge Engineering Standards
- Routing to avoid areas of geotechnical concern wherever possible. In the Coast Mountains, two tunnels are proposed to avoid high alpine areas with hazards
- A strategic watercourse assessment team (SWAT) approach is used to screen for environmental, geotechnical, and construction risks at selected pipeline watercourse crossings. Relocations at 40% of the watercourse crossings visited.

NATIONAL BUREAU OF STANDARDS
 U.S. DEPARTMENT OF COMMERCE
 100 BUREAU DRIVE
 GAITHERSBURG, MARYLAND 20899

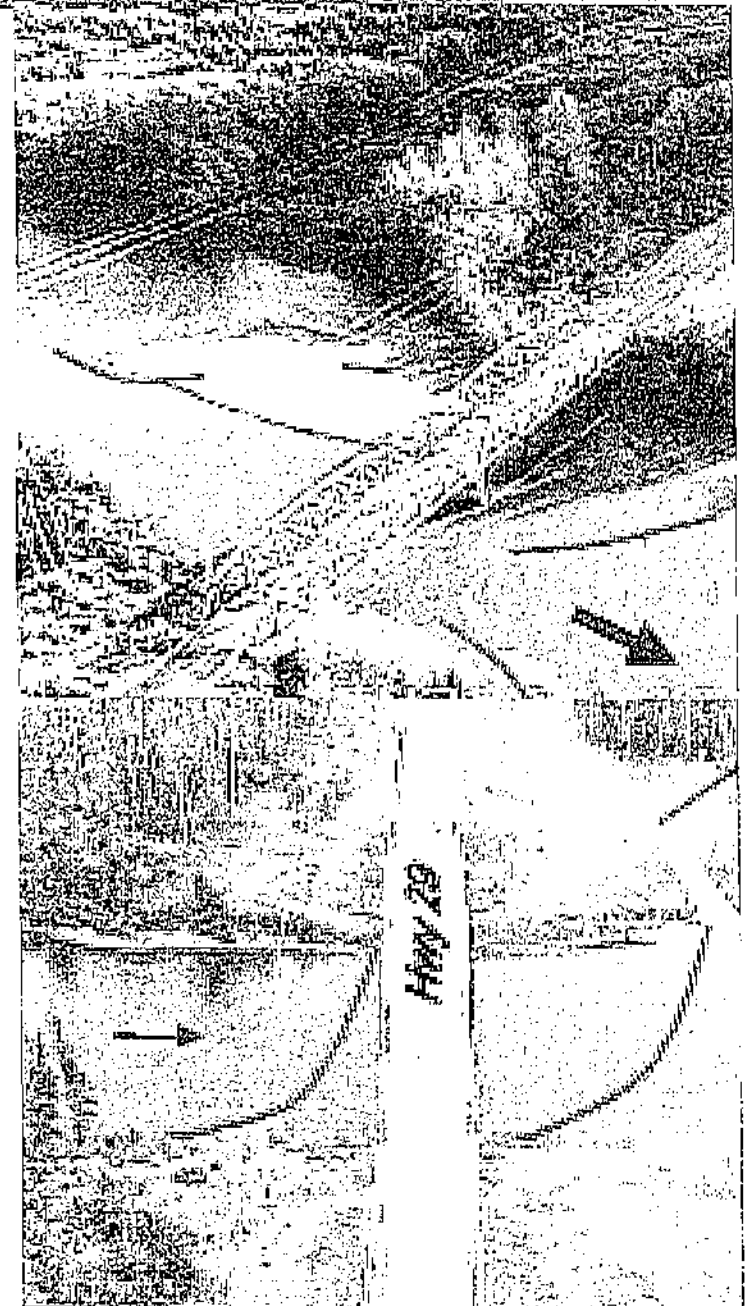
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Consequence Reduction - Emergency Preparedness

- Potential release volumes will be controlled by valve location selection based on both environmental and engineering factors
- Watercourse crossing options will be selected to reduce potential consequences at key crossings
- Emergency response equipment will be strategically located along the right-of-way
- Site specific response and control points options will be developed for sensitive areas – significant emphasis on access identification

*Educational
Program -
Public*

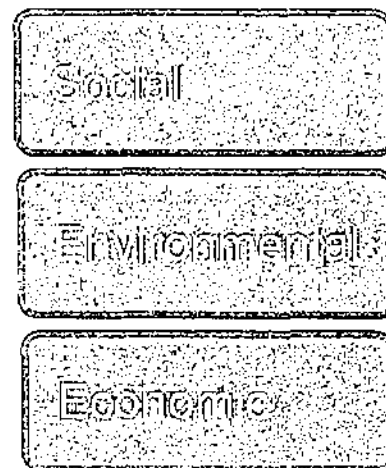




Working with Aboriginal Communities



- Industrial development and environmental protection can co-exist
- minimize risks and mitigate potential effects; maximize benefits
- Triple Bottom Line approach. Project risks and benefits viewed through three “lenses”



Overview - Aboriginal Engagement



- We are not proposing to cross any First Nations reserve land without support
- Funding Aboriginal traditional Knowledge and Traditional Use Studies in northwest and coastal regions
- Identify areas that must be protected and discuss ways to reduce impacts
- Continue to inform and support participation by Aboriginal groups in the regulatory process

Continual
NW &
Coast
Exception
Buns Lake
(work of
Hos ggs)

Overview Continued – Aboriginal Engagement

- Alberta

- 31 First Nations within scope of Project consultation area
- Project engagement with Métis Nation – Alberta on behalf of Métis zones

- British Columbia – Terrestrial

- 19 First Nations within scope of Project consultation area
- Project engagement with Métis Nation – BC on behalf of five Métis associations

- British Columbia – Coastal

- 10 First Nations within scope of Project consultation area

Overview – Benefits Package Components



- Long Term Component
 - Equity offering (30+ years profit generation and ownership)
 - align interests, irrespective of First Nation Capacity or familiarity with industry
- Negotiated Components (ultimately, First Nation Capacity dependent)
 - Capacity Assessment and Development, Training, Employment, Procurement (guided via pro forma, MOU or LOI)
 - Marine Services (applicable to ten Coastal First Nations)
 - Pump Stations (potentially applicable to two First Nations)
- Roll-out
 - Meetings with eligible Aboriginal communities scheduled from Q3 to Q4 2011 to provide overview of benefits package

Nov. 2010

Background / Context



- 10% equity offering on \$5.5 billion project
- Aboriginal equity to be divided into 40 units shared among ~ 50 separate groups
- Oil pipeline, terminal & tanks, condensate pipeline “bundled” as aggregate NGP asset

Deal Structure



Base assumptions

- Project will fund 100% of Aboriginal participation via a Note Receivable.
- N/R will be financed 70% by debt / 30% by equity
- Financing repaid out of project cash flow – net Paid to Aboriginal participants

Offering Approach

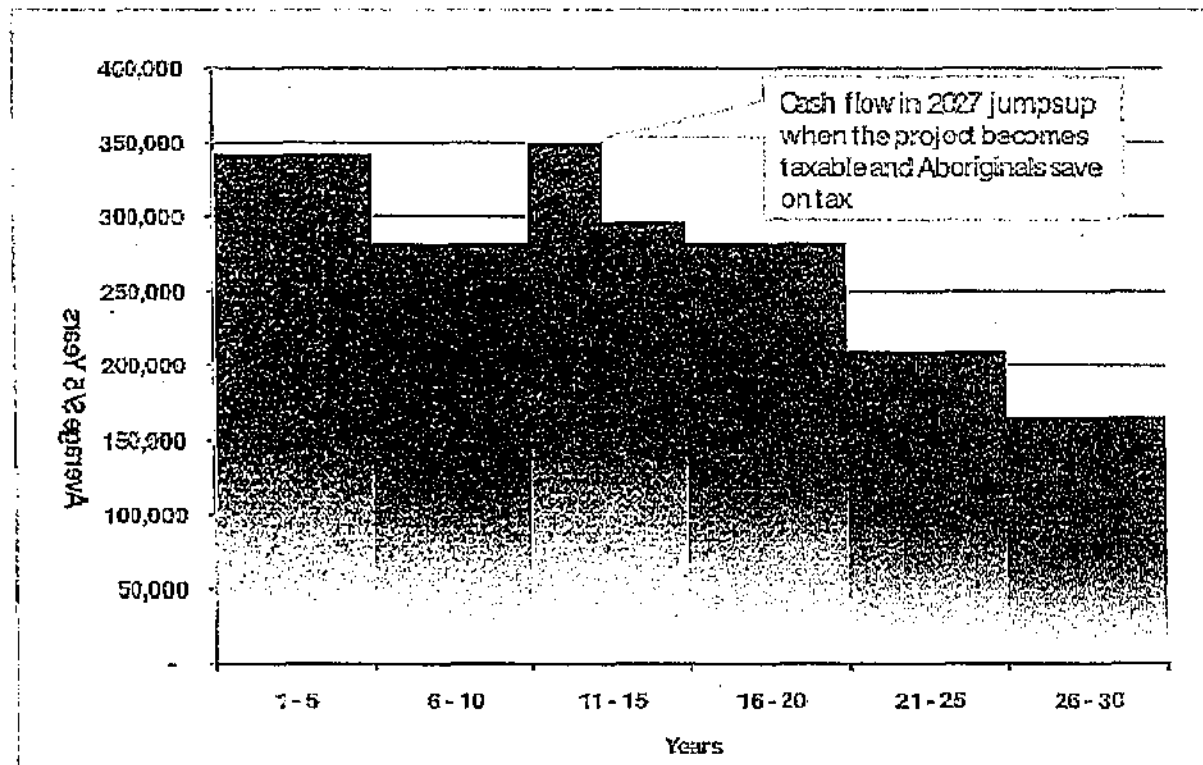
- Generic offer to all eligible entities
- Three geographic pools
 - Alberta (10 units)
 - BC interior (20 units)
 - BC Coastal groups (10 units)
- Defined dates for exercise of participation option; early subscribers positioned to obtain any unsubscribed options within their regional pool
1st date - Dec 15
Sign up Final date - May 31
- Non-disclosure of participant names until hearing (protect participants from opposition pressure)
- Offering to BC groups can't be taken up by Alberta groups, and vice versa
- Project has unrestricted right to disclose that groups have taken commercial interest (e.g. at hearing)
- Participating Groups may raise legitimate concerns via JRP process, but cannot actively oppose overall project

Aboriginal 5-Year Average - Cash Distribution per Unitholder



Assumptions

- Aboriginals will have equity ownership in the project of 10% through a loan from Project
- The loan is ~\$230MM that will be repaid by Aboriginals through the dividends they receive as an equity owner for their 10% share
- The loan will be repaid over thirty years from 2016 to 2046
- Capital Structure of Project is 70:30 debt:equity
- Return on Equity of 11%
- Debt Rate on Aboriginal Loan is 7.75%
- Loan is based on a capital on Crude Line + Condensate Line of \$5.6B with a specified spend profile



A change to any one of the assumptions used to calculate the cash flows would alter the cash flow stream to the Aboriginals shown above

- ~ \$300 million total target
- a “stretch” target – based on experience from recent mainline expansion and Athabasca Region projects
- Comprised of
 - Direct to NGP
 - Direct to prime contractors
 - Joint ventures participation
 - Focus on services that can be managed via Aboriginal “set asides” (i.e. competition among / between qualified Aboriginal businesses, at regionally competitive rates)

Key Participation Opportunities



- Clear, log, salvage
- Access roads
- Camps & catering
- Security
- Trucking
- Concrete weights
- Skids & mats
- Stockpiling
- Reclamation
- Fuel Supply
- Consumables
- Surveying
- Janitorial
- Air Charter

Employment Opportunities

- 15% overall target for Aboriginal construction labour
- Identify direct and indirect employment opportunities suitable for members of targeted Aboriginal communities
- Meet with prime contractors to determine a strategy to maximize employment of Aboriginal people in these opportunities
- Primes to provide Aboriginal Plan committing to employment and procurement initiatives to maximize Aboriginal participation

Training / Capacity Opportunities



- Capacity assessment and development work to start with those communities with signed commercial MOUs/LOIs
- Focus on training that will enable realization of procurement & employment objectives
- Prioritize training that will lead to sustainable employment when the pipeline project is completed
- Collaborate with credible training providers, government sponsors and applicable trade unions
- Ensure Aboriginal participants get quality training in time to meet project recruitment requirements
- Ensure prime contractors implement similar initiatives

Marine Services Portfolio



Employment and/or progressive business participation in:

- Escort tugs
- Berthing tugs
- Mooring boats
- Advance whale spotter boats
- Regional first response
- Environmental monitoring

Value ~\$300 Million over 30 years, depending upon scope of progressive business participation

Conclusion



- Largest capital project we have ever undertaken
- Will provide significant and long-lasting economic, social and environmental benefits to the people of northern BC
- A triple bottom line perspective
- Regulatory compliance over full life cycle



Public Consultation

Public Consultation Program



- Northern Gateway's public consultation program is designed to continue to:
 - » Provide stakeholder's with up-to-date information
 - » Provide technical presentations on general pipeline construction and the oil and gas industry as well as project-specific information on route selection, watercourse crossings, pipeline integrity, marine safety plans and oil spill preparedness
 - » Provide general information on pipeline operations and maintenance
 - » Inform individuals and groups about the regulatory filing and process
 - » Foster an exchange of information in a safe and respectful environment
 - » Provide opportunities for individuals and groups to express their interest and concerns, and have Northern Gateway respond to, and provide considered feedback on, expressed concerns and interests

Public Consultation Program



- Engagement opportunities have taken the form of:
 - » Face to face meetings
 - » Presentations
 - » Public forums
 - » Technical meetings
 - » Community meetings
 - » Community Advisory Boards (CABs)
 - » Sponsorship events
- Communication tools have included direct telephone contacts, direct mailouts, emails, brochures, website postings, eBlasts, advertisements, project fact sheets, social media postings and other forms of media communication
- Since December 31, 2009, there have been over 4,000 exchanges with stakeholders

Volume 4 Update: Public Consultation Program



- In 2010, although Northern Gateway conducted public consultation along the entire length of the pipeline ROW, the consultation efforts focused on communities west of Prince George (British Columbia Central and British Columbia Coastal regions).
- The decision to focus on these regions was largely because these particular regions were less familiar with the pipeline and oil and gas industries in general, and with Enbridge as a company specifically.

Community Meetings



- In 2010, Project representatives participated in more than 60 presentations and meetings with municipal leaders, community organizations, business associations and local residents
- Every regional district and county the pipeline route traverses and every municipality within 25 km of the ROW has been given a presentation on the Project
- Project representatives attended conferences such as:
 - » Natural Resources Forum
 - » Minerals North
 - » BC Chambers of Commerce AGM
 - » North Central Local Government Association
 - » Federation of Canadian Municipalities
 - » Alberta Urban Municipalities Association
 - » Union of BC Municipalities
- These are all opportunities to provide project information, answer questions, address concerns and engage in dialogue with community leaders.

Community Advisory Boards (CABs)



- Exemplify broad stakeholder consultation and engagement practices
- Are designed to be an inclusive, respectful and safe process where community voices can be heard concerning the Northern Gateway Project
- Opportunity for diverse group of stakeholders to come together to:
 - » Share varied viewpoints and experiences
 - » Where meaningful dialogue is encouraged
 - » Opportunities for learning are created
 - » Relationships that are mutually beneficial and respect the interests and integrity of all the parties are developed
- Designed to be inclusive of diverse community representatives from:
 - » Environmental groups, Aboriginal groups, business associations, municipal governments and the public.
- Currently 120 members, but other participants are encouraged to attend as observers. Over 450 invitations are routinely sent out.

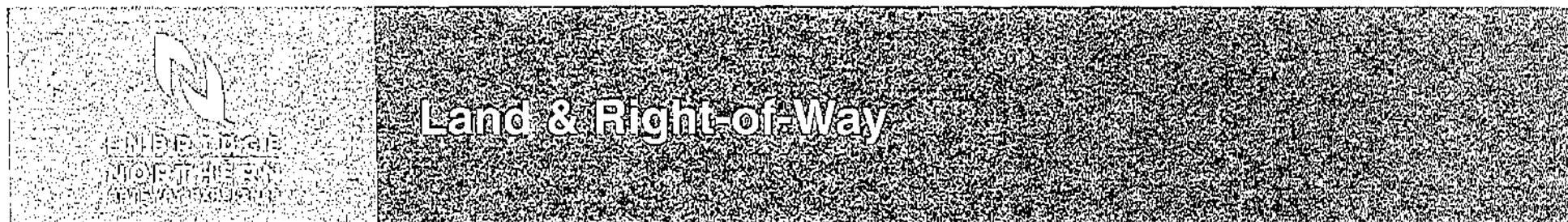
Community Advisory Boards (CABs)

- Each regional CAB meets quarterly; there were four rounds of regional CAB meetings in 2010
- Two CAB Sharing Table meetings are held annually. Two representatives from each of the regional CABs participate in discussions affecting all of the CABs
- CAB meeting agendas and operational guidelines are driven by the CAB membership and are facilitated by a 3rd-party moderator
- Presentations by Northern Gateway or external experts have been given on such topics as:
 - Marine and shipping safety, oil spill liability and response, community-socio economic impacts and benefits, engagement process and project legacy
- Regional CABs meet quarterly in Kitimat, Terrace, Smithers, Prince George, Grande Prairie and Edmonton. There were four rounds of regional CABS in 2010
- CABs will remain a key component of the overall public consultation program as they present an opportunity for members to identify key areas of regional interest and concern, and for Northern Gateway to address these.

Technical Meetings



- Recognizing the positive response to the technical presentations at the CABs, Northern Gateway believed that similar types of presentations that reached a greater audience would benefit both stakeholders and Northern Gateway in their overall understanding of the facts, interests and concerns surrounding the Project
- 3 Technical Meetings held in: Terrace, Kitimat and Burns Lake, British Columbia in 2010
 - » Panel presentations on pipeline integrity and safety, Aboriginal engagement, and local opportunities and benefits
- 5 more technical meetings held in Q1, 2011
- As a result of feedback at these meetings, Northern Gateway has:
 - » Changed format of technical meetings to include a two-hour open house before the start of presentations
 - » Held technical meetings focused on environmental management
 - » Increased project email communications to stakeholders
 - » Created quarterly newsletter mailouts
 - » Planned workshops in 2011 specifically on business opportunities
 - » Continued one-on-one meetings with mayors, councillors and chambers of commerce



Land Requirements and Rights Acquisition



- To construct, operate and maintain the pipelines, facilities and associated infrastructure for the Project, surface rights must be acquired from the Crown and private landowners in British Columbia and Alberta.
- Estimated Land Area Required – 8,276 Hectares (20,450 Acres)
 - » Permanent Right-of-Way – 2,921 ha
 - » Temporary Workspace – 3,467 ha
 - » Infrastructure – 1,634 ha
 - » Pump Stations – 34 ha
 - » Kitimat Terminal – 220 ha
- Alberta – 516 km of right-of-way (50% Crown / 50% freehold)
 - 224 landowners and 65 tenants directly affected
- BC – 656 km of right-of-way (90% Crown / 10% freehold)
 - 41 landowners and 2 tenants directly affected
- Surface rights acquisition to follow Project approval

Landowner Consultation



- An important part of the overall public consultation program is to directly engage with private landowners and occupants, in a way that is mutually satisfactory to the parties, to:
 - » Inform them of the Project
 - » Solicit their feedback
 - » Obtain their consent for studies and surveys
 - » Record their comments, concerns and recommendations
 - » Develop and implement a strategy to address those concerns, where possible
- Landowner engagement is ongoing and evolving throughout the life of the Project

Landowner Consultation



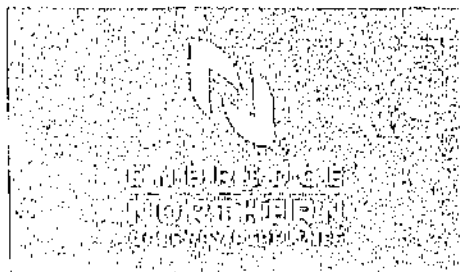
- Direct and personal engagement of landowners and occupants with the proposed 1 km pipeline corridor and 1.5 km pump station notification zone.

Contact Type	Total/Pipeline	Total/Pump Station	Total
Alberta			
Landowners	752	40	792
Occupants	249	13	262
British Columbia			
Landowners	369	156	525
Occupants	43	33	76
TOTAL	1413	242	1655

- In July through October 2010, 99% of all landowners and occupants within the applied for 1km-wide pipeline corridor , as well as those within 1.5 km of a pump station location, were personally consulted and provided with updated project information, landowner guides, project pamphlets and maps

Volume 4 Update: Public Consultation Program

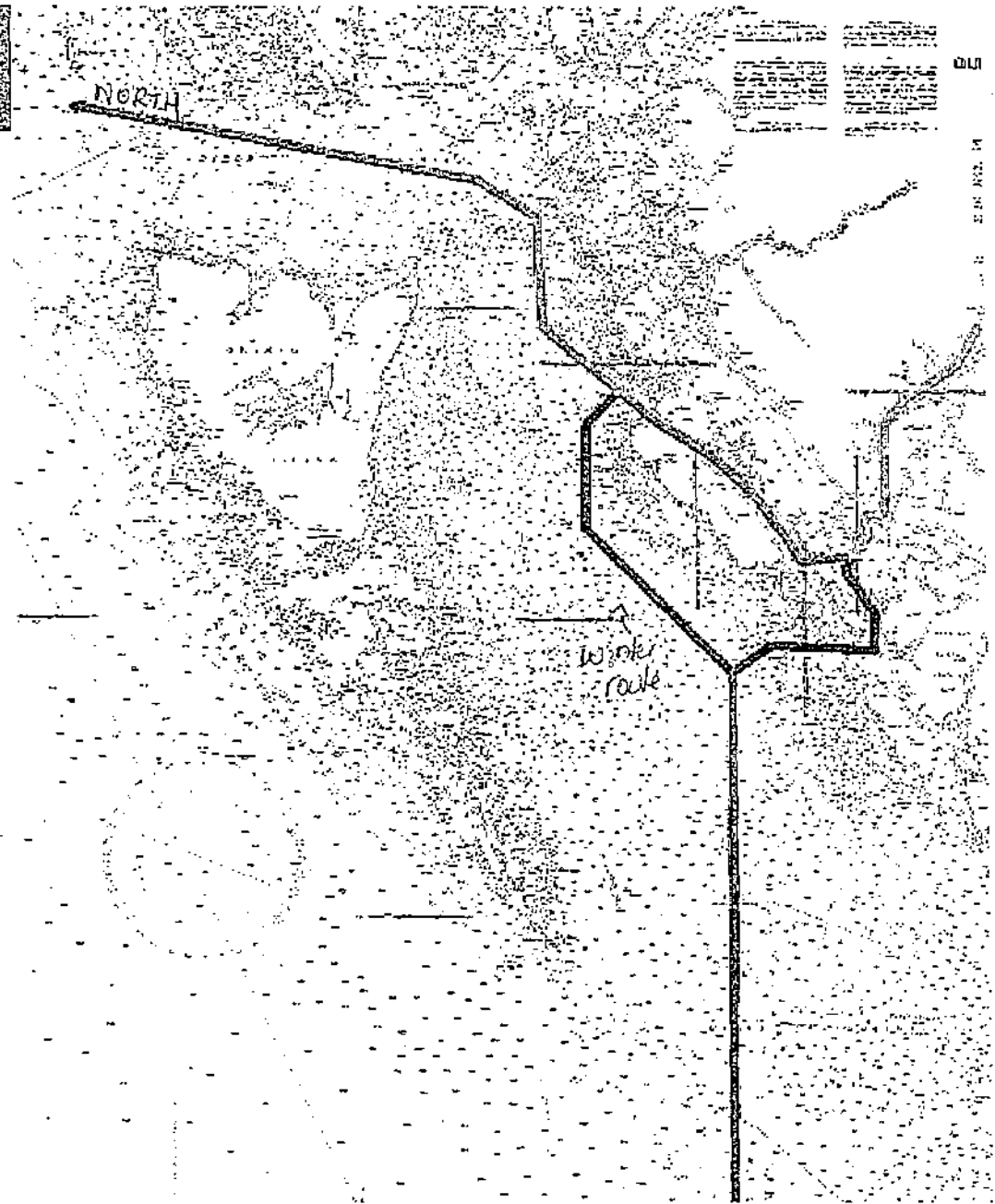
- Majority of landowners and occupants were either neutral or positive about the Project. Issues and concerns that were raised generally centered on the following topics:
 - » Detailed routing of the pipeline
 - » Compensation for land rights
 - » Potential environmental effects
 - » Safety
 - » Effects on development
- Follow up consultation with landowners and occupants that raised issues was conducted between April and July of 2011.
 - » Approximately 33% indicated no further concerns
 - » Remainder to be addressed as proceed through detailed engineering, land rights acquisition and regulatory phases.



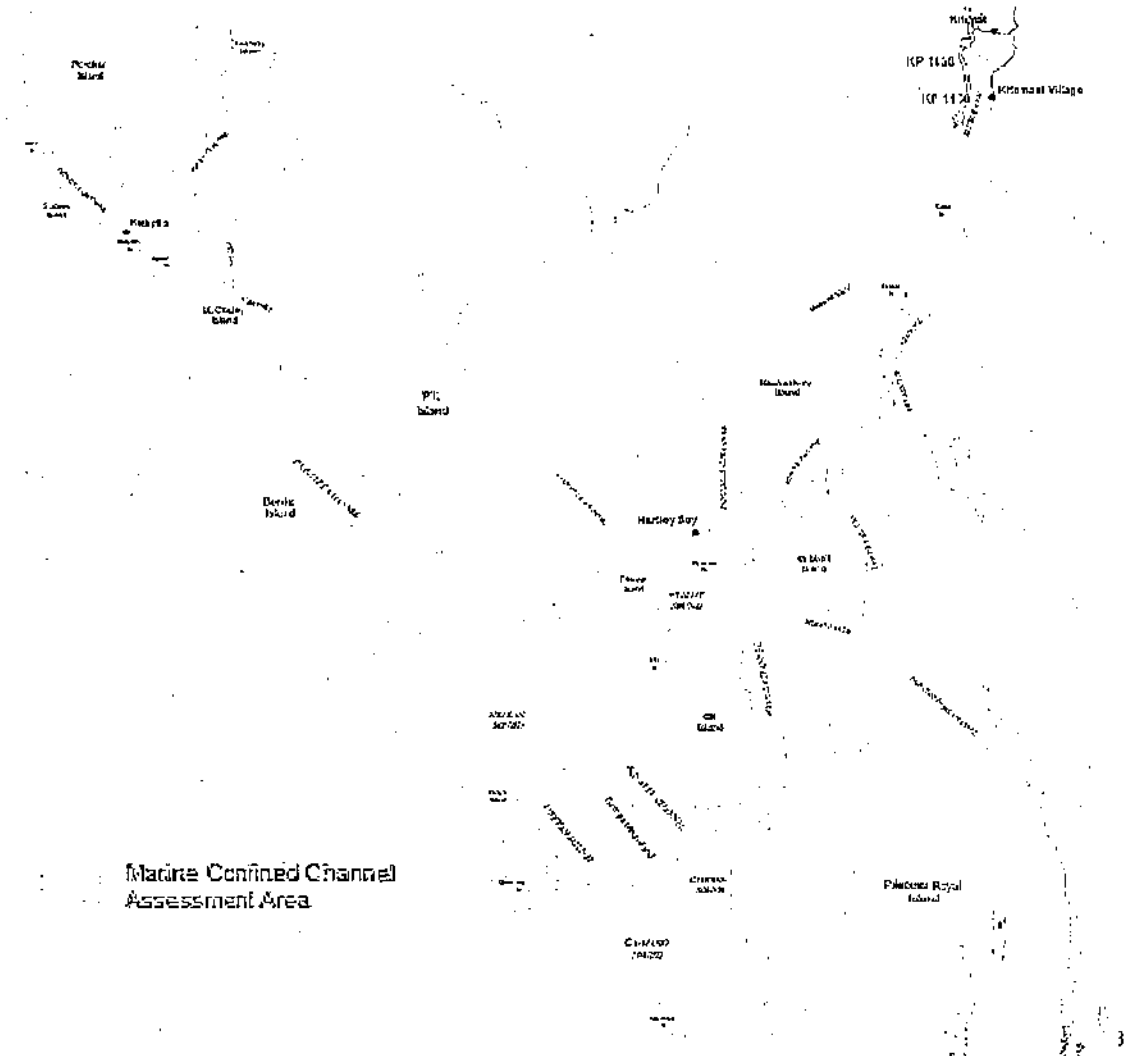
Marine Transportation & Operations

Vessel Routes

- Deep sea tankers currently travel safely to ports along the BC coast
- Water depths typically exceed 300 metres in Douglas Channel
- Navigable channels are several kilometres wide
- Narrowest navigable channel sections are 1.4 km in width (at Emilia Island and in Principe Channel)
- Transport Canada's TERMPOL guidelines recommend a minimum navigable channel 455 metres



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Marine Transportation Issues



- Tanker traffic is an issue of public concern
- Enbridge will address issues relating to marine operations by
 - Inclusion of marine transportation matters in NEB Application
 - Addressing oil release risk in NEB Application and TERMPOL review, through leading experts
 - Integrating marine transportation strategy with environmental and Aboriginal engagement strategies

- NG extended responsibility.

Termopol Rationale



- The construction and operation of a new marine oil terminal will introduce changes in regional shipping activity. Such development may pose a threat to the environment or to the safety of the communities along the proposed route(s) to and from the terminal. A Termopol Review Process (TRP) requires consideration be given to a range of subject matters such as, but not limited to:
 - Effects of increased shipping activity on existing regional shipping networks and fishing ground activities
 - Perceived environmental concerns attributable to pollutant cargoes carried by ships
 - Perceived risks to communities along the route to the terminal site in the case of ships carrying petroleum products which may pose a concern to public safety or health; *vapor cloud assessment.*
 - The navigational safety of the ship route(s) leading to a proposed new marine terminal *~ radar, routing, pilots, regulated federally.*
 - The level of services required to facilitate safe navigation such as navigation aids, vessel traffic services, offshore electronic position fixing systems, requirements for pilotage and radio communications along the ship route(s);
 - The suitability of the design ship;
 - The design ship's maneuvering characteristics, navigational and radio communications equipment, its cargo containment and handling systems in terms of operational safety;
 - The adequacy of the design ship's berth and related terminal service requirements;
 - Pollution prevention programs; and
 - Marine contingency planning and related emergency counter-measures.

Responsibilities of the TRC



Transport Canada Review

STAGE	ACTIVITY
1. TERMPOL Review Committee (TRC) constituted.	1.1 Initial review of proposed project outline.
	1.2 Initial discussion of surveys and studies required.
	1.3 Identify departmental resources available.
2. TRC meets with proponent/proponent's representatives.	2.1 Agree on scope and depth of surveys and studies required.
	2.2 Inform proponent / proponent's representatives of departmental information resources available.
	2.3 Agree on format of proponent's submission.
	2.4 Establish administrative lines of communication.
	2.5 Agree on schedule of progress meetings (if necessary).
3. TRC Chairperson receives proponent's submission.	3.1 Proponent's submission distributed to TRC.
4. TRC begins review process.	4.1 TRC identifies need for additional information or amplification of information provided.
	4.2 TRC meets with proponent's representatives (if necessary).
	4.3 TRC may seek expert advice on matters raised in proponent's submission.
5. TRC submits report to TCMS - AMS	5.1 AMS approves TRC Report with authorities from other departments.
6. AMS forwards report to Proponent.	

← *Current status.*

TERMPOL Surveys & Studies



Volume 8A.

- 3.1 Introduction
- 3.2 Origin, Destination and Marine Traffic Survey
- 3.3 Fishery Resources Survey
- 3.4 Offshore Exercise and Offshore Exploration and Exploitation Activities Survey
- 3.5 Route Analysis, Approach Characteristics and Navigability Survey
- 3.6 Special Underkeel Clearance Survey
- 3.7 Transit time and Delay Survey
- 3.8 Ship Casualty Data Survey
- 3.9 Ship Specifications
- 3.10 Site Plans and Technical Data
- 3.11 Cargo Transfer and Transshipment Systems
- 3.12 Channel, Maneuvering and Anchorage Elements
- 3.13 Berth Procedures and Provisions
- 3.14 Single Point Mooring Provisions and Procedures
- 3.15 General Risk Analysis and Intended Methods of Reducing Risks
- 3.16 Port Information Book — deferred
- 3.17 Terminal Operations Manual — deferred
- 3.18 Contingency Planning
- 3.19 Oil Handling Facilities Requirements
- 3.20 Hazardous and Noxious Liquid Substances

*All have been
submitted to IOP
& are publicly
available.*

Completed except



> port envir. certificate

Marine Transportation Issues



- Progress made to date
 - TERMPOL process underway
 - Marine environmental studies underway
 - Spill trajectory modeling and product characterization work completed for use in emergency preparedness and response
 - Full mission bridge simulation (FMBS) completed. The route options are viable for VLCC's

Risk Mitigation

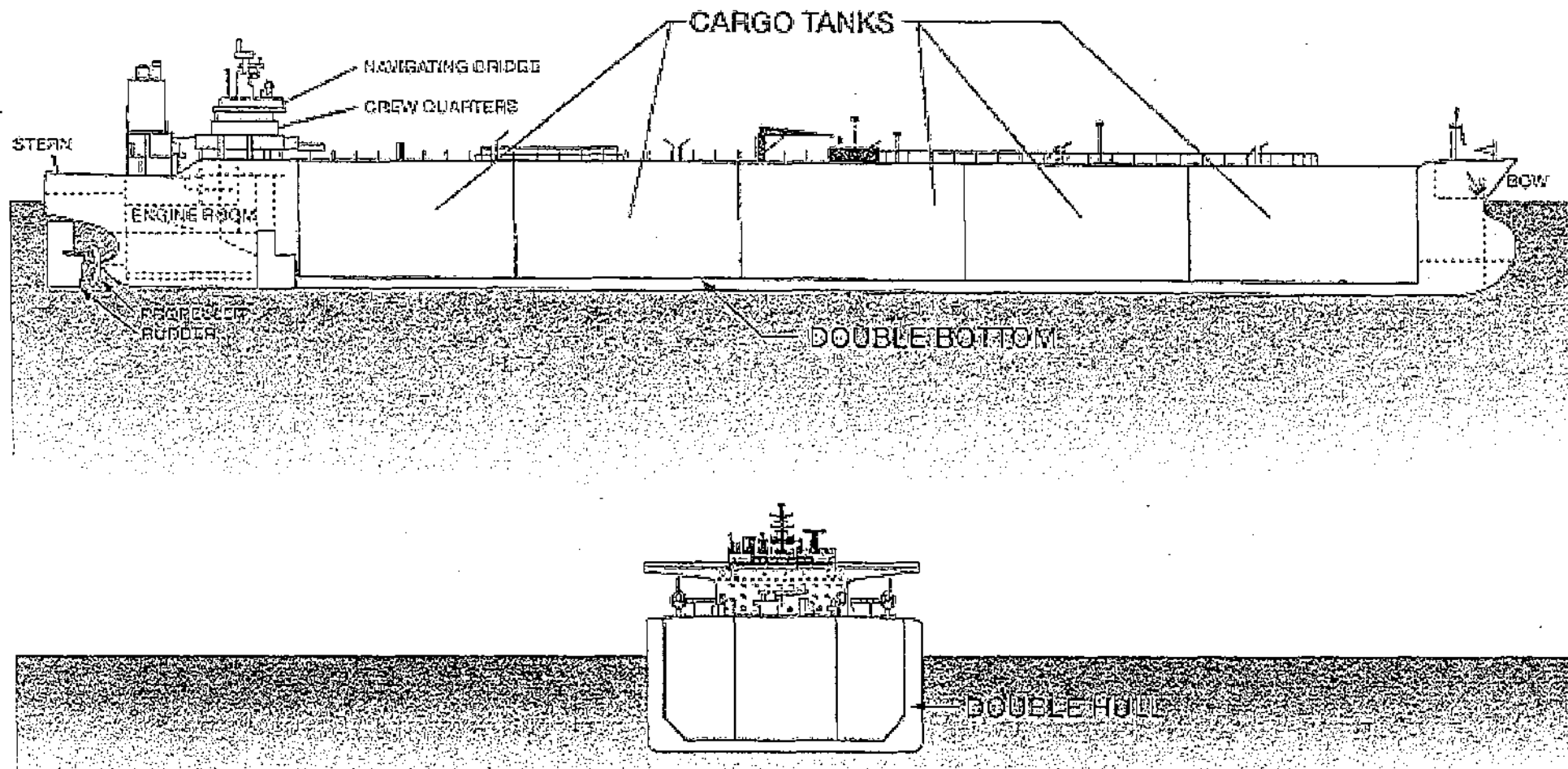


- Ship (and Crew) vetting
- Double hull tanker construction – Inert gas system
- Steering and navigation systems redundancy
- Tug escort operations
- Compulsory Pilotage
- Pilot-carried electronic navigation systems
- Improved Aids to Navigation
- Weather monitoring and ship transit limits
- Ship and Terminal Safety Plans
- Places of refuge and emergency planning
- Training of local response teams

Frequency
Reduce Frequency

Consequences
reduce measures

Typical Oil Tanker



Proposed Northern Gateway Traffic



Vessel Type	Product	Average per Year
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Aframax Oil 33

Condensate 17

Total 50

Suezmax Oil 65

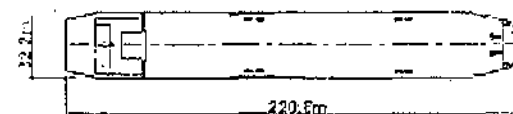
Condensate 55

Total 120

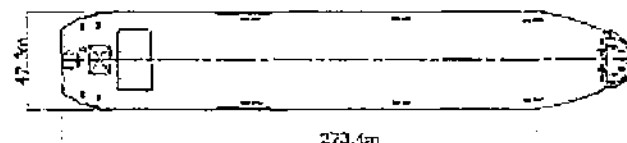
VLCC Oil 50

Condensate 0

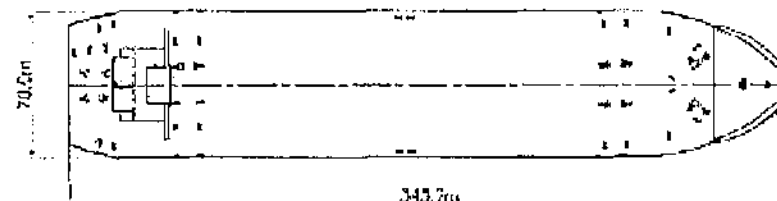
Total 50



AFRAMEX
80,000 DWT (MAX.)



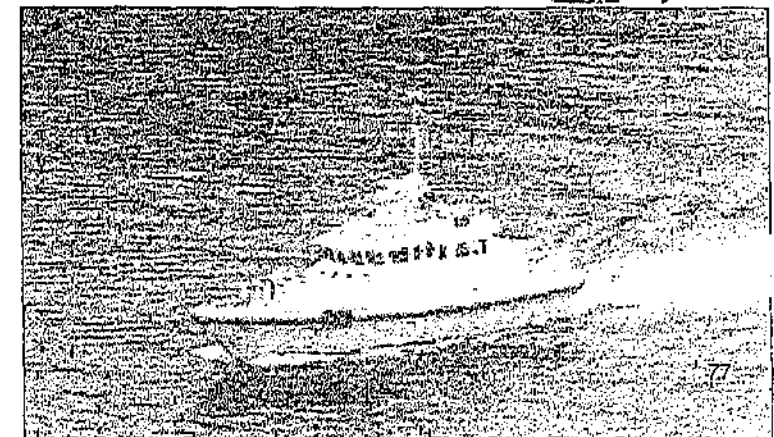
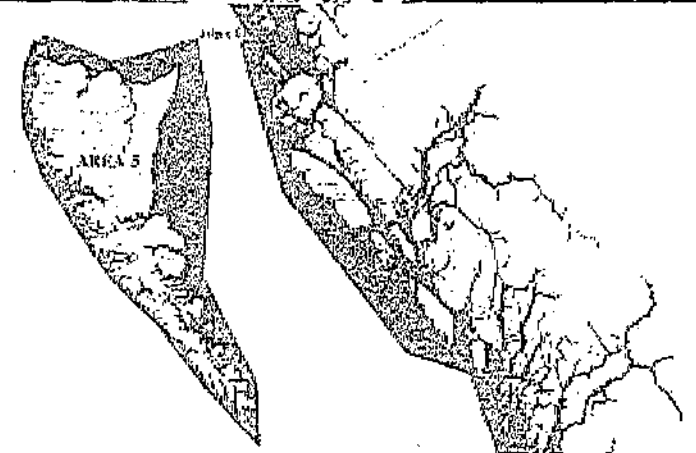
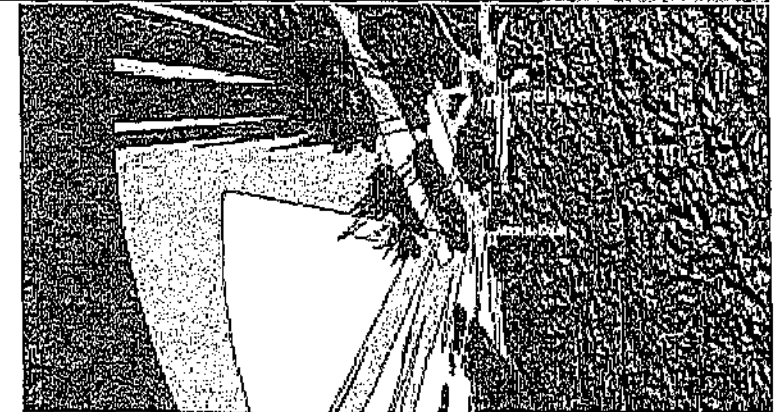
SUEZMAX
150,000 DWT (AVG.)



VLCC
320,000 DWT (MAX)

3 classes of vessels.

Safety in Design and Operations



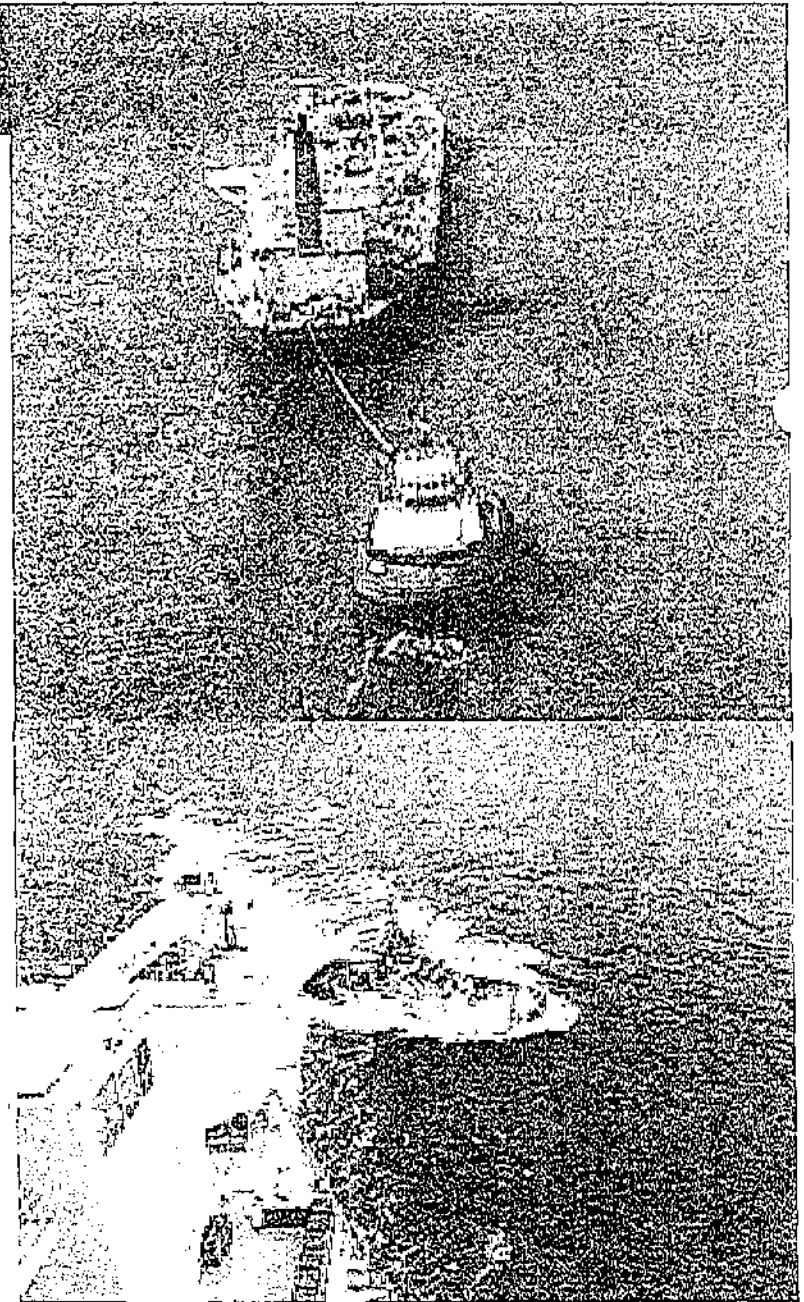
- Tanker Acceptance Program using third party vetting of tanker and crew
- Vessels no more than 20 years old
- Compulsory pilotage and Portable Pilot Units (PPU's, or Pilot-carried electronic navigation systems, independent of ship's own)
- Weather monitoring stations and operating limits
- Vessel speed restrictions
- Supporting government agencies in Marine Communications and Traffic Services (MCTS) including communication and radar systems, and navigation aid improvements

OCIM
Site Program

Custom-built escort tugs

- Tug escort to and from pilot boarding stations
- Custom-built escort tugs will be in close escort with all tankers, and a tethered tug will escort all loaded tankers to ensure safe passage through approach channels of existing shipping routes.
- Tugs will have firefighting and first response capabilities and at least one tug will be designed to have ocean rescue capability.

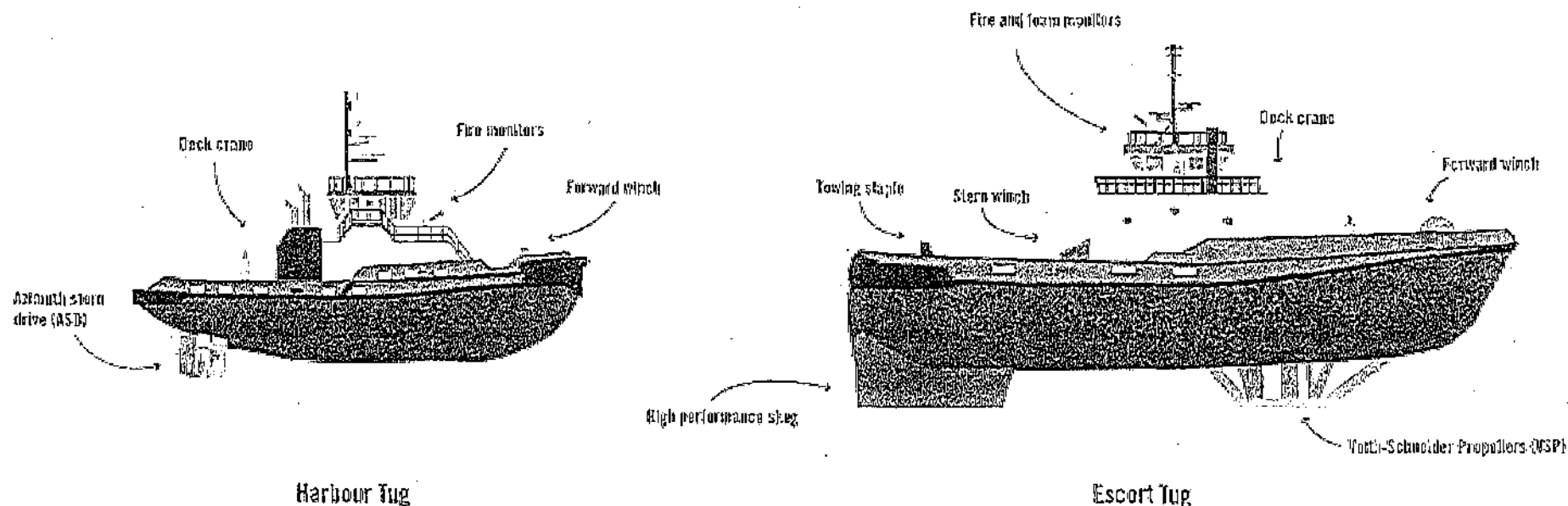
*Similar to current
what is in
Prime Minister's hand*



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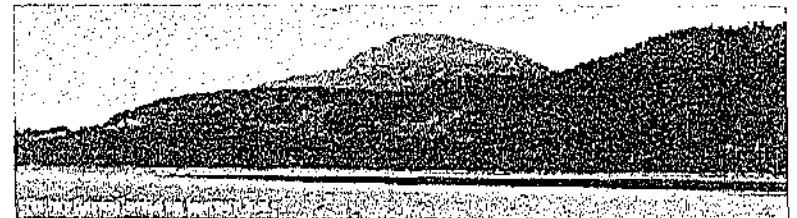
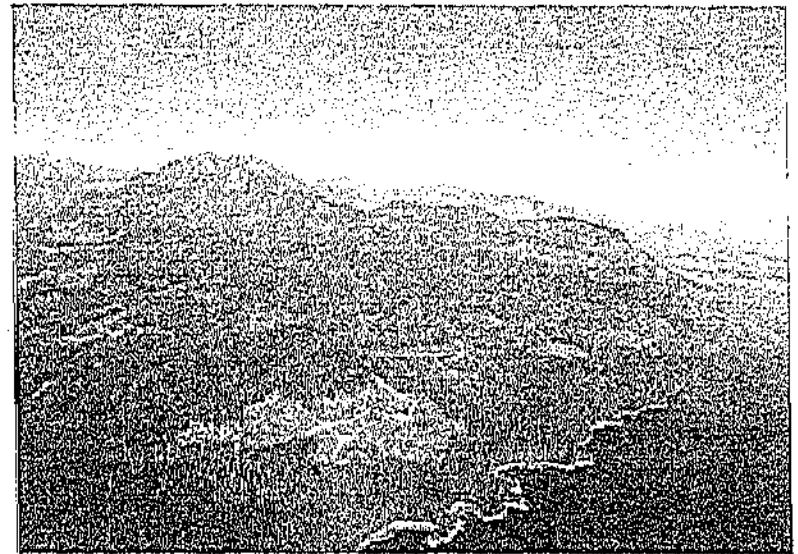
Typical Harbour & Escort Tug



Harbour Tug

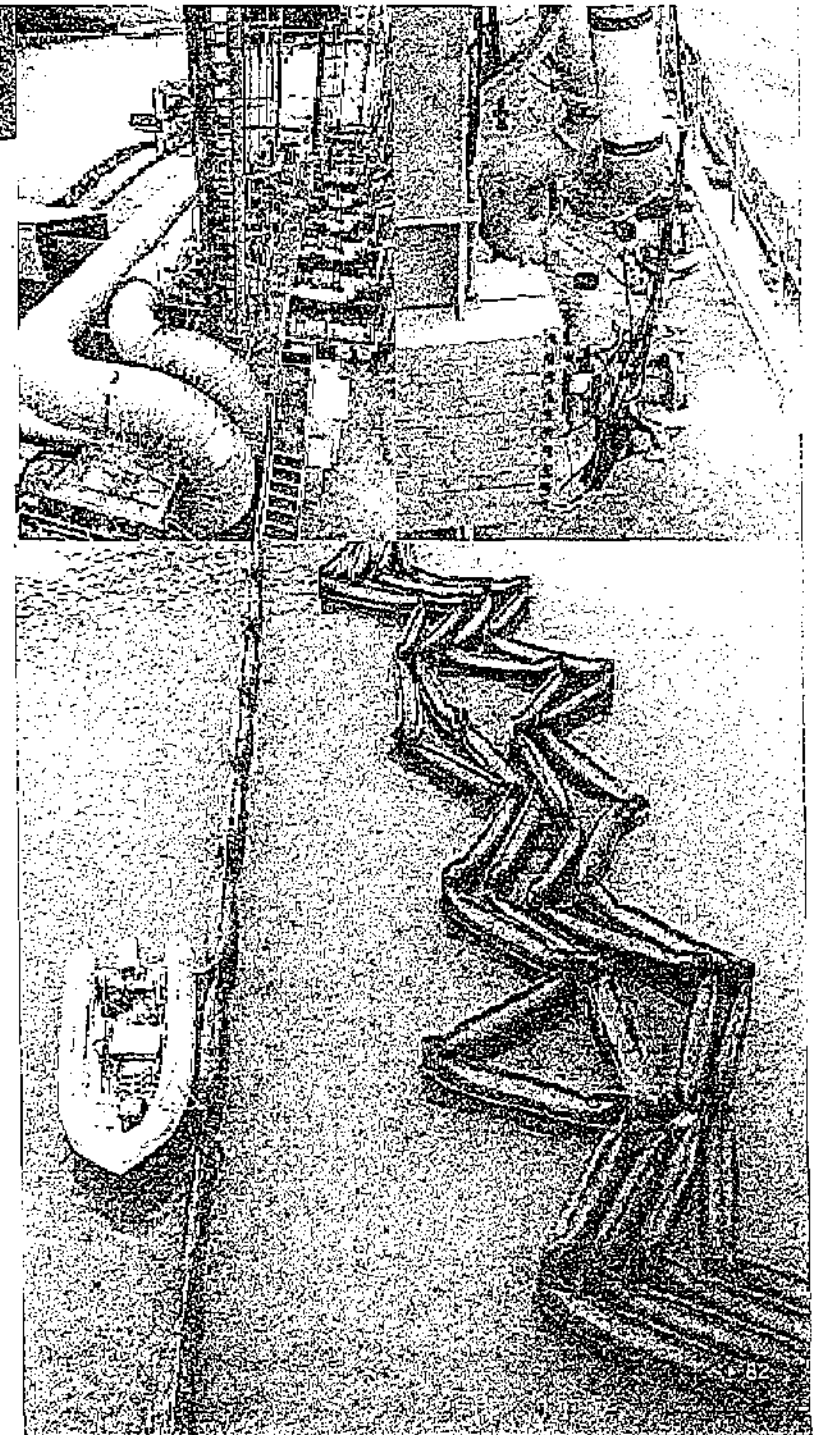
Escort Tug

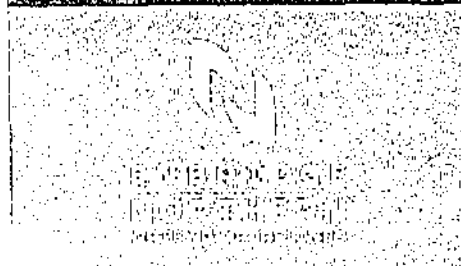
	Harbour Tug	Escort Tug
Length (m)	20 to 30	30 to 45
Beam (m)	8 to 12	12 to 16
Draft (m)	3.5 to 5	5.4 to 6.5
Horsepower	2000 to 4000	4000 to 10000
Speed (kts)	10 to 14	14 to 16
Static pull (tons)	30 to 50	90 to 130
Steering pull (tons)	n/a	130 to 230
Recovered oil storage (m3)	n/a	200 to 300
Other equipment	Fire monitors (water and foam), crane, workboat	Fire monitors (water and foam), crane, spill containment boom, workboat sl, portable skimmers, dispersant storage and sprayers



Terminal Safety and Environment

- Electronic sensors, shut-off valves and emergency release coupling on loading arms
- Closed loading and vapour recovery
- Tankers calling on the Kitimat Terminal will have double hulls and separate tanks for ballast so that ballast seawater does not come in contact with hydrocarbons
- The Kitimat Terminal will test the segregated ballast to ensure there are no evasive species present
- Kitimat Terminal will have facilities to receive, treat and recover oil from the vessel's cargo slops
- Booming around vessels during loading





Questions?



Marine (2011)



- General Oil Spill Response Plan draft completed and filed with NEB in March 2011
- Assessment (by Consultants) of operational parameters (and Capex estimates) for the project escort tugs – in progress
- Participate in Community (CAB) and Technical sessions to provide information and responses to draft Marine IR's
- TERMPOL Review still in process with the review Committee

FILE COPY
ENVA 30000-35
ENGP-15.



Environment

Environmental



- Summary of Recent Work Completed
- Summary of some of the important Environmental Issues
- Moving Forward

ENVIRONMENT – Work Completed



NEB Application Filed in June 2010

- Met Requirements of NEB Filing Guidelines for S.52 Application
- Followed Guidance Outlined in the JRP Agreement Appendix Terms of Reference and Scope of Factors (CEAA August 2009)

NEB Supplemental Filing October 2010

Regional Socio-Economic Assessment

- Supplements Volume 6C Human Environment filing
- Focused on regional benefits for aboriginal and non-aboriginal communities

Response to Government of Canada Response to Procedural Direction

- Addressed written comments on environmental and socio-economic aspects from 7 federal agencies including general comments from the Government of Canada

Technical Data Reports (TDRs)

Northern Gateway TDR.

- Filed in support of the Application with 32 TDRs specific to environment
- Contain technical studies conducted in support of the Environmental and Socio-economic Assessment (ESA)

Environment – Work Completed



NEB Supplemental Filing December 2010

Route Revision Rev T

- Provided desktop environmental review of pipeline route revisions for Route Rev T
- Assessment of approximately 10 revised watercourse crossings
- Assessment of land use, fisheries, archeology, and wildlife habitat where the new Route Rev T alignment extended outside of the previously filed corridor
- Alignment with existing infrastructure in response to input from Alberta Sustainable Resources Department (ASRD)

JRP indicated these filings address additional information requirements raised by stakeholders

Environment – Work Completed



Response to request for Additional Information from JPR Panel Session Results and Decision

- Defined potential environmental and socio-economic consequence areas as requested by the JRP and collected appropriate data sets to reflect the consequence areas
- Mapped those areas at a scale of 1:25,000
- Integrated consequence areas with a modeling of the geographical extent of hypothetical hydrocarbon releases
- Results were filed with the NEB March 2011 as part of JRP submission

Volume 4 Public Engagement Update filing March 2010

- Incorporated results of environmental studies and mitigation consultation into Volume 4 on variety of landowner and public consultation topics
- Continuing to respond to and address public inquiries such as projected noise levels at pump stations

Environment – Work in Progress



Environmental Input to Route Revision U

- Completing environmental assessment of project effects assessment area (PEAA) for the recent route revisions
- Revisions address changes to accommodate the Alexander FN Reserve area, Alexis FN Pump Station location, Bruderheim initiating station and an ASRD stakeholder request to maximize routing adjacent to existing road infrastructure.
- Information and assessment results will be incorporated into a Route Update filing

Continuing to consult with coastal communities to obtain ATK and coastal sensitivity information.

Issue: Watercourse Crossings

The current Northern Gateway pipeline route crosses 773 watercourses in Alberta and BC with defined bed and banks, ranging from very small creeks to rivers. 669 of which are fish bearing. The number of crossings, the presence of salmon and threatened fish species in many, as well as the variety of geographical regions creates an environmental and engineering challenge for many crossings.

Response: Northern Gateway is committed to protecting and minimizing impact to the environment. A risk management framework approach was adopted to consider the sensitivity of every watercourse into crossing method selection and mitigation. A variety of crossing techniques will be used, including trenchless techniques at appropriate sites. This will ensure that our pipelines are safely placed and pose as little environment risk as possible.

Issue: Fisheries and Fish Habitat

The Project recognizes that fish and the fish habitat of many sensitive species must be protected.

Response: Northern Gateway is committed to protecting fish and fish habitat such as the salmon for cultural or commercial reasons. The Project adopted a risk management approach to determine which watercourses required detailed investigations. The Project environmental assessment activities established a sensitive watercourse crossings team to conduct detailed site surveys at difficult crossings and create plans to ensure crossings can be built safely, responsibly and with minimized impacts.

Response (cont)

The pipeline route has been modified in some areas to avoid sensitive fisheries habitat and other natural resources. Site specific mitigation requirements have been noted and incorporated into crossing plans, including the use of trenchless methods (boring or horizontal direction drilling below the watercourse crossing or aerial crossings above) as appropriate.

We will not be able to start construction until our project goes through a thorough federal regulatory review process and, if granted approval, will then go through a permitting and authorization process with agencies like the Department of Fisheries and Oceans, Transport Canada Navigable Waters Division and provincial resource agencies.

Issue: Access Management

A key issue identified is a loss of biodiversity and abundance of key wildlife species. Development of the right-of-way and associated access to the right-of-way may create fragmentation of core wildlife habitat for sensitive species and disruption in movement of wildlife and an increased risk of mortality.

Response: Northern Gateway has identified that the greatest effects on habitat will occur during construction from clearing the pipeline right-of-way. During operations, if strict access control is in place to limit human use of the 25-m wide RoW, it is unlikely to impede large and medium-sized mammals from crossing.

Northern Gateway is also exploring approaches with government agencies, participating Aboriginal groups and affected stakeholders to achieve a no net gain in linear access in the Buckley Lakes grizzly bear population unit and other critical habitats for threatened species in British Columbia and Alberta. Follow-up and monitoring will confirm that proposed mitigation measures are applied, effective and adjusted, as necessary.

Wildlife Issues

- Access management
 - Grizzly bears, caribou, hunted and trapped species
 - No net gain in linear feature density in sensitive areas
 - NG Access Management Plan to be developed
- Project interaction with caribou herds
 - Quintette, Narraway, Hart and Telkwa herds
- Identification of sensitive areas
 - Centre line surveys and micro-routing
 - Setbacks, timing windows
- Species of conservation concern
- Oil spills (terrestrial)

Issue: Marine Mammals and Vessel Strikes

DFO, Aboriginal communities and ENGOs have expressed concern regarding vessel strikes of marine mammals within the confined channel area as well as in the open water area

Response: Northern Gateway will develop and implement operational practices to minimize vessel strikes. Vessels that are transiting to or from the Kitimat terminal will not exceed speeds of 14 knots while in the approach lanes to the confined channel, 10-12 knots within the confined channel area, and 8-10 knots in the core habitat areas during periods when high densities of marine mammals are present. Also will use whale spotters during high density periods. With the reduction of speed, the potential for vessel strike and physical injury to marine mammals is greatly reduced.

- pilot is in control during this process.

- tracking strikes early other, spotters w their co-ops

Also have committed to research on Passive Acoustical Monitoring.

Between project approval to commissioning
5 yrs

Environmental



Issue: Marine Biota and Underwater Noise

DFO, Aboriginal communities and ENGOs have expressed concern regarding effects of underwater noise on marine mammals and fish confined channel area as well as in the open water beyond the confined channel area

*Main focus
Northern Resident
Killer Whales*

Response: Northern Gateway will incorporate low noise technology into the custom built escort tugs. Lower speeds also will reduce underwater noise.

*Work has also
been done on:
Marine birds
& fish*

Northern Gateway has committed to undertake research on underwater noise, especially in relation to Northern Resident Killer Whale

Issue: Marine Oil Spills

Many parties have expressed concern about the environmental consequences of an oil spill at the marine terminal or during marine transportation

Response: Northern Gateway will employ leading edge operational protocols for all tankers calling on the terminal

- Tanker vetting system
- Vessel speeds
- Tethered tug and escort tug for all laden tankers
- Escort tug for all unladen tankers
- Support government in Marine Communications and Traffic Services (e.g., communication, radar, navigational aids)
- Docking system, mooring load monitoring system, closed loading and vapour recovery
- Pre-booming of all oil tankers

Issue: Marine Oil Spills (cont'd)

Response: Northern Gateway will develop the most rigorous spill response capability in Canada

- Have developed a General Oil Spill Response Plan
- Will develop Marine Oil Spill Response Plan and vet with government at least 6 months prior to commissioning
- Hierarchy of more detailed plans to aid response
- Rapid first response from terminal and from escort tugs
- Spill response equipment barges at strategic locations in CCAA and region
- Training of local and regional responders
- Ability to access Tier 3 resources
- Geographic response plans to facilitate rapid deployment of equipment and personnel for spill response and environmental protection
- Use of exclusion booms (permanent and temporary anchors)

Environment – Moving Forward with BC



Work with BC Government on Access Management Framework

Work with BC Government on Detailed Routing within Corridor

Work with BC Government on watercourse crossing locations and mitigation strategies

*a compensation
strategies*

Exploring relationships with Universities in British Columbia to provide third party validation and research chair to establish baseline information and develop and implement comprehensive ecosystem-based environmental effects monitoring and follow-up programs



EMBASSY
NORTHERN
GATEWAY

Questions?



Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 12, 2011

Section
2-5
Legal
Advice

Meeting objectives:

- Environmental Assessment Office (EAO) to coordinate the Working Group to start work on the technical analysis of the Northern Gateway's proposed Project and ensure that participants are aware of roles, responsibilities, expectations and importance of timelines; and
- Working Group to collaborate with the federal government to discuss respective roles and involvement in the Joint Review Panel (JRP) process and the Working Group's technical review of the proposed Project and potential information sharing and collaboration.

Attendees: see "Appendix 1."

1. Welcome and Introductions

- Review of meeting objectives and purpose.
- It was noted that the tight timelines are imposed by the Joint Review Panel (JRP) regarding Information Requests (IR) and submission of the final technical report and these cannot be changed.
- Archie Riddell (Project Assessment Director, EAO) has currently accepted a temporary position as Executive Project Assessment Director (EAO) and will be available to resolve high level issues if they arise.
- Krishna Klear will continue as project lead (EAO) until February 2012.

Pages 296 through 298 redacted for the following reasons:

s.14

Northern Gateway Working Group

Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 12, 2011

s.14

3. Role of the Working Group/ Provincial Government Agencies

- *Role of the WG:* to review and provide input into the technical issues associated with the proposed Project.
- *Role of the EAO:* to coordinate the Province's participation in, and technical review of, the proposed Project.
 - The EAO will also provide assistance to the WG in the way of coordination, identifying key resources, regular updates on timelines and process, development of responses to IRs.
- *Role of the Ministry of Energy & Mines:* to provide strategic advice and support with respect to political messaging (e.g. Cabinet Submissions) with input of this Working Group. Will also stay informed of WG's activities.
- *Role of the Ministry of Attorney General:* to coordinate responses to the Joint Review Process.
- *Information Requests (IR):* WG members may submit IRs separately and are encouraged to send IRs to EAO as soon as responses are drafted. EAO will send to the WG for input (one week timeline to provide input) prior to submission to the JRP.

Northern Gateway Working Group

Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 12, 2011

Question & Answer (Q&A):

Q: Are we focussing our comments on what the proponent is intending to do, or how they will be doing it if/when the project is approved?

A: Right now, it's a combination of both.

Q: Can the proponent submit provincial permits while the Joint Review Process is still in progress?

A: They do have the ability but it is unlikely this will occur until after an EA certificate is granted.

Q: Who is handling the land-use decisions?

A: Decision makers who are given the authority to issue tenure under the *Land Act*. (FLNRO will also consider land-use issues during the review).

Q: How will BC ensure its interests from a compliance perspective are met?

A: The conditions of the certificate must be filed. There will be repercussions under the *NEB Act* should these conditions not be met.

4. Role of the Federal Government

- The proposed Project was referred to a federal panel in 2005 (put on hold and re-engaged in 2008).
- Responsible authorities:
 - Fisheries and Oceans
 - Transport
 - Aboriginal Affairs
 - Transportation Agency
 - Environment
 - Natural Resources Canada
- 3 primary roles:
 - Panel management (joint review via NEB/ CEAA) – Ottawa
 - Crown consultation coordinator (developed out of major projects management office; overarching body) – led by CEAA
 - Federal participation coordinator – led by CEAA
- Most departments have registered as Government Participant.; departments not registered as GP include:
 - Canadian Transportation Agency
 - Parks Canada
 - Health Canada (will only file letters of comment; not available to ask IRs)

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 12, 2011

- 2 crown consultation coordinators responsible for: (1) fulfilling duty to consult and; (2) directing all potentially impacted Aboriginal groups to come before the JRP to speak to asserted rights in relation to the proposed Project.
- See consultation framework and handout ("Aboriginal Consultation & the Enbridge Northern Gateway Project JRP Process") for more details.

Question & Answer (Q&A):

Q: What happens if the EA decision and NEB decision are not in line with each other?

A: The EA decision comes first. If the outcome is yes, it goes to the Governor in Council to decide whether significant effects are justified or not justified; if no, the process stops there.

Q: To what extent has CEAA been working with the Province on First Nations issues to date?

A: No formal discussion has occurred to date.

Q: Have any meetings occurred to date between FLNRO and DFO?

A: No recent meetings have occurred to date. (It was noted that a meeting with the federal government regarding FLNRO's recently developed mitigation policy would be useful).

Q: Is there any requirement from the federal perspective regarding changes to the proposed 1 km wide corridor?

A: The initial routing provided is the preferred route at this time; however, approval has not been granted for the exact route (will occur post EA-certificate, if approved).

Q: If Northern Gateway decides to go outside the corridor, will they have to restart the EA process?

A: In order to make changes to the route and/or corridor, they would have to have an amendment approved by the NEB.

Q: Is the 1 km width standard?

A: Yes, it is standard for projects of this size.

Q: How are the various federal/ provincial agencies responsible for First Nations consultation collaborating at this point in time?

A: There is a definite need for a coordinated (whole of government) approach to First Nations consultation, particularly around sharing of information, re: strength of claim.

Northern Gateway Working Group Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC
September 12, 2011

Q: Will the Department of Justice act as a second set of eyes on the Province's technical report?

A: No.

Q: How has the Alberta government been engaged?

A: A number of meetings have been held with Aboriginal Relations representatives from the Alberta government (no formal Working Groups or other Committees have been established for other aspects of the proposed Project).

Q: Is the federal government also looking at the effects of condensate-related spills (in addition to hydrocarbon spills)?

A: Yes, Environment Canada will also look at condensate. A number of recent IRs comment on this topic.

Q: Will Environment Canada be discussing cumulative effects?

A: This will depend on IR responses from the Proponent.

Q: What role has Transport Canada played with regards to a review of the south terminal respecting navigable waters and marine safety?

A: There is a good sense of where the terminal could be located, and what navigational impacts may occur, but the review is still ongoing.

Presentation by Transport Canada

- Transport Canada is fully engaged in the review process and has issued a number of IRs associated with construction methodology and crossing of pipeline and ship berths.
- 30-40 pipeline crossings will require approval under the *Canada Shipping Act*.
- Purpose of regulatory provisions: look at impacts on public right of navigation (e.g. placement of ship berth in Kitimat; interference to navigation; placement of pipeline across waterways).
- The regulatory regime is designed at prevention (standards and guidelines for what is acceptable in marine community for planning preparedness).
- Regional advisory councils have been developed to provide support and to identify where changes to planning standards should occur.
- Four compensation regimes are currently in effect (see presentation).

Northern Gateway Working Group

Proposed Northern Gateway Project – Meeting Notes

UBC Robson, Vancouver, BC

September 12, 2011

Question & Answer (Q&A):

Q: Who is responsible for planning for marine hazards, rough water, tsunami?

A: The ship masters are responsible for the safety of the vessel with respect to all potential marine hazards and weather conditions (perhaps with exception of tsunami),

Q: How will the quality of the ships used by Northern Gateway be determined? What factors does Transport Canada consider in determining the quality of a ship?

A: A ship goes through a 20-25 year life-cycle, including various inspection regimes. Oftentimes, the ship will change ownership but may or may not change flag/ classification. With respect to the proposed Project, Transport Canada will inspect every ship that comes in; therefore, there is incentive for the owner to keep the standard/ quality high. Enbridge has an interest in ensuring ships meet Canadian law standards.

Q: Has anyone done any work on climate change and impacts on the physical aspect of the project (e.g. changes to vegetation, permafrost)?

A: No work has been undertaken on behalf of the federal government to date.

5. Wrap up/ Next Steps

ACTION:

- Preparation of Information Requests (Round 2):
 - EAO to develop template for leads – completed (attached);
 - WG to forward IR responses to EAO as soon as they are drafted;
 - EAO to forward to WG for input prior to submitting (updates on Groove).
- WG to provide additional contacts for technical experts matrix completed (attached).
 - Who else needs to be involved to assist in reviewing the Application?
 - Are sub-groups required?
- EAO to update technical experts matrix – completed (attached).
- EAO to distribute meeting summary notes/ presentations – completed.
- EAO to send invitation/ link to Groove site – completed.
- EAO to look into travel costs for hearings – given the hearings do not begin until June 2012 and we do not yet know what, if any, evidence will be submitted by the Province, travel costs will be decided at a later date.
- EAO to provide WG with information on the hearing process and to confirm time commitment when the information becomes available - given the hearings do not begin until June 2012 and we do not yet know what, if any, evidence will be submitted by the Province, will be provided at a later date.
- Reminder to WG: please send any legal questions to EAO for coordination.

APPENDIX 1: LIST OF ATTENDEES

NAME	AGENCY	PHONE	EMAIL
<i>BC Government</i>			
Chris Jones	Attorney General	250-356-0464	Christopher.H.Jones@gov.bc.ca
Olga Klimko	Energy and Mines	250-953-3766	Olga.Klimko@gov.bc.ca
Bob Andrews	Environment	250-787-3331	Robert.Andrews@gov.bc.ca
Krishna Klear	Environmental Assessment Office	250-387-9412	Krishna.Klear@gov.bc.ca
Lindsay McDonough	Environmental Assessment Office	250-387-7411	Lindsay.McDonough@gov.bc.ca
Patrick Russell	Forests, Lands and Natural Resource Operations	250-565-6774	Patrick.Russell@gov.bc.ca
Troy Larden	Forests, Lands and Natural Resource Operations	250-847-7203	Troy.Larden@gov.bc.ca
Marten Geertsema	Forests, Lands and Natural Resource Operations	250-565-6923	Marten.Geertsema@gov.bc.ca
Mike Peterson	Forests, Lands and Natural Resource Operations	250-561-5622	Mike.Peterson@gov.bc.ca
John McClary	Forests, Lands and Natural Resource Operations	250-565-6216	John.McClary@gov.bc.ca
Jennifer Pollard	Forests, Lands and Natural Resource Operations	250-565-6189	Jennifer.Pollard@gov.bc.ca
Chelton van Geloven	Forests, Lands and Natural Resource Operations	250-565-4462	Chelton.vanGeloven@gov.bc.ca
Kristina Anderson	Forests, Lands and Natural Resource Operations	250-565-4403	Kristina.Anderson@gov.bc.ca
Peter Fisher	Jobs, Tourism and Innovation	250-387-5090	Peter.Fisher@gov.bc.ca
Doug Quibell	Northern Health	250-631-4249	Doug.Quibell@northernhealth.ca
Ken Paulson	Oil and Gas Commission	250-419-4404	Ken.Paulson@bcogc.ca
Mohsin Zaidi	Oil and Gas Commission	250-980-6062	mohsin.zaidi@bcogc.ca
John Shaw	Transportation and Infrastructure	250-356-1357	John.Shaw@gov.bc.ca
Bill Eisbrenner	Transportation and Infrastructure	250-565-6259	Bill.Eisbrenner@gov.bc.ca
Kristen Johnson	Transportation and Infrastructure	250-565-6388	Kristen.Johnson@gov.bc.ca
<i>Federal Government</i>			
Rob Clavering	Aboriginal Affairs and Northern Development	819-994-6734	
Donna Maher	Aboriginal Affairs and Northern Development	604-775-7149	
Erin Groulx	Canadian Environmental Assessment Agency	780-495-2629	Erin.Groulx@ceaa-acee.gc.ca
Analise Saely	Canadian Environmental Assessment Agency	604-666-9162	Analise.Saely@ceaa-acee.gc.ca
Brent Maracle	Canadian Environmental Assessment Agency	613-357-0249	Brent.maracle@ceaa-acee.gc.ca
Garth Mullins	Environment Canada		
Phil Wong	Environment Canada	604-666-2699	

NAME	AGENCY	PHONE	EMAIL
Federal Government (Continued)			
Ajay Pradhan	Fisheries and Oceans Canada	604-666-7950	
Alasdair Beattie	Fisheries and Oceans Canada	604-666-0129	
Scott Spencer	Justice Canada	306-975-6240	
Dayna Anderson	Justice Canada	204-984-6961	
Kathy McPherson	Natural Resources Canada	250-363-6463	Kathy.Mcpherson@nrcan-rncan.gc.ca
Sandy Allen	Natural Resources Canada		
Jo-Anne McDonald	Transport Canada	604-666-5771	Jo-Anne.McDonald@tc.gc.ca
John Mackie	Transport Canada	604-775-8890	John.Mackie@tc.gc.ca
Tanya Martin	Transport Canada	604-666-5773	Tanya.Martin@tc.gc.ca
Charles Hansen	Transport Canada	604-666-0469	Charles.Hansen@tc.gc.ca



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Telephone: 250-952-6507
Facsimile: 250-356-7440
File: 30050-36 / ENGP-05-06

Ref: 100764

August 25, 2011

Kenneth MacDonald
VP, Law and Regulatory Affairs
Northern Gateway Pipelines Inc.
Suite 3000, 425 – 1st Street SW
Calgary AB T2P 3L8

Abby Dorval
Manager, Regulatory Affairs
Northern Gateway Pipelines Inc.
Suite 3000, 425 – 1st Street SW
Calgary AB T2P 3L8

Richard Neufeld, Q.C.
Barrister & Solicitor
Fraser Milner Casgrain
15th Floor, 850 – 2nd Street SW
Calgary AB T2P 0R8

Dear Sirs and Madame:

Re: Northern Gateway Pipelines Inc. (Northern Gateway)
Enbridge Northern Gateway Project Application of May 27, 2010
Hearing Order OH-4-2011 File No. OF-Fac-Oil-N304-2010-01 01
Information Request Number 1 to Northern Gateway

Please find attached Information Request No. 1 submitted by the Province of British Columbia, with respect to the above referenced matter.

.../2

The Province of British Columbia will very like submit additional information requests in Round 2 which are due to close on November 3, 2011.

Please contact me if you have any questions or require any additional information with respect to this Information Request.

Yours truly,

A handwritten signature in black ink, appearing to read "D. Riddell", written in a cursive style.

David Riddell
Project Assessment Director

Attachment

Information Request
To: Enbridge Northern Gateway Pipelines Inc.
From: Her Majesty in right of British Columbia (the Province)

**Enbridge Northern Gateway Pipelines Inc.
Enbridge Northern Gateway Project**

Information Request No. 1

1.1 Overview Mapping Requirements

Reference:

- i. Enbridge Northern Gateway Project - Pipeline Route Atlas Index (August 2009).
- ii. Enbridge Northern Gateway Project – Sec 52 Application, Volume 3, Section 3, Page 3-1 to 3-8 and Section 5.9, Page 5-6.

Preamble:

Mapping provided by Enbridge Northern Gateway Pipelines, dated August 2009, identifies the proposed pipeline project from West of Edmonton, Alberta to Kitimat, British Columbia will be crossing numerous tenures and areas of interest belonging to the Ministry of Transportation and Infrastructure (BC MoT).

The following request, regarding additional overview mapping, is necessary for the BC MoT to review the proposal and provide an informed and adequate response on behalf of the Province.

Request:

Please provide:

- a. 1:10,000 scale mapping for the entire proposed pipeline route in BC including:
 - i. Orthographic photo underlay
 - ii. Contour lines at 10 meter intervals
 - iii. Pipeline Stationing
 - iv. All major and minor roads including road names
 - v. Waterways
 - vi. Municipalities and unincorporated areas

- vii. Railways
- viii. Gravel pits and reserves

1.2 Detailed Site Requirements

Reference:

- i. Enbridge Northern Gateway Project - Pipeline Route Atlas Index (August 2009).
- ii. Enbridge Northern Gateway Project – Sec 52 Application, Volume 3, Section 3, Page 3-1 to 3-8 and Section 5.9, Page 5-6.

Preamble:

Mapping provided by Enbridge Northern Gateway Pipelines, dated August 2009, identifies the proposed pipeline project from West of Edmonton, Alberta to Kitimat, British Columbia will be crossing numerous tenures and areas of interest belonging to the BC MoT.

The following request, regarding detailed site mapping and designs, is necessary for the BC MoT to review the proposal and provide an informed and adequate response on behalf of the Province.

Request:

- a) The BC MoT requires identification of all BC MOT tenures and overlapping interests affected by the proposed pipeline within 800m either side of the pipeline right-of-way, including the pipeline right-of-way, will be required to carry out the technical review. Please provide 1:1,000 scale plans for all areas identified. Plans should include:
 - i. Cadastral information (PIDs, Legal Descriptions, plan numbers, etc.)
 - ii. Utilities
 - iii. Road names or descriptions
 - iv. Pipeline right-of-way
 - v. Contour lines at 2 meter intervals
 - vi. Ortho photo underlay
 - vii. Waterways
 - viii. Pipeline Stationing
 - ix. Construction limits
- b) Detailed cross-sections and profile designs, referenced to pipeline stationing for proposed pipeline construction within 60m of BC MoT tenures:
 - i. Cross-sections at 1:500
 - ii. Profiles at 1:1000

- c) LiDAR
 - i. Full width Bare Earth tiles for extent of BC proposed pipeline in .XYZ format.
 - ii. Corresponding index
- d) Orthographic Photos
 - i. 15 to 30cm resolution or better in TIFF and ECW format
 - ii. Corresponding index
- e) Digital alignment of the proposed pipeline with stationing in AutoCAD compatible format.
- f) Access Management Plan for all construction and permanent accesses.
- g) Terrain stability mapping of all BC MoT tenures and overlapping interests affected by the proposed pipeline within 800m either side of the pipeline right-of-way, including the pipeline right-of-way.

FILING RECEIPT

Joint Review Panel-Enbridge Northern Gateway Project

444 Seventh Avenue SW
Calgary, Alberta
T2P 0X8

Filing ID: A30938**Filing Date:** 2011/08/25, 11:03 AM MDT*

*Mountain Daylight Time

Submitter Information:**Role:** Other

Krishna Klear
Project Lead
Province of British Columbia
On behalf of: Province of British Columbia
krishna.klear@gov.bc.ca
Telephone: (250) 213-7232

PO Box 9426 Stn Prov Govt
Victoria, BC

V8W 9V1

Filing Information:

Project:

Title: Province of British Columbia - Information Request #1

NEB File Number:

Hearing Order:

Additional Contact(s):

Electronic Documents in this submission:

ID	Document Type	File Name
A2C4K9	Information Request	100764 Cover Letter - Province of BC Information Request #1.pdf
A2C4L0	Information Request	Province of BC Information Request No 1 - Northern Gateway project.pdf

Paper Documents in this submission:

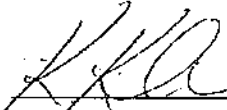
Note: an electronic placeholder will be generated for each paper-only document.

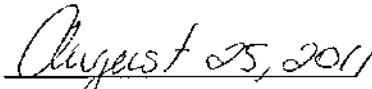
ID	Document Type	Name
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Acceptance of Submission/Responsibility

I understand the terms and conditions of submitting electronic documents with the National Energy Board and the Enbridge Northern Gateway Project Joint Review Panel (the Panel). I waive copyright for use by the NEB, the Panel and third parties of documents contained in this submission only for the purpose for which the information was provided.

I hereby certify that I have electronically submitted the above documents to the Panel. I also certify that the paper submission attached hereto is complete and contains accurate renditions of the electronic documents listed above and, where applicable, the requisite number of hard copies for each paper document listed above.


Signature


Date



30050-35/ENGP-06

File OF-Fac-OtherComm-Z027-2011-01 0101
28 July 2011

FILE COPY

Distribution List

Federal Coordination Notice

**1057533 Alberta Ltd., a wholly owned subsidiary of Harvest Operations Corp.
Gething Source Water Pipeline**

On 27 June 2011, 1057533 Alberta Ltd. (the company) applied to the National Energy Board (the Board or NEB) under Section 58 of the NEB Act for approval to construct and operate approximately 6.6 km of 168.3 mm (6 inch) outside diameter (O.D.) pipeline to transport non-potable (saline) water from a new source water well in 12-11-111-12 W6M near Rainbow Lake in northwest Alberta to an existing Harvest Hay Pad site located at a-61-H/94-I-9 in northeast British Columbia (BC).

The purpose of the source water pipeline is to provide additional water injection capacity at the a-61-H/94-I-9 pad site for reservoir pressure maintenance to enhance the Hay Pad site production. The additional water injection volumes are needed to replace current injection water shortages from the existing area water supply wells. The route would be parallel to existing linear disturbances for 96.5% of its length. Construction is proposed to take place from November to December 2011.

The company's Application is available on the Board's website (www.neb-one.gc.ca) by clicking on "Regulatory Documents", then on "Browse the Regulatory Document Index (Regulatory Document Index application)". Go to "Looking for filing? Enter its Id here" and type in filing identification number A29840 and click on "Go!". If you need a hard copy, please contact the company directly.

Details of the project will also be provided on the Canadian Environmental Assessment Registry (CEAR) located at http://www.ceaa-acee.gc.ca/050/index_e.cfm. The CEAR reference number for this project is 11-01-62981.

.../2

The Board, as responsible authority (RA) under section 5 of the *Canadian Environmental Assessment Act* (CEA Act), is initiating the environmental assessment coordination process for the project in accordance with the *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements* (Federal Coordination Regulations) to meet its obligations under the CEA Act.

Pursuant to section 5 of the Federal Coordination Regulations, the Board requests that you review the Application and indicate to the Board whether your department/agency:

- (a) is likely to require an environmental assessment of the project under section 5 of the CEA Act (i.e. be a RA);
- (b) is in possession of specialist or expert information or knowledge that is necessary to conduct the environmental assessment of the project (i.e. be a Federal Authority [FA]); and
- (c) requires additional information to make a determination referred to in (a) or (b).

With regard to (a) and (b), the Board asks that your response be provided to the Board by **27 August 2011**. With regard to (c), the Board asks that your response be provided to the Board within **10 business days** of receipt of this letter. A response form is provided for your convenience. Please note that any correspondence in relation to this application will be placed on the public record.

Responses may be sent either by facsimile or by e-filing. For facsimile please send to 403-292-5503 or 1-877-288-8803. For electronic filing, go to the NEB website at www.neb-one.gc.ca, click on "Submit" under Regulatory Documents and then on "Submit Documents Electronically". Please note that e-mails are not considered electronic filing. **The Board further asks that you provide 1057533 Alberta Ltd. with a copy of any response in respect of the above requests.**

Upon receipt of the information, the Board will either take on the role as the Federal Environmental Assessment Coordinator (FEAC) to coordinate the examination of the project under the CEA Act to meet the needs of the NEB and RAs/FAs, or consult with other RAs and the Canadian Environmental Assessment Agency to determine which agency should assume the role as the FEAC. If the NEB prepares the environmental assessment document, it will provide a copy of the report to those RAs/FAs who are involved in the project.

If you are a provincial department receiving this letter, the Board would appreciate a letter from you indicating your level of interest and potential regulatory responsibilities regarding the proposed project.

.../3

If no response is received from you by the aforementioned date, the Board will assume that your department or agency has no responsibility to undertake an environmental assessment and is not in possession of specialist or expert information or knowledge.

If you have any questions or concerns, please call Laura Randall at 403-299-3151.

Thank you for your cooperation.

Yours truly,



Anne-Marie Erickson
Secretary of the Board

Attachment

c.c. Mr. Daryl Baxandall, Manager, Facilities, 1057533 Alberta Ltd.,
facsimile 403-265-3490, Email daryl.baxandall@harvestenergy.ca

Ms. Erin Groulx, Canadian Environmental Assessment Agency, Alberta and NWT
Regional Office, facsimile 780-495-2876, Email erin.groulx@ceaa-acee.gc.ca

Ms. Lisa Walls, Canadian Environmental Assessment Agency, Pacific and Yukon
Regional Office, facsimile 604-666-6990, Email lisa.walls@ceaa-acee.gc.ca

Ms. Gia Kim, Canadian Environmental Assessment Agency, Pacific and Yukon Regional
Office, facsimile 604-666-6990, Email gia.kim@ceaa-acee.gc.ca



28 July 2011

1057533 Alberta Ltd.
Gething Source Water Pipeline 27 June 2011

File: OF-Fac-OtherComm-Z027-2011-01 01

Pursuant to the *Regulations Respecting the Coordination by Federal Authorities of Environmental Assessment Procedures and Requirements* (Regulations), please indicate to the National Energy Board (the Board) by **27 August 2011** whether your Department/Agency (please check off the appropriate box):

a) is likely to require an environmental assessment of the project(s) under Section 5 of the *Canadian Environmental Assessment Act* (CEA Act);

NO ☐

YES ☐

If YES, please indicate the CEA Act trigger(s):

Trigger:

(Specify legislation and Section No.)

b) is in possession of specialist or expert information or knowledge that is necessary to conduct the environmental assessment of the project(s).

NO ☐

YES ☐

c) requires additional information to make a determination referred to in a) or b) above.

NO ☐

YES ☐

If YES to (c), please forward the request within 10 business days after receiving this notification as per subsection 6(2) of the Regulations.

Please advise what role your Department or Agency plans to play in this review by **FAXING THIS RESPONSE** to the Secretary of the Board, Anne-Marie Erickson, at 403-292-5503 or 1-877-288-8803. Please provide the following contact information

Name: _____

Title/Department: _____

Address: _____

Telephone: _____

()

Facsimile: _____

()

E-mail: _____

Date Authorized

Signature for Responding Department or Agency

Distribution List

Ms. Michelle Gray
Environmental Policy Officer
Lands, Policy and Implementation
Aboriginal Affairs and Northern Development Canada
630 Canada Place, 9700 Jasper Avenue
Edmonton, AB T5J 4G2
Telephone 780-495-4895
Facsimile 780-495-4088
Email michelle.gray@aandc.gc.ca

Mr. Mike Rosendal
Fish Habitat Biologist
Fisheries and Oceans Canada
Alberta District – Peace River Office
9001 – 94th Street
Peace River, AB T8S 1G9
Telephone 780-618-3221
Facsimile 780-618-3235
Email mike.rosendal@dfo-mpo.gc.ca

Environment Canada (AB)
Email EAsouthPNR@ec.gc.ca

Transport Canada (AB)
Email PNREA-RPNEE@tc.gc.ca

Ms. Corinne Kristensen
Acting Environmental Assessment Team Leader
Environmental Operations
Alberta Environment
111 Twin Atria Building
4999 – 98th Avenue
Edmonton, AB T6B 2X3
Telephone 780-427-9116
Facsimile 780-427-9102
Email corinne.kristensen@gov.ab.ca

Ms. Joan Calderhead
Acting Manager
Environment and Natural Resources
Aboriginal Affairs and Northern Development Canada
600-1138 Melville Street
Vancouver, BC V6E 4S3
Telephone 604-666-9332
Facsimile 604-666-6474
Email joan.calderhead@aandc.gc.ca

Fisheries and Oceans (BC)
Email ReferralsPrinceGeorge@dfo-mpo.gc.ca

Transport Canada (BC)
Email TCPACEA-EFPACTC@tc.gc.ca

Environment Canada (BC)
Email EA.referrals.pyr@ec.gc.ca

Ms. Rachel Shaw
Project Assessment Manager
B.C. Environmental Assessment Office
2nd Floor, 836 Yates Street
Victoria, BC V8W1L8
Telephone 250-952-6501
Facsimile 250-387-2208
Email rachel.shaw@gov.bc.ca

YAHOO! NEWS

FILE COPY

ENVA 30050-3
ENGP-09



National Geographic scrutinizes oil sands pipeline headed through B.C.



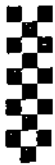
By Tori Floyd
Associated Editor
Daily Brew - Fri, 22 Jul, 2011

Posts Website Email
Alberta's oil pipeline project has been a source of controversy in Canada for a

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Environmental Assessment Office	



ENBRIDGE
NORTHERN
GATEWAY PIPELINES

To:
Mr. Archie Riddell
Project Assessment Director
B.C. Environmental Assessment Office

From:
Ken MacDonald
Vice President, Law and Regulatory
Northern Gateway Pipelines Limited Partnership

No. of pages (including this cover):
1

Date:
July 19, 2011

If this transmission is not received in good order, please
call: Susan Schmeier at 403 266-7913.

30450-35/ENGA-15
FILE COPY

RE: ENBRIDGE NORTHERN GATEWAY PIPELINES PROJECT
HEARING ORDER OH-4-2011

We are providing you with the link to Northern Gateway's response to the Joint Review Panel's Information Request No. 1, which was filed on July 12, 2011 with the NEB.

This filing can be viewed at:
<http://www.neb-one.gc.ca/fetch.asp?language=E&ID=A30172>

Interested parties are encouraged to utilize this electronic medium to obtain copies of this filing. However, if you require a CD copy please advise to 1-888-434-0533 or info@northerngateway.ca.

This telecopy is intended for the sole use of the person to whom it is addressed and should not be read by, or delivered to, anyone else. It may contain privileged or confidential information, the disclosure of which may result in the breach of certain laws or the infringement of rights of third parties. If you have received this telecopy in error, please call immediately (collect if necessary) at the number above. We thank you in advance for your cooperation and assistance.

ENVIRONMENTAL ASSESSMENT OFFICE
DECISION NOTE

3005 Advice to Minister
FILE COPY 167-05

Date: July 7, 2011
File: _____
CLIFF/tracking #: 100638

PREPARED FOR: Terry Lake, Minister of the Environment

ISSUE: Options for the Environmental Assessment Office (EAO) to be engaged in the federal review panel for the proposed Northern Gateway Project (proposed Project) by Enbridge (Proponent).

BACKGROUND:

In 2008, the Proponent reactivated its proposed Project to construct a twinned pipeline from near Edmonton, Alberta to Kitimat, BC to carry condensate diluted oil from the Alberta oil sands for export offshore. The proposed Project also includes pump stations along the pipeline and a marine terminal at Kitimat with 2 ship berths and 14 tanks for the storage of oil and condensate.

The proposed Project is being reviewed by the federal environmental assessment (EA) process as it crosses the BC/Alberta border. The National Energy Board (NEB) is regulating the review process, which involves the Canadian Environmental Assessment Agency (CEAA). This process is identified as a Joint Review Panel.

The EAO and the NEB have signed an Environmental Assessment Equivalency Agreement (2010) that specifies that where a proposed project requires both a BC EA Certificate and an approval under the *National Energy Board Act*, the assessment completed by the NEB is considered equivalent to a BC EA process. As a result, a provincial EA process is not required for the proposed Project.

On May 5, 2011, the Joint Review Panel issued a Hearing Order that outlines the options for interested parties, including other governments, to participate in the EA. On May 18, 2011, the BC Minister of Environment stated publically that EAO will be coordinating the participation of the BC government in the Joint Review Panel process.

To reduce duplication across permitting agencies and jurisdictions and to ensure effective First Nation consultation, the Ministry of Forests, Land and Natural Resource Operations (MFLNRO) has been leading a Northern Pipeline Coordination Working Group. The MFLNRO would be responsible for the majority of subsequent provincial permitting decisions for the proposed Project.

DISCUSSION:

The Minister of Environment stated during the recent Estimates debates that the BC government, through the Environmental Assessment Office, intends to fully participate in the Joint Review Panel for the proposed Project. This participation could include the following elements:

- a) undertaking a technical analysis of the proposed Project's application and determining how provincial interests may be impacted;
- b) considering opportunities to proactively initiate First Nation consultation regarding provincial permitting authorizations should the federal Joint Review Panel approve the proposed Project; and
- c) developing an official position on the proposed Project to inform the content of provincial submissions to the Joint Review Panel.

As a result of the above-noted participation objectives, EAO will be filing for intervenor status for the government of British Columbia with the National Energy Board to ensure effective and efficient provincial participation in the panel process.

The following outlines options for EAO's involvement in Joint Review Panel process. The options are not mutually exclusive. The EAO is well suited to deliver all 3 options if requested to do so.

s.13

DECISION & SIGNATURE

Terry Lake
Minister of Environment

DATE SIGNED

Contact:

Name: Archie Riddell
Title: Project Assessment Director
Phone: 250-952-6507

Prepared by:

Name: Rachel Shaw
Title: Project Assessment Manager
Phone: 250-952-6501

Reviewed by	Initials	Date
<i>Assoc. DM:</i>		
<i>EPAD (if required):</i>		
<i>Project Lead or Director:</i>		



Telephone: 250-952-6507
Facsimile: 250-356-7440

Ref: 100637

July 4, 2011

Secretary to the Joint Review Panel
Enbridge Northern Gateway Project
444 Seventh Ave SW
Calgary AB T2P 0X8

By mail and fax at: 403-292-5503

Dear Secretary to the Joint Review Panel:

**Re: Enbridge Northern Gateway Project
Joint Panel Review – Hearing Order OH -4-2011
File No. OF-Fac-Oil-N304-2010-01 01
Province of British Columbia - Registration of Intervenor Status**

Please find attached a completed form to register Her Majesty in right of British Columbia as represented by the Environmental Assessment Office ("British Columbia") as an intervenor in the joint panel review of the Enbridge Northern Gateway Project.

Please use the following contact information to communicate with British Columbia regarding its participation in the joint panel process:

David "Archie" Riddell
Project Assessment Director
Environmental Assessment Office

Mailing Address: PO Box 9426 Stn Prov Govt
Victoria BC V8W 9V1

.../2

Courier Address: 1st Floor – 836 Yates St
Victoria BC V8W 1L8
Phone: 250-952-6507
Cell: 250-889-9242
Fax: 250-356-7440
Email: David.Riddell@gov.bc.ca

Kindly contact me directly if you have any questions, or require further information to confirm our status as an intervenor. I look forward to receiving the List of Parties that will be issued by the panel.

Yours truly,



David "Archie" Riddell
Project Assessment Director

Attachment

pc: Christopher Jones, Barrister and Solicitor
BC Ministry of Attorney General

Enbridge Northern Gateway Project

Joint Review Panel

Registration for Intervenor Status

All information provided on this form will be placed on the public registry for this project.

Hard copy submissions may be made by mail, courier, hand delivery or fax at the address below.

Secretary to the Joint Review Panel
Joint Review Panel - Enbridge Northern Gateway Project
444 Seventh Avenue S.W.
Calgary, Alberta T2P 0X8

Facsimile: 403-292-5503, or toll free at 1-877-288-8803

Date (dd/mm/yyyy): 29/June/2011

Hearing Information

Project Name: Enbridge Northern Gateway Project	
Hearing Order No: OH-4-2011	File Number: OF-Fac-Oil-N304-2010-01 01

Intervenor Information

Name *: David "Archie" Riddell	Mailing Address *: PO Box 9426 Stn Prov Govt
Title: Project Assessment Director	City *: Victoria
Organization: Her Majesty in right of British Columbia	Province *: BC
Telephone *: 250-952-6507	Postal Code *: V8W 9V1
Facsimile: 250-356-7440	Email: David.Riddell@gov.bc.ca
Address for Courier/Personal Service: (if different from mailing address)	
Address: 1st Fl - 836 Yates St Victoria BC V8W 1L8	Telephone:

* indicates a required field



National Energy Board
Office national
de l'énergie

Canada



Canadian Environmental
Assessment Agency

Agence canadienne
d'évaluation environnementale
Page 326

Issues and Interests

What topics on the List of Issues are you Interested In?			
All of the list of issues identified in Hearing Order OH-4-2011			
Do you intend to actively participate during the hearings?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Unknown <input checked="" type="checkbox"/>
Will someone be speaking on your behalf?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Unknown <input type="checkbox"/>

Representative Information

If you do not have someone speaking on your behalf, please leave blank.

Name *: Christopher Jones	Mailing Address *: Suite 340- 1675 Douglas St
Title: Barrister and Solicitor	City *: Victoria
Organization: BC Ministry of Attorney General	Province *: BC
Telephone *: 250-356-0464	Postal Code *: V8W 9J7
Facsimile: 250-356-0064	Email: Christopher.H.Jones@gov.bc.ca
Address for Courier/Personal Service: (if different from mailing address)	
Address:	Telephone:

* indicates a required field

Access, Notification and Service

Which official language do you wish to use in correspondence with the Panel and at the hearing?	English <input checked="" type="checkbox"/>	French <input type="checkbox"/>
Documents submitted electronically are available on the Panel's public registry (gatewaypanel.review.gc.ca). If you can access the public registry, the Panel and other Parties in this hearing may send you notification that a document has been submitted and is available in the public registry, instead of sending you a hard copy of the document.		
Do you have the capability to access the Panel's registry?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Participation at the Hearing

Intervenors wishing to give evidence must submit their written evidence with the Panel and send a copy to all Parties by the deadline indicated in the Timetable of Events in the Hearing Order.

Will you be submitting written evidence? Yes ☐ No ☐ Unknown ☒

Do you intend to question the Applicant or Intervenors on their evidence? Yes ☐ No ☐ Unknown ☒

Do you require a paper copy of the daily transcripts?
(Note: You may view the transcripts through the Panel's website at gatewaypanel.review.gc.ca) Yes ☒ No ☐ Unknown ☐

Upon request, the Panel will allow oral evidence where it consists of oral traditional evidence or evidence that cannot be provided in writing, and it can be presented in three hours or less, unless advance notice is given to the Panel. Any written documents should be submitted as written evidence and not read onto the record as oral evidence.

Do you wish to request permission from the Panel to provide oral evidence? Yes ☐ No ☐ Unknown ☒

The Panel will decide whether to allow oral evidence after it receives the following information that may be provided now or no later than 6 October 2011.

1) Your reason for making the request:

2) The time expected to give your oral evidence:

3) Overview of the evidence that you propose to provide orally:

4) Identify the individuals who will provide this oral evidence:
(Optional - this information may be provided at a later date if not currently known)

Unknown at this time

5) Which language would you like to present your oral evidence in?

English ☒ French ☐ **Other ☐ Please Name: _____

** I understand that if I wish to present oral evidence to the Panel in a language other than English or French, such as an Aboriginal language, I must identify an interpreter and contact Louise Niro, Regulatory Officer at 403-299-3987 or toll free at 1-800-899-1265. Please specify the Enbridge Northern Gateway Project and that you would like to make arrangements to provide interpretation of the presentation into English or French. It is preferable if the interpreter can provide simultaneous interpretation into English or French, but consecutive interpretation may be accepted. The English interpretation will be transcribed and used as the evidentiary record for the joint review process.

 *** TX REPORT ***

TRANSMISSION OK

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*also mailed
 July 7/11*



Environmental Assessment Office

Visit our website for information about the environmental assessment process and projects under review. The address is: www.eao.gov.bc.ca

MAILING ADDRESS:
 PO Box 9426 Stn Prov Govt
 Victoria BC V8W 9V1

LOCATION:
 1st Fl - 836 Yates St
 Victoria BC V8W 1L8
 2nd Fl - 836 Yates St
 Victoria BC V8W 9V1

Facsimile Cover Sheet

Date:	July 7, 2011
To:	Secretary to the Joint Review Panel
Organization:	Joint Review Panel – Enbridge Northern Gateway Project
Fax#:	403-292-5502
From:	David "Archie" Riddell, Project Assessment Director
Telephone:	250-952-6507
Fax#:	250-356-7440
E-mail address:	David.Riddell@gov.bc.ca
Confidential:	
Urgent:	
Original to	
Follow:	
Total Pages	7
(including this page)	

**AGREEMENT BETWEEN THE NATIONAL ENERGY BOARD AND THE
MINISTER OF THE ENVIRONMENT CONCERNING THE JOINT REVIEW OF
THE NORTHERN GATEWAY PIPELINE PROJECT**

1.0 PREAMBLE

WHEREAS the National Energy Board (the Board) has regulatory responsibilities for interprovincial and international natural gas, oil and commodity pipelines pursuant to the *National Energy Board Act* (the NEB Act) and for environmental assessment pursuant to the NEB Act and the *Canadian Environmental Assessment Act* (the Act);

WHEREAS the Minister of the Environment has statutory responsibilities pursuant to the Act and the Canadian Environmental Assessment Agency (the Agency) has administrative responsibilities under the Act;

WHEREAS the Northern Gateway Pipelines Limited Partnership (the Proponent) is proposing to construct and operate pipelines and a marine terminal as further described in the Appendix to this Agreement;

WHEREAS an application for a Certificate of Public Convenience and Necessity is expected to be filed with the Board pursuant to Part III of the NEB Act by or on behalf of Northern Gateway Pipelines Limited Partnership in respect of the Northern Gateway Pipeline Project (the project);

WHEREAS the Board, pursuant to the NEB Act, must hold a public hearing to consider the application for the project and conduct an environmental assessment of the project;

WHEREAS certain components of the project are within the jurisdiction of the Board and the Act applies to all aspects of the project;

WHEREAS the Board, Fisheries and Oceans Canada, Transport Canada and Indian and Northern Affairs Canada are responsible authorities for the project under the Act and the Canadian Transportation Agency, Environment Canada and Natural Resources Canada may be responsible authorities for the project under the Act;

WHEREAS the Board and the responsible authorities recommended that the Minister of the Environment refers the project to a review panel pursuant to section 25 of the Act;

WHEREAS the Minister of the Environment has determined that a Joint Review Panel (the Panel) should be established pursuant to paragraph 40(2)(a) of the Act to consider the project;

WHEREAS the Board, the Agency, and the responsible authorities recognize that a TERMPOL review process, which will be coordinated by Transport Canada, will occur separately from this Joint Review Panel process;

WHEREAS the Parties to this Agreement wish to avoid unnecessary duplication that could arise from carrying out the environmental assessment requirements separately while maintaining a high-quality environmental assessment process under the Act and the NEB Act;

AND WHEREAS the Government of Canada will rely upon the consultation effort of the proponent, and the Joint Review Panel process, to the extent possible, to assist in meeting the duty to consult;

NOW THEREFORE, in accordance with this Agreement and the Terms of Reference attached as an appendix to this Agreement, the Minister of the Environment and the Chair of the Board hereby establish a Joint Review Panel to conduct the environmental assessment of the project.

2.0 DEFINITIONS

In this Agreement:

"Aboriginal group" means a collectivity of Indian, Inuit or Métis people that holds or may hold Aboriginal or treaty rights under section 35 of the Constitution Act, 1982;

"Agency" means the Canadian Environmental Assessment Agency;

"Agreement" means this Agreement including the Appendix;

"Board" means the National Energy Board;

"Board rules" means the *National Energy Board Rules of Practice and Procedure*, 1995, as amended, and made pursuant to section 8 of the NEB Act;

"Board's public hearing process" means the public hearings process followed by the Board under the NEB Act to assess a proposed project and the environmental effects of a project;

"The Act" means the *Canadian Environmental Assessment Act*;

"Environment" means, as set out in the Act, the components of the Earth, and includes

- a) land, water and air, including all layers of the atmosphere,
- b) all organic and inorganic matter and living organisms, and
- c) the interacting natural systems that include components referred to in paragraphs a) and b);

"Environmental assessment" includes, as set out in the Act in respect of a project, an assessment of the environmental effects of the project that is conducted in accordance

with the Act and its regulations and an assessment of the environmental effects of the project for the purposes of the NEB Act and its regulations;

"Environmental effect" means, as set out in the Act in respect of a project,

- a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*,
- b) any effect of any change referred to in paragraph a) on
 - (i) health and socio-economic conditions,
 - (ii) physical and cultural heritage,
 - (iii) the current use of lands and resources for traditional purposes by Aboriginal persons, or
 - (iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or
- c) any change to the project that may be caused by the environment, whether any such change or effect occurs within or outside Canada;

"Federal authority" has the same meaning as set out in section 2 of the Act;

"Follow-up program" means, as set out in the Act, a program for

- a) verifying the accuracy of the environmental assessment of a project, and
- b) determining the effectiveness of any measures taken to mitigate the adverse environmental effects of the project;

"Government participant" means a federal authority or provincial department that has an environmental assessment or regulatory responsibility and that files a declaration with the Joint Review Panel stating that it wishes to participate in the hearing as a government participant;

"Joint review" means the assessment of the environmental effects of the project to be conducted pursuant to the Act and the consideration of the application under the NEB Act;

"Panel" means the Joint Review Panel established pursuant to Section 3 of this Agreement;

"Parties" mean the signatories to this Agreement;

"Participant" means anyone who participates in the joint review process for the project through one of the means set out in Part IV of this Agreement;

"Pipeline" has the same meaning as set out in section 2 of the NEB Act;

"Project" means the project as described in the Terms of Reference found in the Appendix to this Agreement and titled "Part I - Scope of the Project", and may also be referred to as the Northern Gateway Pipeline Project;

"Proponent" means Northern Gateway Pipelines Limited Partnership who proposes the project;

"Report" means the report set out in Section 9 of this Agreement;

"Responsible authority" has the same meaning as set out in section 2 of the Act; and

"TERMPOL review process" refers to the voluntary technical review process of Marine Terminal Systems and Transshipment Sites. The technical review process focuses on a dedicated design ship's selected route in waters under Canadian jurisdiction to its berth at a proposed marine terminal or transshipment site and, specifically, to the process of cargo handling between vessels, or off-loading from ship to shore or vice-versa.

3.0 ESTABLISHMENT OF THE PANEL

This Agreement:

- a) establishes an administrative framework within which the Parties can cooperatively exercise their respective powers and duties as established by the Act and the NEB Act;
- b) is a public document that is to be read with and interpreted in a manner consistent with the statutes referenced in a) and the regulations made pursuant to those statutes; and
- c) does not create any new legal powers or duties, nor does it alter in any way the powers and duties established by the statutes referenced in a) and the regulations made pursuant to those statutes.

4.0 GENERAL

- 4.1 Purpose** – The primary purpose of this Agreement is to coordinate the environmental assessment required under the Act and the NEB Act by providing for a review of the Environmental Effects likely to result from the project and the appropriate mitigation measures as part of the Board's public hearing process for the project. Nothing in this Agreement should be construed as limiting the ability of the Panel to have regard to all considerations that appear to it to be relevant pursuant to section 52 of the NEB Act.

4.2 Public Registry

- 4.2.1 A public registry will be maintained during the course of the review in a manner that provides for convenient public access. The registry will meet the purposes of compliance with sections 55, 55.1 and 55.4 of the Act and the Board's requirement to maintain a record of the Board's public hearing process for the project.
- 4.2.2 The public registry will include hearing transcripts and all submissions, correspondence, exhibits and other information received by the Panel, as well as all public information produced by the Panel relating to the review of the project.
- 4.2.3 All information produced or received by the Panel will be made available to the public and to Aboriginal peoples, unless specific procedural rulings or legislative provisions prevent the disclosure of the information.

- 4.3 **Participant Funding Program** – The Agency will administer a participant funding program that includes an Aboriginal funding envelope and a regular funding envelope. The Aboriginal Funding Envelope contributes limited funding specifically to Aboriginal groups to participate in and be consulted throughout the joint review process. The Regular Funding Envelope contributes limited funding to members of the public, not-for-profit organizations and Aboriginal people to participate in the joint review process.

5.0 CONSTITUTION OF THE PANEL

- 5.1 The Panel will consist of three members and be composed of no less than two permanent members of the Board.
- 5.2 Two members of the Panel, including the Panel Chair, will be appointed by the Board. The Minister of the Environment will approve the appointment of the Panel Chair and select the third panel member who will satisfy the eligibility requirements for a temporary member of the Board.
- 5.3 The Chair of the Board will make a request to the Minister of Natural Resources to recommend to the Governor in Council the appointment of the third panel member as a temporary member of the Board.
- 5.4 The members of the Panel are to be unbiased and free from any conflict of interest in relation to the project and are to have knowledge or experience relevant to the anticipated environmental effects of the project.

6.0 CONDUCT OF THE ENVIRONMENTAL ASSESSMENT BY THE PANEL

- 6.1 The Panel will meet the requirements of the Act and the NEB Act in the joint review of the project.

- 6.2 The Panel will conduct its review in accordance with the Board Rules and in accordance with Part IV of the Terms of Reference attached as an appendix to this Agreement. The Panel will have the powers set out in the NEB Act and section 35 of the Act.
- 6.3 The Panel will review the project in a careful and precautionary manner.
- 6.4 The Panel will conduct its review in a manner which will facilitate the participation of the public and Aboriginal peoples, and enable them to convey their views on the project to the Panel by various means, such as oral statements, letters of comment or participation as intervenors as outlined in Part IV of this Agreement.
- 6.5 In order that the Panel may be fully informed about the potential impacts of the project on Aboriginal rights and interests, the Panel will require the proponent to provide evidence regarding the concerns of Aboriginal groups, and will also carefully consider all evidence provided in this regard by Aboriginal peoples, other participants, federal authorities and provincial departments.

7.0 SECRETARIAT TO THE PANEL

- 7.1 Administrative, technical and procedural support required by the Panel shall be provided by a secretariat, which shall be the joint responsibility of the Board and the Agency.
- 7.2 The Secretariat will report to the Panel and will be structured so as to allow the Panel to conduct its review in an efficient and cost-effective manner.
- 7.3 The Agency will ensure that all other activities performed by Agency staff while assigned to the Secretariat are conducted in a way so as to avoid a conflict of interest with this joint review. Likewise, the Board will ensure that all other activities performed by the Board staff while assigned to the Secretariat are conducted in a way so as to avoid a conflict of interest with this joint review.

8.0 ABORIGINAL CONSULTATION

- 8.1 In addition to Subsection 6.5, the Panel will receive information from Aboriginal peoples related to the nature and scope of potential or established Aboriginal and treaty rights that may be affected by the project and the impacts or infringements that the project may have on potential or established Aboriginal and treaty rights. The Panel may include in its report recommendations for appropriate measures to avoid or mitigate potential adverse impacts or infringements on Aboriginal and treaty rights and interests.

8.2 The Panel shall reference in its report:

- a) the information provided by Aboriginal peoples regarding the manner in which the Project may affect potential or established Aboriginal and treaty rights; and
- b) in the case of potential Aboriginal rights, the information provided by the Aboriginal groups regarding the Aboriginal groups' strength of claim respecting Aboriginal rights.

9.0 REPORTING AND DECISION MAKING

- 9.1 The Panel will prepare a report setting out its rationale, conclusions and recommendations relating to the environmental assessment of the project, including any mitigation measures and follow-up programs and a summary of any comments received from the public and Aboriginal peoples, as well as information referred to in Section 8.
- 9.2 Once completed, the report will be submitted to the Minister of the Environment who will make it available to the public and Aboriginal peoples.
- 9.3 Following the Governor in Council approval of the government response to the report, the Panel will issue its Reasons for Decision pursuant to the NEB Act.

10.0 SPECIALIST ADVISORS TO THE PANEL

- 10.1 The Panel may request federal authorities and provincial departments having specialist information or knowledge with respect to the project to make this information or knowledge available.
- 10.2 The Panel may retain the services of independent non-government experts to provide evidence on certain subjects within the Panel's Terms of Reference.
- 10.3 The names of the experts retained pursuant to Subsection 10.2 and any documents obtained or prepared by such experts and that are submitted to the Panel will be placed on the public registry. For greater certainty, this shall exclude any information subject to solicitor-client privilege where the expert is a lawyer.
- 10.4 Any federal authorities or provincial departments from which specialist or expert information or knowledge has been requested, and any independent non-government experts retained pursuant to Subsection 10.2 may be required to appear at the oral hearing and testify in regard to the documents they have submitted to the Panel.
- 10.5 Nothing in this Agreement will restrict the participation by way of submission to the Panel by other federal or provincial departments or bodies.

11.0 AMENDMENTS, INTERPRETATION AND TERMINATION

- 11.1 Amendments to this Agreement may be made upon written notice by a Party to the other Party and upon the mutual consent of the Chair of the Board and the Minister of the Environment.
- 11.2 To the extent practicable, the Parties will seek to resolve differences of opinion in the interpretation and application of this Agreement at a working level, through good faith reasonable efforts.
- 11.3 Any Party may terminate this Agreement upon one month's written notice to the other Party.
- 11.4 Subject to section 27 of the Act, a Party's eligibility to withdraw from or terminate this Agreement will end at the commencement of the oral hearings.
- 11.5 The attached Appendix forms an integral part of this Agreement.

WHEREAS the Parties hereto have put their signatures this _____ day of _____ 2009.

Original Signed by:

The Honourable Jim Prentice
Minister of the Environment

Gaétan Caron
Chair, National Energy Board

APPENDIX

Terms of Reference

The definitions in the Agreement between the National Energy Board and the Minister of the Environment concerning the joint review of the Northern Gateway Pipeline Project will apply to this Appendix.

The Panel will conduct a review of the Environmental Effects of the project and the appropriate mitigation measures based on the project description and consideration of the project application under the NEB Act.

The Panel will include in its review of the project, consideration of the factors identified in this Appendix and the scope of the factors.

Part I – Scope of the Project

The project includes the construction, operation, decommissioning and abandonment of the following components:

- An oil pipeline commencing near Fort Saskatchewan, Alberta and terminating at a new marine terminal located in Kitimat, British Columbia;
- A condensate pipeline commencing at a new marine terminal in Kitimat, British Columbia and terminating near Fort Saskatchewan, Alberta;
- The right-of-way for the two pipelines as well as any temporary workspace required for the construction;
- Associated pump stations, a pressure letdown station (oil) and a pressure initiation station (condensate);
- Tunnels through North Hope Peak and Mount Nimbus to facilitate crossing of the Coast Mountains by the pipelines;
- A tank terminal, including hydrocarbon tanks, pump facilities and other land facilities, adjacent to the marine terminal;
- All-weather road access and electrical power requirements for the pump stations, the tank terminal and the new marine terminal in Kitimat, British Columbia;
- Block valves located at pump stations, selected watercourse crossings and other locations along the route;
- Pigging facilities at either end of the pipeline system and in selected intermediate locations;
- Cathodic protection system for the pipelines and tanks, including anode beds at selected locations along the pipeline route;

- Two marine loading and unloading berths (one each for oil and condensate) including:
 - loading and unloading platforms;
 - breasting dolphins;
 - mooring dolphins;
 - gangway tower;
 - walkway bridges between platform and breasting dolphins;
 - utility boat floating dock;
 - oil contingency deployment system with storage platforms;
 - fire fighting systems;
 - offshore anchorages in Kitimat Arm or elsewhere; and
 - pipeline interconnects between the berths and the tankage.
- Marine transportation of oil and condensate within:
 - the Confined Channel Assessment Area, as defined by the proponent, which includes the marine and shoreline area of Kitimat Arm, Douglas Channel to Camano Sound, and Principe Channel to Browning Entrance;
 - Hecate Strait; and
 - the proposed shipping routes to be used for the project that are within the 12 nautical mile limit of the Territorial Sea of Canada.
- All related works and activities including:
 - all temporary electrical power supply lines, such as those supplying energy for camps and worksites;
 - temporary work camps;
 - temporary access roads;
 - bridges and watercourse crossings (new or modified);
 - management and treatment of wastewaters and waste management;
 - water withdrawals;
 - borrow pits and quarries;
 - management of excavation material, including stockpiles (e.g. overburden);
 - log handling and storage facilities
 - construction worksites, storage areas and staging areas;
 - handling and storage of petroleum products and hazardous materials;
 - handling, storage and use of explosives; and
- Any other components described by the proponent in its Preliminary Information Package, filed with the National Energy Board on November 1, 2005

Any additional modifications or decommissioning and abandonment activities would be subject to future examination under the NEB Act and consequently, under the Act, as appropriate. Therefore, at this time, the Proponent will be required to examine these activities in a broad context only.

Part II - Factors to be Considered During the Joint Review

The joint review will include a consideration of the following factors listed in paragraphs 16(1) (a) to (d) and subsection 16(2) of the Act:

- The environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;
- The significance of the effects referred to above;
- Comments from the public and Aboriginal peoples that are received during the review;
- Measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the project;
- The purpose of the project;
- Alternative means of carrying out the project, that are technically and economically feasible and the environmental effects of any such alternative means;
- The need for, and the requirements of, any follow-up program in respect of the project; and
- The capacity of renewable resources that is likely to be significantly affected by the project to meet the needs of the present and those of the future.

In accordance with paragraph 16(1)(e) of the Act, the assessment by the Panel will also include a consideration of the following additional matters:

- Need for the project;
- Alternatives to the project;
- Community knowledge and Aboriginal traditional knowledge received during the review;
- Measures to enhance any beneficial environmental effects; and
- Environmental protection, environmental monitoring, and contingency and emergency response plans.

Part III - Scope of Factors

The Panel in conducting its consideration of the factors outlined in Part II will have regard to the following:

- The National Energy Board's Filing Manual dated 2004 as amended from time to time; and
- The document issued by the Canadian Environmental Assessment Agency, in response to comments received on the draft Joint Review Panel Agreement, entitled "Scope of the Factors - Northern Gateway Pipeline Project, August, 2009".

Part IV - Review Process

The main steps of the joint review process will be as follows:

- After the application has been filed with the Board by the Proponent, the Panel will review it to determine if there is sufficient information in the application to initiate the joint review process. If it is determined by the Panel that there is sufficient information, it will proceed to issue a Hearing Order. If there is not sufficient information, the proponent will be notified and the process will not proceed until the required information has been filed with the Panel.
- The Panel will issue a Hearing Order which sets out the procedures that will be followed for the joint review of the project including:
 - a description of the methods by which the public and Aboriginal peoples can participate in the review of the project;
 - the draft list of issues (i.e. the project-related issues) that will be considered in the joint review;
 - how and when intervenors can issue information requests to the Proponent or other parties in order to clarify evidence or obtain further information regarding the project;
 - the distribution of and access to all evidence, correspondence and other documents which will be used in the joint review and which will form the public registry;
 - the timetable of events for the joint review, including the deadlines for filing evidence and information requests as well as the date when the oral hearings will commence; and
 - how motions or questions of procedure or substance can be raised with the Panel.
- The Secretariat to the Panel will conduct information sessions with the public and Aboriginal peoples to assist them in understanding the joint review process and

the ways in which they can participate. The location and timing of the sessions will be determined by the Panel.

- The Panel will conduct sessions with the public and Aboriginal groups for the purpose of seeking comments on:
 - the draft list of issues (included in the Hearing Order);
 - whether the proponent ought to be required to file any additional information which was not included in its application in view of the proposed changes to the list of issues, the NEB Filing Manual and the Agency's document entitled "Scope of the Factors - Northern Gateway Pipeline Project, August 2009"; and
 - the location of the oral hearings.
- The public and Aboriginal peoples may choose the manner in which they wish to participate in the review of the project. These options include:
 - **filing a letter of comment:** This is a written statement of the writer's views on the project and any relevant information that will explain or support their comments;
 - **providing an oral statement:** This is similar to a letter of comment except that the statement is delivered orally at a prescribed time during the oral hearings. A party wishing to provide an oral statement must advise the Panel of their intention to do so in advance; and
 - **intervention:** Intervenors may choose the extent to which they wish to participate in the hearing, but have the ability to do the following: file written evidence, ask questions regarding the evidence of others, be questioned on their evidence, participate in cross-examination and make a final argument at the oral hearings. There will be a minimum of 90 days between the deadline for requesting intervenor status and the commencement of the oral hearings.
- Government participant status will be afforded to federal authorities and provincial departments with an environmental assessment or regulatory responsibility and who file a declaration to this effect. The requirements of a government participant will be outlined in the Hearing Order.
- Prior to the scheduled start of the oral hearings as set out in the Hearing Order, the Panel will announce the location and timing of the oral hearing. When determining the location and timing of the oral hearings, the Panel will take into consideration the location of those most impacted by the Project and any special needs of participants.
- The public and Aboriginal peoples will have a minimum of 90 days prior to the commencement of the oral hearings to review the proponent's application.

- The oral hearings will be accessible via the Internet so the public and Aboriginal peoples not attending the oral hearing can listen to the proceedings. Transcripts of the oral hearings will be prepared and be available through the public registry.
- The Panel will deliver its report to the Minister of the Environment following the close of the oral hearings. The report will take into account and reflect the views of all Panel members.