

CONFIDENTIAL

April 30, 2012

British Columbia Utilities Commission
6th Floor, 900 Howe Street
Vancouver, B.C. V6Z 2N3

Attention: Ms. Alanna Gillis, Acting Commission Secretary

Dear Ms. Gillis:

RE: FortisBC Energy Inc. ("FEI") Certificate of Public Convenience and Necessity ("CPCN") for the Fraser River South Arm Crossing Upgrade Project (the "Project")**Final Report in Compliance with British Columbia Utilities Commission (the "Commission") Order No. C-2-09**

On November 6, 2008, FEI filed an application for a CPCN to construct and operate the Fraser River South Arm Crossing Upgrade Project (the "Application"). On March 12, 2009, the Commission granted a CPCN for the Project by Order No. C-2-09 subject to a number of conditions, which include requirements that FEI file a quarterly progress report within 30 days of the end of each reporting period and a final report within six months of the end or substantial completion of the Project. In particular, the final report is to provide a complete breakdown of the final costs of the Project, compare these costs to the updated cost estimate, and provide an explanation and justification of material cost variances.

Final Report

Pursuant to the Commission's directive, attached is the eleventh and final Report for the Project, prepared in accordance with the report format in Appendix A of the Order and in compliance with both requirements of the Order stated above.

During the fourth quarter of 2011, the prime contractor – North American Pipelines Inc. ("North American") substantially completed field construction of both pipeline crossings which were placed into service on October 22, 2011 (NPS 20) and on December 3, 2011 (NPS 24). North American cleaned up the site and de-mobilized on December 12, 2011.

Despite a 22-month delay arising from two major failures of HDD subcontractor equipment, and the replacement of the first HDD subcontractor, the Project has delivered two replacement pipeline crossings which fully meet the technical objectives for which the CPCN was granted. Pipeline integrity risks from a major seismic event, river scour, and settlement of river dikes have been mitigated as planned. Throughout the duration of the Project, FEI has maintained good relations with all landowners.

The only work left to complete is final restoration of landowners' property used for the north side drill workspace. Depending on weather conditions and coordination with landowners' operations,

the completion date for that final restoration work is expected to be Spring 2012. The remaining restoration work is not material and is included in the final Project cost.

Settlement Agreement

There have been significant cost pressures on the Project with North American requesting compensation for a claim of [REDACTED] due to the two HDD failures. In response, FEI presented its additional costs arising from the 22-month delay. After a number of discussions, a Settlement Agreement was reached on March 26, 2012 which satisfied the needs of both parties, included as Appendix 6. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Despite the major HDD equipment failures and the resulting 22-month delay, the revised total final Project cost is approximately \$34 million inclusive of the settlement amount, which is less than the previously projected forecast cost of \$36.3 million first described in the Q1 2010 quarterly report to the Commission.

Approval Sought and Request for Confidentiality

Pursuant to Sections 59-61 of the Utilities Commission Act, FEI respectfully requests BCUC approval of the Settlement Agreement and specifically the inclusion of \$34 million into FEI's rate base, as reflected in the financial schedules filed in accordance with Item 15 of Commission Order No. G-44-12.

FEI further requests that this Final Report and subsequent BCUC proceedings related to the Settlement Agreement, if any, remain confidential pursuant to the Commission's Confidential Filings Practice Directive. The information contained in the Settlement Agreement resulting from negotiations should be confidential as it contains sensitive settlement information, the release of which could prejudice the competitive and negotiating position of FEI and North American, if the Settlement Agreement is not approved. The Final Report similarly contains information relating to the settlement discussions and budget information that could hamper effective contractual negotiations for future projects. Additionally, the information in the Settlement Agreement and the Final Report has been consistently treated as confidential by the parties.

FEI does not object to customer group interveners such as the British Columbia Public Interest Advocacy Centre on behalf of the British Columbia Old Age Pensioners Organization et al ("BCOAPO") and the Commercial Energy Consumers Association of British Columbia ("CEC"), being provided with the Settlement Agreement upon executing standard form undertakings of confidentiality. However, FEI does not believe that any of the Settlement Agreement should be provided to potential contractors who are likely to be involved in FEI's pipeline construction projects.

However, FEI recognizes that the request for the inclusion of the \$34 million amount into FEI's rate base may require the Commission to make certain parts of the Settlement Agreement

public. If this were the case, FEI respectfully requests that the Settlement Agreement be made public only after it is approved by the Commission and after FEI is given an opportunity to redact certain sensitive information not directly related to the calculation of the rate base amount. Moreover, FEI believes that the Final Report would remain confidential on a permanent basis as such reports have always been treated confidentially by the Commission.

If there are any questions regarding the Report, please contact the undersigned.

Yours very truly,

FORTISBC ENERGY INC.

Original signed:

Diane Roy

Attachments



~~CONFIDENTIAL~~

FORTISBC ENERGY INC.

**Fraser River South Arm Crossing
Upgrade Project**

Final Progress Report

**Submitted to the
BRITISH COLUMBIA UTILITIES COMMISSION**

**Filing in Accordance with
Commission Order C-2-09**

April 30, 2012

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1 Project Status

1.1 General Project Status

During the fourth quarter of 2011, the prime contractor – North American Pipelines Inc. (“North American”) completed field construction of both pipeline crossings. The NPS 20 crossing was placed into service on October 22, 2011 and the NPS 24 crossing was placed into service on December 3, 2011. North American cleaned up the site and de-mobilized on December 12, 2011.

The unsuccessful HDD attempt in January 2010 and a change of the HDD sub-contractor resulted in a delay of six months, and the short NPS 24 pull-back added seventeen and a half additional months of delay to the in-service date. The only substantial work left to complete is final restoration of landowners’ property used for the north side drill workspace. This principally involves re-paving the area in front of a large warehouse and loading bays and thus timing will be dependent on weather conditions and coordination with landowners’ operations. FEI is currently negotiating whether to undertake this work as planned or to provide a settlement to the landowner for them to do it. In either case, FEI’s completion date for that final restoration work will be Spring 2012 and the remaining costs are well understood. Throughout the Project, FEI has kept landowners and local businesses informed and they remain satisfied that FEI has minimized impacts on their operations.

The completion of these two pipeline crossing replacements meets FEI and industry standards and fully accomplishes the Project objectives as detailed in the Application. Risks to pipeline integrity from a major seismic event, from river scour, and from settlement of river dikes have been mitigated.

1.2 Major Accomplishments, Work Completed and Key Decisions Made

- Both the FEI Project team and North American persevered to complete the Project in the face of major HDD equipment failures and resultant lengthy delays. Despite these challenges the end result is completed assets which fully meet the design specifications.
- FEI maintained excellent relations with North American throughout the Project by conducting regular progress meetings as well as issue-specific meetings to review and resolve concerns. Claims for extra work were resolved amicably and within budget.
- FEI re-assigned Project team members to the greatest extent possible so as to minimize the cost impact of the lengthy delays.
- Emphasis on safety placed jointly by FEI and North American produced excellent results for a heavy construction project of this magnitude. This involved particularly difficult working conditions in and around the cofferdam, which was constructed to complete the south side of the NPS 24 HDD pipeline.

- Similarly, emphasis placed on environmental protection has resulted in full compliance with regulatory requirements and an absence of environmental incidents. A major ditch habitat was re-located, topsoil was retained and restored to adjacent agricultural lands, HDD frac-outs were avoided, drill mud and cuttings were properly contained and disposed of, and ground water was treated before being carefully returned to the environment.
- Damage to property was successfully minimized, and special attention was paid to ensure the closely adjacent NPS 48 Metro water pipeline was not disturbed, thereby avoiding a potentially catastrophic failure.
- FEI communicated and consulted with other key stakeholders to maintain positive relations in spite of the lengthy delays. These are described further in Section 6 below.
- Extensive, on-going follow-up with North American has provided good quality Project documentation.

1.3 Project Challenges and Issues

1.3.1 HDD CONSTRUCTION

1.3.1.1 Key Events

North American mobilized on August 29, 2009 and the Project proceeded for four months without incident. Then the following key events occurred:

- North American subcontracted the HDD work to the first HDD sub-contractor - The Crossing Company Inc. ("TCC"). On January 1, 2010 during the first NPS 20 HDD attempt, TCC suffered a major equipment failure. After successfully completing the small HDD pilot hole under the river, the drill string was being driven by two TCC HDD rigs, one at either end, to ream the pilot hole to a larger diameter. The drill string parted at the bottom of the south side entry casing, close to the larger south side HDD rig. The smaller north side HDD rig was unable to move the drill string, and many attempts to re-attach at the break point were unsuccessful.
- On January 21, 2010, TCC removed its personnel from the site, leaving its HDD rigs in place and 1,100 metres of drill string under the river.
- On May 13, 2010, North American terminated its contract with TCC, who then removed its HDD rigs. North American sourced a replacement HDD sub-contractor, Direct Horizontal Drilling Ltd. ("Direct") which began a NPS 24 HDD attempt.
- On July 24 & 25, 2010, Direct pulled the NPS 24 pipeline under the Fraser River across to the south side, but was unable to complete the last 55 metres of the pull into the south side entry casing. A major equipment failure had occurred – parting of the drill string next to its attachment to the NPS 24 pipeline, at a depth of 17 metres.

- On August 24, 2010, Direct successfully completed a NPS 20 HDD attempt by pulling that pipeline fully into place under the river, using a re-designed alignment which avoided TCC's abandoned drill string.
- In January 2011, after four months of planning, North American began construction of a cofferdam to access the NPS 24 HDD pipeline 17 metres below grade on the south side of the river. After finally managing the removal of a substantial volume of ground water surrounding the cofferdam, North American successfully completed the NPS 24 HDD pipeline in September 2011 by attaching induction bends to re-route the pipeline vertically within the cofferdam.
- The short pullback of the NPS 24 HDD pipeline also prevented the positioning of electrical isolators at the north side to separate the pipeline from the entry casing. FEI engaged expert consultants who recommended inserting a custom-designed intermediate casing between the pipeline and the larger entry casing. This solution was successfully achieved in September 2011 and proper corrosion protection was obtained.

The remainder of construction: tie-in pipelines, cleaning, testing, drying and gasification of the completed crossings, all proceeded normally during the final three months ending in December 2011.

1.3.1.2 FEI Decisions

Each time a key event occurred during the Project, and particularly when major equipment failures threatened successful completion, FEI undertook a thorough examination of the situation and evaluated its options which were:

- Cancel the Project - In each case it was determined that cancelling the Project would result in significant costs and leave the pipeline risks unmitigated, with no cost-effective alternative to proceed, other than making further HDD attempts. FEI and North American's assessments concluded there was no evidence that sub-surface conditions rendered the Project impractical for HDD.
- Change the prime contractor - The major equipment failures arose under the auspices of the HDD subcontractors, and not the prime contractor. Cancelling the prime contract would have raised contractual problems, resulted in an even more substantial Project delay to secure a new prime contractor, likely would result in a higher contract price as any replacement contractor would be aware of the issues with the Project and likely increase their price accordingly to account for those risks, and may result in costly litigation if the prime contractor alleged that the termination was contrary to the terms of the contract. Replacement contractors would almost certainly have refused to work under a guaranteed completion contract which would have resulted in a higher risk assumption by FEI.
- Continue to work with the present prime contractor – North American remained cooperative, was committed, and had the skills, experience and access to additional

resources to complete the Project. The failures were not attributable to any lack of prime contractor capability. Therefore, this scenario was seen each time to be the only logical and cost-effective choice.

1.3.2 CONTRACTUAL MATTERS

1.3.2.1 Contractor Claims

In February 2010 FEI received from North American two claims for un-specified compensation due to an alleged change in the subsurface conditions for the failed NPS 20 HDD attempt by TCC, North American's original HDD subcontractor. FEI rejected those claims in March 2010 on the basis that North American did not provide evidence of a change in the subsurface conditions from those disclosed in the tender documents. FEI received a letter dated July 14, 2010 directly from TCC requesting compensation of approximately \$3 million for the failed NPS 20 HDD attempt. As FEI has no contractual relationship with TCC, FEI sent TCC's letter to North American to respond.

On September 10, 2010 TCC filed a lien under the *Builders Lien Act* against properties being accessed and used for the Project. According to the lien document, the amount of the lien was \$2,890,043, which TCC claimed was owed to TCC by North American. On September 29, 2010, FEI formally requested North American remove the lien, as required under the terms of the contract between FEI and North American. The lien was discharged from title on October 21, 2010.

In February 2011 FEI received a letter from TCC requesting an update on their July 2010 claim for compensation. FEI replied in March requesting TCC deal with North American on this matter, since TCC's contract is with North American, and not with FEI.

On November 28, 2011 FEI received a summary of all claim amounts from North American, requesting compensation of [REDACTED] due to the two HDD failures. On January 24, 2012, North American presented extensive information in support of the claim for the first HDD failure.

1.3.2.2 Resolution of Claims

FEI management and legal counsel carefully considered the following options for responding to the claim by North American:

- Accept the claim - FEI has seen no evidence to support the contractor's allegation that changed sub-surface conditions led to the two HDD failures. Therefore this option was immediately rejected.
- Refuse the claim and launch a counter claim – Despite ongoing efforts to minimize costs, FEI incurred substantial costs arising from the 22 month delay. However, FEI anticipated that taking this approach would carry significant negative risks:
 - very lengthy, expensive litigation would almost certainly result,
 - the outcome of such a legal proceeding is uncertain, and

- a negative impact on FEI's relationship with the contractor industry would result. Strong evidence of this was seen in recent bidding for a small HDD project where four of the six invited contractors refused to bid, neither of the two bids received was fully compliant with the tender, and the lowest bid was well above FEI's cost estimate.
- Negotiate a settlement – This was seen to be an acceptable approach which would provide certainty, avoid legal costs, and avoid significant cost penalty to future contract work.

Therefore in response to the claim, FEI presented its additional costs arising from the 22 month delay and then entered into a number of discussions with North American. A Settlement Agreement, included as Appendix 6, was reached on March 26, 2012, which satisfied the needs of both parties. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1.3.3 GROUNDWATER TREATMENT

It was understood from the outset that the high water table at the Project sites would require that ground water be removed whenever excavation is done. FEI did not anticipate that groundwater would contain high levels of dissolved iron near the surface, which would have to be removed before discharge back into the environment.

The equipment failure resulting in a short HDD pullback required that the NPS 24 pipeline be tied in at much greater depth than originally planned, hence much larger volumes of ground water would potentially need treatment and higher costs would be incurred. Accordingly, in December 2010, the south side HDD settlement pond was converted into a treatment facility with suitable capacity. Fortunately, groundwater extracted from the deep dewatering wells proved to be far lower in dissolved iron than groundwater initially encountered nearer the surface. FEI therefore sought and was granted approval to discharge the pumped deep groundwater directly to the Fraser River, which avoided further costs. In the end, costs for water treatment and settlement pond modifications were managed within the control budget as detailed in Section 4.1 below.

1.3.4 LANDOWNER AGREEMENTS

The delays required that extra negotiations with landowners be conducted to extend the agreements for land use and access. The negotiations were successful, but resulted in a cost variance of \$323,000 as detailed in Section 4.1 below.

Restoration of the Gilmore Farm was successfully completed, and the farm operator provided a waiver of any further crop loss claims. All other landowner agreements have been finalized

except that FEI is waiting for a lump sum amount from a landowner who intends to do restoration themselves. FEI is confident that this lump sum has been accounted for in the remaining restoration budget. FEI believes all restoration to date has been completed to meet applicable standards.

2 Project Spending Profile

As referenced in previous Quarterly Reports, spending on construction of this Project was largely comprised of a few major lump sum expenditures rather than a traditional series of progress payments for incremental work. Therefore the use of S-curves to profile the use of contractor resources, the impact of schedule changes, budget and cost variances would have provided very limited value in assessing the financial performance of the Project.

Under the guaranteed completion contract between FEI and North American, successful completion and placing of the two HDD pipelines into service fulfils 100% of the contract base price work. FEI has paid North American [REDACTED] for this base price work as stipulated under the contract. In addition, FEI has paid North American [REDACTED] for approved change orders.

[REDACTED]
[REDACTED]
[REDACTED] This results in a final total contractor cost of \$16.47 million.

Costs and variances incurred relative to the control budget and estimates are reported in Section 4 below, together with an explanation of changes in scope, and the work quantity variances that were subject to unit pricing under the contract.

3 Project Schedule

3.1 Milestone Summary

Table 3-1: Construction Milestones

Construction Milestones	Original Plan ref. July 30, 2009 Project Report	Revised Estimate	Completion (actual)	Variance (months)
Construction Mobilization	Aug 19, 2009	—	Sep 5, 2009	0.5
Bypasses Completed & Operating	—	Sep 30, 2009	Oct 10, 2009	0.3
HDD NPS 20 & 24 Line Pipe Welded, Tested and Ready for Pullback	—	Oct 27, 2009	Nov 15, 2009	0.6
Mobilization of first HDD sub-contractor	—	—	Dec 2, 2009	—
HDD Stoppage – equipment failure	—	—	Jan 1, 2010	—
Termination of HDD sub-contractor	—	—	Apr 21, 2010	—
Mobilization of new HDD sub-contractor	—	—	Jun 14, 2010	—
Pull-back of HDD NPS 24 Pipe	—	—	Jul 25, 2010	—
Pull-back of HDD NPS 20 Pipe	—	—	Aug 24, 2010	—
NPS 20 & NPS 24 Crossings “In Service”	Dec 18, 2009	—	Dec 3, 2011	23.5
Construction Cleanup & De-mobilization	—	—	Dec 12, 2011	—
Restoration & Final Acceptance	Aug 31, 2010	Jun 30, 2012		22

The unsuccessful NPS 20 HDD initial attempt and North American’s choice to replace their original HDD sub-contractor resulted in a six month delay of the in-service date. An additional delay of thirteen and a half months arose from the incomplete NPS 24 HDD pull-back, resulting in an in-service date of December 3, 2011 for the Project, as shown above in Table 3-1.

The remainder of restoration work (principally re-paving) is subject to weather conditions and requirements of the landowner agreements. FEI is currently negotiating whether to undertake this work using local contractors as planned or to provide a lump sum amount whereby the landowner would take responsibility for completing the restoration. In either case, FEI’s

completion date for that final restoration work will be Spring 2012 and the remaining costs are well understood. FEI anticipates this work will be done on or before June 30, 2012.

3.2 Procurement Summary

3.2.1 PRIME CONTRACTOR

FEI developed the tender incorporating “lessons learned” from previous HDD projects and used a pre-eminent legal consultant experienced in HDD and major construction contracts.

- The tender was structured to compare the merits of “shared risk” bids against “guaranteed completion” bids. Under a “guaranteed completion option”, the contractor assumes primary risk for completing the HDD; whereas under a “shared risk” option, the risk of completing the HDD (including additional costs) is shared between the owner and the contractor. FEI believes its choice of the guaranteed completion option greatly enhanced contractor cooperation and commitment to timely completion, while protecting ratepayer interests.
- FEI assessed and invited bids only from established contractors with proven track records for this type of work. The tender allowed for pipeline contractors or HDD contractors to be either the prime contractor or the subcontractor. FEI conducted a comprehensive review and examination of short-listed bidders, including in-depth interviews to assess relevant experience, senior personnel and other key factors.
- The two lowest bids were from contractors which appeared to have the relevant experience to complete the Project, and the low bid allowed FEI to establish a Control Budget which met the requirements of BCUC Order C-2-09. The two lowest bids showed only a small incremental cost increase for the “guaranteed completion” option, as compared to the “shared risk” option.
- Both lowest bidders were recognized as capable companies with experience performing this type of work. The lowest bidder, North American, had recently completed the Trans Mountain Pipeline TMX Anchor Loop Project on time and under budget despite challenging environmental constraints. FEI awarded North American the contract.
- North American persevered with the Project despite the challenges encountered with the two HDD failures. North American could have abandoned the Project after either HDD failure rather than incur additional costs to remedy the failures and complete the Project. North American has stated that the HDD failures resulted in North American incurring approximately [REDACTED] in extra costs. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] FEI believes the guaranteed completion option provided the best value for ratepayers as compared to a risk share option. If FEI was not able to reach a settlement with North American with respect to the HDD failures, it is likely that FEI would struggle in the future to find contractors willing to work on projects under a guaranteed

completion option and would be forced to contract under shared risk or on a time and materials basis which would likely result in increased cost and risk for FEI and the ratepayer.

3.2.2 MAJOR MATERIALS

Because the HDD pipelines are inaccessible for normal maintenance, FEI specified stringent standards for pipeline materials and pipe manufacture, to ensure the HDD pipelines would withstand the rigours of installation and then perform as designed over their anticipated life.

- The pipe tender was awarded to the lowest bidder, local supplier CE Franklin, which sourced the pipe from Germany at a price of \$2.84 million, \$0.6 million below the budget estimate.
- Induction bends were procured for tie-ins to the HDD pipelines as originally designed. After the failed NPS 20 HDD attempt, FEI re-designed the HDD profile to avoid the abandoned drill stem underneath the river. This required relocating the south side NPS 20 entry point and procuring a new induction bend to match the actual entry angle of the new casing. Likewise, the short pullback of the NPS 24 HDD pipeline required two new induction bends to be procured for the deep excavation tie-in. These three additional induction bends cost \$45,400.

3.3 Current Schedule

The remaining final restoration work is subject to weather conditions and requirements of the landowner agreements. FEI believes Project Completion will be achieved on or before June 30, 2012.

3.4 Scope Change

3.4.1 DESIGN SCOPE

New information gathered shortly after commencement of construction prompted a change to the design affecting the location, sizes and lengths of HDD entry / exit casings. The changes were made to minimize risks to overall HDD constructability.

After the failed HDD attempt for the NPS 20 crossing, FEI developed a new HDD profile for the second attempt. The new profile passes beneath the failed first attempt, ensuring adequate clearance from the abandoned drill string. This change required installation of a new south side entry. The NPS 20 crossing was pulled into place on that new profile.

To prevent soil settlement in the Kingswood Industrial Park arising from the failed HDD attempt, the abandoned NPS 20 borehole was grouted approximately 100 metres southwards from the bottom of the north side entry casing.

The short pullback required that the NPS 24 HDD pipeline be rerouted vertically within the cofferdam using induction bends to complete the deep tie-in rather than routing through the original exit casing. FEI requested its seismic design consultant re-evaluate the integrity of the NPS 24 HDD pipeline, based on the new design, and was advised that seismic performance of the completed pipeline will not be adversely affected. Likewise, partial removal of the original south side exit casing for the NPS 24 HDD pipeline was investigated and approved as the best option to ensure future stability of the new crossing while maintaining clearance to ensure seismic and cathodic protection criteria are met and to avoid the risk of damage to the adjacent NPS 48 water line.

The short pullback also required a new design be created to ensure the NPS 24 HDD pipeline stays isolated from the north side entry casing and ensure cathodic protection against corrosion be maintained for the life of the pipeline. FEI consulted extensively with experts in the field of cathodic protection to develop a design which was successfully implemented.

3.4.2 CONSTRUCTION SCOPE

Topsoil stripped from the pipe layout area on the north (Richmond) side was left stored as a berm, as requested by the Gilmour Farm operator. On the south (Delta) side, fill materials from the Project were levelled and left in place as requested by the landowner. Excavated (drilled) soil material was disposed off-site and the settlement pond was dismantled, as was provided for in the original Project cost estimate.

Significant design work was undertaken by North American to accommodate the deep excavation for the NPS 24 tie-in while preserving the integrity of the immediately adjacent NPS 48 Metro Vancouver water main. North American installed pipe supports for the NPS 48 waterline, tensioned them to the satisfaction of Metro Vancouver inspectors on site, and continued to monitor the status of the supports until the south side tie-in pipelines were backfilled.

4 Project Costs

The Project budget and actual costs are reported here based on the Project costing Work Breakdown Structure (“WBS”) developed for execution of the work and cost management.

The Project cost information is being reported against the total Control Budget (P50) established in the July 30, 2009 Project Report to the Commission.

The cost at completion for the Project inclusive of the [REDACTED] settlement amount is approximately \$34 million, which is less than the previously projected forecast cost of \$36.3 million described in the Q1 2010 quarterly report to the BCUC.

The most recent cost report for the Project as of March 2012 has been included as Appendix 2. The cost report can be summarized as follows in Table 4-1 below:

Table 4-1: CONTROL BUDGET AND MARCH 31, 2012 COST STATUS

Cdn \$(000)	Control Budget at (Jul 30/09)	Spent to Date	Total at Completion	Variance from Control Budget
Pre CPCN Expenditures	\$ 450	\$ 450	\$ 450	-
Performance Measure Baseline	\$28,681	\$ 30,231	\$33,456	(\$4,775)
Total Project Cost (TPC)	\$29,751	\$ 30,676	\$33,946	(\$4,195)
P(50) Cost	\$29,751			
P(90) Cost	\$32,479			

4.1 Project Cost and Financial Summary (Including Explanation of Variances)

FEI continually sought ways to mitigate potential cost increases throughout the Project. An explanation and justification of material cost variances is provided. The final variance amounts are based on a Project completion on or before June 30, 2012 and are summarized in Table 4-2 below by major cost driver and Work Breakdown Structure (“WBS”) element presented in the Appendix 2 Cost Report.

Subject to BCUC approval of the Settlement Agreement, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Table 4-2: Material Cost Variance Breakdown

\$(000) ¹ Work Breakdown Structure Element Cdn	Primary Process Driver	Failed NPS 20 HDD Attempt	Ground Water Treatment	NPS 24 Short Pull-back	Restoration	Other	Appendix 2 Cost Report Variance
1. Project Management, Engineering, Consultation, Inspection	Schedule	(\$2,250)	-	(\$1,264)	(\$304)	-	(\$3,818)
2. Land Utilization, Temporary Workspace	Schedule	(\$97)	-	(\$226)	-	-	(\$323)
3. River Crossing HDD Install & P/L Construction Base Price Change Order Other ² 	Scope Changes ⁴						
4. Total Other WBS	Scope Changes	-	-	-	-	\$282 ⁵	\$282
5. Total Variance	-	(\$3,695)	\$213	(\$2,944)	\$194	\$2,037	(\$4,195)

1 These variance costs include all claims by North American for additional compensation.

2 Other consist of unallocated contingency.

3 Subject to BCUC approval.

4 Refer to Appendix 5 – Scope Change Summary for detailed breakdown in accordance with Order C-2-09 Appendix A Item 3.16 and Item 3.1.7

5 Other consists of the summation of the variances for Pipe and Coating Materials, North Bank Dike Improvements Allowance, Operations & Commissioning, AFUDC, Corporate and Administrative Costs, First Nations Consultation, Legal Cost, Other Regulatory Costs, BCUC Regulatory Costs and Other Non-Project Costs (retirement).

4.1.1 PROJECT MANAGEMENT, ENGINEERING CONSULTATION AND INSPECTION

4.1.1.1 Failed NPS 20 HDD attempt

The most notable change in the Project arose from the six month delay described in Section 3.1 above, and was caused by the failed HDD attempt and the change of HDD sub-contractors. Creation of a new NPS 20 HDD profile and related geotechnical investigations has resulted in an estimated cost variance of \$250,000. All efforts were made to minimize costs during the delay, even though the duration could not be predicted. Including the cost variance due to design and geotechnical investigations noted above, the incremental Project costs attributable to this delay were largely driven by third party engineering, environmental, legal, and project inspection services required to ensure adherence to applicable technical and environmental codes and standards. These have resulted in an unfavourable cost variance of approximately \$2,250,000.

4.1.1.2 Short NPS 24 pull-back

Extensive construction work involving deep excavation and de-watering was necessary to complete the NPS 24 south side tie-in, resulting from the pull-back being 55 metres short.

Throughout the approximate seventeen and a half month delay for planning and construction of the NPS 24 south side tie-in, FEI made efforts to temporarily re-assign key Project team members to other projects. The delay has resulted in FEI accumulating incremental costs largely driven by third party engineering, environmental, legal, and project inspection services which result in an unfavourable cost variance of approximately \$1,264,000.

4.1.1.3 Restoration

By spending an additional \$304,000 for research and negotiations with landowners (project management costs), a savings of \$498,000 for field work was achieved resulting in a net favorable variance of \$194,000.

4.1.2 LAND UTILIZATION AND TEMPORARY WORKSPACE

4.1.2.1 Failed NPS 20 HDD attempt

Extension of Landowner agreements from July to December 2010 has resulted in an unfavourable cost variance of approximately \$97,000. This variance was reduced from initial estimates because actual agreement extensions were less onerous than anticipated.

4.1.2.2 Short NPS 24 pull-back

Extension of Landowner agreements from December 2010 to December 2011 has resulted in an unfavourable cost variance of approximately \$226,000. This variance was reduced because actual agreement extensions were once again less onerous than anticipated. In addition, anticipated business interruption costs were mitigated through coordination of Project activities and landowner activities, based on ongoing positive relationships.

4.1.3 RIVER CROSSING HDD INSTALLATION AND PIPELINE CONSTRUCTION

4.1.3.1 Change Order

4.1.3.1.1 Failed NPS 20 HDD attempt

Additional casing was installed to facilitate the amended NPS 20 drill path. The extra cost for this work has resulted in an unfavourable cost variance of approximately [REDACTED].

4.1.3.1.2 Ground water treatment

As referenced in Section 1.3.2 above, it had been initially determined the removal of dissolved iron would be necessary before the groundwater could be discharged to the environment. FEI took the initiative to re-purpose the HDD settlement pond to provide this treatment as cost-effectively as possible. However, since the quality of the deep groundwater proved to be suitable for direct discharge to the Fraser River, FEI determined extra-ordinary costs on water treatment were not required. This resulted in a favourable variance of approximately [REDACTED].

4.1.3.1.3 Short NPS 24 pull-back

Additional remedial steps required to obtain satisfactory cathodic protection on the north side as described in Section 1.3.1.1 above have resulted in an unfavourable cost variance of approximately [REDACTED].

4.1.3.1.4 Restoration

Restoration of the Gilmore Farm site on the north side has been substantially completed. There have been ongoing changes to the restoration requirements as an outcome of negotiations with landowners since the initiation of the Project. Remaining restoration will result in a favourable variance of approximately [REDACTED].

4.1.3.2 Other

After re-calculating the cost estimate in July 2009, an un-allocated contingency of \$[REDACTED] was included to address additional possible construction risks. This amount did not include any extraordinary claims from the Contractor. For the purpose of this reconciliation, the unfavourable cost variances were included in specific categories explained above and therefore the "Other" cost category must be shown as a favourable variance of [REDACTED].

4.1.3.3 Settlement Amount

Please refer to Section 1.3.2.2 for details.

4.1.4 TOTAL OTHER WORK BREAKDOWN STRUCTURE ("WBS")

Variances for pipe and coating materials, north bank dike improvements allowance, operations & commissioning, AFUDC, corporate and administrative costs, First Nations consultation, legal cost, regulatory costs and other non-project costs such as abandonment of previously existing crossing pipeline were combined into the Other category which has yielded a net favourable variance of approximately \$282,000.

4.2 Summary of Contracts Exceeding \$2 Million

There were only two large-value contracts: one for procurement and one for construction. These contracts are summarized below in Table 4-3.

Table 4-3: Large Contracts Summary

Summary of Individual Contracts exceeding \$2 million (Construction and Procurement)						
Vendor	(Cdn\$000)	Budget Amount	Original Award, Contingency Allowance or via Settlement Agreement	Final	Approved & Paid	
					Current Quarter	Cumulative to Date
Line Pipe Supply: C.E. Franklin	Bid Price	\$3,450	\$2,843	\$2,843	\$0	\$2,843
Construction/HDD: North American Pipelines Inc.	Base Price	\$14,100	██████	██████	██	██████
	Allowance ⁽¹⁾ for Changes		██████	██████	██████	██████
	Settlement Agreement		██████	██████	██	██0
	Final Construction Price			██████	██████	██████

Notes:

- Allowance for Changes: The construction / HDD tender required a lump sum bid for the majority of the work, as well as a list of unit prices applicable to:
 - variable work units such as backfill, work-pad, and restoration materials, and
 - extra work units which were not anticipated in the tender (force account work).
- Price extension using North American's tendered unit prices and FEI's estimate of quantities (for comparable tender evaluation).
- For further breakdown of costs refer to Appendix 2.
- Settlement Agreement amount is subject to BCUC approval.

Change Orders

Twenty-nine Requests for Change Order ("RCOs") were received from North American during January, bringing the cumulative total to eighty-three. Of these, FEI has approved seventy-seven and has rejected six change orders.

It should be noted that forty-five of these RCOs either relate to unit price items already provided for in the control budget, or constitute relatively minor amounts of extra work. Seven RCOs are

related to the failed NPS 20 HDD attempt and two of these RCOs relating to the failed HDD attempt did not claim a specific amount and have been refused by FEI. Six RCOs are related to groundwater treatment; two RCOs are associated with NPS 24 short pullback; ten RCOs are in connection with restoration; and thirteen RCOs are categorized as “other” (see Appendix 5).

5 Project Risks

Project specific risks were analyzed in the Project Report filed July 30, 2009 in compliance with Commission Order C-2-09. These risks did not change significantly throughout the Project, notwithstanding the failed initial NPS 20 attempt and short NPS 24 pull-back.

5.1 Sub-Surface Risk

- HDD – FEI was confident that by accepting the lowest bid based on the Guaranteed Completion Option, the best value and lowest risk had been achieved. The risk that the prime contractor could not complete the HDD resided fully with the prime contractor and not with FEI or its ratepayers. This approach has been validated with the actual occurrence of two major HDD equipment failures.
- Deep Excavation – North American took measures to ensure the integrity of the adjacent Metro Vancouver NPS 48 water pipeline during the deep excavation for the south side NPS 24 tie-in. FEI ensured the position of the adjacent newly-installed NPS 20 HDD pipeline was also closely monitored to protect it during this work.
- Cathodic Protection – Short pull-back of the NPS 24 HDD pipeline created potential difficulties respecting cathodic protection and casing removal at the north entry point. A cost-effective measure which is acceptable to FEI's corrosion department was completed to ensure the long-term integrity of the pipeline.

5.2 Environmental Risks

FEI paid careful attention to North American's site-specific frac-out prevention and environmental management plans to ensure the risk was minimized and the detection and response capabilities were maximized. No environmental incidents occurred.

The requirement to remove naturally occurring impurities from groundwater before the water could be returned to the environment was unanticipated, but was required to comply with environmental laws. FEI ensured compliance with this requirement. Fortunately, groundwater from the deep dewatering wells was found to be acceptable for return to the environment without treatment.

5.3 Insurance Risks

North American insured against all construction risks and FEI purchased Course of Construction and Wrap-Up liability insurance for the whole Project.

5.4 Residual FEI and Rate Payer Risks

Residual risks that could not be covered by FEI's insurance included consequential losses from events such as a frac-out, damage to line pipe during pullback, or a stuck HDD pullback with loss of the line pipe. FEI conducted engineering studies to mitigate these risks as much as possible, and with completion of the field construction work, these risks no longer apply. Delay to the Project schedule has resulted in extra costs, as reported in Section 4 above.

5.5 Landowner and Restoration Risks

The Project delays required that agreements with landowners for access and land use be extended at some additional cost. Delays also carried some risk that labour and equipment costs for restoration might increase. Fortunately the significant landowner and restoration related cost increases which arose have been managed within the Q1 2010 cost forecast for completing the Project.

6 Stakeholder or First Nation Issues

6.1 First Nations

As indicated in the CPCN application and the previous Quarterly Reports, the Project has not impacted Crown or Indian Reserve land. All land within the Project area had been previously disturbed, and studies did not identify any archaeological sites. FEI's Aboriginal Relations Manager communicated with three First Nations who have archaeological interests in the area - Tsawwassen First Nation, Katzie First Nation and Musqueam First Nation – and none of them identified any issues with the Project. In March of 2010, FEI's Aboriginal Relations Manager advised the First Nations of the Project delay due to equipment failure, and did not receive any indications of concern. FEI will contact First Nations again to advise them of successful completion when the timing of the last remaining restoration work is confirmed.

6.2 Stakeholders

Throughout the Project, FEI maintained positive relationships with the landowners and tenants affected. FEI used direct communication with local landowners and businesses, particularly to notify them of the re-mobilization following the HDD delay. As a result, landowners and tenants understood the challenges FEI faced and remain satisfied that FEI minimized adverse impacts to their operations. FEI published the final edition of "The Crossing" newsletter in March 2012.

During the field construction, FEI maintained regular contact with the Municipalities of Richmond and Delta as well as with the Greater Vancouver Water District (Metro Vancouver).

No unforeseen issues were raised by stakeholders.

6.3 Socio Economic Reporting

No extraordinary requirements were identified in the CPCN for this Project, but both FEI and North American have utilized local resources for the Project wherever possible. As of December 31, 2011 North American reported that it had spent approximately \$13 million in the local economy with respect to the Project and that this figure represents 99% of North American's expenditure to that date.

7 Photographs

Selected photographs which record key aspects or events during the Project are attached as Appendix 4.

Fraser River South Arm Crossing Upgrade Project

April 30, 2012

Appendix 1

Current Construction Schedule

(Omitted for this report)

Fraser River South Arm Crossing Upgrade Project

April 30, 2012

Appendix 2

Cost Report 2012 March

FORTISBC ENERGY INC. - FRASER RIVER SOUTH ARM CROSSING UPGRADE PROJECT
FINAL REPORT - ~~CONFIDENTIAL~~

Cost Report 2012 March						
\$Cdn (000)	CPCN Application	Control Budget	Spent to Date	Forecast to Complete	Total at Completion	Variance from Control Budget
Pre CPCN Expenditures		450	450	0	450	0
Work Breakdown Structure Element						
Proj. Mgmt, Eng. Consultation, Inspection	4,300	4,282	7,665	435	8,100	-3,818
Land Utilization, Temporary Workspace	1,800	1,503	1,511	315	1,826	-323
Pipe & Coating Materials	3,600	4,002	3,911	0	3,911	91
River Crossing HDD Install. & P/L Const'n ¹	11,600					
Tie In Construction	2,500	incl. below	incl. below	incl. below	incl. below	incl. below
Base Price						
Change Orders						
Other ²						
Settlement Amount ³						
North Bank Dike Improvements Allowance	1,000	325	79	0	79	246
Operations & Commissioning	600	511	50	0	50	461
AFUDC	900	1,024	2,436	0	2,436	-1,412
Corporate & Administrative Costs	300	316	0	0	0	316
Performance Measure Baseline	26,600	28,681	30,231	3,225	33,456	-4,775
First Nations Consultation	70	134	1	0	1	133
Legal Cost	230	403	335	45	380	23
Other Regulatory Costs	0	49	10	0	10	39
BCUC Regulatory Costs	0	68	21	0	21	47
Other Non-Project Costs (retirement)	400	416	79	0	79	337
Total Project Cost (TPC)	27,300	29,751	30,676	3,270	33,946	-4,195

1. Previous reported sub-total of \$ 16.268 Million has been broken down into Base Price, Change Orders, Other and Settlement Amount sub-categories to provide additional detail.

2. Represents unallocated contingency.

3. Settlement Amount is subject to BCUC approval

4. Corporate & Administrative Costs were captured in Proj. Mgmt, Eng. Consultation, Inspection

Fraser River South Arm Crossing Upgrade Project

April 30, 2012

Appendix 3

***“The Crossing”* Newsletter**

The Crossing

Fraser River South Arm Crossing Upgrade Project | Winter/Spring 2012

Fraser River Crossing: Looking back, looking forward



Standing along the banks of the Fraser River, it's nearly impossible to visualize how FortisBC successfully ran two massive natural gas pipelines under and across it. The scope of this project has been, without a doubt, astounding.

In fact, as the project progressed towards completion, some of the statistics involved were truly impressive:

- The two pipelines, if placed end to end, measure 2.7 km, or as high as Mt. Baker from base to peak.
- Before they were pulled under the Fraser River, each pipeline was raised up by 14 cranes, 10 metres off the ground. The pipelines were flexible enough that they could be bent without kinking, across the width of two football fields.
- Forces in the range of 41,000 kg were needed to pull each pipeline through the Fraser riverbed, which is the same as 25 tow trucks pulling simultaneously.

This project has been a unique experience for everyone involved. While there were extraordinary hurdles along the way, the project team rose to the challenge and completed the project in a safe and environmentally-responsible manner.

The project also gained the co-operation and support of the surrounding community. A neighbor of the project at the Kingswood Industrial Park, Armando Monzon, of Direct Distribution Centres says this of his experience throughout the project: "Direct Distribution was pleased to be involved with this project. We've had a very good experience with FortisBC all around."

The future. We've got our best people on it.



Ready for future needs

Now, with our construction sites being restored to their original condition or being left in a condition that facilitates future land use, the two pipelines deep under the Fraser River will be doing what they were designed to do—ensuring that all our customers have a continuous and reliable supply of natural gas. These two pipelines will play an important role in serving the energy needs of over 220,000 FortisBC customers throughout the Lower Mainland: from Richmond, Vancouver and the North Shore to parts of Burnaby.

We want to once again acknowledge the continued support and patience of our neighbouring businesses. We also wish to thank the City of Richmond, and the Corporation of Delta for their help and collaboration.

We welcome your feedback. Contact Amy Hennessy at 604-576-7363, amy.hennessy@fortisbc.com, or visit fortisbc.com/FraserRiver.



"Through it all, we've kept our common goal in mind...ensuring a reliable supply of natural gas to the 220,000+ customers on the other end of our pipelines." Amy Hennessy, community & first nations relations manager.

FortisBC Energy Inc., FortisBC Energy (Vancouver Island) Inc., FortisBC Energy (Whistler) Inc., and FortisBC Inc. do business as FortisBC. The companies are indirect, wholly owned subsidiaries of Fortis Inc. FortisBC uses the FortisBC name and logo under license from Fortis Inc.

(11-084.3 02/2012)

Amy's notes



It's hard to believe both new pipelines under the Fraser River are now in service.

Our project has lasted longer than we anticipated, yet the finish somehow seems sudden.

Like all projects we experienced successes and setbacks and learned

that sometimes you can affect the outcome and sometimes you need to manage the curve balls that are thrown your way.

From our locations on both sides of the Fraser River we've watched the seasons turn and businesses come and go. The economy has changed, as has the weather. Project team members have come and gone. We've made friends along the way, bound by our shared objective. Through it all we've kept our common goal in mind and in focus—always intent on completing the project and ensuring a reliable supply of natural gas to the 220,000+ customers on the other end of the pipelines.

And now the project is virtually complete—albeit that some of the farmland needs final remediation and parking lots will need final repaving. Soon there should be little sign of us having been here.

The patience and kindness of our neighbours on both sides of the river will be long remembered. Thank you all. Over the length of the project you have let us use your parking lots, change your ingress or egress, and dealt with some noise and parking changes. We're also grateful to our regulators and the many other individuals and companies that have helped with this project. Thank you all for working with us, and for your spirit of goodwill. It will not be forgotten.

A handwritten signature in blue ink, appearing to read 'Amy'.

The future. We've got our best people on it.



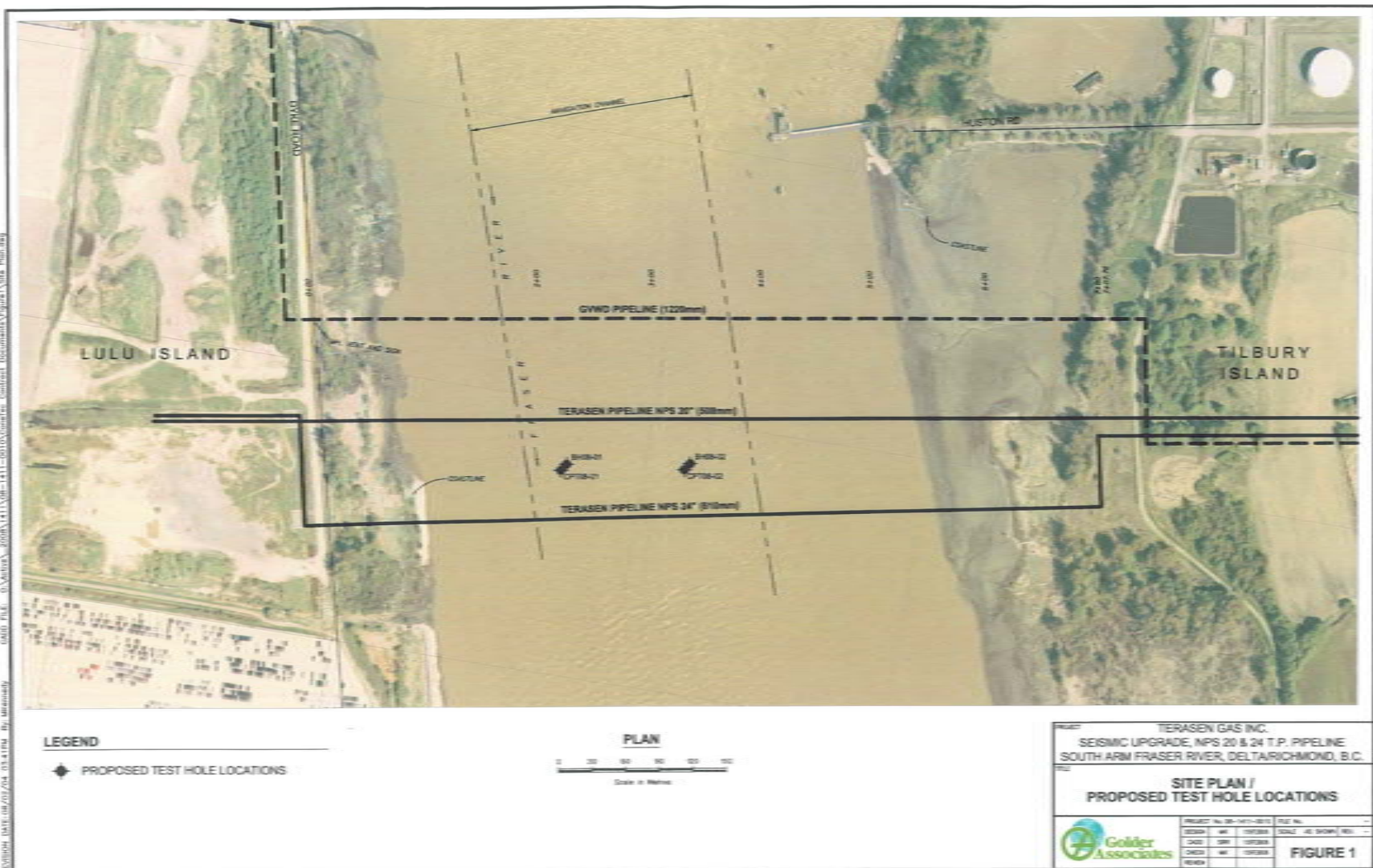
Fraser River South Arm Crossing Upgrade Project

April 30, 2012

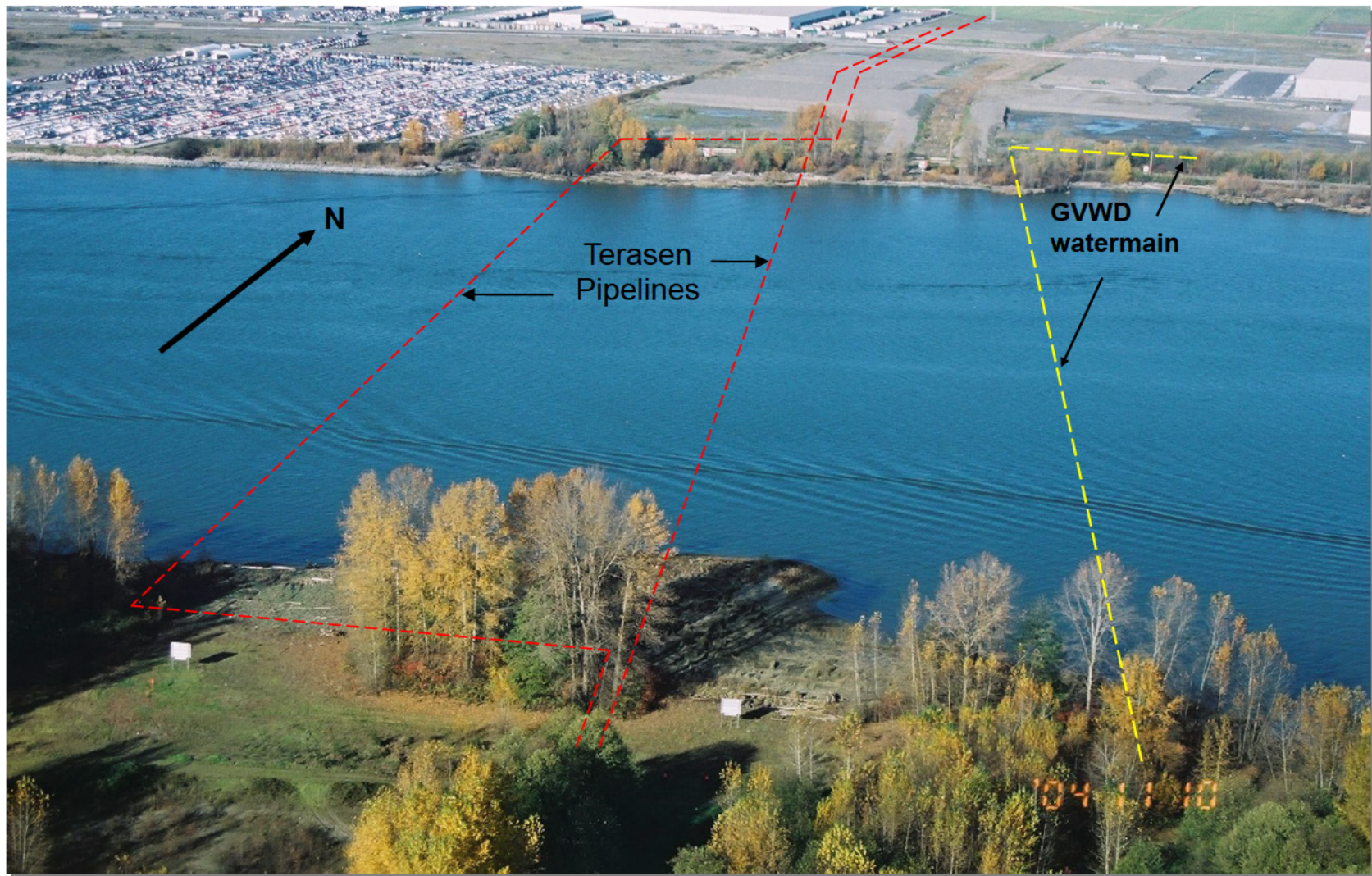
Appendix 4

Site Photographs

REVISION DATE: 08/27/2014 03:43PM BY: MANSOURY CAD FILE: C:\Users\2008\1411\08-1411-0010\Documents\Figure 1 Site Plan.dwg



Site Plan – 2006



Fraser River Crossing Site – 2004
Kingswood Industrial Park not yet constructed on far (North) side



**April 2009 – Existing FEI Pipeline ROW through Kingswood Industrial Park, Richmond
Looking North from Fraser River. CNR and Blundell Road in upper background.**



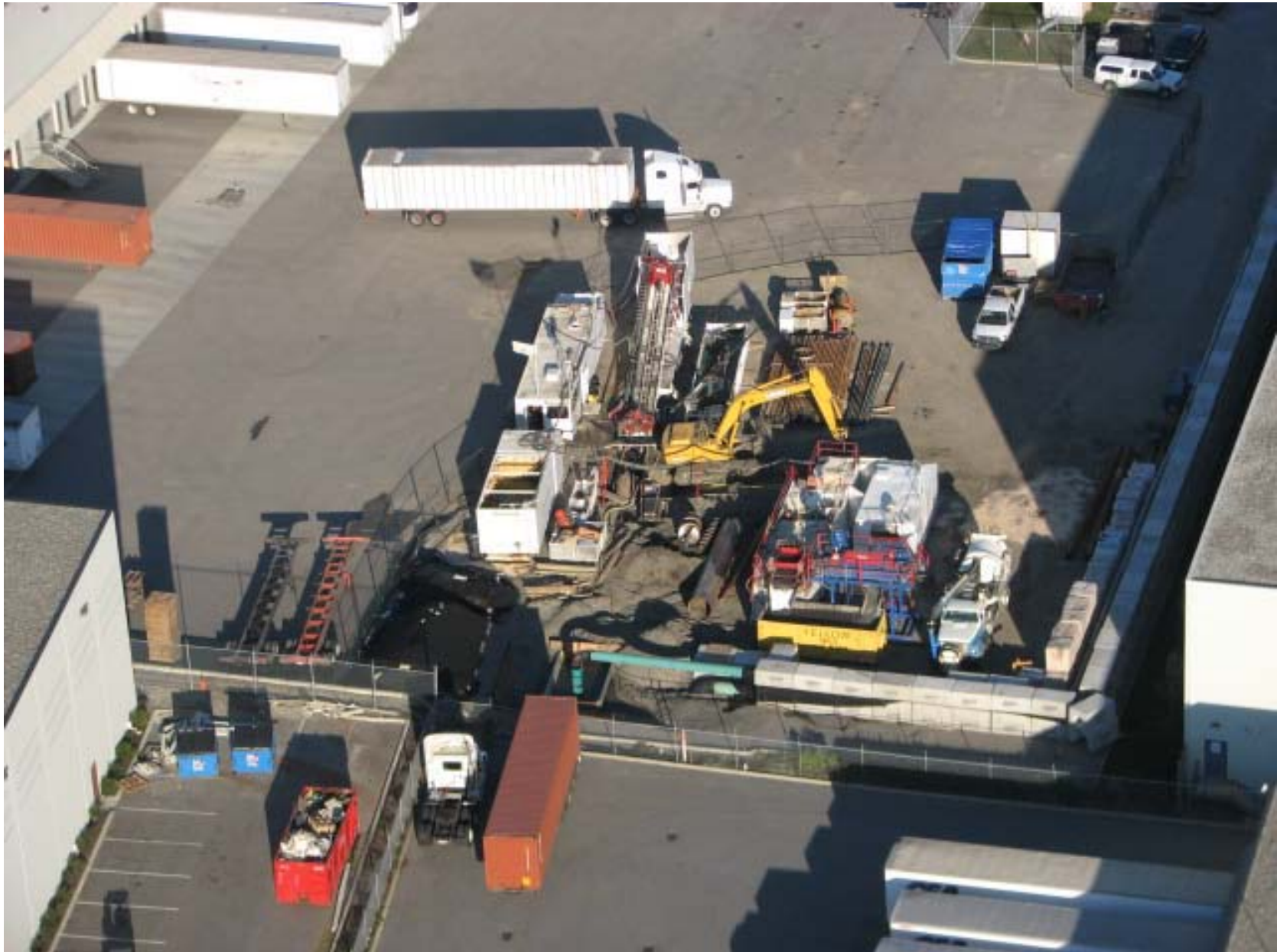
**April 2009 – Existing FEI Pipeline ROW through Kingswood Industrial Park, Richmond
Looking North across CNR and Blundell Road.
Pipe Lay-up Area in Farm Field (upper background).**



**Nov 26, 2009 – Pipe Layup Area showing completion of four HDD Pipe Strings
Two NPS 20 and two NPS 24. Each string is 800m long.**



Dec 7, 2009. North Side HDD Rig - steerable jetting drill bit.



**Dec 10, 2009. North Side HDD work-pad in Kingswood Industrial Park.
HDD Rig (centre), bypass pipelines protected in concrete swamp weights (right).**



**Dec 30, 2009. South side HDD work pad.
Showing bypass pipelines and containment pond for drill cuttings.**



Jan 2, 2010. NPS 20 HDD failure. XXH NPS 6 drill pipe “twist-off.”



**Jan 23, 2010. North side – recovered reamer and North end of HDD drill string.
Drill pipe end at lower right was explosively sheared to effect the recovery.
1100 metres of HDD drill string left abandoned beneath Fraser River.**



June 13, 2010. New South Side HDD entry casing for re-designed NPS 20 HDD alignment. Removal of hydraulic hammer before positioning next segment of casing.



July 8, 2010. North Side - Drilling of intersect pilot hole for NPS 24.



**July 24, 2010.. North Side – NPS 24 pullback about to begin.
When the pullback was 96% complete, the swivel joint (shown here in-between
the grey nylon sling and the pull-head attachment pin) pulled apart.**



**July 24, 2010. North Side, showing NPS 24 pullback under way.
Fourteen cranes were employed.**



July 24, 2010. North Side, showing NPS 24 pullback underway, traversing active CNR spur line.

Current Key Step: Drive Sheet Piles

Updated Anticipated Finish: March 21 – 31, 2011

Next Key Step: Jet Grout Floor





March 23, 2011. Aerial view of the South side Work-site during sheet piling installation. Bypass pipelines at left; pond at right converted for groundwater treatment.



Mar 27, 2011 – Jet grouting rig

Jet grouted soil removed to assess effectiveness, ~ 2 metres in diameter



Current Key Step: Added Support to adjacent 48" Metro Vancouver Water Pipeline





South Side



**Progress to May 27th
~35 ft Depth**

**2nd & 3rd Walers Lowered
into Reinforcement
Positions**



May 27, 2011

**Initial Cofferdam Progress.
Soil slumping and water ingress required major remediation effort through June & July.
(substantially more jet grouting and deep well de-watering effort)**

Mock Up of NPS 24 within 36" Sleeve



North Side



June 03, 2011

North Side Cathodic Protection sleeve necessitated by short pullback

36" Steel Sleeve Installation on-hold pending remediation to Cofferdam on South Side





Deep Well Drilling Process ~ Locations & Drill Completion Pattern

Photo taken June 26, 2011



July 08, 2011



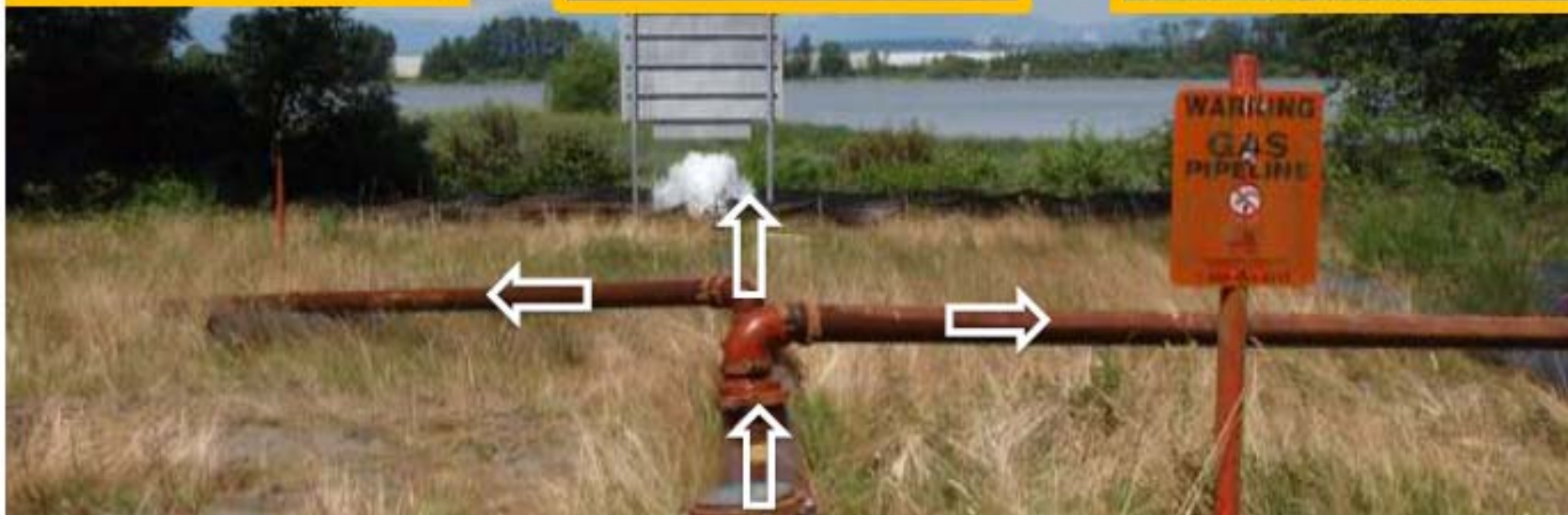
West Site



Centre Site



East Site



Water discharged @ ~ 3600 USGPM to 3 sites within vegetated Fraser River Foreshore



South Side – Completed Cofferdam. Aug 4, 2011

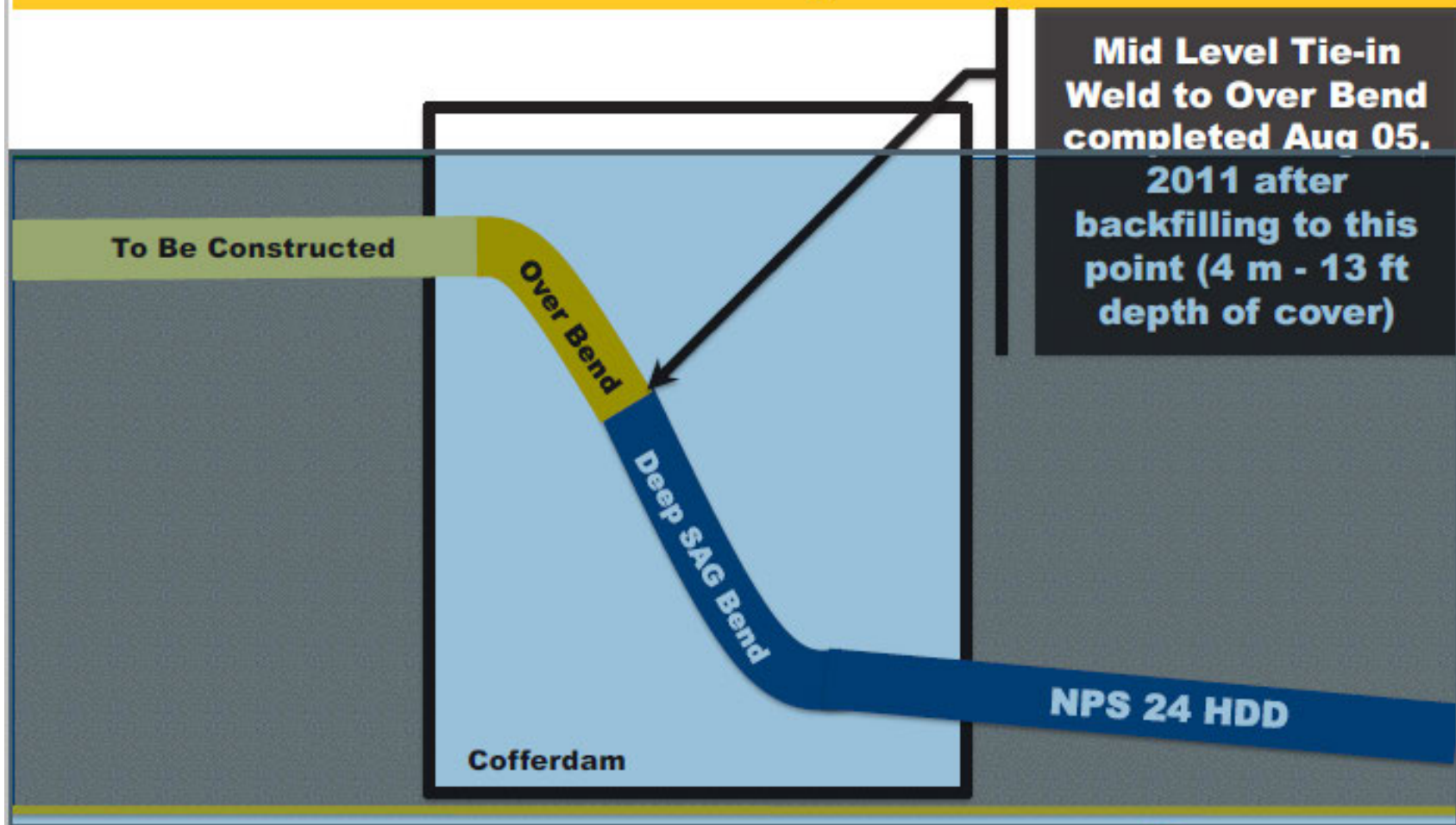


**Deep SAG (Induction) Bend getting lowered
into Cofferdam**



July 29, 2011

Key Achievement – NPS 24 Mid Level Tie-in Weld Successfully Completed



August 05, 2011

Key Achievement – NPS 24 isolated from 48" Casing



August 12, 2011

South Side: Preparation for Work that includes NPS 24 Cleaning Pig, Hydrostatic Test & Caliper Pig Run



**NPS 24 Cleaning
Pig Run
Successful**



August 12, 2011

Caliper Pigging NPS 24 HDD Pipeline



**Launching TD Williamson Caliper Pig to
verify NPS 24 is free of dents**



 **FORTIS BC**

Nov 18, 2011

**Internal Geometry Inspection – following routine construction of Tie-in Pipelines,
then Cleaning, Hydrostatic Tests & Dewatering of Completed Crossings**

Nitrogen Drying NPS 24 HDD Pipeline



**Using nitrogen to dry NPS 24 -
reached -38C**

 FORTIS BC

Nov 18, 2011

Drying of Pipeline Crossing – prior to Final Tie-in & Gasification



Dec 19, 2011. Temporarily re-paved North Side HDD Work Pad – Kingswood Industrial Park.



**Dec 19, 2011. Re-vegetated topsoil berm and re-located ditch.
East side of South HDD Work Site.**

Fraser River South Arm Crossing Upgrade Project

April 30, 2012

Appendix 5

Scope Change Summary

FRASER RIVER SOUTH ARM CROSSING UPGRADE PROJECT

Scope Change Summary

Final Report Appendix 5

NORTH AMERICAN CHANGE ORDER NO.	DOCUMENT DATE	SCOPE CHANGE		EXPLANATION FOR REQUEST ³	COSTS CATEGORIES ⁴				
		PROJECT STAGE	DESCRIPTION		ORIGINAL CHANGE ORDER REQUEST FROM NORTH AMERICAN	REJECTED BY FortisBC	APPROVED BY FortisBC	DEFERRED ⁵	UNDER INVESTIGATION ⁶
001	Dec 14, 2009	Construction	Provided aggregate material for the North Side temporary pipe make up area and South Side work space and bypass areas	Included in Control Budget					
002	Dec 14, 2009	Construction	Provided aggregate material for the North Side construction offices	Included in Control Budget					
005	Dec 14, 2009	Construction	Provided pre-pull back caliper inspection of the HDD linepipe	Included in Control Budget					
006	Dec 14, 2009	Construction	Contractor was unable to install NPS 48 casing to design embedment length	Included in Control Budget					
007	Dec 14, 2009	Construction	Payment of Performance Bond and Labour Material Bond per the Agreement	Included in Control Budget					
010	Jan 05, 2010	Construction	Dewatered ditch for fish salvage	Included in Control Budget					
012	Jan 05, 2010	Construction	New welding procedures	Included in Control Budget					
014	Jan 05, 2010	Construction	Supply and install environmental protection measures	Included in Control Budget					

NORTH AMERICAN CHANGE ORDER NO.	DOCUMENT DATE	SCOPE CHANGE		EXPLANATION FOR REQUEST ³	COSTS CATEGORIES ⁴				
		PROJECT STAGE	DESCRIPTION		ORIGINAL CHANGE ORDER REQUEST FROM NORTH AMERICAN	REJECTED BY FortisBC	APPROVED BY FortisBC	DEFERRED ⁵	UNDER INVESTIGATION ⁶
016	Jan 05, 2010	Construction	Install additional ditch plug for fish salvage	Included in Control Budget					
017	Mar 08, 2010	Construction	Additional linepipe coating removal to facilitate inspection of welds	Included in Control Budget					
018	Mar 19, 2010	Construction	Extraction of NPS 24 casing on South Side	Included in Control Budget					
019	Mar 15, 2010	Construction	Additional aggregate material as a safety measure	Included in Control Budget					
021	Mar 15, 2010	Construction	Additional HDD length by 4.2 metres	Included in Control Budget					
022	Mar 15, 2010	Construction	Temporary trailer for HDD inspectors	Included in Control Budget					
026	Apr 14, 2010	Construction	Analysis of caliper inspection	Included in Control Budget					
027	Nov 12, 2009	Construction	Clean up of groundwater discharge area	Included in Control Budget					
029	Apr 16, 2010	Construction	Transportation of bypass pipe	Included in Control Budget					
031	Mar 29, 2010	Construction	Incremental welding costs due to new welding rods	Included in Control Budget					
032	Oct 29, 2010	Construction	Incremental welding costs during the pull back	Included in Control Budget					
032A	Jul 24, 2010	Construction	Incremental welding costs during the pull back	Included in Control Budget					
033	Dec 14, 2009	Construction	Install additional casing North Side	Included in Control Budget					
035	Dec 14, 2009	Construction	Install additional casing South Side	Included in Control Budget					

NORTH AMERICAN CHANGE ORDER NO.	DOCUMENT DATE	SCOPE CHANGE		EXPLANATION FOR REQUEST ³	COSTS CATEGORIES ⁴				
		PROJECT STAGE	DESCRIPTION		ORIGINAL CHANGE ORDER REQUEST FROM NORTH AMERICAN	REJECTED BY FortisBC	APPROVED BY FortisBC	DEFERRED ⁵	UNDER INVESTIGATION ⁶
036	Mar 19, 2010	Construction	Extraction of NPS 24 casing North Side	Included in Control Budget					
038	Apr 14, 2010	Construction	Aggregate for additional work space on South Side	Included in Control Budget					
040	May 17, 2010	Construction	Empty the settlement pond of rainwater	Included in Control Budget					
041	Apr 16, 2010	Construction	Exposed active lines due to relocation of HDD entry points	Included in Control Budget					
043	Oct 29, 2010	Construction	Removal and disposal of drilling cuttings	Included in Control Budget					
046	Oct 29, 2010	Construction	Temporary fencing rental to security access at Direct Distribution facility	Included in Control Budget					
047	Oct 29, 2010	Construction	Temporary trailer for HDD inspectors	Included in Control Budget					
048	Oct 29, 2010	Construction	Removal and disposal of drilling fluids	Included in Control Budget					
053	Jan 10, 2012	Construction	Extraction of Amended NPS 20 Casing on South Side	Included in Control Budget					
058	Mar 01, 2011	Construction	CN Rail Inspector during NPS pullback	Included in Control Budget					
059	Jan 10, 2012	Construction	Transition Fittings	Included in Control Budget					
061	Dec 12, 2011	Construction	Temporary field office trailers	Included in Control Budget					
063	Jan 10, 2012	Construction	Cathodic protection test leads	Included in Control Budget					

NORTH AMERICAN CHANGE ORDER NO.	DOCUMENT DATE	SCOPE CHANGE		EXPLANATION FOR REQUEST ³	COSTS CATEGORIES ⁴				
		PROJECT STAGE	DESCRIPTION		ORIGINAL CHANGE ORDER REQUEST FROM NORTH AMERICAN	REJECTED BY FortisBC	APPROVED BY FortisBC	DEFERRED ⁵	UNDER INVESTIGATION ⁶
065	Jan 10, 2012	Construction	Additional linepipe coating removal to facilitate inspection of welds	Included in Control Budget					
069	Jan 11, 2012	Construction	Clean up of groundwater discharge area	Included in Control Budget					
071	Jan 11, 2012	Construction	Incremental welding costs due to new welding rods	Included in Control Budget					
072	Oct 16, 2011	Construction	Supply methanol	Included in Control Budget					
073	Dec 31, 2011	Construction	As-Built survey	Included in Control Budget					
077	Jan 11, 2012	Construction	Removal of filter cloth on Field Office area and Lantic	Included in Control Budget					
078	Jan 11, 2012	Construction	All casing extractions and grouting	Included in Control Budget					
080	Jan 11, 2012	Construction	Transport of NPS 48 casing from South Side workpad	Included in Control Budget					
081	Jan 11, 2012	Construction	Comissioning Standby	Included in Control Budget					
085	Oct 31, 2011	Construction	Clean out abandon river section of NPS 24	Included in Control Budget					
Included in Control Budget Sub-Total - refer to Table 4-3								-	-
008	Feb 02, 2010	Post Construction	Contractor requested additional compensation after NPS 20 failure	Failed NPS 20 HDD Attempt	Not Provided	Rejected (No support documentation provided)			

NORTH AMERICAN CHANGE ORDER NO.	DOCUMENT DATE	SCOPE CHANGE		EXPLANATION FOR REQUEST ³	COSTS CATEGORIES ⁴				
		PROJECT STAGE	DESCRIPTION		ORIGINAL CHANGE ORDER REQUEST FROM NORTH AMERICAN	REJECTED BY FortisBC	APPROVED BY FortisBC	DEFERRED ⁵	UNDER INVESTIGATION ⁶
009	Feb 02, 2010	Post Construction	Contractor requested additional compensation after NPS 20 failure for "Changed Subsurface" conditions	Failed NPS 20 HDD Attempt	Not Provided	Rejected (No support documentation provided)			
034	Dec 14, 2009	Construction	Install additional casing South Side on the Failed NPS 20	Failed NPS 20 HDD Attempt			-		
037	Mar 19, 2010	Construction	Extraction of NPS 20 casing South Side	Failed NPS 20 HDD Attempt			-		
039	Apr 14, 2010	Construction	Additional aggregate as a result of Failed NPS 20	Failed NPS 20 HDD Attempt					
042	Apr 20, 2010	Construction	Transportation of additional casing	Failed NPS 20 HDD Attempt					
044	Jun 23, 2010	Construction	Installation of casing for the amended NPS 20 South Side	Failed NPS 20 HDD Attempt					
Incremental Failed NPS 20 HDD Attempt Sub-Total - refer to Table 4-2								-	-
024	Mar 30, 2010	Construction	Testing and disposal of ground water	Groundwater Treatment					
049	Oct 29, 2010	Construction	Supply and install a new liner in the containment pond for groundwater treatment	Groundwater Treatment					
050	Mar 01, 2011	Construction	Engineering, design and equipment of the groundwater treatment process	Groundwater Treatment					
060	Nov 30, 2011	Construction	Cofferdam deepwell dewatering	Groundwater Treatment					

NORTH AMERICAN CHANGE ORDER NO.	DOCUMENT DATE	SCOPE CHANGE		EXPLANATION FOR REQUEST ³	COSTS CATEGORIES ⁴				
		PROJECT STAGE	DESCRIPTION		ORIGINAL CHANGE ORDER REQUEST FROM NORTH AMERICAN	REJECTED BY FortisBC	APPROVED BY FortisBC	DEFERRED ⁵	UNDER INVESTIGATION ⁶
068	Sep 13, 2011	Construction	Engineering, design and equipment of the groundwater treatment process	Groundwater Treatment					
076	Jan 11, 2012	Construction	Decommissioning of groundwater treatment system	Groundwater Treatment					
Incremental Groundwater Treatment Sub-Total - refer to Table 4-2								-	-
051	Dec 01, 2011	Construction	Install steel sleeve to obtain long term integrity for NPS 24 North Side	NPS 24 Short Pullback					
067	Oct 27, 2011	Construction	Disposal of grout columns from cofferdam	NPS 24 Short Pullback					
NPS 24 Short Pullback Sub-Total - refer to Table 4-2 (Approved by FortisBC+Deferred+Under Investigation =)								-	-
004	Dec 14, 2009	Construction	Hydro seeded ditch to comply with farmer's requirements	Restoration					
013	Jan 05, 2010	Construction	Supply and install additional de-watering discharge pipe	Restoration					
025	Mar 30, 2010	Construction	Contractor's soil sampling analysis and reporting	Restoration					
052	Oct 29, 2010	Construction	Restoration of pipe make up area	Restoration					
057	Dec 02, 2010	Construction	Disposal of trees and vegetation	Restoration		-			
064	Dec 16, 2011	Construction	Supply fence at Stork craft and Direct	Restoration					

NORTH AMERICAN CHANGE ORDER NO.	DOCUMENT DATE	SCOPE CHANGE		EXPLANATION FOR REQUEST ³	COSTS CATEGORIES ⁴				
		PROJECT STAGE	DESCRIPTION		ORIGINAL CHANGE ORDER REQUEST FROM NORTH AMERICAN	REJECTED BY FortisBC	APPROVED BY FortisBC	DEFERRED ⁵	UNDER INVESTIGATION ⁶
066	Aug 31, 2011	Construction	Supply piezometer and ground water monitoring well	Restoration					
074	Sep 21, 2011	Construction	Reclamation of Settlement Pond	Restoration					
075	Jan 11, 2012	Construction	Extension of City of Richmond's ditch	Restoration					
083	Nov 30, 2011	Construction	Preparation of Stork Craft parking lot for temporary paving	Restoration					
Incremental Restoration Sub-Total - refer to Table 4-2								-	-
003	Dec 14, 2009	Construction	Off loaded linepipe	Other					
011	Jan 05, 2010	Design	Installation of monitor for Metro Vancouver waterline	Other					
015	Jan 05, 2010	Construction	Special asbestos handling of old pipeline coatings	Other		-			
020	Mar 15, 2010	Construction	Re-position North Side HDD entry point by 4.2 metres	Other					
023	Mar 30, 2010	Design	Contractor's engineering & geotechnical assessment of GVWD (Metro Vancouver) water line	Other					
030	Oct 29, 2010	Construction	Incremental weld inspection during the pull back	Other					
030A	Jul 24, 2010	Construction	Incremental weld inspection during the pull back	Other					
045	Sep 22, 2010	Construction	Incremental costs of grouting NPS 20 North Side	Other					

NORTH AMERICAN CHANGE ORDER NO.	DOCUMENT DATE	SCOPE CHANGE		EXPLANATION FOR REQUEST ³	COSTS CATEGORIES ⁴				
		PROJECT STAGE	DESCRIPTION		ORIGINAL CHANGE ORDER REQUEST FROM NORTH AMERICAN	REJECTED BY FortisBC	APPROVED BY FortisBC	DEFERRED ⁵	UNDER INVESTIGATION ⁶
054	Mar 01, 2011	Construction	Incremental payment of Performance Bond and Labour Material Bond per the Agreement	Other		-			
070	Jan 11, 2012	Construction	Off loaded linepipe	Other					
079	Sep 10, 2011	Construction	NORMs	Other					
082	Nov 30, 2011	Construction	Pipe Storage	Other					
084	Nov 22, 2012	Construction	Monitoring GVWD Waterline	Other					
Other Sub-Total - refer to Table 4-2								-	-
028				Retracted by NAPI - Not Used					
055				Retracted by NAPI - Not Used					
056				Retracted by NAPI - Not Used					

GENERAL NOTES:

1. All costs exclude HST
2. These costs are exclusive of extra ordinary claims submitted by North American for compensation
3. Refer to lines 3 & 4 of the amended Table 4-2 and allowance for changes in Table 4-3 in the Quarterly Progress Report
4. Scope change summary information as specified Appendix A of Order C-2-09
5. No longer applicable
6. No longer applicable

Fraser River South Arm Crossing Upgrade Project

April 30, 2012

Appendix 6

Settlement Agreement

FILED CONFIDENTIALLY

Fraser River South Arm Crossing Upgrade Project

April 30, 2012

Appendix 7

Draft Order

**BRITISH COLUMBIA
UTILITIES COMMISSION**

**ORDER
NUMBER**

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DRAFT ORDER

IN THE MATTER OF
the Utilities Commission Act, R.S.B.C. 1996, Chapter 473

and

An Application by FortisBC Energy Inc.
For Approval of a negotiated Settlement Agreement in the
Fraser River South Arm Crossing Upgrade Project
between FortisBC Energy Inc. and North American Pipelines Inc.

BEFORE:

[April XX, 2012]

WHEREAS:

- A. On November 6, 2008, FortisBC Energy Inc. (FEI) (formerly Terasen Gas Inc.) applied (the Application) to the British Columbia Utilities Commission (the Commission), pursuant to section 45 of the Utilities Commission Act (the Act), for a Certificate of Public Convenience and Necessity (CPCN) for two horizontal directional drilled (HDD) natural gas transmission pipeline crossings of the South Arm of the Fraser River between Delta and Richmond near Tilbury Island (the Fraser River South Arm Crossing Upgrade Project or the Project);
- B. On March 12, 2009, the Commission granted a CPCN for the Project by Order No. C-2-09 subject to a number of conditions, which include requirements that FEI file a quarterly progress report within 30 days of the end of each reporting period and a final report within six months of the end or substantial completion of the Project;
- C. On April 30, 2012 FEI filed a Final Report (Report) for the Fraser River South Arm Crossing Upgrade Project in compliance with Order No. C-2-09, reporting that during the fourth quarter of 2011, the prime contractor for the Project - North American Pipelines Inc. (North American) substantially completed field construction of both pipeline crossings which were placed into service on October 22, 2011 (NPS 20) and on December 3, 2011 (NPS 24). North American cleaned up the site and de-mobilized on December 12, 2011;
- D. The Report also reports that FEI and North America have reached a Settlement Agreement relating to disputes arising from the construction and installation of the HDD, which include provisions releasing FEI

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from any further claims from North American and North American indemnifying FEI from any claims by third parties, a guarantee of North American's obligations secured from North American's parent company, and a condition precedent that the Settlement Agreement be approved by the Commission, in exchange for a specific settlement amount;

- E. The Final Report further reports that the final Project cost is \$34 million inclusive of the settlement amount;
- F. FEI requests Commission approval of the Settlement Agreement between FEI and North American and specifically of an amount of \$34 million to be included in FEI's rate base;
- G. The Commission has reviewed the Final Report and the Settlement Agreement and determines that the Settlement Agreement should be approved and \$34 million should be included in rate base.

NOW THEREFORE pursuant to Sections 59 to 61 of the Utilities Commission Act, the Commission orders as follows:

- 1. The Settlement Agreement is approved.
- 2. The \$34 million is included in rate base pursuant to the financial schedules filed in accordance with Item 15 of Commission Order No. G-44-12.
- 3. The Commission agrees to keep the Settlement Agreement and the Final Report confidential.

DATED at the City of Vancouver, In the Province of British Columbia, this day of <MONTH>, 2012.

BY ORDER