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February 27, 2019

DELIVERED VIA RESS & COURIER

Ms. Kirsten Walli Ontario Energy Board P.O. Box 2319 27th Floor, 2300 Yonge Street Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: EPCOR Natural Gas Limited Partnership ("EPCOR")

Southern Bruce Leave-to-Construct Application - Updated

EB-2018-0263

Further to EPCOR's leave to construction application for the Southern Bruce project that was filed September 20, 2018, EPCOR is providing an updated application. The updates in this document include ongoing work that EPCOR has been undertaking since the application was originally filed as well as a revised schedule that reflects the impact on the project as a result of expected delay in approval of the leave to construct.

Enclosed please find two copies of the updated application.

This submission has been filed through the Board's Regulatory Electronic Submission System and will be available on the Company's website at epec-com/southernbruce.

Please contact the undersigned if you have any questions in regards to the foregoing.

Sincerely,

[Original signed by]

Bruce Brandell
Director, Commercial Services
EPCOR Utilities Inc.
bbrandell@epcor.com
(780) 412-3720

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ONTARIO ENERGY BOARD

IN THE MATTER OF the *Ontario Energy Board Act, 1998,* S.O. 1998, c. 15 (Sched. B), as amended (the "**OEB Act**") and the *Municipal Franchises Act,* R.S.O. 1990, c. M.55, as amended (the "**MF Act**");

AND IN THE MATTER OF an application by EPCOR Natural Gas Limited Partnership under section 90 of the OEB Act for an order or orders granting leave to construct natural gas distribution pipelines and ancillary facilities to serve the Municipality of Arran-Elderslie, the Municipality of Kincardine and the Township of Huron-Kinloss;

AND IN THE MATTER OF an application by EPCOR Natural Gas Limited Partnership for orders approving the terms and conditions upon which, and the period for which, the Corporation of the County of Bruce, the Corporation of the County of Grey, the Corporation of the Municipality of Arran-Elderslie, the Corporation of the Municipality of Brockton, the Corporation of the Municipality of Kincardine, the Corporation of the Municipality of West Grey, the Corporation of the Township of Chatsworth and the Corporation of the Township of Huron-Kinloss each, by by-law, grant the right to EPCOR Natural Gas Limited Partnership to construct and operate works for the distribution, transmission and storage of natural gas and the right to extend and add to the works in the County of Bruce, the County of Grey, the Municipality of Arran-Elderslie, the Municipality of Brockton, the Municipality of Kincardine, the Municipality of West Grey, the Township of Chatsworth and the Township of Huron-Kinloss;

AND IN THE MATTER OF an application by EPCOR Natural Gas Limited Partnership under section 8 of the MF Act for an order or orders granting a Certificate of Public Convenience and Necessity to EPCOR Natural Gas Limited Partnership for the construction of works and the right to extend and add works in the County of Bruce, the County of Grey, the Municipality of Brockton, the Municipality of West Grey and the Township of Chatsworth;

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AND IN THE MATTER OF an application by EPCOR Natural Gas Limited Partnership for orders directing and declaring that the assent of the municipal electors of each of the Corporation of the County of Bruce, the Corporation of the County of Grey, the Corporation of the Municipality of Arran-Elderslie, the Corporation of the Municipality of Brockton, the Corporation of the Municipality of Kincardine, the Corporation of the Municipality of West Grey, the Corporation of the Township of Chatsworth and the Corporation of the Township of Huron-Kinloss to the by-law is not necessary.

LEAVE TO CONSTRUCT

APPLICATION: SOUTHERN BRUCE PROJECT

- 1. The Applicant, EPCOR Natural Gas Limited Partnership ("EPCOR"), hereby applies to the Ontario Energy Board ("OEB" or "Board") pursuant to section 90(1) of the OEB Act for an Order granting leave to construct approximately 75 km of NPS 8 to 6-inch steel high pressure ("HP") pipe, 45 km of NPS 6-inch medium density polyethylene ("MDPE") pipe and 178 km of NPS 4 and 2 MDPE distribution piping (the "Project") in the Municipality of Arran-Elderslie, the Municipality of Kincardine and the Township of Huron-Kinloss (collectively, the "Southern Bruce Municipalities")
- 2. EPCOR is an Ontario limited partnership with its head office in the Town of Aylmer. It carries on the business of selling, distributing, transmitting and storing natural gas within the province of Ontario.
- 3. This Application is made in accordance with the decision of the Board in EB-2016-0137, EB-2016-0138 and EB-2016-139 issued on April 12, 2018 for the South Bruce Expansion Applications (the "Southern Bruce Expansion Decision") whereby the Board selected an affiliate of EPCOR, EPCOR Southern Bruce Gas Inc. ("ESBGI") as the successful proponent for the Southern Bruce gas distribution project. In the Southern Bruce Expansion Decision, the Board granted ESBGI Certificates of Public Convenience and Necessity ("CPCN") for each of the Municipality of Arran-Elderslie (except for the geographic area of the former Township of Arran and the former Village of Tara), the Municipality of Kincardine and the Township of Huron-Kinloss, conditional on the approval of its subsequent leave to construct application.
- 4. For the purposes of providing natural gas service to the Southern Bruce Municipalities, EPCOR proposes to build a natural gas pipeline consisting of a steel mainline from Dornoch to Kincardine followed by a MDPE mainline from Kincardine to Lucknow (the "Facilities"). A map showing the proposed pipeline route can be found in Tab 3, Schedule 2 of the evidence filed together with this Application.

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- 5. The proposed Facilities are comprised of approximately 75 km of NPS 8 to 6-inch steel HP pipe, 45 km of NPS 6-inch MDPE pipe and 178 km of NPS 4 and 2 MDPE distribution piping. This pipeline will be the backbone for service to multiple communities throughout Southern Bruce and natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers.
- 6. EPCOR has developed forecasts of costs, customer additions and revenues for the Project and concluded that the Project requires additional funding in order to be economically feasible. ESBGI was awarded funding under the Infrastructure Ontario Natural Gas Grant Program ("NGGP"). However, on September 26, 2019 EPCOR was notified that funding for the NGGP was being reallocated to other areas and as a result the Project would not be receiving any funding. This letter was filed with the OEB on October 3, 2018. On December 21, 2018 EPCOR received a letter from the Minister of Energy, Northern Development and Mines stating that the South Bruce expansion project will be eligible to receive rate protection associated with Bill 32, Access to Natural Gas Act, 2018.
- 7. Pending Board approval, EPCOR will enter into franchise agreements with the County of Bruce, the County of Grey, the Municipality of Arran-Elderslie, the Municipality of Brockton, the Municipality of Kincardine, the Municipality of West Grey, the Township of Chatsworth and the Township of Huron-Kinloss. All proposed franchise agreements are based on the Board's Model Franchise Agreement. The Franchise Agreements with the County of Bruce, the Municipality of Arran-Elderslie, the Municipality of Kincardine, the Municipality of West Grey, the Township of Chatsworth and the Township of Huron-Kinloss have been executed and are attached at Tab 4, Schedule 4. The Franchise Agreements for Grey County and the Municipality of Brockton have been approved and will be executed pending Board approval; the forms of agreement are attached at Tab 4, Schedule 4.
- 8. Pursuant to the Southern Bruce Expansion Decision, ESBGI holds CPCNs granted by the Board in respect of the Southern Bruce Municipalities In proceeding EB-2018-0247, EPCOR and ESBGI requested the Board to transfer the CPCNs awarded in the Southern Bruce Expansion Proceeding from ESBGI to EPCOR. On November 29, 2018, the Board granted leave to transfer these CPCN's to EPCOR.
- 9. In order to allow EPCOR to construct the Facilities to serve the Southern Bruce Municipalities, EPCOR also applies under section 8 of the MF Act for limited CPCNs along the mainline route in respect of the County of Bruce, the County of Grey, the Municipality of Brockton, the Municipality of West Grey and the Township of Chatsworth.

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- 10. The route and location for the proposed pipeline were selected by EPCOR with input from the Southern Bruce Municipalities. EPCOR retained Stantec Consulting Ltd ("Stantec"), an independent environmental consultant to evaluate the proposed route, through the process outlined in the Board's Environmental Guidelines for the Location, Construction, and Operation of Hydrocarbon Pipelines in Ontario (7th Edition, 2016) (the "Environmental Guidelines") as well as relevant provincial, federal, and municipal guidelines and regulations. Stantec's principal objective was to confirm the preferred route for the pipeline from an environmental and socioeconomic perspective and outline various environmental mitigation and protection measures for the construction and operation of the Project, while meeting the intent of the Environmental Guidelines. Information regarding the full extent of Stantec's project evaluation can be found in the Environmental Report. Additionally, information on First Nation and Métis community consultations and consultation activities can be found in Tab 11, Schedule 1.
- 11. Input from the public, stakeholders and Indigenous groups was sought during the route selection process and was incorporated into the final alignment decision. Details on the route selection and the Environmental and Socio-Economic Impact Assessment of the proposed facilities are included in the Environmental Report in Tab 9. The proposed measures outlined in the Environmental Report will be implemented to mitigate any potential environmental impacts.
- 12. EPCOR has included draft agreements in Tab 10, Schedule 2 that will be offered to affected landowners where the need for an easement arises.
- 13. Construction is planned to commence in June 2019 in order to begin providing gas distribution service to the Southern Bruce Municipalities by the 2019-2020 heating season. Tab 6, Schedule 2 provides the proposed construction schedule.
- 14. A list of interested parties and permitting authorities is provided at Tab 9, Schedule 5.
- 15. EPCOR requests that this Application be dealt with in accordance with section 34 of the Board's Rules of Practice and Procedure (the "Rules") and requests that pursuant to section 32.01 of the Rules, this proceeding be conducted by way of written hearing in English.
- 16. EPCOR therefore requests, on the basis set out above that the Board make the following orders:
 - (i) an order pursuant to section 9 of the MF Act approving the terms and conditions upon which, and the period for which, the County of Bruce, the County of Grey, the Municipality of Arran-Elderslie, the Municipality of Brockton, the Municipality of Kincardine, the Municipality of West Grey, the Township of Chatsworth and the Township of Huron-Kinloss each, by by-law, grant the right to EPCOR Natural Gas Limited Partnership to construct and operate works for the distribution, transmission and storage of natural gas and the right to extend and add to the works in the County of Bruce, the County of Grey, the Municipality of Arran-Elderslie, the Municipality of Brockton, the Municipality of Kincardine, the Municipality of West Grey, the Township of Chatsworth and the Township of Huron-Kinloss;

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- (ii) an order pursuant to section 9 of the MF Act, directing and declaring that the assent of the municipal electors of each of the County of Bruce, the County of Grey, the Municipality of Arran-Elderslie, the Municipality of Brockton, the Municipality of Kincardine, the Municipality of West Grey, the Township of Chatsworth and the Township of Huron-Kinloss is not necessary for the proposed franchises by-law under the circumstances;
- (iii) an order pursuant to section 90 of the OEB Act granting leave to construct the Facilities;
- (iv) an order pursuant to section 97 of the OEB Act approving the proposed form of easement agreements; and
- (v) an order pursuant to section 8 of the MF Act granting a Certificate of Public Convenience and Necessity to EPCOR for each of the County of Bruce, the County of Grey, the Municipality of Brockton, the Municipality of West Grey and the Township of Chatsworth.
- 17. EPCOR requests that copies of all documents filed with the Board in connection with this proceeding be served on it and on its counsel, as follows:
 - (a) The Applicant:

Bruce Brandell

Director, Commercial Services

EPCOR Utilities Inc.

Address for personal service 2000 – 10423 101 Street NW

and mailing address: Edmonton, Alberta

T5H 0E8

Telephone: (780) 412-3720

Fax: (780) 441-7118

E-Mail: <u>bbrandell@epcor.com</u>

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(b)	The Applicant's counsel:	
(D)	The Applicant's counsel.	Richard King
		Osler, Hoskin & Harcourt LLP
	Address for personal service	100 King Street West
	and mailing address:	1 First Canadian Place
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DATED at Edmonton, Alberta this 27 day of February, 2019.

EPCOR NATURAL GAS LIMITED PARTNERSHIP by its general partner EPCOR ONTARIO UTILITIES INC.
[original signed by]
Bruce Brandell

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PROJECT DESCRIPTION, PURPOSE AND NEED

Location

- 1. Consistent with the Southern Bruce Expansion Decision¹, EPCOR proposes to construct the Project, a natural gas expansion distribution system, to serve the following:
 - Municipality of Arran-Elderslie;
 - Municipality of Kincardine; and
 - Township of Huron-Kinloss.
- 2. The two municipalities and township are all located in southern Ontario, in Bruce County.
- 3. The Project initially intends to serve the following communities within the above-mentioned municipalities and township:
 - Arran-Elderslie: Chesley and Paisley;
 - Kincardine: Tiverton, Inverhuron, Kincardine and the Bruce Energy Centre; and
 - Huron-Kinloss: Lurgan Beach, Point Clark, Ripley, and Lucknow.
- 4. This region does not currently have access to natural gas, therefore a natural gas mainline is needed to serve them. The mainline initiates in the Township of Chatsworth within Grey County. The mainline will be constructed on public road right of ways on county and municipal road allowances until it reaches the three communities the system is initially built to serve. The roadways upon which the mainline will be constructed border multiple municipalities. The mainline will intersect additional municipalities as follows:
 - Township of Chatsworth, in Grey County;
 - Municipality of West Grey, in Grey County; and
 - Municipality of Brockton, in Bruce County.

Purpose & Need

5. With a population of 25,261 in 2016, the Southern Bruce region (the municipalities of Arran-Elderslie, Kincardine, and the Township of Huron-Kinloss) is the largest area in southern Ontario which

.

¹ EB-2016-0137/0138/0139: Decision and Order - South Bruce Expansion Application, April 12, 2018

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currently does not have access to natural gas². For several years, these municipalities, working together, have assigned the highest priority and effort to bring natural gas service to their Southern

Bruce communities.

6. Expansion of natural gas infrastructure to the Southern Bruce Municipalities provides economic

benefits to the communities. Consumers directly benefit from the Project by accessing lower cost

natural gas to fuel their homes and businesses. In the commercial, industrial and agricultural business

sectors, a lack of access to natural gas has kept operating costs higher, which in turn has created a

competitive disadvantage for doing business in the region and Ontario.

7. The expansion of natural gas into the Southern Bruce Municipalities increases the energy options

available to the total available market, which has been identified as 8,739 customers³. The market is

broken down further into 7,250 existing residential premises, 688 commercial establishments and 20

industrial/agricultural establishments in Southern Bruce, each currently without the option to utilize

natural gas service.

8. The Project makes gas available to current and future residents in the area. EPCOR forecasts

connecting a total of 5,278 customers over the 10-year rate stability period. This forecast of

customers was developed through an analysis of two market surveys and specific conversations with

some agricultural and industrial businesses, further details of which are described below.

Additionally, the Project furthers the Ontario Government's desire to have gas distribution service

made available to communities that are currently not served to help support economic growth and

cost competitiveness.4

Customer Surveys & Attachment Forecasts

Residential & Commercial

9. EPCOR has utilized two telephone surveys to inform its forecast of the customer and demand profiles

for this Project. These surveys show that demand for the Project is strong.

² The region of Kincardine is identified as the largest for potential customers as indicated in Union Gas' Opportunity Assessment Summary table. EB-2015-0179: Community Expansion Application, July 23, 2015; Exhibit A, Tab 1, Appendix D, Pgs. 1 to 5

³ EB-2016-0137/0138/0139: *EPCOR Common Infrastructure Proposal,* October 16, 2017; Schedule D, Page 1

⁴ OEB Decision EB-2016-0004: *Generic Proceeding on Community Expansion* ("Decision 2016-0004").

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- 10. In August 2014, the Southern Bruce Municipalities retained the firm Innovative Research (through their counsel) to assess the feasibility of connecting the Southern Bruce Municipalities to natural gas. Participants in the survey included residential homeowners and small-medium sized businesses establishments. The survey concluded that 65% of the commercial customer sector would "definitely" or "likely" convert to natural gas if it were available. ⁵
- 11. In July 2017, EPCOR conducted an additional survey to confirm and update the likelihood of residential customers converting to natural gas. EPCOR again retained Innovative Research to conduct a residential telephone survey in the Southern Bruce Municipalities slated to be served by EPCOR (see Tab 3, Schedule 4). As shown in the Figure 1 below, this survey concluded that 58% of the residents "Definitely Would Convert" or "Would Likely Convert". Accordingly, EPCOR plans to implement a comprehensive marketing program to help customers assess the benefits of converting to natural gas and through these efforts, expects to realize an overall 10-year residential conversion rate of 60%. This 60% target has therefore been applied as the overall 10-year capture rate for residential customers under the EPCOR plan. A total of 4,818 residential customers have been forecasted to attach to the system over the 10-year rate stability period. Survey results are included in Tab 3, Schedule 4.

⁵ The survey included 753 respondents. These results are considered accurate to within ±3.6%, 19 times out of 20.

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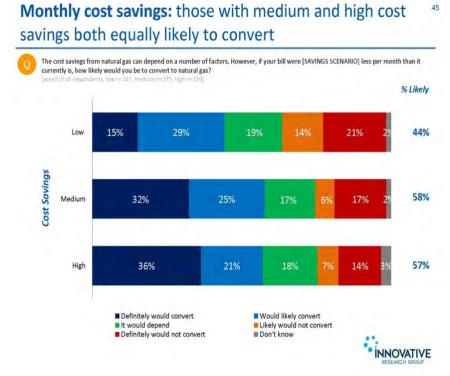


Figure 1: EPCOR Household Customer Survey Results on Likelihood of Conversion

Agricultural

12. The Southern Bruce Municipalities highlighted the importance of natural gas for agricultural businesses in the service area. EPCOR has worked closely with many of these businesses and has designed its system to provide access to as many agricultural customers as initially possible. Additionally, EPCOR has been in communication with many of the large poultry farms and grain dryers seeking their feedback on the Project.

Industrial

13. Discussions have been ongoing between EPCOR and industrial customers in the service area. Customers located in the Bruce Energy Centre are considered to be large users of natural gas and have significant annual demands. Customers have provided letters of support, included in Tab 3, Schedule 3. Contractual discussions are expected to conclude prior to construction start.

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14. EPCOR forecasts customer attachments over the 10-year rate stability period. A detailed forecast of

connections for residential, commercial, agricultural and industrial customers is illustrated in the

Common Infrastructure Plan ("CIP") Application⁶.

Route

<u>Overview</u>

15. The route and location of the proposed Project was selected in accordance with the OEB's

Environmental Guidelines, with input from the Southern Bruce Municipalities, Stantec, as well as

relevant provincial, federal, and municipal guidelines and regulations. The preferred route strikes a

balance between maximizing future customer connections while minimizing negative environmental

and cumulative impacts. The Environmental Report ("ER") outlines the consultation process that

EPCOR undertook to arrive at the preferred route.

16. The mainline will commence at an interconnection at the Union Gas Dornoch Meter and Regulator

Station and will extend westerly from Dornoch to the Bruce Energy Centre, along the way serving

Chesley and Paisley, then extending southerly to serve Tiverton, Inverhuron, Kincardine, Lurgan

Beach and Point Clark. The mainline will then extend easterly to serve Ripley and Lucknow (see Tab 3,

Schedule 2). The Project is comprised of approximately 75 kilometers ("km") of NPS 8 to 6-inch steel

HP pipe from Dornoch to Kincardine, 45 km of NPS 6-inch MDPE pipe from Kincardine to Lucknow.

Approximately 178 km of NPS 4 and 2 MDPE piping would network the system to provide service to

all the communities identified. The Project will be located within existing road allowances.

17. Throughout the development of the Project, EPCOR has implemented a consultation program to

receive input from interested and potentially affected parties including Indigenous groups. The

identification of interested and potentially affected parties was undertaken using a variety of sources,

including municipal officials, the OEB's Ontario Pipeline Co-Ordination Committee ("OPCC") Members

List, the Ministry of the Environment, Conservation and Parks ("MOECP") Environmental Assessment

Government Review Team Master Distribution List, municipal and First Nation and Métis community

websites, and the experience of EPCOR and Stantec.

⁶ EB-2016-0137/0138/0139: *EPCOR Common Infrastructure Proposal,* October 16, 2017; Schedule D, Page 1

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18. EPCOR and Stantec hosted two rounds of information sessions (three in 2015 and three in May 2018)

at various locations in the project area. At the first round of information sessions, stakeholders did

not identify any environmental or socio-economic concerns with either of the proposed routes.

However, numerous comments were received requesting that the route be revised to be able to

service as many stakeholders as possible in the study area, as defined in ER, which included

agricultural stakeholders.

19. Following the submission of EPCOR's CIP and competitive bidding process for this Project, the OEB

granted EPCOR three CPCNs for this Project on April 12, 2018. A second round of information

sessions was held in May 2018. At these sessions, EPCOR and Stantec reintroduced the Project and

presented a preliminary preferred route, a revised alternative route, and several minor deviations. No

environmental or socio-economic concerns were noted from stakeholders who attended these

information sessions.

Preferred Route

20. Following the comparative evaluation, outlined in the Environmental Report, the preliminary

preferred route was confirmed as the Preferred Route as shown in Tab 3, Schedule 2.

21. The mainline will follow the Preferred Route and be installed within the existing road allowance with

additional easements, to be determined during detailed designed, as required. All required land

easements and necessary agreements will be coordinated and negotiated with the following entities:

Environment Canada

Fisheries and Oceans Canada ("DFO")

Parks Canada ("PC")

Ontario Energy Board ("OEB")

Ministry of Economic Development, Employment and Infrastructure ("MEDEI")

Infrastructure Ontario ("IO")

Saugeen Valley Conservation Authority ("SVCA")

Maitland Valley Conservation Authority ("MVCA")

⁷ EB-2016-0137/0138/0139: Decision and Order - South Bruce Expansion Application, April 12, 2018

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• Ministry of Environment and Climate Change ("MOECC")

Ministry of Natural Resources and Forestry ("MNRF")

Ministry of Tourism, Culture and Sport ("MTCS")

Ministry of Transportation ("MTO")

• Hydro One Networks Inc.

• Bruce County

Grey County

• Municipality of Arran-Elderslie

• Municipality of Brockton

• Municipality of Kincardine

• Municipality of West Grey

• Township of Huron-Kinloss

• Township of Chatsworth

Timeline

22. Subject to OEB approval, construction is scheduled to begin in June 2019. This will allow sufficient time to construct the Project over three summer construction seasons and avoid higher winter construction costs. This construction schedule has been updated from EPCOR's CIP submission to take into account the impact of the delay in approval of a Leave to Construct for the Project which was originally assumed to be August 2018⁸. EPCOR is targeting substantial completion of the Project by December 31, 2021.

23. The proposed construction schedule is targeted to begin in June 2019, with natural gas being distributed to Bruce Energy Centre, Chesley and Paisley for the 2019-2020 heating season if Union completes the custody transfer station in November 2019 as originally targeted. Natural gas is expected to be available in Kincardine and Tiverton for the 2020-2021 heating season, and Lucknow, Inverhuron, Point Clark and Lurgan Beach for the 2021-2022 heating season. A Project schedule can be found in Tab 6, Schedule 2. In order to maintain the updated Project schedule, EPCOR requests

 8 OEB Staff Progress Update: South Bruce Expansion Applications EB-2016-0137/0138/0139, July 20, 2017, Construction Schedule, pages 5 and 6.

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that the Board issue a decision for the proceeding by the end of May 2019. The period between

approval and start of construction is needed to allow the contractor to mobilize to site.

24. If construction cannot commence in June 2019 as planned, EPCOR is at risk of not being able to

complete the mainline to Bruce Energy Centre on schedule, and natural gas distribution would likely

be delayed to summer 2020.

25. Further details on the Project schedule can be found in Tab 6, Schedule 2.

Letters of Support

26. Throughout the competitive process for this Project, the Southern Bruce Municipalities have not

wavered in their support of EPCOR as their preferred choice for a natural gas provider. The Southern

Bruce Municipalities filed a letter of support as part of EPCOR's CIP submission to confirm their

endorsement of EPCOR. This letter of support states that "the Southern Bruce Municipalities and

their homeowners, businesses, farms and other consumers are depending on the timely

consideration and approval of the EPCOR Applications so that natural gas service can be provided to

all three Southern Bruce Municipalities as soon as possible." 9

27. EPCOR has received letters of support from various large agricultural and industrial customers in the

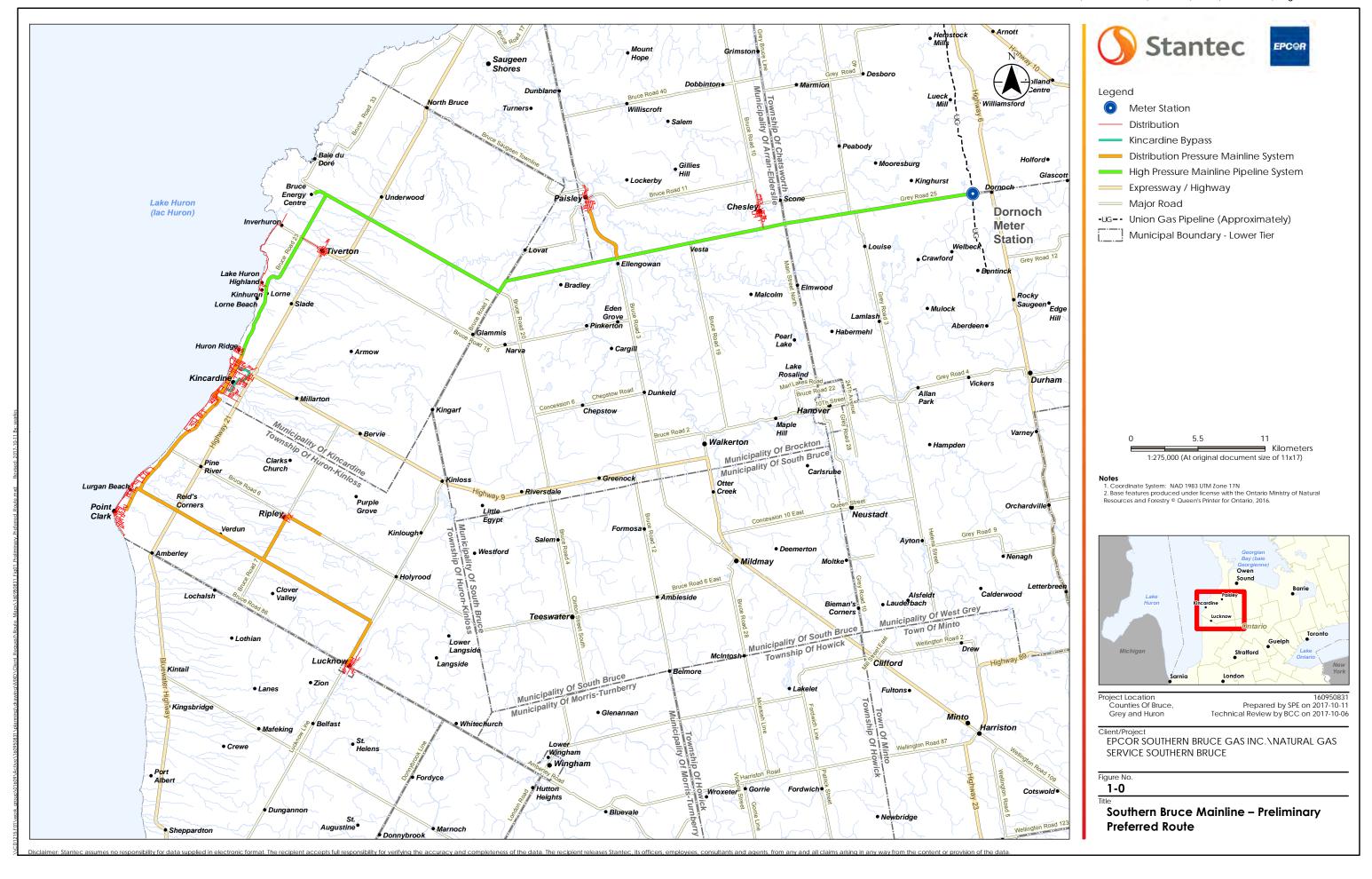
area. These letters signify the economic necessity for natural gas in the region along with additional

positive benefits and the avid anticipation the community and industry have for natural gas service.

These letters can be found in Tab 3, Schedule 3.

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⁹ EB-2016-0137/0138/0139: *EPCOR Common Infrastructure Proposal,* October 16, 2017; Schedule A





EPCOR Utilities 2000 – 10423 101 St NW Edmonton, Alberta, T5H 0E8 Attention Mr. Bruce Brandell

September 13, 2018

Re: Access to Natural Gas - Southern Bruce

Dear Mr. Brandell

7ACRES is a leading cultivator of craft quality cannabis in Canada. Focusing on cultivating high quality cannabis on a commercial scale has made us leaders in mass cultivation and emerge as Canada's first business to business producer. We believe high quantity cultivation is nothing without great quality.

Located in Kincardine, Ontario our state of the art hybrid greenhouse allows us to grow consistently high-quality plants by combining the best practices in indoor cannabis cultivation using the power of the sun. Recent approvals have expanded our flowering capacity area up to 90,000 sq.ft, with future plans to expand the facility up to 330,000 sq.ft. Operating with an advanced HVAC system and utilizing C02 enrichment and full spectrum sun our infrastructure consists of boilers, air conditioners, and lighting assemblies necessary for cultivating a high quality product. It is important to keep growing conditions consistent throughout the year and as seasons change the demands on the HVAC and lighting equipment can be extensive in order to keep these conditions stable throughout the year.

Currently propane is used to fuel our boilers and electricity for additional HVAC and lighting demands. Operating a large greenhouse with ideal and consistent conditions throughout the year makes the cannabis cultivation business very energy intensive. Propane is more expensive than natural gas resulting in our operations carrying a significant cost compared to other emerging operations throughout Ontario and Canada. Having access to natural gas would be less expensive, and a more reliable fuel to operate our greenhouse. Natural gas would also reduce our greenhouse gas emissions. If natural gas became available we would be very interested in having gas available to power our boilers to heat the greenhouse with significant savings. Sufficient power is not available without a significant and costly reinforcement in the local power grid to meet our growth requirements. If natural gas became available, we would also contemplate generating power onsite in order to avoid this costly reinforcement by utilizing CHP or some other means to further improve the cost efficiency of our operation.

As 7ACRES expands in the Canadian market it is important for us to operate in an economically and environmentally sustainable fashion and would further allow 7ACRES to develop the

highest quality cannabis products. We have been working with EPCOR to understand their Southern Bruce Project, including the timing of the development, approval requirements and the proposed rate structure. Our greenhouse facility would benefit from the development of the proposed natural gas system.

Yours truly,

Dimitre Naoumov, CFO

Smith Agra Ripley Inc. 540 Bruce Road 7 Huron-Kinloss, ON N0G 2R0

EPCOR Utilities 2000 – 10423 101 St NW Edmonton, Alberta, T5H 0E8 Attention Mr. Bruce Brandell

August 21, 2018

Re: Access to Natural Gas - Southern Bruce

Dear Mr. Brandell

Smith Agra Ripley inc. is a family run business which farms 5,000 acres of land in Huron-Kinloss Township. We grow wheat, soy and corn and operate an on-site grain elevator operation which includes a large grain dryer facility. The grains that are harvested must be dried to allow for safe storage and to make the grains marketable. We process approximately 10,000 metric tonnes annually and the grains are sold both nationally and internationally. In addition to 5 full time employees that the business supports, we also employ an additional 3-4 people on a part time basis to manage this large farming operation.

The grain drying business is an energy intensive business and we currently use propane to fuel the grain dryer as natural gas has never been available in the past. Propane is more expensive than natural gas resulting in our products having a competitive disadvantage to similar products produced in other parts of Ontario.

EPCOR has met with us to describe their Southern Bruce Project, including the timing of the development, approval requirements and the proposed rate structure. We are very interested in converting our dryer operation to natural gas. The switch to natural gas would reduce our drying costs, putting our drying costs on par with much of the rest of the province. This will allow us to be more economically sustainable in an increasingly competitive marketplace and continue to produce the highest quality products.

I give my full support to EPCOR to bring natural gas to Southern Bruce.

Sincerely

Michael Smith



SNOBELEN FARMS LTD.
Box 29, 323 Havelock Street

Lucknow, Ontario, Canada NOG 2H0 Phone: 519-528-2092

Fax: 519-528-3542

Website: www.snobelengroup.com

EPCOR Utilities 2000 – 10423 101 St NW Edmonton, Alberta, T5H 0E8 Attention Mr. Bruce Brandell

September 4, 2018

Re: Access to Natural Gas - Southern Bruce

Dear Mr. Brandell

Snobelen Farms is an independent, family owned company that was founded in 1971, specializing in the production, processing and sales of food grade soybeans, commercial grains and pedigreed seed for markets across Canada and internationally. Snobelen grows 30% of its main seed production and 70% is contract grown thereby supporting other area farmers.

Commercial grain production requires drying. Snobelen operates 3 grain drying operations that could be served by EPCOR's proposed natural gas distribution system in Kincardine and Huron-Kinloss. The grain drying business is an energy intensive business and we currently use propane to fuel the grain dryers. Propane is more expensive than natural gas resulting in our drying operations having a competitive disadvantage to similar operations in other parts of Ontario that already have access to natural gas.

Sufficient power is not available in the local power grid, so we also operate large diesel engines to power electric generators to provide the power necessary to operate the large 3 phase motors required to move grain. If natural gas became available, we would also contemplate converting these engines to run on natural gas reducing our consumption of diesel fuel.

We are very interested in having natural gas available for our dryer operations. Switching to natural gas would reduce our drying costs, and it would reduce our greenhouse gas emissions. Snobelen operates in both the Canadian and international markets and it is important for us to operate in an economically and environmentally sustainable fashion as these markets are becoming increasingly competitive and Snobelen prides itself on producing the highest quality products. EPCOR has met with us to describe their Southern Bruce Project, including the timing of the development, approval requirements and the proposed rate structure. The agricultural community in the Southern Bruce area would benefit from the development of the proposed natural gas system.

Snobelen Farms would like to lend it support to this valued energy project.

Yours truly,

Kevin Broadworth

General Manager



EPCOR Utilities 2000 – 10423 101 St NW Edmonton, Alberta, T5H 0E8 Attention Mr. Bruce Brandell

September 20, 2018

Re: Support for Southern Bruce Natural Gas Project

Dear Mr. Brandell

Greenfield Global ("Greenfield") is a Canadian company involved in the production of specialty alcohols, fuel ethanol and related products and is a significant energy consumer in the province of Ontario. Greenfield has four production facilities, with three located in Ontario and one in the province of Quebec. The facility in Tiverton, Ontario is located in the Bruce Energy Centre and is Greenfield's oldest facility. It primarily produces high grade specialty alcohols that are exported around the world.

Industrial alcohol production requires significant energy and Greenfield was encouraged to build the Tiverton plant next to the Bruce Nuclear plant where low grade steam was made available at a very competitive price to attract various industrial facilities to Bruce County. The Bruce Energy centre was subsequently developed to accommodate these industrials. When the Bruce Nuclear Station ceased production of low grade steam, Greenfield constructed its own steam plant and supplied its boilers with natural gas using an innovative compressed natural gas ("CNG") supply system. The CNG system includes a compressor station located near Mount Forest, Ontario, which is 90 kilometres from the plant. Steam generated by our boilers provides Greenfield with process heat, and Bruce Power with building heat. Greenfield also developed a diesel fuel backup energy system for the CNG system in the event that natural gas supply is interrupted by inclement weather causing road closures. Although the system has worked very well, it has higher related energy costs when compared with North American competitor facilities that are directly supplied by a natural gas pipeline.

Greenfield understands from EPCOR that the Southern Bruce Natural Gas Project will provide a cost of service to customers in the area that is lower than EPCOR's competitors in the Board's competitive process, and terms that are in line with the rate parameters and principles that are common in Southwest Ontario. Specifically, Greenfield anticipates that EPCOR terms will mandate a 15 year term commitment for industrials, and allow for access to lower cost natural gas pipeline services to improve the Tiverton facility's competitiveness.

Further, Greenfield has relied upon this promise of lower cost energy to commence an expansion of its Tiverton facility and phase 1 of the expansion is currently underway. Greenfield's decision on phase 2 of the expansion is expected to be made this fall, and is aligned with the proposed timing of the completion of a pipeline agreement between Greenfield and EPCOR, and the subsequent Leave to Construct and tariff approvals by the Ontario Energy Board.

Greenfield is of the view that the South Bruce natural gas pipeline has the potential to provide benefits to Greenfield's Tiverton plant, Greenfield's employees and the citizens that live in South Bruce, and the many businesses connected by this new pipeline.

On the basis of the foregoing, Greenfield hereby provides its support for EPCOR's South Bruce Natural Gas Project. We look forward to seeing this project move forwards expeditiously.

Sincerely

John Creighton

Director, Business Development

Greenfield Global Inc.



Prepared by:

Innovative Research Group

Toronto | Vancouver innovativeresearch.ca



EPCOR Utilities Inc. 2000-10423 101 Street NW Edmonton, Alberta



Methodology & Demographics



Methodology



- These are the results of a telephone survey among owners of residential properties in the municipalities of Kincardine, Huron-Kinloss, and Arran-Elderslie to determine the level of interest in converting to natural gas.
- Only households in areas of these municipalities that are eligible for gas service were included in the sample. The eligible areas, with the corresponding municipality in brackets, consist of:
 - Kincardine excluding outlying rural areas (Kincardine)
 - Tiverton (Kincardine)
 - The lakeshore from Kincardine to Point Clark (Huron-Kinloss)
 - Ripley (Huron-Kinloss)
 - Lucknow (Huron-Kinloss)
 - Chesley (Arran-Elderslie)
 - Paisley (Arran-Elderslie)
- Inclusion in the sample was based on the 6 digit postal code of each household address with additional filtering by geo-coding addresses where necessary. See the technical appendix for more detail.

Methodology



- Sampling was conducted with a stratified sample of permanent residents and non-permanent residents with properties in the service area from each municipality.
- The main sample was listed landlines in the service area. Additional sample of non-permanent residents were identified based on households who use a mailing address outside of the sample region to receive their property tax bills. See the technical appendix for more details
- The strata of permanent residents was weighted by municipality and household size according to Statistics Canada data
- The survey was conducted by telephone among 554 randomly-selected households within the sample area, between July 6th 2017 and July 17th 2017. The results were weighted to 500.
- Respondents were screened to ensure they were 18 years or older and the owner of the property in question.
- The overall results are considered accurate to within ±4.4%, 19 times out of 20. The margin of error will be larger within each sub-grouping of the sample.
- Tracking results come from a study conducted by the municipalities in 2014. The total n-size for the 2014 sample was 753 respondents. These results are considered accurate to within ±3.6%, 19 times out of 20.

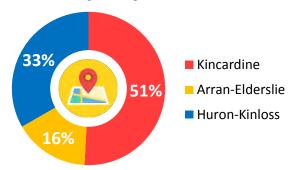
Note: Graphs and tables may not always total 100% due to rounding values rather than any error in data. Sums are added before rounding numbers.

Sample Breakdown

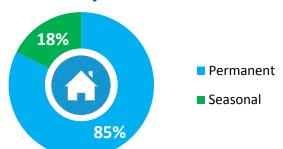
Sample Sizes

	Unweighted N	Weighted N
Total	554	500
Kincardine	251	254
Huron-Kinloss	176	166
Arran-Elderslie	127	79
Permanent	439	408
Non-permanent	115	92

Municipality



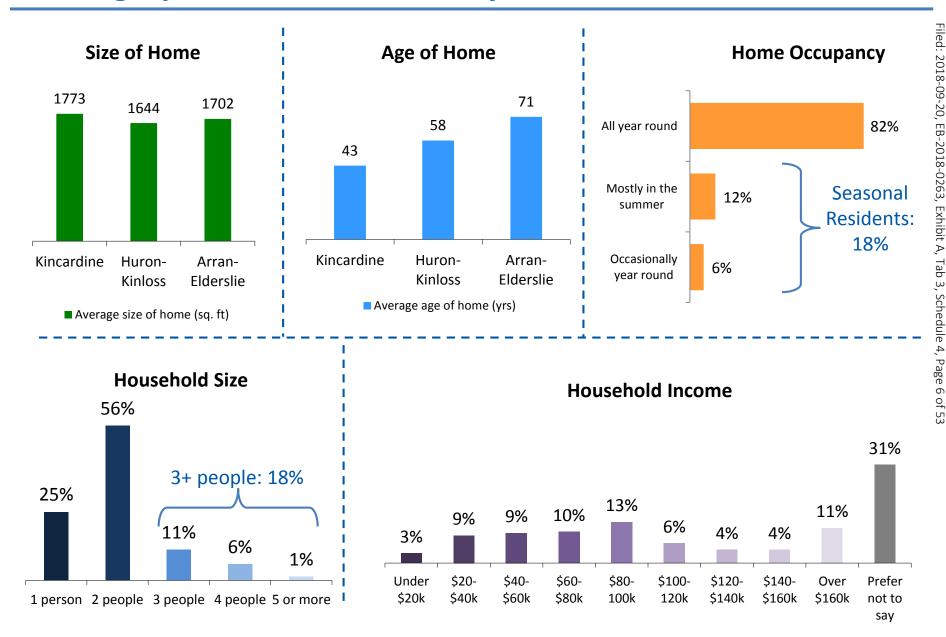
Residency







Demographics: Households Profile



Demographics: Average annual heating costs

2014Average annual home/water

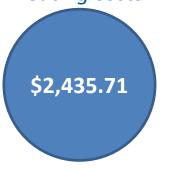
heating costs

\$2,435.92

Quartiles	Frequency
\$0-\$1,500	23%
\$1,500-\$2,399	19%
\$2,400-\$3,099	17%
\$3,100+	17%
Don't know	24%

2017

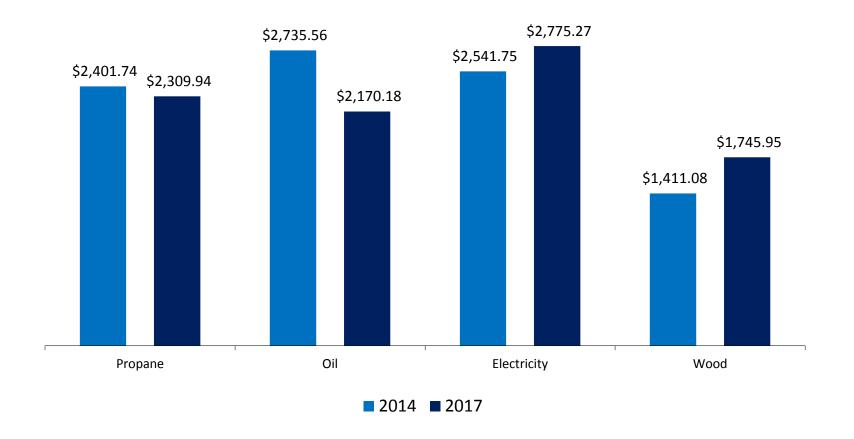
Average annual home/water heating costs



Quartiles	Frequency
\$0-\$1,400	21%
\$1,400-\$2,299	20%
\$2,300-\$3,199	21%
\$3,200+	20%
Don't know	19%



Demographics: Average annual heating costs by fuel type







Home Heating

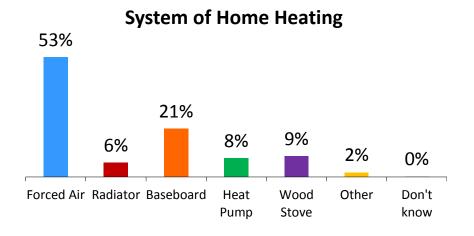


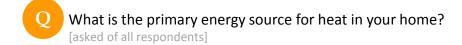
Home heating systems: 31% have propane forced air; 21% have electric baseboards

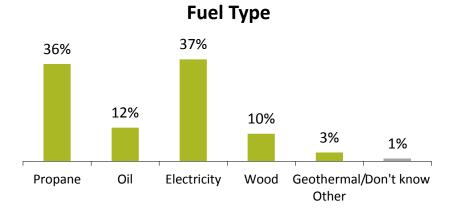
Q

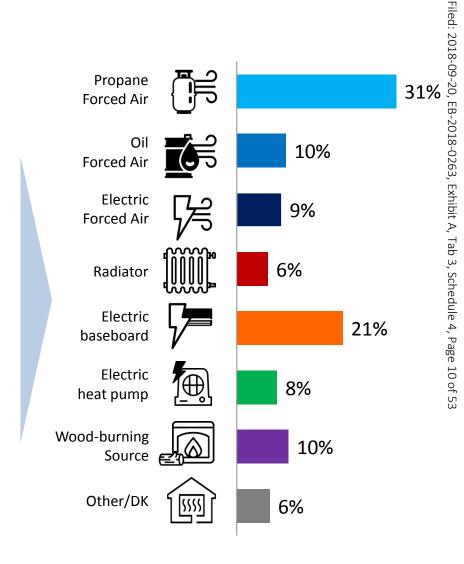
What type of system provides the primary source of heat for your home?

[asked of all respondents]







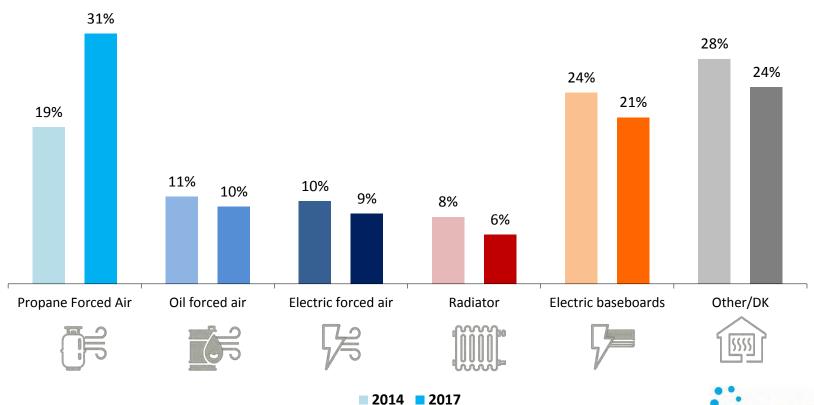


Heating system tracking: 12 point increase in respondents with propane forced air since 2014



What type of system provides the primary source of heat for your home? [asked of all respondents]

System of Home Heating



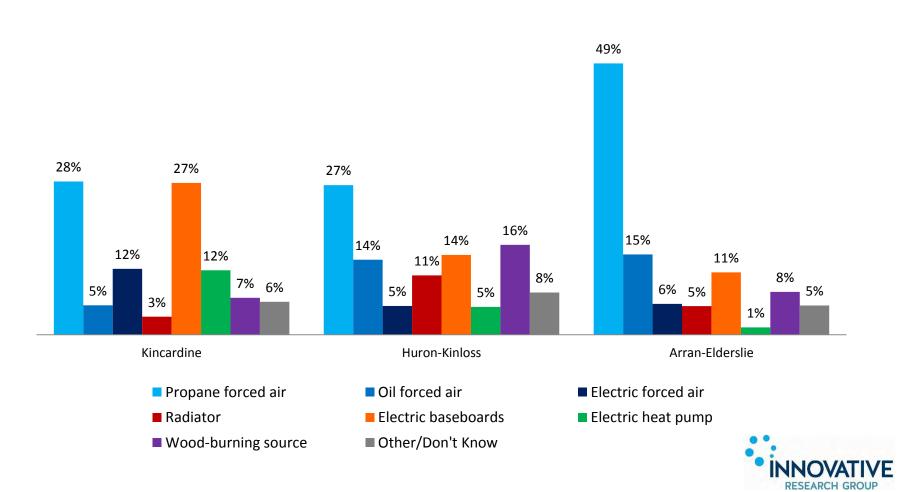


Type of heating by municipality: Almost half (49%) of respondents in Arran-Elderslie have propane forced air

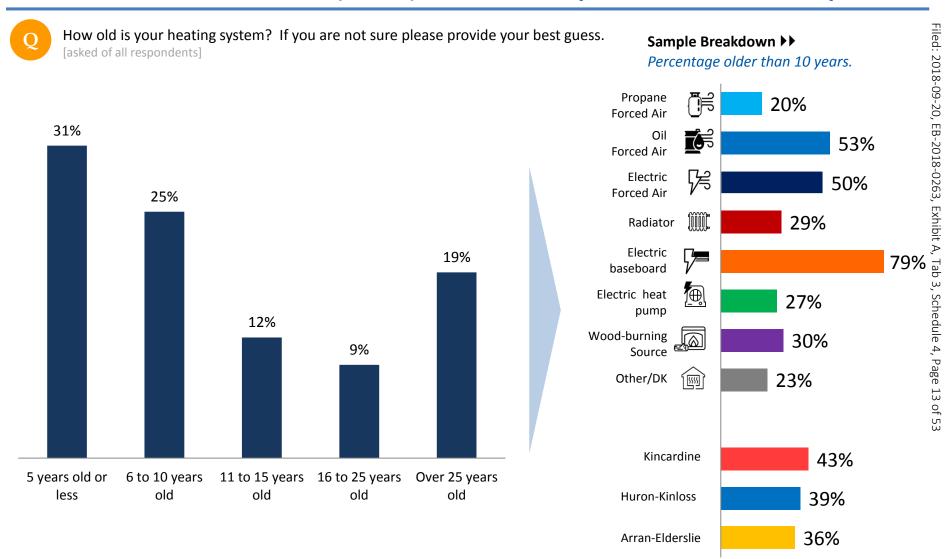


What type of system provides the primary source of heat for your home? AND What is the primary energy source for heat in your home?

[asked of all respondents]



Age of systems: Those with electric baseboards (79%) and Kincardine residents (43%) most likely to have older systems

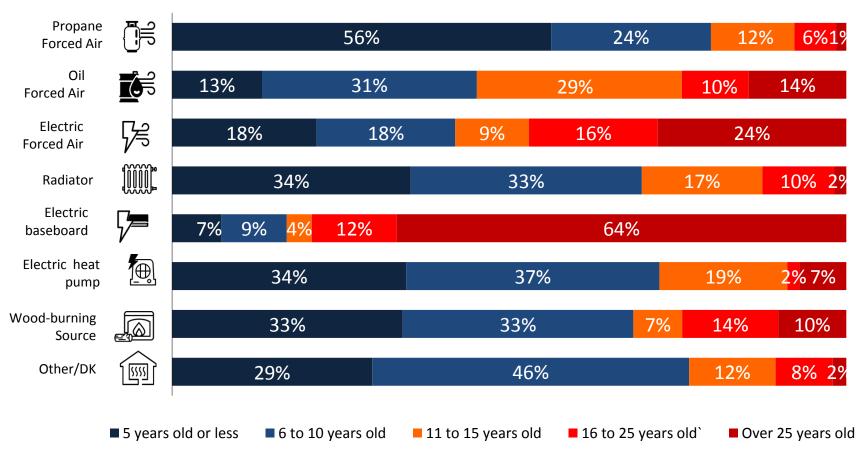


Age of systems: Respondents with electric baseboards have oldest systems; propane forced air generally newest



How old is your heating system? If you are not sure please provide your best guess.

[asked of all respondents]



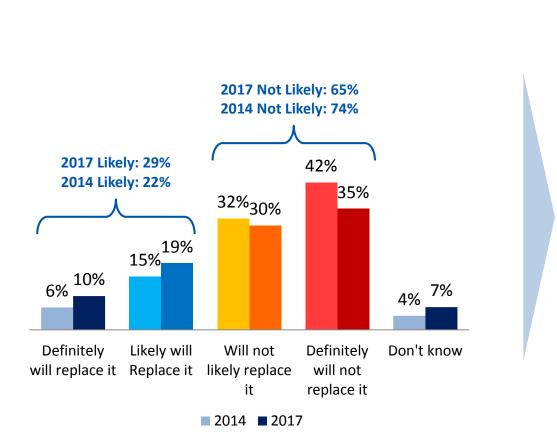


Replacing home heating: Households making under \$60k and those in Arran-Elderslie most likely to replace system



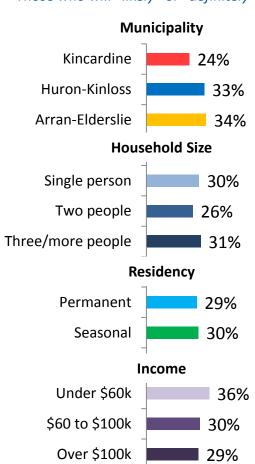
How likely are you to replace your home heating system in the next 5 years?

[asked of all respondents]





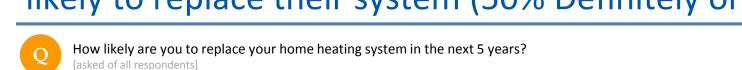
Those who will "likely" or "definitely"



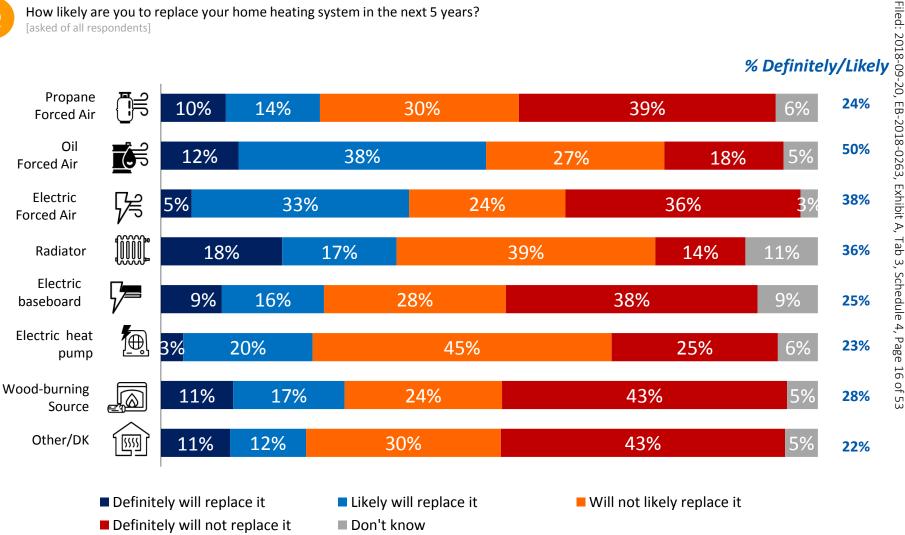


Notes: "Refused" not shown.

Replacing home heating: Those with oil forced air most likely to replace their system (50% Definitely or Likely)







Notes: "Refused" not shown.

This question is asked before any discussion of natural gas conversion and is intended to gauge existing plans to replace systems, separate from any work related to a natural gas conversion.

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 3, Schedule 4, Page 17 of 53

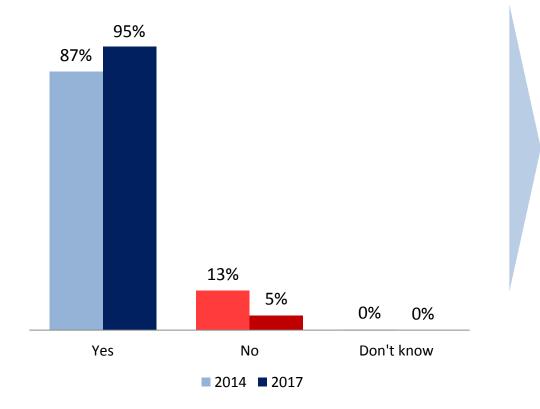
Project Awareness: Awareness up 8 points compared to 2014 survey

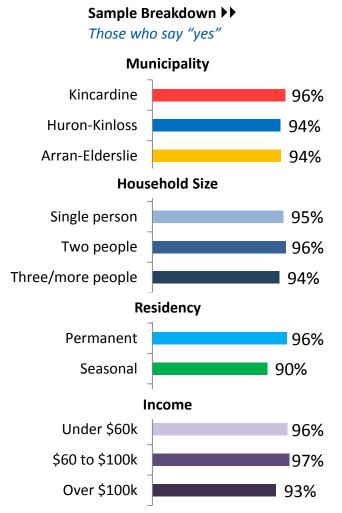


[2017 QUESTION] Are you aware that the municipalities in your area are working with EPCOR to bring natural gas service into your community?

[2014 QUESTION] Are you aware that that the municipalities in this area are considering a plan to build a distribution system to bring natural gas service into your community?

[asked of all respondents]







Home heating conversion scenarios

Key Idea: Different conversion scenarios mean different costs and savings.

When respondents were asked about financing options and their interest in conversion they were given information about the estimated costs and savings they would face based on the type of heating system they used. They were told:

- **Preamble to financing question:** "Thinking first about the conversion costs, there are two options. The upfront cost to convert a [**SYSTEM NAME**] heating system to natural gas would be approximately [**UP FRONT COST**]. Alternatively financing could be arranged, secured by a lien against your house, which would typically cost [**FINANCED COST**] per month for 10 years."
- **Preamble to conversion question:** "In addition to the conversion costs above, natural gas also means that you are paying a different amount for the energy you use in your home heating system. The cost of [**FUEL SOURCE**] is approximately **[COST RATIO]** the price of natural gas."

This information is as follows:		Forced Air	Hot Water Radiator	Heat Pump	Baseboard
Best Case: Lower cost or higher	Propane	UP FRONT: \$750-\$1000 FINANCED: \$8 -\$10 PRICE RATIO: 1.25x		N/A	N/A
savings	Oil	UP FRONT: \$4k-\$5k FINANCED: \$41-\$51 PRICE RATIO: 1.5x		N/A	N/A
Worst Case:	Electricity		UP FRONT: \$4k-\$5k FINANCED: \$41-\$51 PRICE RATIO: 1.5x		UP FRONT: \$10k-\$12k FINANCED: \$101-\$121 PRICE RATIO: 1.5x
Higher cost or lower savings	Other/DK	FINANCE	much as \$4k-\$5k D: \$41-\$51 ATIO: 1.5x	N/A	N/A

"Typical" Scenario *UP FRONT: As much as \$10-\$12k FINANCED: As much as \$121 PRICE RATIO: At least 1.5x

*Those whose heating scenario was not reflected in the above table were shown a "typical" cost scenario.

Note: The frequency of heating system types reported above includes responses of "other" from which the open-ended answer was later recoded as one of the main types. However in all cases the cost scenario faced by these respondents was the **Other/Don't Know** cost scenario.

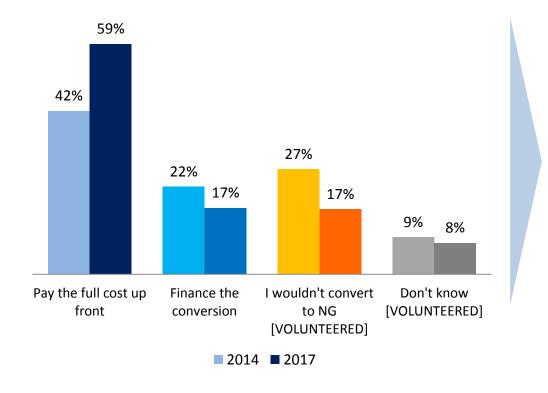
Financing: Large increase in those who say they would pay the full cost upfront; highest within highest income group



Thinking first about the conversion costs, there are two options. The upfront cost to convert a [SYSTEM NAME] heating system to natural gas would be approximately [UP FRONT COST]. Alternatively financing could be arranged, secured by a lien against your house, which would typically cost [FINANCED COST] per month for 10 years.

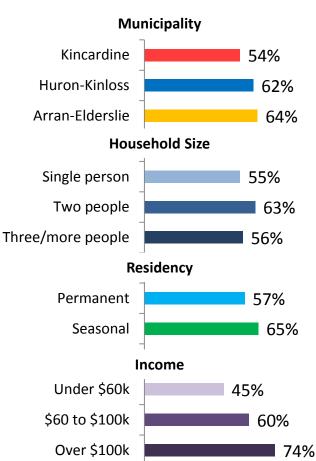
Given these options, if you chose to convert your home heating to natural gas, would you be more likely to...

[asked of all respondents]



Sample Breakdown ▶▶

Those who say "pay full upfront"





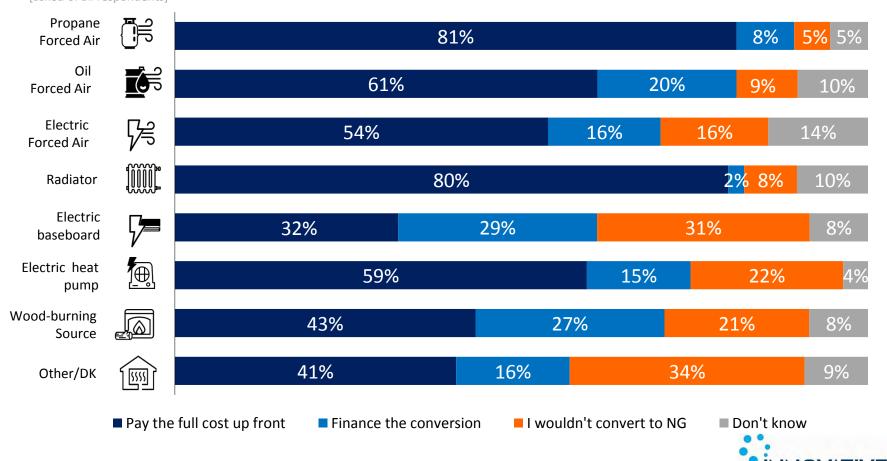
Payment strategy: 81% of those with propane forced air would pay cost upfront



Thinking first about the conversion costs, there are two options. The upfront cost to convert a [**SYSTEM NAME**] heating system to natural gas would be approximately [**UP FRONT COST**]. Alternatively financing could be arranged, secured by a lien against your house, which would typically cost [**FINANCED COST**] per month for 10 years.

Given these options, if you chose to convert your home heating to natural gas, would you be more likely to...

[asked of all respondents]

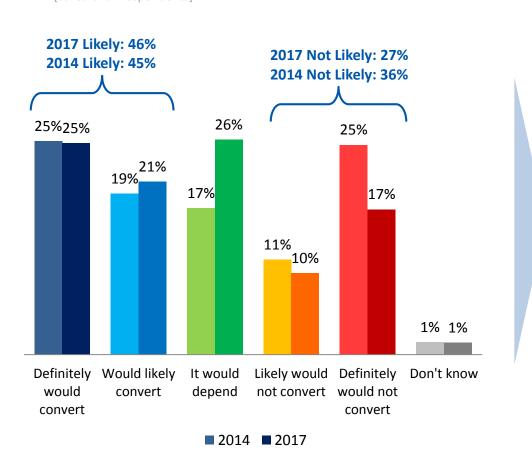


Likelihood of Conversion: Majorities of respondents in Arran-Elderslie and Huron-Kinloss would convert

Q

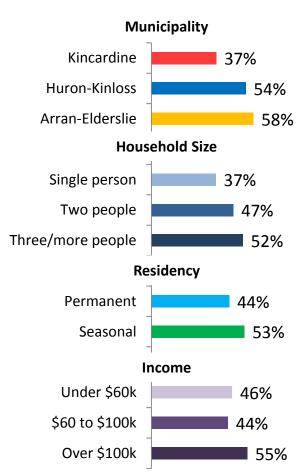
Thinking about both this price difference and the conversion costs, how likely would be to convert your home heating system to natural gas when it became available?

[asked of all respondents]



Sample Breakdown >>

Those who say "likely"



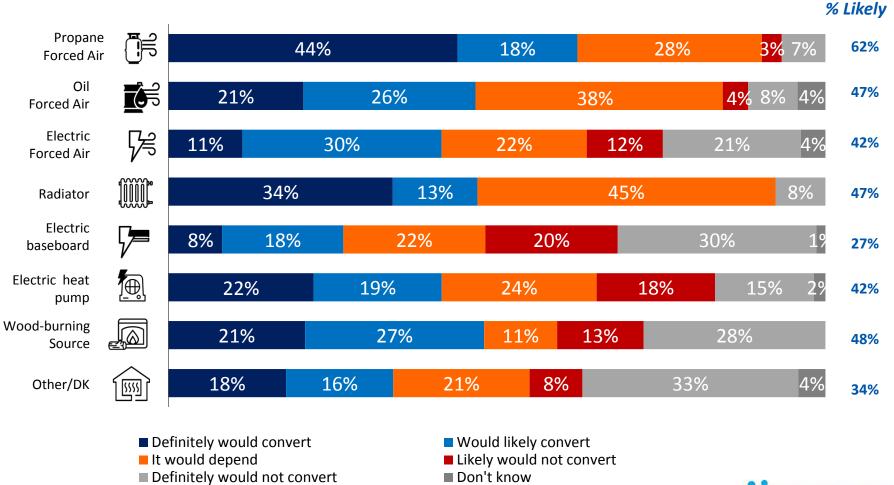


Conversion breakdown: Respondents with propane forced air most likely to convert (62%)



Thinking about both this price difference and the conversion costs, how likely would be to convert your home heating system to natural gas when it became available?

[asked of all respondents]





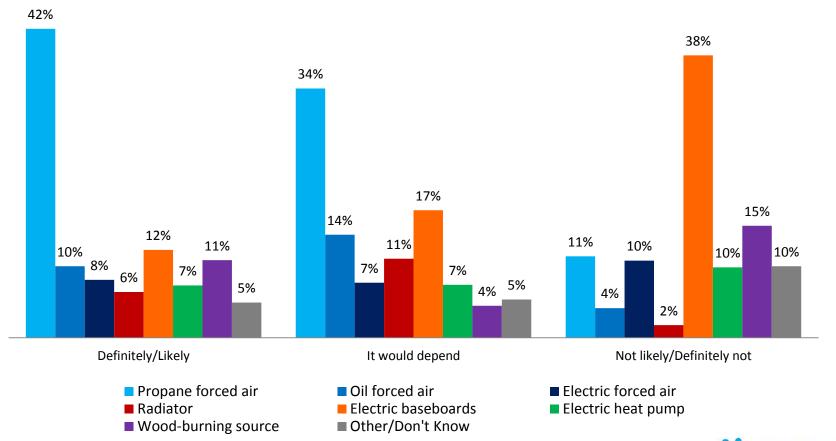
Note: "Refused" not shown

Type of heating by Conversion: Plurality (42%) of those who would convert have a propane forced air system



What type of system provides the primary source of heat for your home? AND What is the primary energy source for heat in your home?

[asked of all respondents]





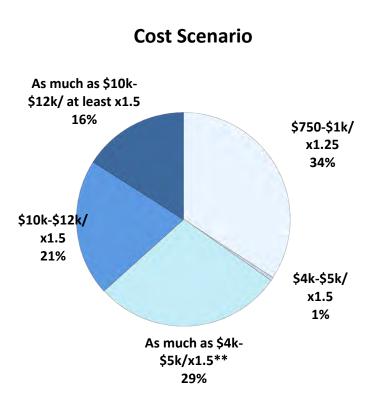
Conversion breakdown: 62% of those who saw the lowest

cost scenario would convert

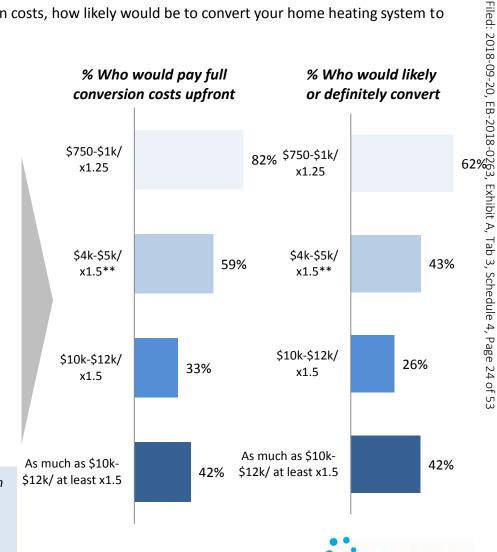


Thinking about both this price difference and the conversion costs, how likely would be to convert your home heating system to natural gas when it became available?

[asked of all respondents]



Note: The conversion cost scenario assigned to respondents is dependent on their reported heating system type and fuel source, and includes responses of "other". The "other" respondents have been recoded to fit into one of the main types of heating if applicable, however in all cases the cost scenario shown to the "other" respondents was the other/Don't Know cost scenario (As much as \$10k-\$12k/< 1.5 times).



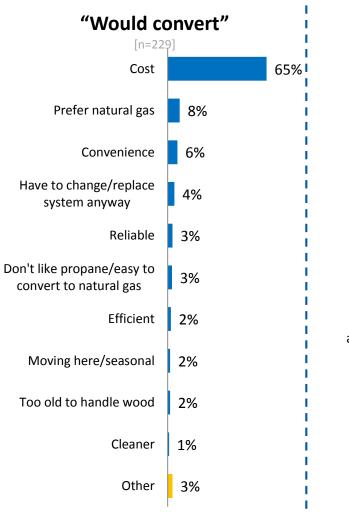
^{**}Due to low n-sizes, the "As much as \$4k-\$5k/1.5x" category is combined with the "\$4-\$5k/1.5x" category for all analysis.

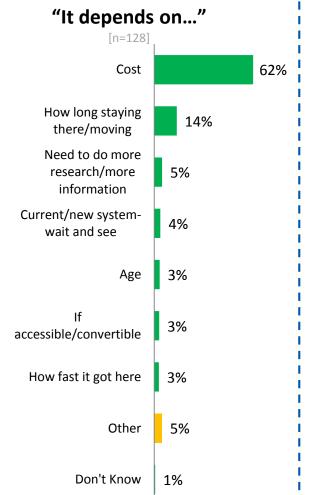
Motivators in converting heating/not: cost is the main factor for those converting or on the fence about it

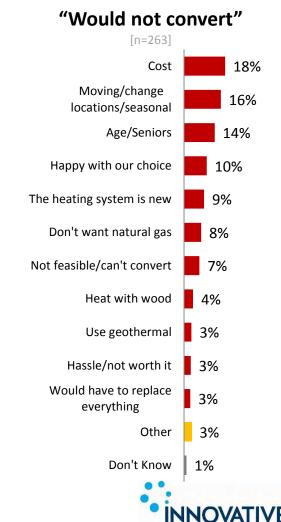
Q

And what's the main reason why you would/would not convert? **OR** What does it depend on?

[asked of all respondents, depending on their answer to likelihood of conversion to natural gas]







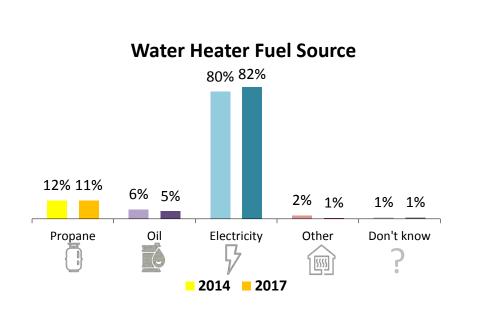
Note: "Refused"/"Bad respondent" not shown

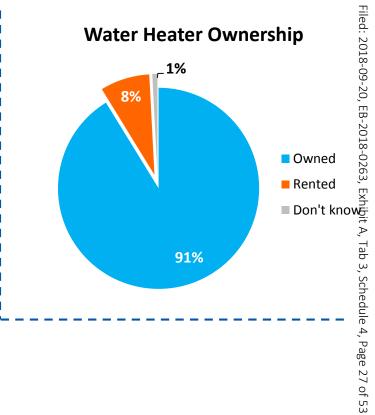


Water Heating

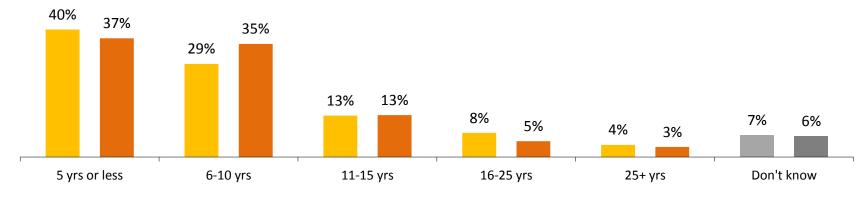


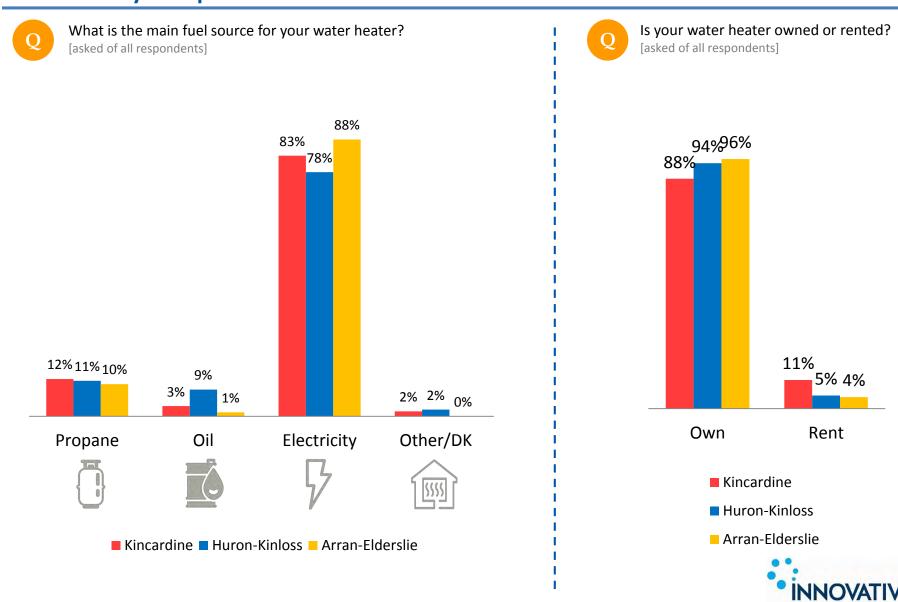
Demographics: Water Heating Profile



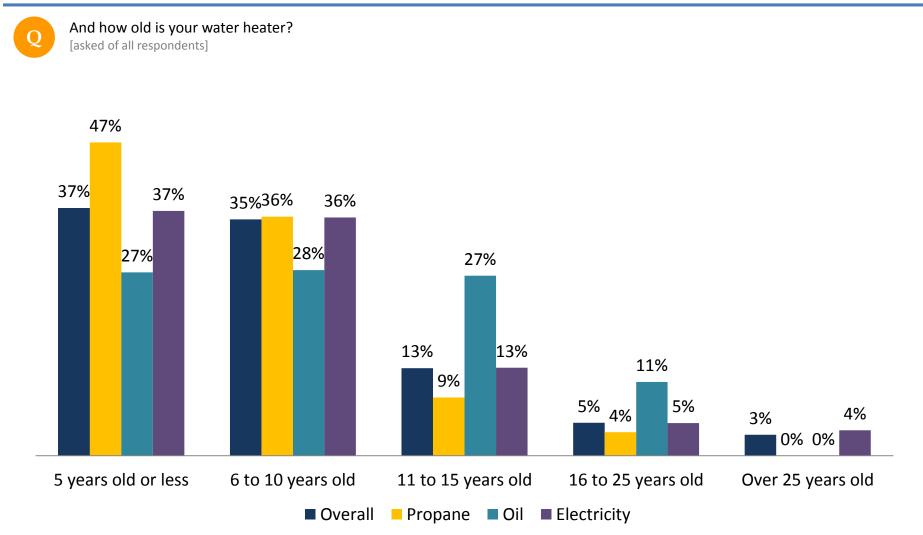


Age of Water heater





Age of water heater by fuel source: close to half (47%) of propane water heaters are 5 years old or less





Water Heater Conversion Scenarios

Key Idea: Different conversion scenarios mean different costs and savings.

When respondents were asked about their interest in converting their water heaters they were given information about the estimated costs and savings they would face based on the type of water heater they used. They were told:

- If they own a propane water heater: "Most propane water heaters can be readily converted to natural gas but, if a liner is needed, the conversion may cost up to \$1000."
- If they own a different kind of water heater: "The purchase and installation of a typical natural gas water heater costs about \$1,700 depending on the complexity of the installation."
- If they rent a water heater: "Natural Gas water heaters can be rented. Typical monthly rental rates range from \$13 per month to \$24 per month. Depending on your home, there may be additional expenses for the conversion."

And then everyone was informed that: "Over the past few years the price of **[FUEL SOURCE]** has tended to be **[PRICE RATIO]** the price of natural gas."

The scenarios can be summarized as follows:

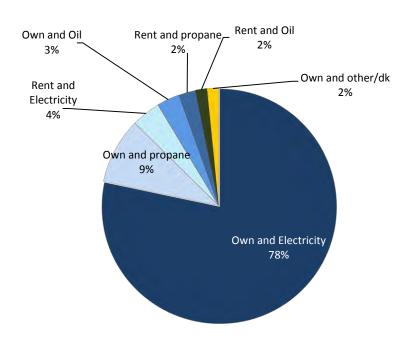
This information is as follows:

	Propane	Electricity	Oil	Other/Don't Know
Own	COST: up to \$1000 PRICE RATIO: 1.25x	COST : \$1700 PRICE RATIO : 1.5x	COST: \$1700 PRICE RATIO: 2x	COST: \$1700 PRICE RATIO: approx. 1.5x
Rent	COST: \$13-\$24/month PRICE RATIO: 1.25x	COST: \$13-\$24/month PRICE RATIO: 1.5x	COST: \$13-\$24/month PRICE RATIO: 2x	COST: \$13-\$24/month PRICE RATIO: approx. 1.5x



Water Heater Conversion Breakdown

Water Heater Scenarios



Note: The conversion cost scenario assigned to respondents is dependent on their reported water heating fuel source, and includes responses of "other". The "other" respondents have been assigned the cost scenario of \$1700/1.5x.

Fuel Type/ Ownership	Conversion Costs
Own and electricity	COST: \$1700 PRICE RATIO: 1.5x
Own and propane	COST: up to \$1000 PRICE RATIO: 1.25x
Rent and electricity	COST: \$13-\$24/month PRICE RATIO: 1.5x
Own and oil	COST: \$1700 PRICE RATIO: 2x
Rent and propane	COST: \$13-\$24/month PRICE RATIO: 1.25x
Rent and oil	COST: \$13-\$24/month PRICE RATIO: 2x
Own and other/DK	COST: \$1700 PRICE RATIO: approx. 1.5x

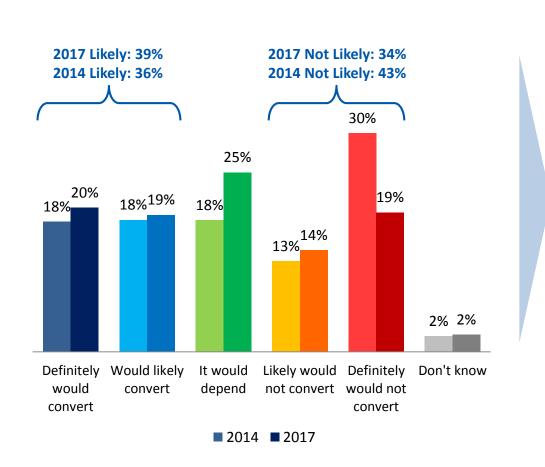


Likelihood to convert water: 'not likely' down 10 points since 2014; large households and high earners most likely

Q

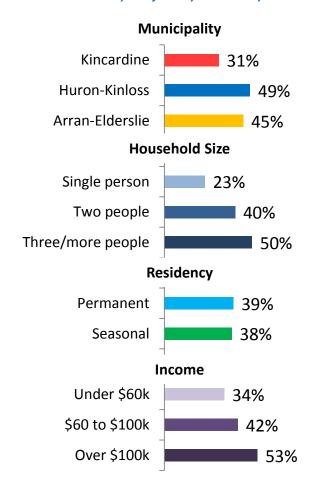
Considering this, how likely would you be to convert your water heater to natural gas if it became available?

[asked of all respondents]



Sample Breakdown ▶▶

Those who say "definitely" or "likely"



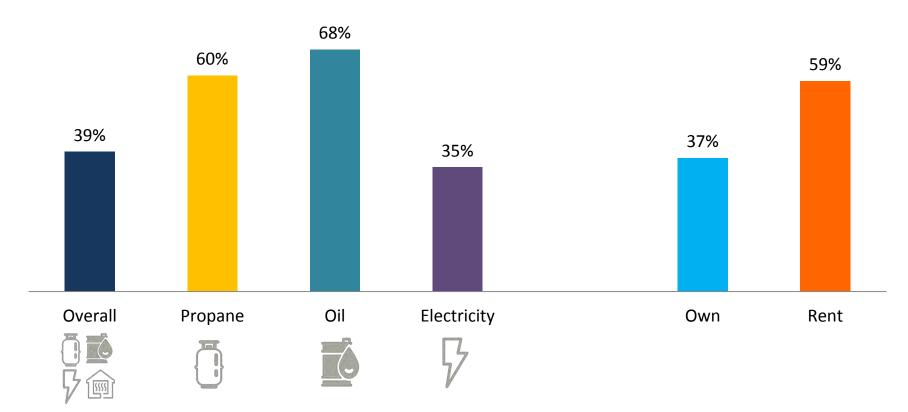


Conversion breakdown: 2-in-3 (68%) of those with oil water heaters would likely convert; 59% of those who rent



Considering this, how likely would you be to convert your water heater to natural gas if it became available? [asked of all respondents]

% Who would likely or definitely convert



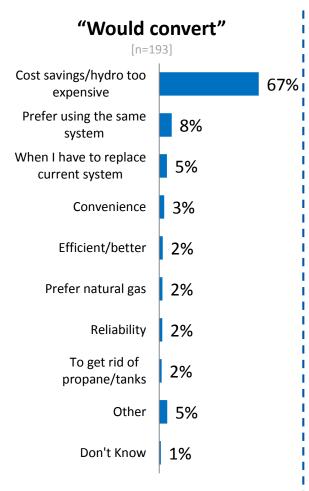


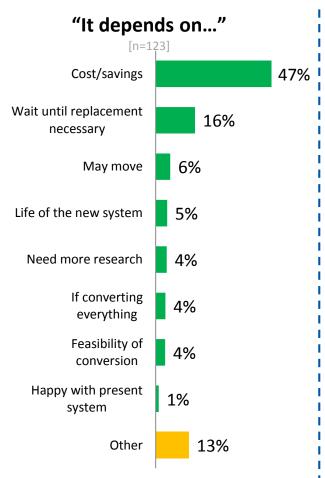
Motivators in converting water/not: xx

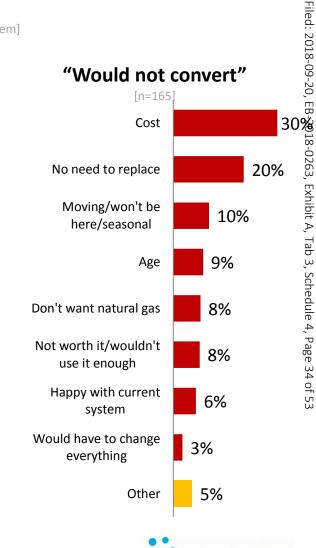


And what's the main reason why you would/would not convert? **OR** What does it depend on?

[asked of all respondents, depending on their answer to likelihood of converting their water heating system]







Note: "Refused" / "Bad respondent" not shown



Urgency of Conversion



Timeline of conversion: over 4-in-5 (82%) are likely to convert within 2 years; especially high earners and large households

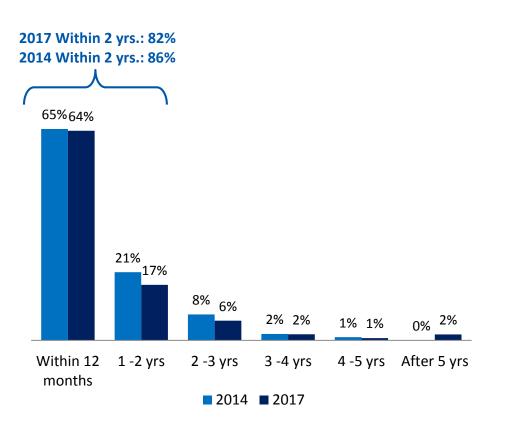


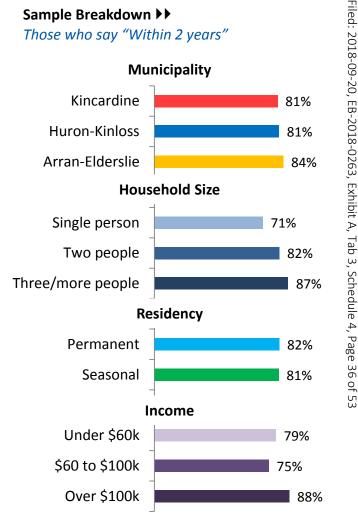
[2017 Question] Given your interest in converting at least part of your home to natural gas, assuming gas service is available *January 2018*, when would you likely convert?

[only asked of those at least "likely" to convert one or both of home and water heating, n=262]

[2014 Question] Given your interest in converting at least part of your home to natural gas, assuming gas service is available *after January 2016*, when would you likely convert?

[only asked of those at least "likely" to convert one or both of home and water heating]







Note: 'Don't Know' 2014 (3%), 2017 (8%) not shown

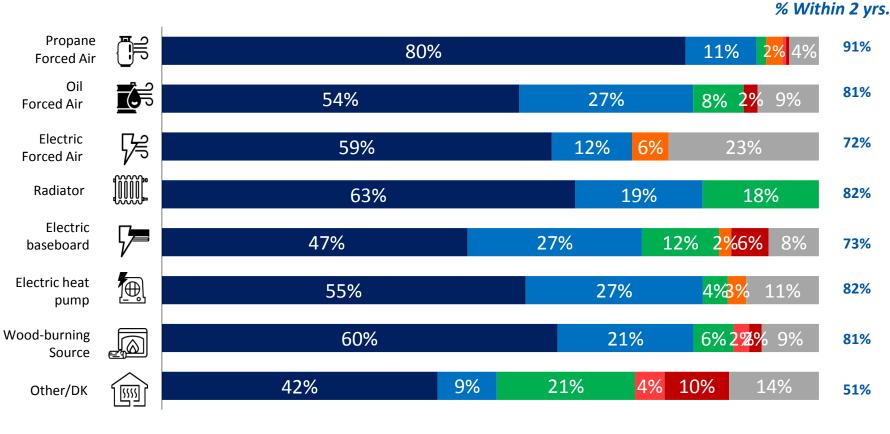
Conversion breakdown: 91% of those with a propane forced air system would likely convert within 2 years



Given your interest in converting at least part of your home to natural gas, assuming gas service is available *January 2018*, when would you likely convert?

[only asked of those at least "likely" to convert one or both of home and water heating, n=262]

■ Within 12 months ■ 1 -2 yrs ■ 2 -3 yrs ■ 3 -4 yrs



4 -5 yrs

■ After 5 yrs



Note: "Refused" not shown

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 3, Schedule 4, Page 37 of 53

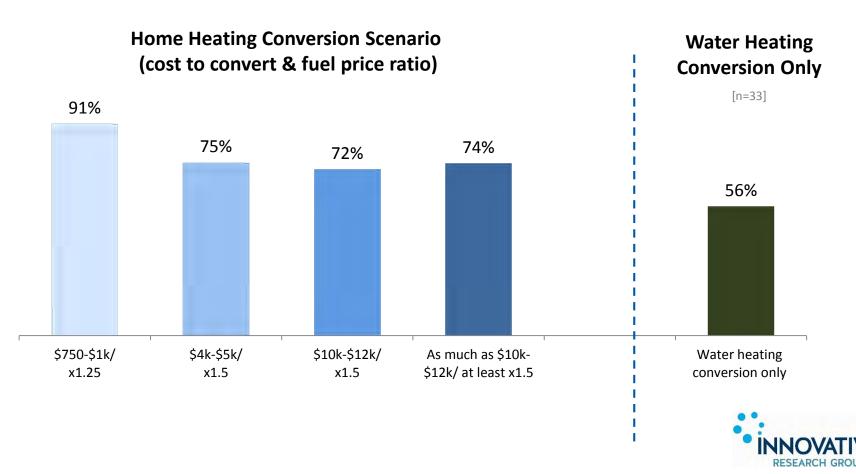
Urgency by costs & water heater conversion: 91% of those with the lowest conversion cost likely to convert within 2 yrs.



Given your interest in converting at least part of your home to natural gas, assuming gas service is available *January 2018*, when would you likely convert?

[only asked of those at least "likely" to convert one or both of home and water heating, n=262]

% Convert within two years

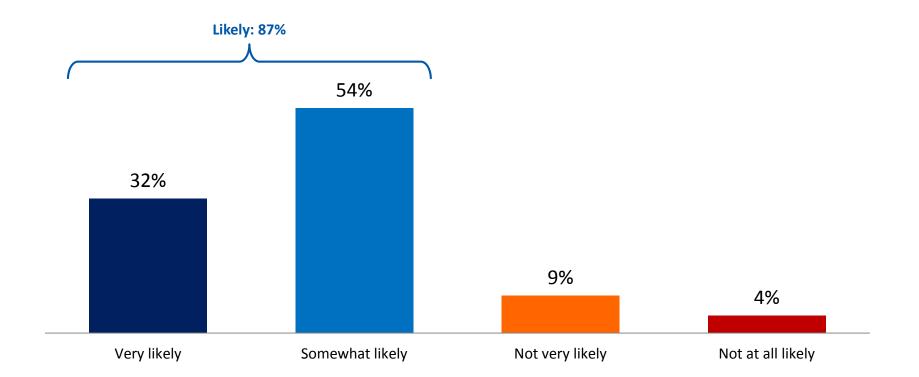


Conversion grant: 87% would likely convert within the first year if given a grant with 32% saying 'very likely'



If a grant of between \$400 and \$500 were available to help with conversion costs for those who converted within the first year of natural gas service, how likely would you be to convert within the first year?

[asked only of respondents who would likely convert between 1-4 years after natural gas availability, n=66]







Considerations when Converting

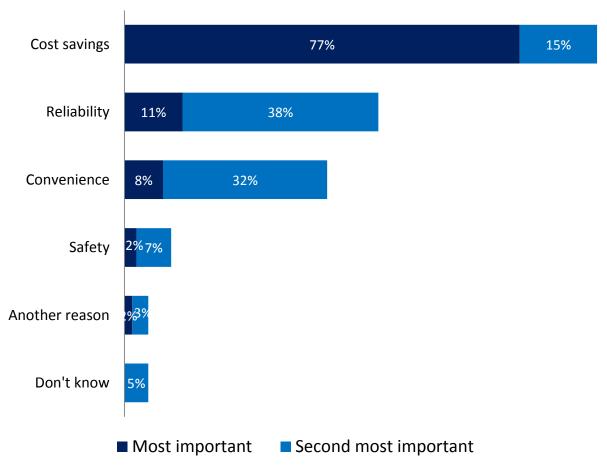


Reasons for converting: cost savings are the top issue among a majority (77%) of respondents



There are a number of reasons why homeowners would consider converting to natural gas. For you, which of the following reasons is the most important? **AND** which reason is the second most important?

[asked of all respondents, depending on their answer to likelihood of converting their water heating system, n=262]





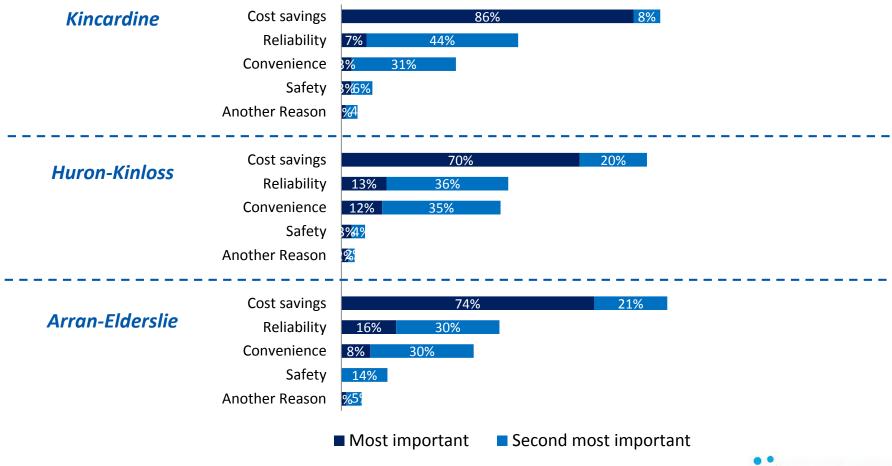
Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 3, Schedule 4, Page 42 of 53

Reasons for converting by municipality: cost savings are cited as most important issue in all municipalities



There are a number of reasons why homeowners would consider converting to natural gas. For you, which of the following reasons is the most important? **AND** which reason is the second most important?

[asked of all respondents, depending on their answer to likelihood of converting their water heating system]





Home heating type

Reason for converting by home heating type: those with electric forced air most likely to say cost savings



There are a number of reasons why homeowners would consider converting to natural gas. For you, which of the following reasons is the most important? **AND** which reason is the second most important?

[TABLE RESULTS DISPLAY MOST IMPORTANT ISSUE]

[asked of all respondents, depending on their answer to likelihood of converting their water heating system]

Reason to Convert

		Cost Savings	Reliability	Convenience	Safety	Another reason
	Propane forced air	73%	15%	8%	4%	-
	Oil forced air	86%	8%	6%	-	-
∏	Electric forced air	92%	8%	-	-	-
	Radiator	72%	3%	17%	4%	4%
	Electric baseboard	90%	5%	2%	3%	-
	Electric heat pump	79%	16%	-	-	5%
	Wood-burning source	76%	7%	12%	-	5%
	Other/Don't know	49%	21%	19%	4%	7%

Monthly Cost Saving Scenarios

Key Idea: Different conversion scenarios mean different costs and savings.

Respondents were randomly assigned either a low, medium, or high monthly cost savings scenario. The estimated savings for their scenario were based on home heating system type.

Respondents were then asked whether or not they would convert based on these specific, hypothetical cost savings.

The estimated savings for each heating system type were as follows:

		Forced Air	Hot Water Radiator	Heat Pump	Baseboard
Best Case:	Propane	Low: \$20 Medium: \$35 High: \$45		N/A	N/A
savings	Oil	Low: \$55 Medium: \$85 High: \$110		N/A	N/A
Worst Case:	Electricity	Low: \$70 Medium: \$105 High: \$140			
lower savings	Other/DK	Low: \$70 Medium: \$105 High: \$140		N/A	N/A
	Typical Scenario	Mediu	: \$20 m: \$80 \$140		

^{*}Those whose heating scenario was not reflected in the above table were shown

Note: The frequency of heating system types reported above includes responses of "other" from which the open-ended answer was later recoded as one of the main types. However in all cases the cost scenario faced by these respondents was the **other/Don't Know** cost scenario.

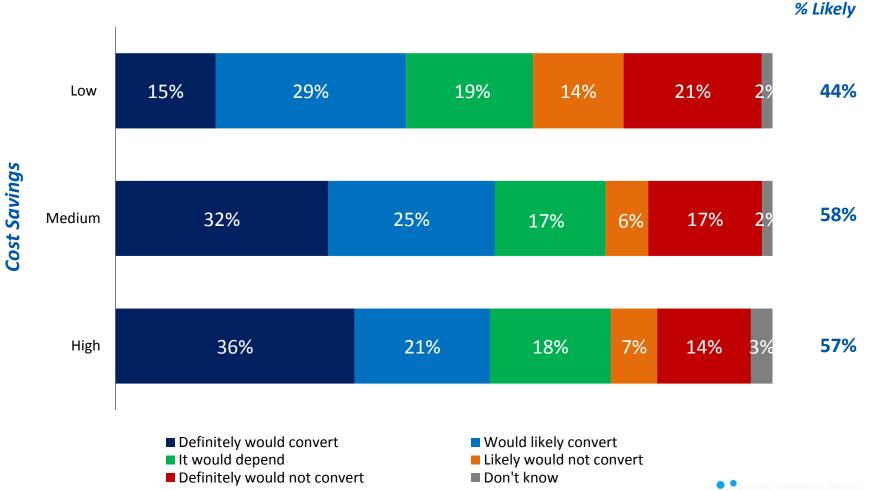
a "typical" cost scenario with the following costs and figures.

Monthly cost savings: those with medium and high cost savings both equally likely to convert



The cost savings from natural gas can depend on a number of factors. However, if your bill were [SAVINGS SCENARIO] less per month than it currently is, how likely would you be to convert to natural gas?

[asked of all respondents, low n=167, medium n=175, high n=158]





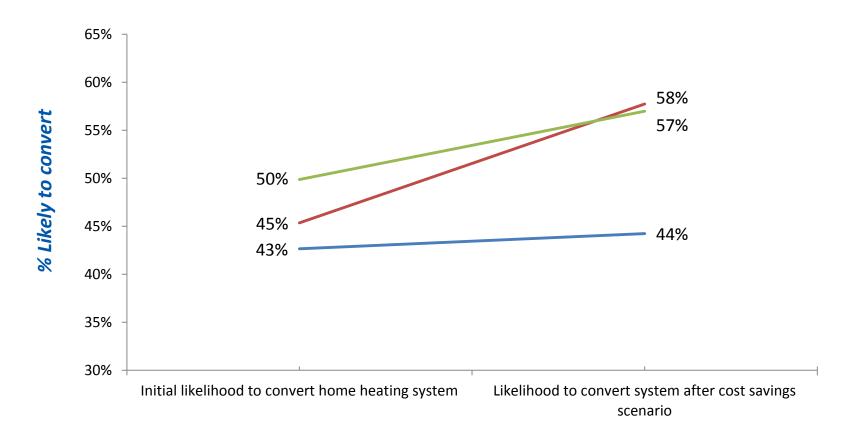
Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 3, Schedule 4, Page 45 of 53

Monthly cost savings: medium and high savings scenarios both increase conversion to near 6-in-10 households



Likelihood to convert home heating system and likelihood to convert system after introduction of specific cost savings scenario **BY** Specific cost saving scenario

[asked of all respondents]







Other Appliances

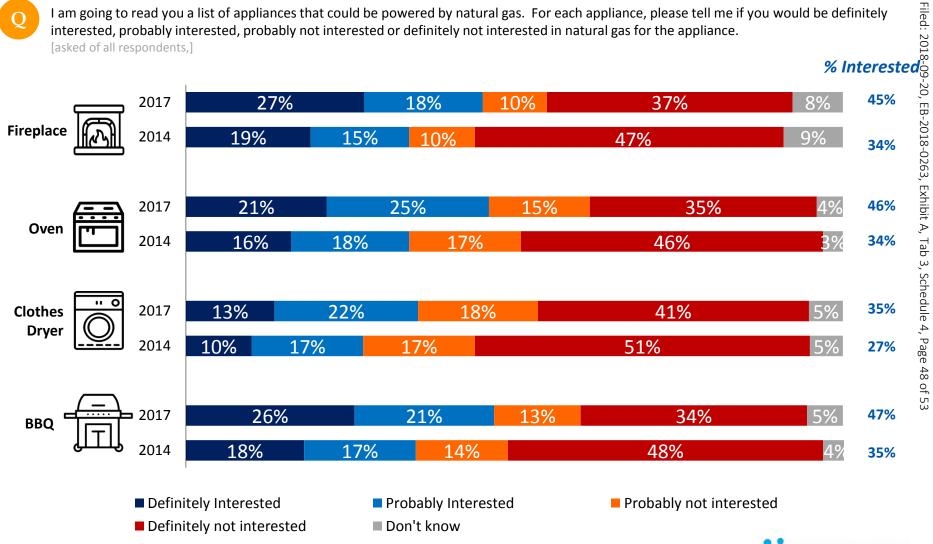


Converting other appliances: Increase in those interested in converting secondary appliances



I am going to read you a list of appliances that could be powered by natural gas. For each appliance, please tell me if you would be definitely interested, probably interested, probably not interested or definitely not interested in natural gas for the appliance.

[asked of all respondents,]





Note: "Refused" not shown



Technical Appendix



Sample Regions

- The sample was designed only to contact residents who would likely be eligible for gas service according to the most recent version of the pipeline route.
- The project will provide service in the following communities (with municipality in brackets):
 - Kincardine excluding outlying rural areas (Kincardine)
 - Tiverton (Kincardine)
 - The lakeshore from Kincardine to Point Clark (*Huron-Kinloss*)
 - Ripley (Huron-Kinloss)
 - Lucknow (Huron-Kinloss)
 - Chesley (*Arran-Elderslie*)
 - Paisley (Arran-Elderslie)
- Inclusion in the sample was based on the 6digit postal code of each household address as well as geo-location of individual addresses where necessary for a more precise match.
 Only households whose postal codes matched the service area would be included.

- The included postal codes were:
 - Kincardine and the Lakeshore: Every postal code in FSA N2Z except the rural postal codes of N2Z 2X4 and N2Z 2X5

Tiverton: N0G 2T0

Ripley: NOG 2R0

Lucknow: N0G 2H0

Chesley: NOG 1L0

Paisley: NOG 2NO



Sample Stratification and Weighting

- The sample was stratified between non-permanent residents and permanent residents in each municipality.
- Stratified random sampling ensures that a fully representative population is included in the sample, in this case the sample was designed to be properly representative of each municipality, and also to represent non-permanent residents as fully as possible.
- Non-permanent residents were defined as owners of households that are in the service area, who use a mailing address outside of the sample region to receive their property tax bills. Non-residential properties were filtered from this sample list.
- Quotas were established for each strata using a combination of property tax roll data and Statistics Canada household counts (see Table 1 on following slide)
- Weighting was applied among permanent residents using Statistics Canada data to ensure the sample was representative of household size and municipality (see Tables 2 and 3 on following slide)



Sample Stratification and Weighting

Weight targets were based on Statistics Canada 2016 census data for the towns along the pipeline route within each municipality. In Huron-Kinloss, only data for the entire municipality was available. As such, these targets are based on the entire municipality, adjusted downward by the percentage of properties in the service area according to municipal tax rolls provided by the municipality.

Oversamples: To increase the overall reliability of results in the two smaller municipalities, respondents were oversampled in these municipalities. These larger samples are reflected in the unweighted tables below.

Table 1: Overall samp	ole weight targets			
	Permanent Residents		Non-Permanent	
Municipality	1 Person households	2 person households	3+ person households	Residents
Kincardine	65	86	67	32
Huron-Kinloss	29	52	39	55
Arran-Elderslie	37	41	34	13

Table 2: Unweighted	N sizes				
	Permanent Residents			Non-Permanent	
Municipality	1 Person households	2 person households	3+ person households	Residents	
Kincardine	50	125	49	27	
Huron-Kinloss	19	51	23	83	
Arran-Elderslie	32	48	42	5	

Table 3: Weighted N-	sizes			
	Permanent Residents			Non-Permanent
Municipality	1 Person households	2 person households	3+ person households	Residents
Kincardine	67	87	68	32
Huron-Kinloss	28	50	37	52
Arran-Elderslie	24	26	21	8





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Updated: 2019-02-27 EB-2018-0263 Exhibit A Tab 4 Schedule 1

Page 1 of 3

FRANCHISE AGREEMENTS AND CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

1. When EPCOR commenced the planning stage of the Project in 2015, the OEB franchise selection

process required the municipality and the gas distributor to come to an arrangement, and propose a

Franchise Agreement to the OEB for approval. In the spring of 2015, a franchise selection process was

undertaken by the Southern Bruce Municipalities. A competitive request for proposals process, open

to potential natural gas providers in Canada and the United States, resulted in the selection of EPCOR

as the successful proponent among several applicants. EPCOR was selected as the community's

franchise partner of choice, and EPCOR subsequently entered into franchise agreements with the

Southern Bruce Municipalities. In early 2016, these franchise agreements were submitted to the

Board for approval¹⁰ (EB-2016-137, EB-2016-138, EB-2016-139).

2. A generic hearing into natural gas expansions was subsequently initiated by the OEB (EB-2016-0004)

which found that it would be more appropriate to deal with EPCOR's franchise agreement

applications in a competitive proceeding. 11 As a result, EPCOR's applications seeking OEB approval of

the franchise agreements between the Southern Bruce Municipalities and EPCOR were put in

abeyance.

3. Since issuance of Decision EB-2016-0004, the Southern Bruce Municipalities and EPCOR have

continued to work together to refine the Project. EPCOR and the Southern Bruce Municipalities

undertook several initiatives to help improve the Project economics and ensure the Project focuses

on economic development initiatives within the agriculture and industrial sectors of the communities,

and to make the Project ready for rapid implementation if leave-to-construct approval is obtained.

4. In December of 2016, the OEB resumed EPCOR's franchise agreement review and issued a number of

procedural orders to implement a further competitive process for this project. ¹² EPCOR submitted its

CIP on October 16, 2017. Based on EPCOR's CIP, and other submissions, the OEB selected EPCOR to

be the distributor for the Southern Bruce area and issued CPCNs to construct work or supply gas in

¹⁰ EB-2016-0137: EPCOR_Arran-Elderslie_APPL_20160324, March 24, 2016; EB-2016-0138: EPCOR_ Municipality Kincardine APPL 20160324, March 24, 2016; EB-2016-0139: EPCOR_Municipality of Huron-

Kinloss APPL 20160324, March 24, 2016

¹¹ EB-2016-0004: *Decision with Reasons - OEB Generic Hearing,* November 17, 2016; pg. 28

¹² EB-2016-0137/0138/0139: Procedural Orders #1-8, 2017

Updated: 2019-02-27

EB-2018-0263

Exhibit A

Tab 4

Schedule 1 Page 2 of 3

the Southern Bruce Municipalities (see Tab 4, Schedule 3). EPCOR was given a deadline of October 12,

2018 to submit a leave to construct application. 13 EPCOR submitted the leave to construct application

on September 20, 2018.

5. In addition to seeking leave to construct from the OEB through this Application, EPCOR is requesting

approval of the following lower tier franchise agreements (found in Tab 4, Schedule 4), all of which

are based entirely on the Board's Model Franchise Agreement:

Municipality of Arran-Elderslie

Municipality of Kincardine

Township of Huron-Kinloss

6. EPCOR has entered into franchise agreements with each of the above municipalities (see Tab 4,

Schedule 4). EPCOR holds CPCNs for the entirety of each of the above municipalities (EB-2016-0137,

EB-2016-0138 and EB-2016-0139, respectively, copies of which can be found at Tab 4, Schedule 4),

other than the former Township of Arran and the former Village of Tara in the Municipality of Arran-

Elderslie. Each of these CPCNs contains a map showing EPCOR's certificate area for the Municipality

of Arran-Elderslie, Municipality of Kincardine, and the Township of Huron-Kinloss (see Tab 4, Schedule

4).

7. Furthermore, EPCOR is requesting approval of additional upper and lower tier franchise agreements

(found in Tab 4, Schedule 4) and the issuance of limited CPCNs which will authorize the distribution

system and works to pass through the following township, municipalities and counties along the

Preferred Route:

Township of Chatsworth

Municipality of West Grey

Municipality of Brockton

Grey County

Bruce County

 13 EB-2016-0137/0138/0139: Decision and Order - South Bruce Expansion Application, April 12, 2018; p 14.

Updated: 2019-02-27 EB-2018-0263 Exhibit A Tab 4

> Schedule 1 Page 3 of 3

8. EPCOR has included individual maps for each of the Township of Chatsworth, the Municipality of

West Grey, the Municipality of Brockton, Grey County and Bruce County (see Tab 4, Schedule 4). For

Grey County, EPCOR is seeking an upper-tier CPCN limited to a strip 500 meters to the north and

south of the preferred pipeline route. Within Grey County, EPCOR is also seeking limited CPCNs for

the Municipality of West Grey and the Township of Chatsworth, in each case a 500 meter-wide strip

to the south and north (respectively) of the preferred pipeline route. For Bruce County, EPCOR is

seeking an upper tier CPCN covering the areas for which EPCOR already has lower-tier CPCNs (i.e. the

Municipality of Arran-Elderslie, the Municipality of Kincardine, and the Township of Huron-Kinloss),

along with a narrow strip (500 meters to the north and south, as applicable, of the preferred pipeline

route) in the Municipality of Brockton. Within Bruce County, EPCOR is seeking a limited CPCN for the

Municipality of Brockton, namely a 500 meter-wide strip to the south and north (as applicable) of the

preferred pipeline route.

9. As noted above, each of these proposed franchise agreements is based entirely on the Board's Model

Franchise Agreement. The Franchise Agreements with the County of Bruce, the Municipality of West

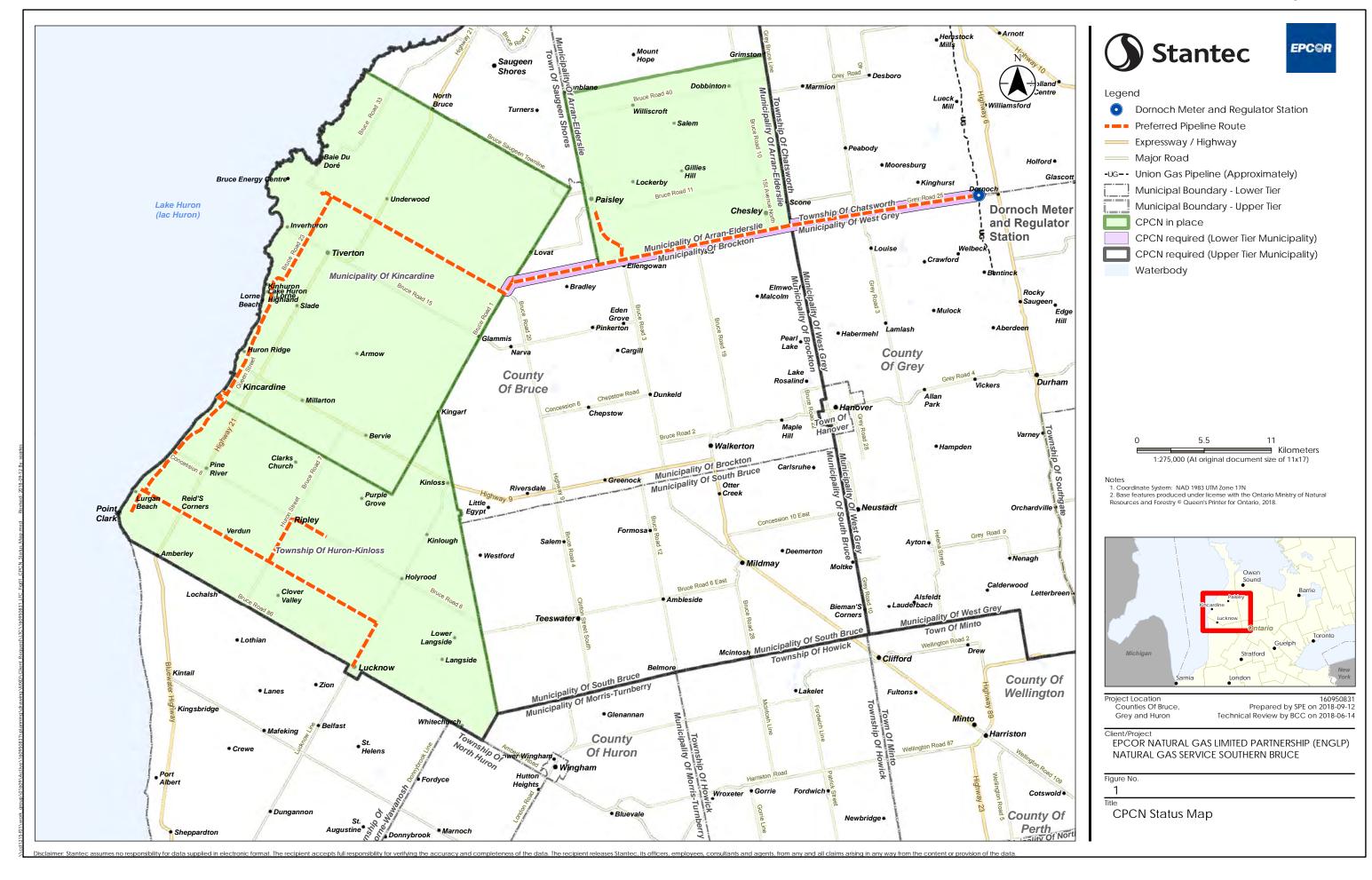
Grey and the Township of Chatsworth have been executed and the Franchise Agreements for Grey

County and the Municipality of Brockton have been approved in principle and will be executed

pending Board approval. Each municipality has indicated its agreement with the terms of, and its

intention to enter into, the proposed franchise agreements by way of executed agreements, letters,

resolutions, and/or by-laws (see Tab 4, Schedule 4).



EB-2016-0137

Certificate of Public Convenience and Necessity

The Ontario Energy Board grants

EPCOR Southern Bruce Gas Inc.

approval under section 8 of the *Municipal Franchises Act,* R.S.O. 1990, c. M.55, as amended, to construct works to supply gas to the

Municipality of Arran-Elderslie

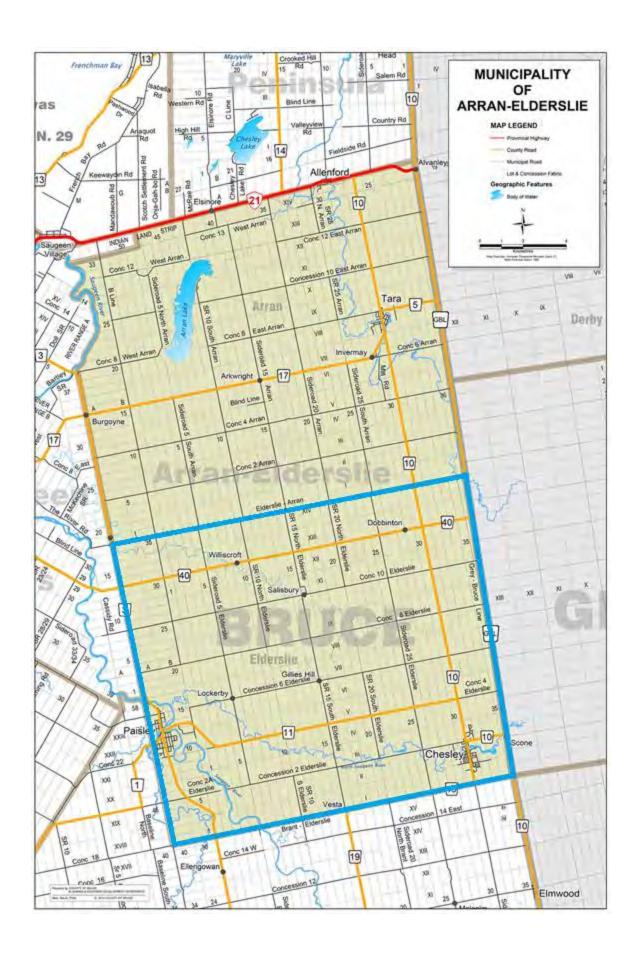
as it is constituted on the date of this Decision and Order, excluding the geographical areas of the former Township of Arran and the former Village of Tara.

DATED at Toronto, April 12, 2018

ONTARIO ENERGY BOARD

Original Signed By

Kirsten Walli Board Secretary



EB-2016-0138

Certificate of Public Convenience and Necessity

The Ontario Energy Board grants

EPCOR Southern Bruce Gas Inc.

approval under section 8 of the *Municipal Franchises Act,* R.S.O. 1990, c. M.55, as amended, to construct works to supply gas to the

Municipality of Kincardine

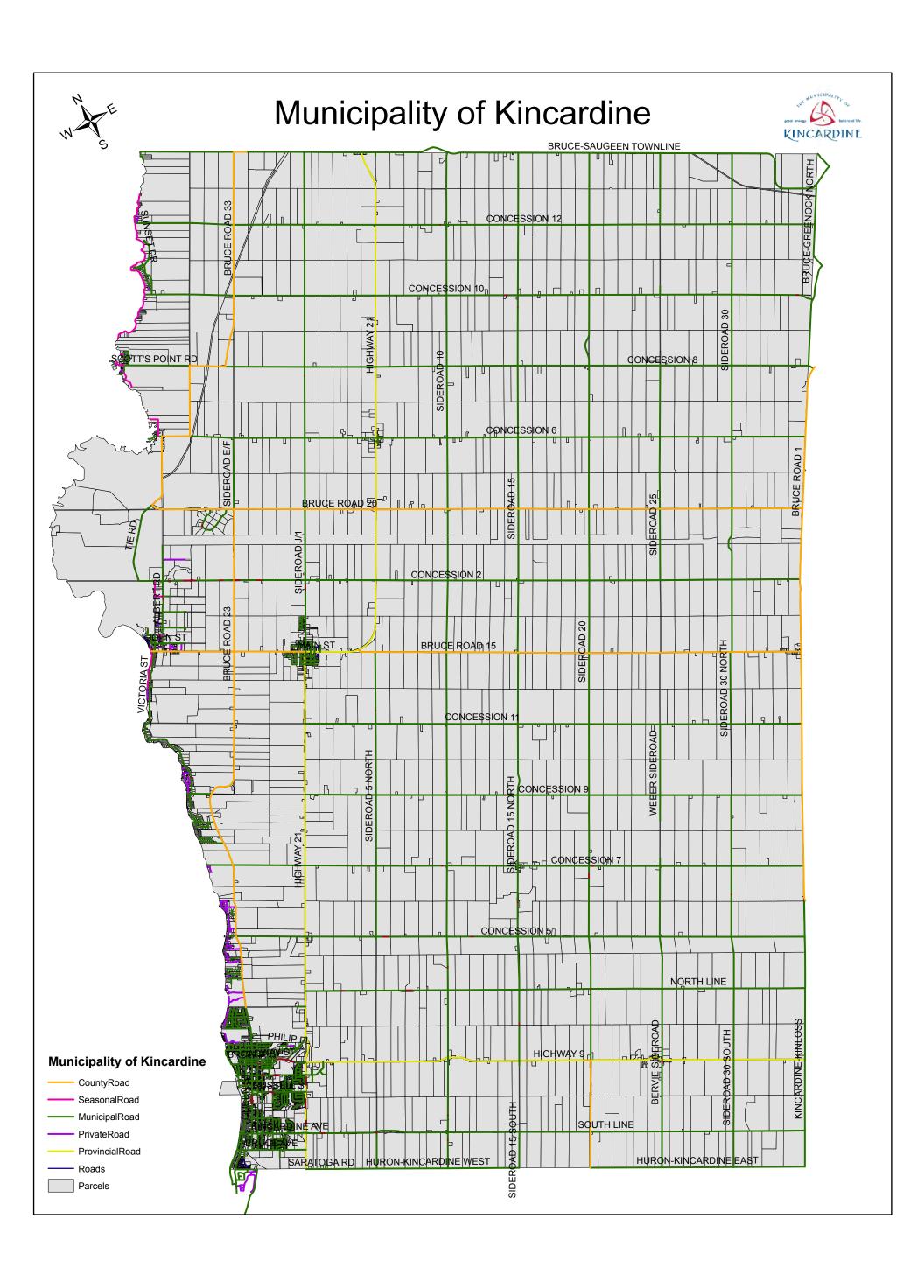
as it is constituted on the date of this Decision and Order.

DATED at Toronto, April 12, 2018

ONTARIO ENERGY BOARD

Original Signed By

Kirsten Walli Board Secretary



EB-2016-0139

Certificate of Public Convenience and Necessity

The Ontario Energy Board grants

EPCOR Southern Bruce Gas Inc.

approval under section 8 of the *Municipal Franchises Act,* R.S.O. 1990, c. M.55, as amended, to construct works to supply gas to the

Township of Huron-Kinloss

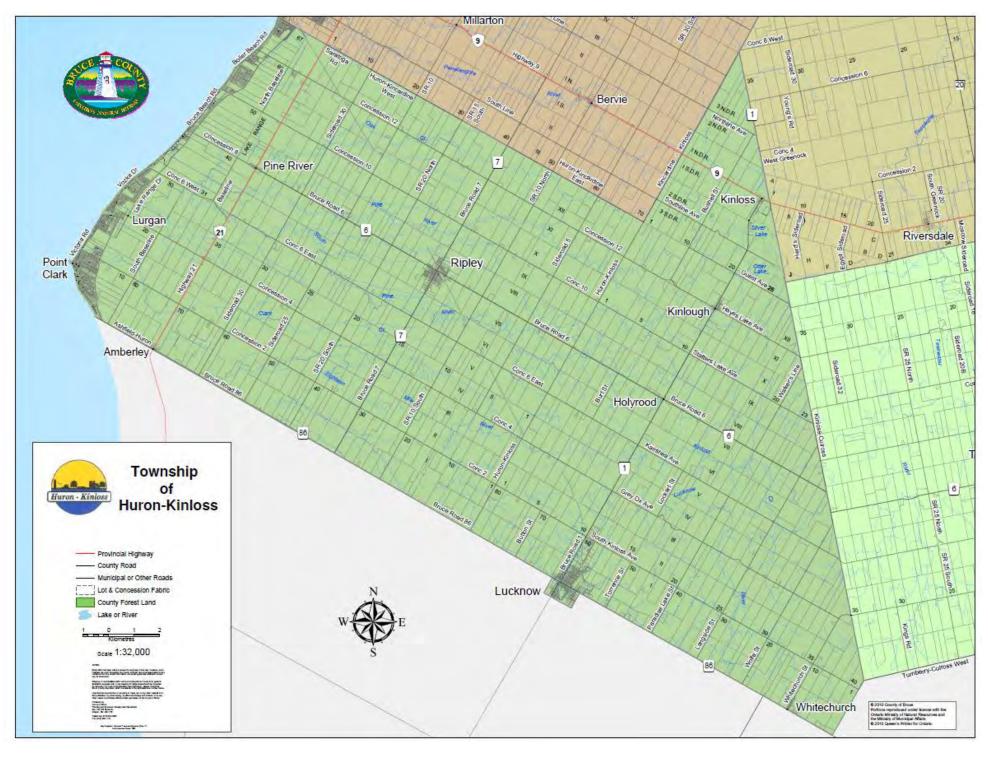
as it is constituted on the date of this Decision and Order.

DATED at Toronto, April 12, 2018

ONTARIO ENERGY BOARD

Original Signed By

Kirsten Walli Board Secretary



THE CORPORATION OF THE MUNICIPALITY OF ARRAN-ELDERSLIE

BY-LAW NO. 49 - 2018

BEING A BY-LAW TO AUTHORIZE A MUNICIPAL FRANCHISE AGREEMENT BETWEEN THE CORPORATION OF THE MUNICIPALITY OF ARRAN-ELDERSLIE AND EPCOR UTILITIES INC.

WHEREAS EPCOR Utilities Inc. ("EPCOR") intends to develop, own and operate a natural gas distribution utility within the Municipality as proposed in its June 25th, 2015 proposal to Council in response to the Request for Proposals initiated by the Municipality dated April 17th, 2015; and

WHEREAS the Municipality and EPCOR (the "Parties") agreed to negotiate and execute a Municipal Franchise Agreement (the "Franchise Agreement") in February 2016; and

WHEREAS the Corporation of the Municipality of Arran-Elderslie passed Bylaw No. 14-2006 to enter into a Franchise Agreement with EPCOR; and

WHEREAS the Council of The Corporation of the Municipality of Arran-Elderslie deems it expedient to repeal and replace the Franchise Agreement with EPCOR in substantially the form and consistent with the legal advice provided by Borden Ladner Gervais LLP at the *in camera* Council meeting held on July 23rd, 2018; and

NOW THEREFORE COUNCIL OF THE CORPORATION OF THE MUNICIPALITY OF ARRAN-ELDERSLIE HEREBY ENACTS AS FOLLOWS:

- THAT the Franchise Agreement between The Corporation of The Municipality of Arran-Elderslie and EPCOR Utilities Inc. which was the subject of legal advice provided to Council by Borden Ladner Gervais LLP at the *in camera* Council meeting held on July 23rd, 2018 is hereby authorized and the franchise provided for therein is hereby granted conditional on EPCOR obtaining all required and necessary approvals from the Ontario Energy Board.
- 2. THAT the Mayor and the Clerk are hereby authorized and instructed on behalf of The Corporation of The Municipality of Arran-Elderslie to enter into and execute under its corporate seal and deliver the Franchise Agreement, substantially in the form and consistent with the legal advice provided to Council by Borden Ladner Gervais LLP at the in camera Council meeting held on July 23rd, 2018.
- 3. THAT By-law No. 14 2016 is hereby repealed.
- THAT this by-law shall come into force and take effect as of the final passing thereof.

READ a FIRST and SECOND time this 30th day of July, 2018.

READ a)THIRD time and finally passed this day of ______, 2018.

Paul Eagleson, Mayor Peggy Rouse, Clerk-Administrator

Model Franchise Agreement

THIS AGREEMENT effective this c	day	of	July,	2018.
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BETWEEN:

THE CORPORATION OF THE MUNICIPALITY OF ARRAN-ELDERSLIE hereinafter called the "Corporation"

- and -

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner EPCOR ONTARIO UTILITIES INC. hereinafter called the "Gas Company"

WHEREAS the Gas Company desires to distribute, store and transmit gas in the Municipality upon the terms and conditions of this Agreement;

AND WHEREAS by by-law passed by the Council of the Corporation (the "By-law"), the duly authorized officers have been authorized and directed to execute this Agreement on behalf of the Corporation;

THEREFORE the Corporation and the Gas Company agree as follows:

Part I - Definitions

- 1. In this Agreement:
 - a. "decommissioned" and "decommissions" when used in connection with parts of the gas system, mean any parts of the gas system taken out of active use and purged in accordance with the applicable CSA standards and in no way affects the use of the term 'abandoned' pipeline for the purposes of the Assessment Act;
 - b. "Engineer/Road Superintendent" means the most senior individual employed by the Corporation with responsibilities for highways within the Municipality or the person designated by such senior employee or such other person as may from time to time be designated by the Council of the Corporation;
 - c. "gas" means natural gas, manufactured gas, synthetic natural gas, liquefied petroleum gas or propane-air gas, or a mixture of any of them, but does not include a liquefied petroleum gas that is distributed by means other than a pipeline;
 - d. "gas system" means such mains, plants, pipes, conduits, services, valves, regulators, curb boxes, stations, drips or such other equipment as the Gas Company may require or deem desirable for the distribution, storage and transmission of gas in or through the Municipality;
 - e. "highway" means all common and public highways and shall include any bridge, viaduct or structure forming part of a highway, and any public square, road allowance or walkway and shall include not only the travelled portion of such highway, but also ditches, driveways, sidewalks, and sodded areas forming part of the road allowance now or at any time during the term hereof under the jurisdiction of the Corporation;

- f. "Model Franchise Agreement" means the form of agreement which the Ontario Energy Board uses as a standard when considering applications under the *Municipal Franchises Act*. The Model Franchise Agreement may be changed from time to time by the Ontario Energy Board;
- g. "Municipality" means the territorial limits of the Corporation on the date when this Agreement takes effect, and any territory which may thereafter be brought within the jurisdiction of the Corporation;
- h. "Plan" means the plan described in Paragraph 5 of this Agreement required to be filed by the Gas Company with the Engineer/Road Superintendent prior to commencement of work on the gas system; and
- i. whenever the singular, masculine or feminine is used in this Agreement, it shall be considered as if the plural, feminine or masculine has been used where the context of the Agreement so requires.

Part II - Rights Granted

2. To provide gas service:

The consent of the Corporation is hereby given and granted to the Gas Company to distribute, store and transmit gas in and through the Municipality to the Corporation and to the inhabitants of the Municipality.

3. To Use Highways

Subject to the terms and conditions of this Agreement the consent of the Corporation is hereby given and granted to the Gas Company to enter upon all highways now or at any time hereafter under the jurisdiction of the Corporation and to lay, construct, maintain, replace, remove, operate and repair a gas system for the distribution, storage and transmission of gas in and through the Municipality.

- 4. Duration of Agreement and Renewal Procedures.
 - a. If the Corporation has not previously received gas distribution services, the rights hereby given and granted shall be for a term of 20 years from the date of final passing of the By-law.
 - b. At any time within two years prior to the expiration of this Agreement, either party may give notice to the other that it desires to enter into negotiations for a renewed franchise upon such terms and conditions as may be agreed upon. Until such renewal has been settled, the terms and conditions of this Agreement shall continue, notwithstanding the expiration of this Agreement. This shall not preclude either party from applying to the Ontario Energy Board for a renewal of the Agreement pursuant to section 10 of the *Municipal Franchises Act*.

Part III - Conditions

5. Approval of Construction

a. The Gas Company shall not undertake any excavation, opening or work which will disturb or interfere with the surface of the travelled portion of any highway unless a permit therefor has first been obtained from the Engineer/Road Superintendent and all work done by the Gas Company shall be to his satisfaction.

- b. Prior to the commencement of work on the gas system, or any extensions or changes to it (except service laterals which do not interfere with municipal works in the highway), the Gas Company shall file with the Engineer/Road Superintendent a Plan, satisfactory to the Engineer/Road Superintendent, drawn to scale and of sufficient detail considering the complexity of the specific locations involved, showing the highways in which it proposes to lay its gas system and the particular parts thereof it proposes to occupy.
- c. The Plan filed by the Gas Company shall include geodetic information for a particular location:
 - i. where circumstances are complex, in order to facilitate known projects, including projects which are reasonably anticipated by the Engineer/Road Superintendent, or
 - ii. when requested, where the Corporation has geodetic information for its own services and all others at the same location.
- d. The Engineer/Road Superintendent may require sections of the gas system to be laid at greater depth than required by the latest CSA standard for gas pipeline systems to facilitate known projects or to correct known highway deficiencies.
- e. Prior to the commencement of work on the gas system, the Engineer/Road Superintendent must approve the location of the work as shown on the Plan filed by the Gas Company, the timing of the work and any terms and conditions relating to the installation of the work.
- f. In addition to the requirements of this Agreement, if the Gas Company proposes to affix any part of the gas system to a bridge, viaduct or other structure, if the Engineer/Road Superintendent approves this proposal, he may require the Gas Company to comply with special conditions or to enter into a separate agreement as a condition of the approval of this part of the construction of the gas system.
- g. Where the gas system may affect a municipal drain, the Gas Company shall also file a copy of the Plan with the Corporation's Drainage Superintendent for purposes of the *Drainage Act*, or such other person designated by the Corporation as responsible for the drain.
- h. The Gas Company shall not deviate from the approved location for any part of the gas system unless the prior approval of the Engineer/Road Superintendent to do so is received.
- i. The Engineer/Road Superintendent's approval, where required throughout this Paragraph, shall not be unreasonably withheld.
- j. The approval of the Engineer/Road Superintendent is not a representation or warranty as to the state of repair of the highway or the suitability of the highway for the gas system.

6. As Built Drawings.

The Gas Company shall, within six months of completing the installation of any part of the gas system, provide two copies of "as built" drawings to the Engineer/Road Superintendent. These drawings must be sufficient to accurately establish the location, depth (measurement between the top of the gas system and the ground surface at the time of installation) and distance of the gas system. The "as built" drawings shall be of the same quality as the Plan and, if the approved pre-construction plan included elevations that were geodetically referenced, the "as built" drawings shall similarly include elevations that are geodetically referenced. Upon the request of the

Engineer/Road Superintendent, the Gas Company shall provide one copy of the drawings in an electronic format and one copy as a hard copy drawing.

7. Emergencies

In the event of an emergency involving the gas system, the Gas Company shall proceed with the work required to deal with the emergency, and in any instance where prior approval of the Engineer/Road Superintendent is normally required for the work, the Gas Company shall use its best efforts to immediately notify the Engineer/Road Superintendent of the location and nature of the emergency and the work being done and, if it deems appropriate, notify the police force, fire or other emergency services having jurisdiction. The Gas Company shall provide the Engineer/Road Superintendent with at least one 24 hour emergency contact for the Gas Company and shall ensure the contacts are current.

8. Restoration

The Gas Company shall well and sufficiently restore, to the reasonable satisfaction of the Engineer/Road Superintendent, all highways, municipal works or improvements which it may excavate or interfere with in the course of laying, constructing, repairing or removing its gas system, and shall make good any settling or subsidence thereafter caused by such excavation or interference. If the Gas Company fails at any time to do any work required by this Paragraph within a reasonable period of time, the Corporation may do or cause such work to be done and the Gas Company shall, on demand, pay the Corporation's reasonably incurred costs, as certified by the Engineer/Road Superintendent.

9. Indemnification

The Gas Company shall, at all times, indemnify and save harmless the Corporation from and against all claims, including costs related thereto, for all damages or injuries including death to any person or persons and for damage to any property, arising out of the Gas Company operating, constructing, and maintaining its gas system in the Municipality, or utilizing its gas system for the carriage of gas owned by others. Provided that the Gas Company shall not be required to indemnify or save harmless the Corporation from and against claims, including costs related thereto, which it may incur by reason of damages or injuries including death to any person or persons and for damage to any property, resulting from the negligence or wrongful act of the Corporation, its servants, agents or employees.

10.Insurance

- a. The Gas Company shall maintain Comprehensive General Liability Insurance in sufficient amount and description as shall protect the Gas Company and the Corporation from claims for which the Gas Company is obliged to indemnify the Corporation under Paragraph 9. The insurance policy shall identify the Corporation as an additional named insured, but only with respect to the operation of the named insured (the Gas Company). The insurance policy shall not lapse or be cancelled without sixty (60) days' prior written notice to the Corporation by the Gas Company.
- b. The issuance of an insurance policy as provided in this Paragraph shall not be construed as relieving the Gas Company of liability not covered by such insurance or in excess of the policy limits of such insurance.
- c. Upon request by the Corporation, the Gas Company shall confirm that premiums for such insurance have been paid and that such insurance is in full force and effect.

11. Alternative Easement

The Corporation agrees, in the event of the proposed sale or closing of any highway or any part of a highway where there is a gas line in existence, to give the Gas Company reasonable notice of such proposed sale or closing and, if is feasible, to provide the Gas Company with easements over that part of the highway proposed to be sold or closed sufficient to allow the Gas Company to preserve any part of the gas system in its then existing location. In the event that such easements cannot be provided, the Corporation and the Gas Company shall share the cost of relocating or altering the gas system to facilitate continuity of gas service, as provided for in Paragraph 12 of this Agreement.

12. Pipeline Relocation

- a. If in the course of constructing, reconstructing, changing, altering or improving any highway or any municipal works, the Corporation deems that it is necessary to take up, remove or change the location of any part of the gas system, the Gas Company shall, upon notice to do so, remove and/or relocate within a reasonable period of time such part of the gas system to a location approved by the Engineer/Road Superintendent.
- b. Where any part of the gas system relocated in accordance with this Paragraph is located on a bridge, viaduct or structure, the Gas Company shall alter or relocate that part of the gas system at its sole expense.
- c. Where any part of the gas system relocated in accordance with this Paragraph is located other than on a bridge, viaduct or structure, the costs of relocation shall be shared between the Corporation and the Gas Company on the basis of the total relocation costs, excluding the value of any upgrading of the gas system, and deducting any contribution paid to the Gas Company by others in respect to such relocation; and for these purposes, the total relocation costs shall be the aggregate of the following:
 - i. the amount paid to Gas Company employees up to and including field supervisors for the hours worked on the project plus the current cost of fringe benefits for these employees,
 - ii. the amount paid for rental equipment while in use on the project and an amount, charged at the unit rate, for Gas Company equipment while in use on the project,
 - iii. the amount paid by the Gas Company to contractors for work related to the project,
 - iv. the cost to the Gas Company for materials used in connection with the project, and
 - v. a reasonable amount for project engineering and project administrative costs which shall be 22.5% of the aggregate of the amounts determined in items (i), (ii), (iii) and (iv) above.
- d. The total relocation costs as calculated above shall be paid 35% by the Corporation and 65% by the Gas Company, except where the part of the gas system required to be moved is located in an unassumed road or in an unopened road allowance and the Corporation has not approved its location, in which case the Gas Company shall pay 100% of the relocation costs.

Part IV - Procedural and Other Matters

13. Municipal By-laws of General Application

The Agreement is subject to the provisions of all regulating statutes and all municipal by-laws of general application, except by-laws which have the effect of amending this Agreement.

14. Giving Notice

Notices may be delivered to, sent by facsimile or mailed by prepaid registered post to the Gas Company at its head office or to the authorized officers of the Corporation at its municipal offices, as the case may be.

15. Disposition of Gas System

- a. If the Gas Company decommissions part of its gas system affixed to a bridge, viaduct or structure, the Gas Company shall, at its sole expense, remove the part of its gas system affixed to the bridge, viaduct or structure.
- b. If the Gas Company decommissions any other part of its gas system, it shall have the right, but is not required, to remove that part of its gas system. It may exercise its right to remove the decommissioned parts of its gas system by giving notice of its intention to do so by filing a Plan as required by Paragraph 5 of this Agreement for approval by the Engineer/Road Superintendent. If the Gas Company does not remove the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in any highway, the Corporation may remove and dispose of so much of the decommissioned gas system as the Corporation may require for such purposes and neither party shall have recourse against the other for any loss, cost, expense or damage occasioned thereby. If the Gas Company has not removed the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in a highway, the Gas Company may elect to relocate the decommissioned gas system and in that event Paragraph 12 applies to the cost of relocation.

16. Use of Decommissioned Gas System

- a. The Gas Company shall provide promptly to the Corporation, to the extent such information is known:
 - i. the names and addresses of all third parties who use decommissioned parts of the gas system for purposes other than the transmission or distribution of gas; and
 - ii. the location of all proposed and existing decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas.
- b. The Gas Company may allow a third party to use a decommissioned part of the gas system for purposes other than the transmission or distribution of gas and may charge a fee for that third party use, provided
 - i. the third party has entered into a municipal access agreement with the Corporation; and

- ii. the Gas Company does not charge a fee for the third party's right of access to the highways.
- c. Decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas are not subject to the provisions of this Agreement. For decommissioned parts of the gas system used for purposes other than the transmission and distribution of gas, issues such as relocation costs will be governed by the relevant municipal access agreement.

17. Franchise Handbook

The Parties acknowledge that operating decisions sometimes require a greater level of detail than that which is appropriately included in this Agreement. The Parties agree to look for guidance on such matters to the Franchise Handbook prepared by the Association of Municipalities of Ontario and the gas utility companies, as may be amended from time to time.

18. Agreement Binding Parties

This Agreement shall extend to, benefit and bind the parties thereto, their successors and assigns, respectively.

IN WITNESS WHEREOF the parties have executed this Agreement effective from the date written above.

THE CORPORATION OF THE MUNICIPALITY
OF ARRAN-ELDERSLIE

Paul Eagleson, MAYOR

Peggy Rouse, CLERK

We have the authority to bind the corporation

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner, EPCOR ONTARIO UTILITIES INC.

Duly Authorize

Duly Authorized Officer

9. K. 18chinson

The Corporation of the Municipality of Brockton



By-Law 2018-074

Being a By-Law to Authorize the Signing of an Agreement With EPCOR Ontario Utilities Inc. for the Purpose of Distributing, Storing, and Transmitting Gas Within the Corporation of the Municipality of Brockton.

Whereas The Council for the Corporation of the Municipality of Brockton deems it expedient to enter into an agreement with EPCOR Ontario Utilities Inc. with respect to the distribution, storage, and transmission of gas within the boundaries of the Corporation of the Municipality of Brockton;

And Whereas in accordance with Subsection 9(1) of the Municipal Franchise Act no By-Law granting final approval for the right to construct or operate works for the distribution of gas shall be passed until the Ontario Energy Board has approved the proposed Franchise Agreement;

And Whereas upon receipt of final approval of the Franchise Agreement by the Ontario Energy Board Council will grant final approval to the By-Law hereto;

Now Therefore the Council of the Corporation of the Municipality of Brockton enacts as follows;

- 1.0 The Franchise Agreement, which is attached as "Schedule A", between the Corporation of the Municipality of Brockton and EPCOR Natural Gas Limited Partnership, by its general partner EPCOR Ontario Utilities Inc. (the "Franchise Agreement"), is hereby authorized and the franchise provided for therein is hereby granted;
- 2.0 The Franchise Agreement forms and becomes part of this By-Law;
- 3.0 The execution by the Mayor and Clerk of the Franchise Agreement is hereby authorized, ratified, and confirmed.
- 4.0 This By-Law shall come into full force and effect upon final passage.
- 5.0 This By-Law may be cited as the "EPCOR Natural Gas Franchise Agreement By-Law".

Read a First and Second Time and Provisionally Adopted this 10th day of September, 2018.

Deputy Mayor – Dan Gieruszak	Clerk – Fiona Hamilton
Read a Third time and Finally Passed th	is day of, 2018.
Mayor	Clerk – Fiona Hamilton

Schedule A to By-Law 2018-074 Model Franchise Agreement

THIS AGREEMENT effective this	day of	, 2018.
BETWEEN:		

THE CORPORATION OF THE MUNICIPALITY OF BROCKTON

hereinafter called the "Corporation"

- and -

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner EPCOR ONTARIO UTILITIES INC. hereinafter called the "Gas Company"

WHEREAS the Gas Company desires to distribute, store and transmit gas in the Municipality upon the terms and conditions of this Agreement;

AND WHEREAS by by-law passed by the Council of the Corporation (the "By-law"), the duly authorized officers have been authorized and directed to execute this Agreement on behalf of the Corporation;

THEREFORE the Corporation and the Gas Company agree as follows:

Part I - Definitions

1. In this Agreement:

- a. "decommissioned" and "decommissions" when used in connection with parts of the gas system, mean any parts of the gas system taken out of active use and purged in accordance with the applicable CSA standards and in no way affects the use of the term 'abandoned' pipeline for the purposes of the Assessment Act;
- b. "Engineer/Road Superintendent" means the most senior individual employed by the Corporation with responsibilities for highways within the Municipality or the person designated by such senior employee or such other person as may from time to time be designated by the Council of the Corporation;
- c. "gas" means natural gas, manufactured gas, synthetic natural gas, liquefied petroleum gas or propane-air gas, or a mixture of any of them, but does not include a liquefied petroleum gas that is distributed by means other than a pipeline;
- d. "gas system" means such mains, plants, pipes, conduits, services, valves, regulators, curb boxes, stations, drips or such other equipment as the Gas Company may require or deem desirable for the distribution, storage and transmission of gas in or through the Municipality;

- e. "highway" means all common and public highways and shall include any bridge, viaduct or structure forming part of a highway, and any public square, road allowance or walkway and shall include not only the travelled portion of such highway, but also ditches, driveways, sidewalks, and sodded areas forming part of the road allowance now or at any time during the term hereof under the jurisdiction of the Corporation;
- f. "Model Franchise Agreement" means the form of agreement which the Ontario Energy Board uses as a standard when considering applications under the *Municipal Franchises Act*. The Model Franchise Agreement may be changed from time to time by the Ontario Energy Board;
- g. "Municipality" means the territorial limits of the Corporation on the date when this Agreement takes effect, and any territory which may thereafter be brought within the jurisdiction of the Corporation;
- h. "Plan" means the plan described in Paragraph 5 of this Agreement required to be filed by the Gas Company with the Engineer/Road Superintendent prior to commencement of work on the gas system; and
- whenever the singular, masculine or feminine is used in this Agreement, it shall be considered as if the plural, feminine or masculine has been used where the context of the Agreement so requires.

Part II - Rights Granted

2. To provide gas service:

The consent of the Corporation is hereby given and granted to the Gas Company to distribute, store and transmit gas in and through the Municipality to the Corporation and to the inhabitants of the Municipality.

3. To Use Highways

Subject to the terms and conditions of this Agreement the consent of the Corporation is hereby given and granted to the Gas Company to enter upon all highways now or at any time hereafter under the jurisdiction of the Corporation and to lay, construct, maintain, replace, remove, operate and repair a gas system for the distribution, storage and transmission of gas in and through the Municipality.

4. Duration of Agreement and Renewal Procedures

- a. If the Corporation has not previously received gas distribution services, the rights hereby given and granted shall be for a term of 20 years from the date of final passing of the By-law.
- b. At any time within two years prior to the expiration of this Agreement, either party may give notice to the other that it desires to enter into negotiations for a renewed franchise upon such terms and conditions as may be agreed upon. Until such renewal has been settled, the terms and conditions of this Agreement shall continue, notwithstanding the expiration of this Agreement. This shall not preclude

either party from applying to the Ontario Energy Board for a renewal of the Agreement pursuant to section 10 of the *Municipal Franchises Act*.

Part III - Conditions

5. Approval of Construction

- a. The Gas Company shall not undertake any excavation, opening or work which will disturb or interfere with the surface of the travelled portion of any highway unless a permit therefor has first been obtained from the Engineer/Road Superintendent and all work done by the Gas Company shall be to his satisfaction.
- b. Prior to the commencement of work on the gas system, or any extensions or changes to it (except service laterals which do not interfere with municipal works in the highway), the Gas Company shall file with the Engineer/Road Superintendent a Plan, satisfactory to the Engineer/Road Superintendent, drawn to scale and of sufficient detail considering the complexity of the specific locations involved, showing the highways in which it proposes to lay its gas system and the particular parts thereof it proposes to occupy.
- c. The Plan filed by the Gas Company shall include geodetic information for a particular location:
 - i. where circumstances are complex, in order to facilitate known projects, including projects which are reasonably anticipated by the Engineer/Road Superintendent, or
 - ii. when requested, where the Corporation has geodetic information for its own services and all others at the same location.
- d. The Engineer/Road Superintendent may require sections of the gas system to be laid at greater depth than required by the latest CSA standard for gas pipeline systems to facilitate known projects or to correct known highway deficiencies.
- e. Prior to the commencement of work on the gas system, the Engineer/Road Superintendent must approve the location of the work as shown on the Plan filed by the Gas Company, the timing of the work and any terms and conditions relating to the installation of the work.
- f. In addition to the requirements of this Agreement, if the Gas Company proposes to affix any part of the gas system to a bridge, viaduct or other structure, if the Engineer/Road Superintendent approves this proposal, he may require the Gas Company to comply with special conditions or to enter into a separate agreement as a condition of the approval of this part of the construction of the gas system.
- g. Where the gas system may affect a municipal drain, the Gas Company shall also file a copy of the Plan with the Corporation's Drainage Superintendent for purposes of the *Drainage Act*, or such other person designated by the Corporation as responsible for the drain.

- h. The Gas Company shall not deviate from the approved location for any part of the gas system unless the prior approval of the Engineer/Road Superintendent to do so is received.
- i. The Engineer/Road Superintendent's approval, where required throughout this Paragraph, shall not be unreasonably withheld.
- j. The approval of the Engineer/Road Superintendent is not a representation or warranty as to the state of repair of the highway or the suitability of the highway for the gas system.

6. As Built Drawings

The Gas Company shall, within six months of completing the installation of any part of the gas system, provide two copies of "as built" drawings to the Engineer/Road Superintendent. These drawings must be sufficient to accurately establish the location, depth (measurement between the top of the gas system and the ground surface at the time of installation) and distance of the gas system. The "as built" drawings shall be of the same quality as the Plan and, if the approved pre-construction plan included elevations that were geodetically referenced, the "as built" drawings shall similarly include elevations that are geodetically referenced. Upon the request of the Engineer/Road Superintendent, the Gas Company shall provide one copy of the drawings in an electronic format and one copy as a hard copy drawing.

7. Emergencies

In the event of an emergency involving the gas system, the Gas Company shall proceed with the work required to deal with the emergency, and in any instance where prior approval of the Engineer/Road Superintendent is normally required for the work, the Gas Company shall use its best efforts to immediately notify the Engineer/Road Superintendent of the location and nature of the emergency and the work being done and, if it deems appropriate, notify the police force, fire or other emergency services having jurisdiction. The Gas Company shall provide the Engineer/Road Superintendent with at least one 24 hour emergency contact for the Gas Company and shall ensure the contacts are current.

8. Restoration

The Gas Company shall well and sufficiently restore, to the reasonable satisfaction of the Engineer/Road Superintendent, all highways, municipal works or improvements which it may excavate or interfere with in the course of laying, constructing, repairing or removing its gas system, and shall make good any settling or subsidence thereafter caused by such excavation or interference. If the Gas Company fails at any time to do any work required by this Paragraph within a reasonable period of time, the Corporation may do or cause such work to be done and the Gas Company shall, on demand, pay the Corporation's reasonably incurred costs, as certified by the Engineer/Road Superintendent.

9. Indemnification

The Gas Company shall, at all times, indemnify and save harmless the Corporation from and against all claims, including costs related thereto, for all damages or injuries including death to any person or persons and for damage to any property, arising out of the Gas

Company operating, constructing, and maintaining its gas system in the Municipality, or utilizing its gas system for the carriage of gas owned by others. Provided that the Gas Company shall not be required to indemnify or save harmless the Corporation from and against claims, including costs related thereto, which it may incur by reason of damages or injuries including death to any person or persons and for damage to any property, resulting from the negligence or wrongful act of the Corporation, its servants, agents or employees.

10. Insurance

- a. The Gas Company shall maintain Comprehensive General Liability Insurance in sufficient amount and description as shall protect the Gas Company and the Corporation from claims for which the Gas Company is obliged to indemnify the Corporation under Paragraph 9. The insurance policy shall identify the Corporation as an additional named insured, but only with respect to the operation of the named insured (the Gas Company). The insurance policy shall not lapse or be cancelled without sixty (60) days' prior written notice to the Corporation by the Gas Company.
- b. The issuance of an insurance policy as provided in this Paragraph shall not be construed as relieving the Gas Company of liability not covered by such insurance or in excess of the policy limits of such insurance.
- c. Upon request by the Corporation, the Gas Company shall confirm that premiums for such insurance have been paid and that such insurance is in full force and effect.

11. Alternative Easement

The Corporation agrees, in the event of the proposed sale or closing of any highway or any part of a highway where there is a gas line in existence, to give the Gas Company reasonable notice of such proposed sale or closing and, if is feasible, to provide the Gas Company with easements over that part of the highway proposed to be sold or closed sufficient to allow the Gas Company to preserve any part of the gas system in its then existing location. In the event that such easements cannot be provided, the Corporation and the Gas Company shall share the cost of relocating or altering the gas system to facilitate continuity of gas service, as provided for in Paragraph 12 of this Agreement.

12. Pipeline Relocation

- a. If in the course of constructing, reconstructing, changing, altering or improving any highway or any municipal works, the Corporation deems that it is necessary to take up, remove or change the location of any part of the gas system, the Gas Company shall, upon notice to do so, remove and/or relocate within a reasonable period of time such part of the gas system to a location approved by the Engineer/Road Superintendent.
- b. Where any part of the gas system relocated in accordance with this Paragraph is located on a bridge, viaduct or structure, the Gas Company shall alter or relocate that part of the gas system at its sole expense.
- c. Where any part of the gas system relocated in accordance with this Paragraph is located other than on a bridge, viaduct or structure, the costs of relocation shall be

shared between the Corporation and the Gas Company on the basis of the total relocation costs, excluding the value of any upgrading of the gas system, and deducting any contribution paid to the Gas Company by others in respect to such relocation; and for these purposes, the total relocation costs shall be the aggregate of the following:

- i. the amount paid to Gas Company employees up to and including field supervisors for the hours worked on the project plus the current cost of fringe benefits for these employees,
- ii. the amount paid for rental equipment while in use on the project and an amount, charged at the unit rate, for Gas Company equipment while in use on the project,
- iii. the amount paid by the Gas Company to contractors for work related to the project,
- iv. the cost to the Gas Company for materials used in connection with the project, and
- v. a reasonable amount for project engineering and project administrative costs which shall be 22.5% of the aggregate of the amounts determined in items (i), (ii), (iii) and (iv) above.
- d. The total relocation costs as calculated above shall be paid 35% by the Corporation and 65% by the Gas Company, except where the part of the gas system required to be moved is located in an unassumed road or in an unopened road allowance and the Corporation has not approved its location, in which case the Gas Company shall pay 100% of the relocation costs.

Part IV - Procedural and Other Matters

13. Municipal By-laws of General Application

The Agreement is subject to the provisions of all regulating statutes and all municipal bylaws of general application, except by-laws which have the effect of amending this Agreement.

14. Giving Notice

Notices may be delivered to, sent by facsimile or mailed by prepaid registered post to the Gas Company at its head office or to the authorized officers of the Corporation at its municipal offices, as the case may be.

15. Disposition of Gas System

a. If the Gas Company decommissions part of its gas system affixed to a bridge, viaduct or structure, the Gas Company shall, at its sole expense, remove the part of its gas system affixed to the bridge, viaduct or structure.

b. If the Gas Company decommissions any other part of its gas system, it shall have the right, but is not required, to remove that part of its gas system. It may exercise its right to remove the decommissioned parts of its gas system by giving notice of its intention to do so by filing a Plan as required by Paragraph 5 of this Agreement for approval by the Engineer/Road Superintendent. If the Gas Company does not remove the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in any highway, the Corporation may remove and dispose of so much of the decommissioned gas system as the Corporation may require for such purposes and neither party shall have recourse against the other for any loss, cost, expense or damage occasioned thereby. If the Gas Company has not removed the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in a highway, the Gas Company may elect to relocate the decommissioned gas system and in that event Paragraph 12 applies to the cost of relocation.

16. Use of Decommissioned Gas System

- a. The Gas Company shall provide promptly to the Corporation, to the extent such information is known:
 - i. the names and addresses of all third parties who use decommissioned parts of the gas system for purposes other than the transmission or distribution of gas; and
 - ii. the location of all proposed and existing decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas.
- b. The Gas Company may allow a third party to use a decommissioned part of the gas system for purposes other than the transmission or distribution of gas and may charge a fee for that third party use, provided
 - i. the third party has entered into a municipal access agreement with the Corporation; and
 - ii. the Gas Company does not charge a fee for the third party's right of access to the highways.
- c. Decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas are not subject to the provisions of this Agreement. For decommissioned parts of the gas system used for purposes other than the transmission and distribution of gas, issues such as relocation costs will be governed by the relevant municipal access agreement.

17. Franchise Handbook

The Parties acknowledge that operating decisions sometimes require a greater level of detail than that which is appropriately included in this Agreement. The Parties agree to

look for guidance on such matters to the Franchise Handbook prepared by the Association of Municipalities of Ontario and the gas utility companies, as may be amended from time to time.

18. Agreement Binding Parties

This Agreement shall extend to, benefit and bind the parties thereto, their successors and assigns, respectively.

IN WITNESS WHEREOF the parties have executed this Agreement effective from the date written above.

THE CORPORATION OF THE MUNICIPALITY OF BROCKTON
By:
By:Clerk – Fiona Hamilton
EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner, EPCOR ONTARIO UTILITIES INC.
By: Duly Authorized Officer



By-law Number 2018-062

A by-law to authorize the execution of an agreement between the Corporation of the County of Bruce and Epcor Natural Gas Limited Partnership, by its general partner Epcor Ontario Utilities Inc. for a 20-year Franchise Agreement

The County of Bruce has deemed it expedient to enter into a 20-year Franchise Agreement with Epcor Natural Gas Limited Partnership, by its general partner Epcor Ontario Utilities Inc.

The Council for the Corporation of the County of Bruce enacts By-law 2018-062 as follows:

- That the Warden and Clerk be authorized to execute the 20-year Franchise Agreement with Epcor Natural Gas Limited Partnership, by its general partner Epcor Ontario Utilities Inc.
- 2. This By-law shall come into force and take effect on the date it is passed.

Passed this 6th day of September, 2018.

Paul Eagleson Warden

Donna Van Wyck

Clerk

20- Year Franchise Agreement

THIS AGREEMENT effective this 6 day of September, 2018.

BETWEEN:

THE CORPORATION OF THE COUNTY OF BRUCE hereinafter called the "Corporation"

- and -

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner EPCOR ONTARIO UTILITIES INC. hereinafter called the "Gas Company"

WHEREAS the Gas Company desires to distribute, store and transmit gas in the Municipality upon the terms and conditions of this Agreement;

AND WHEREAS by by-law passed by the Council of the Corporation (the "By-law"), the duly authorized officers have been authorized and directed to execute this Agreement on behalf of the Corporation;

THEREFORE the Corporation and the Gas Company agree as follows:

Part I - Definitions

- 1. In this Agreement:
 - a. "decommissioned" and "decommissions" when used in connection with parts of the gas system, mean any parts of the gas system taken out of active use and purged in accordance with the applicable CSA standards and in no way affects the use of the term 'abandoned' pipeline for the purposes of the Assessment Act;
 - b. "Engineer/Road Superintendent" means the most senior individual employed by the Corporation with responsibilities for highways within the Municipality or the person designated by such senior employee or such other person as may from time to time be designated by the Council of the Corporation;

- c. "gas" means natural gas, manufactured gas, synthetic natural gas, liquefied petroleum gas or propane-air gas, or a mixture of any of them, but does not include a liquefied petroleum gas that is distributed by means other than a pipeline;
- d. "gas system" means such mains, plants, pipes, conduits, services, valves, regulators, curb boxes, stations, drips or such other equipment as the Gas Company may require or deem desirable for the distribution, storage and transmission of gas in or through the Municipality;
- e. "highway" means all common and public highways and shall include any bridge, viaduct or structure forming part of a highway, and any public square, road allowance or walkway and shall include not only the travelled portion of such highway, but also ditches, driveways, sidewalks, and sodded areas forming part of the road allowance now or at any time during the term hereof under the jurisdiction of the Corporation;
- f. "Model Franchise Agreement" means the form of agreement which the Ontario Energy Board uses as a standard when considering applications under the *Municipal Franchises* Act. The Model Franchise Agreement may be changed from time to time by the Ontario Energy Board;
- g. "Municipality" means the territorial limits of the Corporation on the date when this Agreement takes effect, and any territory which may thereafter be brought within the jurisdiction of the Corporation;
- "Plan" means the plan described in Paragraph 5 of this Agreement required to be filed by the Gas Company with the Engineer/Road Superintendent prior to commencement of work on the gas system; and
- whenever the singular, masculine or feminine is used in this Agreement, it shall be considered as if the plural, feminine or masculine has been used where the context of the Agreement so requires.

Part II - Rights Granted

2. To provide gas service:

The consent of the Corporation is hereby given and granted to the Gas Company to distribute, store and transmit gas in and through the Corporation and to the inhabitants of those local or lower tier municipalities within the Municipality from which the Gas Company has a valid franchise agreement for that purpose.

3. To Use Highways

Subject to the terms and conditions of this Agreement the consent of the Corporation is hereby given and granted to the Gas Company to enter upon all highways now or at any time hereafter under the jurisdiction of the Corporation and to lay, construct, maintain, replace, remove, operate and repair a gas system for the distribution, storage and transmission of gas in and through the Municipality.

4. Duration of Agreement and Renewal Procedures.

- a. If the Corporation has not previously received gas distribution services, the rights hereby given and granted shall be for a term of 20 years from the date of final passing of the Bylaw.
- b. At any time within two years prior to the expiration of this Agreement, either party may give notice to the other that it desires to enter into negotiations for a renewed franchise upon such terms and conditions as may be agreed upon. Until such renewal has been settled, the terms and conditions of this Agreement shall continue, notwithstanding the expiration of this Agreement. This shall not preclude either party from applying to the Ontario Energy Board for a renewal of the Agreement pursuant to section 10 of the Municipal Franchises Act.

Part III - Conditions

5. Approval of Construction

- a. The Gas Company shall not undertake any excavation, opening or work which will disturb or interfere with the surface of the travelled portion of any highway unless a permit therefor has first been obtained from the Engineer/Road Superintendent and all work done by the Gas Company shall be to his satisfaction.
- b. Prior to the commencement of work on the gas system, or any extensions or changes to it (except service laterals which do not interfere with municipal works in the highway), the Gas Company shall file with the Engineer/Road Superintendent a Plan, satisfactory to the Engineer/Road Superintendent, drawn to scale and of sufficient detail considering the complexity of the specific locations involved, showing the highways in which it proposes to lay its gas system and the particular parts thereof it proposes to occupy.
- The Plan filed by the Gas Company shall include geodetic information for a particular location:
 - where circumstances are complex, in order to facilitate known projects, including projects which are reasonably anticipated by the Engineer/Road Superintendent, or
 - when requested, where the Corporation has geodetic information for its own services and all others at the same location.
- d. The Engineer/Road Superintendent may require sections of the gas system to be laid at greater depth than required by the latest CSA standard for gas pipeline systems to facilitate known projects or to correct known highway deficiencies.
- e. Prior to the commencement of work on the gas system, the Engineer/Road Superintendent must approve the location of the work as shown on the Plan filed by the Gas Company, the timing of the work and any terms and conditions relating to the installation of the work.
- f. In addition to the requirements of this Agreement, if the Gas Company proposes to affix any part of the gas system to a bridge, viaduct or other structure, if the Engineer/Road

Superintendent approves this proposal, he may require the Gas Company to comply with special conditions or to enter into a separate agreement as a condition of the approval of this part of the construction of the gas system.

- g. Where the gas system may affect a municipal drain, the Gas Company shall also file a copy of the Plan with the Corporation's Drainage Superintendent for purposes of the Drainage Act, or such other person designated by the Corporation as responsible for the drain.
- h. The Gas Company shall not deviate from the approved location for any part of the gas system unless the prior approval of the Engineer/Road Superintendent to do so is received.
- The Engineer/Road Superintendent's approval, where required throughout this Paragraph, shall not be unreasonably withheld.
- j. The approval of the Engineer/Road Superintendent is not a representation or warranty as to the state of repair of the highway or the suitability of the highway for the gas system.

As Built Drawings.

The Gas Company shall, within six months of completing the installation of any part of the gas system, provide two copies of "as built" drawings to the Engineer/Road Superintendent. These drawings must be sufficient to accurately establish the location, depth (measurement between the top of the gas system and the ground surface at the time of installation) and distance of the gas system. The "as built" drawings shall be of the same quality as the Plan and, if the approved preconstruction plan included elevations that were geodetically referenced, the "as built" drawings shall similarly include elevations that are geodetically referenced. Upon the request of the Engineer/Road Superintendent, the Gas Company shall provide one copy of the drawings in an electronic format and one copy as a hard copy drawing.

7. Emergencies

In the event of an emergency involving the gas system, the Gas Company shall proceed with the work required to deal with the emergency, and in any instance where prior approval of the Engineer/Road Superintendent is normally required for the work, the Gas Company shall use its best efforts to immediately notify the Engineer/Road Superintendent of the location and nature of the emergency and the work being done and, if it deems appropriate, notify the police force, fire or other emergency services having jurisdiction. The Gas Company shall provide the Engineer/Road Superintendent with at least one 24 hour emergency contact for the Gas Company and shall ensure the contacts are current.

8. Restoration

The Gas Company shall well and sufficiently restore, to the reasonable satisfaction of the Engineer/Road Superintendent, all highways, municipal works or improvements which it may excavate or interfere with in the course of laying, constructing, repairing or removing its gas system, and shall make good any settling or subsidence thereafter caused by such excavation or interference. If the Gas Company fails at any time to do any work required by this Paragraph within a reasonable period of time, the Corporation may do or cause such work to be done and the Gas

Company shall, on demand, pay the Corporation's reasonably incurred costs, as certified by the Engineer/Road Superintendent.

9. Indemnification

The Gas Company shall, at all times, indemnify and save harmless the Corporation from and against all claims, including costs related thereto, for all damages or injuries including death to any person or persons and for damage to any property, arising out of the Gas Company operating, constructing, and maintaining its gas system in the Municipality, or utilizing its gas system for the carriage of gas owned by others. Provided that the Gas Company shall not be required to indemnify or save harmless the Corporation from and against claims, including costs related thereto, which it may incur by reason of damages or injuries including death to any person or persons and for damage to any property, resulting from the negligence or wrongful act of the Corporation, its servants, agents or employees.

10. Insurance

- a. The Gas Company shall maintain Comprehensive General Liability Insurance in sufficient amount and description as shall protect the Gas Company and the Corporation from claims for which the Gas Company is obliged to indemnify the Corporation under Paragraph 9. The insurance policy shall identify the Corporation as an additional named insured, but only with respect to the operation of the named insured (the Gas Company). The insurance policy shall not lapse or be cancelled without sixty (60) days' prior written notice to the Corporation by the Gas Company.
- b. The issuance of an insurance policy as provided in this Paragraph shall not be construed as relieving the Gas Company of liability not covered by such insurance or in excess of the policy limits of such insurance.
- c. Upon request by the Corporation, the Gas Company shall confirm that premiums for such insurance have been paid and that such insurance is in full force and effect.

11. Alternative Easement

The Corporation agrees, in the event of the proposed sale or closing of any highway or any part of a highway where there is a gas line in existence, to give the Gas Company reasonable notice of such proposed sale or closing and, if is feasible, to provide the Gas Company with easements over that part of the highway proposed to be sold or closed sufficient to allow the Gas Company to preserve any part of the gas system in its then existing location. In the event that such easements cannot be provided, the Corporation and the Gas Company shall share the cost of relocating or altering the gas system to facilitate continuity of gas service, as provided for in Paragraph 12 of this Agreement.

12. Pipeline Relocation

a. If in the course of constructing, reconstructing, changing, altering or improving any highway or any municipal works, the Corporation deems that it is necessary to take up, remove or change the location of any part of the gas system, the Gas Company shall, upon notice to do so, remove and/or relocate within a reasonable period of time such part of the gas system to a location approved by the Engineer/Road Superintendent.

- b. Where any part of the gas system relocated in accordance with this Paragraph is located on a bridge, viaduct or structure, the Gas Company shall alter or relocate that part of the gas system at its sole expense.
- c. Where any part of the gas system relocated in accordance with this Paragraph is located other than on a bridge, viaduct or structure, the costs of relocation shall be shared between the Corporation and the Gas Company on the basis of the total relocation costs, excluding the value of any upgrading of the gas system, and deducting any contribution paid to the Gas Company by others in respect to such relocation; and for these purposes, the total relocation costs shall be the aggregate of the following:
 - the amount paid to Gas Company employees up to and including field supervisors for the hours worked on the project plus the current cost of fringe benefits for these employees,
 - the amount paid for rental equipment while in use on the project and an amount, charged at the unit rate, for Gas Company equipment while in use on the project,
 - iii. the amount paid by the Gas Company to contractors for work related to the project,
 - iv. the cost to the Gas Company for materials used in connection with the project, and
 - v. a reasonable amount for project engineering and project administrative costs which shall be 22.5% of the aggregate of the amounts determined in items (i), (ii), (iii) and (iv) above.
 - d. The total relocation costs as calculated above shall be paid 35% by the Corporation and 65% by the Gas Company, except where the part of the gas system required to be moved is located in an unassumed road or in an unopened road allowance and the Corporation has not approved its location, in which case the Gas Company shall pay 100% of the relocation costs.

Part IV - Procedural and Other Matters

13. Municipal By-laws of General Application

The Agreement is subject to the provisions of all regulating statutes and all municipal by-laws of general application, except by-laws which have the effect of amending this Agreement.

14. Giving Notice

Notices may be delivered to, sent by facsimile or mailed by prepaid registered post to the Gas Company at its head office or to the authorized officers of the Corporation at its municipal offices, as the case may be.

15. Disposition of Gas System

a. If the Gas Company decommissions part of its gas system affixed to a bridge, viaduct or structure, the Gas Company shall, at its sole expense, remove the part of its gas system affixed to the bridge, viaduct or structure.

If the Gas Company decommissions any other part of its gas system, it shall have the b. right, but is not required, to remove that part of its gas system. It may exercise its right to remove the decommissioned parts of its gas system by giving notice of its intention to do so by filing a Plan as required by Paragraph 5 of this Agreement for approval by the Engineer/Road Superintendent. If the Gas Company does not remove the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in any highway, the Corporation may remove and dispose of so much of the decommissioned gas system as the Corporation may require for such purposes and neither party shall have recourse against the other for any loss, cost, expense or damage occasioned thereby. If the Gas Company has not removed the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in a highway, the Gas Company may elect to relocate the decommissioned gas system and in that event Paragraph 12 applies to the cost of relocation.

16. Use of Decommissioned Gas System

- a. The Gas Company shall provide promptly to the Corporation, to the extent such information is known:
 - the names and addresses of all third parties who use decommissioned parts of the gas system for purposes other than the transmission or distribution of gas; and
 - ii. the location of all proposed and existing decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas.
- b. The Gas Company may allow a third party to use a decommissioned part of the gas system for purposes other than the transmission or distribution of gas and may charge a fee for that third party use, provided
 - i. the third party has entered into a municipal access agreement with the Corporation; and
 - the Gas Company does not charge a fee for the third party's right of access to the highways.
- c. Decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas are not subject to the provisions of this Agreement. For decommissioned parts of the gas system used for purposes other than the transmission and distribution of gas, issues such as relocation costs will be governed by the relevant municipal access agreement.

17. Franchise Handbook

The Parties acknowledge that operating decisions sometimes require a greater level of detail than that which is appropriately included in this Agreement. The Parties agree to look for guidance on

such matters to the Franchise Handbook prepared by the Association of Municipalities of Ontario and the gas utility companies, as may be amended from time to time.

18. Agreement Binding Parties

This Agreement shall extend to, benefit and bind the parties thereto, their successors and assigns, respectively.

IN WITNESS WHEREOF the parties have executed this Agreement effective from the date written above.

THE CORPORATION OF THE COUNTY OF BRUCE

By:

Warden, Paul Eagleson

Clerk, Donna Van Wyck

We have the authority to bind the Corporation

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner, EPCOR ONTARIO UTILITIES INC.

By:

Duly Authorized Officer

SK Resinsa 10, Contrara Region

THE CORPORATION OF THE TOWNSHIP OF CHATSWORTH

BY-LAW NUMBER 2018-56

BEING a By-law to a authorize the Mayor and Clerk to execute a franchise agreement between The Corporation of the Township of Chatsworth and Epcor Natural Gas Limited Partnership by its general partner EPCOR ONTARIO UTILITIES INC.

WHEREAS the Council of the Corporation of the Township of Chatsworth deems it in the public interest to enter into a utility franchise agreement with Epcor Natural Gas Limited Partnership by its general partner EPCOR ONTARIO UTILITIES INC.

AND WHEREAS pursuant to the provisions of Sections 34 of the Planning Act, R.S.O. 1990, as amended, By-laws may be amended by Councils of Municipalities;

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE TOWNSHIP OF CHATSWORTH ENACTS AS FOLLOWS:

- 1. That a franchise agreement between the Township of Chatsworth and Epcor Natural Gas Limited Partnership by its general partner EPCOR ONTARIO UTILITIES INC. being attached hereto as Schedule "A" and forming part of this By-law is hereby authorized and the Mayor and Clerk are authorized to execute the agreement on behalf of the Township of Chatsworth.
- 2. That this By-law shall come into full force and effect upon its final passing.

Read a first and second time this 1st day of August, 2018

Read a third time and finally passed this 1st day of August, 2018

Mayor Bob Pringle

CAO Clerk Patty Sinnamon

Model Franchise Agreement

THIS AGREEMENT effective this _______day of August, 2018.

BETWEEN:

THE CORPORATION OF THE TOWNSHIP OF CHATSWORTH hereinafter called the "Corporation"

- and -

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner EPCOR ONTARIO UTILITIES INC hereinafter called the "Gas Company"

WHEREAS the Gas Company desires to distribute, store and transmit gas in the Municipality upon the terms and conditions of this Agreement;

AND WHEREAS by by-law passed by the Council of the Corporation (the "By-law"), the duly authorized officers have been authorized and directed to execute this Agreement on behalf of the Corporation;

THEREFORE the Corporation and the Gas Company agree as follows:

Part I - Definitions

- 1. In this Agreement:
 - a. "decommissioned" and "decommissions" when used in connection with parts of the gas system, mean any parts of the gas system taken out of active use and purged in accordance with the applicable CSA standards and in no way affects the use of the term 'abandoned' pipeline for the purposes of the Assessment Act;
 - b. "Engineer/Road Superintendent" means the most senior individual employed by the Corporation with responsibilities for highways within the Municipality or the person designated by such senior employee or such other person as may from time to time be designated by the Council of the Corporation;

- c. "gas" means natural gas, manufactured gas, synthetic natural gas, liquefied petroleum gas or propane-air gas, or a mixture of any of them, but does not include a liquefied petroleum gas that is distributed by means other than a pipeline;
- d. "gas system" means such mains, plants, pipes, conduits, services, valves, regulators, curb boxes, stations, drips or such other equipment as the Gas Company may require or deem desirable for the distribution, storage and transmission of gas in or through the Municipality;
- e. "highway" means all common and public highways and shall include any bridge, viaduct or structure forming part of a highway, and any public square, road allowance or walkway and shall include not only the travelled portion of such highway, but also ditches, driveways, sidewalks, and sodded areas forming part of the road allowance now or at any time during the term hereof under the jurisdiction of the Corporation;
- f. "Model Franchise Agreement" means the form of agreement which the Ontario Energy Board uses as a standard when considering applications under the *Municipal Franchises Act*. The Model Franchise Agreement may be changed from time to time by the Ontario Energy Board;
- g. "Municipality" means the territorial limits of the Corporation on the date when this Agreement takes effect, and any territory which may thereafter be brought within the jurisdiction of the Corporation;
- h. "Plan" means the plan described in Paragraph 5 of this Agreement required to be filed by the Gas Company with the Engineer/Road Superintendent prior to commencement of work on the gas system; and
- i. whenever the singular, masculine or feminine is used in this Agreement, it shall be considered as if the plural, feminine or masculine has been used where the context of the Agreement so requires.

Part II - Rights Granted

2. To provide gas service:

The consent of the Corporation is hereby given and granted to the Gas Company to distribute, store and transmit gas in and through the Municipality to the Corporation and to the inhabitants of the Municipality.

3. To Use Highways

Subject to the terms and conditions of this Agreement the consent of the Corporation is hereby given and granted to the Gas Company to enter upon all highways now or at any time hereafter under the jurisdiction of the Corporation and to lay, construct, maintain, replace, remove, operate and repair a gas system for the distribution, storage and transmission of gas in and through the Municipality.

4. Duration of Agreement and Renewal Procedures.

- a. If the Corporation has not previously received gas distribution services, the rights hereby given and granted shall be for a term of 20 years from the date of final passing of the Bylaw.
- b. At any time within two years prior to the expiration of this Agreement, either party may give notice to the other that it desires to enter into negotiations for a renewed franchise upon such terms and conditions as may be agreed upon. Until such renewal has been settled, the terms and conditions of this Agreement shall continue, notwithstanding the expiration of this Agreement. This shall not preclude either party from applying to the Ontario Energy Board for a renewal of the Agreement pursuant to section 10 of the Municipal Franchises Act.

Part III - Conditions

5. Approval of Construction

- a. The Gas Company shall not undertake any excavation, opening or work which will disturb or interfere with the surface of the travelled portion of any highway unless a permit therefor has first been obtained from the Engineer/Road Superintendent and all work done by the Gas Company shall be to his satisfaction.
- b. Prior to the commencement of work on the gas system, or any extensions or changes to it (except service laterals which do not interfere with municipal works in the highway), the Gas Company shall file with the Engineer/Road Superintendent a Plan, satisfactory to the Engineer/Road Superintendent, drawn to scale and of sufficient detail considering the complexity of the specific locations involved, showing the highways in which it proposes to lay its gas system and the particular parts thereof it proposes to occupy.
- c. The Plan filed by the Gas Company shall include geodetic information for a particular location:
 - where circumstances are complex, in order to facilitate known projects, including projects which are reasonably anticipated by the Engineer/Road Superintendent, or
 - ii. when requested, where the Corporation has geodetic information for its own services and all others at the same location.
- d. The Engineer/Road Superintendent may require sections of the gas system to be laid at greater depth than required by the latest CSA standard for gas pipeline systems to facilitate known projects or to correct known highway deficiencies.
- e. Prior to the commencement of work on the gas system, the Engineer/Road Superintendent must approve the location of the work as shown on the Plan filed by the Gas Company, the timing of the work and any terms and conditions relating to the installation of the work.
- f. In addition to the requirements of this Agreement, if the Gas Company proposes to affix any part of the gas system to a bridge, viaduct or other structure, if the Engineer/Road Superintendent approves this proposal, he may require the Gas Company to comply with

special conditions or to enter into a separate agreement as a condition of the approval of this part of the construction of the gas system.

- g. Where the gas system may affect a municipal drain, the Gas Company shall also file a copy of the Plan with the Corporation's Drainage Superintendent for purposes of the *Drainage Act*, or such other person designated by the Corporation as responsible for the drain.
- h. The Gas Company shall not deviate from the approved location for any part of the gas system unless the prior approval of the Engineer/Road Superintendent to do so is received.
- i. The Engineer/Road Superintendent's approval, where required throughout this Paragraph, shall not be unreasonably withheld.
- j. The approval of the Engineer/Road Superintendent is not a representation or warranty as to the state of repair of the highway or the suitability of the highway for the gas system.

6. As Built Drawings.

The Gas Company shall, within six months of completing the installation of any part of the gas system, provide two copies of "as built" drawings to the Engineer/Road Superintendent. These drawings must be sufficient to accurately establish the location, depth (measurement between the top of the gas system and the ground surface at the time of installation) and distance of the gas system. The "as built" drawings shall be of the same quality as the Plan and, if the approved preconstruction plan included elevations that were geodetically referenced, the "as built" drawings shall similarly include elevations that are geodetically referenced. Upon the request of the Engineer/Road Superintendent, the Gas Company shall provide one copy of the drawings in an electronic format and one copy as a hard copy drawing.

7. Emergencies

In the event of an emergency involving the gas system, the Gas Company shall proceed with the work required to deal with the emergency, and in any instance where prior approval of the Engineer/Road Superintendent is normally required for the work, the Gas Company shall use its best efforts to immediately notify the Engineer/Road Superintendent of the location and nature of the emergency and the work being done and, if it deems appropriate, notify the police force, fire or other emergency services having jurisdiction. The Gas Company shall provide the Engineer/Road Superintendent with at least one 24 hour emergency contact for the Gas Company and shall ensure the contacts are current.

8. Restoration

The Gas Company shall well and sufficiently restore, to the reasonable satisfaction of the Engineer/Road Superintendent, all highways, municipal works or improvements which it may excavate or interfere with in the course of laying, constructing, repairing or removing its gas system, and shall make good any settling or subsidence thereafter caused by such excavation or interference. If the Gas Company fails at any time to do any work required by this Paragraph within a reasonable period of time, the Corporation may do or cause such work to be done and the Gas Company shall, on demand, pay the Corporation's reasonably incurred costs, as certified by the Engineer/Road Superintendent.

9. Indemnification

The Gas Company shall, at all times, indemnify and save harmless the Corporation from and against all claims, including costs related thereto, for all damages or injuries including death to any person or persons and for damage to any property, arising out of the Gas Company operating, constructing, and maintaining its gas system in the Municipality, or utilizing its gas system for the carriage of gas owned by others. Provided that the Gas Company shall not be required to indemnify or save harmless the Corporation from and against claims, including costs related thereto, which it may incur by reason of damages or injuries including death to any person or persons and for damage to any property, resulting from the negligence or wrongful act of the Corporation, its servants, agents or employees.

10. Insurance

- a. The Gas Company shall maintain Comprehensive General Liability Insurance in sufficient amount and description as shall protect the Gas Company and the Corporation from claims for which the Gas Company is obliged to indemnify the Corporation under Paragraph 9. The insurance policy shall identify the Corporation as an additional named insured, but only with respect to the operation of the named insured (the Gas Company). The insurance policy shall not lapse or be cancelled without sixty (60) days' prior written notice to the Corporation by the Gas Company.
- b. The issuance of an insurance policy as provided in this Paragraph shall not be construed as relieving the Gas Company of liability not covered by such insurance or in excess of the policy limits of such insurance.
- c. Upon request by the Corporation, the Gas Company shall confirm that premiums for such insurance have been paid and that such insurance is in full force and effect.

11. Alternative Easement

The Corporation agrees, in the event of the proposed sale or closing of any highway or any part of a highway where there is a gas line in existence, to give the Gas Company reasonable notice of such proposed sale or closing and, if is feasible, to provide the Gas Company with easements over that part of the highway proposed to be sold or closed sufficient to allow the Gas Company to preserve any part of the gas system in its then existing location. In the event that such easements cannot be provided, the Corporation and the Gas Company shall share the cost of relocating or altering the gas system to facilitate continuity of gas service, as provided for in Paragraph 12 of this Agreement.

12. Pipeline Relocation

a. If in the course of constructing, reconstructing, changing, altering or improving any highway or any municipal works, the Corporation deems that it is necessary to take up, remove or change the location of any part of the gas system, the Gas Company shall, upon notice to do so, remove and/or relocate within a reasonable period of time such part of the gas system to a location approved by the Engineer/Road Superintendent.

- b. Where any part of the gas system relocated in accordance with this Paragraph is located on a bridge, viaduct or structure, the Gas Company shall alter or relocate that part of the gas system at its sole expense.
- c. Where any part of the gas system relocated in accordance with this Paragraph is located other than on a bridge, viaduct or structure, the costs of relocation shall be shared between the Corporation and the Gas Company on the basis of the total relocation costs, excluding the value of any upgrading of the gas system, and deducting any contribution paid to the Gas Company by others in respect to such relocation; and for these purposes, the total relocation costs shall be the aggregate of the following:
 - the amount paid to Gas Company employees up to and including field supervisors for the hours worked on the project plus the current cost of fringe benefits for these employees.
 - the amount paid for rental equipment while in use on the project and an amount, charged at the unit rate, for Gas Company equipment while in use on the project,
 - the amount paid by the Gas Company to contractors for work related to the project,
 - iv. the cost to the Gas Company for materials used in connection with the project, and
 - v. a reasonable amount for project engineering and project administrative costs which shall be 22.5% of the aggregate of the amounts determined in items (i), (ii), (iii) and (iv) above.
- d. The total relocation costs as calculated above shall be paid 35% by the Corporation and 65% by the Gas Company, except where the part of the gas system required to be moved is located in an unassumed road or in an unopened road allowance and the Corporation has not approved its location, in which case the Gas Company shall pay 100% of the relocation costs.

Part IV - Procedural and Other Matters

13. Municipal By-laws of General Application

The Agreement is subject to the provisions of all regulating statutes and all municipal by-laws of general application, except by-laws which have the effect of amending this Agreement.

14. Giving Notice

Notices may be delivered to, sent by facsimile or mailed by prepaid registered post to the Gas Company at its head office or to the authorized officers of the Corporation at its municipal offices, as the case may be.

15. Disposition of Gas System

a. If the Gas Company decommissions part of its gas system affixed to a bridge, viaduct or structure, the Gas Company shall, at its sole expense, remove the part of its gas system affixed to the bridge, viaduct or structure. b. If the Gas Company decommissions any other part of its gas system, it shall have the right, but is not required, to remove that part of its gas system. It may exercise its right to remove the decommissioned parts of its gas system by giving notice of its intention to do so by filing a Plan as required by Paragraph 5 of this Agreement for approval by the Engineer/Road Superintendent. If the Gas Company does not remove the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in any highway, the Corporation may remove and dispose of so much of the decommissioned gas system as the Corporation may require for such purposes and neither party shall have recourse against the other for any loss, cost, expense or damage occasioned thereby. If the Gas Company has not removed the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in a highway, the Gas Company may elect to relocate the decommissioned gas system and in that event Paragraph 12 applies to the cost of relocation.

16. Use of Decommissioned Gas System

- a. The Gas Company shall provide promptly to the Corporation, to the extent such information is known:
 - i. the names and addresses of all third parties who use decommissioned parts of the gas system for purposes other than the transmission or distribution of gas; and
 - ii. the location of all proposed and existing decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas.
- b. The Gas Company may allow a third party to use a decommissioned part of the gas system for purposes other than the transmission or distribution of gas and may charge a fee for that third party use, provided
 - i. the third party has entered into a municipal access agreement with the Corporation; and
 - ii. the Gas Company does not charge a fee for the third party's right of access to the highways.
- c. Decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas are not subject to the provisions of this Agreement. For decommissioned parts of the gas system used for purposes other than the transmission and distribution of gas, issues such as relocation costs will be governed by the relevant municipal access agreement.

17. Franchise Handbook

The Parties acknowledge that operating decisions sometimes require a greater level of detail than that which is appropriately included in this Agreement. The Parties agree to look for guidance on

such matters to the Franchise Handbook prepared by the Association of Municipalities of Ontario and the gas utility companies, as may be amended from time to time.

18. Agreement Binding Parties

This Agreement shall extend to, benefit and bind the parties thereto, their successors and assigns, respectively.

IN WITNESS WHEREOF the parties have executed this Agreement effective from the date written above.

THE CORPORATION OF THE TOWNSHIP OF CHATSWORTH

Bob Pringle, Mayor

Patty Sinnamon, CAO Clerk

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner, EPCOR ONTARIO UTILITIES INC.

By

y Likophsen

The Corporation of the Township of Huron-Kinloss



BY-LAW

2018-96

Being a by-law to authorize a Municipal Franchise Agreement between the Corporation of the Township of Huron-Kinloss and EPCOR Utilities Inc.

WHEREAS EPCOR Utilities Inc. ("EPCOR") intends to develop, own and operate a natural gas distribution utility within the Township of Huron-Kinloss.

AND WHERAS the Corporation of the Township of Huron-Kinloss passed By-Law No. 2016-20 to enter into a Franchise Agreement with EPCOR.

AND WHEREAS the Council of The Corporation of the Township of Huron-Kinloss deems it expedient to repeal and replace the Franchise Agreement consistent with the legal advice provided by Borden Ladner Gervais LLP at the Closed Council Meeting held on July 16th, 2018;

NOW THEREFORE the Council of The Corporation of the Township of Huron-Kinloss enacts as follows:

- That the Franchise Agreement between The Corporation of the Township of Huron-Kinloss and EPCOR Utilities Inc., which was the subject of legal advice provided to Council by Borden Ladner Gervais LLP at the Closed Council Meeting held on July 16th, 2018 is hereby authorized and the franchise provided is hereby granted conditional on EPCOR obtaining all required and necessary approvals from the Ontario Energy Board.
- 2.0 That the Mayor and Clerk are hereby authorized and instructed on behalf of The Corporation of the Township of Huron-Kinloss to enter into and execute under its corporate seal.
- 3.0 That By-Law No. 2016-20 is hereby repealed.
- 4.0 This by-law shall come into full force and effect upon final passage.
- 5.0 This by-law may be cited as the "EPCOR Utilities Inc. Natural Gas Franchise Agreement, 2018 By-Law".

READ a FIRST and SECOND TIME this 16th day of July, 2018.

READ a THIRD TIME and FINALLY PASSED this 16th day of July, 2018.

Mitch Twolan, Mayor

Emily Dance, Clerk

Model Franchise Agreement

THIS AGREEMENT effective this _/b day of July, 2018.

BETWEEN:

THE CORPORATION OF THE TOWNSHIP OF HURON-KINLOSS hereinafter called the "Corporation"

- and -

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner EPCOR ONTARIO UTILITIES INC. hereinafter called the "Gas Company"

WHEREAS the Gas Company desires to distribute, store and transmit gas in the Municipality upon the terms and conditions of this Agreement;

AND WHEREAS by by-law passed by the Council of the Corporation (the "By-law"), the duly authorized officers have been authorized and directed to execute this Agreement on behalf of the Corporation;

THEREFORE the Corporation and the Gas Company agree as follows:

Part I - Definitions

- 1. In this Agreement:
 - a. "decommissioned" and "decommissions" when used in connection with parts of the gas system, mean any parts of the gas system taken out of active use and purged in accordance with the applicable CSA standards and in no way affects the use of the term 'abandoned' pipeline for the purposes of the Assessment Act;
 - b. "Engineer/Road Superintendent" means the most senior individual employed by the Corporation with responsibilities for highways within the Municipality or the person designated by such senior employee or such other person as may from time to time be designated by the Council of the Corporation;

- c. "gas" means natural gas, manufactured gas, synthetic natural gas, liquefied petroleum gas or propane-air gas, or a mixture of any of them, but does not include a liquefied petroleum gas that is distributed by means other than a pipeline;
- d. "gas system" means such mains, plants, pipes, conduits, services, valves, regulators, curb boxes, stations, drips or such other equipment as the Gas Company may require or deem desirable for the distribution, storage and transmission of gas in or through the Municipality;
- e. "highway" means all common and public highways and shall include any bridge, viaduct or structure forming part of a highway, and any public square, road allowance or walkway and shall include not only the travelled portion of such highway, but also ditches, driveways, sidewalks, and sodded areas forming part of the road allowance now or at any time during the term hereof under the jurisdiction of the Corporation;
- f. "Model Franchise Agreement" means the form of agreement which the Ontario Energy Board uses as a standard when considering applications under the *Municipal Franchises* Act. The Model Franchise Agreement may be changed from time to time by the Ontario Energy Board;
- g. "Municipality" means the territorial limits of the Corporation on the date when this Agreement takes effect, and any territory which may thereafter be brought within the jurisdiction of the Corporation;
- h. "Plan" means the plan described in Paragraph 5 of this Agreement required to be filed by the Gas Company with the Engineer/Road Superintendent prior to commencement of work on the gas system; and
- whenever the singular, masculine or feminine is used in this Agreement, it shall be considered as if the plural, feminine or masculine has been used where the context of the Agreement so requires.

Part II - Rights Granted

2. To provide gas service:

The consent of the Corporation is hereby given and granted to the Gas Company to distribute, store and transmit gas in and through the Municipality to the Corporation and to the inhabitants of the Municipality.

3. To Use Highways

Subject to the terms and conditions of this Agreement the consent of the Corporation is hereby given and granted to the Gas Company to enter upon all highways now or at any time hereafter under the jurisdiction of the Corporation and to lay, construct, maintain, replace, remove, operate and repair a gas system for the distribution, storage and transmission of gas in and through the Municipality.

4. Duration of Agreement and Renewal Procedures.

- a. If the Corporation has not previously received gas distribution services, the rights hereby given and granted shall be for a term of 20 years from the date of final passing of the Bylaw.
- b. At any time within two years prior to the expiration of this Agreement, either party may give notice to the other that it desires to enter into negotiations for a renewed franchise upon such terms and conditions as may be agreed upon. Until such renewal has been settled, the terms and conditions of this Agreement shall continue, notwithstanding the expiration of this Agreement. This shall not preclude either party from applying to the Ontario Energy Board for a renewal of the Agreement pursuant to section 10 of the Municipal Franchises Act.

Part III - Conditions

5. Approval of Construction

- a. The Gas Company shall not undertake any excavation, opening or work which will disturb or interfere with the surface of the travelled portion of any highway unless a permit therefor has first been obtained from the Engineer/Road Superintendent and all work done by the Gas Company shall be to his satisfaction.
- b. Prior to the commencement of work on the gas system, or any extensions or changes to it (except service laterals which do not interfere with municipal works in the highway), the Gas Company shall file with the Engineer/Road Superintendent a Plan, satisfactory to the Engineer/Road Superintendent, drawn to scale and of sufficient detail considering the complexity of the specific locations involved, showing the highways in which it proposes to lay its gas system and the particular parts thereof it proposes to occupy.
- c. The Plan filed by the Gas Company shall include geodetic information for a particular location:
 - where circumstances are complex, in order to facilitate known projects, including projects which are reasonably anticipated by the Engineer/Road Superintendent, or
 - ii. when requested, where the Corporation has geodetic information for its own services and all others at the same location.
- d. The Engineer/Road Superintendent may require sections of the gas system to be laid at greater depth than required by the latest CSA standard for gas pipeline systems to facilitate known projects or to correct known highway deficiencies.
- e. Prior to the commencement of work on the gas system, the Engineer/Road Superintendent must approve the location of the work as shown on the Plan filed by the Gas Company, the timing of the work and any terms and conditions relating to the installation of the work.
- f. In addition to the requirements of this Agreement, if the Gas Company proposes to affix any part of the gas system to a bridge, viaduct or other structure, if the Engineer/Road Superintendent approves this proposal, he may require the Gas Company to comply with

special conditions or to enter into a separate agreement as a condition of the approval of this part of the construction of the gas system.

- g. Where the gas system may affect a municipal drain, the Gas Company shall also file a copy of the Plan with the Corporation's Drainage Superintendent for purposes of the *Drainage Act*, or such other person designated by the Corporation as responsible for the drain.
- h. The Gas Company shall not deviate from the approved location for any part of the gas system unless the prior approval of the Engineer/Road Superintendent to do so is received.
- The Engineer/Road Superintendent's approval, where required throughout this Paragraph, shall not be unreasonably withheld.
- j. The approval of the Engineer/Road Superintendent is not a representation or warranty as to the state of repair of the highway or the suitability of the highway for the gas system.

6. As Built Drawings.

The Gas Company shall, within six months of completing the installation of any part of the gas system, provide two copies of "as built" drawings to the Engineer/Road Superintendent. These drawings must be sufficient to accurately establish the location, depth (measurement between the top of the gas system and the ground surface at the time of installation) and distance of the gas system. The "as built" drawings shall be of the same quality as the Plan and, if the approved preconstruction plan included elevations that were geodetically referenced, the "as built" drawings shall similarly include elevations that are geodetically referenced. Upon the request of the Engineer/Road Superintendent, the Gas Company shall provide one copy of the drawings in an electronic format and one copy as a hard copy drawing.

7. Emergencies

In the event of an emergency involving the gas system, the Gas Company shall proceed with the work required to deal with the emergency, and in any instance where prior approval of the Engineer/Road Superintendent is normally required for the work, the Gas Company shall use its best efforts to immediately notify the Engineer/Road Superintendent of the location and nature of the emergency and the work being done and, if it deems appropriate, notify the police force, fire or other emergency services having jurisdiction. The Gas Company shall provide the Engineer/Road Superintendent with at least one 24 hour emergency contact for the Gas Company and shall ensure the contacts are current.

8. Restoration

The Gas Company shall well and sufficiently restore, to the reasonable satisfaction of the Engineer/Road Superintendent, all highways, municipal works or improvements which it may excavate or interfere with in the course of laying, constructing, repairing or removing its gas system, and shall make good any settling or subsidence thereafter caused by such excavation or interference. If the Gas Company fails at any time to do any work required by this Paragraph within a reasonable period of time, the Corporation may do or cause such work to be done and the Gas Company shall, on demand, pay the Corporation's reasonably incurred costs, as certified by the Engineer/Road Superintendent.

9. Indemnification

The Gas Company shall, at all times, indemnify and save harmless the Corporation from and against all claims, including costs related thereto, for all damages or injuries including death to any person or persons and for damage to any property, arising out of the Gas Company operating, constructing, and maintaining its gas system in the Municipality, or utilizing its gas system for the carriage of gas owned by others. Provided that the Gas Company shall not be required to indemnify or save harmless the Corporation from and against claims, including costs related thereto, which it may incur by reason of damages or injuries including death to any person or persons and for damage to any property, resulting from the negligence or wrongful act of the Corporation, its servants, agents or employees.

10. Insurance

- a. The Gas Company shall maintain Comprehensive General Liability Insurance in sufficient amount and description as shall protect the Gas Company and the Corporation from claims for which the Gas Company is obliged to indemnify the Corporation under Paragraph 9. The insurance policy shall identify the Corporation as an additional named insured, but only with respect to the operation of the named insured (the Gas Company). The insurance policy shall not lapse or be cancelled without sixty (60) days' prior written notice to the Corporation by the Gas Company.
- b. The issuance of an insurance policy as provided in this Paragraph shall not be construed as relieving the Gas Company of liability not covered by such insurance or in excess of the policy limits of such insurance.
- c. Upon request by the Corporation, the Gas Company shall confirm that premiums for such insurance have been paid and that such insurance is in full force and effect.

11. Alternative Easement

The Corporation agrees, in the event of the proposed sale or closing of any highway or any part of a highway where there is a gas line in existence, to give the Gas Company reasonable notice of such proposed sale or closing and, if is feasible, to provide the Gas Company with easements over that part of the highway proposed to be sold or closed sufficient to allow the Gas Company to preserve any part of the gas system in its then existing location. In the event that such easements cannot be provided, the Corporation and the Gas Company shall share the cost of relocating or altering the gas system to facilitate continuity of gas service, as provided for in Paragraph 12 of this Agreement.

12. Pipeline Relocation

a. If in the course of constructing, reconstructing, changing, altering or improving any highway or any municipal works, the Corporation deems that it is necessary to take up, remove or change the location of any part of the gas system, the Gas Company shall, upon notice to do so, remove and/or relocate within a reasonable period of time such part of the gas system to a location approved by the Engineer/Road Superintendent.

- b. Where any part of the gas system relocated in accordance with this Paragraph is located on a bridge, viaduct or structure, the Gas Company shall alter or relocate that part of the gas system at its sole expense.
- c. Where any part of the gas system relocated in accordance with this Paragraph is located other than on a bridge, viaduct or structure, the costs of relocation shall be shared between the Corporation and the Gas Company on the basis of the total relocation costs, excluding the value of any upgrading of the gas system, and deducting any contribution paid to the Gas Company by others in respect to such relocation; and for these purposes, the total relocation costs shall be the aggregate of the following:
 - the amount paid to Gas Company employees up to and including field supervisors for the hours worked on the project plus the current cost of fringe benefits for these employees,
 - ii. the amount paid for rental equipment while in use on the project and an amount, charged at the unit rate, for Gas Company equipment while in use on the project,
 - iii. the amount paid by the Gas Company to contractors for work related to the project,
 - iv. the cost to the Gas Company for materials used in connection with the project, and
 - v. a reasonable amount for project engineering and project administrative costs which shall be 22.5% of the aggregate of the amounts determined in items (i), (ii), (iii) and (iv) above.
 - d. The total relocation costs as calculated above shall be paid 35% by the Corporation and 65% by the Gas Company, except where the part of the gas system required to be moved is located in an unassumed road or in an unopened road allowance and the Corporation has not approved its location, in which case the Gas Company shall pay 100% of the relocation costs.

Part IV - Procedural and Other Matters

13. Municipal By-laws of General Application

The Agreement is subject to the provisions of all regulating statutes and all municipal by-laws of general application, except by-laws which have the effect of amending this Agreement.

14. Giving Notice

Notices may be delivered to, sent by facsimile or mailed by prepaid registered post to the Gas Company at its head office or to the authorized officers of the Corporation at its municipal offices, as the case may be.

15. Disposition of Gas System

a. If the Gas Company decommissions part of its gas system affixed to a bridge, viaduct or structure, the Gas Company shall, at its sole expense, remove the part of its gas system affixed to the bridge, viaduct or structure.

If the Gas Company decommissions any other part of its gas system, it shall have the b. right, but is not required, to remove that part of its gas system. It may exercise its right to remove the decommissioned parts of its gas system by giving notice of its intention to do so by filing a Plan as required by Paragraph 5 of this Agreement for approval by the Engineer/Road Superintendent, If the Gas Company does not remove the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in any highway, the Corporation may remove and dispose of so much of the decommissioned gas system as the Corporation may require for such purposes and neither party shall have recourse against the other for any loss, cost, expense or damage occasioned thereby. If the Gas Company has not removed the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in a highway, the Gas Company may elect to relocate the decommissioned gas system and in that event Paragraph 12 applies to the cost of relocation.

16. Use of Decommissioned Gas System

- a. The Gas Company shall provide promptly to the Corporation, to the extent such information is known:
 - i. the names and addresses of all third parties who use decommissioned parts of the gas system for purposes other than the transmission or distribution of gas; and
 - ii. the location of all proposed and existing decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas.
- b. The Gas Company may allow a third party to use a decommissioned part of the gas system for purposes other than the transmission or distribution of gas and may charge a fee for that third party use, provided
 - i. the third party has entered into a municipal access agreement with the Corporation; and
 - ii. the Gas Company does not charge a fee for the third party's right of access to the highways.
- c. Decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas are not subject to the provisions of this Agreement. For decommissioned parts of the gas system used for purposes other than the transmission and distribution of gas, issues such as relocation costs will be governed by the relevant municipal access agreement.

17. Franchise Handbook

The Parties acknowledge that operating decisions sometimes require a greater level of detail than that which is appropriately included in this Agreement. The Parties agree to look for guidance on

such matters to the Franchise Handbook prepared by the Association of Municipalities of Ontario and the gas utility companies, as may be amended from time to time.

18. Agreement Binding Parties

This Agreement shall extend to, benefit and bind the parties thereto, their successors and assigns, respectively.

IN WITNESS WHEREOF the parties have executed this Agreement effective from the date written above.

THE CORPORATION OF THE TOWNSHIP OF HURON-KINLOSS

By: Mitch Twolan, Mayor

By: All Dence, Clerk

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner, EPCOR ONTARIO UTILITIES INC.

S. K. Robins

THE CORPORATION OF THE MUNICIPALITY OF KINCARDINE



Certified to be a true and complete copy of By-Law No. 2018-098 passed by the Council of The Corporation of the Municipality of Kincardine on the 23 day of

Jennifer Lawrie, Deputy Clerk
Municipality of Kincardine
Date Quoust 3118

NO. 2018 - 098

BEING A BY-LAW TO AUTHORIZE A MUNICIPAL FRANCHISE AGREEMENT BETWEEN THE CORPORATION OF THE MUNICIPALITY OF KINCARDINE AND EPCOR UTILITIES INC.

WHEREAS EPCOR Utilities Inc. ("EPCOR") intends to develop, own and operate a natural gas distribution utility within the Municipality of Kincardine;

AND WHEREAS The Corporation of the Municipality of Kincardine passed By-law No. 2016 - 027 to enter into a Franchise Agreement with EPCOR which was repealed by By-law No. 2018 - 097;

AND WHEREAS the Council of The Corporation of Municipality of Kincardine deems it expedient to enter into a Franchise Agreement with EPCOR in substantially the form and consistent with the legal advice provided by Borden Ladner Gervais LLP at the Closed Council meeting held on July 23rd, 2018;

NOW THEREFORE the Council of The Corporation of the Municipality of Kincardine **ENACTS** as follows:

- 1. THAT the Franchise Agreement between The Corporation of The Municipality of Kincardine and EPCOR Utilities Inc. which was the subject of legal advice provided to Council by Borden Ladner Gervais LLP at the Closed Council meeting held on July 23rd, 2018 is hereby authorized and the franchise provided for therein granted conditional on EPCOR obtaining all required and necessary approvals from the Ontario Energy Board.
- That the Mayor and Chief Administrative Officer be authorized and directed to sign and execute, on behalf of the Council of The Corporation of the Municipality of Kincardine the Franchise Agreement, substantially in the form and consistent with the legal advice provided to Council by Borden Ladner Gervais LLP at the Closed Council meeting held on July 23rd, 2018.
- This by-law shall come into full force and effect upon its final passage.
- This By-law may be cited as the "The EPCOR Utilities Inc. Natural Gas Franchise Agreement (2018) By-Law".

READ a FIRST and SECOND TIME this 23rd day of July, 2018.

READ a THIRD TIME and FINALLY PASSED this 23rd day of July, 2018.

Mayor Zadia Donna Mau Dougalli Clerk

Model Franchise Agreement

THIS AGREEMENT effective this _	day of July, 2018.
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BETWEEN:

THE CORPORATION OF THE MUNICIPALITY OF KINCARDINE hereinafter called the "Corporation"

- and -

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner EPCOR ONTARIO UTILITIES INC. hereinafter called the "Gas Company"

WHEREAS the Gas Company desires to distribute, store and transmit gas in the Municipality upon the terms and conditions of this Agreement;

AND WHEREAS by by-law passed by the Council of the Corporation (the "By-law"), the duly authorized officers have been authorized and directed to execute this Agreement on behalf of the Corporation;

THEREFORE the Corporation and the Gas Company agree as follows:

Part I - Definitions

- 1. In this Agreement:
 - a. "decommissioned" and "decommissions" when used in connection with parts of the gas system, mean any parts of the gas system taken out of active use and purged in accordance with the applicable CSA standards and in no way affects the use of the term 'abandoned' pipeline for the purposes of the Assessment Act;
 - b. "Engineer/Road Superintendent" means the most senior individual employed by the Corporation with responsibilities for highways within the Municipality or the person designated by such senior employee or such other person as may from time to time be designated by the Council of the Corporation;

- c. "gas" means natural gas, manufactured gas, synthetic natural gas, liquefied petroleum gas or propane-air gas, or a mixture of any of them, but does not include a liquefied petroleum gas that is distributed by means other than a pipeline;
- d. "gas system" means such mains, plants, pipes, conduits, services, valves, regulators, curb boxes, stations, drips or such other equipment as the Gas Company may require or deem desirable for the distribution, storage and transmission of gas in or through the Municipality;
- e. "highway" means all common and public highways and shall include any bridge, viaduct or structure forming part of a highway, and any public square, road allowance or walkway and shall include not only the travelled portion of such highway, but also ditches, driveways, sidewalks, and sodded areas forming part of the road allowance now or at any time during the term hereof under the jurisdiction of the Corporation;
- f. "Model Franchise Agreement" means the form of agreement which the Ontario Energy Board uses as a standard when considering applications under the *Municipal Franchises Act*. The Model Franchise Agreement may be changed from time to time by the Ontario Energy Board;
- g. "Municipality" means the territorial limits of the Corporation on the date when this Agreement takes effect, and any territory which may thereafter be brought within the jurisdiction of the Corporation;
- h. "Plan" means the plan described in Paragraph 5 of this Agreement required to be filed by the Gas Company with the Engineer/Road Superintendent prior to commencement of work on the gas system; and
- whenever the singular, masculine or feminine is used in this Agreement, it shall be considered as if the plural, feminine or masculine has been used where the context of the Agreement so requires.

Part II - Rights Granted

To provide gas service:

The consent of the Corporation is hereby given and granted to the Gas Company to distribute, store and transmit gas in and through the Municipality to the Corporation and to the inhabitants of the Municipality.

3. To Use Highways

Subject to the terms and conditions of this Agreement the consent of the Corporation is hereby given and granted to the Gas Company to enter upon all highways now or at any time hereafter under the jurisdiction of the Corporation and to lay, construct, maintain, replace, remove, operate and repair a gas system for the distribution, storage and transmission of gas in and through the Municipality.

4. Duration of Agreement and Renewal Procedures.

- a. If the Corporation has not previously received gas distribution services, the rights hereby given and granted shall be for a term of 20 years from the date of final passing of the Bylaw.
- b. At any time within two years prior to the expiration of this Agreement, either party may give notice to the other that it desires to enter into negotiations for a renewed franchise upon such terms and conditions as may be agreed upon. Until such renewal has been settled, the terms and conditions of this Agreement shall continue, notwithstanding the expiration of this Agreement. This shall not preclude either party from applying to the Ontario Energy Board for a renewal of the Agreement pursuant to section 10 of the Municipal Franchises Act.

Part III - Conditions

5. Approval of Construction

- a. The Gas Company shall not undertake any excavation, opening or work which will disturb or interfere with the surface of the travelled portion of any highway unless a permit therefor has first been obtained from the Engineer/Road Superintendent and all work done by the Gas Company shall be to his satisfaction.
- b. Prior to the commencement of work on the gas system, or any extensions or changes to it (except service laterals which do not interfere with municipal works in the highway), the Gas Company shall file with the Engineer/Road Superintendent a Plan, satisfactory to the Engineer/Road Superintendent, drawn to scale and of sufficient detail considering the complexity of the specific locations involved, showing the highways in which it proposes to lay its gas system and the particular parts thereof it proposes to occupy.
- c. The Plan filed by the Gas Company shall include geodetic information for a particular location:
 - where circumstances are complex, in order to facilitate known projects, including projects which are reasonably anticipated by the Engineer/Road Superintendent, or
 - ii. when requested, where the Corporation has geodetic information for its own services and all others at the same location.
- d. The Engineer/Road Superintendent may require sections of the gas system to be laid at greater depth than required by the latest CSA standard for gas pipeline systems to facilitate known projects or to correct known highway deficiencies.
- e. Prior to the commencement of work on the gas system, the Engineer/Road Superintendent must approve the location of the work as shown on the Plan filed by the Gas Company, the timing of the work and any terms and conditions relating to the installation of the work.
- f. In addition to the requirements of this Agreement, if the Gas Company proposes to affix any part of the gas system to a bridge, viaduct or other structure, if the Engineer/Road Superintendent approves this proposal, he may require the Gas Company to comply with

special conditions or to enter into a separate agreement as a condition of the approval of this part of the construction of the gas system.

- g. Where the gas system may affect a municipal drain, the Gas Company shall also file a copy of the Plan with the Corporation's Drainage Superintendent for purposes of the *Drainage Act*, or such other person designated by the Corporation as responsible for the drain.
- h. The Gas Company shall not deviate from the approved location for any part of the gas system unless the prior approval of the Engineer/Road Superintendent to do so is received.
- i. The Engineer/Road Superintendent's approval, where required throughout this Paragraph, shall not be unreasonably withheld.
- j. The approval of the Engineer/Road Superintendent is not a representation or warranty as to the state of repair of the highway or the suitability of the highway for the gas system.

6. As Built Drawings.

The Gas Company shall, within six months of completing the installation of any part of the gas system, provide two copies of "as built" drawings to the Engineer/Road Superintendent. These drawings must be sufficient to accurately establish the location, depth (measurement between the top of the gas system and the ground surface at the time of installation) and distance of the gas system. The "as built" drawings shall be of the same quality as the Plan and, if the approved preconstruction plan included elevations that were geodetically referenced, the "as built" drawings shall similarly include elevations that are geodetically referenced. Upon the request of the Engineer/Road Superintendent, the Gas Company shall provide one copy of the drawings in an electronic format and one copy as a hard copy drawing.

7. Emergencies

In the event of an emergency involving the gas system, the Gas Company shall proceed with the work required to deal with the emergency, and in any instance where prior approval of the Engineer/Road Superintendent is normally required for the work, the Gas Company shall use its best efforts to immediately notify the Engineer/Road Superintendent of the location and nature of the emergency and the work being done and, if it deems appropriate, notify the police force, fire or other emergency services having jurisdiction. The Gas Company shall provide the Engineer/Road Superintendent with at least one 24 hour emergency contact for the Gas Company and shall ensure the contacts are current.

8. Restoration

The Gas Company shall well and sufficiently restore, to the reasonable satisfaction of the Engineer/Road Superintendent, all highways, municipal works or improvements which it may excavate or interfere with in the course of laying, constructing, repairing or removing its gas system, and shall make good any settling or subsidence thereafter caused by such excavation or interference. If the Gas Company fails at any time to do any work required by this Paragraph within a reasonable period of time, the Corporation may do or cause such work to be done and the Gas Company shall, on demand, pay the Corporation's reasonably incurred costs, as certified by the Engineer/Road Superintendent.

9. Indemnification

The Gas Company shall, at all times, indemnify and save harmless the Corporation from and against all claims, including costs related thereto, for all damages or injuries including death to any person or persons and for damage to any property, arising out of the Gas Company operating, constructing, and maintaining its gas system in the Municipality, or utilizing its gas system for the carriage of gas owned by others. Provided that the Gas Company shall not be required to indemnify or save harmless the Corporation from and against claims, including costs related thereto, which it may incur by reason of damages or injuries including death to any person or persons and for damage to any property, resulting from the negligence or wrongful act of the Corporation, its servants, agents or employees.

10. Insurance

- a. The Gas Company shall maintain Comprehensive General Liability Insurance in sufficient amount and description as shall protect the Gas Company and the Corporation from claims for which the Gas Company is obliged to indemnify the Corporation under Paragraph 9. The insurance policy shall identify the Corporation as an additional named insured, but only with respect to the operation of the named insured (the Gas Company). The insurance policy shall not lapse or be cancelled without sixty (60) days' prior written notice to the Corporation by the Gas Company.
- b. The issuance of an insurance policy as provided in this Paragraph shall not be construed as relieving the Gas Company of liability not covered by such insurance or in excess of the policy limits of such insurance.
- c. Upon request by the Corporation, the Gas Company shall confirm that premiums for such insurance have been paid and that such insurance is in full force and effect.

11. Alternative Easement

The Corporation agrees, in the event of the proposed sale or closing of any highway or any part of a highway where there is a gas line in existence, to give the Gas Company reasonable notice of such proposed sale or closing and, if is feasible, to provide the Gas Company with easements over that part of the highway proposed to be sold or closed sufficient to allow the Gas Company to preserve any part of the gas system in its then existing location. In the event that such easements cannot be provided, the Corporation and the Gas Company shall share the cost of relocating or altering the gas system to facilitate continuity of gas service, as provided for in Paragraph 12 of this Agreement.

12. Pipeline Relocation

a. If in the course of constructing, reconstructing, changing, altering or improving any highway or any municipal works, the Corporation deems that it is necessary to take up, remove or change the location of any part of the gas system, the Gas Company shall, upon notice to do so, remove and/or relocate within a reasonable period of time such part of the gas system to a location approved by the Engineer/Road Superintendent.

- b. Where any part of the gas system relocated in accordance with this Paragraph is located on a bridge, viaduct or structure, the Gas Company shall alter or relocate that part of the gas system at its sole expense.
- c. Where any part of the gas system relocated in accordance with this Paragraph is located other than on a bridge, viaduct or structure, the costs of relocation shall be shared between the Corporation and the Gas Company on the basis of the total relocation costs, excluding the value of any upgrading of the gas system, and deducting any contribution paid to the Gas Company by others in respect to such relocation; and for these purposes, the total relocation costs shall be the aggregate of the following:
 - the amount paid to Gas Company employees up to and including field supervisors for the hours worked on the project plus the current cost of fringe benefits for these employees,
 - ii. the amount paid for rental equipment while in use on the project and an amount, charged at the unit rate, for Gas Company equipment while in use on the project,
 - iii. the amount paid by the Gas Company to contractors for work related to the project,
 - iv. the cost to the Gas Company for materials used in connection with the project, and
 - v. a reasonable amount for project engineering and project administrative costs which shall be 22.5% of the aggregate of the amounts determined in items (i), (ii), (iii) and (iv) above.
- d. The total relocation costs as calculated above shall be paid 35% by the Corporation and 65% by the Gas Company, except where the part of the gas system required to be moved is located in an unassumed road or in an unopened road allowance and the Corporation has not approved its location, in which case the Gas Company shall pay 100% of the relocation costs.

Part IV - Procedural and Other Matters

13. Municipal By-laws of General Application

The Agreement is subject to the provisions of all regulating statutes and all municipal by-laws of general application, except by-laws which have the effect of amending this Agreement.

14. Giving Notice

Notices may be delivered to, sent by facsimile or mailed by prepaid registered post to the Gas Company at its head office or to the authorized officers of the Corporation at its municipal offices, as the case may be.

15. Disposition of Gas System

a. If the Gas Company decommissions part of its gas system affixed to a bridge, viaduct or structure, the Gas Company shall, at its sole expense, remove the part of its gas system affixed to the bridge, viaduct or structure. b. If the Gas Company decommissions any other part of its gas system, it shall have the right, but is not required, to remove that part of its gas system. It may exercise its right to remove the decommissioned parts of its gas system by giving notice of its intention to do so by filing a Plan as required by Paragraph 5 of this Agreement for approval by the Engineer/Road Superintendent. If the Gas Company does not remove the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in any highway, the Corporation may remove and dispose of so much of the decommissioned gas system as the Corporation may require for such purposes and neither party shall have recourse against the other for any loss, cost, expense or damage occasioned thereby. If the Gas Company has not removed the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in a highway, the Gas Company may elect to relocate the decommissioned gas system and in that event Paragraph 12 applies to the cost of relocation.

16. Use of Decommissioned Gas System

- a. The Gas Company shall provide promptly to the Corporation, to the extent such information is known:
 - i. the names and addresses of all third parties who use decommissioned parts of the gas system for purposes other than the transmission or distribution of gas; and
 - ii. the location of all proposed and existing decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas.
- b. The Gas Company may allow a third party to use a decommissioned part of the gas system for purposes other than the transmission or distribution of gas and may charge a fee for that third party use, provided
 - i. the third party has entered into a municipal access agreement with the Corporation; and
 - ii. the Gas Company does not charge a fee for the third party's right of access to the highways.
- c. Decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas are not subject to the provisions of this Agreement. For decommissioned parts of the gas system used for purposes other than the transmission and distribution of gas, issues such as relocation costs will be governed by the relevant municipal access agreement.

17. Franchise Handbook

The Parties acknowledge that operating decisions sometimes require a greater level of detail than that which is appropriately included in this Agreement. The Parties agree to look for guidance on

such matters to the Franchise Handbook prepared by the Association of Municipalities of Ontario and the gas utility companies, as may be amended from time to time.

18. Agreement Binding Parties

This Agreement shall extend to, benefit and bind the parties thereto, their successors and assigns, respectively.

IN WITNESS WHEREOF the parties have executed this Agreement effective from the date written above.

THE CORPORATION OF THE MUNICIPALITY OF KINCARDINE

Duly Authorized Officer

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner, EPCOR ONTARIO UTILITIES INC.

Duly Authorized Officer

By:

THE CORPORATION OF THE MUNICIPALITY WEST GREY BY - LAW NUMBER 90 - 2018

BEING, A by-law to enter into a Model Franchise Agreement between the Municipality of West Grey and EPCOR Natural Gas Limited Partnership, by its general partner EPCOR Ontario Utilities Inc.;

WHEREAS, the Council of the Municipality of West Grey deems it expedient and in the public interest to enter into the aforementioned Agreement;

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE MUNICIPALITY OF WEST GREY ENACTS AS FOLLOW:

- 1. That the Model Franchise Agreement between the Municipality of West Grey and EPCOR Natural Gas Limited Partnership, by its general partner EPCOR Ontario Utilities Inc., attached hereto as Schedule "A", and forming part of this bylaw, is hereby approved.
- 2. That the Mayor and CAO/Deputy Clerk are hereby authorized to sign and seal the said Agreement.
- 3. That this by-law shall come into full force and effect on the date of passing.

READ a first and second time this 8th day of August, 2018.

READ a third time and finally passed this 8th day of August, 2018.

Kevin Eccles, Mayor

Mark Turner, Clerk

Model Franchise Agreement

THIS AGREEMENT effective this 8th day of August, 2018.

BETWEEN:

THE CORPORATION OF THE MUNICIPALITY OF WEST GREY hereinafter called the "Corporation"

- and -

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner EPCOR ONTARIO UTILITIES INC. hereinafter called the "Gas Company"

WHEREAS the Gas Company desires to distribute, store and transmit gas in the Municipality upon the terms and conditions of this Agreement;

AND WHEREAS by by-law passed by the Council of the Corporation (the "By-law"), the duly authorized officers have been authorized and directed to execute this Agreement on behalf of the Corporation;

THEREFORE the Corporation and the Gas Company agree as follows:

Part I - Definitions

- 1. In this Agreement:
 - a. "decommissioned" and "decommissions" when used in connection with parts of the gas system, mean any parts of the gas system taken out of active use and purged in accordance with the applicable CSA standards and in no way affects the use of the term 'abandoned' pipeline for the purposes of the Assessment Act;
 - b. "Engineer/Road Superintendent" means the most senior individual employed by the Corporation with responsibilities for highways within the Municipality or the person designated by such senior employee or such other person as may from time to time be designated by the Council of the Corporation;

- c. "gas" means natural gas, manufactured gas, synthetic natural gas, liquefied petroleum gas or propane-air gas, or a mixture of any of them, but does not include a liquefied petroleum gas that is distributed by means other than a pipeline;
- d. "gas system" means such mains, plants, pipes, conduits, services, valves, regulators, curb boxes, stations, drips or such other equipment as the Gas Company may require or deem desirable for the distribution, storage and transmission of gas in or through the Municipality;
- e. "highway" means all common and public highways and shall include any bridge, viaduct or structure forming part of a highway, and any public square, road allowance or walkway and shall include not only the travelled portion of such highway, but also ditches, driveways, sidewalks, and sodded areas forming part of the road allowance now or at any time during the term hereof under the jurisdiction of the Corporation:
- f. "Model Franchise Agreement" means the form of agreement which the Ontario Energy Board uses as a standard when considering applications under the *Municipal Franchises Act*. The Model Franchise Agreement may be changed from time to time by the Ontario Energy Board;
- g. "Municipality" means the territorial limits of the Corporation on the date when this Agreement takes effect, and any territory which may thereafter be brought within the jurisdiction of the Corporation;
- h. "Plan" means the plan described in Paragraph 5 of this Agreement required to be filed by the Gas Company with the Engineer/Road Superintendent prior to commencement of work on the gas system; and
- whenever the singular, masculine or feminine is used in this Agreement, it shall be considered as if the plural, feminine or masculine has been used where the context of the Agreement so requires.

Part II - Rights Granted

To provide gas service:

The consent of the Corporation is hereby given and granted to the Gas Company to distribute, store and transmit gas in and through the Municipality to the Corporation and to the inhabitants of the Municipality.

3. To Use Highways

Subject to the terms and conditions of this Agreement the consent of the Corporation is hereby given and granted to the Gas Company to enter upon all highways now or at any time hereafter under the jurisdiction of the Corporation and to lay, construct, maintain, replace, remove, operate and repair a gas system for the distribution, storage and transmission of gas in and through the Municipality.

4. Duration of Agreement and Renewal Procedures.

- a. If the Corporation has not previously received gas distribution services, the rights hereby given and granted shall be for a term of 20 years from the date of final passing of the Bylaw.
- b. At any time within two years prior to the expiration of this Agreement, either party may give notice to the other that it desires to enter into negotiations for a renewed franchise upon such terms and conditions as may be agreed upon. Until such renewal has been settled, the terms and conditions of this Agreement shall continue, notwithstanding the expiration of this Agreement. This shall not preclude either party from applying to the Ontario Energy Board for a renewal of the Agreement pursuant to section 10 of the *Municipal Franchises Act*.

Part III - Conditions

5. Approval of Construction

- a. The Gas Company shall not undertake any excavation, opening or work which will disturb or interfere with the surface of the travelled portion of any highway unless a permit therefor has first been obtained from the Engineer/Road Superintendent and all work done by the Gas Company shall be to his satisfaction.
- b. Prior to the commencement of work on the gas system, or any extensions or changes to it (except service laterals which do not interfere with municipal works in the highway), the Gas Company shall file with the Engineer/Road Superintendent a Plan, satisfactory to the Engineer/Road Superintendent, drawn to scale and of sufficient detail considering the complexity of the specific locations involved, showing the highways in which it proposes to lay its gas system and the particular parts thereof it proposes to occupy.
- c. The Plan filed by the Gas Company shall include geodetic information for a particular location:
 - where circumstances are complex, in order to facilitate known projects, including projects which are reasonably anticipated by the Engineer/Road Superintendent, or
 - ii. when requested, where the Corporation has geodetic information for its own services and all others at the same location.
- d. The Engineer/Road Superintendent may require sections of the gas system to be laid at greater depth than required by the latest CSA standard for gas pipeline systems to facilitate known projects or to correct known highway deficiencies.
- e. Prior to the commencement of work on the gas system, the Engineer/Road Superintendent must approve the location of the work as shown on the Plan filed by the Gas Company, the timing of the work and any terms and conditions relating to the installation of the work.
- f. In addition to the requirements of this Agreement, if the Gas Company proposes to affix any part of the gas system to a bridge, viaduct or other structure, if the Engineer/Road Superintendent approves this proposal, he may require the Gas Company to comply with

special conditions or to enter into a separate agreement as a condition of the approval of this part of the construction of the gas system.

- g. Where the gas system may affect a municipal drain, the Gas Company shall also file a copy of the Plan with the Corporation's Drainage Superintendent for purposes of the *Drainage Act*, or such other person designated by the Corporation as responsible for the drain.
- h. The Gas Company shall not deviate from the approved location for any part of the gas system unless the prior approval of the Engineer/Road Superintendent to do so is received.
- i. The Engineer/Road Superintendent's approval, where required throughout this Paragraph, shall not be unreasonably withheld.
- j. The approval of the Engineer/Road Superintendent is not a representation or warranty as to the state of repair of the highway or the suitability of the highway for the gas system.

6. As Built Drawings.

The Gas Company shall, within six months of completing the installation of any part of the gas system, provide two copies of "as built" drawings to the Engineer/Road Superintendent. These drawings must be sufficient to accurately establish the location, depth (measurement between the top of the gas system and the ground surface at the time of installation) and distance of the gas system. The "as built" drawings shall be of the same quality as the Plan and, if the approved preconstruction plan included elevations that were geodetically referenced, the "as built" drawings shall similarly include elevations that are geodetically referenced. Upon the request of the Engineer/Road Superintendent, the Gas Company shall provide one copy of the drawings in an electronic format and one copy as a hard copy drawing.

7. Emergencies

In the event of an emergency involving the gas system, the Gas Company shall proceed with the work required to deal with the emergency, and in any instance where prior approval of the Engineer/Road Superintendent is normally required for the work, the Gas Company shall use its best efforts to immediately notify the Engineer/Road Superintendent of the location and nature of the emergency and the work being done and, if it deems appropriate, notify the police force, fire or other emergency services having jurisdiction. The Gas Company shall provide the Engineer/Road Superintendent with at least one 24 hour emergency contact for the Gas Company and shall ensure the contacts are current.

8. Restoration

The Gas Company shall well and sufficiently restore, to the reasonable satisfaction of the Engineer/Road Superintendent, all highways, municipal works or improvements which it may excavate or interfere with in the course of laying, constructing, repairing or removing its gas system, and shall make good any settling or subsidence thereafter caused by such excavation or interference. If the Gas Company fails at any time to do any work required by this Paragraph within a reasonable period of time, the Corporation may do or cause such work to be done and the Gas Company shall, on demand, pay the Corporation's reasonably incurred costs, as certified by the Engineer/Road Superintendent.

9. Indemnification

The Gas Company shall, at all times, indemnify and save harmless the Corporation from and against all claims, including costs related thereto, for all damages or injuries including death to any person or persons and for damage to any property, arising out of the Gas Company operating, constructing, and maintaining its gas system in the Municipality, or utilizing its gas system for the carriage of gas owned by others. Provided that the Gas Company shall not be required to indemnify or save harmless the Corporation from and against claims, including costs related thereto, which it may incur by reason of damages or injuries including death to any person or persons and for damage to any property, resulting from the negligence or wrongful act of the Corporation, its servants, agents or employees.

10. Insurance

- a. The Gas Company shall maintain Comprehensive General Liability Insurance in sufficient amount and description as shall protect the Gas Company and the Corporation from claims for which the Gas Company is obliged to indemnify the Corporation under Paragraph 9. The insurance policy shall identify the Corporation as an additional named insured, but only with respect to the operation of the named insured (the Gas Company). The insurance policy shall not lapse or be cancelled without sixty (60) days' prior written notice to the Corporation by the Gas Company.
- b. The issuance of an insurance policy as provided in this Paragraph shall not be construed as relieving the Gas Company of liability not covered by such insurance or in excess of the policy limits of such insurance.
- c. Upon request by the Corporation, the Gas Company shall confirm that premiums for such insurance have been paid and that such insurance is in full force and effect.

11. Alternative Easement

The Corporation agrees, in the event of the proposed sale or closing of any highway or any part of a highway where there is a gas line in existence, to give the Gas Company reasonable notice of such proposed sale or closing and, if is feasible, to provide the Gas Company with easements over that part of the highway proposed to be sold or closed sufficient to allow the Gas Company to preserve any part of the gas system in its then existing location. In the event that such easements cannot be provided, the Corporation and the Gas Company shall share the cost of relocating or altering the gas system to facilitate continuity of gas service, as provided for in Paragraph 12 of this Agreement.

12. Pipeline Relocation

a. If in the course of constructing, reconstructing, changing, altering or improving any highway or any municipal works, the Corporation deems that it is necessary to take up, remove or change the location of any part of the gas system, the Gas Company shall, upon notice to do so, remove and/or relocate within a reasonable period of time such part of the gas system to a location approved by the Engineer/Road Superintendent.

- b. Where any part of the gas system relocated in accordance with this Paragraph is located on a bridge, viaduct or structure, the Gas Company shall alter or relocate that part of the gas system at its sole expense.
- c. Where any part of the gas system relocated in accordance with this Paragraph is located other than on a bridge, viaduct or structure, the costs of relocation shall be shared between the Corporation and the Gas Company on the basis of the total relocation costs, excluding the value of any upgrading of the gas system, and deducting any contribution paid to the Gas Company by others in respect to such relocation; and for these purposes, the total relocation costs shall be the aggregate of the following:
 - the amount paid to Gas Company employees up to and including field supervisors for the hours worked on the project plus the current cost of fringe benefits for these employees,
 - ii. the amount paid for rental equipment while in use on the project and an amount, charged at the unit rate, for Gas Company equipment while in use on the project,
 - iii. the amount paid by the Gas Company to contractors for work related to the project,
 - iv. the cost to the Gas Company for materials used in connection with the project, and
 - v. a reasonable amount for project engineering and project administrative costs which shall be 22.5% of the aggregate of the amounts determined in items (i), (ii), (iii) and (iv) above.
- d. The total relocation costs as calculated above shall be paid 35% by the Corporation and 65% by the Gas Company, except where the part of the gas system required to be moved is located in an unassumed road or in an unopened road allowance and the Corporation has not approved its location, in which case the Gas Company shall pay 100% of the relocation costs.

Part IV - Procedural and Other Matters

13. Municipal By-laws of General Application

The Agreement is subject to the provisions of all regulating statutes and all municipal by-laws of general application, except by-laws which have the effect of amending this Agreement.

14. Giving Notice

Notices may be delivered to, sent by facsimile or mailed by prepaid registered post to the Gas Company at its head office or to the authorized officers of the Corporation at its municipal offices, as the case may be.

15. Disposition of Gas System

a. If the Gas Company decommissions part of its gas system affixed to a bridge, viaduct or structure, the Gas Company shall, at its sole expense, remove the part of its gas system affixed to the bridge, viaduct or structure. b. If the Gas Company decommissions any other part of its gas system, it shall have the right, but is not required, to remove that part of its gas system. It may exercise its right to remove the decommissioned parts of its gas system by giving notice of its intention to do so by filing a Plan as required by Paragraph 5 of this Agreement for approval by the Engineer/Road Superintendent. If the Gas Company does not remove the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in any highway, the Corporation may remove and dispose of so much of the decommissioned gas system as the Corporation may require for such purposes and neither party shall have recourse against the other for any loss, cost, expense or damage occasioned thereby. If the Gas Company has not removed the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in a highway, the Gas Company may elect to relocate the decommissioned gas system and in that event Paragraph 12 applies to the cost of relocation.

16. Use of Decommissioned Gas System

- a. The Gas Company shall provide promptly to the Corporation, to the extent such information is known:
 - i. the names and addresses of all third parties who use decommissioned parts of the gas system for purposes other than the transmission or distribution of gas; and
 - ii. the location of all proposed and existing decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas.
- b. The Gas Company may allow a third party to use a decommissioned part of the gas system for purposes other than the transmission or distribution of gas and may charge a fee for that third party use, provided
 - i. the third party has entered into a municipal access agreement with the Corporation; and
 - ii. the Gas Company does not charge a fee for the third party's right of access to the highways.
- c. Decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas are not subject to the provisions of this Agreement. For decommissioned parts of the gas system used for purposes other than the transmission and distribution of gas, issues such as relocation costs will be governed by the relevant municipal access agreement.

17. Franchise Handbook

The Parties acknowledge that operating decisions sometimes require a greater level of detail than that which is appropriately included in this Agreement. The Parties agree to look for guidance on

such matters to the Franchise Handbook prepared by the Association of Municipalities of Ontario and the gas utility companies, as may be amended from time to time.

18. Agreement Binding Parties

This Agreement shall extend to, benefit and bind the parties thereto, their successors and assigns, respectively.

IN WITNESS WHEREOF the parties have executed this Agreement effective from the date written above.

THE CORPORATION OF THE MUNICIPALITY OF WEST GREY

By: hen Cic

Laura Johnston CAO/Denuty Clerk

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner, EPCOR ONTARIO UTILITIES INC.

By:

Duly Authorized Officer



Clerk's Department

595 9th Avenue East, Owen Sound Ontario N4K 3E3 519-372-0219 x 1227 / 1-800-567-GREY / Fax: 519-376-8998

October 12, 2018

EPCOR Ontario Utilities Inc. c/o Thomas Stachowski 735 Queen Street Kincardine, ON N2Z 1Z9

Email: tstachowski@epcor.com

Dear Mr. Stachowski:

RE: Franchise Agreement

On October 11, 2018, Grey County Council endorsed Resolution CW224-18 from the September 27, 2018 Committee of the Whole meeting, which states:

That Addendum to Report TR-CW-43-18 regarding the EPCOR Model Franchise Agreement be received; and

That Council approves the draft By-Law (including the Franchise Agreement forming part thereof) attached hereto and authorizes the submission thereof to the Ontario Energy Board for approval pursuant to the provisions of Section 9 of the *Municipal Franchises Act*; and

That Council requests the Ontario Energy Board to make an order dispensing with the assent of the municipal electors of the draft By-Law (including the franchise agreement forming part thereof) pursuant to the provisions of Section 9(4) of the *Municipal Franchises Act*.

Please feel free to forward this letter in support of your endeavours.

Yours very truly,

Jacquelyn Morrison

Deputy Clerk/Legislative Coordinator

(519) 372-0219 x 1294

jacquelyn.morrison@grey.ca

www.grey.ca

Grey County: Colour It Your Way

Corporation of the County of Grey By-Law 50XX-18

A By-law to Authorize the Warden and Clerk to Execute a Franchise Agreement Between the Corporation of the County of Grey and EPCOR Natural Gas Limited Partnership, by its general partner EPCOR Ontario Utilities Inc.

WHEREAS the Council of the County of Grey adopted the recommendations of the Committee of the Whole minutes dated August 9, 2018 approving the entering into a franchise agreement (the "Franchise Agreement") with EPCOR Natural Gas Limited Partnership, by its general partner EPCOR Ontario Utilities Inc. to distribute, store, and transmit gas;

AND WHEREAS approval by the Ontario Energy Board for the Franchise Agreement was received;

AND WHEREAS Section 8 of the *Municipal Act* 2001, as amended provides that a municipality has the authority to govern its affairs as it considers appropriate and enables the municipality to respond to municipal issues;

NOW THEREFORE BE IT RESOLVED THAT THE COUNCIL OF THE CORPORATION OF THE COUNTY OF GREY HEREBY ENACTS AS FOLLOWS:

- 1. The Franchise Agreement between the Corporation of the County of Grey and EPCOR Natural Gas Limited Partnership, by its general partner EPCOR Ontario Utilities Inc. is hereby authorized and the franchise provided for therein is hereby granted;
- 2. The Warden and Clerk are hereby authorized and directed to execute, and the Clerk to affix the Corporate seal thereto, the Franchise Agreement with EPCOR Natural Gas Limited Partnership, by its general partner EPCOR Ontario Utilities Inc. to distribute, store, and transmit gas;
- 3. The Franchise Agreement referred to in Clause 1 forms and becomes part of this By-law;
- 4. This By-law shall come into force and effect upon the final passing thereof.

ENACTED AND PASSED this	day of	, 2018.	
WARDEN: Stewart Halliday		CLERK: Heather Morrison	

TR-CW-43-18 August 9, 2018

Model Franchise Agreement

THIS AGREEMENT effective this	day of	, 2018.
BETWEEN:		

THE CORPORATION OF THE COUNTY OF GREY hereinafter called the "Corporation"

- and -

EPCOR NATURAL GAS LIMITED PARTNERSHIP, by its general partner EPCOR ONTARIO UTILITIES INC. hereinafter called the "Gas Company"

WHEREAS the Gas Company desires to distribute, store and transmit gas in the Municipality upon the terms and conditions of this Agreement;

AND WHEREAS by by-law passed by the Council of the Corporation (the "By-law"), the duly authorized officers have been authorized and directed to execute this Agreement on behalf of the Corporation;

THEREFORE the Corporation and the Gas Company agree as follows:

Part I - Definitions

- 1. In this Agreement:
 - a. "decommissioned" and "decommissions" when used in connection with parts of the gas system, mean any parts of the gas system taken out of active use and purged in accordance with the applicable CSA standards and in no way affects the use of the term 'abandoned' pipeline for the purposes of the Assessment Act;
 - b. "Engineer/Road Superintendent" means the most senior individual employed by the Corporation with responsibilities for highways within the Municipality or the person designated by such senior employee or such other person as may from time to time be designated by the Council of the Corporation;
 - c. "gas" means natural gas, manufactured gas, synthetic natural gas, liquefied petroleum gas or propane-air gas, or a mixture of any of them, but does not include a liquefied petroleum gas that is distributed by means other than a pipeline;
 - d. "gas system" means such mains, plants, pipes, conduits, services, valves, regulators, curb boxes, stations, drips or such other equipment as the Gas Company may require or deem desirable for the distribution, storage and transmission of gas in or through the Municipality;
 - e. "highway" means all common and public highways and shall include any bridge, viaduct or structure forming part of a highway, and any public square, road allowance or walkway and shall include not only the travelled portion of such highway, but also ditches, driveways, sidewalks, and sodded areas forming part of the road allowance now or at any time during the term hereof under the jurisdiction of the Corporation;
 - f. "Model Franchise Agreement" means the form of agreement which the Ontario Energy Board uses as a standard when considering applications under the Municipal Franchises Act. The Model Franchise Agreement may be changed from time to time by the Ontario Energy Board;
 - g. "Municipality" means the territorial limits of the Corporation on the date when this Agreement takes effect, and any territory which may thereafter be brought within the jurisdiction of the Corporation;
 - "Plan" means the plan described in Paragraph 5 of this Agreement required to be filed by the Gas Company with the Engineer/Road Superintendent prior to commencement of work on the gas system; and

TR-CW-43-18 August 9, 2018

 whenever the singular, masculine or feminine is used in this Agreement, it shall be considered as if the plural, feminine or masculine has been used where the context of the Agreement so requires.

Part II - Rights Granted

2. To provide gas service:

The consent of the Corporation is hereby given and granted to the Gas Company to distribute, store and transmit gas in and through the Corporation and to the inhabitants of those local or lower tier municipalities within the Municipality from which the Gas Company has a valid franchise agreement for that purpose.

3. To Use Highways

Subject to the terms and conditions of this Agreement the consent of the Corporation is hereby given and granted to the Gas Company to enter upon all highways now or at any time hereafter under the jurisdiction of the Corporation and to lay, construct, maintain, replace, remove, operate and repair a gas system for the distribution, storage and transmission of gas in and through the Municipality.

- 4. Duration of Agreement and Renewal Procedures.
 - a. If the Corporation has not previously received gas distribution services, the rights hereby given and granted shall be for a term of 20 years from the date of final passing of the Bylaw.
 - b. At any time within two years prior to the expiration of this Agreement, either party may give notice to the other that it desires to enter into negotiations for a renewed franchise upon such terms and conditions as may be agreed upon. Until such renewal has been settled, the terms and conditions of this Agreement shall continue, notwithstanding the expiration of this Agreement. This shall not preclude either party from applying to the Ontario Energy Board for a renewal of the Agreement pursuant to section 10 of the Municipal Franchises Act.

Part III - Conditions

5. Approval of Construction

- a. The Gas Company shall not undertake any excavation, opening or work which will disturb or interfere with the surface of the travelled portion of any highway unless a permit therefor has first been obtained from the Engineer/Road Superintendent and all work done by the Gas Company shall be to his satisfaction.
- b. Prior to the commencement of work on the gas system, or any extensions or changes to it (except service laterals which do not interfere with municipal works in the highway), the Gas Company shall file with the Engineer/Road Superintendent a Plan, satisfactory to the Engineer/Road Superintendent, drawn to scale and of sufficient detail considering the complexity of the specific locations involved, showing the highways in which it proposes to lay its gas system and the particular parts thereof it proposes to occupy.
- c. The Plan filed by the Gas Company shall include geodetic information for a particular location:
 - where circumstances are complex, in order to facilitate known projects, including projects which are reasonably anticipated by the Engineer/Road Superintendent, or
 - when requested, where the Corporation has geodetic information for its own services and all others at the same location.
- d. The Engineer/Road Superintendent may require sections of the gas system to be laid at greater depth than required by the latest CSA standard for gas pipeline systems to facilitate known projects or to correct known highway deficiencies.

- e. Prior to the commencement of work on the gas system, the Engineer/Road Superintendent must approve the location of the work as shown on the Plan filed by the Gas Company, the timing of the work and any terms and conditions relating to the installation of the work.
- f. In addition to the requirements of this Agreement, if the Gas Company proposes to affix any part of the gas system to a bridge, viaduct or other structure, if the Engineer/Road Superintendent approves this proposal, he may require the Gas Company to comply with special conditions or to enter into a separate agreement as a condition of the approval of this part of the construction of the gas system.
- g. Where the gas system may affect a municipal drain, the Gas Company shall also file a copy of the Plan with the Corporation's Drainage Superintendent for purposes of the Drainage Act, or such other person designated by the Corporation as responsible for the drain
- h. The Gas Company shall not deviate from the approved location for any part of the gas system unless the prior approval of the Engineer/Road Superintendent to do so is received.
- The Engineer/Road Superintendent's approval, where required throughout this Paragraph, shall not be unreasonably withheld.
- j. The approval of the Engineer/Road Superintendent is not a representation or warranty as to the state of repair of the highway or the suitability of the highway for the gas system.

6. As Built Drawings.

The Gas Company shall, within six months of completing the installation of any part of the gas system, provide two copies of "as built" drawings to the Engineer/Road Superintendent. These drawings must be sufficient to accurately establish the location, depth (measurement between the top of the gas system and the ground surface at the time of installation) and distance of the gas system. The "as built" drawings shall be of the same quality as the Plan and, if the approved preconstruction plan included elevations that were geodetically referenced, the "as built" drawings shall similarly include elevations that are geodetically referenced. Upon the request of the Engineer/Road Superintendent, the Gas Company shall provide one copy of the drawings in an electronic format and one copy as a hard copy drawing.

7. Emergencies

In the event of an emergency involving the gas system, the Gas Company shall proceed with the work required to deal with the emergency, and in any instance where prior approval of the Engineer/Road Superintendent is normally required for the work, the Gas Company shall use its best efforts to immediately notify the Engineer/Road Superintendent of the location and nature of the emergency and the work being done and, if it deems appropriate, notify the police force, fire or other emergency services having jurisdiction. The Gas Company shall provide the Engineer/Road Superintendent with at least one 24 hour emergency contact for the Gas Company and shall ensure the contacts are current.

8. Restoration

The Gas Company shall well and sufficiently restore, to the reasonable satisfaction of the Engineer/Road Superintendent, all highways, municipal works or improvements which it may excavate or interfere with in the course of laying, constructing, repairing or removing its gas system, and shall make good any settling or subsidence thereafter caused by such excavation or interference. If the Gas Company fails at any time to do any work required by this Paragraph within a reasonable period of time, the Corporation may do or cause such work to be done and the Gas Company shall, on demand, pay the Corporation's reasonably incurred costs, as certified by the Engineer/Road Superintendent.

9. Indemnification

The Gas Company shall, at all times, indemnify and save harmless the Corporation from and against all claims, including costs related thereto, for all damages or injuries including death to any person or persons and for damage to any property, arising out of the Gas Company operating, constructing, and maintaining its gas system in the Municipality, or utilizing its gas system for the carriage of gas owned by others. Provided that the Gas Company shall not be required to indemnify or save harmless the Corporation from and against claims, including costs related thereto, which it

may incur by reason of damages or injuries including death to any person or persons and for damage to any property, resulting from the negligence or wrongful act of the Corporation, its servants, agents or employees.

10. Insurance

- a. The Gas Company shall maintain Comprehensive General Liability Insurance in sufficient amount and description as shall protect the Gas Company and the Corporation from claims for which the Gas Company is obliged to indemnify the Corporation under Paragraph 9. The insurance policy shall identify the Corporation as an additional named insured, but only with respect to the operation of the named insured (the Gas Company). The insurance policy shall not lapse or be cancelled without sixty (60) days' prior written notice to the Corporation by the Gas Company.
- b. The issuance of an insurance policy as provided in this Paragraph shall not be construed as relieving the Gas Company of liability not covered by such insurance or in excess of the policy limits of such insurance.
- Upon request by the Corporation, the Gas Company shall confirm that premiums for such insurance have been paid and that such insurance is in full force and effect.

11. Alternative Easement

The Corporation agrees, in the event of the proposed sale or closing of any highway or any part of a highway where there is a gas line in existence, to give the Gas Company reasonable notice of such proposed sale or closing and, if is feasible, to provide the Gas Company with easements over that part of the highway proposed to be sold or closed sufficient to allow the Gas Company to preserve any part of the gas system in its then existing location. In the event that such easements cannot be provided, the Corporation and the Gas Company shall share the cost of relocating or altering the gas system to facilitate continuity of gas service, as provided for in Paragraph 12 of this Agreement.

12. Pipeline Relocation

- a. If in the course of constructing, reconstructing, changing, altering or improving any highway or any municipal works, the Corporation deems that it is necessary to take up, remove or change the location of any part of the gas system, the Gas Company shall, upon notice to do so, remove and/or relocate within a reasonable period of time such part of the gas system to a location approved by the Engineer/Road Superintendent.
- b. Where any part of the gas system relocated in accordance with this Paragraph is located on a bridge, viaduct or structure, the Gas Company shall alter or relocate that part of the gas system at its sole expense.
- c. Where any part of the gas system relocated in accordance with this Paragraph is located other than on a bridge, viaduct or structure, the costs of relocation shall be shared between the Corporation and the Gas Company on the basis of the total relocation costs, excluding the value of any upgrading of the gas system, and deducting any contribution paid to the Gas Company by others in respect to such relocation; and for these purposes, the total relocation costs shall be the aggregate of the following:
 - the amount paid to Gas Company employees up to and including field supervisors for the hours worked on the project plus the current cost of fringe benefits for these employees,
 - the amount paid for rental equipment while in use on the project and an amount, charged at the unit rate, for Gas Company equipment while in use on the project,
 - iii. the amount paid by the Gas Company to contractors for work related to the project,
 - iv. the cost to the Gas Company for materials used in connection with the project, and
 - a reasonable amount for project engineering and project administrative costs which shall be 22.5% of the aggregate of the amounts determined in items (i), (ii), (iii) and (iv) above.
- d. The total relocation costs as calculated above shall be paid 35% by the Corporation and 65% by the Gas Company, except where the part of the gas system required to be moved is

located in an unassumed road or in an unopened road allowance and the Corporation has not approved its location, in which case the Gas Company shall pay 100% of the relocation costs.

Part IV - Procedural and Other Matters

13. Municipal By-laws of General Application

The Agreement is subject to the provisions of all regulating statutes and all municipal by-laws of general application, except by-laws which have the effect of amending this Agreement.

14. Giving Notice

Notices may be delivered to, sent by facsimile or mailed by prepaid registered post to the Gas Company at its head office or to the authorized officers of the Corporation at its municipal offices, as the case may be.

15. Disposition of Gas System

- a. If the Gas Company decommissions part of its gas system affixed to a bridge, viaduct or structure, the Gas Company shall, at its sole expense, remove the part of its gas system affixed to the bridge, viaduct or structure.
- If the Gas Company decommissions any other part of its gas system, it shall have the right, but is not required, to remove that part of its gas system. It may exercise its right to remove the decommissioned parts of its gas system by giving notice of its intention to do so by filing a Plan as required by Paragraph 5 of this Agreement for approval by the Engineer/Road Superintendent. If the Gas Company does not remove the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in any highway, the Corporation may remove and dispose of so much of the decommissioned gas system as the Corporation may require for such purposes and neither party shall have recourse against the other for any loss, cost, expense or damage occasioned thereby. If the Gas Company has not removed the part of the gas system it has decommissioned and the Corporation requires the removal of all or any part of the decommissioned gas system for the purpose of altering or improving a highway or in order to facilitate the construction of utility or other works in a highway, the Gas Company may elect to relocate the decommissioned gas system and in that event Paragraph 12 applies to the cost of relocation.

16. Use of Decommissioned Gas System

- The Gas Company shall provide promptly to the Corporation, to the extent such information is known;
 - the names and addresses of all third parties who use decommissioned parts of the gas system for purposes other than the transmission or distribution of gas; and
 - the location of all proposed and existing decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas.
- b. The Gas Company may allow a third party to use a decommissioned part of the gas system for purposes other than the transmission or distribution of gas and may charge a fee for that third party use, provided
 - the third party has entered into a municipal access agreement with the Corporation; and
 - the Gas Company does not charge a fee for the third party's right of access to the highways.
- c. Decommissioned parts of the gas system used for purposes other than the transmission or distribution of gas are not subject to the provisions of this Agreement. For decommissioned parts of the gas system used for purposes other than the transmission and distribution of gas, issues such as relocation costs will be governed by the relevant municipal access agreement.

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17. Franchise Handbook

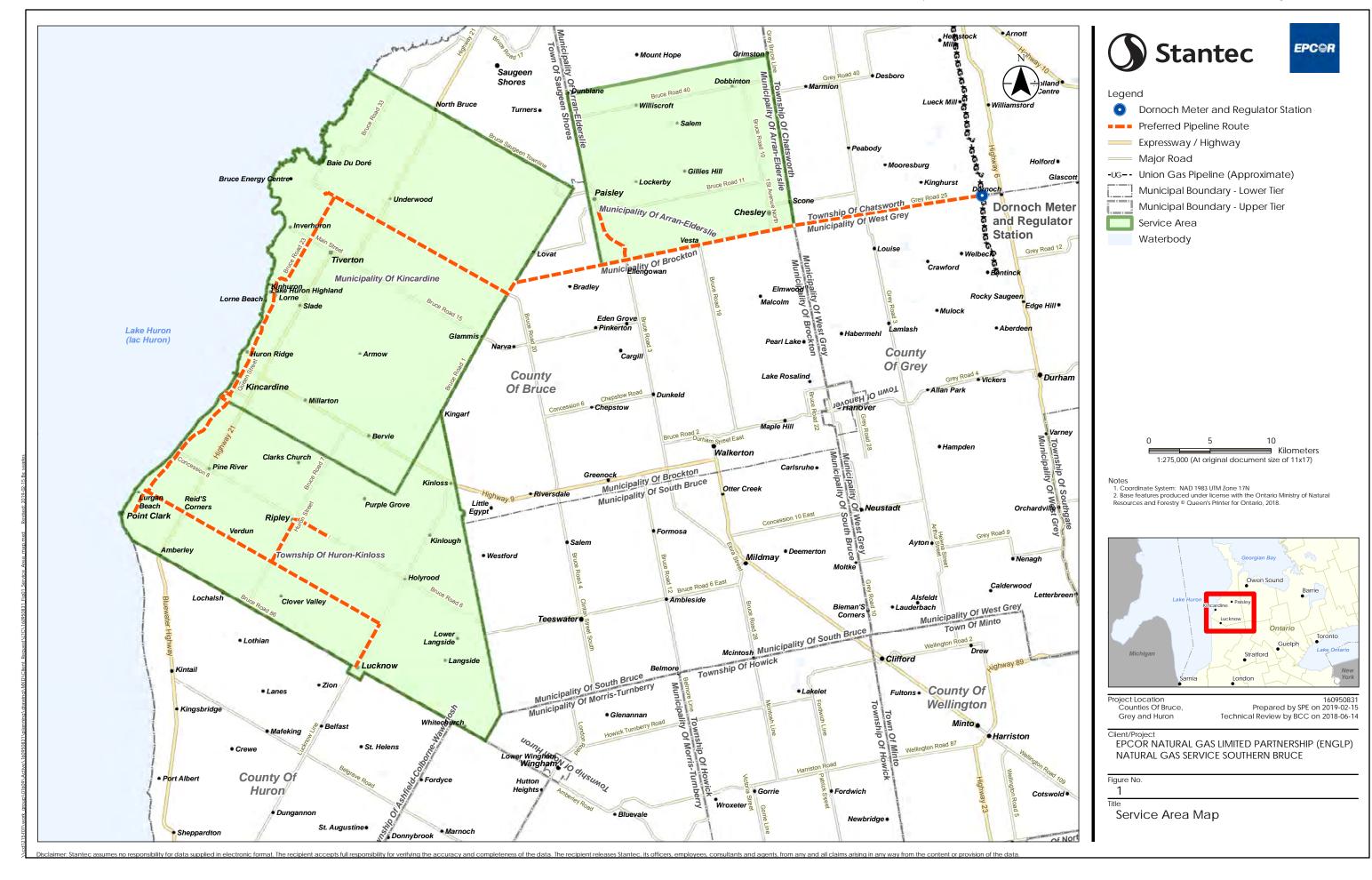
The Parties acknowledge that operating decisions sometimes require a greater level of detail than that which is appropriately included in this Agreement. The Parties agree to look for guidance on such matters to the Franchise Handbook prepared by the Association of Municipalities of Ontario and the gas utility companies, as may be amended from time to time.

18. Agreement Binding Parties

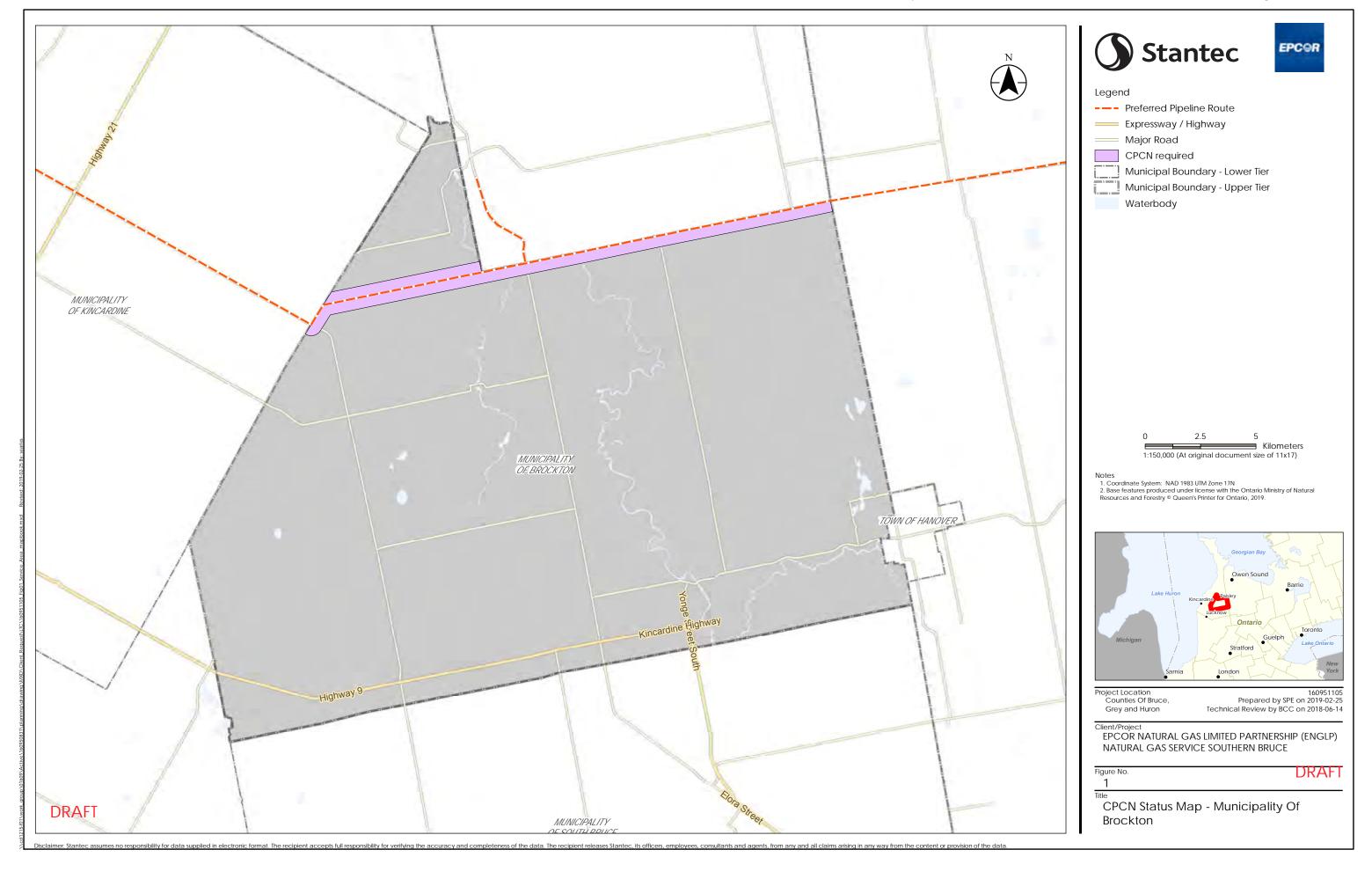
This Agreement shall extend to, benefit and bind the parties thereto, their successors and assigns, respectively.

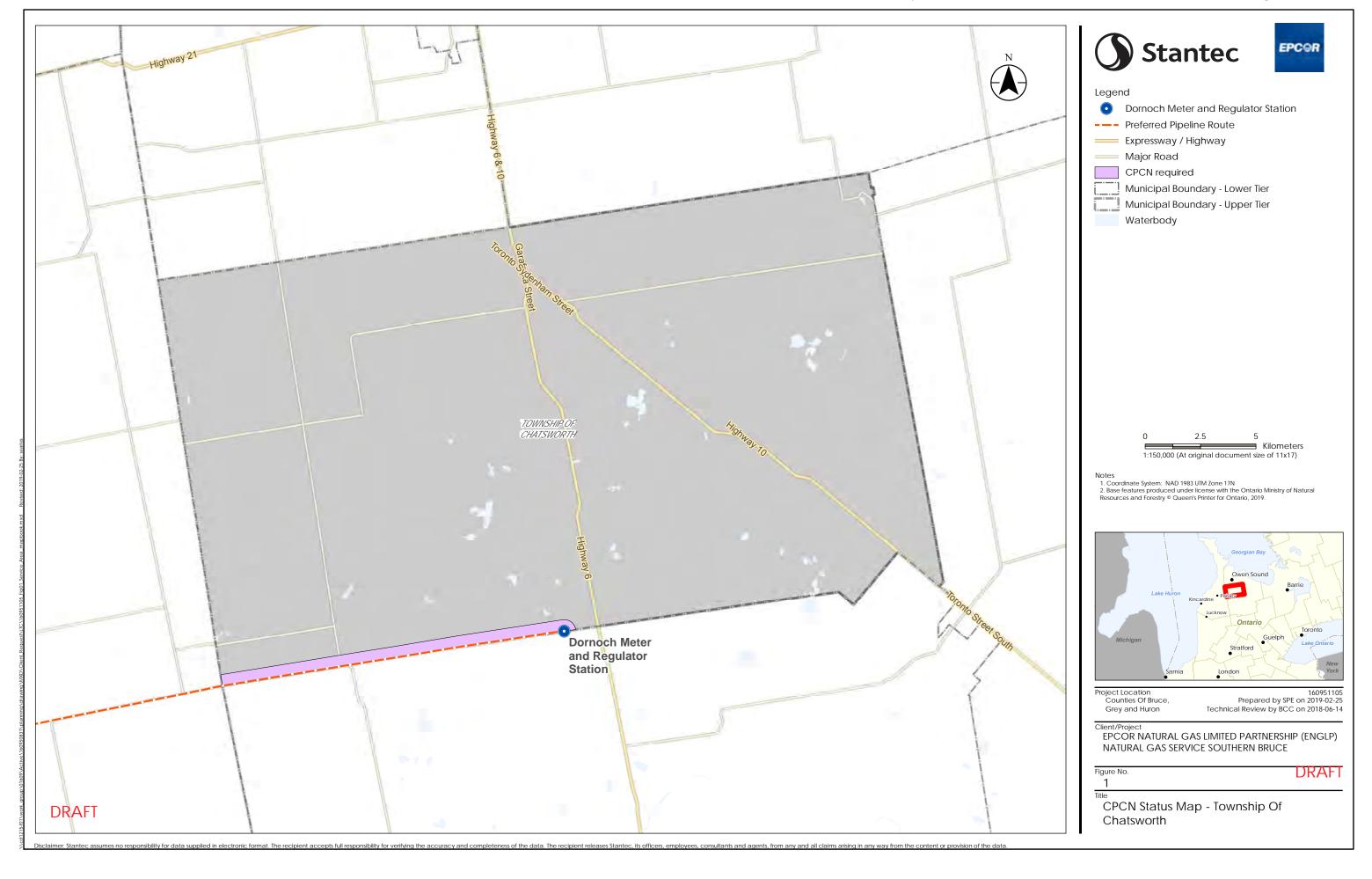
IN WITNESS WHEREOF the parties have executed this Agreement effective from the date written above.

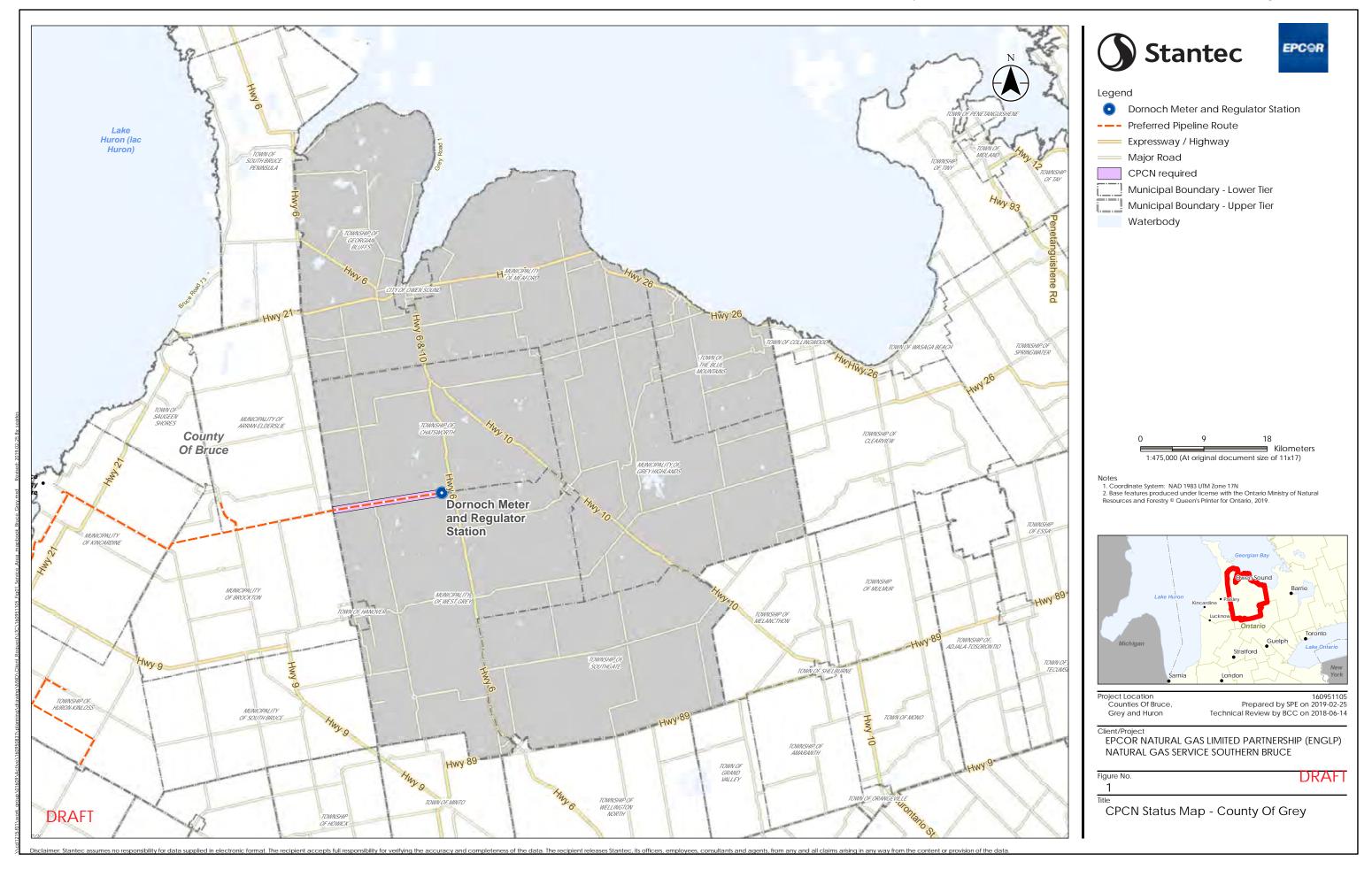
by.	Warden: Stewart Halliday
By:	
	Clerk: Heather Morrison
EPCC	OR NATURAL GAS LIMITED PARTNERSHIP,
by its	general partner, EPCOR ONTARIO UTILITIES INC

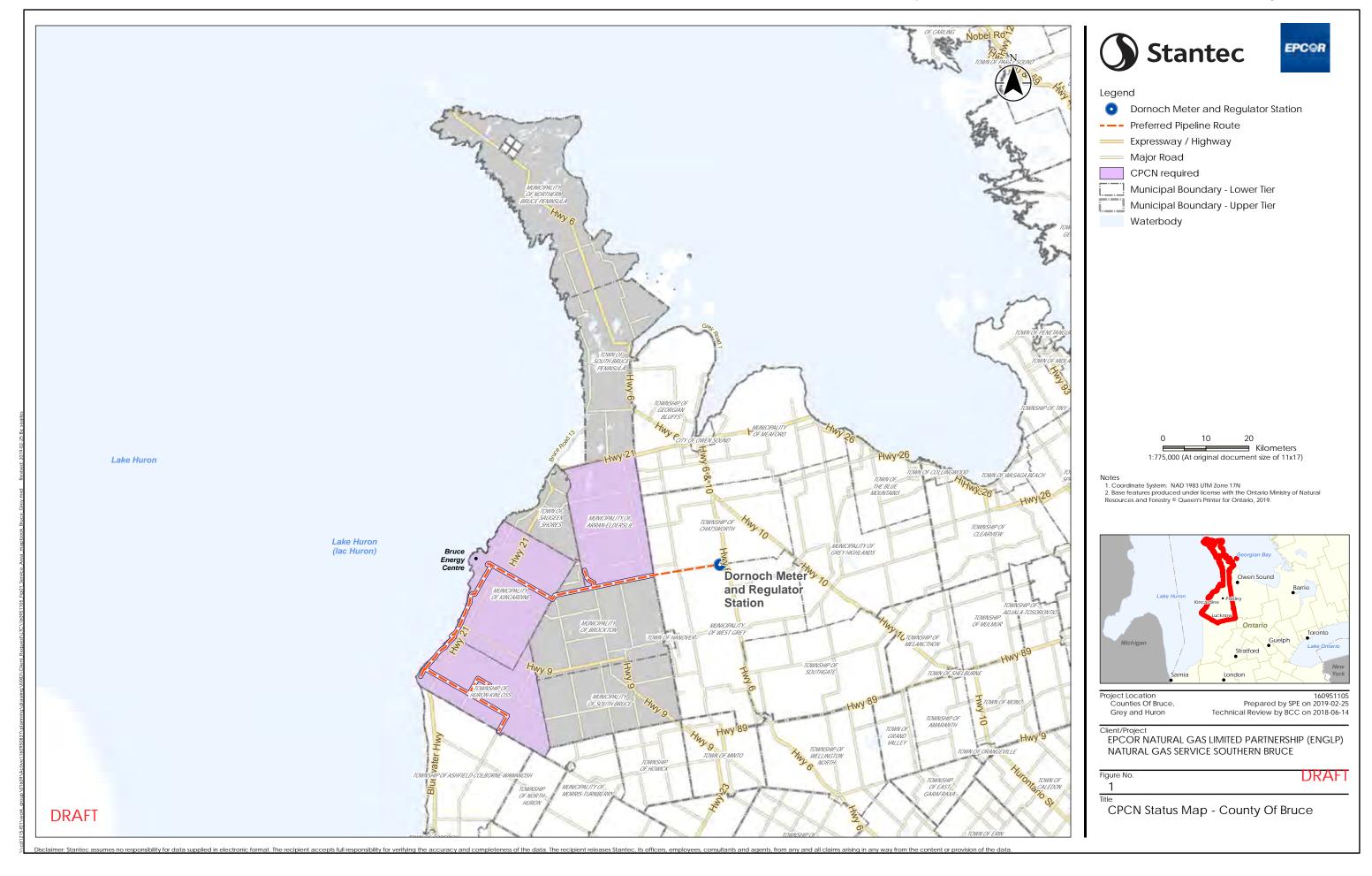












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FACILITIES

Overview of the Proposed Facilities

- 1. EPCOR is proposing to develop a natural gas distribution system to serve the communities of Chesley, Paisley, Inverhuron, Tiverton, Kincardine, Lurgan Beach, Point Clark, Ripley, Lucknow and the Bruce Energy Centre. EPCOR's distribution system will consist of two components: a larger diameter mainline that will be the backbone of the system and transport gas to each of the communities and smaller diameter MDPE distribution piping that will be constructed within each of the communities to directly serve homes and businesses. The facilities proposed by EPCOR were determined with input from Union Gas, Stantec, AECON Utilities and local municipalities and agencies.
- 2. The proposed Facilities are comprised of approximately 75 km of NPS 8 to 6-inch steel high pressure (HP) pipe and approximately 45 km of NPS 6-inch MDPE pipe. This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 178 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers.
- 3. The Southern Bruce mainline will interconnect with the existing high pressure Union Gas pipeline at the Dornoch Meter and Regulator Station in the Township of Chatsworth. The high pressure NPS 8 steel mainline would travel west to service Chesley and Paisley on an alternating county/municipal road allowance following the respective road segments: Grey Road 25, Grey Road 3, Bentinck-Sullivan, Bruce Road 19, Brant-Elderslie, Concession 18, and Bruce Road 1 until reaching Bruce Road 20 and concluding its travels west reaching the Bruce Energy Centre, in the Municipality of Kincardine. At the intersect of Bruce Road 20 and Bruce Road 23 the mainline would decrease to a high pressure NPS 6 steel mainline and travel south on Bruce Road 23 servicing Tiverton and Inverhuron until reaching the community of Kincardine. At Kincardine the steel mainline would transition to a NPS 6 MDPE for the remainder of the system to Lucknow. The mainline would continue south of Kincardine on Lake Range Drive until reaching the community of Lurgan Beach and Concession 4 in Huron-Kinloss. The mainline would then turn inland traveling east along Concession 4 until reaching Bruce Road 1 and finally travelling south to the community of Lucknow. A smaller diameter NPS 4 MDPE line would extend service south from Lurgan Beach to Point Clark. Additionally,

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an NPS 4 MDPE service would extend north to Ripley off of Concession 4 on Bruce Road 7. The

distribution system in each community will be NPS 4 and NPS 2 MDPE.

4. EPCOR will design and install a Supervisory Control and Data Acquisition ("SCADA") system to

continuously monitor the main parameters of the distribution system and ensure reliability.

Bypass

5. A mainline system bypass downstream of the Kincardine regulator station is proposed to be

constructed within the community of Kincardine. The bypass will be constructed with NPS 6 MDPE

and is intended to provide a secondary flow of gas through the Kincardine population center. Should

the mainline in Kincardine be damaged due to unforeseen circumstances, this bypass will ensure

sufficient flows of gas can service Kincardine or any of its downstream communities in Huron-Kinloss.

A map identifying the bypass is in Tab 3, Schedule 2.

Station Locations

6. EPCOR will install and operate major check measurement and pressure regulation stations on the

mainline. An initial EPCOR system metering station will be located at an interconnection with Union

Gas at Dornoch confirming the gas volume accepted into the system. Union Gas will control the

system supply pressure to 2068 kPag (300 psig), ensure customer transfer measurement, and will

provide the addition of odour agents. There will also be another major station installed at the

junction of the steel system and the MDPE system to control the pressure to a maximum of 683 kPag

(99 psig). This station will be located at the north-end of Kincardine, north of the Kincardine hospital.

The communities of Paisley, Chesley, Tiverton and Inverhuron will be serviced by an MDPE

distribution system operating at a maximum pressure of 683 kPag (99 psig). The feed for each of

these communities will include an interconnection to the high pressure steel system and the pressure

will be controlled by a pressure regulating station before the gas enters the distribution system.

7. The proposed locations of the pressure regulating stations listed below are approximate and will be

finalized during detailed design. They will also be adjusted as needed to ensure system integrity,

constructability, site suitability and to ensure all technical and regulatory requirements are met.

Below is an overview of the proposed pressure regulation stations.

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- 8. Dornoch: Union Gas is proposing to install a pressure regulator and metering station at Dornoch on Grey Road 25 between Concession Road 1 and Concession Road 2. This station is the main supply line to the Southern Bruce Natural Gas System. The pressure will be regulated to 2068 kPag (300 psig). EPCOR will install a check metering station at this location.
- 9. Chesley: The intent of the Chesley Pressure Regulator Station will be to decrease the mainline pressure to a maximum of 683 kPag (99 psig) to serve the community of Chesley. EPCOR will install this station and it will tie into the NPS 8 steel mainline and will be located near the intersection of Bruce Road 19 and Side Road 30N.
- 10. Paisley: The intent of the Paisley Pressure Regulator Station will be to decrease the mainline pressure to a maximum of 683 kPag (99 psig) to serve the community of Paisley. EPCOR will install this station and it will tie into the NPS 8 steel mainline and will be located near the intersection of the Brant-Elderslie Road and Bruce Road 3.
- 11. Bruce Energy Centre: EPCOR will provide direct industrial costumer connections at this location with pressure regulators and sales meters as per customer requirements.
- 12. Tiverton: The intent of the Tiverton Pressure Regulator Station will be to decrease the mainline pressure to a maximum of 683 kPag (99 psig) to serve the community of Tiverton and EPCOR will install this station. It will tie into the NPS 6 steel mainline. The station will be located near the intersection of Bruce Road 23 and Bruce Road 15.
- 13. Inverhuron: The intent of the Inverhuron Pressure Regulator Station will be to decrease the mainline pressure to a maximum of 683 kPag (99 psig) to serve the community of Inverhuron and will tie into the NPS 6 steel mainline. EPCOR will install this station. The location of the proposed station will be located by Bruce Road 23 and Parkwood Road.
- 14. Kincardine: The intent of the Kincardine Pressure Regulator Station will be to decrease the mainline pressure to a maximum of 683 kPag (99 psig) to serve the community of Kincardine and will tie into the terminus of the NPS 6 steel mainline and be located near an intersection of Bruce Road 23 and north of the Kincardine Hospital. EPCOR will install this station.

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- 15. The Kincardine station serves as the final regulating station for high pressure gas in the mainline. The NPS 6 MDPE mainline which continues downstream of this station serves all the remaining downstream communities with no added station regulation.
- 16. The Table below summarizes the facilities proposed for this project:

	Facility	Approximate Length (km)	Description					
	Dornoch to Bruce Energy Centre	60	Steel NPS 8					
Pipeline	Bruce Energy Centre to Kincardine	15	Steel NPS 6					
Pipelille	Kincardine to Lucknow	41	MDPE NPS 6					
	Kincardine Bypass Line	4.5	MDPE NPS 6					
	Community Distribution Piping	178	MDPE NPS 4 & 2					
	Facility	Descrip	tion					
	Dornoch	Check Measurement Station						
	Chesley	Pressure Regulating Station						
	Paisley	Pressure Regulating Station						
Stations		Pressure Regulating and Flow Measurement						
Stations	Bruce Energy Centre	Statio	on					
	Tiverton	Pressure Regula	ating Station					
	Inverhuron	Pressure Regulating Station						
		Pressure Regulating Station. Mainline transition						
	Kincardine	from Steel to MDPE						

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Exhibit A

Tab 6

Schedule 1

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ENGINEERING AND CONSTRUCTION

Project Schedule

1. The proposed schedule for the Project is as follows:

• Expected LTC Approval: End of May 2019

Receipt of Permits and Approvals: May 2019

• Site Preparation: May/June 2019

• Commence Construction: June 2019

• Partial Completion, Inspection and Commissioning of System including Bruce Energy Centre and

Municipality of Arran-Elderslie: December 2019

Total Completion, Inspection and Commissioning of Entire System: December 2021

2. EPCOR is proposing to complete the project in three stages with the entire mainline and all

distribution within the communities anticipated to be completed by December 2021. EPCOR will

conduct ongoing monitoring and inspection to ensure successful environmental mitigation as per the

recommendations in the Environmental Report. A post construction report will be issued to the OEB

upon final completing of all construction activities.

3. The proposed construction schedule will start to provide natural gas to residences, business and

industrial customers for the 2019-2020 heating season. EPCOR must commence construction by June

2019 to meet the in service date and avoid winter construction. Therefore, EPCOR is requesting that

the Board issues a decision for this proceeding by the end of May 2019.

Design and Pipeline Specification

4. Design specifications are in accordance with the Technical Standards and Safety Act, 2000, ¹⁴ and its

regulations, including Ontario Regulation 210/01, Oil and Gas Pipeline Systems ("Oil and Gas Pipeline

Systems Regulation") and applicable Canadian Standards Association ("CSA") standards.

5. The natural gas system design process has been ongoing throughout the development and

finalization of the Environmental Report. Recently after the Environmental Report was finalized it was

¹⁴ Technical Standards and Safety Act, 2000, S.O. 2000, c. 16

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determined that all the polyethylene components of the system would consist of medium density polyethylene.

- 6. The distribution systems will consist of piping ranging in size from NPS 6 to NPS 2. All distribution piping will be MDPE as per the requirements of CSA Z662-15.
- 7. The tables below contain the design and pipeline specifications for the mainline and distribution piping for the Project.

Pipe	Pipe - NPS 8	Units
Material	Steel	
Diameter	219.1	mm
Wall Thickness	4.8	mm
Grade	290	MPa
Specification	CSA Z245.1	
Material Toughness	Cat I	
Pipe coating specification	Yellow Jacket – CSA Z245.21	
	Double Fusion Bond Epoxy – CSA Z245.20	
Cathodic protection	As per CSA Z662-15	
Class Location	Class 2 (Designed to Class 3)	
Design Pressure	3450	kPa
Hoop Stress at Design Pressure	27.2% of SMYS	
Maximum Operating Pressure (MOP)	2070	kPa
Hoop Stress at MOP	16.3% of SMYS	
Minimum Cover	As per CSA Z662-15	
Fittings	CSA Z245.11	
Flanges	CSA Z245.12	
Valves	CSA Z245.15	
Testing Medium	Water	
Strength Test Hydrostatic Pressure	4830	kPa
Hoop Stress at Strength Test	38.0% of SMYS	
Pressure		
Leak Test Hydrostatic Pressure	3795	kPa

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Pipe	Pipe - NPS 6	Units
Material	Steel	
Diameter	168.3	mm
Wall Thickness	4.8	mm
Grade	290	MPa
Specification	CSA Z245.1	
Material Toughness	Cat I	
Pipe coating specification	Yellow Jacket – CSA Z245.21	
	Double Fusion Bond Epoxy – CSA Z245.20	
Cathodic protection	As per CSA Z662-15	
Class Location	Class 2 (Designed to Class 3)	
Design Pressure	3450	kPa
Hoop Stress at Design Pressure	20.9% of SMYS	
Maximum Operating Pressure (MOP)	2070	kPa
Hoop Stress at MOP	12.5% at SMYS	
Minimum Cover	As per CSA Z662-15	
Fittings	CSA Z245.11	
Flanges	CSA Z245.12	
Valves	CSA Z245.15	
Testing Medium	Water	
Strength Test Hydrostatic Pressure	4830	kPa
Hoop Stress at Strength Test	29.2% of SMYS	
Pressure		
Leak Test Hydrostatic Pressure	3795	kPa

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Pipe	Pipe - NPS 6	Units
Material	Medium Density Polyethylene	
Diameter	168.3	mm
Wall Thickness	15.3	mm
Grade	SDR 11	MPa
Specification	CSA B137.4	
Material Toughness	N/A	
Pipe coating specification	N/A	
Cathodic protection	N/A	
Class Location	3	
Design Pressure	690	kPa
Hoop Stress at Design Pressure	N/A	
Maximum Operating Pressure (MOP)	690	kPa
Hoop Stress at MOP	N/A	
Minimum Cover	0.75	
Fittings	CSA B137.4	
Flanges	N/A	
Valves	CSA B137.4	
Testing Medium	Nitrogen or Air	
Strength Test Hydrostatic Pressure	970	kPa
Hoop Stress at Strength Test	N/A	
Pressure		
Leak Test Hydrostatic Pressure	N/A	

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Pipe	Pipe-NPS 4	Units
Material	Medium Density Polyethylene	
Diameter	114.3	mm
Wall Thickness	10.4	mm
Grade	SDR 11	MPa
Specification	CSA B137.4	
Material Toughness	N/A	
Pipe coating specification	N/A	
Cathodic protection	N/A	
Class Location	3	
Design Pressure	690	kPa
Hoop Stress at Design Pressure	N/A	
Maximum Operating Pressure (MOP)	690	kPa
Hoop Stress at MOP	N/A	
Minimum Cover	0.75	
Fittings	CSA B137.4	
Flanges	N/A	
Valves	CSA B137.4	
Testing Medium	Nitrogen or Air	
Strength Test Hydrostatic Pressure	970	kPa
Hoop Stress at Strength Test	N/A	
Pressure		
Leak Test Hydrostatic Pressure	N/A	

Pipe	Pipe-NPS 2	Units
Material	Medium Density Polyethylene	
Diameter	60.3	mm
Wall Thickness	5.5	mm
Grade	SDR 11	MPa
Specification	CSA B137.4	
Material Toughness	N/A	
Pipe coating specification	N/A	
Cathodic protection	N/A	
Class Location	3	
Design Pressure	690	kPa
Hoop Stress at Design Pressure	N/A	
Maximum Operating Pressure (MOP)	690	kPa
Hoop Stress at MOP	N/A	
Minimum Cover	0.75	
Fittings	CSA B137.4	
Flanges	N/A	
Valves	CSA B137.4	
Testing Medium	Nitrogen or Air	
Strength Test Hydrostatic Pressure	970	kPa
Hoop Stress at Strength Test	N/A	
Pressure		
Leak Test Hydrostatic Pressure	N/A	

Pressure & Regulator Stations

8. All instruments, valve sites, pressure regulation facilities and other piping components will be constructed with PN 50 rated materials.

Hydrostatic and Pneumatic Testing Procedures

9. All hydrostatic testing will be completed in accordance with the requirements of the CSA Z662 and the Oil and Gas Pipeline Systems Regulation.

<u>Hydrostatic Testing Procedures Summary</u>

10. The proposed NPS 8 and NPS 6 steel pipeline will be hydrostatically tested (i.e., tested with water).

The test will consist of two parts: a strength test and a leak test.

Strength Test

11. The strength test is a four-hour test and uses a test pressure of 4830 kPa (700 psi).

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Leak Test

12. The leak test is conducted immediately following the strength test for a minimum duration of four

hours. This results in a leak test pressure of 3795 kPa (550 psi).

Test Water

13. Test water is proposed to be obtained from the applicable town or municipality. Before withdrawing

water, the applicable town or municipality will be contacted to confirm possible maximum rates of

withdrawal. Any other withdrawals will also be in accordance with provincial and/or federal

legislation.

Pneumatic Testing Procedures Summary

14. The proposed NPS 2, NPS 4 and NPS 6 polyethylene pipeline will be pneumatically tested (i.e., tested

with nitrogen or air).

Pneumatic Test – NPS 2, NPS 4 and NPS 6 Polyethylene Pipeline

15. The test duration is a minimum of twenty-four hours. The test pressure will be 1204 kPa (175 psi).

Depths of Cover

16. All buried pipe will be covered following *Table 4.9 Cover and Clearance* as found in CSA Z662-15. Each

specific section of pipe is detailed in the design specifications tables in paragraph 6.

Construction Procedures

17. EPCOR will solicit the services of a reputable construction company, AECON Utilities, to complete the

construction and installation of the mainline. The construction will follow EPCOR's Construction and

Maintenance Manual and well as AECON's standards and procedures. The construction standards

and practices that form the basis of EPCOR's Manual are based on standards practices for gas systems

construction in the Province of Ontario and both CSA and TSSA standards, requirements and

practices. These construction specifications will be updated to reflect the site-specific conditions

found on this Project.

18. It is expected that the entire mainline will be installed within the existing road allowance.

19. EPCOR will develop an Environmental Protection Plan ("EPP") that will incorporate the mitigating

measures recommended in the Environmental Report and will also incorporate comments provided

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Exhibit A

Tab 6 Schedule 1

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during the OPCC review process. This plan will help minimize the impact of construction activities on

the surrounding environment and communities. This is described further in Tab 9, Schedule 1.

20. EPCOR will provide its own inspection team to ensure the contractor meets all contractual obligations

including but not limited to: complying with EPCOR health and safety standards, upholding

environmental mitigating measures as specified in the EPP, meeting all code requirements, quality

control/quality assurance procedures, and safeguarding public safety, during construction.

21. The contractor will utilize several crews with specific tasks which will create a finished pipeline when

combined.

22. The major tasks are: clearing, grading, surveying, trenching, stringing, boring (as needed for

Horizontal Directional Drilling), welding (steel pipe), fusing (MDPE pipe), tie-in, backfilling, testing and

clean-up.

23. While EPCOR anticipates the need for limited tree removal, the contractor will work to remove trees,

when possible, during the early spring before major construction starts to avoid the avian nesting

season. If it is not possible to access the land or easements in time, then mitigation measures

specified in section 4.3.3 of the Environmental Report will be followed.

24. The clearing crews will start by accessing the rights of way and easement lands to remove fencing,

clearing small bushes and objects, crops and establishing temporary working areas by erecting gates

and fences as required. All easements and temporary working areas will be safely secured and closed

off outside of construction working hours.

25. After major construction is complete along the Preferred Route, the clean-up crew will ensure that

the site conditions are returned to pre-construction conditions as required. When clean-up is

completed EPCOR will seek the approval of landowners or the appropriate government authority.

26. A post construction report will be issued upon completion of the Project as required by the OEB.

Task	Duration (days)		-1	201		.==				_		2020	-						202							
Leave to Construct Application	(uays)	SEP OC	I NOV DE	C JAN	FEB MAR	APR MAY	JUN	JUL AUG	SEP OC	I NOV	DEC	JAN FE	B MAR AI	PR MAY	JUNIJU	JL AUG	SEP OCT	NOV DEC	JAN	FEB MAR	APR MA	Y JUN	JUL AUG	SEP	OCI NOV	DEC
Construction Mobilization																										
Detail Design																										
2019 - Commencement of Construction – Dornoch to Bruc	e Industri	al Park																								
NPS 8 steel Dornoch to Bruce Energy Center	131																									
Dornoch Check Meter Station	40																									
Bruce Energy Centre Sales Meter Station	10																									
GFSA Sales Meter Station	10																									
Connection to Union Gas System																										
NPS 4 & 2 plastic distribution in Paisley	88																									
Paisley Pressure Regulating Station	10																									
NPS 2 plastic distribution in Chesley	111																									
Chesley Pressure Regulating Station	10																									
2020 - Commencement of Construction – Bruce Industrial	Park to K	incardi	ne																							
NPS 6 steel from Bruce Energy Center to Kincardine	132																									
NPS 2 plastic distribution in Tiverton	50																									
Tiverton Pressure Regulating Station	15																									
NPS 6 Bypass to NPS 2 plastic distribution in Kincardine	120																									
Kincardine Pressure Regulating Stations	15																									
NPS 6 plastic heading south along shore	70																									
NPS 4 & 2 plastic distribution in Inverhuron	70																									
2021 - Construction – Kincardine to Lucknow																										
NPS 6 plastic from Kincardine to Lucknow	135																									
NPS 2 plastic distribution in Ripley	48																									
NPS 4 plastic to Ripley	30																									
NPS 4 & 2 plastic distribution in Lucknow	65																									
NPS 2 plastic distribution in Point Clark	95																									
NPS 4 plastic from Lurgan Beach to Point Clark	45																									
NPS 2 plastic distribution in Lurgan Beach	80																									
Completion of all Construction																									•	

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Exhibit A

Tab 7

Schedule 1

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PROJECT COSTS, ECONOMICS, RATE IMPACTS AND EXTERNAL FUNDING ALLOCATION

1. This section outlines the Project's costs, external funding and confirmation of economic feasibility of

the Southern Bruce natural gas distribution system.

2. This Application is informed by the submissions and decisions made during the Southern Bruce

Expansion Decision. The Board has indicated that it "...will require EPCOR to demonstrate that

forthcoming leave to construct and rates applications are consistent with its CIP proposal." ¹⁵ As a

result, EPCOR is required to ensure that this Application is consistent with the implications of those

submissions and decisions as they are the basis under which the OEB awarded EPCOR the CPCNs as

discussed above. The gross revenue requirement for the 10 year rate stability period necessary to

ensure the economic feasibility of the project was included in EPCOR's CIP and established as part of

the Southern Bruce Expansion Decision. The underlying details that support the revenue requirement

were not quantified in the Southern Bruce Expansion Decision but some of them (e.g. project cost)

have been detailed in this Application.

3. Based on the parameters and common assumptions established by the Board in the Southern Bruce

Expansion Decision, EPCOR committed to three key metrics for rate making purposes over the 10

year rate stability period. These metrics were considered in the Board's determination of EPCOR as

the successful proponent:

i. Cumulative revenue requirement per unit of volume ("rate per m³");

ii. Customer years; and

iii. Cumulative volume.

4. Table 1 reproduces the values EPCOR committed to in its CIP for the three key metrics as well as the

cumulative 10-year revenue requirement.

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¹⁵ EB-2016-0137/0138/0139 - Decision and Order, April 12, 2018, page 11

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Table 1 - Key Metrics and Revenue Requirement

Metric	Value
Cumulative 10-Year Revenue Requirement per Unit of Volume	\$0.2209/m ³
Customer Years	42,569 Customer Years
Cumulative 10-Year Throughput Volume	342,186,741m ³
Cumulative 10-Year Revenue Requirement	\$75,583,261

Project Cost

The project capital costs presented below are components of the cumulative revenue requirement included in EPCOR's CIP:

Description of Cost	Cost (\$000's)	Value of Funding Allocated (\$000's)
Construction and Material Cost	72,660	22,000
External Costs (Engineering, Environmental, etc.)	3,000	
Internal Costs	6,619	
Contingency	3,851	
Interest During Construction	959	
Sum	87,089	22,000

- 5. Construction of the Project is expected to be completed in 2021. The Dornoch Meter and Regulator Station will be built and owned by Union Gas Limited and is expected to be complete prior to the start of operations in November 2019.
- 6. Construction and material costs have been allocated to allow for open-trench and HDD installation of steel and MDPE piping, as well as purchase and installation of pressure and metering stations. Further details on construction methods and techniques are included in Tab 4, Schedule 1.
- 7. The external costs include engineering design, drawing development as well as costs associated with Stage 2 Archaeological Assessment and required mitigation measures that will be developed in the

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EPP such as: water and soil testing, environmental specialists and solids management. Further details

on Environmental Matters can be found in Tab 9, Schedule 1.

External Funding

8. In July 2017, EPCOR filed an application for the Ontario Ministry of Infrastructure's NGGP. The

Government of Ontario created the NGGP to support the construction of natural gas infrastructure in

order to expand access to new communities and to accelerate projects with economic development

potential. Through the NGGP, EPCOR was awarded up to \$22M for development of the Southern

Bruce natural gas distribution system. EPCOR requires funding to make the Project economically

feasible with rates that provide an attractive fuel conversion savings to ratepayers. However, on

September 26, 2018 EPCOR was notified that funding for the NGGP was being reallocated to other

areas and as a result the Project would not be receiving any funding. This letter was filed with the

OEB on October 3, 2018. On December 21, 2018 EPCOR received a letter from the Minister of Energy,

Northern Development and Mines stating that the South Bruce expansion project will be eligible to

receive rate protection associated with Bill 32, Access to Natural Gas Act, 2018. A copy of this letter is

included in Tab 7, Schedule 2. EPCOR is confident that this project will proceed given the positive

economic impacts on the communities and the assurances from the Provincial Government that it

will receive funding.

Rate Stability Period

9. In Procedural Order 6, the OEB established that a rate stability period of 10 years would be in effect. 16

EPCOR reaffirms that for the Southern Bruce expansion, it will be applying for a 10 year rate stability

period in its rate application EB-2018-0264. As noted by the Board in its Partial Decision on the Issues

List in the CIP Proceedings: "During this period customers can expect relative rate stability as the

proponent's revenue related to its controllable costs will be capped at its proposed level. The rate

stability period may include an allowance for consideration of externally driven, unforeseen events as

well as annual financial allowance updates typically allowed by the OEB." [Emphasis added.]

Commitments made during the rate stability period transfers risk relating to the Project and potential

¹⁶ EB-2016-0137/0138/0139: Partial Decision on the Issues List and PO No.6, June 27, 2017; pg. 4

¹⁷ EB-2016-0137/0138/0139: Partial Decision on the Issues List and PO No.6, June 27, 2017; pg. 4

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revenues to EPCOR if customer attachments do not occur as forecast (shown in Table 2 - CIP Customer Forecast). When developing its CIP, EPCOR considered the rate stability period and has determined its economic feasibility on this basis.

Economic Feasibility

10. In OEB Decision EB-2015-0156, the OEB provides guidance for gas expansion in Ontario. These guidelines advise that an EBO 188 driven economic test should be provided when a gas distributor is establishing new natural gas systems. ¹⁸

"The OEB's role here is to facilitate rational natural gas expansion; and ensure that there is no undue cross-subsidization between existing and new customers."

"The key principle behind the test is that total portfolio of expansion projects should not lead to a rise in the rates of existing customers over the long term."

11. In confirming the economic viability of this project EPCOR is relying on determinations made by the OEB in its Southern Bruce Expansion Decision with respect to an EBO 188 based economic test which is applied to a distribution system expansion. In that decision the Board indicated that

"The Generic Decision established a general framework for competition in the servicing of new communities that do not satisfy the economic tests embodied in the E.B.O. 188 policy.

The framework established in the Generic Decision features:

- i. Stand-alone rates...
- ii. The establishment of a rate stabilization period...
- iii. Incentives to lower costs...

These features have been put into effect in this case through:

i. A requirement for proponents to base the revenue requirement in their CIP proposals on fully allocated project and OM&A costs

¹⁸ EB-2015-0156: *Guidelines for Gas Expansion in Ontario,* November 11, 2015; pg. 8

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- ii. The establishment of a 10-year rate stability period and 3) competition to provide an incentive to lower costs."¹⁹ [Emphasis added.]
- 12. EPCOR proposes that the CIP process, the parameters contemplated therein and the Southern Bruce Expansion Decision have addressed the economic feasibility requirement. The circumstances of this Application are unique in that it is the result of the Southern Bruce Expansion Decision. As a new stand-alone franchise with stand-alone rates, there are no existing customers that will be affected by development of the system, and no cross-subsidization will occur with any other Ontario system, including EPCOR's Aylmer operations. While EPCOR intends to share certain staff between the two facilities, the costs are determined on a fully allocated basis, consistent with the OEB's requirements in Procedural Order 8 of the CIP process.²⁰
- 13. EPCOR has undertaken consultations with potential customers in the area and is proposing rates with an objective of being competitive so as to encourage conversion. As part of the Board's competitive CIP process, EPCOR is required to take additional risks not common to other utilities including market risk during the rate stability period. Moreover, EPCOR accepts the capital cost risk associated with construction of the facilities contemplated within the framework of the CIP, further ensuring that no customers in either system will have exposure to capital cost overruns from the development of the distribution system.

 19 EB-2016-0137/0138/0139: Decision and Order - South Bruce Expansion Application, April 12, 2018; pg. 7

²⁰ EB-2016-0137/0138/0139, Ontario Energy Board Decision on Preliminary Issues and Procedural Order No. 8, August 22, 2017; pg. 8

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Table 2 - CIP Customer Forecast

Customer Type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Cumulative
Existing Residential	861	2,297	3,237	3,742	4,176	4,349	4,349	4,349	4,349	4,349	36,058
New Residential	46	103	159	215	271	328	384	424	462	469	2,861
Sub Total	907	2,400	3,396	3,957	4,447	4,677	4,733	4,773	4,811	4,818	38,919
Small Commercial	55	144	215	288	343	359	359	359	359	359	2,840
Medium Commercial	10	27	43	59	67	69	69	69	69	69	551
Large Commercial	3	7	13	16	17	19	19	19	19	19	151
Sub Total	68	178	271	363	427	447	447	447	447	447	3,542
Small Agricultural	0	0	0	1	2	2	2	2	2	2	13
Industrial and Large Agricultural	4	5	9	11	11	11	11	11	11	11	95
Sub Total	4	5	9	12	13	13	13	13	13	13	108
Grand Total	979	2,583	3,676	4,332	4,887	5,137	5,193	5,233	5,271	5,278	42,569

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Table 3 - CIP Throughput Volumes (m³)

Customer Type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Cumulative
Existing Residential	925,145	3,393,271	5,946,283	7,498,936	8,507,891	9,160,113	9,346,001	9,346,001	9,346,001	9,346,001	72,815,642
New Residential	47,518	153,917	270,646	386,342	502,038	618,767	735,496	834,664	915,238	961,723	5,426,349
Sub Total	972,663	3,547,188	6,216,929	7,885,278	9,009,929	9,778,880	10,081,497	10,180,665	10,261,239	10,307,724	78,241,991
Small Commercial	129,058	466,954	842,394	1,180,290	1,480,642	1,647,243	1,684,787	1,684,787	1,684,787	1,684,787	12,485,727
Medium Commercial	134,665	498,261	942,655	1,373,583	1,696,779	1,831,444	1,858,377	1,858,377	1,858,377	1,858,377	13,910,895
Large Commercial	113,528	378,425	756,850	1,097,433	1,248,803	1,362,330	1,438,015	1,438,015	1,438,015	1,438,015	10,709,428
Sub Total	377,250	1,343,639	2,541,899	3,651,305	4,426,223	4,841,017	4,981,179	4,981,179	4,981,179	4,981,179	37,106,049
Small Agricultural	0	0	0	2,360	7,080	9,440	9,440	9,440	9,440	9,440	56,640
Industrial and Large Agricultural	4,063,779	23,760,251	24,187,482	24,798,991	24,985,073	24,985,073	25,028,741	25,002,523	24,985,073	24,985,073	226,782,062
Sub Total	4,063,779	23,760,251	24,187,482	24,801,351	24,992,153	24,994,513	25,038,181	25,011,963	24,994,513	24,994,513	226,838,702
Grand Total	5,413,691	28,651,078	32,946,310	36,337,933	38,428,305	39,614,410	40,100,857	40,173,807	40,236,931	40,283,416	342,186,741

Ministry of Energy, Northern Development and Mines Ministère de l'Énergie, du Développement du Nord et des Mines

Office of the Minister

Bureau du ministre

4th Floor, Hearst Block 900 Bay Street Toronto ON M7A 2E1 Tel.: 416-327-6758 4e étage, Édifice Hearst 900, rue Bay Toronto ON M7A 2E1 Tél.: 416 327-6758



MC-994-2018-284

DEC 2 1 2018

Ms Susannah K. Robinson Vice President, Ontario Region EPCOR Utilities Inc. 1475 Concession 5 Kincardine ON N2Z 2X6

Dear Ms Robinson:

As you may be aware, Bill 32, *Access to Natural Gas Act, 2018* received Royal Assent on December 6, 2018. Subject to certain required approvals, it is anticipated that Bill 32 would be proclaimed into force at a later date.

Our Government for the People has made it clear that we are committed to expanding natural gas access across Ontario. To that end, our government is developing a regulation to support Bill 32 that would outline the program-related details and criteria for funding natural gas expansion projects. I understand that you have met with ministry staff to discuss program design and we appreciate your input. Further information regarding the final design of the program will be released at a later date.

I would like to advise that in the interim, it is our government's intention that the South Bruce expansion project, which was eligible for, but did not receive funding under the former Natural Gas Grant Program, will be eligible to receive rate protection in the new program. I anticipate that EPCOR would continue to advance this project. Please note that the proposed project would be subject to the relevant processes and approvals of the Ontario Energy Board in order to qualify for funding.

Thank you for your advice and support in this endeavour.

Sincerely,

The Honourable Greg Rickford

Minister of Energy, Northern Development and Mines

c: Stephen Rhodes, Deputy Minister of Energy
Carolyn Calwell, ADM, Strategic Network & Agency Policy, Ministry of Energy

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GAS SUPPLY

1. EPCOR will enter into an Interconnect Operating agreement in which EPCOR and Union have a

pipeline facility interconnection point in the immediate vicinity of the intersection of Highway 6 and

Grey Road 25 in the Township of Chatsworth, County of Grey, Ontario, such interconnection point

known as "Dornoch". Union Gas will be the sole upstream supplier to EPCOR. It is anticipated that the

Union Gas interconnect will be completed by November 2019.

2. Union will deliver, and EPCOR shall accept, gas at Dornoch at Union's prevailing line pressure which

shall be equal to 2,068 kPag (300 psig) up to a firm hourly flow rate of 10,648 m³ and a maximum

227,912 m³ per day. This firm hourly flow rate will meet the 10 year capacity needs of EPCOR's

Southern Bruce system and is consistent with the 10 year capacity projection in the CIP.

3. All gas delivered by Union to the interconnection facilities at Dornoch shall conform to the quality

specifications set forth in the applicable Union agreement. Union has advised that the heat content

of the gas is 38.89 GJ/10^3m³. EPCOR understands that concurrent with EPCOR LTC application,

Union will also file a LTC application with the Board to seek the Board's approval to construct its

facilities.

4. EPCOR will enter in to a firm upstream Transportation Agreement approved by the OEB. The

Transportation Agreement shall provide firm transportation services including, without limitation, the

following terms:

i. Contract Demand

ii. Start and End Dates

Receipt Point(s) iii.

iv. Delivery Point(s)

5. EPCOR will also submit a Gas Supply Plan as part of its rate application (EB-2018-0264). The objective

of the EPCOR Gas Supply Plan is to develop a right-sized portfolio of natural gas commodity and

storage assets if necessary that ensures consumers receive a cost-effective, reliable and secure

natural gas supply that is also aligned with public policy objectives.

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ENVIRONMENTAL MATTERS

Environmental Report

1. EPCOR retained Stantec to undertake an environmental study of the construction and operation of

the proposed Project. The environmental study included a route evaluation and selection process

that was designed to identify the Preferred Route alternative with the least potential environmental

and socio-economic impact.

2. A multidisciplinary team of environmental planners and scientists from Stantec conducted the

environmental study. EPCOR provided environmental support and engineering expertise throughout

the study, as required.

3. Mitigation measures designed to minimize environmental and community impacts were also

developed as part of the study. The study results have been documented in the Environmental

Report. The environmental study was completed in accordance with the Environmental Guidelines, as

well as relevant provincial, federal, and municipal environmental guidelines and regulations.

Due to the size of the Environmental Report prepared for this Project, it has not been included in this

filing and can be found at: epcor.com/southernbruce

4. The Environmental Report was provided to the OPCC and Indigenous communities including Saugeen

Ojibway Nation, Métis Nation of Ontario and Historic Saugeen Métis for their review and comment on

July 18, 2018. Letters of Notification can be found in Tab 11, Schedule 3.

5. During the OPCC and Indigenous communities' review of the Environmental Report, EPCOR received

comments and has provided responses as outlined in the response table found in Tab 9, Schedule 4.

6. EPCOR received one comment on August 23rd, 2018 from the MECP during the OPCC review process

regarding active and/or closed landfills along the Preferred Route. The email correspondence is

included in Tab 9, Schedule 4. EPCOR delivered a response on September 20, 2018 and provided a

Landfill Impact Assessment December 12, 2018. The impact assessment can be found in Tab 9,

Schedule 7.

7. EPCOR received two comments on September 4th and 11th, 2018 from the TSSA during the OPCC

review process. The TSSA requested clarification on technical specifications. The information TSSA

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requested was provided on September 4th for the first request and September 20th for the second

request and is provided in Tab 9, Schedule 4. EPCOR completed a high consequence area study and

risk assessment for the mainline and provided the report to the TSSA December 12, 2018. The report

provided is included in Tab 9, Schedule 6.

8. EPCOR received one comment letter on September 13th 2018 from the MNRF in which EPCOR

delivered a response September 20, 2018. The letter received, and provided response, is included in

Tab 9, Schedule 4.

9. EPCOR will update the Board regarding the OPCC review process of the ER if further comments and

requests for information are submitted.

10. Feedback from the Historic Saugeen Metis has been received and did not result in a change in the

Environmental Report. In their review of the Environmental Report, the HSM noted that they are

satisfied with EPCOR's consultation and engagement efforts regarding the Project to date.

11. Feedback from the Saugeen Ojibway Nation has been received and resulted in an update to the

Archaeological Assessment. The Archeological Assessment is available at epcor.com/southernbruce.

12. EPCOR is still awaiting feedback on the Environmental Report from the Metis Nation of Ontario.

EPCOR will update the Board if further comments are submitted.

Environmental Protection Plan

13. EPCOR will develop an EPP which will include the mitigation measures identified in the Environmental

Report including future revisions. The plan will provide site specific mitigation programs to be

implemented during the construction of the Project, including but not limited to:

• Wet Weather Response Program

Suspect Soil Monitoring Program

• Water Well and Ground Water Monitoring Program

Species at risk and habitat management and Workers Awareness Training

14. The EPP will incorporate recommended mitigation measures for the environmental issues associated

with the proposed works and will be communicated to the construction contractor prior to the start

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of construction. The EPP will also include the conditions from environmental permits secured for the

project.

15. A qualified Environmental Inspector will be available to assist the Project Manager in ensuring that

mitigations identified in the Environmental Report, permitting requirements and environmental

requirements contained in any conditions of approval are followed and that commitments made to

the public, Indigenous groups, landowners, and agencies are honoured. The Environmental Inspector

and Project Manager will also ensure that any unforeseen environmental circumstances that arise

before, during or after construction are appropriately addressed and mitigated.

16. Mitigation measures will be implemented to address environmental and socioeconomic features

found along the Preferred Route to minimize Project impacts. Such features include but are not

limited to:

Species at risk and sensitive wildlife habitat;

Watercourses and wetlands;

Forests and vegetated areas;

• Archaeological and heritage resources;

Groundwater and water well resources;

Potentially contaminated lands; and

First Nation and Métis Nation Interests.

17. The Environmental Report concludes that the proposed Facilities will not result in significant effects

or cumulative effects on environmental and socio-economic features with the implementation of the

recommended mitigation measures. A Summary of the Potential Effects and Recommended

Mitigation and Protective Measures can be found in section 4.0, Table 4-7 of the Environmental

Report.

Public Consultation

18. The consultation program provided the opportunity for interested or potentially affected parties to

provide input to the Project. Comments, questions, and concerns were reviewed, evaluated,

addressed, and where feasible, integrated into the Project planning.

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- 19. The public engagement process was initiated in October 2015 with the publication of Notice of Project Commencement and Information Session. Consultation and correspondence to date can be found in the Environmental Report in section 3 and Appendix B. Correspondence, meetings and input from interested and affected parties after this date will continue to be tracked and considered as consultation is ongoing.
- 20. The identification of interested and potentially affected parties was undertaken using a variety of sources, including the OEB's OPCC Members List, the MOECP Environmental Assessment Government Review Team Master Distribution List, agency, municipal and First Nation and Métis community websites, and the experience of EPCOR and Stantec. Please refer to Tab 9, Schedule 5 for a list of interested parties.
- 21. Feedback was received from agencies and municipalities through written correspondence and attendance at the Information Sessions and meetings. Regular meetings with administration and council occurred with the three Project partner municipalities: Kincardine, Arran-Elderslie and Huron-Kinloss. In-person meetings were also held with the following municipalities: Bruce County, Grey County, Municipality of Brockton, Municipality of West Grey and the Township of Chatsworth. EPCOR continues to engage with agency personnel as the Project progresses through the detailed design and construction phases.
- 22. Feedback was received from First Nation and Métis communities through written correspondence and in-person meetings. Further details regarding First Nation and Métis communities are provided in Tab 11, Schedule 1. EPCOR will continue to engage with First Nation and Métis communities as the Project progresses through the detailed design and construction phases.
- 23. Throughout the planning process for the Project route, feedback from stakeholders was sought and incorporated where applicable. To accommodate potential customers who wished to connect to the Project, EPCOR modified the Preferred Route and made several routing refinements. However, no environmental or socio-economic concerns were expressed by stakeholders regarding the Preferred Route.

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Public Notice of Pipeline Route, Environmental Report, Open Houses & Environmental Report Media

24. A combined Notice of Study Commencement and Public Information Session was published on October 7 and 14, 2015 in local newspapers (the "Notice"). The Notice described the Project, its timing, and the environmental study process, and provided contact information and a map showing the preliminary routing. The Notice also provided information on the format, times, and locations of the three upcoming Information Sessions. Information on the Project was also provided in the form of a press release on September 21, 2015 to the media. In addition, the Notice was delivered through Canada Post unaddressed ad mail to all residents and businesses in the Project study area. Notices can be found in Appendix B of the Environmental Report.

- 25. Following the OEB award of the Project to EPCOR, a combined Notice of Project Change and Public Information Session was published during the week of May 14, 2018 in local newspapers (the "Project Update"). The Project Update described the Project, provided a map of the preliminary Preferred Route and described the changes from the original routing. It also provided information on the format, times and locations of three upcoming Information Sessions, and listed Project contact information. The Project Update was delivered through Canada Post unaddressed ad mail to residents and businesses near the preliminary Preferred Route. Project update notices can be found in Appendix B of the Environmental Report.
- 26. Display boards were developed for the two sets of Information Sessions held. An exit questionnaire was also provided to Information Session attendees at the meetings 2015 and 2018. In total, six public Information Sessions were held in the Southern Bruce communities for the Project: three in 2015 and three in 2018. The dates, times and locations of these meetings are provided in Table 3-1 of the Environmental Report.
- 27. Project information is provided on the EPCOR website: epcor.com/southernbruce. The website includes an overview of the Project, community and environmental impacts, the environmental study process, the OEB regulatory process and EPCOR's OEB applications. As consultation events and activities occurred, documents were posted to the website, including Project notices, updates and information session display boards.

OPCC¹ Distribution List

Ms. Crystal Lafrance Supervisor, Air, Pesticides and Environmental Planning Ontario Pipeline Coordinating Committee Ministry of the Environment and Climate Change - Southwestern Region 659 Exeter Road, 2nd Floor London, ON, N6E 1L3	Mr. Joseph Vecchiolla Policy Lead, Realty Policy Branch Ontario Pipeline Coordinating Committee Ministry of Economic Development, Employment and Infrastructure 777 Bay Street, 4th Floor, Suite 425 Toronto ON, M5G 2E5
Ms. Karla Barboza Team Lead, Heritage Ontario Pipeline Coordinating Committee Ministry of Tourism, Culture and Sport 401 Bay Street Toronto, ON M7A 0A7	Mr. Scott Oliver Manager (Acting) - Community Planning and Development Ontario Pipeline Coordinating Committee Ministry of Municipal Affairs and Housing - Western Municipal Services Office 659 Exeter Road, 2nd Floor London, ON, N6E 1L3
Mr. Kourosh Manouchehri Ontario Pipeline Coordinating Committee Technical Standards and Safety Authority 345 Carlingview Drive Toronto, ON, M9W 6N9	Mr. Patrick Grace Director/Project Coordinator, Land Transactions- Hydro Corridors & Public Works Ontario Pipeline Coordinating Committee Infrastructure Ontario 1 Dundas St. W., Suite 2000 Toronto ON, M5G 2L5
Ms. Sally Renwick ² Team Lead, Environmental Planning Ontario Pipeline Coordinating Committee Ministry of Natural Resources and Forestry 300 Water Street Peterborough, ON, K9J 8M5	Mr. Ken Mott District Planner Resource Operations Team Ministry of Natural Resources and Forestry 2284 Nursery Road Midhurst ON L9X 1N8
Ms. Shereen Smithanik Senior Advisor Ontario Pipeline Coordinating Committee Ministry of Energy, Indigenous Energy Policy Unit 77 Grenville Street, 6th Floor Toronto, ON, M7A 2C1	Mr. Tony DiFabio Senior Planner and Policy Advisor, Corridor Management and Property Office Ontario Pipeline Coordinating Committee Ministry of Transportation 301 St. Paul Street, 2nd Floor St. Catharines, ON, L2R 7R4
Ms. Zora Crnojacki Project Advisor, Applications and Regulatory Audit Ontario Pipeline Coordinating Committee Ontario Energy Board P.O. Box 2319, 2300 Yonge Street, 26th Floor Toronto, ON, M4P 1E4	

 $^{^{1}}$ Ontario Pipeline Coordinating Committee (Current as of July 18, 2018). 2 EPCOR received notification from MNRF that updates should go to Ken Mott, District Planner





July 18, 2018 File: 160950831

Attention: Ms. Crystal Lafrance
Supervisor, Air, Pesticides and Environmental Planning
Ontario Pipeline Coordinating Committee
Ministry of the Environment and Climate Change - Southwestern Region
659 Exeter Road, 2nd Floor
London, ON, N6E 1L3

Dear Ms. Lafrance,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

EPCOR retained Stantec Consulting Ltd. to undertake an environmental study of the construction and operation of the proposed pipeline and related facilities. The environmental study is intended to fulfill the requirements of the OEB's *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario, 7th Edition* (2016). An electronic copy and hardcopy of the Environmental Report, summarizing the results of the environmental study, have been made available for your review.

Please forward any comments you may have regarding the ER and project to Ms. Zora Crnojacki, Chairperson, Ontario Pipeline Coordination Committee, Ontario Energy Board, 2300 Yonge Street, 26th Floor, P.O. Box 2319, Toronto, ON M4P 1E4, zora.crnojacki@oeb.gov.on.ca, and the undersigned. Your comments would be appreciated by August 30, 2018.

Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

a cudios

Phone: (780) 412-7970 Fax: (780) 412-3013 acudrak@epcor.com





July 18, 2018 File: 160950831

Attention: Mr. Joseph Vecchiolla
Policy Lead, Realty Policy Branch
Ontario Pipeline Coordinating Committee
Ministry of Economic Development, Employment and Infrastructure
777 Bay Street, 4th Floor, Suite 425
Toronto ON, M5G 2E5

Dear Mr. Vecchiolla,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

EPCOR retained Stantec Consulting Ltd. to undertake an environmental study of the construction and operation of the proposed pipeline and related facilities. The environmental study is intended to fulfill the requirements of the OEB's *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario, 7th Edition* (2016). An electronic copy and hardcopy of the Environmental Report, summarizing the results of the environmental study, have been made available for your review.

Please forward any comments you may have regarding the ER and project to Ms. Zora Crnojacki, Chairperson, Ontario Pipeline Coordination Committee, Ontario Energy Board, 2300 Yonge Street, 26th Floor, P.O. Box 2319, Toronto, ON M4P 1E4, zora.crnojacki@oeb.gov.on.ca, and the undersigned. Your comments would be appreciated by August 30, 2018.

Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

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Phone: (780) 412-7970 Fax: (780) 412-3013 acudrak@epcor.com





July 18, 2018 File: 160950831

Attention: Ms. Karla Barboza
Team Lead, Heritage
Ontario Pipeline Coordinating Committee
Ministry of Tourism, Culture and Sport
401 Bay Street
Toronto, ON M7A 0A7

Dear Ms. Barboza,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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Please forward any comments you may have regarding the ER and project to Ms. Zora Crnojacki, Chairperson, Ontario Pipeline Coordination Committee, Ontario Energy Board, 2300 Yonge Street, 26th Floor, P.O. Box 2319, Toronto, ON M4P 1E4, zora.crnojacki@oeb.gov.on.ca, and the undersigned. Your comments would be appreciated by August 30, 2018.

Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

a cudios

Phone: (780) 412-7970 Fax: (780) 412-3013 acudrak@epcor.com





July 18, 2018 File: 160950831

Attention: Mr. Ken Mott District Planner Resource Operations Team 2284 Nursery Road Midhurts ON L9X 1N8

Dear Mr. Mott,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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Please forward any comments you may have regarding the ER and project to Ms. Zora Crnojacki, Chairperson, Ontario Pipeline Coordination Committee, Ontario Energy Board, 2300 Yonge Street, 26th Floor, P.O. Box 2319, Toronto, ON M4P 1E4, zora.crnojacki@oeb.gov.on.ca, and the undersigned. Your comments would be appreciated by August 30, 2018.

Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

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Phone: (780) 412-7970 Fax: (780) 412-3013 acudrak@epcor.com





July 18, 2018 File: 160950831

Attention: Mr. Kourosh Manouchehri Ontario Pipeline Coordinating Committee Technical Standards and Safety Authority 345 Carlingview Drive Toronto, ON, M9W 6N9

Dear Mr. Manouchehri,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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Please forward any comments you may have regarding the ER and project to Ms. Zora Crnojacki, Chairperson, Ontario Pipeline Coordination Committee, Ontario Energy Board, 2300 Yonge Street, 26th Floor, P.O. Box 2319, Toronto, ON M4P 1E4, zora.crnojacki@oeb.gov.on.ca, and the undersigned. Your comments would be appreciated by August 30, 2018.

Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

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Phone: (780) 412-7970 Fax: (780) 412-3013 acudrak@epcor.com





July 18, 2018 File: 160950831

Attention: Mr. Patrick Grace
Director/Project Coordinator, Land Transactions- Hydro Corridors & Public Works
Ontario Pipeline Coordinating Committee
Infrastructure Ontario
1 Dundas St. W., Suite 2000
Toronto ON, M5G 2L5

Dear Mr. Grace,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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Please forward any comments you may have regarding the ER and project to Ms. Zora Crnojacki, Chairperson, Ontario Pipeline Coordination Committee, Ontario Energy Board, 2300 Yonge Street, 26th Floor, P.O. Box 2319, Toronto, ON M4P 1E4, zora.crnojacki@oeb.gov.on.ca, and the undersigned. Your comments would be appreciated by August 30, 2018.

Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

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Phone: (780) 412-7970 Fax: (780) 412-3013 acudrak@epcor.com





July 18, 2018 File: 160950831

Attention: Ms. Sally Renwick
Team Lead, Environmental Planning
Ontario Pipeline Coordinating Committee
Ministry of Natural Resources and Forestry
300 Water Street
Peterborough, ON, K9J 8M5

Dear Ms. Renwick,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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Please forward any comments you may have regarding the ER and project to Ms. Zora Crnojacki, Chairperson, Ontario Pipeline Coordination Committee, Ontario Energy Board, 2300 Yonge Street, 26th Floor, P.O. Box 2319, Toronto, ON M4P 1E4, zora.crnojacki@oeb.gov.on.ca, and the undersigned. Your comments would be appreciated by August 30, 2018.

Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

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Phone: (780) 412-7970 Fax: (780) 412-3013 acudrak@epcor.com





July 18, 2018 File: 160950831

Attention: Mr. Scott Oliver
Manager (Acting) - Community Planning and Development
Ontario Pipeline Coordinating Committee
Ministry of Municipal Affairs and Housing - Western Municipal Services Office
659 Exeter Road, 2nd Floor
London, ON, N6E 1L3

Dear Mr. Oliver,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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Please forward any comments you may have regarding the ER and project to Ms. Zora Crnojacki, Chairperson, Ontario Pipeline Coordination Committee, Ontario Energy Board, 2300 Yonge Street, 26th Floor, P.O. Box 2319, Toronto, ON M4P 1E4, zora.crnojacki@oeb.gov.on.ca, and the undersigned. Your comments would be appreciated by August 30, 2018.

Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

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Phone: (780) 412-7970 Fax: (780) 412-3013 acudrak@epcor.com





July 18, 2018 File: 160950831

Attention: Ms. Shereen Smithanik
Senior Advisor
Ontario Pipeline Coordinating Committee
Ministry of Energy, Indigenous Energy Policy Unit
77 Grenville Street, 6th Floor
Toronto, ON, M7A 2C1

Dear Ms. Smithanik,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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Please forward any comments you may have regarding the ER and project to Ms. Zora Crnojacki, Chairperson, Ontario Pipeline Coordination Committee, Ontario Energy Board, 2300 Yonge Street, 26th Floor, P.O. Box 2319, Toronto, ON M4P 1E4, zora.crnojacki@oeb.gov.on.ca, and the undersigned. Your comments would be appreciated by August 30, 2018.

Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

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Phone: (780) 412-7970 Fax: (780) 412-3013 acudrak@epcor.com





July 18, 2018 File: 160950831

Attention: Mr. Tony DiFabio
Senior Planner and Policy Advisor, Corridor Management and Property Office
Ontario Pipeline Coordinating Committee
Ministry of Transportation
301 St. Paul Street, 2nd Floor
St. Catharines, ON, L2R 7R4

Dear Mr. DiFabio,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

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Phone: (780) 412-7970 Fax: (780) 412-3013 acudrak@epcor.com





July 18, 2018 File: 160950831

Attention: Ms. Zora Crnojacki
Project Advisor, Applications and Regulatory Audit
Ontario Pipeline Coordinating Committee
Ontario Energy Board
P.O. Box 2319, 2300 Yonge Street, 26th Floor
Toronto, ON, M4P 1E4

Dear Ms. Crnojacki,

Reference: EPCOR Natural Gas Limited Partnership - Proposed Natural Gas Pipeline to Serve Southern Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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Sincerely yours,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services

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September 20, 2018 File: 160950831

Attention: Zora Crnojacki, Coordinator, Ontario Pipeline Coordinating Committee

Ontario Energy Board 2300 Yonge Street, 26th Floor **Suite 2601**

Toronto, ON M4P 1E4

Dear Ms. Crnojacki,

Reference: Proposed EPCOR Natural Gas Pipeline to Serve Southern Bruce: Environmental Report

EPCOR and Stantec appreciate the time that staff at the Ministry of the Environment, Conservation and Parks (MECP), the Ministry of Natural Resources and Forestry (MNRF) and the Historic Saugeen Metis (HSM) have taken to review the EPCOR Environmental Report for the Natural Gas Pipeline to Serve Southern Bruce Project. A comment response table has been prepared to address the comments provided by the MECP (email dated August 23, 2018), the MNRF (letter via email, dated September 13, 2018) and the HSM (email dated August 15, 2018). The comment response table is attached for your review.

Should you have any additional comments or questions regarding the Project, please do not hesitate to contact the undersigned. Thank you again for taking the time to review the Environmental Report.

Yours truly,

Stantec Consulting Ltd.

Róoly Georgopoulos B.Sc.

Senior Associate, Environmental Services

Phone: (905) 415-6367 Fax: 905-474-9889

Rooly.georgopoulos@stantec.com

Attachment: Responses to Comments Received on the Final Environmental Report

Ken Mott, District Planner, Midhurst District, MNRF Anneleis Eckert, Environmental Planner / Environmental Assessment Coordinator, MECP8 George Govier, Co-ordinate Lands, Resources, and Consultation Audrey Cudrak, Director, Project & Technical Services, EPCOR

Comment Number	Report Section	Comment and EPCOR Response
	ovided By: Ministry of Nature dated September 13, 201	ural Resources and Forestry (MNRF) 8 ("By Email Only")
MNRF_1	4.5 Summary of Recommendations, Table 4-7: Species at Risk (SAR) AND 4.3.1 Aquatic Species and Habitat, Aquatic Species at Risk	Comment: Species at Risk: the list of potential species provided is very thorough. SAR have been addressed at a broad scale as it would appear that no surveys or field work have occurred along the proposed route to date. MNRF feels the proposed mitigation for SAR is adequate but recommends the following additions listed below to avoid any impacts to threatened and endangered species or their habitat; SAR Bats – table 4-7 Mitigation for Tree Removal. This mitigation should be adjusted to reflect the active season for bats which is generally April 1 to October 31. In areas observed to have bats, no tree removal should occur during this time. Rainbow Mussel – provincial status has changed to Special Concern as of June 2017. However, it is still "Endangered" under the federal Species at Risk Act. Response, Applicable Mitigation and/or Commitment: Comment noted. EPCOR will follow mitigation measures to prevent tree removal during the active season for bats (April 1 – October 31). If bats are observed in the area where trees are to be removed, work will be delayed until after October 31 and before April 1. EPCOR will follow mitigation measures for the Rainbow Mussel appropriate for the provincial status and federal status requirements. These mitigation measures will be added to the Project specific Environmental Protection Plan.
MNRF_2	4.3.4 Species at Risk (SAR), Mitigation and Protective Measures	Comment: Reptiles and Amphibians: the mitigation section recommends that work is to occur outside the breeding season. If this is not possible, then the area should be surveyed prior to starting any work to ensure that no species are present. Should any turtles be found in the area, exclusion fencing should be installed to ensure they do not enter the area during the period of work. Response, Applicable Mitigation and/or Commitment: Comment noted. If work is required to be conducted during the reptile and amphibians breeding season, the area will be surveyed prior to starting work to ensure that no species are present. If turtles are found in the area, exclusion fencing will be installed to ensure they do not enter the area during the period of work. This mitigation measure will be added to the Project specific Environmental Protection Plan.
MNRF_3	4.3.1 Aquatic Species and Habitat, General Mitigation Measures	Comment: Fisheries: the report references timing windows that are not appropriate for Grey or Bruce counties. These timing windows should be changed to: Coldwater timing window – work allowed July 1 to September 30 Warmwater timing window – work allowed July 15 to March 15 Coolwater/migratory timing window – work allowed July 15 to September 30 Additionally, the report identifies the South Pine River as being a warmwater system. It does, however, have a migratory run of salmonids and as such should be considered Coolwater/migratory with the appropriate timing windows applied. Response, Applicable Mitigation and/or Commitment: Comment noted. The timing windows provided by the MNRF for Grey and Bruce counties will be followed, as listed above. This mitigation measure will be added to the Project specific Environmental Protection Plan.

Comment Number	Report Section	Comment and EPCOR Response
	ovided By: Ministry of the I dated August 23, 2018	Environment, Conservation and Parks (MECP)
MECP_1	3.0 Consultation Program, Agency Input AND 4.4.6 Contaminated Sites	Comment: Section 3.5.2.2 suggests that no additional mitigation or protective measures from ministry consultation were incorporated. However, waste sites are further described in Section 4.4.6 The Mitigation and Protective measures described on page 4.67 speak to soil and water contamination mainly from construction, but do not appear to directly address closed and/or active lendfill sites. Measures for lendfill sites including leachate or methane contaminates should be identified. Alternatively, it is determination that the waste sites pose no concern to the project, the methodology for this determination should be included. Please note that MECP did not verify the identified landfill or contaminated site locations in Figure C-2. Response, Applicable Mitigation and/or Commitment: Data for closed and active landfill sites were sourced using mapping from the Bruce County Official Plan and Ontario landfill location points from the Waste Disposal Site Inventory provided by Ministry of Environment and Climate Change (now Ministry of Environment Conservation and Parks) in June 1991. Based on these two datasets, the lateral distance between the closest landfill site and the location of the preferred pipeline route, near the Town of Ripley. Ontario was determined to be 60m. Distance to the next closest landfill site to the preferred pipeline route is greater than 325 m. Based on the above stated separation distances between the landfill sites to the location of the pipeline route, it is our opinion that any potentially contaminating activities from surrounding landfills will not create and environmental concern to the Project. If construction of a pipeline route was to traverse through a landfill in a hypothetical worst case scenario, then there could be possible corrosion to the pipeline itself (salt from landfill leachate) and/or explosion from combustion of accumulated landfill methane gas when cutting steel pipe, or by workers smoking in the work area. In the Town of Ripley where the preferred pipeline route
	ovided By: Historic Sauge dated August 15, 2018 an	en Metis (HSM) and Email dated August 28, 2018
HSM_1	N/A	Comment: In our e-mail to you dated August 15, 2018, we were careful to point out the following clarification: "Environmental Report (July 16, 2018) - Clarifications noted – HSM is referenced below as MNO and/ or Métis Nation. HSM is an independent historic Métis Community and is not affiliated with the Métis Nation of Ontario. The correct term is Métis or Métis community when HSM is referenced with other Métis communities." The potential for confusion occurs when "Metis Nation" is used for readers or audiences in Ontario because it is often assumed that it means "Metis Nation of Ontario" or (MNO). Therefore, the term "Metis Nation" would not include Historic Saugeen Metis as we are not a member of the Metis Nation of Ontario. The safest expression would be to use Historic Saugeen Metis with the acronym HSM.
		Response, Applicable Mitigation and/or Commitment: The Historic Saugeen Metis (HSM) will be referred to as a "Metis Community" and the acronym HSM will be used in future correspondence and documentation.

Ministry of Natural Resources and Forestry Midhurst District 2284 Nursery Road Midhurst, Ontario L9X 1N8 Ministère des Richesses naturelles et des Forêts Telephone: (705) 725-7500 Facsimile: (705) 725-7584



September 13, 2018

"By Email Only"

Ms. Zora Crnojacki, Coordinator, Ontario Pipeline Coordination Committee, Ontario Energy Board, 2300 Yonge St. 26th Floor, Suite 2601, Toronto Ontario M4P 1E4

Dear Ms. Crnojacki:

SUBJECT:

Proposed EPCOR Natural Gas Pipeline to Serve Southern Bruce: Environmental Report- July 16, 2018

Please be advised that staff of the Ministry of Natural Resources and Forestry (MNRF) have completed a review of the background material for the proposed pipeline project noted above from both a natural heritage and Species at Risk (SAR) perspective. In order to do so, MNRF staff have reviewed the following document which was circulated by Epcor:

 Proposed Natural Gas Pipeline to Serve Southern Bruce: Environmental Report (FINAL REPORT - File: 160950831), prepared July 16, 2018 by Stantec.

Based on this report it is understood that most of the work proposed will be within existing road allowances, an area already disturbed. MNRF provides the following comments on Species At Risk, reptile and amphibian mitigation and fisheries in-water works timing windows for consideration:

Species At Risk

The list of potential species provided is very thorough. SAR have been addressed at a broad scale as it would appear that no surveys or field work have occurred along the proposed route to date.

MNRF is feels the proposed mitigation for SAR is adequate but recommends the following additions listed below to avoid any impacts to threatened and endangered species or their habitat;

 SAR Bats - table 4-7 Mitigation for Tree Removal. This mitigation should be adjusted to reflect the active season for bats which is generally April 1 to October 31. In areas observed to have bats, no tree removal should occur during this time. Rainbow Mussel - provincial status has changed to Special Concern as of June 2017. However it is still "Endangered" under the federal Species at Risk Act.

Reptiles and Amphibians

The mitigation section recommends that work is to occur outside the breeding season. If this is not possible, then the area should be surveyed prior to starting any work to ensure that no species are present. Should any turtles be found in the area, exclusion fencing should be installed to ensure they do not enter the area during the period of work.

Fisheries

The report references timing windows that are not appropriate for Grey or Bruce counties. These timing windows should be changed to;

- Coldwater timing window work allowed July 1 to September 30
- Warmwater timing window work allowed July 15 to March 15.
- Coolwater/migratory timing window work allowed July 15 to September 30

Additionally the report identifies the South Pine River as being a warmwater system. It does, however, have a migratory run of salmonids and as such should be considered Coolwater/migratory with the appropriate timing windows applied.

Thank you for the opportunity to comment on the environmental report for the proposed pipeline project. If you have any questions with respect to these comments please contact me at (705) 725-7546.

Yours truly,

Ken Mott

District Planner, Midhurst District

705-725-7546

Ken.Mott@ontario.ca

Cc: Audrey A. Cudrak, Director, Project and Technical Services, Epcor Kevin Sonnenberg, Senior Manager, Business Development, Epcor Subject:

FW: Southern Bruce Natural Gas Pipeline Update -2363498

From: Kourosh Manouchehri [mailto:KManouchehri@tssa.org]

Sent: September-11-18 12:36 PM

To: Cudrak, Audrey

Cc: Litwinow, Ryan; Sonnenberg, Kevin; Grant Strachan (gstrachan@aecon.com); Stachowski, Thomas

Subject: RE: Southern Bruce Natural Gas Pipeline Update -2363498

Notice: External Email

Use caution when opening links, attachments, and when prompted to enter User IDs, Passwords or Confidential Information

Please report any suspicious email to the EPCOR Service Desk.

Hi Audrey,

Thank you for your response.

Regarding the valve spacing, I agree to the use of class 2 and 3 for valve spacing. However in Ontario we amended clause 4.3.4. and require the study of the high consequence area for the class locations. Please see section 4.3.4.9 to 4.3.4.12 of FS-238-18 - Oil and Gas Pipelines CAD Amendment below. You can access this document on the following link.

https://www.tssa.org/en/fuels/resources/Documents/Oil-and-Gas-Pipelines-CAD-Amendment FIX.pdf

(6) Clause 4.3.4 is amended by adding the following clauses:

4.3.4.9 High consequence areas

4.3.4.9.1 Definitions

The following definitions apply to the remainder of clause 4.3.4:

Assessment means the use of testing techniques set out in this section to ascertain the condition of a covered pipeline segment.

Covered segment or Covered pipeline segment means a segment of oil or gas transmission pipeline located in a high consequence area. The terms "oil", "gas" and "transmission" are defined in O. Reg. 210/01

If the valve spacing are used other than class 4, high consequence area study and risk assessment and remediation according to sections 4.3.4.11 and 4.3.4.12 should be done. As I noticed on the submitted environmental report, most probably there are not that many "identified sites" on class 2, because the lines are mostly in rural area. However this study helps the correct use of valve spacing in conjunction with other remediations mentioned in section 4.3.4.12.

If you have any question, please contact me.

Regards,



Kourosh Manouchehri, P.Eng., PMP | Engineer

Fuels Safety 345 Carlingview Drive Toronto, Ontario M9W 6N9

Tel: +1-416-734-3539 | Fax: +1-416-231-7525 | E-Mail: kmanouchehri@tssa.org

www.tssa.org







From: Cudrak, Audrey <acudrak@epcor.com>

Sent: September 4, 2018 19:47

To: Kourosh Manouchehri < KManouchehri@tssa.org>

Cc: Litwinow, Ryan <RLitwinow@epcor.com>; Sonnenberg, Kevin <KSonnenberg@epcor.com>; Grant Strachan

(gstrachan@aecon.com) <gstrachan@aecon.com>; Stachowski , Thomas <TStachowski@epcor.com>

Subject: RE: Southern Bruce Natural Gas Pipeline Update -2363498

Good afternoon Kourosh – thanks for sending your feedback on the pipe design for the Southern Bruce project. Here is our response to your questions:

1. Submitted documents show that class 3 is chosen for the design of the steel pipe. I believe this project is within the distribution system as defined in section 12.1.1 and figure 12.1 of CSA Z662-15. I believe distribution network should be designed above all the class locations as clause 12 does not talk about the class location and exempt itself from the requirement of the class locations modification. Also, because clause 12 refers to other clauses of the code, as a minimum class 4 should be selected for the base of the design. Please provide updated document to refers to this change.

Response: yes, we agree, as you have noted, that the stress level on the pipe at operating pressure is less than 30% of SMYS and the lines seem to be within the distribution network and clause 12 of CSA Z662-15

applies. Regarding the pipe design, it does meet a location factor design of 0.550, therefore it is correct to state that the pipe stress design meets a Class 4 Location. However, we want to ensure there is no misunderstanding on the valve spacing requirements for the NPS 8 and NPS 6 steel pipelines. Clause 12.4.13.1 states that Clause 4.4 (valve spacing) does not apply to pipelines that fall under Clause 12. Clause 12.4.13.4 states that valves "shall be located in a manner that provides ready access and facilitates their operation during emergencies". To achieve this and meet the intention of the code for valve spacing, we will be using Clause 4.4 (Table 4.7) for the proposed valve spacing on these steel lines. Specifically, we will be using the 25 km spacing in the Class 2 areas and 13 km spacing in the Class 3 areas.

In summary, we can say our design meets a Class 4 design so long as we are in agreement that the pipeline falls under Clause 12 and therefore, Clause 4.4 is not applicable as per Clause 12.4.13.1. Can you please confirm if this is the update you are seeking?

Is the gas delivered to EPCOR already odorized? Or it will be odorized by EPCOR?
 Response: yes, the gas will be delivered to EPCOR already odorized (from Union Gas)

Best regards,

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services EPCOR Commercial Services 2000 – 10423 101 Street NW Edmonton, AB Canada T5H 0E8

T: (780) 412-7970 F: (780) 412-3013 E: acudrak@epcor.com

-----Original Message-----From: Sonnenberg, Kevin

Sent: September-04-18 8:56 AM

To: Cudrak, Audrey Cc: Litwinow, Ryan

Subject: FW: Southern Bruce Natural Gas Pipeline Update -2363498

Audrey – can you respond to Kourosh?

Cheers,

Kevin Sonnenberg Senior Manager, Business Development Direct: (403) 717-8947 | Mobile: (403) 880-9765

From: Kourosh Manouchehri [mailto:KManouchehri@tssa.org]

Sent: September-04-18 8:21 AM

To: Sonnenberg, Kevin Cc: acrudark@epcor.com

Subject: Southern Bruce Natural Gas Pipeline Update -2363498

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Information.

Please report any suspicious email to the EPCOR Service Desk.

Hi Kevin,

I reviewed this project based on the submitted document. More specifically I reviewed in detail technical specification of the pipeline. The stress level on the pipe at operating pressure is less than 30% of SMYS and the lines seem to be within the distribution network and clause 12 of CSA Z662-15 applies. I have following questions.

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 9 of 67

the distribution system as defined in section 12.1.1 and figure 12.1 of CSA Z662-15. I believe distribution network should be designed above all the class locations as clause 12 does not talk about the class location and exempt itself from the requirement of the class locations modification. Also, because clause 12 refers to other clauses of the code, as a minimum class 4 should be selected for the base of the design. Please provide updated document to refers to this change. 2. Is the gas delivered to EPCOR already odorized? Or it will be odorized by EPCOR?
Please respond to the above mentioned questions.
We want to visit the construction site for audit of this project. Please let me the appropriate timeline and the contact person. One of the visit can be for witnessing the pressure test of some portion of the steel pipe.
If you have any question, please contact me.
Regards,
Kourosh Manouchehri, P.Eng., PMP Engineer
Fuels Safety
345 Carlingview Drive
Toronto, Ontario M9W 6N9
Tel: +1-416-734-3539 Fax: +1-416-231-7525 E-Mail: kmanouchehri@tssa.org
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Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 10 of 67

From: FS Submissions Sent: July 17, 2018 14:24

To: Bonnie Adams

Cc: Kourosh Manouchehri@tssa.org>

Subject: SR#2348164 - RE: RUSH CONSULTATION APPLICATION_FW: [External] RE: Enbridge Gas Distribution Inc. -

Liberty Village Pipeline Project - Amended Environmental Report - TSSA Form

Good Afternoon,

We have processed your consultation application for LIBERTY VILLAGE, TORONTO— our file SR#2348164.

This file has been assigned to Kourosh Manouchehri for review. Please contact Kourosh Manouchehri via email kmanouchehri@tssa.org, if you have additional questions.

Thanks

Angelina Brew | Administrative Assistant

Fuels Safety

345 Carlingview Drive

Toronto, Ontario M9W 6N9

Tel: +1-416-734-3477 | Fax: +1-416-231-7525 | E-Mail: abrew@tssa.org

www.tssa.org

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 11 of 67

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awards>
From: Kourosh Manouchehri
Sent: July 16, 2018 9:07 AM
To: FS Submissions < fssaubmissions@tssa.org Subject: RUSH CONSULTATION APPLICATION_FW: [External] RE: Enbridge Gas Distribution Inc Liberty Village Pipeline Project - Amended Environmental Report - TSSA Form
ні,
Please process this application and assigned to me.
Thanks,
Kourosh Manouchehri, P.Eng., PMP Engineer
Nourosit Matiouchetili, F.Liig., FIMF Liigitieet

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 12 of 67
Fuels Safety
345 Carlingview Drive
Toronto, Ontario M9W 6N9
Tel: +1-416-734-3539 Cell: +1-416-999-6529 Fax: +1-416-231-7525 E-Mail: kmanouchehri@tssa.org
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https://twitter.com/TSSAOntario http://tssablog.org/ https://tssablog.org/ https://tssablog.org/ https://tssablog.org/ https://tssablog.org/ https://tssablog.org/ https://tssablog.org/ https://tssablog.org/ https://www.tssa.org/safety-awards
From: Bonnie Adams [mailto:Bonnie.Adams@enbridge.com] Sent: July 16, 2018 08:54 To: Kourosh Manouchehri < KManouchehri@tssa.org > Subject: RE: [External] RE: Enbridge Gas Distribution Inc Liberty Village Pipeline Project - Amended Environmental Report - TSSA Form
Good Morning,

Please let me know if you have any questions and/or require further information.

As requested, attached please find the completed form.

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 13 of 67

Sincerely,
Bonnie Jean Adams
Regulatory Coordinator
Enbridge Gas Distribution
T: 416-495-6409 F: 416-495-6072
500 Consumers Road I North York Ontario I M2J 1P8
enbridgegas.com/homes/> Integrity. Safety. Respect.
From: Kourosh Manouchehri [mailto:KManouchehri@tssa.org] Sent: Wednesday, June 27, 2018 8:23 AM To: Bonnie Adams Subject: [External] RE: Enbridge Gas Distribution Inc Liberty Village Pipeline Project - Amended Environmental Report - OPCC Review
Hi Bonnie,
Please fill the application on the following link and send it to my attention. At this point, we use this form and in process of having specific form for new pipeline project in future. Please fill the sections as much as applicable. Some sections like location address might not be applicable.
https://www.tssa.org/en/fuels/resources/Documents/Application-for-a-Consultation.pdf <https: 1h8udr9obuezho8h3gtobxtmiloqkrjevm1e-x3lxfqwpgmnj81fhoccsif_ontkxbi5c37e-f72jove0v310suj9dt8mleyzwcs8osow94jzvnsitt2vs91dvjdz7-y1atkeqzbqsts1ihcobgnbhvywuxhcdrb996-zxm2z1ck-xtiqdfd8se5dittvfch9kj5vmhcddn6gjgwaccevu2zu4yujx0_rbrzquezzvk70ofevsgyapc-f4g-i3tualz_7px0gn70awe3qlaxcctotoeob5zjtgxjvkfpqgzuazrvgl1o605bl7ygk1tyk="" https%3a%2f%2fwww.tssa.org%2fen%2efuels%2fresources%2fdocuments%2fapplication-for-a-consultation.pdf="" secure-web.cisco.com=""></https:>

If you have any question, please contact me.
Regards
cid:image001.jpg@01D40DF0.02EEBEE0
Kourosh Manouchehri, P.Eng., PMP Engineer
Fuels Safety
345 Carlingview Drive
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Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 15 of 67

From: Bonnie Adams [mailto:Bonnie.Adams@enbridge.com]

Sent: June 13, 2018 11:38

To: Kourosh Manouchehri < KManouchehri@tssa.org>

Subject: Enbridge Gas Distribution Inc. - Liberty Village Pipeline Project - Amended Environmental Report - OPCC Review

To: "michael.elms@ontario.ca <mailto:michael.elms@ontario.ca>", "scott.oliver@ontario.ca <mailto:scott.oliver@ontario.ca>", "bridget.schulte-hostedde@ontario.ca <mailto:bridget.schulte-hostedde@ontario.ca>", "Mark.Smithson@ontario.ca <mailto:Mark.Smithson@ontario.ca>", "sally.renwick@ontario.ca>", "ruth.orwin@ontario.ca>", "ruth.orwin@ontario.ca</mailto:ruth.orwin@ontario.ca>", "kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org>", "Tony.difabio@ontario.ca>", "crystal.lafrance@ontario.ca</mailto:crystal.lafrance@ontario.ca>", "Zora.Crnojacki@oeb.gov.on.ca <mailto:Zora.Crnojacki@oeb.gov.on.ca>", "paula.allen@ontario.ca <mailto:paula.allen@ontario.ca>", "Joseph.Vecchiolla@ontario.ca</millo:Joseph.Vecchiolla@ontario.ca>", "ross.lashbrook@ontario.ca <mailto:ross.lashbrook@ontario.ca>", "Linda.Pim@ontario.ca <mailto:Paul.Martin@ontario.ca <mailto:Paul.Martin@ontario.ca>", "shereensmithanik@ontario.ca <mailto:shereensmithanik@ontario.ca>", "Laura.e.hatcher@ontario.ca</mailto:Laura.e.hatcher@ontario.ca>", "Laura.e.hatcher@ontario.ca>", "Laura.e.hatcher@ontario.ca>", "mailto:Laura.e.hatcher@ontario.ca>", "Laura.e.hatcher@ontario.ca>", "Laura.e.hatcher@ontario.ca>", "Martin@ontario.ca>", "Laura.e.hatcher@ontario.ca>", "Martin@ontario.ca>",

The following attachment has been sent to you using Mail Express®:

Enbridge_Liberty_Village_Amended_Environmental_Report_-_Final_June_2018_redacted.pdf https://mailexpress.enbridge.com/pickup/3MHF9XWTFrEXmVjkoENIOMCK fqQPECrADVZWSbh/Enbridge Liberty Villa ge Amended Environmental Report - Final June 2018 redacted.pdf> (44.6 MB)

Click the links above or visit the pick-up portal

https://mailexpress.enbridge.com/pickup/ZQgxGk6gctFFPRwtqwXLoidqcCbGsvKpmQ1qlpfF> for batch retrieval or to reply with your own attachments.

To: Ontario Pipeline Coordinating Committee (OPCC) Members

Enbridge Gas Distribution Inc. ("Enbridge") is proposing to construct approximately 1.2 km of natural gas pipeline within Liberty Village (the "Project"). The Project will serve to supply gas to additional development, and reinforce the existing gas infrastructure to support future growth in the community.

Since submitting the Environmental Report in April 2018, additional developments requiring natural gas service in the Project were identified. As such, the Preferred Route has been amended to accommodate this requirement.

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 16 of 67

Consequently, this Environmental Report has been updated to include an assessment of the area along the amended pipeline route. As with the original Preferred Route, the additional pipeline segment has been assessed to identify any potential adverse environmental effects and where appropriate, impact management measures have been proposed to address any potential adverse environmental effects. Enbridge is submitting this updated report for OPCC review.

Description of the Amended Preferred Route

The amended Preferred Route for the new gas pipeline consists of two sections having a total length of 1.2 km. Section 1 of the new pipeline consists of 900 m of 8-inch Intermediate Pressure steel pipe beginning at King Street West and Jefferson Avenue. It extends eastwards along King Street before being directed south onto Atlantic Avenue where it then continues east along Snooker Street. It turns south onto Hanna Avenue and continues toward East Liberty Street. Finally, it continues eastwards along East Liberty Street and connects with an existing gas main at Pirandello Street.

Section 2 of the new pipeline consists of two individual segments of pipe. The first segment included in the original Preferred Route, is 200 m of 6-inch Intermediate Pressure polyethylene pipe beginning at Strachan Avenue and Ordnance Street, continuing east, before heading south where it ends. The second segment, identified as the Amendment to the Preferred Route is 85 m of 4-inch Intermediate Pressure polyethylene pipe beginning on Western Battery Road and connecting to an existing gas main at the intersection of Western Battery Road and East Liberty Street.

The redacted environmental report can be found on the Enbridge website, please click on the following link and select the Liberty Village Pipeline Project listed under the Projects Tab.

https://www.enbridgegas.com/en/About-Us

Please note that personal information has been redacted in Appendix F— Stakeholder List, Appendix J — Stakeholder Correspondence, and Appendix L — Open House Correspondence.

Please contact me if you have any questions and/or comments on the Environmental Report.

Sincerely,

Bonnie Jean Adams

Regulatory Coordinator

Enbridge Gas Distribution

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 17 of 67

T: 416-495-6409 | F: 416-495-6072

500 Consumers Road I North York Ontario I M2J 1P8

<u>enbridgegas.com</u> <<u>https://www.enbridgegas.com/homes/></u>Integrity. Safety. Respect.

From: Bonnie Adams

Sent: Friday, April 06, 2018 5:46 PM

 $\textbf{To:} \ \underline{\textbf{Zora.Crnojacki@oeb.gov.on.ca}} < \underline{\textbf{mailto:}} \textbf{Zora.Crnojacki@oeb.gov.on.ca} > \textbf{;} \ \underline{\textbf{Linda.Pim@ontario.ca}}$

<mailto:Linda.Pim@ontario.ca> ; Laura.e.hatcher@ontario.ca <mailto:Laura.e.hatcher@ontario.ca> ;

Tony.difabio@ontario.ca <mailto:Tony.difabio@ontario.ca>; kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org>

; sally.renwick@ontario.ca ; mailto:sally.renwick@ontario.ca ; mailto:sally.renwick@ontario.ca ; <a href="mailto:ma

<mailto:mark.christie@ontario.ca>; scott.oliver@ontario.ca <mailto:scott.oliver@ontario.ca>;

michael.elms@ontario.ca <mailto:michael.elms@ontario.ca>; bridget.schulte-hostedde@ontario.ca

<mailto:bridget.schulte-hostedde@ontario.ca>; paula.allen@ontario.ca <mailto:paula.allen@ontario.ca>;

ruth.orwin@ontario.ca <mailto:ruth.orwin@ontario.ca>; crystal.lafrance@ontario.ca

<mailto:crystal.lafrance@ontario.ca</p>
; Mark.Smithson@ontario.ca
<mailto:Mark.Smithson@ontario.ca</p>
;

Paul.Martin@ontario.ca <mailto:Paul.Martin@ontario.ca>; Patrick.Grace@infrastructure.ca

<mailto:Patrick.Grace@infrastructure.ca>; Joseph.Vecchiolla@ontario.ca <mailto:Joseph.Vecchiolla@ontario.ca>;

shereen.smithanik@ontario.ca <mailto:shereen.smithanik@ontario.ca>

Subject: Enbridge Gas Distribution Inc. - Liberty Village Pipeline Project - Environmental Report - OPCC Review

To: Ontario Pipeline Coordinating Committee (OPCC) Members

Enbridge Gas Distribution Inc. ("Enbridge") is proposing to construct approximately 1.1 km of natural gas pipeline within Liberty Village (the "Project"). The Project will serve to supply gas to additional development, and reinforce the existing gas infrastructure to support future growth in the community.

In accordance with the OEB's "Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipeline and Facilities in Ontario, 7th edition 2016", Enbridge has retained the services of GHD Consulting an independent environmental consultant, to complete an environmental assessment for the proposed project. Enbridge is submitting the environmental report for the Project for Ontario Pipeline Coordinating Committee review.

Preliminary Preferred Route

A Preliminary Preferred Route (PPR) for the proposed natural gas pipeline has been identified. The PPR includes installation of 900m of 8-inch Intermediate Pressure (IP)steel pipe beginning at King St. W and Jefferson Ave. It heads east along King St. before being directed south onto Atlantic Ave. where it continues east along Snooker St. It then turns

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 18 of 67

onto Hanna Ave. and continues south toward East Liberty St. Finally, it continues east along East Liberty St. and connects with an existing gas main at Pirandello St. The PPR also includes a second section of 6-inch Intermediate Pressure plastic pipe.

The redacted Environmental Report can be found on the Enbridge website using the following link: https://www.enbridgegas.com/LibertyVillage

Please note that personal information has been redacted in Appendix F— Stakeholder List, Appendix J — Stakeholder Correspondence, and Appendix L — Open House Correspondence.

Please contact me if you have any questions and/or comments on the Environmental Report.

Sincerely,

Bonnie Jean Adams

Regulatory Coordinator

Enbridge Gas Distribution

T: 416-495-6409 | F: 416-495-6072

500 Consumers Road I North York Ontario I M2J 1P8

<u>enbridgegas.com</u> < <u>https://www.enbridgegas.com/homes/></u> Integrity. Safety. Respect.

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From: <u>Cudrak, Audrey</u>

To: <u>Litwinow, Ryan; Zumbado, Andres</u>

Subject: FW: Proposed Natural Gas Pipeline to Serve Southern Bruce Environmental Report

Date: Thursday, August 23, 2018 9:11:23 AM

fyi

----Original Message----

From: Eckert, Anneleis (MECP) [mailto:Anneleis.Eckert@ontario.ca]

Sent: August-23-18 8:45 AM

To: zora.crnojacki@ontarioenergyboard.ca; Cudrak, Audrey Cc: Lafrance, Crystal (MECP); Chappell, Rick (MECP)

Subject: Proposed Natural Gas Pipeline to Serve Southern Bruce Environmental Report

Notice: External Email

Use caution when opening links, attachments, and when prompted to enter User IDs, Passwords or Confidential

Information.

Please report any suspicious email to the EPCOR Service Desk.

Good Morning Zora and Audrey,

I have conducted a high level review of the Proposed Natural Gas Pipeline to Serve Southern Bruce: Environmental Report Final (July 16, 2018). My review was scoped to items in previous correspondence from this ministry (October 30 2015) which focussed on a few key items including the need to identify waste sites. This letter is summarized in Section 3.5.2.1 on page 3.9 of the report. Section 3.5.2.2 suggests that no additional mitigation or protective measures from ministry consultation were incorporated. However, waste sites are further described in Section 4.4.6. The Mitigation and Protective measures described on page 4.67 speak to soil and water contamination mainly from construction, but do not appear to directly address closed and/or active landfill sites. Measures for landfill sites including leachate or methane contaminate should be identified. Alternatively, if it is determined that the waste sites pose no concern to the project, the methodology for this determination should be included. Please note that MECP did not verify the identified landfill or contaminated site locations in Figure C-2.

Thank you,

Anneleis Eckert

Environmental Planner / Environmental Assessment Coordinator

519-873-5115 | anneleis.eckert@ontario.ca < mailto:anneleis.eckert@ontario.ca >

Air, Pesticides and Environmental Planning | Drinking Water and Environmental Compliance Division | Southwest Region | Ministry of the Environment, Conservation and Parks | 733 Exeter Road, London ON N6E 1L3

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Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 22 of 67

From: Cudrak, Audrey

Sent: Thursday, September 20, 2018 11:43 AM

To: Kourosh Manouchehri

Cc: Litwinow, Ryan; Sonnenberg, Kevin; Grant Strachan (gstrachan@aecon.com);

Stachowski, Thomas

Subject: RE: Southern Bruce Natural Gas Pipeline Update -2363498

Hi Kourosh:

Thanks for getting back to us and for the clarifications. We are currently working on the detailed design and line alignment for the project and when that is completed we will be able to conduct the high consequence area study and risk assessment as per your requirement. As you noted, if there are "identified sites" along the route, we will ensure we use the correct valve spacing.

We will keep you informed as things progress and will forward you the results of our assessment when completed.

Please feel free to contact me at any time if you require additional information.

Best regards,

Audrey

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services EPCOR Commercial Services 2000 – 10423 101 Street NW Edmonton, AB Canada T5H 0E8

T: (780) 412-7970 F: (780) 412-3013 E: acudrak@epcor.com

----Original Message----

From: Kourosh Manouchehri [mailto:KManouchehri@tssa.org]

Sent: September-11-18 12:36 PM

To: Cudrak, Audrey

Cc: Litwinow, Ryan; Sonnenberg, Kevin; Grant Strachan (gstrachan@aecon.com); Stachowski, Thomas

Subject: RE: Southern Bruce Natural Gas Pipeline Update -2363498

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Hi Audrey,
Thank you for your response.
Regarding the valve spacing, I agree to the use of class 2 and 3 for valve spacing. However in Ontario we amended clause 4.3.4. and require the study of the high consequence area for the class locations. Please see section 4.3.4.9 to 4.3.4.12 of FS-238-18 - Oil and Gas Pipelines CAD Amendment https://www.tssa.org/en/fuels/resources/Documents/Oil-and-Gas-Pipelines-CAD-Amendment_FIX.pdf below. You can access this document on the following link.
https://www.tssa.org/en/fuels/resources/Documents/Oil-and-Gas-Pipelines-CAD-Amendment_FIX.pdf
If the valve spacing are used other than class 4, high consequence area study and risk assessment and remediation according to sections 4.3.4.11 and 4.3.4.12 should be done. As I noticed on the submitted environmental report, most probably there are not that many "identified sites" on class 2, because the lines are mostly in rural area. However this study helps the correct use of valve spacing in conjunction with other remediations mentioned in section 4.3.4.12.
If you have any question, please contact me.
Regards,
Kourosh Manouchehri, P.Eng., PMP Engineer
Fuels Safety
345 Carlingview Drive
Toronto, Ontario M9W 6N9
Tel: +1-416-734-3539 Fax: +1-416-231-7525 E-Mail: kmanouchehri@tssa.org

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From: Cudrak, Audrey <acudrak@epcor.com>

Sent: September 4, 2018 19:47

To: Kourosh Manouchehri < KManouchehri@tssa.org >

Cc: Litwinow, Ryan <RLitwinow@epcor.com>; Sonnenberg, Kevin <KSonnenberg@epcor.com>; Grant Strachan

(gstrachan@aecon.com) < gstrachan@aecon.com>; Stachowski , Thomas < TStachowski@epcor.com>

Subject: RE: Southern Bruce Natural Gas Pipeline Update -2363498

Good afternoon Kourosh – thanks for sending your feedback on the pipe design for the Southern Bruce project. Here is our response to your questions:

1. Submitted documents show that class 3 is chosen for the design of the steel pipe. I believe this project is within the distribution system as defined in section 12.1.1 and figure 12.1 of CSA Z662-15. I believe distribution network should be designed above all the class locations as clause 12 does not talk about the class location and exempt itself from the requirement of the class locations modification. Also, because clause 12 refers to other clauses of the code, as a minimum class 4 should be selected for the base of the design. Please provide updated document to refers to this change.

Response: yes, we agree, as you have noted, that the stress level on the pipe at operating pressure is less than 30% of SMYS and the lines seem to be within the distribution network and clause 12 of CSA Z662-15 applies. Regarding the pipe design, it does meet a location factor design of 0.550, therefore it is correct to state that the pipe stress design meets a Class 4 Location. However, we want to ensure there is no misunderstanding on the valve spacing requirements for the

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 25 of 67

NPS 8 and NPS 6 steel pipelines. Clause 12.4.13.1 states that Clause 4.4 (valve spacing) does not apply to pipelines that fall under Clause 12. Clause 12.4.13.4 states that valves "shall be located in a manner that provides ready access and facilitates their operation during emergencies". To achieve this and meet the intention of the code for valve spacing, we will be using Clause 4.4 (Table 4.7) for the proposed valve spacing on these steel lines. Specifically, we will be using the 25 km spacing in the Class 2 areas and 13 km spacing in the Class 3 areas.

In summary, we can say our design meets a Class 4 design so long as we are in agreement that the pipeline falls under Clause 12 and therefore, Clause 4.4 is not applicable as per Clause 12.4.13.1. Can you please confirm if this is the update you are seeking?

2. Is the gas delivered to EPCOR already odorized? Or it will be odorized by EPCOR?

Response: yes, the gas will be delivered to EPCOR already odorized (from Union Gas)

Best regards,

Audrey A. Cudrak, M.Eng., P.Eng.

Director, Project & Technical Services

EPCOR Commercial Services

2000 - 10423 101 Street NW

Edmonton, AB

Canada

T5H 0E8

T: (780) 412-7970

F: (780) 412-3013

E: acudrak@epcor.com <mailto:acudrak@epcor.com>

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 26 of 67

Sent: September-04-18 8:56 AM To: Cudrak, Audrey
Cc: Litwinow, Ryan
Subject: FW: Southern Bruce Natural Gas Pipeline Update -2363498
Audrey – can you respond to Kourosh?
nadicy can you respond to Rodrosii.
Cheers,
Kevin Sonnenberg
Senior Manager, Business Development
Direct: (403) 717-8947 Mobile: (403) 880-9765
From: Kourosh Manouchehri [mailto:KManouchehri@tssa.org <mailto:kmanouchehri@tssa.org>]</mailto:kmanouchehri@tssa.org>
Sent: September-04-18 8:21 AM
To: Sonnenberg, Kevin
Cc: acrudark@epcor.com <mailto:acrudark@epcor.com></mailto:acrudark@epcor.com>
Subject: Southern Bruce Natural Gas Pipeline Update -2363498

----Original Message-----From: Sonnenberg, Kevin

Notice: External Email

Use caution when opening links, attachments, and when prompted to enter User IDs, Passwords or Confidential Information.
Please report any suspicious email to the EPCOR Service Desk.
Hi Kevin,
I reviewed this project based on the submitted document. More specifically I reviewed in detail technical specification of the pipeline. The stress level on the pipe at operating pressure is less than 30% of SMYS and the lines seem to be within the distribution network and clause 12 of CSA Z662-15 applies. I have following questions.
1. Submitted documents show that class 3 is chosen for the design of the steel pipe. I believe this project is within the distribution system as defined in section 12.1.1 and figure 12.1 of CSA Z662-15. I believe distribution network should be designed above all the class locations as clause 12 does not talk about the class location and exempt itself from the requirement of the class locations modification. Also, because clause 12 refers to other clauses of the code, as a minimum class 4 should be selected for the base of the design. Please provide updated document to refers to this change.
2. Is the gas delivered to EPCOR already odorized? Or it will be odorized by EPCOR?
Please respond to the above mentioned questions.

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 28 of 67

We want to visit the construction site for audit of this project. Please let me the appropriate timeline and the contact person. One of the visit can be for witnessing the pressure test of some portion of the steel pipe.
If you have any question, please contact me.
Regards,
Kourosh Manouchehri, P.Eng., PMP Engineer
Fuels Safety
345 Carlingview Drive
Toronto, Ontario M9W 6N9
Tel: +1-416-734-3539 Fax: +1-416-231-7525 E-Mail: kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org></mailto:kmanouchehri@tssa.org>

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k5WJEuUzu7IEQjX8eGyJmaon4TAKKAXMicjukEFC3RGDIZ3LvNmj8hzIE7CJg,,&typo=1>

From: FS Submissions
Sent: July 17, 2018 14:24
To: Bonnie Adams
Cc: Kourosh Manouchehri < KManouchehri@tssa.org < mailto: KManouchehri@tssa.org > >
Subject: SR#2348164 - RE: RUSH CONSULTATION APPLICATION_FW: [External] RE: Enbridge Gas Distribution Inc. Liberty Village Pipeline Project - Amended Environmental Report - TSSA Form
Good Afternoon,
We have processed your consultation application for LIBERTY VILLAGE, TORONTO— our file SR#2348164.
This file has been assigned to Kourosh Manouchehri for review. Please contact Kourosh Manouchehri via email kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org>, if you have additional questions.</mailto:kmanouchehri@tssa.org>
Thanks
Angelina Brew Administrative Assistant

Fuels Safety
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Tel: +1-416-734-3477 Fax: +1-416-231-7525 E-Mail: abrew@tssa.org <mailto:abrew@tssa.org></mailto:abrew@tssa.org>
www.tssa.org <https: linkprotect.cudasvc.com="" url?a="https%3a%2f%2fwww.tssa.org&c=E,1,1REVluhe35VAIoQMEc0jMeO-pTKdJp3q25-mgt4cl9bBsACmpxoXGvxSjoZZ1rlCwY0auDm00vdoYxD8SrgnTuKaLR4siN7NZkSe-CQ1c8HThyPh&typo=1"></https:>
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Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 32 of 67
From: Kourosh Manouchehri
Sent: July 16, 2018 9:07 AM
To: FS Submissions <fssubmissions@tssa.org <mailto:fssubmissions@tssa.org=""></fssubmissions@tssa.org>
Subject: RUSH CONSULTATION APPLICATION_FW: [External] RE: Enbridge Gas Distribution Inc Liberty Village Pipeline Project - Amended Environmental Report - TSSA Form
Hi,
Please process this application and assigned to me.

Thanks,
Kourosh Manouchehri, P.Eng., PMP Engineer
Fuels Safety
345 Carlingview Drive
Toronto, Ontario M9W 6N9
Tel: +1-416-734-3539 Cell: +1-416-999-6529 Fax: +1-416-231-7525 E-Mail: kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org></mailto:kmanouchehri@tssa.org>
www.tssa.org <https: jqhvz62j2m7acdza6rppjc5ow1jmkju3owvhtxv_ztticeh0lcmqtfpwrrod41kyz_mqznlc716osh3wd13xqmh9&typo="1" linkprotect.cudasvc.com="" url?a="https%3a%2f%2fwww.tssa.org&c=E,1,6CnQh2qywoiBROnqjPHgHDEwHnwwlySS"></https:>
https://www.facebook.com/TSSA-Technical-Standards-Safety-Authority-167153823474861/timeline/ >

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 34 of 67

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https://linkprotect.cudasvc.com/url?a=http%3a%2f%2ftssablog.org%2f%26gt%3b%26nbsp%3b&c=E,1,TXQle7nEKDAwg OetuC8GZEYgcO-KjTN8kCpIDSEadDS8HNt-Ddtiog4arBzDWex4-AeqEP4KUy5gQ50YeVLOfOCjSic7tLonn6HLXLGD&typo=1> http://www.tssa.org/safetyawards

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Khs0CZzFEEEhhnA&typo=1>

From: Bonnie Adams [mailto:Bonnie.Adams@enbridge.com <mailto:Bonnie.Adams@enbridge.com>]

Sent: July 16, 2018 08:54
To: Kourosh Manouchehri < KManouchehri@tssa.org < mailto: KManouchehri@tssa.org > >
Subject: RE: [External] RE: Enbridge Gas Distribution Inc Liberty Village Pipeline Project - Amended Environmental Report - TSSA Form
Good Morning,
As requested, attached please find the completed form.
Please let me know if you have any questions and/or require further information.
Sincerely,
Bonnie Jean Adams

Hi Bonnie,
Please fill the application on the following link and send it to my attention. At this point, we use this form and in process of having specific form for new pipeline project in future. Please fill the sections as much as applicable. Some sections like location address might not be applicable.
https://www.tssa.org/en/fuels/resources/Documents/Application-for-a-Consultation.pdf <https: cvlf0fpdk5hytpxpvkrl8n62vmdcszjftshp67ladlwpclk6bgob2rhdass5u0ojhshyzjkxxxrgtmwu7g,,&typo="1" linkprotect.cudasvc.com="" pplication-for-a-consultation.pdf&c="E,1,d2f-S-RpjMsRXuZD_OlzTkdkujT-" url?a="https%3a%2f%2fwww.tssa.org%2fen%2ffuels%2fresources%2fDocuments%2fA"> <https: 1h8udr9obuezho8h3gtobxtmiloqkrjevm1e-="" 1h8udr9obuezho8h3gtobxtmiloqkrjevm1e-x3lxfqwpgmnj81fhoccsif_ontkxbi5c37e-="" <https:="" en%2ffuels%2fresources%2fdocuments%2fapplication-for-a-consultation.pdf="" f72jove0v310suj9dt8mleyzwcs8osow94jzvnsltt2vs91dvjdz7-y1atkeqzbqsts1ihcobgnbhvywuxhcdrb996-="" https%3a%2f%2fwww.tssa.org%2f="" i3tualz_7px0gn70awe3q1axcctotoeob5zjtgxjvkfpqgzuazrvgl1o605bl7ygk1tyk="" i3tualz_7px0gn70awe3qlaxcctotoeob5zjtgxjvkfpqgzuazrvgl1o605bl7ygk1tyk="" secure-="" secure-web.cisco.com="" web.cisco.com="" x3lxfqwpgmnj81fhoccsif_ontkxbi5c37e-f72jove0v310suj9dt8mleyzwcs8osow94jzvnsltt2vs91dvjdz7-="" xtiqdfd8se5dlttvfch9kj5vmhcddn6gjgwaccevu2zu4yujx0_rbrzquezzvk70ofevsgyapc-f4g-="" y1atkeqzbqsts1ihcobgnbhvywuxhcdrb996-zxm2z1ck-="" zxm2z1ck-xtiqdfd8se5dlttvfch9kj5vmhcddn6gjgwaccevu2zu4yujx0_rbrzquezzvk70ofevsgyapc-f4g-=""> ></https:></https:>
If you have any question, please contact me.

Regards
cid:image001.jpg@01D40DF0.02EEBEE0
Kourosh Manouchehri, P.Eng., PMP Engineer
Fuels Safety
345 Carlingview Drive
Toronto, Ontario M9W 6N9
Tel: +1-416-734-3539 Fax: +1-416-231-7525 E-Mail: kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org=""></mailto:kmanouchehri@tssa.org>
www.tssa.org <a "="" href="https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fwww.tssa.org&c=E,1,IUoC2SA9h1rvTlx4ztG-FdVnaiy22_p2Aq80sWkEVFRx-DURnEPpzqyK6E_2_EWqiTWbQPOCyn9v3-789PLF18axGqgHh1Rt0I0UPJMqU6Y17TY,&typo=1></td></tr><tr><td>cid:image007.png@01D41CE2.6709F740 https://www.facebook.com/TSSA-Technical-Standards-Safety-Authority-167153823474861/timeline/ https://www.facebook.com/TSSA-Technical-Standards-Safety-Authority-167153823474861/timeline/ https://cimage008.png@01D41CE2.6709F740 https://timeline/ https://timeline/ https://timeline/ https://cimage009.png@01D41CE2.6709F740 <a href<="" td="">

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 $ugk16dJZ6CN baGFzcBoXjt6jBJhVQzKj1uAgXQGZsmphaPykclXmYVcL3FPHqyklkNBpFyZl8juCtqKwAVY7FTTr4_UhlR4fCaaltdt85ApL6eVaiRRagQOdtLUbpo2keHP3E_B0MlEjjmJKvc4CoDg0Q0dd-\\$

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web.cisco.com/1tsytFq15QeYksJdiaPefxFrD0z FBY4vh v88-z6gdJlyDOEvH-

ugk16dJZ6CNbaGFzcBoXjt6jBJhVQzKj1uAgXQGZsmphaPykcIXmYVcL3FPHqykIkNBpFyZl8juCtqKwAVY7FTTr4_UhIR4fCaalt dT85ApL6eVaiRRagQOdtLUbpo2keHP3E_B0MIEjjmJKvc4CoDg0Q0dd-

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From: Bonnie Adams [mailto:Bonnie.Adams@enbridge.com <mailto:Bonnie.Adams@enbridge.com>]

Sent: June 13, 2018 11:38

To: Kourosh Manouchehri < KManouchehri@tssa.org < mailto: KManouchehri@tssa.org > >

Subject: Enbridge Gas Distribution Inc. - Liberty Village Pipeline Project - Amended Environmental Report - OPCC Review

To: "michael.elms@ontario.ca <mailto:michael.elms@ontario.ca>

<mailto:michael.elms@ontario.ca%20%3cmailto:michael.elms@ontario.ca%3e%20> ", "scott.oliver@ontario.ca
<mailto:scott.oliver@ontario.ca> <mailto:scott.oliver@ontario.ca%20%3cmailto:scott.oliver@ontario.ca%3e%20> ", "bridget.schulte-hostedde@ontario.ca> <mailto:bridget.schulte-hostedde@ontario.ca> <mailto:bridget.schulte-hostedde@ontario.ca%20%3cmailto:bridget.schulte-hostedde@ontario.ca%3e%20> ", "Mark.Smithson@ontario.ca
<mailto:Mark.Smithson@ontario.ca>

<mailto:Mark.Smithson@ontario.ca%20%3cmailto:Mark.Smithson@ontario.ca%3e%20> ", "sally.renwick@ontario.ca
<mailto:sally.renwick@ontario.ca><mailto:sally.renwick@ontario.ca%20%3cmailto:sally.renwick@ontario.ca%3e%20> ", "ruth.orwin@ontario.ca <mailto:ruth.orwin@ontario.ca>

<mailto:ruth.orwin@ontario.ca%20%3cmailto:ruth.orwin@ontario.ca%3e%20> ", "kmanouchehri@tssa.org
<mailto:kmanouchehri@tssa.org> <mailto:kmanouchehri@tssa.org%20%3cmailto:kmanouchehri@tssa.org%3e%20> ",
"Tony.difabio@ontario.ca <mailto:Tony.difabio@ontario.ca>

<mailto:Tony.difabio@ontario.ca%20%3cmailto:Tony.difabio@ontario.ca%3e%20> ", "crystal.lafrance@ontario.ca
<mailto:crystal.lafrance@ontario.ca>

<mailto:crystal.lafrance@ontario.ca%20%3cmailto:crystal.lafrance@ontario.ca%3e%20> ",

"Zora.Crnojacki@oeb.gov.on.ca <mailto:Zora.Crnojacki@oeb.gov.on.ca>

<mailto:Zora.Crnojacki@oeb.gov.on.ca%20%3cmailto:Zora.Crnojacki@oeb.gov.on.ca%3e%20> ",

"paula.allen@ontario.ca <mailto:paula.allen@ontario.ca>

<mailto:paula.allen@ontario.ca%20%3cmailto:paula.allen@ontario.ca%3e%20> ", "Joseph.Vecchiolla@ontario.ca
<mailto:Joseph.Vecchiolla@ontario.ca>

<mailto:Joseph.Vecchiolla@ontario.ca%20%3cmailto:Joseph.Vecchiolla@ontario.ca%3e%20> ",

"ross.lashbrook@ontario.ca <mailto:ross.lashbrook@ontario.ca>

<mailto:ross.lashbrook@ontario.ca%20%3cmailto:ross.lashbrook@ontario.ca%3e%20> ", "Linda.Pim@ontario.ca

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 41 of 67

- < mailto: Linda. Pim@ontario. ca < mailto: Linda. Pim@ontario. ca < 20%3 cmailto: Linda. Pim@ontario. ca < 3e%20 > ", and the contario. ca <
- "Paul.Martin@ontario.ca <mailto:Paul.Martin@ontario.ca>
- <mailto:Paul.Martin@ontario.ca%20%3cmailto:Paul.Martin@ontario.ca%3e%20> ", "shereensmithanik@ontario.ca <mailto:shereensmithanik@ontario.ca>
- <mailto:shereensmithanik@ontario.ca%20%3cmailto:shereensmithanik@ontario.ca%3e%20> ",
- "Laura.e.hatcher@ontario.ca <mailto:Laura.e.hatcher@ontario.ca>
- <mailto:Laura.e.hatcher@ontario.ca%20%3cmailto:Laura.e.hatcher@ontario.ca%3e%20> "

The following attachment has been sent to you using Mail Express®:

Enbridge Liberty Village Amended Environmental Report - Final June 2018 redacted.pdf

https://mailexpress.enbridge.com/pickup/3MHF9XWTFrEXmVjkoENIOMCK_fqQPECrADVZWSbh/Enbridge_Liberty_Village_Amended_Environmental_Report_-_Final_June_2018_redacted.pdf

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_Final_June_2018_redacted.pdf%26gt%3b%26nbsp%3b&c=E,1,068iQq2_kRCsIC8lQNYb02xWszl5qzwKYgeCqMqah4ZbX_gjdDdCe5lFBOJ50dzkwVmlZnVo6SmLMlfblnU8lNnD8xz-402bL21yhicHhiUvBQ8,&typo=1> (44.6 MB)

Click the links above or visit the pick-up portal

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To: Ontario Pipeline Coordinating Committee (OPCC) Members

Enbridge Gas Distribution Inc. ("Enbridge") is proposing to construct approximately 1.2 km of natural gas pipeline within Liberty Village (the "Project"). The Project will serve to supply gas to additional development, and reinforce the existing gas infrastructure to support future growth in the community.

Since submitting the Environmental Report in April 2018, additional developments requiring natural gas service in the Project were identified. As such, the Preferred Route has been amended to accommodate this requirement. Consequently, this Environmental Report has been updated to include an assessment of the area along the amended

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 42 of 67

pipeline route. As with the original Preferred Route, the additional pipeline segment has been assessed to identify any potential adverse environmental effects and where appropriate, impact management measures have been proposed to address any potential adverse environmental effects. Enbridge is submitting this updated report for OPCC review.
Description of the Amended Preferred Route
The amended Preferred Route for the new gas pipeline consists of two sections having a total length of 1.2 km. Section 1 of the new pipeline consists of 900 m of 8-inch Intermediate Pressure steel pipe beginning at King Street West and Jefferson Avenue. It extends eastwards along King Street before being directed south onto Atlantic Avenue where it the continues east along Snooker Street. It turns south onto Hanna Avenue and continues toward East Liberty Street. Finally it continues eastwards along East Liberty Street and connects with an existing gas main at Pirandello Street.
Section 2 of the new pipeline consists of two individual segments of pipe. The first segment included in the original Preferred Route, is 200 m of 6-inch Intermediate Pressure polyethylene pipe beginning at Strachan Avenue and Ordnance Street, continuing east, before heading south where it ends. The second segment, identified as the Amendment to the Preferred Route is 85 m of 4-inch Intermediate Pressure polyethylene pipe beginning on Western Battery Road and connecting to an existing gas main at the intersection of Western Battery Road and East Liberty Street
The redacted environmental report can be found on the Enbridge website, please click on the following link and select the Liberty Village Pipeline Project listed under the Projects Tab.
https://www.enbridgegas.com/en/About-Us

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 43 of 67

Please note that personal information has been redacted in Appendix F— Stakeholder List, Appendix J — Stakeholder Correspondence, and Appendix L — Open House Correspondence.
Please contact me if you have any questions and/or comments on the Environmental Report.
Sincerely,
Bonnie Jean Adams
Regulatory Coordinator
Enbridge Gas Distribution
T: 416-495-6409 F: 416-495-6072
500 Consumers Road I North York Ontario I M2J 1P8

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 44 of 67

enbridgegas.com https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fenbridgegas.com&c=E,1,Em1HH_n8jIHL_ift-MIG-

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Ham7s105gQAJ7D5Ogzn0a_gU_Nn77sHQ4Bv0QYyG_PGoe3FH3gdiF1zF0mDnFiSUAQYN5KkKajw,,&typo=1>

Integrity. Safety. Respect.

From: Bonnie Adams

Sent: Friday, April 06, 2018 5:46 PM

To: Zora.Crnojacki@oeb.gov.on.ca <mailto:Zora.Crnojacki@oeb.gov.on.ca < mailto:Zora.Crnojacki@oeb.gov.on.ca <mailto:Zora.Crnojacki@oeb.gov.on.ca>>; Linda.Pim@ontario.ca <mailto:Linda.Pim@ontario.ca> <mailto:Linda.Pim@ontario.ca <mailto:Linda.Pim@ontario.ca>>; Laura.e.hatcher@ontario.ca <mailto:Laura.e.hatcher@ontario.ca> <mailto:Laura.e.hatcher@ontario.ca <mailto:Laura.e.hatcher@ontario.ca>>; Tony.difabio@ontario.ca <mailto:Tony.difabio@ontario.ca < mailto:Tony.difabio@ontario.ca <mailto:Tony.difabio@ontario.ca>>; kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org> <mailto:kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org > ; sally.renwick@ontario.ca <mailto:sally.renwick@ontario.ca> <mailto:sally.renwick@ontario.ca <mailto:sally.renwick@ontario.ca>>; mark.christie@ontario.ca <mailto:mark.christie@ontario.ca> <mailto:mark.christie@ontario.ca <mailto:mark.christie@ontario.ca>>; scott.oliver@ontario.ca <mailto:scott.oliver@ontario.ca> <mailto:scott.oliver@ontario.ca <mailto:scott.oliver@ontario.ca>>; michael.elms@ontario.ca <mailto:michael.elms@ontario.ca> <mailto:michael.elms@ontario.ca <mailto:michael.elms@ontario.ca>>; bridget.schulte-hostedde@ontario.ca <mailto:bridget.schulte-hostedde@ontario.ca> <mailto:bridget.schultehostedde@ontario.ca <mailto:bridget.schulte-hostedde@ontario.ca>>; paula.allen@ontario.ca <mailto:paula.allen@ontario.ca> <mailto:paula.allen@ontario.ca <mailto:paula.allen@ontario.ca> ; ruth.orwin@ontario.ca <mailto:ruth.orwin@ontario.ca> <mailto:ruth.orwin@ontario.ca <mailto:ruth.orwin@ontario.ca>>; crystal.lafrance@ontario.ca <mailto:crystal.lafrance@ontario.ca> <mailto:crystal.lafrance@ontario.ca <mailto:crystal.lafrance@ontario.ca > ; Mark.Smithson@ontario.ca <mailto:Mark.Smithson@ontario.ca> <mailto:Mark.Smithson@ontario.ca <mailto:Mark.Smithson@ontario.ca>>; Paul.Martin@ontario.ca <mailto:Paul.Martin@ontario.ca> <mailto:Paul.Martin@ontario.ca <mailto:Paul.Martin@ontario.ca>>; Patrick.Grace@infrastructure.ca <mailto:Patrick.Grace@infrastructure.ca> <mailto:Patrick.Grace@infrastructure.ca <mailto:Patrick.Grace@infrastructure.ca > ; Joseph.Vecchiolla@ontario.ca <mailto:Joseph.Vecchiolla@ontario.ca> <mailto:Joseph.Vecchiolla@ontario.ca <mailto:Joseph.Vecchiolla@ontario.ca>> ; shereen.smithanik@ontario.ca <mailto:shereen.smithanik@ontario.ca < mailto:shereen.smithanik@ontario.ca <mailto:shereen.smithanik@ontario.ca>>

Subject: Enbridge Gas Distribution Inc. - Liberty Village Pipeline Project - Environmental Report - OPCC Review

To: Ontario Pipeline Coordinating Committee (OPCC) Members
Enbridge Gas Distribution Inc. ("Enbridge") is proposing to construct approximately 1.1 km of natural gas pipeline withi Liberty Village (the "Project"). The Project will serve to supply gas to additional development, and reinforce the existing gas infrastructure to support future growth in the community.
In accordance with the OEB's " Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipeline and Facilities in Ontario, 7th edition 2016", Enbridge has retained the services of GHD Consulting an independent environmental consultant, to complete an environmental assessment for the proposed project. Enbridge submitting the environmental report for the Project for Ontario Pipeline Coordinating Committee review.
Preliminary Preferred Route
A Preliminary Preferred Route (PPR) for the proposed natural gas pipeline has been identified. The PPR includes installation of 900m of 8-inch Intermediate Pressure (IP)steel pipe beginning at King St. W and Jefferson Ave. It heads east along King St. before being directed south onto Atlantic Ave. where it continues east along Snooker St. It then turns onto Hanna Ave. and continues south toward East Liberty St. Finally, it continues east along East Liberty St. and connects with an existing gas main at Pirandello St. The PPR also includes a second section of 6-inch Intermediate Pressure plastic pipe.

Filed: 2018-09-20, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 46 of 67

The redacted Environmental Report can be found on the Enbridge website using the following link: https://www.enbridgegas.com/LibertyVillage https://www.enbridgegas.com%2fLibertyVillage&c=E,1,5SUp_HY2OsqU5plbfqAp0RfoJJ9loDXHD4X6RfTpH8_IPWP0qP2mTr47XVVomyzPdO2d9olxCkPzab1puKQpi23nLOAg3oxzX_j4gjxYF3WJTOo,&typo=1">https://www.enbridgegas.com/2fLibertyVillage&c=E,1,5SUp_HY2OsqU5plbfqAp0RfoJJ9loDXHD4X6RfTpH8_IPWP0qP2mTr47XVVomyzPdO2d9olxCkPzab1puKQpi23nLOAg3oxzX_j4gjxYF3WJTOo,&typo=1">https://www.enbridgegas.com/2fLibertyVillage&c=E,1,5SUp_HY2OsqU5plbfqAp0RfoJJ9loDXHD4X6RfTpH8_IPWP0qP2mTr47XVVomyzPdO2d9olxCkPzab1puKQpi23nLOAg3oxzX_j4gjxYF3WJTOo,&typo=1">https://www.enbridgegas.com/2fLibertyVillage&c=E,1,5SUp_HY2OsqU5plbfqAp0RfoJJ9loDXHD4X6RfTpH8_IPWP0qP2mTr47XVVomyzPdO2d9olxCkPzab1puKQpi23nLOAg3oxzX_j4gjxYF3WJTOo,&typo=1">https://www.enbridgegas.com/2fLibertyVillage&c=E,1,5SUp_HY2OsqU5plbfqAp0RfoJJ9loDXHD4X6RfTpH8_IPWP0qP2mTr47XVVomyzPdO2d9olxCkPzab1puKQpi23nLOAg3oxzX_j4gjxYF3WJTOo,&typo=1">https://www.enbridgegas.com/2fLibertyVillage&c=E,1,5SUp_HY2OsqU5plbfqAp0RfoJJ9loDXHD4X6RfTpH8_IPWP0qP2mTr47XVVomyzPdO2d9olxCkPzab1puKQpi23nLOAg3oxzX_j4gjxYF3WJTOo,&typo=1">https://www.enbridgegas.com/2fLibertyVillage&c=E,1,5SUp_HY2OsqU5plbfqAp0RfoJJ9loDXHD4X6RfTpH8_IPWP0qP2mTr47XVVomyzPdO2d9olxCkPzab1puKQpi23nLOAg3oxzX_j4gjxYF3WJTOo,&typo=1">https://www.enbridgegas.com/2fLibertyVillage&c=E,1,5SUp_HY2OsqU5plbfqAp0RfoJJ9loDXHD4X6RfTpH8_IPWP0qP2mTr47XVVomyzPdO2d9olxCkPzab1puKQpi23nLOAg3oxzX_j4gjxYF3WJTOo,&typo=1">https://www.enbridgegas.com/phicag
Please note that personal information has been redacted in Appendix F– Stakeholder List, Appendix J – Stakeholder Correspondence, and Appendix L – Open House Correspondence.
Please contact me if you have any questions and/or comments on the Environmental Report.
Sincerely,
Bonnie Jean Adams
Regulatory Coordinator
Enbridge Gas Distribution

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T: 416-495-6409 F: 416-495-6072
500 Consumers Road I North York Ontario I M2J 1P8
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Updated: 2019-02-27, EB-2018-0263, Exhibit A, Tab 9, Schedule 4, Page 49 of 67

From: <u>Hartwig, Emily</u>

To: Zora.Crnojacki@ontarioenergyboard.ca

Cc: Georgopoulos, Rooly; saugeenmetisadmin@bmts.com; Anneleis.Eckert@ontario.ca; ken.mott@ontario.ca;

Cudrak, Audrey

Subject: OPCC - MECP, MNRF, HSM Comment Response

Date: Thursday, September 20, 2018 9:50:10 AM

Attachments: let_OPCC_comment-response_20180920_fnl.pdf

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Sent on behalf of Mr. Rooly Georgopoulos (Stantec Consulting Ltd.)

Good morning,

Please find attached a letter in regards to the comments provided by the Ministry of the Environment, Conservation and Parks, (MECP) the Ministry of Natural Resources and Forestry (MNRF) and the Historic Saugeen Métis (HSM) regarding the Environmental Report for the EPCOR Southern Bruce Natural Gas Pipeline Project.

Should you have any additional comments or questions regarding the Project, please do not hesitate to contact Rooly Georgopoulos (Cc'd to this email).

Regards,

Emily Hartwig B.Sc., EPt.

Environmental Consultant, Assessment and Permitting

Direct: 519 780-8186 Mobile: 226 979-4457 Emily.Hartwig@stantec.com

Stantec

1-70 Southgate Drive Guelph ON N1G 4P5 CA

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From: <u>Litwinow, Ryan</u>

To: <u>Anneleis.Eckert@ontario.ca</u>

Cc: <u>zora.crnojacki@ontarioenergyboard.ca</u>; <u>Rooly.Georgopoulos@stantec.com</u>; <u>Emily.Hartwig@stantec.com</u>;

Crystal.Lafrance@ontario.ca; Rick.Chappell@ontario.ca; Sonnenberg, Kevin; Thomas, Simon; Zumbado, Andres

Subject: RE: OPCC - MECP, MNRF, HSM Comment Response Date: Wednesday, December 12, 2018 4:42:52 PM

Attachments: EPCOR South Bruce Natrual Gas Landfill Impact Assessment- MECP response.pdf

image001.png

Anneleis,

Good afternoon. Since her last correspondence in October, Audrey Cudrak has transferred to a new positon within EPCOR. I had worked closely with Audrey to address the questions you presented in August and I will be the primary contact if any additional questions come up.

Please find attached the South Bruce Natural Gas Landfill Impact Assessment. We have completed an assessment of the landfills within 3km of the proposed pipeline route (PPR) in response to your email dated August 23, 2018 and subsequent correspondence. The assessment identifies all landfills within 3km of the PPR and the methodology to confirm if the landfills present a probability of interaction with the PPR. The conclusions are supported by the identification of physical barriers between the landfill sites and the PPR as well as other environmental features. Where probability of interaction could not be eliminated, additional monitoring and mitigation measures have been identified and are included in the report.

We believe the concerns raised by the MECP have been fully addressed, including additional monitoring and mitigation measures and are captured within the assessment. Please advise if any further action or additional follow-up is required.

Regards,

Ryan

Ryan Litwinow

Senior Manager, Industrial and Major Projects EPCOR Project & Technical Services

P: 780-412-7893 C: 587-986-0959 rlitwinow@epcor.com



From: Cudrak, Audrey
Sent: October-03-18 2:23 PM
To: Anneleis.Eckert@ontario.ca

Cc: zora.crnojacki@ontarioenergyboard.ca; Rooly.Georgopoulos@stantec.com;

Emily.Hartwig@stantec.com; Crystal.Lafrance@ontario.ca; Rick.Chappell@ontario.ca; Sonnenberg, Kevin;

Litwinow, Ryan

Subject: RE: OPCC - MECP, MNRF, HSM Comment Response

Good afternoon Anneleis – thank you for your voice mail from this morning, it was very helpful. As per your message, here are the mitigation measures we are proposing should we encounter landfill leachate or methane during the open trench excavation and installation of this pipeline:

- 1. With regards to the potential of encountering landfill leachate introduced into the excavation trenches, locations of all active and landfill sites within 500m of the pipeline route have been mapped in the ER and more detailed maps are under development. Landfill leachate is characteristic of elevated levels of electrical conductivity (EC) and total dissolved solids (TDS) as general landfill leachate indicator parameters in groundwater. For mapped areas along the pipeline route that intersect with this 500m buffer and where groundwater is encountered at the base of the excavation trench, that groundwater will be field tested for leachate pollutant indicator parameters EC and TDS using a hand-held meter (e.g. YSI 556, Hach TSS Meter, or other equivalent model units) and those values will be compared to EC values of background areas outside the 500m buffer. For groundwater in those locations where presence of landfill leachate is confirmed, those areas will be identified on a map as requiring measures to be taken so as to prevent the pipeline trench from behaving as a conduit for landfill leachate. Those measures include the installation of bentonite trench plugs every 100m, until the construction exits the intersected 500m zone. Bentonite is an impermeable material that upon interaction with water will swell forming an impermeable seal, thus eliminating any potential pathway along the route of the pipeline.
- 2. With respect to the potential of encountering landfill methane gas build up within the open trench, Section D-4-1 of the Guidelines states: "methane cannot cause an explosion unless it accumulates to a concentration above its lower explosive limit in an enclosed space where it can be ignited" During the construction, it is expected that all subsurface gases will be exposed and dissipated into the atmosphere once the trench is opened. The trench will be backfilled shortly after the pipe is installed therefore we do not anticipate any conditions that would encourage accumulation of gases. However we will have hand-held gas meters at every crew location and will ensure the atmosphere in the trench is safe prior to any person entering the trench. Should we encounter the presence of methane, similar measures as described above will be implemented to eliminate any potential pathway along the pipeline.

I will call you tomorrow to confirm that these mitigation measures meet your requirements. I can also give you a quick update on our plans for further assessment of the landfills within 500m of the project based on the advice you provided. I will be able to follow up in writing with the specific details once I have them from our environmental consultant.

Thank you,

Audrey

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services EPCOR Commercial Services 2000 – 10423 101 Street NW Edmonton, AB Canada T5H 0E8

T: (780) 412-7970 F: (780) 412-3013 E: acudrak@epcor.com

From: Cudrak, Audrey
Sent: October-01-18 8:53 AM
To: 'Anneleis.Eckert@ontario.ca'

Cc: zora.crnojacki@ontarioenergyboard.ca; 'Rooly.Georgopoulos@stantec.com';

'Emily.Hartwig@stantec.com'; 'Crystal.Lafrance@ontario.ca'; 'Rick.Chappell@ontario.ca'; Sonnenberg,

Kevin; Litwinow, Ryan

Subject: OPCC - MECP, MNRF, HSM Comment Response

Good morning Anneleis, thank you for the comments and concerns in your email of September 21st. All of these concerns are valid and we are seeking to address them. We have some thoughts regarding assessment of potential impact from the landfills in the ER study area, but we were hoping to have a discussion with you to better clarify your requirements and obtain your guidance on next steps. We also have determined appropriate precautionary and mitigation measures to minimize/avoid the effects of potential landfill methane and leachate that may or may not be encountered during the open trench excavation and installation of this pipeline. These can also be discussed on the call if you wish.

Can you please let me know of a few time slots (maybe one hour?) when you are available this week? We would like to include our environmental consultant (Stantec) as well.

Many thanks and I look forward to hearing from you.

Audrey

Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services EPCOR Commercial Services 2000 – 10423 101 Street NW Edmonton, AB Canada T5H 0E8

T: (780) 412-7970 F: (780) 412-3013 E: <u>acudrak@epcor.com</u>

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Litertones, Rean Kauresh Manouschehr Thomas, Simon: Sonnenberg, Kevin: Grant Strachan (gatrachan@accon.com): Zumbado, Andres: Magnus RE: Southern Bruce, Natural Cas Pipeline Update -2363498
Wednesday, December 12, 2018 4-48-14 PM EPCOR - Southern Bruce Risk Pipeline Risk Assessment (2018.12.12) pdf Image001 pmg

Good afternoon. Since her last correspondence in October, Audrey Cudrak has transferred to a new positon within EPCOR. I had worked closely with Audrey to address the questions you presented in September and I will be the primary contact if any additional questions come up.

Please find attached the South Bruce Pipeline Hazard Assessment, which includes the High Consequence study area and determination of Identified Sites along the steel mainline. The assessment addresses clauses 4.3.4.9 to 4.3.4.12 of the TSSA Oil and Gas Pipeline System Code Adoption Document Amendment (FS-238-18) and describes the levels of protection to be incorporated in the design to mitigate hazards that may exist to achieve a Low risk

We believe the concerns raised by the TSSA have been fully addressed and are captured within the Assessment. Please advise if any further action or additional follow-up is required.

We will be in contact to schedule the TSSA audit and witness of the steel line pressure testing once the Leave to Construct is granted and our construction schedule is defined.

Regards,

Ryan Litwinow Senior Manager, Industrial and Major Projects EPCOR Project & Technical Services P: 780-412-7893 C: 587-986-0959



---Original Message---

From: Cudrak, Audrey Sent: September-27-18 4:10 PM To: Kourosh Manouchehri

Cc: Litwinow, Ryan; Sonnenberg, Kevin; Grant Strachan (gstrachan@aecon.com); Stachowski , Thomas

Subject: RE: Southern Bruce Natural Gas Pipeline Update -2363498

Hi Kourosh - yes, we will complete the study and be sure to share it with you. Thanks again for the assistance

--Original Message--

From: Kourosh Manouchehri [mailto:KManouchehri@tssa.org]

Sent: September-27-18 5:14 AM

To: Cudrak, Audrey

Cc: Litwinow, Ryan; Sonnenberg, Kevin; Grant Strachan (gstrachan@aecon.com); Stachowski , Thomas

Subject: RE: Southern Bruce Natural Gas Pipeline Update -2363498

Notice: External Email

Use caution when opening links, attachments, and when prompted to enter User IDs, Passwords or Confidential Information.

Please report any suspicious email to the EPCOR Service Desk.

Hi Audry.

Thank you for your response. As I understood from your response High Consequence Area Study will be done later for this project as defined in TSSA Code Adoption Document. Please share this study with me when it is available

Regards.

Kourosh Manouchehri, P.Eng., PMP | Engineer Fuels Safety 345 Carlingview Drive Toronto, Ontario M9W 6N9 Tel: +1-416-734-3539 | Fax: +1-416-231-7525 | E-Mail: kmanouchehri@tssa.org

----Original Message---

From: Cudrak, Audrey <acudrak@epcor.com>

Sent: September 20, 2018 13:43

To: Kourosh Manouchehri < KManouchehri@tssa.org>

Cc: Litwinow, Ryan <RLitwinow@epcor.com>; Stachowski , Thomas <TStachowski@epcor.com>; Cstachowski , Thomas <TStachowski@epcor.com> Subject: RE: Southern Bruce Natural Gas Pipeline Update -2363498

Thanks for getting back to us and for the clarifications. We are currently working on the detailed design and line alignment for the project and when that is completed we will be able to conduct the high consequence area study and risk assessment as per your requirement. As you noted, if there are "identified sites" along the route, we will ensure we use the correct valve spacing.

We will keep you informed as things progress and will forward you the results of our assessment when completed

Please feel free to contact me at any time if you require additional information.

Best regards

rout cy
Audrey A. Cudrak, M.Eng., P.Eng. Director, Project & Technical Services EPCOR Commercial Services 2000 - 10423 101 Street NW Edmonton, AB Canada TSH 0E8 T: (780) 412-7970 F: (780) 412-3013 E: acudrak@epcor.com
Original Message From: Kourosh Manouchehri [mailto:KManouchehri@tssa.org] Sent: September-11-18 12:36 PM To: Cudrak, Audrey Cc: Litwinow, Ryan; Sonnenberg, Kevin; Grant Strachan (gstrachan@aecon.com); Stachowski , Thomas Subject: RE: Southern Bruce Natural Gas Pipeline Update -2363498
Notice: External Email Use caution when opening links, attachments, and when prompted to enter User IDs, Passwords or Confidential Information. Please report any suspicious email to the EPCOR Service Desk.
Hi Audrey,
Thank you for your response.
Regarding the valve spacing, I agree to the use of class 2 and 3 for valve spacing. However in Ontario we amended clause 4.3.4. and require the study of the high consequence area for the class locations. Please see section 4.3.4.12 of FS-238-18 - Oil and Gas Pipelines CAD Amendment <a 2,="" 4.3.4.12.<="" are="" area.="" because="" class="" conjunction="" correct="" helps="" however="" href="https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fwww.tssa.org%2fen%2ffuels%2fresources%2fDocuments%2fOil-and-Gas-Pipelines-CAD-Amendment_FIX.pdf&c=E,1,6LObiS3ATEA_lygC6lSzeYk8Hy1c7TGx1wZp6M3cgcicF8-q-zYeh7EuJF4xfVq3riBQbVF_hnHuOqtWyU4Rd2cy9GGHwwwiaQkEyfJMqaR15LhzmDl,&typo=1> below. You can access this document on the following link.</td></tr><tr><td>https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fwvw.tssa.org%2fen%2ffuels%2fresources%2fDocuments%2fOil-and-Gas-Pipelines-CAD-Amendment_FIX.pdf&c=E,1,4kVNC-o3NnBOOGM2jFEXNImmfVX7jUlrNTxrXo-mxyfsRLo62yTyEcVRP27Xk1GhI93F5ubMDR4Oul7I5fBiAnWi3Tnprx7eKj2hvwPlx88Hay2y67vbdo369g,,&typo=1</td></tr><tr><td>If the valve spacing are used other than class 4, high consequence area study and risk assessment and remediation according to sections 4.3.4.11 and 4.3.4.12 should be done. As I noticed on the submitted environmental repor most probably there are not that many " identified="" in="" lines="" mentioned="" mostly="" of="" on="" other="" remediations="" rural="" section="" sites"="" spacing="" study="" td="" the="" this="" use="" valve="" with="">
If you have any question, please contact me.
Regards,
Kourosh Manouchehri, P.Eng., PMP Engineer
Fuels Safety
345 Carlingview Drive
Toronto, Ontario M9W 6N9
Tel: +1-416-734-3539 Fax: +1-416-231-7525 E-Mail: kmanouchehri@tssa.org
https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fwww.tssa.org&c=E,1,Q10SLMqY4oMRTRwAjzLYER4Zw4GbEDircVkUCKoFdjfH6QEY9fb2KIV3E4pWLa_yY57Sdv_gpuzSEI2GMMTTc8e2m38mffCTJ_HuNo3FXzG02g,,&typo=1
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From: Cudrak, Audrey <acudrak@epcor.com> Sent: September 4, 2018 19:47 To: Kourosh Manouchehri <kmanouchehri@tssa.org> Cc: Litwinow, Ryan <rlitwinow@epcor.com>; Sonnenberg, Kevin <ksonnenberg@epcor.com>; Grant Strachan (gstrachan@aecon.com) <gstrachan@aecon.com>; Stachowski , Thomas <tstachowski@epcor.com> Subject: RE: Southern Bruce Natural Gas Pipeline Update -2363498</tstachowski@epcor.com></gstrachan@aecon.com></ksonnenberg@epcor.com></rlitwinow@epcor.com></kmanouchehri@tssa.org></acudrak@epcor.com>
Good afternoon Kourosh - thanks for sending your feedback on the pipe design for the Southern Bruce project. Here is our response to your questions:
1. Submitted documents show that class 3 is chosen for the design of the steel pipe. I believe this project is within the distribution system as defined in section 12.1.1 and figure 12.1 of CSA Z662-15. I believe distribution network should be designed above all the class locations as clause 12 does not talk about the class location and exempt itself from the requirement of the class locations modification. Also, because clause 12 refers to other claus of the code, as a minimum class 4 should be selected for the base of the design. Please provide updated document to refers to this change.
Response: yes, we agree, as you have noted, that the stress level on the pipe at operating pressure is less than 30% of SMYS and the lines seem to be within the distribution network and clause 12 of CSA Z662-15 applies. Regarding the pipe design, it does meet a location factor design of 0.550, therefore it is correct to state that the pipe stress design meets a Class 4 Location. However, we want to ensure there is no misunderstanding on the valve spacing requirements for the NPS 8 and NPS 6 steel pipelines. Clause 12.4.13.1 states that Clause 4.4 (valve spacing) does not apply to pipelines that fall under Clause 12. Clause 12.4.13.4 states that valves "shall be located in a manner that provides ready access and facilitates their operation during emergencies". To achieve this and meet the intention of the code for valve spacing, we will be using Clause 4.4 (Table 4.7) for the proposed valve spacing on these steel lines. Specifically, we will be using the 25 km spacing in the Class 2 areas and 13 km spacing in the Class 3 areas.
In summary, we can say our design meets a Class 4 design so long as we are in agreement that the pipeline falls under Clause 12 and therefore, Clause 4.4 is not applicable as per Clause 12.4.13.1. Can you please confirm if this is the update you are seeking?
2. Is the gas delivered to EPCOR already odorized? Or it will be odorized by EPCOR?
Response: yes, the gas will be delivered to EPCOR already odorized (from Union Gas)
Best regards,
Audrey A. Cudrak, M.Eng., P.Eng.
Director, Project & Technical Services
EPCOR Commercial Services
2000 - 10423 101 Street NW
Edmonton, AB
Canada
T5H 0E8
T: (780) 412-7970
F: (780) 412-3013
E: acudrak@epcor.com <mailto:acudrak@epcor.com></mailto:acudrak@epcor.com>
Original Message From: Sonnenberg, Kevin Sent: September-04-13 8:56 AM To: Cudrak, Audrey C:: Litwinow, Ryan Subject: FW: Southern Bruce Natural Gas Pipeline Update -2363498
Audrey - can you respond to Kourosh?
Cheers,

Kevin Sonnenberg

Senior Manager, Business Development

Direct: (403) 717-8947 | Mobile: (403) 880-9765

From: Kourosh Manouchehri [mailto:KManouchehri@tssa.org <mailto:kmanouchehri@tssa.org>]</mailto:kmanouchehri@tssa.org>
Sent: September-04-18 8:21 AM
To: Sonnenberg, Kevin
Cc: acrudark@epcor.com <mailto:acrudark@epcor.com></mailto:acrudark@epcor.com>
Subject: Southern Bruce Natural Gas Pipeline Update -2363498
Notice: External Email
Use caution when opening links, attachments, and when prompted to enter User IDs, Passwords or Confidential Information.
Please report any suspicious email to the EPCOR Service Desk.
Hi Kevin,
I reviewed this project based on the submitted document. More specifically I reviewed in detail technical specification of the pipeline. The stress level on the pipe at operating pressure is less than 30% of SMYS and the lines seem
to be within the distribution network and clause 12 of CSA Z662-15 applies. I have following questions.
1. Submitted documents show that class 3 is chosen for the design of the steel pipe. I believe this project is within the distribution system as defined in section 12.1.1 and figure 12.1 of CSA 2662-15. I believe distribution network should be designed above all the class locations as clause 12 does not talk about the class location and exempt itself from the requirement of the class locations modification. Also, because clause 12 refers to other clause
of the code, as a minimum class 4 should be selected for the base of the design. Please provide updated document to refers to this change.
2. Is the gas delivered to EPCOR already odorized? Or it will be odorized by EPCOR?
Please respond to the above mentioned questions.
We want to visit the construction site for audit of this project. Please let me the appropriate timeline and the contact person. One of the visit can be for witnessing the pressure test of some portion of the steel pipe.
The finite of the constitution and the control of the control of the control of the finite control of the control of the seed pipe.
If you have any question, please contact me.
Regards,

Kourosh Manouchehri, P.Eng., PMP | Engineer

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345 Carlingview Drive
Toronto, Ontario M9W 6N9
Tel: +1-416-734-3539 Fax: +1-416-231-7525 E-Mail: kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org></mailto:kmanouchehri@tssa.org>
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From: FS Submissions
Sent: July 17, 2018 14:24
To: Bonnie Adams Cc: Kourosh Manouchehri <kmanouchehri@tssa.org <mailto:="" kmanouchehri@tssa.org="">></kmanouchehri@tssa.org>
Subject: SR#2348164 - RE: RUSH CONSULTATION APPLICATION_FW: [External] RE: Enbridge Gas Distribution Inc Liberty Village Pipeline Project - Amended Environmental Report - TSSA Form
Good Afternoon,
We have processed your consultation application for LIBERTY VILLAGE, TORONTO- our file SR#2348164.
This file has been assigned to Kourosh Mannurshiri for review. Please contact Kourosh Mannurshahri via amail kmannurshahri@tssa.org.cmailto/mannurshahri@tssa.org.if vou have additional questions.

Thanks
Angelina Brew Administrative Assistant
Fuels Safety
345 Carlingview Drive
Toronto, Ontario M9W 6N9
[el: +1-416-734-3477 Fax: +1-416-231-7525 E-Mail: abrew@tssa.org <mailto:abrew@tssa.org></mailto:abrew@tssa.org>
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From: Kourosh Manouchehri
Sent: July 16, 2018 9:07 AM
To: FS Submissions fissubmissions@tssa.org fissubmis

lease process this application and assigned to me.
hanks,
ourosh Manouchehri, P.Eng., PMP Engineer
uels Safety
45 Carlingview Drive
oronto, Ontario M9W 6N9
el: +1-416-734-3539 Cell: +1-416-999-6529 Fax: +1-416-231-7525 E-Mail: kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org></mailto:kmanouchehri@tssa.org>
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From: Bonnie Adams [mailto:Bonnie.Adams@enbridge.com <mailto:bonnie.adams@enbridge.com>]</mailto:bonnie.adams@enbridge.com>
Sent: July 16, 2018 08:54
To: Kourosh Manouchehri <kmanouchehri@tssa.org <mailto:kmanouchehri@tssa.org=""> ></kmanouchehri@tssa.org>
Subject: RE: [External] RE: Enbridge Gas Distribution Inc Liberty Village Pipeline Project - Amended Environmental Report - TSSA Form
Good Morning,
As requested, attached please find the completed form.
Please let me know if you have any questions and/or require further information.
Sincerely,
<i>,</i> ,
Bonnie Jean Adams
bolinie Jean Adams
Regulatory Coordinator
negulatory Coordinator
Enbridge Gas Distribution
T: 416-495-6409 F: 416-495-6072
500 Consumers Road I North York Ontario I M2J 1P8
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Integrity. Safety. Respect.

rtoni. Kourosii wanouchemi [manco.kwanouchemi@cssa.org vinanco.kwanouchemi@cssa.org2]
Sent: Wednesday, June 27, 2018 8:23 AM
To: Bonnie Adams
Subject: [External] RE: Enbridge Gas Distribution Inc Liberty Village Pipeline Project - Amended Environmental Report - OPCC Review
Hi Bonnie,
Please fill the application on the following link and send it to my attention. At this point, we use this form and in process of having specific form for new pipeline project in future. Please fill the sections as much as applicable. Som sections like location address might not be applicable.
https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fwww.tssa.org%2fen%2ffuels%2fresources%2fDocuments%2fApplication-for-a- Consultation.pdf&c=E,1,ALv6baDUUiOIHKAMP77gXUZAf7FM4DuRXoCwjhSqipaxS99Fw_YM4zHJZNk-MdtHRdEij2VcRKSfAjv3CqybcP6jdJUJkfGBNrJX35mv_0Z50g_,&typo=1 https://linkprotect.cudasvc.com/url ?
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From: Bonnie Adams [mailto:Bonnie.Adams@enbridge.com <mailto:Bonnie.Adams@enbridge.com>]

Sent: June 13, 2018 11:38

To: Kourosh Manouchehri <KManouchehri@tssa.org <mailto:KManouchehri@tssa.org>>

 $Subject: Enbridge\ Gas\ Distribution\ Inc.\ - \ Liberty\ Village\ Pipeline\ Project\ - \ Amended\ Environmental\ Report\ - \ OPCC\ Review$

To: "michael.elms@ontario.ca <mailto:michael.elms@ontario.ca <mailto:scott.oliver@ontario.ca <

The following attachment has been sent to you using Mail Express(r):

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a=https%33%2/%2/mailexpress.enbridge.com%2fpickup%2f3MHF9XWTFrEXmVjkoENIOMCK_fqQPECrADVZWSbh%2fEnbridge_Liberty_Village_Amended_Environmental_ReportFinal_lune_2018_redacted.pdf%26gt%3b%26nbsp%3b&c=E,1,068iQq2_kRCsiC8iQNYb02xWszl5qzwKYgeCqMqah4ZbX_gjdDdCe5lFBOJ50dzkwVmlZnVo6SmLMlfbinU8iNnD8xz-402bL21yhicHhiUvBQ8,&typo=1> (44.6 MB)
Click the links above or visit the pick-up portal https://linkprotect.cudasvc.com/url? a=https%3a%2f%2fmailexpress.enbridge.com%2fpickup%2fZQgx6k6gctFFRwtqwXLoidqcCbGsvKpmQ1qlpfF&c=£,1,cTk5N0dfzrXOOT85cGcr0Tq2AK9ACxkdYpvdDahfvQneC-ZUWPtyvwSd-Ky-65nxed1v_N69QEo6-kCimUUJComHP56E1gh-pmLHyx/MedNoj7naoXdhlTDxM,&typo=1> https://linkprotect.cudasvc.com/url? a=https%3a%2f%2fmailexpress.enbridge.com%2fpickup%2fZQgx6k6gctFFPRwtqwXLoidqcCbGsvKpmQ1qlpff%26gt%3b%26nbsp%3b&c=£,1,GpqUeSXdHBS8e7kak6XPPziWMPgSe8i6ikivH8LSpi-cr4six-lWrl13igGKw4pdiTdUD92jMmvdGfky_87Gzb1oaaK-LOhJhu5AcJyq9we2&typo=1> for batch retrieval or to reply with your own attachments.
To: Ontario Pipeline Coordinating Committee (OPCC) Members
Enbridge Gas Distribution Inc. ("Enbridge") is proposing to construct approximately 1.2 km of natural gas pipeline within Liberty Village (the "Project"). The Project will serve to supply gas to additional development, and reinforce the existing gas infrastructure to support future growth in the community.
Since submitting the Environmental Report in April 2018, additional developments requiring natural gas service in the Project were identified. As such, the Preferred Route has been amended to accommodate this requirement. Consequently, this Environmental Report has been updated to include an assessment of the area along the amended pipeline route. As with the original Preferred Route, the additional pipeline segment has been assessed to identify any potential adverse environmental effects and where appropriate, impact management measures have been proposed to address any potential adverse environmental effects. Enbridge is submitting this updated report for OPCC review.
Description of the Amended Preferred Route
The amended Preferred Route for the new gas pipeline consists of two sections having a total length of 1.2 km. Section 1 of the new pipeline consists of 900 m of 8-inch Intermediate Pressure steel pipe beginning at King Street West and Jefferson Avenue. It extends eastwards along King Street before being directed south onto Atlantic Avenue where it then continues east along Snooker Street. It turns south onto Hanna Avenue and continues toward East Liberty Street and connects with an existing gas main at Pirandello Street.
Section 2 of the new pipeline consists of two individual segments of pipe. The first segment included in the original Preferred Route, is 200 m of 6-inch Intermediate Pressure polyethylene pipe beginning at Strachan Avenue and Ordnance Street, continuing east, before heading south where it ends. The second segment, identified as the Amendment to the Preferred Route is 85 m of 4-inch Intermediate Pressure polyethylene pipe beginning on Western Battery Road and connecting to an existing gas main at the intersection of Western Battery Road and East Liberty Street.
The redacted environmental report can be found on the Enbridge website, please click on the following link and select the Liberty Village Pipeline Project listed under the Projects Tab.
https://linkprotect.cudasvc.com/url?a=https%3a%2f%2fwww.enbridgegas.com%2fen%2fAbout-Us&c=E,1,hbgtTHW7FgEcq7vcCme4zs7nrtXhPlph91BbBLC4gcED8npY7jcz4hyZo5avE0v5jN9SQlZvKe1hmLAPFDxuA3aFgqo1m10V4lr4Hnk2P6PuhqKznHeqSaSx&typo=1

Bonnie Jean Adams
Regulatory Coordinator
Enbridge Gas Distribution
T: 416-495-6409 F: 416-495-6072
500 Consumers Road I North York Ontario I M2J 1P8
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Integrity, Safety, Respect.
From: Bonnie Adams
Sent: Friday, April 06, 2018 5:46 PM
To: Zora. Crnojacki@oeb.gov.on.ca <amailto:zora. <amailto:lin<="" <amailto:linda.="" <amailto:zora.="" crnojacki@oeb.gov.on.ca="" pim@ontario.ca="" td=""></amailto:zora.>
Subject: Enbridge Gas Distribution Inc Liberty Village Pipeline Project - Environmental Report - OPCC Review
To: Ontario Pipeline Coordinating Committee (OPCC) Members
Enbridge Gas Distribution Inc. ("Enbridge") is proposing to construct approximately 1.1 km of natural gas pipeline within Liberty Village (the "Project"). The Project will serve to supply gas to additional development, and reinforce the existing gas infrastructure to support future growth in the community.
In accordance with the OEB's "Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipeline and Facilities in Ontario, 7th edition 2016", Enbridge has retained the services of GHD Consulting an independent environmental consultant, to complete an environmental assessment for the proposed project. Enbridge is submitting the environmental report for the Project for Ontario Pipeline Coordinating Committee review.
Preliminary Preferred Route

A Preliminary Preferred Route (PPR) for the proposed natural gas pipeline has been identified. The PPR includes installation of 900m of 8-inch Intermediate Pressure (IP)steel pipe beginning at King St. W and Jefferson Ave. It heads east along King St. before being directed south onto Atlantic Ave. where it continues east along Snooker St. It then turns onto Hanna Ave. and continues south toward East Liberty St. Finally, it continues east along East Liberty St.

and connects with an existing gas main at Pirandello St. The PPR also includes a second section of 6-inch Intermediate Pressure plastic pipe.

The redacted Environmental Report can be found on the Enbridge website using the following link: https://linkprotect.cudasvc.com/url? Please note that personal information has been redacted in Appendix F- Stakeholder List, Appendix J - Stakeholder Correspondence, and Appendix L - Open House Correspondence. Please contact me if you have any questions and/or comments on the Environmental Report Sincerely, Bonnie Jean Adams Regulatory Coordinator T: 416-495-6409 | F: 416-495-6072 500 Consumers Road | North York Ontario | M2J 1P8 $https://linkprotect.cudasvc.com/url?a=https:%3a%2f%2fenbridgegas.com\&c=E,1,9aR852k3CqjC9ClX3CtC2pi10tfqiC_tbEf2ioab_mA0cPzl-ilCleTGxP-QbDLjnUt0z4WegxSPseWvZlsirbj0rrTQgmtZBU2zuTO7yXtewQu,&typo=1 \\ < https://linkprotect.cudasvc.com/url?a=https:%3a%2f%2fenbridgegas.com&c=E,1,7zwY-R1TSga68R69esBkfT1CWx6EZUGJOVw_HHouW9wQ3B76r3HDaggl-valuesparker$ IrN08psDPpVjOkx3tUDuKBn9klw3U2Eq5vkmz8HDym89_pUgw_,&typo=1> <a href="https://linkprotect.cudasvc.com/uri?a=https:/ Integrity. Safety. Respect. This electronic message and any attached documents are intended only for the named recipients. This communication from the Technical Standards and Safety Authority may contain information that is privileged, confidential or otherwise protected from disclosure and it must not be disclosed, copied, forwarded or distributed without authorization. If you have received this message in error, please notify the sender immediately and delete the original message. This electronic message and any attached documents are intended only for the named recipients. This communication from the Technical Standards and Safety Authority may contain information that is privileged, confidential or otherwise protected from disclosure and it must not be disclosed, copied, forwarded or distributed without authorization. If you have received this message in error, please notify the sender immediately and delete the original message.

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ELECTED OF	FICIALS										
Mr.	Ben	Lobb	Constituency Office (Port Elgin)	Huron-Bruce	MP	5101 Highway 21 South, Box 9, Site 4	Port Elgin, ON	N0H 2C5	519-832-2999	519-832-2995	Ben.lobb@parl.gc.ca
Ms.	Lisa	Thompson	Constituency Office (Kincardine)	Huron-Bruce	MPP	807 Queen Street, Unit 2	Kincardine, ON	N2Z 2Y2	519-396-3007	519-396-3011	lisa.thompson@pc.ola.org
Mr.	Larry	Miller	Constituency Office (Owen Sound)	Bruce-Grey-Owen Sound	MP	1131 2nd Avenue East	Owen Sound, ON	N4K 2J1	519-371-1059	519-371-1752	larry.miller.c1@parl.gc.ca
	Bill	Walker	Constituency Office (Owen Sound)	Bruce-Grey-Owen Sound	MPP	Suite 100, 920 1st Avenue West	Owen Sound, ON	N4K 4K5	519-371-2421	519-371-0953	bill.walkerco@pc.ola.org
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Mr.	Jeremy	Craigs	Health Canada	Regulatory Operations & Regions Branch	Regional Environmental Assessment Specialist	1000 1/2 01 1/2 1/2 1/2					jeremy.craigs2@canada.ca
Mr.	Michael	Stephenson	Transport Canada	Regional Director General's Office - Ontario Region	Regional Director General - Ontario	4900 Yonge Street, 4th Floor	Toronto, ON	M2N 6A5	416-954-0498	416-952-2174	EnviroOnt@tc.gc.ca
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Ms.	Debbie	Ming	Fisheries and Oceans Canada	Species at Risk Program - Central and Arctic Region	Team Leader, Ontario, Species at Risk	867 Lakeshore Road	Burlington, ON	N5E 2V2	905-336-4592	905-336-6285	debbie.ming@dfo-mpo.gc.ca
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Mr.	Tony	DiFabio	Ministry of Transportation	Ontario Pipeline Coordinating Committee	Senior Planner and Policy Advisor, Corridor Manageme	301 St. Paul Street, 2nd Floor	St. Catharines, ON	L2R 7R4	905-704-2656	905-704-2051	tony.difabio@ontario.ca
Mr.	Kourosh	Manouchehri	Technical Standards and Safety Authority	Ontario Pipeline Coordinating Committee		345 Carlingview Drive	Toronto, ON	M9W 6N9	416-734-3539	416-231-7525	kmanouchehri@tssa.org
Ms.	Shereen	Smithanik	Ministry of Energy, Indigenous Energy Policy Ur	Ontario Pipeline Coordinating Committee	Senior Advisor	77 Grenville Street, 6th Floor	Toronto, ON	M7A 2C1	416-326-0513		shereen.smithanik@ontario.ca
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	Sally	Renwick	Ministry of Natural Resources and Forestry	Ontario Pipeline Coordinating Committee	Team Lead, Environmental Planning	300 Water Street	Peterborough, ON	K9J 8M5	705-755-5195	705-755-1971	Sally.Renwick@ontario.ca
Ms.	Zora	Crnojacki	Ontario Energy Board	Ontario Pipeline Coordinating Committee	Project Advisor, Applications and Regulatory Audit	P.O. Box 2319, 2300 Yonge Street, 26th Floor	Toronto, ON	M4P 1E4	416-440-8104	416-440-7656	Zora.Crnojacki@ontarioenergyboard.ca
Ms.	Karla	Barboza	Ministry of Tourism, Culture and Sport	Ontario Pipeline Coordinating Committee	Team Lead, Heritage				416-314-7120	416-212-1802	karla.barboza@ontario.ca
Mr.	Scott	Oliver	Ministry of Municipal Affairs and Housing - Wes	Ontario Pipeline Coordinating Committee	Manager (Acting) - Community Planning and Developm	659 Exeter Road, 2nd Floor	London, ON	N6E 1L3	519-873-4033	519-873-4018	scott.oliver@ontario.ca
Mr.	Patrick	Grace	Infrastructure Ontario	Ontario Pipeline Coordinating Committee	Director/Project Coordinator, Land Transactions- Hydro	1 Dundas St. W., Suite 2000	Toronto ON	M5G 2L5	416-327-2959		patrick.grace@infrastructureontario.ca
Mr.	Joseph	Vecchiolla	Ministry of Economic Development, Employment	Ontario Pipeline Coordinating Committee	Policy Lead, Realty Policy Branch	777 Bay Street, 4th Floor, Suite 425	Toronto ON	M5G 2E5	416-325-1561	416-212-4941	joseph.vecchiolla@ontario.ca
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	Michael	Stickings	· · ·	Policy and Program Division, Environmental Intergovernmental Affairs		77 Wellesley St. W., 10th Floor	Toronto, ON	M7A 2T5	416-212-1340	+	michael.stickings@ontario.ca
Mr	Mansoor	Mahmood	Ministry of the Environment and Climate Chang	Approval Services	Manager	135 St Clair Ave. W., 1st Floor	Toronto, ON	M4V 1P5	416-314-3636	+	mansoor.mahmood@ontario.ca
Mr	Rick	Chappell		Owen Sound District Office	Manager	101 17th St E., 3rd Flr.	Owen Sound, ON	N4K 0A5	519-371-6022	519-371-2905	rick.chappell@ontario.ca
Me	Anneleis	Eckert	Ministry of the Environment and Climate Chang	Technical Support Section, Southwest Region	Environmental Planner and EA Coordinator, Air, Pestici	·	London, ON	N6E 1L3	519-873-5115	313-371-2303	anneleis.eckert@ontario.ca
IVIS.	Zsolt	Katzirz	Ministry of Transportation	Highway Corridor Management, West Region, Engineering Office	Highway Corridor Management Planner	1st Floor, 659 Exeter Road	London, ON	N6E 1L3	519-873-4598	519-873-4228	zsolt.datzirz@ontario.ca
Ms	Jessica	Pegelo	Ministry of Transportation	riigiiway corridor Wariagement, west kegion, Engineering Office	Inigriway Corridor Management Flanner	13t Floor, 035 Exeter Road	London, ON	NOL 1L3	315-673-4356	313-873-4228	Jessica.Pegelo@ontario.ca
	Michele	Luker	Ministry of Transportation							+	Michele.Luker@ontario.ca
Mr	Kent	Mott	Ministry of Natural Resources and Forestry	Midhurst District	District Planner				705-725-7546	+	ken.mott@ontario.ca
Mr.	David	Cooper	Ministry of Agriculture, Food and Rural Affairs	Policy Division, Food Safety and Environmental Policy Branch	Manager, Land Use Policy & Stewardship	1 Stone Rd. W.,3rd Floor, Ontario Government Bl	d Guelph, ON	N1G 4Y2	519-826-3117	519-826-3109	david.cooper@ontario.ca
	Carol	Neumann	Ministry of Agriculture, Food and Rural Affairs	Policy Division, Food Safety and Environmental Policy Branch	Rural Planner, Land Use Policy & Stewardship	6484 Wellington Rd. 7, Unit 10, Elora Resource Ct		N0B 1S0	519-846-3393	1	carol.neumann@ontario.ca
Ms.	Krystyna	Сар	Ministry of Northern Development and Mines	Strategic Policy Division, Corporate Policy Secretariat	Manager	99 Wellesley St. West, 5th Floor	Toronto, ON	M7A 1W3	416-327-0680	1	krystyna.cap@ontario.ca
Ms.	Kathy	Dodge	Ministry of Natural Resources and Forestry	Bruce County		· · ·	,			1	kathy.dodge@ontario.ca
Ms	Jody	Scheifley	Ministry of Natural Resources and Forestry	Grey County					+	+	
Mc		· · · · · · · · · · · · · · · · · · ·	Ministry of Municipal Affairs		Manager Planning Innovation Section	777 Bay Street, 13th Floor	Toronto ON	M5G 2E5	416-585-6285	+	Jody.scheifley@ontario.ca
Mr	Carly Charles	Steinman O'Hara	Ministry of Municipal Affairs Ministry of Municipal Affairs	Local Government and Planning Policy Division, Provincial Planning Po Ontario Growth Secretariat, Growth, Planning and Analysis Branch	Director	777 Bay Street, 13th Floor 777 Bay Street, College Park 23rd Floor Suite 230	Toronto, ON	M5G 2E5	416-325-5794	416-325-7403	carly.steinman@ontario.ca charles.o'hara@ontario.ca
Mr	Hartley	Springman	Ministry of Energy	Strategic Policy, Network and Agency Policy Division, Strategic Policy a		77 Grenville St., 6th Floor	Toronto, ON	M7A 1B3	416-325-6763	410-323-7403	hartley.springman@ontario.ca
Mr.	Tate	Kelly	Infrastructure Ontario	Planning Coordinator	wanager, strategic roncy and Nesearch	1 Dundas St. West, Suite 2000	Toronto, ON	M5G 1Z3	416-327-1925	416-327-3937	tate.kelly@infrastructureontario.ca
Ms.			Infrastructura Ontaria		Director of Land Use Planning	· ·	·				noticereview@infrastructureontario.ca
	Ainsley	Davidson	Infrastructure Ontario Ministry of Tourism, Culture and Sport	Planning	Director of Land Use Planning	1 Dundas St. West, Suite 2000	Toronto, ON	M5G 1Z3	416-327-8018	416-327-3942	ainsley.davidson@infrastructureontario.ca
	Brooke	Herczeg	· · · · · · · · · · · · · · · · · · ·	Regional and Corporate Services Division, Regional Services and Corpo	Heritage Planner Assigned to File #0003758	4275 King St. 2nd Fly	Kitchanar CNI	NIAD ALO	E10 6E0 2424	E10 6E0 343E	Brooke.Herczeg@ontario.ca
IVII	Chris	Stack	Ministry of Tourism, Culture and Sport	Transmission Lines Sustainment	1 10-7	4275 King St., 2nd Flr. 483 Bay Street, 15th Floor, North Tower	Kitchener, ON	N2P 2E9	519-650-3421	519-650-3425	chris.stack@ontario.ca
	Doscollo	Fario			Investment Planning	·	Toronto, ON	M5G 2P5	416-345-5114	416-345-5443	rossella.fazio@HydroOne.com
Ms.	Rossella	Fazio	Hydro One Networks Inc.		Chair	2200 Vanna Charact Cuita 2700					
Ms. Ms.	Rosemarie T.	Leclair	Ontario Energy Board	Chair's Office	Chair	2300 Yonge Street, Suite 2700	Toronto, ON	M4P 1E4	416-440-7601	705 220 5000	Rosemarie.Leclair@ontarioenergyboard.ca
Ms.		_			Chair Manager, OPP Facilities Section	2300 Yonge Street, Suite 2700 777 Memorial Ave., 2nd Floor	Toronto, ON Orillia, ON	M4P 1E4 L3V 7V3	416-440-7601 705-329-6815	705-329-6808	joy.fishpool@ontario.ca
Ms. Ms.	Rosemarie T.	Leclair	Ontario Energy Board	Chair's Office		,				705-329-6808	-
Ms. Ms. Ms. Ms. Mr.	Rosemarie T. Joy	Leclair Fishpool	Ontario Energy Board Ontario Provincial Police Ontario Provincial Police Ministry of Community Safety and Correctional	Chair's Office OPP Facilities Section	Manager, OPP Facilities Section Director	777 Memorial Ave., 2nd Floor	Orillia, ON Orillia, ON	L3V 7V3	705-329-6815	705-329-6808	joy.fishpool@ontario.ca

ITLE	FIRST NAME	SURNAME	ORGANIZATION	DEPARTMENT	POSITION	ADDRESS	CITY/TOWN	POSTAL CO	TELEPHONE	FAX	E-Mail
OVERNM	NT REVIEW TEAM	FOR ABORIGINAL	NFORMATION								
o whom it	may concern		Indigenous and Northern Affairs Canada, Enviro	o Lands and Economic Development		25 St. Clair Avenue East, 8th Floor	Toronto, ON	M4T 1M2			Eacoordination_ON@aandc-aadnc.gc.ca
	Peter	Brown	Ministry of the Environment and Climate Chang	g EAASIB - Indigenous Consultation	Aboriginal Consultation Advisor	135 St. Clair Avenue West, 1st Floor	Toronto, ON	M4V 1P5	416-326-9608		peter.brown@ontario.ca
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	Kelley	Coulter	Bruce County	Office of the Chief Administrative Officer	Chief Administrative Officer	30 Park Street	Walkerton, ON	N0G 2V0	519-881-1291 ext. 280		KCoulter@brucecounty.on.ca
	Kara	Van Myall	Bruce County	Planning and Development	Director of Planning and Development	30 Park Street	Walkerton, ON	NOG 2V0	519-881-1782 ext. 295		KVanMyall@brucecounty.on.ca
_	Donna	Van Wyck	Bruce County		Clerk	30 Park Street	Walkerton, ON	N0G 2V0	519-881-1291ext. 310		dvanwyck@brucecounty.on.ca
	lerry	Haan	Bruce County		Operations Manager	30 Park Street	Walkerton, ON	N0G 2V0	519-881-2400 ext. 264		jhaan@brucecounty.on.ca
	lack	Van Drop	Bruce County	Zoning and Planning	Senior Planner	Box 129, 578 Brown St.	Wiarton, ON	NOH 2TO	519-534-2092 ext. 125	+	jvandorp@brucecounty.on.ca
	Michael	McKeage	Bruce County Paramedic Services	Paramedic Services	Director of Health Services	30 Park Street	Walkerton, ON	N0G 2V0	519-881-1291 ext. 318		mmckeage@brucecounty.on.ca
	ITY OF ARRAN ELD								T	—	
	Paul	Eagleson	Municipality of Arran-Elderslie	Council	Mayor	1925 Bruce Road #10, P.O. Box 70	Chesley, ON	NOG 1LO	519-270-9299	519-363-2203	mayor@arran-elderslie.ca
	Steve	Hammell	Municipality of Arran-Elderslie	Council	Councillor - Arran Ward	1925 Bruce Road #10, P.O. Box 70	Chesley, ON	NOG 1LO	519-934-2724	519-363-2203	arran@arran-elderslie.ca
	Doug	Bell	Municipality of Arran-Elderslie	Council	Councillor - Chesley Ward	1925 Bruce Road #10, P.O. Box 70	Chesley, ON	N0G 1L0	519-363-2058	519-363-2203	chesley@arran-elderslie.ca
	Brian Dan	Dudgeon Kerr	Municipality of Arran-Elderslie	Council Council	Councillor - Elderslie Ward	1925 Bruce Road #10, P.O. Box 70 1925 Bruce Road #10, P.O. Box 70	Chesley, ON	NOG 1L0 NOG 1L0	519-270-2500	519-363-2203	elderslie@arran-elderslie.ca
	Peter	Steinacker	Municipality of Arran Elderslie	Council	Councillor - Paisley Ward Councillor - Tara Ward	,	Chesley, ON	NOG 1L0	519-353-5804 519-934-2874	519-363-2203	paisley@arran-elderslie.ca
	Peggy	Rouse	Municipality of Arran-Elderslie Municipality of Arran-Elderslie	Clerk's Office	Clerk	1925 Bruce Road #10, P.O. Box 70 1925 Bruce Road #10, P.O. Box 70	Chesley, ON Chesley, ON	NOG 1L0	519-363-3039 ext. 118	519-363-2203 519-363-2203	tara@arran-elderslie.ca clerk@arran-elderslie.ca
	Peggy Mark	O'Leary	Municipality of Arran-Elderslie	Water and Sewer Division	Water/Sewer Foreperson	1925 Bruce Road #10, P.O. Box 70	Chesley, ON	NOG 1LO	519-363-3039 ext. 122	519-363-9337	water@arran-elderslie.ca
	Scott	McLeod	Municipality of Arran-Elderslie	Public Works	Works Manager	1925 Bruce Road #10, P.O. Box 70	Chesley, ON	NOG 1L0	519-363-3039 ext. 115	519-363-2203	works@arran-elderslie.ca
	Kevin	Martin	Ontario Provincial Police	South Bruce Detachment	Community Service Officer	700 Kincardine Ave.	Kincardine, ON	N2Z 0B1	519-396-3341	313 333 2203	opp.south.bruce@opp.ca
	Robert	Bell	Municipality of Arran-Elderslie	Chesley and Area Fire Department	Fire Chief	211 1st Avenue North	Chesley, ON	NOG 1L0	519- 363-3039 (general line)	, 🕇	chesleyfire@arran-elderslie.ca
	Rob	Bonderud	Municipality of Arran-Elderslie	Paisley and Area Fire Department	Fire Chief	382 Goldie Street	Paisley, ON	N0G 2N0	519-353-5744		paisleyfire@arran-elderslie.ca
1r.	Scott	McLeod	Municipality of Arran-Elderslie	Emergency Planning	Acting Community Emergency Management Coord		Chesley, ON	N0G 1L0	519-363-3039 ext. 115	519-363-2203	works@arran-elderslie.ca
IUNICIPAI	ITY OF KINCARDIN	E			, , , , , , , , , , , , , , , , , , , ,	·					
1s.	Anne	Eadie	Municipality of Kincardine	Council	Mayor	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-3468 ext.7135	519-396-8288	mayor@kincardine.net
1s.	Sharon	Chambers	Municipality of Kincardine	Chief Administration Office	Chief Administrative Officer	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-3018		schambers@kincardine.net
1s.	Donna	MacDougall	Municipality of Kincardine	Clerks Department	Clerk	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-3468 ext. 7112	519-396-8288	clerk@kincardine.net
1s.	Maureen	Couture	Municipality of Kincardine	Council	Councillor Ward 1	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-3629		mcouture@kincardine.net
1r.	Mike	Legget	Municipality of Kincardine	Council	Councillor Ward 1	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-4529		mleggett@kincardine.net
	Linda	McKee	Municipality of Kincardine	Council	Councillor Ward 2	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-8110		Imckee@kincardine.net
	Gord	Campbell	Municipality of Kincardine	Council	Councillor at large	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-8075		gcampbell@kincardine.net
_	Laura	Haight	Municipality of Kincardine	Council	Councillor at large	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-5204		Ihaight@kincardine.net
	Andrew	White	Municipality of Kincardine	Council	Councillor at large	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-395-3398		awhite@kincardine.net
	Michele	Barr	Municipality of Kincardine	Building and Planning	Director of Building and Planning	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-3468 ext. 2	519-396-8288	cbo@kincardine.net
	Amberly	Keelan	Municipality of Kincardine	Building and Planning	Planning Coordinator	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-3468 ext.7129		akeelan@kincardine.net
	Don Adam	Huston	Municipality of Kincardine	Public Works	Roads Supervisor	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-3468 ext. 7120	519-396-8288	dhuston@kincardine.net aweishar@kincardine.net
	Mike	Weishar Moore	Municipality of Kincardine Municipality of Kincardine	Public Works Fire Department	Director of Public Works Deputy Chief - Kincardine Station	1475 Concession 5, R.R.#5 127 Mahood-Johnstone Drive	Kincardine, ON Kincardine, ON	N2Z 2X6 N2Z 3A2	519-396-3468 ext. 7119 519-396-2141	+	kinfire@bmts.com
	Kent	Padfield	Municipality of Kincardine	Emergency Services	Kincardine Fire Chief	127 Mahood-Johnstone Drive	Kincardine, ON	N2Z 3A2	519-396-2141	+	kpadfield@kincardine.net
	Steve	Otterman	Municipality of Kincardine	Fire Department	Deputy Chief - Tiverton Station	127 Mahood-Johnstone Drive	Kincardine, ON	N2Z 3A2	519-368-7711 (or call Kincard	dine)	kinfire@bmts.com
	Patty	Beckberger	Municipality of Kincardine	Kincardine Police Services Board	beputy emer invertori station	1475 Concession 5, R.R.#5	Kincardine, ON	N2Z 2X6	519-396-3468	519-396-8288	pbeckberger@kincardine.net
		NLOSS	Widtherpairty of Militarianic	Amedianic Fonce Services Soura		1175 corrections) turns	rancarante, orv	1122 270	313 330 3 100	1020 000 0200	promote general control of the contr
	Mitch	Twolan	Municipality of Huron-Kinloss	Council	Mayor	21 Queen Street, P.O. Box 130	Ripley, ON	NOG 2RO	519-395-0717	T	mitch@lakerangerealty.ca
	Mary Rose	Walden	Municipality of Huron-Kinloss	Administration	Chief Administrative Officer	21 Queen Street, P.O. Box 130	Ripley, ON	NOG 2RO	519-395-3735 ext. 121	-	mrwalden@huronkinloss.com
	Emily	Dance	Municipality of Huron-Kinloss	Clerk's Department	Clerk	21 Queen Street, P.O. Box 130	Ripley, ON	NOG 2R0	519-395-3735 ext. 123	1	edance@kincardine.net
	Matt	Farrell	Municipality of Huron-Kinloss	Building and Planning	Building and Planning Manager/CBO	21 Queen Street, P.O. Box 130	Ripley, ON	NOG 2RO	519-395-3735 ext. 132		mfarrell@huronkinloss.com
1r	Hugh	Nichol	Municipality of Huron-Kinloss	Public Works	Director of Public Works	21 Queen Street, P.O. Box 130	Ripley, ON	N0G 2R0	519-395-3735 ext. 130		hnichol@huronkinloss.com
	Chris	Cleave	Municipality of Huron-Kinloss	Ripley-Huron Fire Department, Emergency Services	Fire Chief/CEMC	74 Huron Street	Ripley, ON	N0G 2R0	519-395-3735 ext. 164		ccleave@huronkinloss.com
o whom it	may concern		Municipality of Huron-Kinloss	Community Policing Office		18 Tain Street	Ripley, ON	N0G 2R0			opp.south.bruce@opp.ca
	may concern		Municipality of Huron-Kinloss	Community Policing Office		482 Ross Street	Lucknow, ON	N0G 2H0			opp.south.bruce@opp.ca
	ITY OF BROCKTON										
	David	Inglis	Municipality of Brockton	Council	Mayor	100 Scott Street, P.O. Box 68	Walkerton, ON	N0G 2V0	519-881-2223 ext. 129		dinglis@brockton.ca
		Watson	Municipality of Brockton	Chief Administration Office	CAO/Clerk	100 Scott Street, P.O. Box 68	Walkerton, ON	N02 2V0	519-881-2223 ext. 126		swatson@brockton.ca
	David	Smith	Municipality of Brockton	Planning and Economic Development	Planner	Box 848, 30 Park St	Walkerton, ON	N0G 2V0	519-881-1782 ext. 257	+	dsmith@brockton.ca
	Colin	Saunders	Municipality of Brockton	Municipal Office	Director of Operations	100 Scott Street, P.O. Box 68	Walkerton, ON	N0G 2V0	519-881-2223 ext. 134	+	csaunders@brockton.ca
	lohn	Strader	Municipality of Brockton	Municipal Office	Works Supervisor	100 Scott Street, P.O. Box 68	Walkerton, ON	N0G 2V0	519-881-2223 ext. 125	+	jstrader@brockton.ca
ir. URON CO	Michael	Murphy	Municipality of Brockton	Emergency Contacts	Fire Chief and Community Emergency Managemen	t Col510 Napier Street, PO Box 68	Walkerton, ON	N0G 2V0	519-881-0642		mmurphy@brockton.ca
rall/all/ale	Susan	Carata	Homes Country	Administration	Clark	4 Counth avera Country	Coderish ON	DIZA 1842	519-524-8394 ext. 1		
		Cronin	Huron County	Administration	Clerk Chief	1 Courthouse Square 1 Courthouse Square	Goderich, ON Goderich, ON	N7A 1M2 N7A 1M2		+	scronin@huroncounty.ca
1s.		Harcomer					IGODERICO CIN	IN/A IIVIZ	519-524-8394 ext. 3314	1	jhorseman@huroncounty.ca
1s. 1r.	leff	Horseman	Huron County	Paramedic Services							*
1s. 1r. 1s.		Horseman Weber Lund	Huron County Huron County Huron County	Planning Department Public Works	Director of Planning County Engineer and Director of Operations	57 Napier Street, 2nd Floor 1 Courthouse Square	Goderich, ON Goderich, ON	N7A 1W2 N7A 1M2	519-524-8394 ext. 3 519-524-8394 ext. 3318		nlanning@huroncountv.ca slund@huroncounty.ca

TITLE	FIRST NAME	SURNAME	ORGANIZATION	DEPARTMENT	POSITION	ADDRESS	CITY/TOWN	POSTAL C	OITELEPHONE	FAX	E-Mail
TOWNSH	IP OF ASHFIELD-COI	BORNE-WAWANO	SH								<u> </u>
Mr	Ben	VanDiepenbeek	Township of Ashfield-Colborne-Wawanosh	Council	Reeve	82133 Council Line. R.R.#5	Goderich, ON	N7A 3Y2	519-529-7830	Т	bvandiepenbeek@acwtownship.ca
Mr	Trevor	Hallam	Township of Ashfield-Colborne-Wawanosh	Administration	Deputy-Clerk	82133 Council Line, R.R.#5	Goderich, ON	N7A 3Y2	519-524-4669 ext.202		dclerk@acwtownship.ca
Ms	Carol	Leeming	Township of Ashfield-Colborne-Wawanosh	Huron County Planning Department	Township Planner	82133 Council Line, R.R.#5	Goderich, ON	N7A 3Y2	519-524-8394 ext. 3		cleeming@huroncounty.ca
Mr	Peter	Steer	Township of Ashfield-Colborne-Wawanosh	Lucknow Fire Department	Fire Chief	Box 580	Lucknow, ON	NOG 2H0	519-357-6100		steer@hurontel.on.ca
Ms	Jennifer	Miltenburg	Township of Ashfield-Colborne-Wawanosh	Council	Councillor	82133 Council Line, R.R.#5	Goderich, ON	N7A 3Y2	519-529-7640		jmiltenburg@acwtownship.ca
Mr.	Glen	McNeil	Township of Ashfield-Colborne-Wawanosh	Council	Councillor	82133 Council Line, R.R.#5	Goderich, ON	N7A 3Y2	519-524-0516		gmcneil@acwtownship.ca
Mr	Bill	Vanstone	Township of Ashfield-Colborne-Wawanosh	Council	Councillor	82133 Council Line, R.R.#5	Goderich, ON	N7A 3Y2	519-524-7743		bvanstone@acwtownship.ca
Mr.	Paul	Bollinger	Township of Ashfield-Colborne-Wawanosh	Council	Councillor	82133 Council Line, R.R.#5	Goderich, ON	N7A 3Y2	519-529-7807		pbollinger@acwtownship.ca
Mr.	Wavne	Forster	Township of Ashfield-Colborne-Wawanosh	Council	Councillor	82133 Council Line, R.R.#5	Goderich, ON	N7A 3Y2	519-528-2645		wforster@acwtownship.ca
GREY CO	1 -7 -										
Ms.	Kim	Wingrove	Grey County	Office of the Chief Administrative Officer	Chief Administrative Officer	595 9th Ave East	Owen Sound, ON	N4K 3E3	519-372-0219 ext. 1292		cao@grey.ca
Mr.	Pat	Hoy	Grey County	Transportation Services	Director of Transportation	595 9th Ave East	Owen Sound, ON	N4K 3E3	519-372-0219 ext.1391		pat.hoy@grey.ca
Mr.	Philly	Markowitz	Grey County	Economic Development	Economic Development Officer	595 9th Ave East	Owen Sound, ON	N4K 3E3	519-372-0219 ext.6125		philly.markowitz@grey.ca
Mr.	Scott	Taylor	Grey County	Planning and Development	Senior Planner	595 9th Ave East	Owen Sound, ON	N4K 3E3	519-372-0219 ext.1238		scott.taylor@grey.ca
Mr.	Kevin	McNab	Grey County	Paramedic Services	Director of Paramedic Services	595 9th Ave East	Owen Sound, ON	N4K 3E3	519-376-2228 ext. 1242		kevin.mcnab@grey.ca
TOWNSH	IP OF CHATSWORTH		12-27-22-27								
Mr.	Bob	Pringle	Township of Chatsworth	Council	Mayor	RR # 1, CIVIC # 316837 Highway 6	Chatsworth, ON	NOH 1G0	519-794-2579		bob.pringle@grey.ca
Mr.	Brian	Gamble	Township of Chatsworth	Council	Councillor	RR # 1, CIVIC # 316837 Highway 6	Chatsworth, ON	NOH 1G0	519-794-2952		bgamble@chatsworth.ca
Mr.	Shawn	Greig	Township of Chatsworth	Council	Councillor	RR # 1, CIVIC # 316837 Highway 6	Chatsworth, ON	NOH 1G0	519-373-2042		sgreig@chatsworth.ca
Ms.	Elizabeth	Thompson	Township of Chatsworth	Council	Councillor	RR # 1, CIVIC # 316837 Highway 6	Chatsworth, ON	N0H 1G0	519-794-2308		ethompson@chatsworth.ca
Ms.	Patty	Sinnamon	Township of Chatsworth	Administration	CAO/Clerk	RR # 1, CIVIC # 316837 Highway 6	Chatsworth, ON	NOH 1G0	519-794-3232 ext. 124		psinnamon@chatsworth.ca
Mr.	Ron	Davidson	Township of Chatsworth	Building and Planning	Planner	RR # 1, CIVIC # 316837 Highway 6	Chatsworth, ON	N0H 1G0	519-794-3232 ext. 129		planning@chatsworth.ca
	Jamie	Morgan	Township of Chatsworth	Roads Department	Operations Manager	RR # 1, CIVIC # 316837 Highway 6	Chatsworth, ON	N0H 1G0	519-794-3232 ext. 126		jmorgan@chatsworth.ca
Ms.	Alina	Grelik	Ontario Provincial Police	Grey County Detachment - Chatsworth	Community Safety Officer	317057 Highway 6&10	Chatsworth, ON	N0H 1G0	519-794-7827		alina.grelik@opp.ca
MUNICIP	ALITY OF WEST GRE	Υ									
Ms.	Laura	Johnston	Municipality of West Grey	Administration	Chief Administrative Officer	402813 Grey Rd 4, RR2	Durham, ON	N0G 1R0	519-369-2200 ext. 222		ljohnston@westgrey.com
Ms.	Bev	Cutting	Municipality of West Grey	Council	Councillor	402813 Grey Rd 4, RR2	Durham, ON	N0G 1R0	519-986-4635		bevcutting@westgrey.com
Mr.	Doug	Hutchinson	Municipality of West Grey	Council	Councillor	402813 Grey Rd 4, RR2	Durham, ON	N0G 1R0	519-369-3186		doughutchinson@westgrey.com
Ms.	Carol	Lawrence	Municipality of West Grey	Council	Councillor	402813 Grey Rd 4, RR2	Durham, ON	N0G 1R0	519-369-3816		carollawrence@westgrey.com
Ms.	Rebecca	Hergert	Municipality of West Grey	Council	Councillor	402813 Grey Rd 4, RR2	Durham, ON	N0G 1R0	519-321-9235		rhergert@westgrey.com
Mr.	Rob	Thompson	Municipality of West Grey	Council	Councillor	402813 Grey Rd 4, RR2	Durham, ON	N0G 1R0	519-369-3052		robthompson@westgrey.com
Mr.	Kevin	Eccles	Municipality of West Grey	Council	Mayor	402813 Grey Rd 4, RR2	Durham, ON	N0G 1R0	519-369-2200 ext. 232		mayor@westgrey.com
Mr.	Mark	Turner	Municipality of West Grey	Administration	Clerk	402813 Grey Rd 4, RR2	Durham, ON	N0G 1R0	519-369-2200 ext. 229		mturner@westgrey.com
Mr.	Brent	Glasier	Municipality of West Grey	Public Works	Director of Infrastructure & Public Works	402813 Grey Rd 4, RR2	Durham, ON	N0G 1R0	519-369-2200 ext. 227		bglasier@westgrey.com
Mr.	Phil	Schwartz	Municipality of West Grey	Emergency Services	Fire Chief	402813 Grey Rd 4, RR2	Durham, ON	N0G 1R0	519-369-2505		
Mr.	Robert	Martin	West Grey Police Services Board	Ontario Provincial Police	Chief of Police	153 George Street West, P.O. Box 676	Durham, ON	N0G 1R0	519-369-3046		rmartin@westgreyps.ca
CONSER	ATION AUTHORITIE	S									
Ms.	Brandi	Walter	Maitland Valley Conservation Authority	Flood and Erosion Safety Services	Environmental Planner - Regulations Officer	1093 Marietta Street, Box 127	Wroxeter, ON	N0G 2X0	519-335-3557 ext. 237	519-335-3516	bwalter@mvca.on.ca
Mr.	Erik	Downing	Saugeen Valley Conservation Authority	Environmental Planning	Manager, Environmental Planning & Regulations	1078 Bruce Road #12, Box 150	Formosa, ON	N0G 1W0	519-367-3040 ext. 241	519-367-3041	e.downing@svca.on.ca
Mr.	Gary	Senior	Saugeen Valley Conservation Authority	Water Management	Sr. Manager of Flood Warning and Land Managemen	nt 1078 Bruce Road #12, Box 150	Formosa, ON	N0G 1W0	519-367-3040 ext. 234	519-367-3041	g.senior@svca.on.ca

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Southern Bruce Pipeline Hazard Assessment







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Risk Analysis Summary

In response to the Technical Standards & Safety Authority (TSSA)'s Oil and Gas Pipeline Systems Code Adoption Document Amendment, dated February 15, 2018, the following actions were taken and are included within this report:

- Clause 4.3.4.9 High Consequence Areas were evaluated for Class 2 piping to be installed including calculation of the potential impact radius and Identified Sites determination.
- Clause 4.3.4.10 Documented recommendation to ensure EPCOR develops and follows a written program (as part of pipeline system integrity management program (IMP)) that addresses the risks associated with each covered transmission pipeline segment.
- Clause 4.3.4.11 A Risk Assessment was completed that follows Annex B Guidelines for risk assessment of pipelines falling within the scope of CSA Z662-15. This risk assessment includes the high consequence areas and provides recommendation of additional mitigating measures.
- Clause 4.3.4.12 A Risk Analysis was completed to identify necessary remediation efforts required to reduce the probability of an incident and to limit the potential consequences thereof.

Following the completion of the hazard assessment for the Southern Bruce Natural Gas Project, 4 identified sites were determined using criteria specified in TSSA Code Adoption Document Amendment Ref. No: FS-238-18. Along with the identified sites and the general piping design, 15 unmitigated hazard scenarios were identified. These hazard scenarios were then further examined using Layer of Protection Analysis (LOPA) to determine the necessary layers of protection required, reducing the overall system risk to Low Risk. Table 1 shows the unmitigated and mitigated risks as determined from the hazard assessment.

Table 1: Hazard Scenarios According to Risk Level

Risk Level	Unmitigated Risks	Mitigated Risks		
High Risk	0	0		
Medium-High Risk	4	0		
Medium Risk	5	0		
Low Risk	3	6		
Negligible Risk	3	9		

EPCOR defines Low and acceptable risk to be the point of intersection of a Severity Level 3 (single human fatality) incident with scenario frequency factor of 10^{-4} (1 in 10,000 years).

Table 2 provides the list of recommendations to ensure the overall system risk is mitigated to a minimum Low risk level. Figure 1 provides the overall risk matrix applied in quantifying the number of



unmitigated risks (before crediting layers of protection) and mitigated risks (after crediting the layers of protection existing within the design and as part of the recommendations provided below).

Table 2: Hazard Assessment Recommendations

Recommendation	No. of Scenarios	Highest Unmitigated Risk Level	Highest Mitigated Risk Level
Implement secondary pressure indication with	8	Medium-High	Low
alarm plus operator action.			
Implement mechanical automated shutdown valve	4	Medium-High	Low
or alternative consequence reduction method per			
CSA Z662-15 Annex N.10.5 to isolate flow of natural			
gas to pipeline in event of mechanical integrity			
failure event.			
Use of Extraordinary Inspection as API 570 Class 1	9	Medium-High	Low
for Piping or 100% internal and external per 10			
years or less for Vessels.			
Ensure cathodic protection and epoxy coating of	9	Medium-High	Low
piping remains within design intent to reduce			
overall corrosion impact.			
Ensure overpressure protective device as outlined in	1	Medium-High	Low
CSA Z662-15 Section 12.4.11.4 is installed			
downstream of pressure regulator (at letdown			
station) to protect system in event of overpressure			
caused by mechanical failure.			
Ensure blow down valve installed downstream of	1	Medium	Low
pressure letdown. Have Operations verify line is			
clear as part of system checks.			
Develop and maintain emergency response	0	N/A*	N/A*
procedures (ERPs) consistent with corporate			
standards.			
Develop and maintain a written program as part of	0	N/A*	N/A*
system integrity management program (IMP) that			
addresses TSSA FS238-18 Clauses.			

^{*}Although the recommendation to develop and maintain ERPs and an IMP were not outputs of the risk analysis screening tool, these recommendations were added to ensure the overall safety considerations are met in a worst case scenario resulting in a widespread, offsite release and to ensure that overall system integrity is followed per the TSSA FS238-18 requirements.



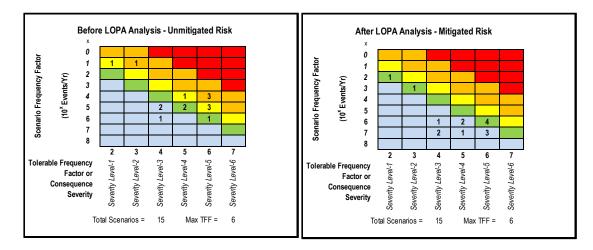


Figure 1: Risk Matrix Identifying the Number of Hazard Scenarios, Before and After LOPA

The hazard assessment report that follows outlines in further detail the method used to determine the hazards, associated risks, and mitigating recommendations.

1. Definition of Objectives

The objective of the Risk Analysis is to perform a risk assessment to identify the potential hazards of a system and appropriate measures required to remediate them. The risk assessment provides a detailed response to TSSA's 'Oil and Gas Pipeline Systems Code Adoption Document Amendment,' clauses 4.3.4.9 to 4.3.4.12 inclusive. The risk assessment is also performed in conformance with CSA's Annex B which states, "The operator shall conduct a risk assessment that follows Annex B Guidelines for risk assessment of pipelines falling within the scope of CSA Z662-15 for each covered segment. The risk assessment shall include the high consequence areas and determine if additional preventive or mitigation measures are needed." The purpose of the risk assessment is to form a component of the broader process of risk management and includes the steps of risk analysis and risk evaluation. Beyond the risk assessment, controls that might be necessary to implement as remediation measures for significant risks are identified.

2. System Description

EPCOR is proposing to develop a natural gas distribution system to serve the communities of Chesley, Paisley, Inverhuron, Tiverton, Kincardine, Lurgan Beach, Point Clark, Ripley, Lucknow and the Bruce Energy Centre. EPCOR's distribution system will consist of two components: a larger diameter, steel main line that will transport gas to each of the communities, and smaller diameter MDPE distribution piping that will be constructed within each of the communities to directly serve homes and businesses (MDPE piping is considered outside of scope for this hazard assessment).

The division point between ownership of Union Gas piping and EPCOR's piping will occur west of Dornoch along Grey Road 25. At this location, there will be a pressure letdown station which will reduce the 4830 kPa feed gas to a maximum operating pressure of 2070 kPa. The steel main line connecting to the pressure letdown station consists of approximately 60 km of NPS 8 inch and 15 km of NPS 6 inch



steel high pressure pipe. There is also planned to be approximately 45 km of NPS 6 inch MDPE pipe. The steel and MDPE piping systems are connected to a main pressure letdown station in Kincardine. There will also be another six pressure letdown stations installed further upstream on the steel line to service each community north of Kincardine. Each pressure letdown station will regulate the pressure from a maximum operating pressure of 2070 kPa down to 689 kPa.

3. Hazard Assessment Scope

The scope of the hazard assessment includes the 8 and 6 inch steel piping to be constructed from Grey Road 25 West of Dornoch to the north end of Kincardine. The major pressure letdown stations, valve sites and identified sites are also included in this assessment.

4. Risk Analysis Methodology

The risk analysis methodology used to conduct this hazard assessment was developed by the Center for Chemical Process Safety (CCPS) and is called the Risk Analysis Screening Tool (RAST). RAST is a collection of relatively simple spreadsheet tools to assist in performing a Hazard Identification and Risk Analysis (HIRA) Study and encompasses all activities involved in identifying hazards and evaluating risk at facilities, throughout their life cycle, to make certain that risks to employees, the public, or the environment are consistently controlled within the organization's risk tolerance. HIRA concepts are utilized in Process Hazard Analysis (PHA), various project Process Safety Reviews, Pre-Startup Review, and other key activities in the management of Process Risk. RAST is intended to bridge the gap between qualitative and detailed quantitative risk evaluation. It utilizes many simplifying assumptions, engineering approximations, and simplified methods to generate "order of magnitude" estimates of consequence, likelihood, and risk.

RAST follows the general work process depicted in Figure 2, below.



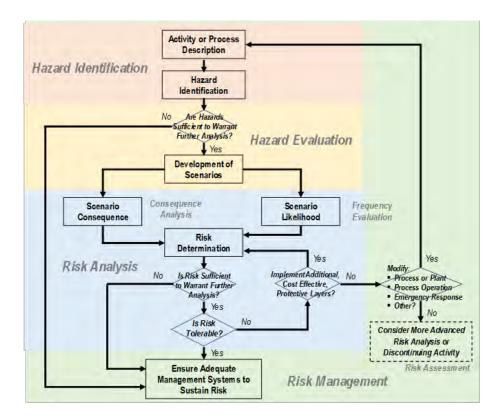


Figure 2: Flowchart of HIRA Process

The purpose for selecting the RAST as the preferred methodology above other options (such as What-If, and PHA) was due to its ability to act as an intermediary tool to provide a more robust consequence analysis than What-If would provide, while not requiring all of the operational procedures and process design documentation to be fully completed as in the case of a PHA (for instance, process and instrumentation diagrams and control philosophy have not yet been completed in the current design phase of the project analyzed).

The overall work process for hazard evaluation and risk analysis is shown in Figure 3.



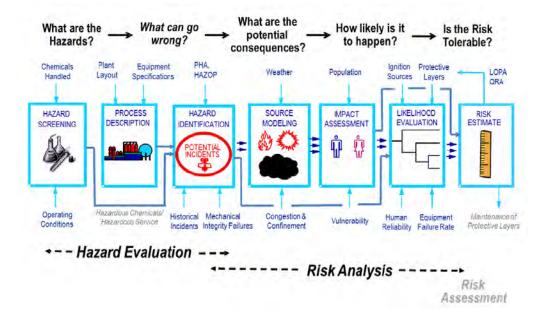


Figure 3: Overall Work Process Steps for Hazard Evaluation and Risk Analysis Supported by RAST

5. Limitations and Assumptions

5.1. Chemical Data

Natural gas is taken to be 95% methane with the remaining 5% comprised of other hydrocarbons, nitrogen and carbon dioxide. The chemical composition is based on Union Gas provided properties while eliminating low percent compounds (<0.7% weight) for simplicity. The operating temperature is taken as ambient (15°C) and operating pressure of 2070 kPa was used to reflect the maximum operating pressure (MOP) specified in the application proposal. All other factors shown within Appendix A were automatically calculated within the RAST software.

Factors such as ease of ignition, fuel reactivity, auto ignition temperature, NFPA Health and NFPA Flammability (taken from NFPA 704 Hazard Rating) are based on the "worst" value of individual components, whereas other values such as the emergency response planning guideline (ERPG-1, ERPG-2, and ERPG-3) concentrations are calculated based on percent weighting of the individual components within the natural gas, taken from the American Industrial Hygiene Association (AIHA). See Appendix B for more detailed quantitative data which was input to the hazard scenario.

From the AIHA Guideline Foundation, each emergency response plan guideline is described as follows:

ERPG-1: The maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing more than mild, transient adverse health effects or without perceiving a clearly defined objectionable odor.



ERPG-2: The maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair an individual's ability to take protective action.

ERPG-3: The maximum airborne concentration below which nearly all individuals could be exposed for up to 1 hour without experiencing or developing life-threatening health effects.

5.2. Equipment Input

The equipment type selected as part of the hazard assessment included the 6 inch and 8 inch steel piping to be installed as well as the high pressure letdown stations. The 6 inch pipeline is modeled as 15 km in length with outer diameter of 168.3 mm and wall thickness of 4.8 mm. The 8 inch pipeline is modeled as 60 km in length with outer diameter of 219.1 mm and wall thickness of 4.8 mm. The calculated volume assumes the entire pipeline lengths are filled to the maximum allowable working pressure (MAWP) of the piping of 3450 kPa (worst case). The assessment assumed there to be four valve sites along the 6 inch pipeline and six valve sites located along the 8 inch pipeline, each of which is roughly 8 m in total distance of exposed piping. There will be approximately 25 km distance separating each site in the Class 2 area (8 inch piping) and 13 km spacing between sites in the Class 3 (6 inch piping) areas. See Appendix C for detailed equipment input to the RAST program as well as Appendix D which provides the detailed piping specification which follows CSA Z245.1 code. Appendix E provides a schematic of the valve sites to be installed as well as pressure letdown process and instrumentation diagram.

The majority (>99%) of the pipeline is to be buried underground; therefore, the piping was stated as not being vulnerable to damage (through vehicle collision or major maintenance in the area). It was also stated as not being susceptible to vibration fatigue as a result of long distance between equipment and other areas which may cause vibration to travel down the pipeline. Internal corrosive or stress cracking potential was also listed as a 'No' due to the natural gas service not meeting corrosive properties (little to no moisture content in the gas) as well as due to credit given to external epoxy lining and cathodic protection provided to the piping.

Piping details, including piping and instrumentation diagrams, isometrics, and specific materials list are not included within this study as this information was not available for review at the time of this hazard assessment; once these details have been finalized, it is intended that a thorough process hazard analysis be conducted to include these relevant details.

Control philosophy including automatic shutoff valves and potential interlocks to be installed have not been included within this study; it is believed that this hazard assessment will be used as a basis for the installation of additional layers of protection such as those provided by basic process control systems.

5.3. Process Conditions

The process conditions specified as part of the hazard analysis are shown in Appendix F. The volumetric flowrate is converted to mass flow rate using the component calculated natural gas density of 1.461



kg/m³ at 15°C and 3450 kPa. The maximum anticipated flow rate of gas is used in the scenario risk determination; however, that value is redacted from this report due to its commercial sensitivity. In further analysis that was applied in consideration whether this value should be reported, the worst case scenarios identified for natural gas piping rupture scenarios determined the flow of natural gas to be in far excess to that stated in the process conditions (see inventory limit explanation, below).

The inventory limit is left blank as part of the simulation and is therefore processed within RAST under the assumption of unlimited inventory. In the case of pipeline rupture, it is reasonable to assume unlimited natural gas supply given that upstream natural gas providers (Union Gas) would need to be notified of an event prior to shutting in the downstream piping. In all scenarios, an inventory limit would only apply if the system were to be isolated with natural gas contained within the piping prior to an event occurring; this is not a typical representation of operating conditions, therefore, an unlimited inventory is assumed for the purposes of this hazard assessment and is considered worst case.

5.4. Plant Layout, High Consequence Areas & Identified Sites Determination

In the case of the system analyzed, the 'plant layout' is considered the area within which the piping runs, inclusive of the radius of concern. For the steel pipeline, the radius of concern was calculated to be 30.9 m and 40.3 m, for the 6" and 8" pipelines, respectively (see Appendix G for sample calculation) and is input to the model as the 'furthest distance to the fence line'. Although the majority of the piping is run underground, there may be opportunities where short piping lengths will be exposed to accommodate shut off valves or as part of take-offs to other natural gas customers. A map of the pipeline to be installed is provided in Appendix H and the overall plant layout details input to RAST are given in Appendix I.

In review of the identified sites, it is believed that all sites will have piping run underground (i.e. no valve sites to be located within proximity to identified sites) and therefore, it is not anticipated that occupancy within the area will be high (>20 people).

On February 15, 2018 the Technical Standards and Safety Authority (TSSA) revoked and replaced the previous amendment (FS-220-16, dated July 16, 2016) with amendment FS-238-18, *Oil and Gas Pipeline Systems Code Adoption Document Amendment*. The following material provides an assessment of high consequence areas, as defined in Clause 4.3.4 of the TSSA amendment.

According to FS-238-18, a high consequence area means:

- (a) "For a gas transmission pipeline, an area defined as:
 - i. a Class 3 location under CSA Z662-15, Clause 4.3.3;
 - ii. a Class 4 location under Clause 4.3.3;
 - iii. any area in a Class 1 or Class 2 location where the potential impact radius is greater than 200 meters and the area within the potential impact circle contains 20 or more buildings intended for human capacity; or
 - iv. any area in a Class 1 or Class 2 location where the potential impact circle contains an identified site."



The pipeline to be installed is within a Class 2 location; therefore, points (iii) and (iv) require evaluation. For point (iii) and from the amendment, the potential impact radius was calculated to be 30.9 m and 40.3 m for the 6 and 8 inch lines, respectively (see Appendix G). The calculated potential impact radii are less than 200 meters and therefore, point (iii) need not be considered further. Moving to point (iv), and according to the amendment, "identified site means, for Class 1 and Class 2 locations, any of the following areas:

- (a) an outside area or open structure that is occupied by twenty (20) or more persons on a minimum of fifty (50) consecutive or non-consecutive days in any twelve-month (12) period.
- (b) a building that is occupied by twenty (20) or more persons on a minimum of five (5) consecutive or non-consecutive days in any given week for at least ten (10) weeks in any twelve-month (12) period.
- (c) a facility occupied by persons who are confined, are of impaired mobility, or would be difficult to evacuate."

Identified sites are determined using the following methodology:

- (a) for the pipeline to be installed, the potential impact radius is used to determine the area within which occupants may be impacted.
- (b) the area within which occupants may be impacted is assessed according to point (iv) criteria.
 - a. for residential buildings, an occupancy factor of 4 persons per building is applied
 - b. for commercial buildings, an occupancy factor of 20 persons per building is applied unless there is evidence to suggest otherwise (through field visits and direct confirmation with the business owner)
 - c. for locations with unknown number of occupants, public officials may be prompted to assist in determination of a reasonable number.

The following table lists the identified sites determined using the methodology above:

Reference #	Name	Address	Pipeline section
1	Robert's Farm	RR1, 014945 Bruce	8inch
	Equipment Sales	County Rd 10, Chesley,	
		ON NOG 1L0	
2	J&H Sales And	2228 County Rd 19,	8inch
	Services	Chesley, ON	
3	Shiloh Community	2228 Bruce County Rd	8 inch
	Church	20, Tiverton, ON NOG 2T0	
4	Kingdom Hall of	1628 Concession Rd 5,	6 inch
	Jehovah's	Tiverton, ON	
	Witnesses		

Although there is not considered to be an immediate hazard imposed to occupants within identified sites, as part of the model simulation a hypothetical scenario considered there to be an occupied



building within 20 meters of the pipeline with twenty occupants. There is also considered to be the potential to have occupants outdoors during a hazard event. Thus, the onsite outdoor population density is calculated to be 0.0004 people/m² by taking the 20 total indoor occupants, applying a 10% factor for those who could be outdoors at any time, and dividing by the area calculated using the radius of concern. The offsite population density (outside the radius of concern), is taken to be 0.0002 people/m² (sparsely populated assumption).

The onsite outdoor population density represents the maximum number of people outdoors at a specific time per total facility area during normal operation including operations, maintenance personnel, etc. Typical values would be in the range of 0.0001 to 0.001 people/m². Typically, sparsely populated is 0.0002 to 0.0005 people/m², moderately populated is 0.001 to 0.002 people/m² and densely populated is 0.003 to 0.005 people/m².

5.5. Reaction Input and Evaluation

No reaction was considered as part of this analysis.

5.6. Fire and Explosion Index (F&EI) and Chemical Exposure Index (CEI)

These indexes are abbreviated versions of the original Dow F&EI and Dow CEI indexes. The Fire and Explosion Index evaluates the fire and explosion hazards associated with discrete "process units" considering material properties, process conditions, operating characteristics, distance from adjoining areas, the existence of safety and fire protection systems, etc. The degree of hazard is considered below.

F&EI Index	Hazard
1-60	Light
61-96	Moderate
97-127	Intermediate
128-158	Heavy
159 and above	Severe

The Chemical Exposure Index addresses factors that can influence the effects of a chemical release: acute toxicity, volatile portion of material that could be released, distance to areas of concern, and various process parameters such as temperature, pressure, reactivity, etc. A CEI Index of 200 or higher is considered a high hazard. The maximum index value is 1000.

The F&EI and CEI are used to evaluate the potential for several hazards to be discussed in later sections of this assessment. In the case of the natural gas mixture, the F&EI was determined to be 114 and 124 (intermediate hazard) for the 6 inch and 8 inch pipe, respectively, while the CEI was calculated to be 0 in both cases (see Appendix J for RAST output).



6. Hazard Identification Results

A summary of process hazards is developed based on the input information provided for "normal" and selected "upset" process conditions. Hazards included in this summary are as follows (see Figure 4 for more detailed event tree and see Appendix K for list of scenarios considered):

- Excessive pressure (potential for equipment rupture and/or relief device activation
- Chemical exposure (thermal and/or chemical burns, dermal toxicity
- Flammability (including pool fire potential)
- Inhalation toxicity
- Reactivity

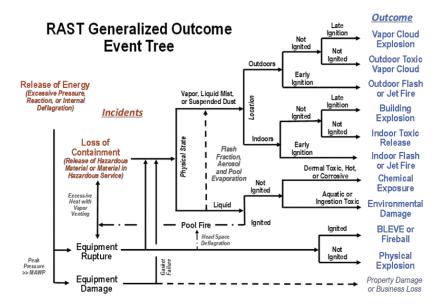


Figure 4: RAST Generalized Outcome Event Tree

Following the methodology provided by RAST, there were 15 unmitigated hazard scenarios identified for the system to be installed. The scenarios are given in Table 3 and a sample hazard report as provided by RAST is shown in Appendix L.

Table 3: Hazard Identification Results

Equipment Tag	Scenario Type	Initiating Event Description	Incident Type	Hazard Scenario Outcome
6 Inch	Low Temperature	BPCS Instrument	Full Bore Hole	Flash Fire or
Steel Pipe	Embrittlement	Loop Failure	Size Leak	Fireball
_				Vapor Cloud Explosion
	Mechanical Integrity	IEF = 2 as	Extremely Large	Flash Fire or
	Failure – Extremely	determined by	Hole Size Leak	Fireball



	Large	Process Safety		Vapor Cloud Explosion
	Mechanical Integrity Failure –Very Large	IEF = 2 as determined by Process Safety	Very Large Hole Size Leak	Flash Fire or Fireball Vapor Cloud Explosion
8 Inch Steel Pipe	Low Temperature Embrittlement	BPCS Instrument Loop Failure	Full Bore Hole Size Leak	Flash Fire or Fireball
				Vapor Cloud Explosion
	Mechanical Integrity Failure – Extremely	IEF = 2 as Determined by	Extremely Large Hole Size Leak	Flash Fire or Fireball
_	Large	Process Safety		Vapor Cloud Explosion
	Mechanical Integrity Failure – Very Large	IEF = 1 as Determined by	Very Large Hole Size Leak	Flash Fire or Fireball
_		Process Safety		Vapor Cloud Explosion
	Mechanical Integrity Failure – Very Small	IEF = 0 as Determined by Process Safety	Very Small Hole Size Leak	Flash Fire or Fireball
Pressure Letdown Stations	Pressure Regulator Failure to Wide Open Position (Failure to Regulate Upstream Pressure)	Mechanical Failure (IEF = 1)	Overpressure of Downstream Piping with Property Damage and Business Loss	Property Damage and Business Loss \$50M to \$500M
	Possibility for moisture in feed gas –	General utility failure (feed composition failure) (IEF = 1)	Accumulation of condensate downstream of pressure letdown. Possibility for freezing to cause line rupture	Property Damage and Business Loss <\$50M to \$500M

7. Frequency Analysis Results (including Assumptions)

The Initiating Event Factor is determined initially within the RAST but may be changed by the User from the available "pull down" Menu. Frequencies for mechanical integrity events are based on correlations of published failure frequency data. Tables of initiating event frequencies, enabling condition probabilities (such as probability of ignition), and probability of failure upon demand for protective layers are also used and stored as administrative parameters. Note that factors used within RAST LOPA



are –log10 of Likelihood. Risk Analysis using RAST LOPA is an "order of magnitude" evaluation. Table 4 gives the frequency of initiating events used as part of the hazard assessment.

Table 4: Initiating Events and Their Associated Event Frequency Applied Within RAST

Sample Initiating Events Considered	Initiating Event Factor	Frequency of Event (Events/Yr)
BPCS Instrument Loop Failure	1	1 in 10 years (10 ⁻¹)
Human Failure Action More than Once per Quarter	1	1 in 10 years (10 ⁻¹)
Mechanical Failure	1	1 in 10 years (10 ⁻¹)
Human Failure Action once per quarter or less	2	1 in 100 years (10 ⁻²)
Natural Disaster (storm, earthquake, etc.)	3	1 in 1000 years (10 ⁻³)
Pump (blower, compressor, etc.) Failure	1	1 in 10 years (10 ⁻¹)
IEF =0 as Determined by Process Safety*	0	No Credit
IEF = 1 as Determined by Process Safety*	1	1 in 10 years (10 ⁻¹)
IEF = 2 as Determined by Process Safety*	2	1 in 100 years (10 ⁻²)
User Defined IEF = 1	1	1 in 10 years (10 ⁻¹)

^{*}As determined by Process Safety is a short way of the RAST stating that for the case of mechanical integrity failure of piping systems (in the cases outlined in Table 1), the following analysis is conducted:

- For piping systems involving reactive components, IEF = 3
- For non-reactive systems, where the case is defined as a large hole rupture, IEF = 5 (very unlikely)
- For non-reactive systems, where the case is defined as a hole rupture of smaller size than 'large',
 IEF = 4
- If the decision by the user is made to exclude mechanical integrity benefits, IEF = 2 (with the assumption that piping mechanical integrity benefits will be added back in by the user to lower the overall probability of the scenario occurring).

Probability of ignition (POI) is used to determine the likelihood of the consequence and is therefore able to reduce the overall tolerable frequency factor by an order of magnitude. In the scenarios described, POI was increased by one order of magnitude in most cases to provide credit for piping which was buried and therefore, is at a reduced probability of ignition.

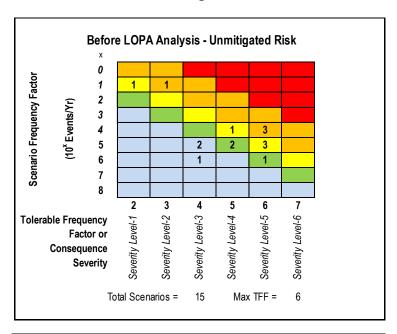
Probability of exposure (POE) estimates the probability of personnel to be in close proximity to a chemical release based on the flammable impact area calculated. In the scenarios described, POE was decreased by one order of magnitude in most cases to provide credit for piping which was buried and installed within areas of low population density (rural land areas), where likelihood of personnel presence was lower than typical industrial applications for which the model assumes.

Frequency analysis results prior to consideration of independent protective layers are shown in Figure 5. Through a Layer of Protection Analysis (LOPA), independent layers of protection were considered to



reduce the scenario frequency factor to a Low Risk level. Appendix M gives the parameters used to define the consequence parameters for each severity level and associated tolerable frequency factor.

As can be shown in the Figures, all hazard scenarios are able to be reduced within tolerable risk levels to achieve less than 1 probable death per ten thousand years (10⁻⁴). Tolerable frequency factor (TFF) and level of severity are used to describe the hazard event. Scenario frequency factor considers the likelihood of the event occurring.



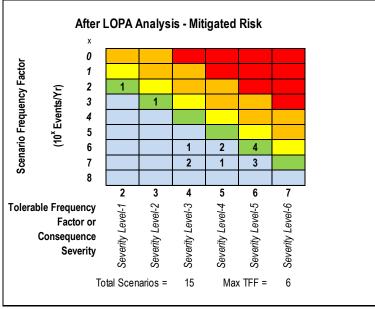


Figure 5: Risk Matrix Identifying the Number of Hazard Scenarios, Before and After LOPA



8. Consequence Analysis Results (including Assumptions)

A summary of potential consequences for a variety of loss events or incidents based on a single equipment item is provided in the consequence summary (see Table 3). The incident is selected and estimation results, including LOPA tolerable frequency and occupied building impacts, are displayed for:

- Vapor dispersion
- Explosion
- Impact assessment (evaluation of LOPA tolerable frequency)

Consequence in terms of human harm is estimated from toxic dose (concentration times exposure duration) at personnel locations noted in the input information (including buildings subject to toxic infiltration). Personnel within a flash fire zone (defined as distance where concentration is a fraction of the lower flammable limit) are assumed vulnerable. Damage to occupied buildings and occupant vulnerability as a function of blast overpressure at locations noted in the input information is also estimated.

Tolerable Frequency is evaluated based on the specific company risk tolerance criteria as entered by the Technical Administrator on a hidden worksheet. In the case of this hazard assessment, the default risk tolerance was used and then compared against the EPCOR corporate risk matrix. In determining acceptable risk level, EPCOR has specified a single human fatality rate of 1 in 10,000 years is the minimum criteria to be protected against.

In the case of Layer of Protection Analysis (LOPA) and determination of independent layer protection (IPL) required, LOPA analysis was only conducted on the outcomes which had the highest tolerable frequency factor. In cases where the same scenario generated several outcome of lesser impact to people and/or the environment, it is assumed that the IPLs generated from the outcome of highest risk would satisfy the lower risk scenarios.

9. Risk Estimation Results

The quantifiable risk associated with the various consequences (recall Table 3) was calculated by taking the product of the initiating event frequency and severity level people impacted upper limit.

Example: IEF = 1 for a BPCS failure resulting in low temperature embrittlement and subsequent full bore hole leak and vapor cloud explosion (TFF = 6 = 100 people impacted upper limit). Probability of exposure credit given due to majority of piping run underground thereby reducing the likelihood of 100 people exposed, POE = 0.1. Probability of ignition credit given as likelihood of rupture occurring in valve site locations where ignition would create the resulting consequence is considered one order of magnitude reduced due to piping buried underground, therefore POI = 1

The unmitigated risk is calculated as,

 $R_{unmitigated} = (10^{-IEF})(TFF, people impacted upper limit)(10^{-PO1})(POE)$



 $R_{unmitigated} = (10^{-1})(100)(10^{-1})(0.1) = 10^{-1} > 10^{-4}$ (fails minimum criteria for individual human fatality, 10^{-1} is considered Medium-High Risk).

The highest tolerable frequency factor was selected for each scenario and a LOPA was conducted to determine appropriate independent layers of protection. Appendix N provides a larger view of the hazard estimation results and Appendix O provides the full LOPA results. As indicated in Figure 5 (recall Section 7), the 15 scenarios identified are able to be reduced within a tolerable risk level through application of the following independent layers of protection (see Table 5, below). Each recommendation provides a single independent layer of protection (IPL). When combining several of these IPLs for a single consequence, the mitigated risk is able to be lowered to the Low Risk level (10⁻⁴ fatalities per year).

Table 5: Recommended Independent Protection Layers

Recommendation	No. of Scenarios	Highest Unmitigated Risk Level	Highest Mitigated Risk Level
Implement secondary pressure indication with alarm plus operator action.	8	Medium-High	Low
Implement mechanical automated shutdown valve or alternative consequence reduction method per CSA Z662-15 Annex N.10.5 to isolate flow of natural gas to pipeline in event of mechanical integrity failure event.	4	Medium-High	Low
Use of Extraordinary Inspection as API 570 Class 1 for Piping or 100% internal and external per 10 years or less for Vessels.	9	Medium-High	Low
Ensure cathodic protection and epoxy coating of piping remains within design intent to reduce overall corrosion impact.	9	Medium-High	Low
Ensure overpressure protective device as outlined in CSA Z662-15 Section 12.4.11.4 is installed downstream of pressure regulator (at letdown station) to protect system in event of overpressure caused by mechanical failure.	1	Medium-High	Low
Ensure blowdown valve installed downstream of pressure letdown. Have Operations verify line is clear as part of system checks.	1	Medium	Low
Develop and maintain emergency response procedures (ERPs) consistent with corporate standards.	0	N/A*	N/A*
Develop and maintain a written program as part of system integrity management program (IMP) that addresses TSSA FS238-18 Clauses.	0	N/A*	N/A*

^{*}Although the recommendation to develop ERPs and an IMP were not outputs of RAST, these recommendations were added to ensure the overall safety considerations are met in a worst case



scenario resulting in a widespread, offsite release and to ensure that overall system integrity is followed per the TSSA FS238-18 requirements.

10. Sensitivity and Uncertainty Analysis

A sensitivity and uncertainty analysis was conducted by changing several model calculation parameters within RAST and observing the outcome of risk scenarios and tolerable frequency factors. Examples of parameters which were changed to determine overall sensitivity were:

- Estimation of number personnel within occupied buildings within 20 meters
- Estimation of distance between occupied building and impact area
- Estimation of maximum onsite outdoor population density
- Removal of credits applied for POE and POI (see Section 7) due to majority of piping installed underground

In the details above, the resulting removal of credits applied for POE and POI had the largest impact to require 2 additional independent layers of protection. An option to achieve this protection was suggested as a secondary automated shutoff system of SIL-2 reliability rating. It was believed that the application of SIL rated devices was not necessary given the high level of mechanical integrity assumed within the piping to be installed, which was not given credit by the user due to the desire to maintain transparency in understanding of credits applied downstream within the software. Had mechanical integrity credit been applied at the outset, for non-reactive piping systems (see Section 7 for review) would have determined there to be at most 1 less layer of protection required for IEF = 5 scenarios, and would have matched the required number of independent layers of protection for IEF = 4 scenarios. Thus, it is believed that the results obtained from the RAST are robust and consider the worst case scenario with reasonable application of IEF to reduce the probability of an outcome due to piping meeting a higher design threshold than that required by the code, and due to a large proportion of the piping being installed underground thereby limiting the risk associated with pipe rupture scenarios.

11. Discussion of Results (including discussion of Analysis Problems)

To achieve overall risk reduction, the RAST programming takes the worst case scenario and applies a rigorous methodology to reduce the likelihood of the event occurring. The software bases the probability of an event occurring on documented industry failure frequencies while combining accepted guidelines as provided by organizations such as AIHA for ERPG values, Dow Chemical Exposure Index, and Dow Fire and Explosion Index, to name a few. Models applied in calculations of total chemical dispersion and atmospheric impacts are widely used in other commercially-available software.

12. Conclusions and Recommendations

Following the completion of the hazard assessment, 15 scenarios were identified to require a LOPA analysis and of the 15 scenarios, 9 required additional layers of protection to reduce the overall system risk to Low. The following recommendations are provided to reduce the risk of the piping system.



Recommendation	No. of Scenarios	Highest Unmitigated Risk Level	Highest Mitigated Risk Level
Implement secondary pressure indication with	8	Medium-High	Low
alarm plus operator action.			
Implement mechanical automated shutdown valve	4	Medium-High	Low
or alternative consequence reduction method per			
CSA Z662-15 Annex N.10.5 to isolate flow of natural			
gas to pipeline in event of mechanical integrity			
failure event.			
Use of Extraordinary Inspection as API 570 Class 1	9	Medium-High	Low
for Piping or 100% internal and external per 10			
years or less for Vessels.			
Ensure cathodic protection and epoxy coating of	9	Medium-High	Low
piping remains within design intent to reduce			
overall corrosion impact.			
Ensure overpressure protective device as outlined in	1	Medium-High	Low
CSA Z662-15 Section 12.4.11.4 is installed			
downstream of pressure regulator (at letdown			
station) to protect system in event of overpressure			
caused by mechanical failure.			
Ensure blowdown valve installed downstream of	1	Medium	Low
pressure letdown. Have Operations verify line is			
clear as part of system checks.			
Develop and maintain emergency response	0	N/A*	N/A*
procedures (ERPs) consistent with corporate			
standards.			
Develop and maintain a written program as part of	0	N/A*	N/A*
system integrity management program (IMP) that			
addresses TSSA FS238-18 Clauses.			

^{*}Although the recommendation to develop ERPs and an IMP were not outputs of RAST, these recommendations were added to ensure the overall safety considerations are met in a worst case scenario resulting in a widespread, offsite release and to ensure that overall system integrity is followed per the TSSA FS238-18 requirements.

Following the implementation of the above, the overall system risk is reduced on all 15 of the worst case scenarios identified to a Low risk level.

The overall assessment included in this report is intended to provide conservatism in process safety and risk management during the early stages of design which allows easier implementation of the recommendations as well as addresses any issue with associated identified sites. As part of an accepted good engineering practice and as part of EPCOR's process safety management philosophy, it is recommended that once the final design of the pipeline has been completed, a team of individuals be convened to validate assumptions contained in this report and confirm that the overall hazard assessment is unchanged. As the recommendations in this report are written to allow minor flexibility in



design, yet state the required layers of protection (for instance, the specific overpressure protection device is not stated, only that one is required as found in Section 12.4.11.4 of the CSA code), it is expected that the overall hazard assessment will not be changed to a material degree.

13. References

Canadian Standards Association, "Guidelines for risk assessment of pipeline systems." CAN/CSA-Z662-15 Annex B (informative).

Canadian Standards Association, "Oil and gas pipeline systems." CAN/CSA Z662-15. National Standard of Canada, approved July 2016.

Center for Chemical Process Safety (CCPS) Chemical Hazard Engineering Fundamentals (CHEF) and Risk Analysis Screening Tool (RAST), September 17, 2018. https://www.aiche.org/ccps/resources/risk-analysis-screening-tool-rast-and-chemical-hazard-engineering-fundamentals-chef

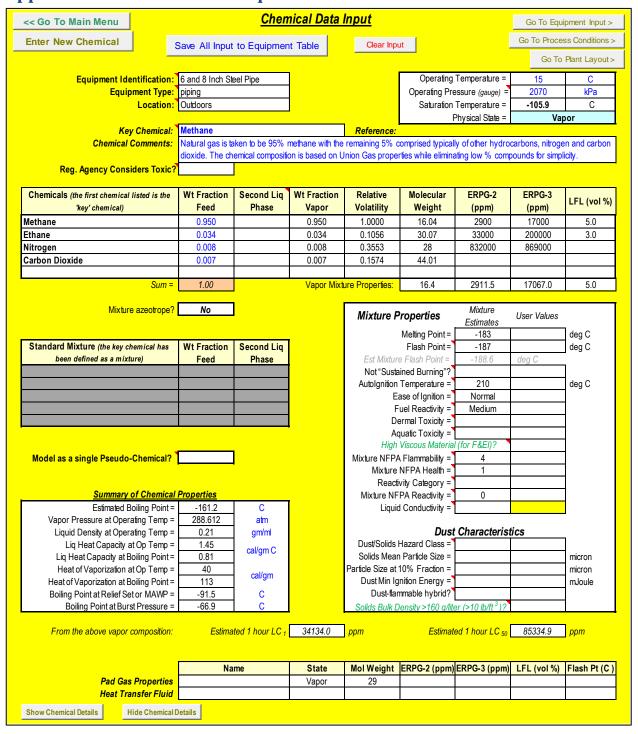
Technical Standards and Safety Authority (TSSA), "Oil and Gas Pipeline Systems Code Adoption Document Amendment." Reference No. FS-238-18, dated February 15, 2018.

14. Hazard Assessment Participant Information

Due to the Southern Bruce pipeline project being very early in its conception and design phases (around 30% of engineering completed), there was not a significant amount of material which required review to perform a process hazard assessment (PHA). In typical cases, it is appropriate to have a team of individuals from various backgrounds including: process engineering, operations, instrumentation, as well as have a process safety facilitator to aid in the discussion of hazardous scenarios. In the case of the RAST method employed, no team was utilized in this process – rather, a process safety knowledgeable Professional Engineer provided the scrutiny required to analyze the determined scenarios as well as offered recommendations to lower the overall risk level to an acceptable level.



Appendix A: Chemical Data Input to RAST



Note: The same chemical data is applied to the Pressure Letdown Station case.

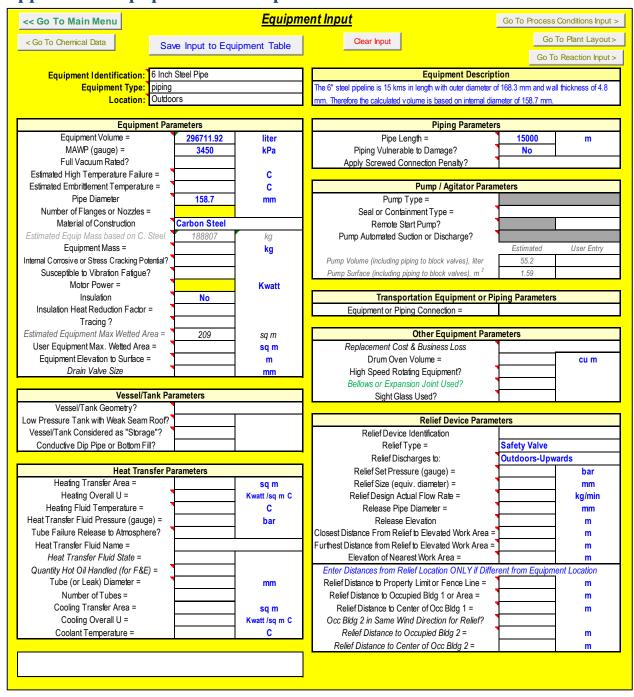


Appendix B: Chemical Property Values Applied to Estimate Natural Gas (mixture) Properties

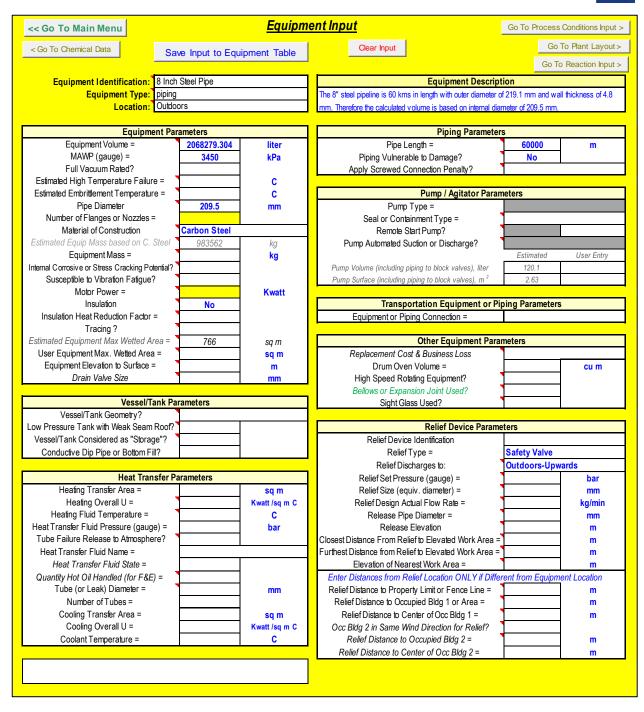
		Summan	y of Chemical P	<u>roperties</u>			
	Chemical 1	Chemical 2	Chemical 3	Chemical 4	Chemical 5		_
Chemical Name =	Methane	Ethane	Nitrogen	Carbon		Mixture	
Offerfical Nume =			Milogon	Dioxide		Estimates	
Wt Fraction Feed =	0.95	0.034	0.008	0.0069			
CAS Number =	74-82-8	74-84-0	7727-37-9	124-38-9			
Vapor Mol Weight =	16.04	30.07	28	44.01		16.45	
Melting Point, TM (deg C) =	-182.5	-183.2		-56.6		-183.20	based on "minimum" of individual
Boil Point, TB (deg C)=	-161.5	-88.7	-196	-87.8		-161.2	
Vap Pres A =	9.286	8.976	5.6073	9.8098		9.2860	
Vap Pres B =	1037.1	1498.75	242.98	1590.96		1037.10	
Vap Pres C =	0	17.5	33.78	21.73		0.00	
Dens A =	0.124	0.438	0.058	0.974		0.217	
Dens B =	0.00176	0.001225	0.00385	0.004125		0.00031	
Liq C A =	1.434	0.671	0.547	0.473		1.393	
Liq C B =	0.00375	0.000838	0.00005	0		0.00359	
Lat Ht A =	44.8	82.9	9	60.1		45.81	
Lat Ht B =	0.417	0.43125	0.2	0.395		0.415	
Lat Ht C =	0	0.000594	0	0.000125		0.00000	
Flash Point =	-187.2	-130.2				-187.2	based on "minimum" of individual
Lower Flammable Limit, LFL (vol %) =	5	3				5.0	
Upper Flammable Limit, UFL (vol %)=	4.7	12.5				4.72	
Autolgnition Temperature (deg C) =	210	472				210	based on "worst" of individual cor
Ease of Ignition =	Normal	Normal				Normal	based on "worst" of individual cor
Fuel Reactivity =	Low	Medium				Medium	based on "worst" of individual con
Dust Deflagration Class							based on "worst" of individual con
Solids Mean Particle Size (micron)							based on "worst" of individual con
Particle Size at 10% Fraction (micron)							based on "worst" of individual con
Dust Min Ignition Energy (mJoule)							based on "worst" of individual co.
Dust-Flammable Vapor Hybrid?							based on "worst" of individual con
ERPG-1 or Odor (ppm) =	2900	3000	796000			2906.34	
ERPG-2 (ppm) =	2900	33000	832000			2911.49	
ERPG-3 (ppm) =	17000	200000	869000			17066.99	
LC ₀₁ per Approved Probit Model (ppm) =						34133.98	
LC ₅₀ per Approved Probit Model (ppm) =						85334.95	
NFPA Health	1	1	0	0		1	based on "worst" of individual co
NFPA Flammability	4	4	0	0		4	based on "worst" of individual cor
NFPA Reactivity	0	0	0	0		0	based on "worst" of individual con
Dermal Toxicity			-				based on "worst" of individual cor
Aquatic Toxicity =							based on "worst" of individual cor
Reactivity Category =							based on "worst" of individual cor
Liquid Conductivity							based on "worst" of individual cor
Fraction Combustible/Flammable in Feed =	0.95	0.034	0	0	0	0.984	
Fraction Reactive in Feed =	0	0	0	0	0	0	



Appendix C: Equipment Data Input to RAST









Appendix D: Piping Specification Details

Table D.1: 8 Inch Steel Piping Specifications

Pipe	NPS 8	Units
Material	Steel	
Diameter	219.1	mm
Wall Thickness	4.8	mm
Grade	290	MPa
Specification	CSA Z245.1	
Material Toughness	Cat I	
Pipe coating specification	Yellow Jacket – CSA Z245.21 Double Fusion Bond Epoxy – CSA Z245.20	
Cathodic protection	As per CSA Z662-15	
Class Location	Class 2 (Designed to Class 3)	
Design Pressure	3450	kPa
Hoop Stress at Design Pressure	27.2% of SMYS	
Maximum Operating Pressure (MOP)	2070	kPa
Hoop Stress at MOP	16.3% of SMYS	
Minimum Cover	As per CSA Z662-15	
Fittings	CSA Z245.11	
Flanges	CSA Z245.12	
Valves	CSA Z245.15	
Testing Medium	Water	
Strength Test Hydrostatic Pressure	4830	kPa
Hoop Stress at Strength Test Pressure	38.0% of SMYS	
Leak Test Hydrostatic Pressure	3795	kPa

Table D.2: 6 Inch Steel Piping Specifications

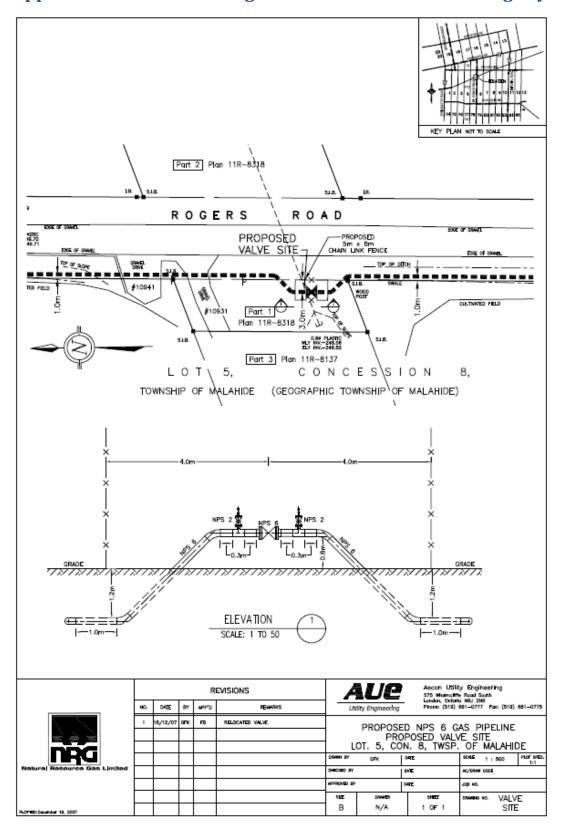
Pipe	NPS 6	Units
Material	Steel	
Diameter	168.3	mm
Wall Thickness	4.8	mm
Grade	290	MPa
Specification	CSA Z245.1	
Material Toughness	Cat I	
Pipe coating specification	Yellow Jacket – CSA Z245.21	
	Double Fusion Bond Epoxy – CSA Z245.20	
Cathodic protection	As per CSA Z662-15	
Class Location	Class 2 (Designed to Class 3)	
Design Pressure	3450	kPa
Hoop Stress at Design Pressure	20.9% of SMYS	



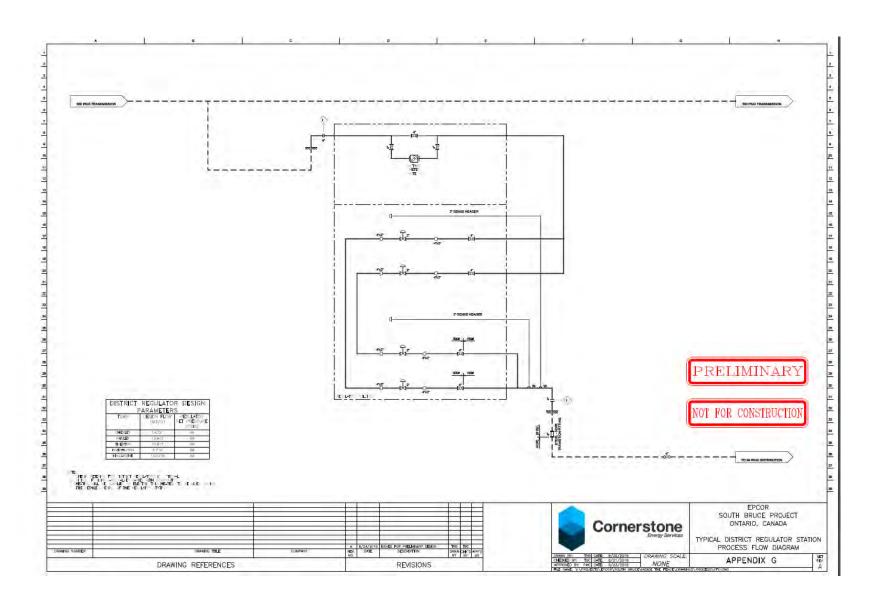
Maximum Operating Pressure (MOP)	2070	kPa
Hoop Stress at MOP	12.5% at SMYS	
Minimum Cover	As per CSA Z662-15	
Fittings	CSA Z245.11	
Flanges	CSA Z245.12	
Valves	CSA Z245.15	
Testing Medium	Water	
Strength Test Hydrostatic	4830	kPa
Pressure		
Hoop Stress at Strength Test	29.2% of SMYS	
Pressure		
Leak Test Hydrostatic Pressure	3795	kPa



Appendix E: Valve Site Design Details & Pressure Reducing Layout

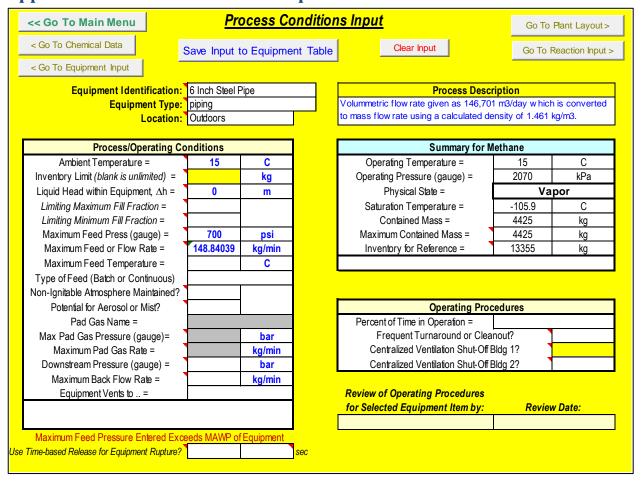


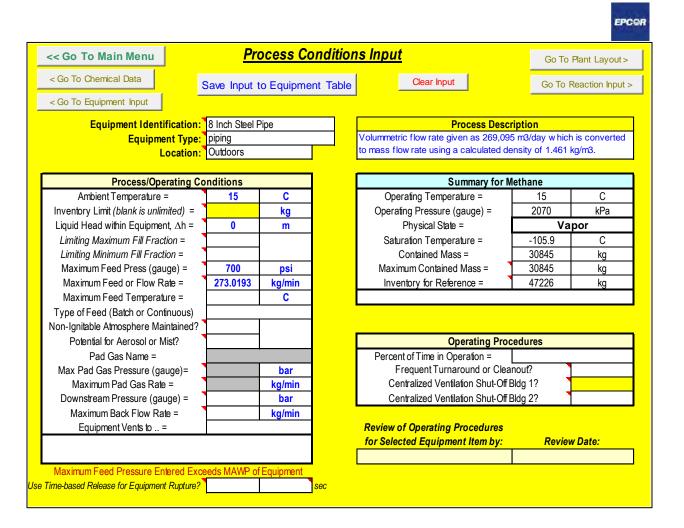


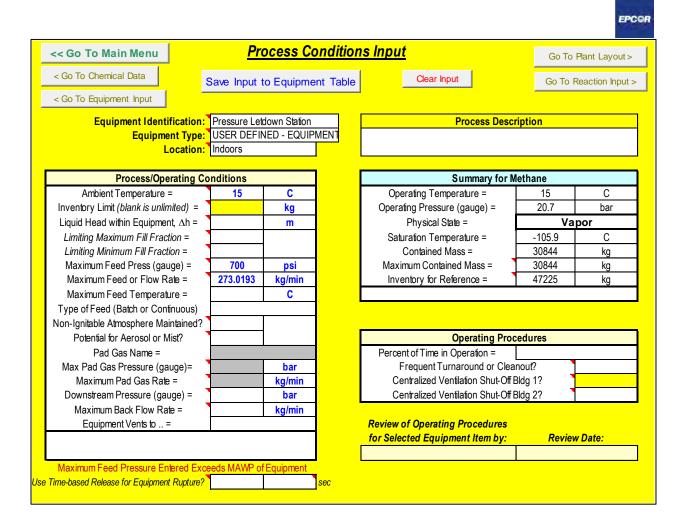




Appendix F: Process Conditions Input to RAST







Appendix G: Sample Calculation of Radius of Concern

The Technical Standards and Safety Authority (TSSA) provide details on the calculation for the radius of concern within amendment FS-238-18, *Oil and Gas Pipeline Systems Code Adoption Document Amendment, Clause 4.3.4.* The radius of concern, r is calculated from the below Equation (1)

$$r = 0.00313\sqrt{pd^2}$$
 (Eq. 1)

Where r = radius of the circular area surrounding the point of failure in meters

p = maximum operating pressure of the pipeline in kPa = 3450 kPa

d = nominal diameter of the pipeline in mm = 219.1 mm (8 inch pipe)

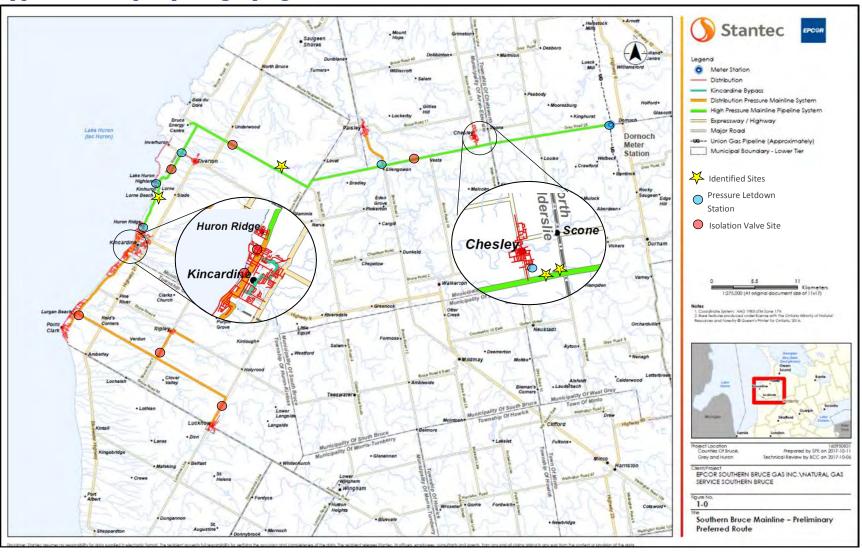
Below is provided a sample calculation for potential impact radius, r, for the NPS-8 steel line to be installed:

$$r = 0.00313\sqrt{pd^2} = 0.00313\sqrt{(3450 \, kPa)(219.1mm)^2} = 40.3 \, m$$

For the NPS-6 steel line to be installed, r = 30.9 m

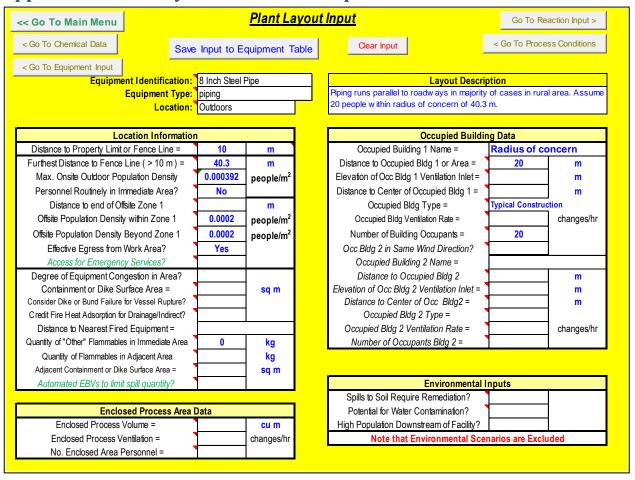


Appendix H: Map Depicting Piping Installation Network

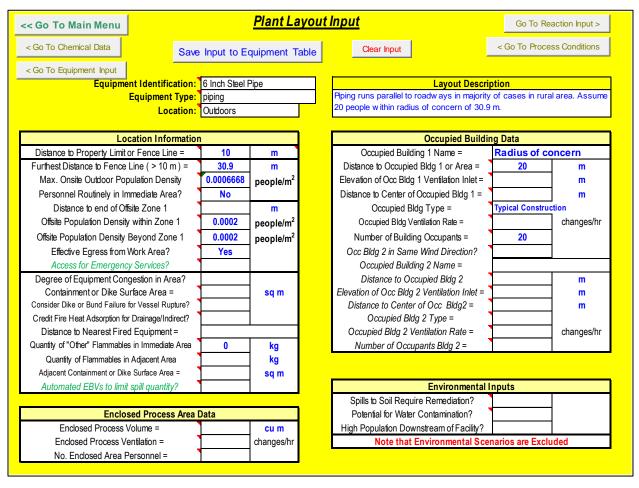




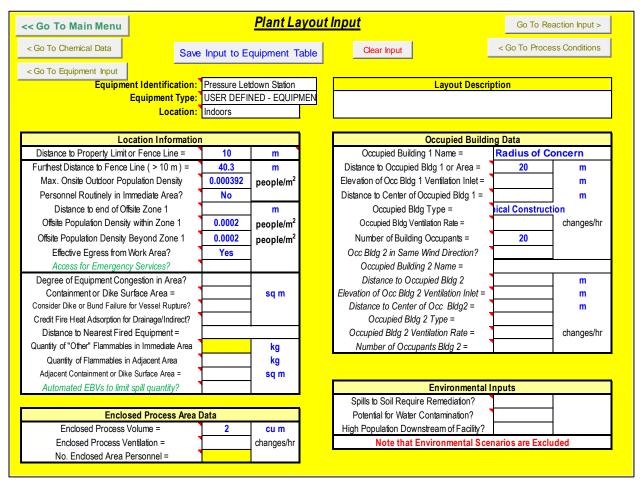
Appendix I: Plant Layout Information Input to RAST





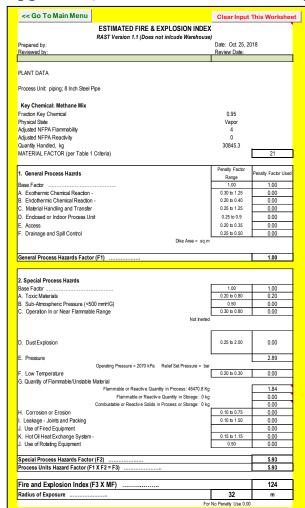


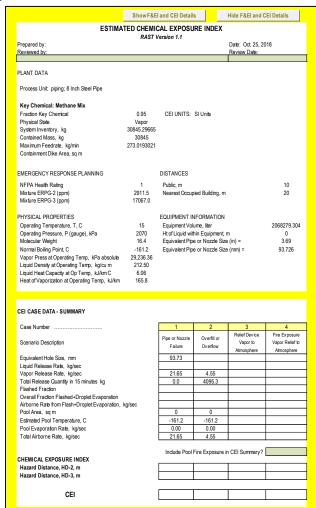




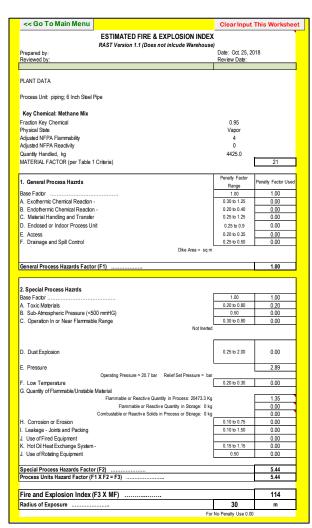


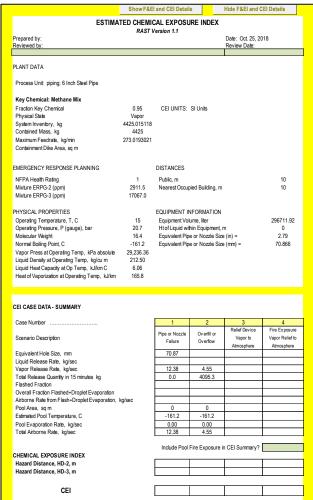
Appendix J: F&EI and CEI RAST Output













Appendix K: Hazard Scenarios Considered Within RAST

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SCENARIO TYPE
Accumulation of Untreated Vent or Waste
Blocked-In with Thermal Expansion
Casing or Containment Failure
Connection Failure
Drain or Vent Valve Open
Dust Accumulation in Process Area
Ignitable Headspace
Excessive Heat Input - Heat Transfer
Excessive Heat Input - Mechanical
Excessive Heat Input - Pool Fire Exposure
Excessive Pad Gas Pressure
Excessive Vapor Feed Flow
Pad Gas Compression
Exhaustion of Scrubbing Media
Flash Back of Vent to Fired Equipment
Fuel Accumulation during Light Off
Fuel Accumulation during Operation
Fuel Accumulation while Down
High Fuel Flow or Energy Content
High Temperature Failure
Hose or Loading Arm Connection
Damage from Movement
Hydraulic Surge
Introduction of Foreign Material
Liquid in Vapor Feed
Loss of Flow - Adsorber or Scrubber
Loss of Flow or Level - Fired Equipment
Loss of Pilot or Ignition
Loss of Vacuum - Thermal Oxidizer
Low Temperature Embrittlement
Overfill, Overflow, or Backflow
Overflow - Flooding or Plugging
Physical Damage or Puncture
Mechanical Integrity Failure - Extremely Large
Mechanical Integrity Failure - Very Large
Piping or Equipment Leak - Full Bore
Mechanical Integrity Failure - Medium
Relief Device Failure
Piping or Equipment Leak - Small
Mechanical Integrity Failure - Very Small
Plugged or Frozen Vent Line
Pressure Damage
Propagation of Flame or Burning Ember
Pump Deadhead
Rotating Equipment Damage
Seal Leak Tube Failure
Uncontrolled Reaction - Adiabatic
Uncontrolled Reaction - Thermal Initiation
Uncontrolled Reaction - Fire Induced
Uncontrolled Reaction - Catalyst or Impurity
Uncontrolled Reaction - Pooling of Reactants
Uncontrolled Reaction - Mis-Loading
Uncontrolled Reaction - Incompatible Materials
Vacuum Damage
USER DEFINED - EVENT TYPE
·

Appendix L: Sample Hazard Summary Report

HAZARD :	SUMMARY		
RAST Ve	rsion 1.1		Date: Oct. 25, 2018
Summary of Chemical Information	for Process Ur	nit: piping; 8 l	nch Steel Pipe
Physical State at Operating Conditions for Methane = Vapor	and Feed of:		
Weight Fraction Methane	0.95	1	
Weight Fraction Ethane	0.034	1	
Weight Fraction Nitrogen	0.008	1	
Weight Fraction Carbon Dioxide	0.0069		
Normal Boiling Point, C	-161.2		azard Screening
Flash Point, C	-187.2	Note Ci	emical Information in Bold
Lower Flammable Limit at Initial Composition, vol %	5.0		
Combustible Dust?	No		Hazard Sufficient for Further
ERPG-2 at Initial Composition, ppm	2972.0 17421.6		Consideration
ERPG-3 at Initial Composition, ppm	1/421.0	_	
Dermal Toxicity Classification (or Corrosive to Human Tissue)		+	
Aquatic Toxicity Classification	Ne	-	
Considered Toxic by a Regulatory Agency?	No	-	
Heat of Reaction, kJoule/kg Highly Volatile or Gaseous Products Generated?	No	1	
Potential for Mixing Incompatible Materials?	No	1	
Considered Condensed Phase Exploaive?	No	Process F	quipment is Considered in
Consucred Condensed Filase Explosive:	140		azardous Service
<u>Summary of Equipment and Process Conditions</u> Equipment or Vessel Volume 2068279.3 liter	Temperature C	Pressure kPa gauge	Pressure Exceeds Maximum Allowable Working or Relief S
Normal Operating Conditions	15	2070.00	1
Maximum Allowable Working or Relief Set Pressure	-89.6	3450.00	
Catastrophic Failure/Burst Pressure	-66.9	6900.00	
Full Vacuum Rated? Not Entered		-	
Catastrophic Failure Higih Temperature Temperature where Low Temp Embrittlement may Occ.	ur? Not Entered	J	
Maximum Feed Pressure		4826.33	Yes
Maximum Gas Pad Pressure		Not Entered	
Maximum Downstream Equipment Pressure		Not Entered	1
Maximum from Liquid Displacement (based on 9 X compression		Not Entered	
	or feed pressure)	101.32	No
Estimated Maximum Headspace Deflagration Pressure	or feed pressure)	101.32	No
Maximum Pressure from Hydraulic Surge (Piping Only)		0.00	No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Ambient Conditions	or feed pressure)	101.32	No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Ambient Conditions Maximum Feed Temperature		0.00	No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Ambient Conditions Maximum Feed Temperature Minimum Coolant Temperature	15	0.00	No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Antibient Conditions Maximum Feed Temperature Minimum Coolent Temperature Normal Boiling Point of Equipment Contents		0.00	No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Arbient Conditions Maximum Feed Temperature Minimum Coolant Temperature Normal Boiling Point of Equipment Contents Maximum from Heating Media Temperature	-161.2	0.00	No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Arabient Conditions Maximum Feed Temperature Minimum Coolant Temperature Normal Boiling Point of Equipment Contents Maximum Feod Temperature Estimated time to Relief Set Pressure or MAWP from Heat Transfer.	15 -161.2 at Low Level, min	0.00	No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Anthient Conditions Maximum Feed Temperature Minimum Coolant Temperature Normal Bolling Pont of Equipment Contents Maximum from Heating Media Temperature Estimated from to Relief Set Pressure or MAWP from Heat Transfer. Estimated from to Relief Set Pressure or MAWP from Heat Transfer.	15 -161.2 at Low Level, min	0.00 1968.68	No No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Arabient Conditions Maximum Feed Temperature Minimum Coolant Temperature Minimum Coolant Temperature Normal Boiling Point of Equipment Contents Maximum from Hea	15 -161.2 at Low Level, min	0.00	No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Anthient Conditions Maximum Feed Temperature Minimum Coolant Temperature Minimum Coolant Temperature Normal Bolling Point of Equipment Contents Maximum from Healing Media Temperature Estimated the Pacilif Sal Pressure or MAWP from Heal Transfer. Estimated the Pacilif Sal Pressure or MAWP from Heal Transfer. Healing Media Source Pressure	-161.2 at Low Level, min at High Level, min	0.00 1968.68	No No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Anthient Conditions Maximum Feed Temperature Minimum Coolant Temperature Mormal Boiling Point of Equipment Contents Maximum from Heating Media Temperature Estimated from to Relief Set Pressure or MAWP from Heat Transfer. Heating Media Source Pressure Max from Mechanical Energy at Low Level: Non-Insulated Estimated time to Relief Set Or MAWP from Mechanical Energy at	-161.2 at Low Level, min at High Level, min	0.00 1968.68	No No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Arabient Conditions Maximum Feed Temperature Minimum Coolant Temperature Minimum Coolant Temperature Normal Boiling Point of Equipment Contents Maximum from Heating Media Temperature Estimated fine to Reidel Set Pressure or MAWP from Heat Transfer. Estimated fine to Reidel Set Pressure or MAWP from Heat Transfer. Heating Media Source Pressure Max from Mechanical Energy at Low Levet: Non-Insulated Setimated fine to Reidel Set or MAWP from Mechanical Energy at Low X from Mechanical Energy at High Levet: Non-Insulated	15 -161.2 -161.2 st Low Level, min at High Level, min	0.00 1968.68	No No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Anthient Conditions Maximum Feed Temperature Minimum Coolant Temperature Mormal Boiling Point of Equipment Contents Maximum from Heating Media Temperature Estimated from to Relief Set Pressure or MAWP from Heat Transfer. Heating Media Source Pressure Max from Mechanical Energy at Low Level: Non-Insulated Estimated time to Relief Set Or MAWP from Mechanical Energy at	15 -161.2 -181.2 -191.2	0.00 1968.68	No No No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Arabient Conditions Maximum Feed Temperature Minimum Coolant Temperature Minimum Coolant Temperature Normal Boiling Point of Equipment Contents Maximum from Heating Media Temperature Estimated fine to Reidel Set Pressure or MAWP from Heat Transfer. Estimated fine to Reidel Set Pressure or MAWP from Heat Transfer. Heating Media Source Pressure Max from Mechanical Energy at Low Levet: Non-Insulated Setimated fine to Reidel Set or MAWP from Mechanical Energy at Low X from Mechanical Energy at High Levet: Non-Insulated	15 -161.2 -181.2 -191.2	0.00 1968.68	No Max. Temperature Exceeds
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Anthient Conditions Maximum Feed Temperature Minimum Coolant Temperature Minimum Coolant Temperature Mormal Bolling Point of Equipment Contents Maximum from Healting Media Temperature Estimated the neelfed Ser Pressure or MAWP from Heat Transfer. Estimated time to Relief Ser Pressure or MAWP from Heat Transfer. Healting Media Source Pressure Max from Mechanical Energy at Low Level: Non-Insulated Estimated fine to Relief Set or MAWP from Mechanical Energy at Low Max from Mechanical Energy at 10 Low Level: Non-Insulated Estimated fine to Relief Set or MAWP from Mechanical Energy at Low Service Ser	15 -161.2 -181.2 -191.2	0.00 1968.68	No No No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Arabient Conditions Maximum Feed Temperature Minimum Coolant Temperature Minimum Coolant Temperature Normal Boiling Point of Equipment Contents Maximum from Heating Media Temperature Estimated fine to Reidel Set Pressure or MAWP from Heat Transfer. Estimated fine to Reidel Set Pressure or MAWP from Heat Transfer. Heating Media Source Pressure Max from Mechanical Energy at Low Levet: Non-Insulated Setimated fine to Reidel Set or MAWP from Mechanical Energy at Low X from Mechanical Energy at High Levet: Non-Insulated	15 -161.2 -161.2 at Low Level, min thigh Level, min ow Level, min	0.00 1968.68	No No No No No No No No
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Anthient Conditions Maximum Feed Temperature Minimum Coolant Temperature Minimum Coolant Temperature Mormal Bolling Point of Equipment Contents Maximum from Healting Media Temperature Estimated the neelfed Ser Pressure or MAWP from Heat Transfer. Estimated time to Relief Ser Pressure or MAWP from Heat Transfer. Healting Media Source Pressure Max from Mechanical Energy at Low Level: Non-Insulated Estimated fine to Relief Set or MAWP from Mechanical Energy at Low Max from Mechanical Energy at 10 Low Level: Non-Insulated Estimated fine to Relief Set or MAWP from Mechanical Energy at Low Service Ser	15 -161.2 -161.2 at Low Level, min thigh Level, min ow Level, min	0.00 1968.68	No N
Maximum Pressure from Hydraulic Surge (Piping Only) Maximum Anthient Conditions Maximum Feed Temperature Minimum Coolant Temperature Minimum Coolant Temperature Mormal Bolling Point of Equipment Contents Maximum from Healting Media Temperature Estimated the neelfed Ser Pressure or MAWP from Heat Transfer. Estimated time to Relief Ser Pressure or MAWP from Heat Transfer. Healting Media Source Pressure Max from Mechanical Energy at Low Level: Non-Insulated Estimated fine to Relief Set or MAWP from Mechanical Energy at Low Max from Mechanical Energy at 10 Low Level: Non-Insulated Estimated fine to Relief Set or MAWP from Mechanical Energy at Low Service Ser	15 -161.2 -161.2 at Low Level, min thigh Level, min ow Level, min	0.00 1968.68	No No No No No No No No

Potential for Uncontrolled Reaction	No		
Reaction Temperature of No Return is	Less Than:		
Exothermic Reaction Temperature of No Return			Pressure Exceeds Maxis
Maximum Reaction based on Adiabatic and Initial	Temperature, C	Pressure. kPag	Allowable Working or Re Set Pressure?
Temperature as Operating Temperature	15.0	21.43	Set Pressure?
reinperature as operating reinperature	13.0	21.40	1
Max Reaction Temp Exceeds High Temperature Failur	e?		
, , , ,			
Potential for Pool Fire	No		
Quantity Flammable Available based on System Inventory	0.0	kg	
Maximum Pool Fire Duration based on Direct Fire	123.5	minutes	
Fire Heat Input per API 521 for Process Vessel or	0.0	Kwat	
Equipment		1	

Appendix M: Severity Level Applied According to People Impacted Upper Limit

Human Harm		
Description	People Impacted Upper Limit	Onsite Tolerable Frequency Factor
Human Harm Screeing at Less Than	0.001	
Potential for Adverse Local Publicity		2
Public Required to Shelter Indoors		3
Severity Level-1	0.01	2
Severity Level-2	0.1	3
Severity Level-3	1	4
Severity Level 4	10	5
Severity Level-5	100	6
	100	6
Severity Level-6		7
Tolerable Frequency Correction for Off-Site		
Im pacts	1	



Appendix N: Detailed Hazard Summary

Equipment Loade	ed < Eq	Juipm	ent Ta	ble	PA Worksheet >					Defines a	Unique Scenario	С	lear Results						
Station	Sort		Reset Filter	Create U Scenar		r Duplicate Scenario	Risk Summary >			LOPA Wo	orksheet Entry						OUT	COME SUMMARY	
Equipment Tag		Scenar	rio Type	٧	Initiating Event General Description	Incident Type	Outcome		Key Chemical	Consequence Analysis Reference	◆ Equipment Volume	▲ Equivalent Hole Diameter	Release Location	◆ Total Release Quantity	Feed Composition	Release Temperature (deg C)	◆ Release Pressure	▲ Maximum Release Rate	Release Duration at Max Release Rate (min)
6 Inch Pipe	Low Tempera	ature E	mbrittle	ment	BPCS Instrument Loop Failure	Full Bore Hole Size Leak	Flash Fire or Fireball	Piping	Methane	RAST	296712 liter	158.7 mm	Outdoors	13100 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	2810 kg/min	2
6 Inch Pipe	Low Tempera	ature E	mbrittle	ment	BPCS Instrument Loop Failure	Full Bore Hole Size Leak	Vapor Cloud Explosion	Piping	Methane	RAST	296712 liter	158.7 mm	Outdoors	13100 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	2810 kg/min	2
6 Inch Pipe	Mechanical I Extremely La		y Failure	e -	IEF=2 as determined by Process Safety	Extremely Large Hole Size Leak	Flash Fire or Fireball	Piping	Methane	RAST	296712 liter	150 mm	Outdoors	13100 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	2510 kg/min	2
6 Inch Pipe	Mechanical I Extremely La	٠.	y Failure	e -	IEF=2 as determined by Process Safety	Extremely Large Hole Size Leak	Vapor Cloud Explosion	Piping	Methane	RAST	296712 liter	150 mm	Outdoors	13100 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	2510 kg/min	2
6 Inch Pipe	Mechanical I Large	ntegrity	y Failure	e - Very	Process Safety	Very Large Hole Size Leak	Flash Fire or Fireball	Piping	Methane	RAST	296712 liter	50 mm	Outdoors	11000 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	279 kg/min	16
6 Inch Pipe	Mechanical I Large	ntegrity	y Failure	e - Very	IEF=2 as determined by Process Safety	Very Large Hole Size Leak	Vapor Cloud Explosion	Piping	Methane	RAST	296712 liter	50 mm	Outdoors	11000 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	279 kg/min	16
8 Inch Pipe	Low Tempera	ature E	mbrittle	ment	BPCS Instrument Loop Failure	Full Bore Hole Size Leak	Flash Fire or Fireball	Piping	Methane	RAST	2068279 liter	209.5 mm	Outdoors	45500 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	4890 kg/min	6
8 Inch Pipe	Low Tempera	ature E	mbrittle	ment	BPCS Instrument Loop Failure	Full Bore Hole Size Leak	Vapor Cloud Explosion	Piping	Methane	RAST	2068279 liter	209.5 mm	Outdoors	45500 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	4890 kg/min	6
8 Inch Pipe	Mechanical I Extremely La		y Failure	e -	IEF=2 as determined by Process Safety	Extremely Large Hole Size Leak	Flash Fire or Fireball	Piping	Methane	RAST	2068279 liter	150 mm	Outdoors	43900 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	2510 kg/min	12
8 Inch Pipe	Mechanical I Extremely La		y Failure	e -	IEF=2 as determined by Process Safety	Extremely Large Hole Size Leak	Vapor Cloud Explosion	Piping	Methane	RAST	2068279 liter	150 mm	Outdoors	43900 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	2510 kg/min	12
8 Inch Pipe	Mechanical I Large	ntegrity	y Failure	e - Very	IEF=1 as determined by Process Safety	Very Large Hole Size Leak	Flash Fire or Fireball	Piping	Methane	RAST	2068279 liter	50 mm	Outdoors	16700 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	279 kg/min	60
8 Inch Pipe	Mechanical I Large	ntegrity	y Failure	e - Very	IEF=1 as determined by Process Safety	Very Large Hole Size Leak	Vapor Cloud Explosion	Piping	Methane	RAST	2068279 liter	50 mm	Outdoors	16700 kg	Vapor: 0.95 Methane, 0.03	15	20.7 bar	279 kg/min	60
8 Inch Pipe	Mechanical I Small	ntegrity	y Failure	e - Very	IEF=0 as determined by Process Safety	Very Small Hole Size Leak	Flash Fire or Fireball	Piping	Methane	RAST	2068279 liter	3 mm	Outdoors	60 kg	Vapor: 0.95 Methane, 0.03	15	0 bar	1 kg/min	60
Pressure Letdown Station	Liquid in Vap	or Fee	ed		General Utility Failure		Property Damage or Business Loss	EQUIPME	Methane	RAST									
Pressure Letdown Station	USER DEFIN	NED - E	EVENT	TYPE	Mechanical Failure		Property Damage or Business Loss	DEFINED - EQUIPME	Methane	RAST									



Equipment Load Pressure Letdown	Fourinment Table Ol	PA Worksh	neet>						Defines a Uni	que Scenari	io C	lear Results																	
Station	Sort Reset Filter Create Us Scenario	ser Mo	dify User Scenario	Duplicate Scenario	e F Sum	Risk mary >			LOPA Worksh	neet Entry																			
Equipment Tag	Scenario Type	Total Release Duration (min)	Liquid Pool Area	Fraction Key Chemical in Airborne Vapor	Tim e-Scaled ERPG-2 (ppm)	Tim e-Scaled ERPG-3 (ppm)	Estimated 1 hour LC-1 Concentration (ppm)	Estimated 1 hour LC-50 Concentration (ppm)	Estimated Time-Scaled LC-1 Concentration (ppm)	Lower Flammable Limit (vol %)	Total Althorne Quantity	Maximum Airbome Rate	Distance to Time-Scaled ERPG- 2 Concentration (HD2)	Distance to Time-Scaled ERPG-	Distance to Severe Toxic A pact (LC-50 Concentration)	Distance to Time-Scaled LC-1 Concentration - D Weather	Distance to Time-Scaled LC-1 Concentration - F Weather	Occ Building 1 Name Occ Building 2 Name Occ Bug 1 and Bldg 2 in Same	tion a Build	Concentration at distance to Occupied Building 2 (ppm)	Time to LC-1 for Occupied Building 1 (sec)	Distance to Lower Flammable Limit (LFL) Concentration 4	Distance to Severe Flammable Impact (0.5 LFL BLEVE, or Dust Fireball)	Flammable Vapor Rate	Explosion Distance to 1 psi Overpressure	Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi)	Estimated Proximity POE	Outcome Descriptors	User Defined Outcome Descriptor
6 Inch Pipe	Low Temperature Embrittlement	60	0 sq m	0.974	10600	62400	34800	87100	125000	5	13100 kg	2800 kg/min	328 m	132 m	51 m	90 m	143 m	Radius of Concern	744000	0	58	213 m	304 m	2760 kg/min	419 m	6.6	>0.1	at a Distance to Severe Flamm	nable Impact (0.5 LFL, BLEVE, o
6 Inch Pipe	Low Temperature Embrittlement	60	0 sq m	0.974	10600	62400	34800	87100	125000	5	13100 kg	2800 kg/min	328 m	132 m	51 m	90 m	143 m	Radius of Concern	744000	0	58	213 m	304 m	2760 kg/min	419 m	6.6		with Explosion Distance to 1 p	osi Overpressure of 419 m includi
6 Inch Pipe	Mechanical Integrity Failure - Extremely Large	60	0 sq m	0.974	10100	59000	34800	87100	118000	5	13100 kg	2500 kg/min	319 m	129 m	50 m	88 m	140 m	Radius of Concern	722000	0	59	202 m	287 m	2470 kg/min	413 m	6.6	>0.1	at a Distance to Severe Flamm	nable Impact (0.5 LFL, BLEVE, o
6 Inch Pipe	Mechanical Integrity Failure - Extremely Large	60	0 sq m	0.974	10100	59000	34800	87100	118000	5	13100 kg	2500 kg/min	319 m	129 m	50 m	88 m	140 m	Radius of Concern	722000	0	59	202 m	287 m	2470 kg/min	413 m	6.6		with Explosion Distance to 1 psi Overpressure of 413 m including Explosion	
6 Inch Pipe	Mechanical Integrity Failure - Very Large	60	0 sq m	0.974	3660	21500	34800	87100	43000	5	11000 kg	278 kg/min	177 m	72 m	21 m	51 m	81 m	Radius of Concern	224000	0	203	67 m	96 m	274 kg/min	203 m	6.6		at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96	
6 Inch Pipe	Mechanical Integrity Failure - Very Large	60	0 sq m	0.974	3660	21500	34800	87100	43000	5	11000 kg	278 kg/min	177 m	72 m	21 m	51 m	81 m	Radius of Concern	224000	0	203	67 m	96 m	274 kg/min	203 m	6.6		with Explosion Distance to 1 psi Overpressure of 203 m including Explosion	
8 Inch Pipe	Low Temperature Embrittlement	60	0 sq m	0.974	7550	44200	34800	87100	88500	5	45500 kg	4880 kg/min	516 m	209 m	84 m	144 m	247 m	Radius of Concern	835000	0	51	282 m	401 m	4810 kg/min	453 m	6.6	>0.1	at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of	
8 Inch Pipe	Low Temperature Embrittlement	60	0 sq m	0.974	7550	44200	34800	87100	88500	5	45500 kg	4880 kg/min	516 m	209 m	84 m	144 m	247 m	Radius of Concern	835000	0	51	282 m	401 m	4810 kg/min	453 m	6.6		with Explosion Distance to 1 psi Overpressure of 453 m including Explosion at a Distance to Severe	
8 Inch Pipe	Mechanical Integrity Failure - Extremely Large	60	0 sq m	0.974	5500	32300	34800	87100	64500	5	43900 kg	2500 kg/min	433 m	176 m	62 m	123 m	210 m	Radius of Concern	722000	0	59	202 m	287 m	2470 kg/min	413 m	6.6	>0.1	Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of	
8 Inch Pipe	Mechanical Integrity Failure - Extremely Large	60	0 sq m	0.974	5500	32300	34800	87100	64500	5	43900 kg	2500 kg/min	433 m	176 m	62 m	123 m	210 m	Radius of Concern	722000	0	59	202 m	287 m	2470 kg/min	413 m	6.6		with Explosion Distance to 1 psi Overpressure of 413 m including Explosion	
8 Inch Pipe	Mechanical Integrity Failure - Very Large	60	0 sq m	0.974	2970	17400	34800	87100	34800	5	16700 kg	278 kg/min	197 m	81 m	21 m	56 m	91 m	Radius of Concern	224000	0	203	67 m	96 m	274 kg/min	203 m	6.6	>0.1	A Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96	
8 Inch Pipe	Mechanical Integrity Failure - Very Large	60	0 sq m	0.974	2970	17400	34800	87100	34800	5	16700 kg	278 kg/min	197 m	81 m	21 m	56 m	91 m	Radius of Concern	224000	0	203	67 m	96 m	274 kg/min	203 m	6.6		with Explosion Distance to 1 psi Overpressure of 203 m including Explosion	
8 Inch Pipe	Mechanical Integrity Failure - Very Small	60	0 sq m	0.974	2970	17400	34800	87100	34800	5	60 kg	1.002 kg/min	12 m	5 m	1 m	3 m	4 m	Radius of Concern	1040	0		4 m	6 m	1 kg/min	0 m	0	-0.01	at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 6	
Pressure Letdown Station	Liquid in Vapor Feed																												scenario where accumulated material restricts flow of gas
Pressure Letdown Station	USER DEFINED - EVENT TYPE																												coverings surie or odwins nea/or piping with possibility for catastrophic failure and



Appendix O: LOPA Worksheet

< Back	to Scenario	Results Expand All Collapse All			Not Allow ed												
Protection Gap	Scenario / Cross Ref	Description of Undesired Consequence > Possible	LOPA Tolerable Frequency Factor (chemicals, quantity involved, and basis for calculations)	Revised LOPA Tolerable Frequency Factor	Initiating Event	Probability of Ignition	Revised Probability of Ignition	Probability of Exposure (Presence Factor)	Revised Presence Factor	BPCS Control or Human Response to Alarm +	BPCS Control or Human Response to Alarm +	SIS Function A	SIS Function B	Pressure Relief Device	SRPS 1	SRPS 2	SRPS 3
Instrumented Protection Credits Taken	26.01	Piping, 6 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a Full Bore Hole Size Leak with subsequent 13100 kg airborne release of a Methane Mix ture at an airborne release rate of 2800 kg/min. IPL Status? ->	This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 304 m with the potential for Severity Level-4		Loss of Temperature or Pressure Control with Equipment under Stress causing Low Temperature Embrittlement Failure	Outdoor release of 2760 kg/min Flammable Material with Distance to LFL of 213 m	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions.	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area to 304 m	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve		Implement secondary pressure control with alarm plus operator action Proposed				Fully Implemented	Implement mechanical automated shutdown to isolate flow of natural gas to pipeline in event of low pressure event.	
	Safety Analysis		Tool TFF = 5		BPCS Instrument Loop Failure	Tool POI = 0	USER DEFINED POI Factor wiwth Approval by Process Safety = 1	Tool POE = 0	POE of 0.1 based on detailed modeling		BPCS Independent of Initiating Event				Extraordinary Equipment or Piping Design	1 - Other Safety related protection systems (PFD=0.1)	
-1 New	27.01	Piping, 6 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a	This incident could result in a Vapor Cloud Explosion with Explosion Distance to 1 psi Overpressure of 419		1 Loss of Temperature or	1 Outdoor Release of 2760	Revised POI by 1 layer as a result of majority of piping	1	Probability of personnel to be in close proximity to chemical release is		Implement secondary				1	Implement mechanical automated shutdown to	
Instrumented Protection Credits Taken		Full Bore Hole Size Leak with subsequent 13100 kg airborne release of a Methane Mixture at an airborne release rate of 2800 kg/min.	m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure exceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the		Pressure Control with Equipment under Stress causing Low Temperature Embrittlement Failure	kg/min Flammable Material with Distance to LFL of 213 m-POX	buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions.		reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring		pressure control with alarm plus operator action					isolate flow of natural gas to pipeline in event of low pressure event.	
	Safety Analysis	IPL Status? ->	potential for Severity Level-5 Tool TFF = 6		BPCS Instrument Loop Failure	Tool POI = 0	USER DEFINED POI Factor wiwth Approval by Process Safety = 1		POE of 0.1 based on detailed modeling		Proposed BPCS Independent of Initiating Event				Fully Implemented Extraordinary Equipment or Piping Design	Proposed 1 - Other Safety related protection systems (PFD=0.1)	
Revised Instrumented Protection Credits Taken	12.01	Piping, 6 Inch Pipe, is involved in a Mechanical Integrity Failure - Extremely Large event resulting in an Extremely Large Hole Size Leak with subsequent 13100 kg airborne release of a Methane Mix ture at an airborne release rate of 2500 kg/min.	This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 287 m with the potential for Severity Level-4		1 Failure from corrosion, fatigue, etc.	Outdoor release of 2470 kg/min Flammable Material with Distance to LFL of 202 m	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions.	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area to 287 m	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring		1				Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its exterior.	Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels	
	Safety Analysis	IPL Status?>	Tool TFF = 5		IEF=2 as determined by Process Safety	Tool POI = 0	USER DEFINED POI Factor wiwth Approval by Process Safety = 1	Tool POE = 0	underground with valve POE of 0.1 based on detailed modeling						Fully Implemented Extraordinary Equipment or Piping Design	Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment	
-1			5		2	1	1	1	1						1	1	



	_		This incident could result in a Vapor	ı		1	1	Prohability of personnel to	1	T T	<u> </u>	T T	
Revised	13.01		Cloud Explosion with Explosion					Probability of personnel to be in close proximity to					
	13.01	Piping, 6 Inch Pipe, is involved in a Mechanical	Distance to 1 psi Overpressure of 413			Revised POI by 1 layer as	3	chemical release is			Piping has cathodic	Use of Extrordinary	
		Integrity Failure - Extremely Large event	m including Explosion Overpressure at		Outdoor Release of 2470	a result of majority of piping		reduced by 1 factor as a			protection to reduce	Inspection as API 570	
		resulting in an Extremely Large Hole Size Leak	Typical Construction Occupied Bldg 1	Failure from corrosion		huring underground		result of lowered			corrosion impact as well as	Class 1 for Piping or 100%	
Instrumented		with subsequent 13100 kg airborne release of a	(psi) of 6.6 psi. 1 psi Blast	etc.	with Distance to LFL of 20			probability of bore hole			is epoxy coated on its	Internal and External per 10	
Protection		Methane Mix ture at an airborne release rate of	W /	eic.	m-POX	bore hole size leak						years or less for Vessels	
Credits		2500 kg/min.	Overpresssure exceeds Distance to the Fence Line of 10 m. Consider		III-FOX	occuring on piping exposed	d	leak occuring near			ex terior.	years or less for vessels	
Taken			adjustment for Off-Site Impacts with the			to ambient conditions.		residences. Majority of					
Takon		IPL Status?>						piping is buring			Fully Implemented	Proposed	
		II E Status :>	potential for Severity Level-5					underground with valve			Tully imperienced		
						USER DEFINED POI						Extraordinary Inspection	
	Safety		Tool TFF = 6	IEF=2 as determin	Tool POI = 0	Factor wiwth Approval		POE of 0.1 based on			Extraordinary Equipment	for High Consequence,	
	Analysis		1001 111 0	Process Safe	1001101	by Process Safety = 1		detailed modeling			or Piping Design	Low Failure Probability	
						by Frocess datety - 1						Equipment	
0			6	2	1	1	1	1			1	1	
								Probability of personnel to					
Revised	17.01							be in close proximity to					
		Piping, 6 Inch Pipe, is involved in a Mechanical				Revised POI by 1 layer as		chemical release is			Piping has cathodic	Use of Extrordinary	
		Integrity Failure - Very Large event resulting in	This incident could result in a Flash		Outdoor release of 274		Probability of Personnel to	reduced by 1 factor as a			protection to reduce	Inspection as API 570	
		a Very Large Hole Size Leak with subsequent	Fire or Fireball at a Distance to	Failure from corrosion	atigue, kg/min Flammable Materi	buring underground.	be in Close Proximity to	result of lowered			corrosion impact as well as	Class 1 for Piping or 100%	
Instrumented		11000 kg airborne release of a Methane Mixture	Severe Flammable Impact (0.5 LFL,	etc.	with Distance to LFL of 6	Low ered probability of full		probability of hore hole			is epoxy coated on its	Internal and External per 10	
Protection		at an airborne release rate of 278 kg/min.	BLEVE, or Dust Fireball) of 96 m with		m	bore hole size leak	on Flammable Impact Area	leak occuring near			ex terior.	years or less for Vessels	
Credits		,	the potential for Severity Level-3			occuring on piping exposed	to 96 m	residences. Majority of				,	
Taken						to ambient conditions.		piping is buring					
		IPL Status?>	1					underground with valve			Fully Implemented	Proposed	
												Estate all and beautiful	
				JEE O. J. J.		USER DEFINED POI		POT 1041			-, , , - , ,	Extraordinary Inspection	
	Safety		Tool TFF = 4	IEF=2 as determin	Tool POI = 1	Factor with Approval by	Tool POE = 0	POE of 0.1 based on			Extraordinary Equipment	for High Consequence,	
	Analysis			Process Safe		Process Safety = 2		detailed modeling			or Piping Design	Low Failure Probability	
												Equipment	
-3			4	2	2	2	1	1			1	1	
-3 Revised			This incident could result in a Vapor	2	2	2	1	Probability of personnel to			1	1	
	18.01		Cloud Explosion with Explosion	2	2	Revised POI by 1 layer as		Probability of personnel to be in close proximity to			1	1	
	18.01	Piping, 6 Inch Pipe, is involved in a Mechanical	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203	2				Probability of personnel to be in close proximity to chemical release is			1 Piping has cathodic	Use of Extrordinary	
	18.01	Integrity Failure - Very Large event resulting in	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at		Outdoor Release of 274	Revised POI by 1 layer as a result of majority of piping		Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a			protection to reduce	Inspection as API 570	
Revised	18.01	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1	Failure from corrosion	Outdoor Release of 274	Revised POI by 1 layer as a result of majority of piping buring underground.	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered			protection to reduce corrosion impact as well as	Inspection as API 570 Class 1 for Piping or 100%	
Revised Instrumented	18.01	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mixture	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast		Outdoor Release of 274 Kg/min Flammable Materi with Distance to LFL of 6	Revised POI by 1 layer as a result of majority of piping buring underground.	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole			protection to reduce corrosion impact as well as is epoxy coated on its	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10	
Revised Instrumented Protection	18.01	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure exceeds Distance to the	Failure from corrosion	Outdoor Release of 274	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole leak occuring near			protection to reduce corrosion impact as well as	Inspection as API 570 Class 1 for Piping or 100%	
Revised Instrumented Protection Credits	18.01	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mixture	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider	Failure from corrosion	Outdoor Release of 274 Kg/min Flammable Materi with Distance to LFL of 6	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of			protection to reduce corrosion impact as well as is epoxy coated on its	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10	
Revised Instrumented Protection	18.01	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the	Failure from corrosion	Outdoor Release of 274 Kg/min Flammable Materi with Distance to LFL of 6	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring			protection to reduce corrosion impact as well as is epoxy coated on its ex terior.	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels	
Revised Instrumented Protection Credits	18.01	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mixture	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider	Failure from corrosion	Outdoor Release of 274 Kg/min Flammable Materi with Distance to LFL of 6	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of			protection to reduce corrosion impact as well as is epoxy coated on its	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10	
Revised Instrumented Protection Credits	18.01	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the	Failure from corrosion	Outdoor Release of 274 Kg/min Flammable Materi with Distance to LFL of 6	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions.	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring			protection to reduce corrosion impact as well as is epoxy coated on its ex terior.	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels	
Revised Instrumented Protection Credits	18.01	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure exceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5	Failure from corrosion	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring			protection to reduce corrosion impact as well as is epoxy coated on its ex terior.	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection	
Revised Instrumented Protection Credits		Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the	Failure from corrosion etc.	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve			protection to reduce corrosion impact as well as is epoxy coated on its exterior. Fully Implemented	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection	
Revised Instrumented Protection Credits	Safety	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure exceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5	Failure from corrosion etc.	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve			protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence,	
Revised Instrumented Protection Credits	Safety	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure exceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5	Failure from corrosion etc.	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by	3	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve			protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability	
Revised Instrumented Protection Credits Taken	Safety	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bildg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6	Failure from corrosion etc. IEF=2 as determine Process Safe	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posec to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2		Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling			protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability	
Revised Instrumented Protection Credits Taken	Safety	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bildg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6	Failure from corrosion etc. IEF=2 as determine Process Safe	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex poset to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2	1	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve			protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability	
Revised Instrumented Protection Credits Taken	Safety Analysis	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bildg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6	Failure from corrosion etc. IEF=2 as determine Process Safe	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as	1	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modelling 1 Probability of personnel to be in close proximity to chemical release is			protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability	
Revised Instrumented Protection Credits Taken	Safety Analysis	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?>	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bildg 1 (psi) of 6.6 psi. 1 psi Blast Overpressure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash	Failure from corrosion etc. IEF=2 as determin Process Safe 2 Loss of Temperature	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping	1 Probability of Personnel to	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modelling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 feater see 1.		Implement secondary	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection to for High Consequence, Low Failure Probability Equipment	
Revised Instrumented Protection Credits Taken	Safety Analysis	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Low	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure exceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to	Failure from corrosion etc. IEF=2 as determin Process Safe 2 Loss of Temperata Pressure Control	Outdoor Release of 274 Kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1 Outdoor release of 4810 kg/min Flammable Materi	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping buring underground.	1 Probability of Personnel to be in Close Proximity to	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modelling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered.		Implement secondary pressure control with alarm	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Implement mechanical	
Revised Instrumented Protection Credits Taken	Safety Analysis	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL,	Failure from corrosion etc. IEF=2 as determin Process Safe 2 Loss of Temperata Pressure Control Equipment under S	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1 Outdoor release of 4810 kg/min Flammable Materi with Distance to LFL of 28	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore as a result of majority of piping buring underground.	1 Probability of Personnel to be in Close Proximity to Chemical Release based	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole leak occurring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered		and the second s	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Implement mechanical automated shutdown to	
Instrumented Protection Credits Taken	Safety Analysis	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a Full Bore Hole Size Leak with subsequent	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpressure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 401 m with	Failure from corrosion etc. IEF=2 as determine Process Safe 2 Loss of Temperate Pressure Control Equipment under Scausing Low Temp	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1 2 Outdoor release of 4810 kg/min Flammable Materi with Distance to LFL of 28 with Distance to LFL of 28	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak	1 Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole leak occurring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered		pressure control with alarm	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Implement mechanical automated shutdown to isolate flow of natural gas to	
Instrumented Protection Credits Taken -1 Same	Safety Analysis	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a Full Bore Hole Size Leak with subsequent 45500 kg airborne release of a Methane Mix ture	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL,	Failure from corrosion etc. IEF=2 as determin Process Safe 2 Loss of Temperata Pressure Control Equipment under S	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1 2 Outdoor release of 4810 kg/min Flammable Materi with Distance to LFL of 28 with Distance to LFL of 28	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posec to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posec	1 Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modelling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole		pressure control with alarm	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Implement mechanical automated shutdown to isolate flow of natural gas to pipeline in event of low	
Instrumented Protection Credits Taken -1 Same	Safety Analysis	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a Full Bore Hole Size Leak with subsequent 45500 kg airborne release of a Methane Mix ture	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpressure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 401 m with	Failure from corrosion etc. IEF=2 as determine Process Safe 2 Loss of Temperate Pressure Control Equipment under Scausing Low Temp	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1 2 Outdoor release of 4810 kg/min Flammable Materi with Distance to LFL of 28 with Distance to LFL of 28	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak	1 Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modelling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near		pressure control with alarm	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Implement mechanical automated shutdown to isolate flow of natural gas to pipeline in event of low	
Instrumented Protection Credits Taken -1 Same Instrumented Protection Credits	Safety Analysis	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a Full Bore Hole Size Leak with subsequent 45500 kg airborne release of a Methane Mix ture	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpressure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 401 m with	Failure from corrosion etc. IEF=2 as determine Process Safe 2 Loss of Temperate Pressure Control Equipment under Scausing Low Temp	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1 2 Outdoor release of 4810 kg/min Flammable Materi with Distance to LFL of 28 with Distance to LFL of 28	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posec to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posec	1 Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modelling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of		pressure control with alarm	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Implement mechanical automated shutdown to isolate flow of natural gas to pipeline in event of low	
Instrumented Protection Credits Taken -1 Same Instrumented Protection Credits	Safety Analysis	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a Full Bore Hole Size Leak with subsequent 45500 kg airborne release of a Methane Mix ture at an airborne release rate of 4880 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpressure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 401 m with	Failure from corrosion etc. IEF=2 as determin Process Safe 2 Loss of Temperati Pressure Control Equipment under Scausing Low Temp Embrittlement Fa	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1 2 Outdoor release of 4810 kg/min Flammable Materi with Distance to LFL of 28 m	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posec to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posec	1 Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modelling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve		pressure control with alarm plus operator action	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment or Piping Design 1 Fully Implemented	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Implement mechanical automated shutdown to isolate flow of natural gas to pipeline in event of low pressure event.	
Instrumented Protection Credits Taken -1 Same Instrumented Protection Credits	Safety Analysis 28.01	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a Full Bore Hole Size Leak with subsequent 45500 kg airborne release of a Methane Mix ture at an airborne release rate of 4880 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpressure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 401 m with	Failure from corrosion etc. IEF=2 as determin Process Safe 2 Loss of Temperata Pressure Control Equipment under Scausing Low Temp Embrittlement Fa	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1 2 Outdoor release of 4810 kg/min Flammable Materi with Distance to LFL of 28 m	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posec to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posec to ambient conditions.	1 Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole leak occurring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occurring near residences. Majority of piping is buring underground with valve POE of 0.1 based on		pressure control with alarm plus operator action Proposed BPCS Independent of	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment or Piping Design 1 Fully Implemented Extraordinary Equipment Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Implement mechanical automated shutdown to isolate flow of natural gas to pipeline in event of low pressure event.	
Instrumented Protection Credits Taken -1 Same Instrumented Protection Credits	Safety Analysis	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a Full Bore Hole Size Leak with subsequent 45500 kg airborne release of a Methane Mix ture at an airborne release rate of 4880 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure exceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 401 m with the potential for Severity Level-5	Failure from corrosion etc. IEF=2 as determin Process Safe 2 Loss of Temperati Pressure Control Equipment under Scausing Low Temp Embrittlement Failure	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1 2 Outdoor release of 4810 kg/min Flammable Materi with Distance to LFL of 28 with Distance to LFL of 28	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 1	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area to 401 m	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modelling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling		pressure control with alarm plus operator action Proposed BPCS Independent of Initiating Event	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment or Piping Design 1 Fully Implemented Extraordinary Equipment or Piping Design	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Implement mechanical automated shutdown to isolate flow of natural gas to pipeline in event of low pressure event. Proposed 1 - Other Safety related	
Instrumented Protection Credits Taken -1 Same Instrumented Protection Credits	Safety Analysis 28.01	Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 11000 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Low Temperature Embrittlement event resulting in a Full Bore Hole Size Leak with subsequent 45500 kg airborne release of a Methane Mix ture at an airborne release rate of 4880 kg/min.	Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bildg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the potential for Severity Level-5 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 401 m with the potential for Severity Level-5	Failure from corrosion etc. IEF=2 as determin Process Safe 2 Loss of Temperata Pressure Control Equipment under Scausing Low Temp Embrittlement Fa	Outdoor Release of 274 kg/min Flammable Materi with Distance to LFL of 6 m-POX Tool POI = 1 2 Outdoor release of 4810 kg/min Flammable Materi with Distance to LFL of 28 with Distance to LFL of 28	Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping exposed to ambient conditions. USER DEFINED POI Factor with Approval	1 Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area to 401 m	Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole leak occurring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occurring near residences. Majority of piping is buring underground with valve POE of 0.1 based on		pressure control with alarm plus operator action Proposed BPCS Independent of	protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment or Piping Design 1 Fully Implemented Extraordinary Equipment Fully Implemented Extraordinary Equipment	Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Implement mechanical automated shutdown to isolate flow of natural gas to pipeline in event of low pressure event. Proposed 1 - Other Safety related protection systems	



			This incident could result in a Vapor					Probability of personnel to					
Same	29.01		Cloud Explosion with Explosion					be in close proximity to					
		Piping, 8 Inch Pipe, is involved in a Low	Distance to 1 psi Overpressure of 453			Revised POI by 1 layer as		chemical release is				Implement mechanical	
		· ·	· · · · ·	Loss of Temperature or	0.11 0.1 (4040	a result of majority of piping						*	
		Temperature Embrittlement event resulting in a	m including Explosion Overpressure at	Pressure Control with	Outdoor Release of 4810	buring underground.		reduced by 1 factor as a	Implement secondary			automated shutdown to	
		Full Bore Hole Size Leak with subsequent	Typical Construction Occupied Bldg 1		kg/min Flammable Material			result of low ered	pressure control with alarm			isolate flow of natural gas to	
Instrumented	d	45500 kg airborne release of a Methane Mixture	(psi) of 6.6 psi. 1 psi Blast	Equipment under Stress	with Distance to LFL of 282	Lowered probability of full		probability of bore hole	plus operator action			pipeline in event of low	
Protection		at an airborne release rate of 4880 kg/min.		causing Low Temperature	m-POX	bore hole size leak		· ·				pressure event.	
		at all allborne release rate of 4000 kg/illin.	Overpresssure exceeds Distance to the	Embrittlement Failure	III-FOX	occuring on piping exposed		leak occuring near				pressure event.	
Credits			Fence Line of 10 m. Consider			to ambient conditions.		residences. Majority of					
Taken			adjustment for Off-Site Impacts with the			to difficilit conditions.		piping is buring					
		IPL Status?>	potential for Severity Level-5					underground with valve	Proposed		Fully Implemented	Proposed	
			, , , , , , , , , , , , , , , , , , , ,			USER DEFINED POI						1 - Other Safety related	
	Safety		Tool TFF = 6	BPCS Instrument Loop	Tool POI = 0			POE of 0.1 based on	BPCS Independent of		Extraordinary Equipment		
	Analysis		1001 1FF = 0	Failure	1001 F01 - 0	Factor wiwth Approval		detailed modeling	Initiating Event		or Piping Design	protection systems	
	•					by Process Safety = 1						(PFD=0.1)	
0			6	1	1	1	1	1	1		1	1	
								Probability of personnel to					
Same	30.01							be in close proximity to					
	30.01	Piping, 8 Inch Pipe, is involved in a Mechanical				Revised POI by 1 layer as					Distant has self-self-	Harris Total State	
		Integrity Failure - Extremely Large event	This incident could result in a Flash			a result of majority of piping	Probability of Personnel to	chemical release is			Piping has cathodic	Use of Extrordinary	
		resulting in an Extremely Large Hole Size Leak	Fire or Fireball at a Distance to		Outdoor release of 2470	buring underground.	be in Close Proximity to	reduced by 1 factor as a	Implement secondary		protection to reduce	Inspection as API 570	
				Failure from corrosion, fatigue,	kg/min Flammable Material		· ·	result of low ered	pressure control with alarm		corrosion impact as well as	Class 1 for Piping or 100%	
Instrumented	d	with subsequent 43900 kg airborne release of a	Severe Flammable Impact (0.5 LFL,	etc.	with Distance to LFL of 202	Lowered probability of full	Chemical Release based	probability of bore hole	plus operator action		is epoxy coated on its	Internal and External per 10	
Protection		Methane Mixture at an airborne release rate of	BLEVE, or Dust Fireball) of 287 m with	ow.		bore hole size leak	on Flammable Impact Area	· ·	plac operator action			years or less for Vessels	
		2500 kg/min.	the potential for Severity Level-4		""	occuring on piping exposed	to 287 m	leak occuring near			ex terior.	years or less for vessels	
Credits		-				to ambient conditions.		residences. Majority of					
Taken			<u> </u>					piping is buring					
		IPL Status?>				Ì		underground with valve	Proposed		Fully Implemented	Proposed	
						USER DEFINED POI						Extraordinary Inspection	
	Safety			IEF=2 as determined by				POE of 0.1 based on	BPCS Independent of		Extraordinary Equipment	for High Consequence,	
	Analysis		Tool TFF = 5	Process Safety	Tool POI = 0	Factor wiwth Approval	Tool POE = 0	detailed modeling	Initiating Event		or Piping Design	Low Failure Probability	
	7.11u1 y 313			Journal of the control of the co		by Process Safety = 1		actailed inodeling	initiating Event		or riping besign	•	
												Equipment	
-2			5	2	1	1	1	1	1		1	1	
-2				2	1								
Same			This incident could result in a Vapor			l		Probability of personnel to		[
Jame	31.01	Pining & Inch Pine is involved in a Machanical	Cloud Explosion with Explosion			Revised POI by 1 layer as		be in close proximity to					
		Piping, 8 Inch Pipe, is involved in a Mechanical	Distance to 1 psi Overpressure of 413					chemical release is			Piping has cathodic	Use of Extrordinary	
		Integrity Failure - Extremely Large event	m including Explosion Overpressure at		Outdoor Release of 2470	a result of majority of piping		reduced by 1 factor as a	Implement secondary		protection to reduce	Inspection as API 570	
		resulting in an Extremely Large Hole Size Leak		Cailure from correction foliage		buring underground.		· ·			i i		
		with subsequent 43900 kg airborne release of a	Typical Construction Occupied Bldg 1	Failure from corrosion, fatigue,	kg/min Flammable Material	Lowered probability of full		result of lowered	pressure control with alarm		corrosion impact as well as	Class 1 for Piping or 100%	
Instrumented	d	Methane Mix ture at an airborne release rate of	(psi) of 6.6 psi. 1 psi Blast	etc.	with Distance to LFL of 202			probability of bore hole	plus operator action		is epoxy coated on its	Internal and External per 10	
Protection			Overpresssure exceeds Distance to the		m-POX	bore hole size leak		leak occuring near			ex terior.	years or less for Vessels	
Credits		2500 kg/min.	Fence Line of 10 m. Consider			occuring on piping exposed		residences. Majority of				•	
						to ambient conditions.							
Taken			adjustment for Off-Site Impacts with the					piping is buring					
Taken		IPL Status?>	potential for Severity Level-5					piping is buring underground with valve	Proposed		Fully Implemented	Proposed	
Taken		IPL Status?>							Proposed		Fully Implemented	·	
Taken		IPL Status?>				USER DEFINED POI		underground with valve				Extraordinary Inspection	
Taken	Safety	IPL Status?>	potential for Severity Level-5	IEF=2 as determined by	Tool POI = 0				Proposed BPCS Independent of		Fully Implemented Extraordinary Equipment	Extraordinary Inspection	
Taken	Safety Analysis	IPL Status?>		IEF=2 as determined by Process Safety	Tool POI = 0	Factor wiwth Approval		underground with valve				Extraordinary Inspection	
Taken		IPL Status?>	potential for Severity Level-5	•	Tool POI = 0			underground with valve POE of 0.1 based on	BPCS Independent of		Extraordinary Equipment	Extraordinary Inspection for High Consequence, Low Failure Probability	
Taken		IPL Status?>	potential for Severity Level-5	•	Tool POI = 0	Factor wiwth Approval		underground with valve POE of 0.1 based on	BPCS Independent of		Extraordinary Equipment	Extraordinary Inspection for High Consequence,	
Taken		IPL Status?>	potential for Severity Level-5	•	Tool POI = 0	Factor wiwth Approval	1	underground with valve POE of 0.1 based on	BPCS Independent of		Extraordinary Equipment	Extraordinary Inspection for High Consequence, Low Failure Probability	
Taken		IPL Status?>	potential for Severity Level-5 Tool TFF = 6	Process Safety		Factor wiwth Approval by Process Safety = 1	1	POE of 0.1 based on detailed modeling	BPCS Independent of		Extraordinary Equipment	Extraordinary Inspection for High Consequence, Low Failure Probability	
-1 Same	Analysis	IPL Status?>	potential for Severity Level-5 Tool TFF = 6	Process Safety		Factor wiwth Approval by Process Safety = 1	1	POE of 0.1 based on detailed modeling 1 Probability of personnel to	BPCS Independent of		Extraordinary Equipment	Extraordinary Inspection for High Consequence, Low Failure Probability	
-1			potential for Severity Level-5 Tool TFF = 6	Process Safety		Factor wiwth Approval by Process Safety = 1	1	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to	BPCS Independent of		Extraordinary Equipment or Piping Design	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment	
-1	Analysis	Piping, 8 Inch Pipe, is involved in a Mechanical	potential for Severity Level-5 Tool TFF = 6 6	Process Safety	1	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as		POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is	BPCS Independent of Initiating Event		Extraordinary Equipment or Piping Design 1 Piping has cathodic	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary	
-1	Analysis	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash	Process Safety	1 Outdoor release of 274	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping	Probability of Personnel to	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to	BPCS Independent of		Extraordinary Equipment or Piping Design	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570	
-1	Analysis	Piping, 8 Inch Pipe, is involved in a Mechanical	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to	Process Safety	1	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground.	Probability of Personnel to be in Close Proximity to	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is	BPCS Independent of Initiating Event		Extraordinary Equipment or Piping Design 1 Piping has cathodic	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary	
-1	Analysis 32.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL,	Process Safety 2	1 Outdoor release of 274	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full	Probability of Personnel to be in Close Proximity to Chemical Release based	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570	
-1 Same	Analysis 32.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mixture	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to	Process Safety 2 Failure from corrosion, fatigue,	1 Outdoor release of 274 kg/min Flammable Material	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground.	Probability of Personnel to be in Close Proximity to	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole	BPCS Independent of Initiating Event 1		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10	
-1 Same Instrumented Protection	Analysis 32.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL,	Process Safety 2 Failure from corrosion, fatigue,	1 Outdoor release of 274 kg/min Flammable Material	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole leak occuring near	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100%	
-1 Same Instrumented Protection Credits	Analysis 32.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mixture	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with	Process Safety 2 Failure from corrosion, fatigue,	1 Outdoor release of 274 kg/min Flammable Material	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10	
-1 Same Instrumented Protection	Analysis 32.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with	Process Safety 2 Failure from corrosion, fatigue,	1 Outdoor release of 274 kg/min Flammable Material	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occurring near residences. Majority of piping is buring	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm plus operator action		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its ex terior.	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels	
-1 Same Instrumented Protection Credits	Analysis 32.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mixture	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with	Process Safety 2 Failure from corrosion, fatigue,	1 Outdoor release of 274 kg/min Flammable Material	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10	
-1 Same Instrumented Protection Credits	Analysis 32.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with	Process Safety 2 Failure from corrosion, fatigue,	1 Outdoor release of 274 kg/min Flammable Material	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occurring near residences. Majority of piping is buring	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm plus operator action		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its ex terior.	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed	
-1 Same Instrumented Protection Credits	Analysis 32.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with	Process Safety 2 Failure from corrosion, fatigue, etc.	1 Outdoor release of 274 kg/min Flammable Material	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions.	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve	Implement secondary pressure control with alarm plus operator action Proposed		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection	
-1 Same Instrumented Protection Credits	Analysis 32.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Sever Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3	Process Safety 2 Failure from corrosion, fatigue,	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area to 96 m	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occurring near residences. Majority of piping is buring	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm plus operator action		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its ex terior.	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection	
-1 Same Instrumented Protection Credits	Analysis 32.01 Safety	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with	Process Safety 2 Failure from corrosion, fatigue, etc.	1 Outdoor release of 274 kg/min Flammable Material	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve	Implement secondary pressure control with alarm plus operator action Proposed		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection	
-1 Same Instrumented Protection Credits	Analysis 32.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Sever Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3	Process Safety 2 Failure from corrosion, fatigue, etc.	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area to 96 m	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve	Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability	
-1 Same Instrumented Protection Credits	Analysis 32.01 Safety	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Sever Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3	Process Safety 2 Failure from corrosion, fatigue, etc.	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area to 96 m	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve	Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence,	
-1 Same Instrumented Protection Credits	Analysis 32.01 Safety	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Sever Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3	Process Safety 2 Failure from corrosion, fatigue, etc.	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area to 96 m	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve	Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability	
-1 Same Instrumented Protection Credits Taken	Analysis 32.01 Safety	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3 Tool TFF = 4	Process Safety 2 Failure from corrosion, fatigue, etc. IEF=1 as determined by Process Safety	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area to 96 m	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve. POE of 0.1 based on detailed modeling	Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of Initiating Event		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coaled on its exterior. Fully Implemented Extraordinary Equipment or Piping Design	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment	
-1 Same Instrumented Protection Credits Taken	Analysis 32.01 Safety Analysis	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min.	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammatel Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3 Tool TFF = 4 This incident could result in a Vapor	Process Safety 2 Failure from corrosion, fatigue, etc. IEF=1 as determined by Process Safety	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2	Probability of Personnel to be in Close Prox imity to Chemical Release based on Flammable Impact Area to 96 m Tool POE = 0	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling 1 Probability of personnel to	Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of Initiating Event		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coaled on its exterior. Fully Implemented Extraordinary Equipment or Piping Design	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment	
-1 Same Instrumented Protection Credits Taken	Analysis 32.01 Safety	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?>	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3 Tool TFF = 4 4 This incident could result in a Vapor Cloud Explosion with Explosion	Process Safety 2 Failure from corrosion, fatigue, etc. IEF=1 as determined by Process Safety	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2	Probability of Personnel to be in Close Prox imity to Chemical Release based on Flammable Impact Area to 96 m Tool POE = 0	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to	Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of Initiating Event		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coaled on its ex terior. Fully Implemented Extraordinary Equipment or Piping Design	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1	
-1 Same Instrumented Protection Credits Taken	Analysis 32.01 Safety Analysis	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Mechanical	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3 Tool TFF = 4 This incident could result in a Vapor Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203	Process Safety 2 Failure from corrosion, fatigue, etc. IEF=1 as determined by Process Safety	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m Tool POI = 1	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 2 Revised POI by 1 layer as	Probability of Personnel to be in Close Prox imity to Chemical Release based on Flammable Impact Area to 96 m Tool POE = 0	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of Initiating Event		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment or Piping Design 1 Piping has cathodic	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary	
-1 Same Instrumented Protection Credits Taken	Analysis 32.01 Safety Analysis	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?>	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3 Tool TFF = 4 This incident could result in a Vapor Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203	Process Safety 2 Failure from corrosion, fatigue, etc. IEF=1 as determined by Process Safety	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m Tool POI = 1 2 Outdoor Release of 274	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bre hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 2 Revised POI by 1 layer as a result of majority of piping	Probability of Personnel to be in Close Prox imity to Chemical Release based on Flammable Impact Area to 96 m Tool POE = 0	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to	Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of Initiating Event		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coaled on its ex terior. Fully Implemented Extraordinary Equipment or Piping Design	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection for High Consequence, Low Failure Probability Equipment	
-1 Same Instrumented Protection Credits Taken	Analysis 32.01 Safety Analysis	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mix ture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3 Tool TFF = 4 This incident could result in a Vapor Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at	Process Safety 2 Failure from corrosion, fatigue, etc. IEF=1 as determined by Process Safety	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m Tool POI = 1	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 2 Revised POI by 1 layer as a result of majority of piping buring underground.	Probability of Personnel to be in Close Prox imity to Chemical Release based on Flammable Impact Area to 96 m Tool POE = 0	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of Initiating Event		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its ex terior. Fully Implemented Extraordinary Equipment or Piping Design 1 Piping has cathodic	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary	
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-1 Same Instrumented Protection Credits Taken -3 Same	Analysis 32.01 Safety Analysis	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mixture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mixture	potential for Severity Level-5 Tool TFF = 6 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3 Tool TFF = 4 This incident could result in a Vapor Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast	Process Safety 2 Failure from corrosion, fatigue, etc. IEF=1 as determined by Process Safety 1	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m Tool POI = 1 2 Outdoor Release of 274 kg/min Flammable Material with Distance to LFL of 67	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 2 Revised POI by 1 layer as a result of majority of piping buring underground.	Probability of Personnel to be in Close Prox imity to Chemical Release based on Flammable Impact Area to 96 m Tool POE = 0	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve. POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of Initiating Event 1		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its exterior. Fully Implemented Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10	
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-1 Same Instrumented Protection Credits Taken -3 Same Instrumented Protection Credits	Analysis 32.01 Safety Analysis	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mixture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mixture	Tool TFF = 6 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3 Tool TFF = 4 This incident could result in a Vapor Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpresssure exceeds Distance to the Fence Line of 10 m. Consider	Process Safety 2 Failure from corrosion, fatigue, etc. IEF=1 as determined by Process Safety 1	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m Tool POI = 1 2 Outdoor Release of 274 kg/min Flammable Material with Distance to LFL of 67	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed	Probability of Personnel to be in Close Prox imity to Chemical Release based on Flammable Impact Area to 96 m Tool POE = 0	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve. POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of low ered probability of bore hole	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm with a secondary pressure control with alarm with a secondary pressure control with alarm		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its exterior. Fully Implemented Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10	
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Instrumented Protection Credits Taken -3 Same Instrumented Protection Credits	Analysis 32.01 Safety Analysis	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mixture at an airborne release rate of 278 kg/min. IPL Status?> Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Large event resulting in a Very Large Hole Size Leak with subsequent 16700 kg airborne release of a Methane Mixture	Tool TFF = 6 Tool TFF = 6 This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 96 m with the potential for Severity Level-3 Tool TFF = 4 This incident could result in a Vapor Cloud Explosion with Explosion Distance to 1 psi Overpressure of 203 m including Explosion Overpressure at Typical Construction Occupied Bldg 1 (psi) of 6.6 psi. 1 psi Blast Overpressure ex ceeds Distance to the Fence Line of 10 m. Consider adjustment for Off-Site Impacts with the	Process Safety 2 Failure from corrosion, fatigue, etc. IEF=1 as determined by Process Safety 1	Outdoor release of 274 kg/min Flammable Material with Distance to LFL of 67 m Tool POI = 1 2 Outdoor Release of 274 kg/min Flammable Material with Distance to LFL of 67	Factor wiwth Approval by Process Safety = 1 1 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed to ambient conditions. USER DEFINED POI Factor with Approval by Process Safety = 2 2 Revised POI by 1 layer as a result of majority of piping buring underground. Lowered probability of full bore hole size leak occuring on piping ex posed	Probability of Personnel to be in Close Prox imity to Chemical Release based on Flammable Impact Area to 96 m Tool POE = 0	POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring underground with valve POE of 0.1 based on detailed modeling 1 Probability of personnel to be in close proximity to chemical release is reduced by 1 factor as a result of lowered probability of bore hole leak occuring near residences. Majority of piping is buring	BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm plus operator action Proposed BPCS Independent of Initiating Event 1 Implement secondary pressure control with alarm with a secondary pressure control with alarm with a secondary pressure control with alarm		Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its exterior. Fully Implemented Extraordinary Equipment or Piping Design 1 Piping has cathodic protection to reduce corrosion impact as well as is epoxy coated on its	Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels Proposed Extraordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection for High Consequence, Low Failure Probability Equipment 1 Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10	
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Instrumented Protection Credits Taken	34.01	Piping, 8 Inch Pipe, is involved in a Mechanical Integrity Failure - Very Small event resulting in a Very Small Hole Size Leak with subsequent 60 kg airborne release of a Methane Mixture at an airborne release rate of 1.002 kg/min.	This incident could result in a Flash Fire or Fireball at a Distance to Severe Flammable Impact (0.5 LFL, BLEVE, or Dust Fireball) of 6 m with the potential for Severity Level-3		Failure from corrosion, fatigue, etc.	Outdoor release of 1 kg/min Flammable Material with Distance to LFL of 4 4	a result of majority of piping	Probability of Personnel to be in Close Proximity to Chemical Release based on Flammable Impact Area to 6 m (with potential for higher POE credit upon further review)	chemical release is reduced by 1 factor as a	Piping has cathodic protection to reduce Inspection as API 570 corrosion impact as well as is epoxy coated on its externor. Fully Implemented Proposed Use of Extrordinary Inspection as API 570 Class 1 for Piping or 100% Internal and External per 10 years or less for Vessels
	Safety Analysis		Tool TFF = 4		IEF=0 as determined by Process Safety	Tool POI = 2	USER DEFINED POI Factor with Approval by Process Safety = 3	Tool POE = 1	POE of 0.1 based on detailed modeling	Extraordinary Equipment for High Consequence, or Piping Design Low Failure Probability Equipment
Same Instrumentee Protection Credits Taken	36.01	USER DEFINED - EQUIPMENT, Pressure Letdown Station, is involved in a Liquid in Vapor Feed event resulting in an Equipment Damage with subsequent airborne release of a Methane Mixture.	This incident could result in a Property Damage or Business Loss Property damage results in scenario where accumulated material restricts flow of gas causing business loss and/or freezes resulting in damage to piping, with the potential for Property Damage and Business Loss \$50 M to \$500 M	Reduced incident result by 1 factor as believed the damage to property would be < \$50 M to \$500 M.	V	3	3	1	1	Ensure drain valve installed downstream of pressure letdown. Have Operators verify line is clear as part of system checks.
	Safety Analysis	IPL Status?>	Tool TFF = 3	2 = Tolerable Frequency Factor based on modeling	General Utility Failure	Tool POI = 0				Proposed 1 - Other Safety related protection systems (PFD=0.1)
Same Instrumenter Protection Credits Taken	35.01	USER DEFINED - EQUIPMENT, Pressure Letdown Station, is involved in an USER DEFINED - EVENT TYPE event resulting in an Equipment Damage with subsequent airborne release of a Methane Mixture. IPL Status?>	This incident could result in a Property Damage or Business Loss Overpressure of downstream piping with possibility for catastrophic failure and release of natural gas outside containment. with the potential for Property Damage and Business Loss \$50 M to \$500 M	2	Failure of pressure regulator to wide open position leads to high pressure gas in downstream piping above MAWP.	0		0		Ensure pressure relief device is installed downstream of pressure regulator to protect sy stem in event of overpressure. Mechanical relief devices are subject to 2 layers of protection. Proposed
0	Safety Analysis		Tool TFF = 3		Mechanical Failure	Tool POI = 0		0		2 - Other Safety related protection systems (PFD=0.01) 2



Stantec Consulting Ltd.
300W-675 Cochrane Drive, Markham ON L3R 0B8

December 12, 2018 File: 160950831

Attention: Anneleis Eckert, Environmental Planner/Environmental Assessment Coordinator Ministry of the Environment, Conservation and Parks 733 Exeter Road London, ON N6E 1L3

Dear Anneleis,

Reference: OPCC - MECP, MNRF, HSM Comment Response

On July 18, 2018 EPCOR Natural Gas Limited Partnership (EPCOR), submitted to the Ontario Pipeline Coordinating Committee (OPCC) the Environmental Report (ER) for the Proposed Natural Gas Pipeline to Serve Southern Bruce. Following submission of the ER to the OPCC, comments were received from the Ministry of the Environment, Conservation and Parks (MECP) on August 23, 2018 with follow-up comment in receipt on September 21, 2018. After the receipt of these comments, EPCOR was in communication with the MECP, who then provided clarification on what was required to address the comments on the submitted ER, in particular their concern regarding potential environmental impacts from landfills within 500m proximity to the proposed pipeline route (PPR). Stantec has conducted a desktop review study to investigate this concern by MECP; the results and findings of which are presented in this letter.

A total of nine landfill sites were identified to be located within 500m of the proposed pipeline route as follows:

Landfill_ID	Status	Site_No	Zone	Easting	Northing	Class	Year Closed	Distance (m)
Landfill 1	Closed	A270201	17	448739.8968	4890490.009	A7	1975	125
Landfill 2	Closed	A270202	17	448999.8965	4890750.009	A7	1977	290
Landfill 3	Active	A270203	17	449399.8961	4890300.009	A3	NA	270
Landfill 4	Closed	A271101	17	478869.8604	4904800.011	B6	1976	325
Landfill 5	Active	A272601	17	455119.8904	4878700.009	A4	NA	385
Landfill 6	Closed	X6098	17	453849.8918	4879800.009	A7	1945	60
Landfill 7	Closed	X6099	17	441599.9042	4881800.008	B8	1965	255
Landfill 8	Closed	X6102	17	449899.8956	4891450.009	A8	1955	330
Landfill 9	Closed	<null></null>	17	451341.3844	4876158.889	<null></null>	<null></null>	360

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Reference: OPCC - MECP, MNRF, HSM Comment Response

Attached to this letter are Figures 1.1 to 1.13. Landfills located within 500m of the proposed pipeline route are indicated by using numbers 1-9 (note that landfills 1, 2, 3 and 8 are located on Figure 1.7). Landfills located beyond 500m, and up to 3km, have been noted with relative proximity to the proposed pipeline route. Information collated on these figures have allowed for Stantec to make interpretative assessments on the probability of possible pathways and impacts of landfill leachate and/or landfill methane gas to the pipeline.

Stantec has concluded that in all nine cases the probability of leachate and methane interaction along the PPR is low. Notwithstanding the low probability of leachate or methane migration due to the depth to groundwater and physical barriers (residential dwellings, roads, rivers, creeks, underground utility lines), EPCOR will complete the following during construction:

- EPCOR will monitor the area during excavation and construction and where groundwater is encountered at the base of the excavation, that groundwater will be analyzed for leachate pollutant indicator parameters, such as pH, electrical conductivity (EC), total dissolved soils (TDS), chloride, methane, biological chemical oxygen demand and chemical oxygen demand. Those values will be compared to values from background samples collected from outside the 500m buffer. Where the presence of landfill leachate is confirmed, those areas will be identified on a map and mitigation measures will be taken to prevent the pipeline from behaving as a conduit for landfill leachate along the length of the pipeline. Mitigation measures include the installation of bentonite trench plugs every 100m of pipeline during backfilling, until the construction exits the intersected 500m zone. Bentonite is an impermeable material that upon interaction with water will swell forming an impermeable seal, thus eliminating any potential pathway along the route of the pipeline.
- EPCOR will have hand-held gas meters at every crew location and will ensure that atmosphere in the trench is safe prior to any person entering the trench. Should EPCOR encounter the presence of methane at any time while working in the excavated area, similar mitigation measures to those described above will be implemented to eliminate any potential pathway along the pipeline.

Although this study focussed on impacts from landfills within 500m of the PPR, an assessment was also completed on 13 additional landfills located within 3km of the PPR. The information and conclusions gathered from the study of the landfills within 500m of the PPR was utilised to determine that methane or leachate migration to the PPR from landfills located beyond 500m (and within 3km) have an even lower probability of interaction. Numerous physical barriers exist that prevent leachate or methane migration to the PPR from landfills located beyond 500m, including;

- watercourses, waterbodies or drainage ditches between the landfill sites and PPR,
- residential dwellings between the landfill sites and the PPR
- elevation of PPR well above the groundwater levels

A summary of the potential influence of landfill gas and leachate pathway from each of the nine landfills within 500m of the PPR followed by conclusions are provided in the following sections.

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Reference: OPCC - MECP, MNRF, HSM Comment Response

Landfill 1

- Location: Located in Kincardine on Princes Street South, in Figure 1.7
- Distance: Approximately 200m east of the PPR and 125m north of the Kincardine Bypass
- Landfill Type: A7 (Urban Municipal/Domestic Waste Class B Criteria (Humans))
- Nearby Surface Water Features: Lake Huron, located approximately 500m west
- Barriers: Residential dwellings are located between the landfill location, the Kincardine Bypass, and PPR
- Pipeline installation depth: less than 2m deep
- Static Water Depth: 25-50m below ground surface (BGS)
- Inferred Groundwater Flow: local flow northeast towards Penetangore River and regional flow west/northwest toward Lake Huron
- Conclusion: Based on the depth to groundwater (greater than 25m BGS) and the presence of several residential dwellings located between the landfill, the Kincardine Bypass, and the PPR, it is expected that the potential for project interaction with leachate or methane migration from this landfill to be low.

- Location: Located in Kincardine north of St. Albert Street, in Figure 1.7
- Distance: Approximately 275m east of the PPR and approximately 290m west of the Kincardine Bypass
- Landfill Type: A7 (Urban Municipal/Domestic Waste Class B Criteria (Humans))
- Nearby Surface Water Features: Penetangore River, located approximately 50m east
- Barriers: Residential subdivision is located between the landfill location, the Kincardine Bypass, and PPR
- Pipeline installation depth: less than 2m deep
- Static Water Depth: 25-50m below ground surface (BGS)
- Inferred Groundwater Flow: north/northeast following flow of the Penetangore River, which is located immediately adjacent to the landfill

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Reference: OPCC - MECP, MNRF, HSM Comment Response

Conclusion: Based on the location of the Penetangore River next to the landfill site, the PPR being at a
location upgradient of the landfill, the depth to groundwater (greater than 25m BGS) and the inferred
groundwater flow (away from the PPR), it is expected that the potential for project interaction with
leachate or methane migration from this landfill to be low.

Landfill 3

- Location: Located in Kincardine west of Lynden Cres., in Figure 1.7
- Distance: Approximately 270m east of the Kincardin Bypass
- Landfill Type: A3 (Urban Municipal/Domestic Waste Class B Criteria (Humans))
- Nearby Surface Water Features: Stewart Drain, a tributary of Penetangore River, located approximately 50m east
- Barriers: Residential subdivision is located between the landfill location and PPR, located immediately adjacent to Stewart Drain a tributary of the Penetangore River
- Pipeline installation depth: less than 2m deep
- Static Water Depth: 25-50m below ground surface (BGS)
- Inferred Groundwater Flow: east to Penetangore River and Stewart Drain
- Conclusion: Based the location of this landfill (immediately adjacent to the Penetangore River and Stewart Drain, depth to groundwater (greater than 25m BGS), and the presence of a residential subdivision between this landfill and the PPR, it is expected that the potential for project interaction with leachate or methane migration from this landfill to be low.

- Location: Located near Paisley, ON in Figure 1.2
- Distance: Approximately 325m east of the PPR
- Nearby Surface Water Features: Saugeen River, located approximately 50m west
- Landfill Type: B6 (Rural Municipal/Domestic Waste Class B Criteria (Environment))
- Natural Barriers: The Saugeen River located between the landfill location and PPR
- Pipeline installation depth: less than 2m deep
- Static Water Depth: 25-50m below ground surface (BGS)

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Reference: OPCC - MECP, MNRF, HSM Comment Response

- Inferred Groundwater Flow: towards the Saugeen River
- Conclusion: Based on the preference for groundwater at this landfill to move vertically to the deep
 aquifer below the landfill due its unique geology as opposed to laterally outwards from the landfill
 perimeter and the absence of methane in wells at landfill perimeter locations closest to the PPR, the
 potential for project initiation with leachate or methane migration from this landfill to the PPR is low.

Landfill 5

- Location: Located north of Ripley, ON south of Bruce Road 6, in Figure 1.11
- Distance: Approximately 385m south of the PPR
- Nearby Surface Water Features: South Pine River, located approx. 425m south
- Landfill Type: A4 (Rural Municipal/Domestic Waste Class B Criteria (Humans))
- Barriers: no obvious barriers between the landfill and the PPR
- Pipeline installation depth: less than 2m deep
- Static Water Depth: 25-50m below ground surface (BGS)
- Inferred Groundwater Flow: west/southwest following flow of the South Pine River to Lake Huron.
- Conclusion: Based on the depth to groundwater (greater than 25m BGS) and the inferred groundwater flow (west/southwest, away from the PPR), it is expected that the potential for project interaction with leachate or methane migration from this landfill to be low. Notwithstanding the low potential for project interaction with leachate or methane migration, due to the lack of natural or physical barriers, EPCOR will collect and send a groundwater sample for independent analysis of leachate pollutant indicator parameters (as described above) to confirm that no leachate or methane is present during the construction period. Where the presence of landfill leachate is confirmed, those areas will be identified on a map and mitigation measures will be taken to prevent the pipeline from behaving as a conduit for landfill leachate.

- Location: Located in Ripley, ON south of Bruce Road 6, in Figure 1.11
- Distance: Approximately 60m south of the PPR and 100m east of the PPR
- Nearby Surface Water Features: Harris Drain, located approximately 50m south
- Landfill Type: A7 (Urban Municipal/Domestic Waste Class B Criteria (Humans))

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Reference: OPCC - MECP, MNRF, HSM Comment Response

- Landfill Monitoring: last by WSP in 2017 Annual Monitoring Report for the Huron Landfill Site dated March 28, 2018 (WSP, 2018)
- Barriers: no obvious barriers between the landfill and the PPR
- Pipeline installation depth: less than 2m deep
- Static Water Depth at landfill (WSP, 2018) 4-5m below ground surface (BGS)
- Inferred Groundwater Flow: primarily vertically based on high vertical gradients between 1.2 to 1.8. As WSP (2018) report states and as agreed by the MECP, the strong vertical gradients at the landfill result in leachate migration vertically to a more permeable formation at 11m below ground surface. Due to this natural phenomenon, it explains the monitoring data that leachate contamination is limited to the confines of the landfill cells.
- Methane monitoring: Methane is routinely monitored at four gas wells at the landfill. No methane was detected in the two north sentinel gas wells closest to Concession 6 East in area of proposed pipeline, nor in the west sentinel gas well next to the residential community and beyond another area of the proposed pipeline. Methane was detected in one well at the extreme south end of the landfill, but the methane in this one well has not connectivity to the proposed pipeline as no methane was detected in either of the north and west sentinel gas wells in areas closest to the pipeline.
- Conclusion: Based on the inferred groundwater flow downwards (away from the PPR) and the absence of methane in wells in closest proximity to the PPR, it is expected that the potential for project interaction with leachate or methane migration from this landfill to be low. Notwithstanding the low potential for project interaction with leachate or methane migration, due to the lack of natural or physical barriers, EPCOR will collect and send a groundwater sample for independent analysis to confirm that no leachate or methane is present during the construction period. Where the presence of landfill leachate and/or methane is confirmed, those areas will be identified on a map and mitigation measures will be taken to prevent the pipeline from behaving as a conduit for landfill leachate.

- Location: Located near Point Clark, ON, in Figure 1.9
- Distance: Approximately 260m south of the PPR and 420m east of the PPR
- Nearby Surface Water Features: Unnamed drain, located 100m south
- Landfill Type: B8 (Rural Municipal/Domestic Waste Class B Criteria (Environment))
- Barriers: Several residential dwellings and Arthur Street located between the landfill location and PPR
- Pipeline installation depth: less than 2m deep

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Reference: OPCC - MECP, MNRF, HSM Comment Response

- Static Water Depth: 25-50m below ground surface (BGS)
- Inferred Groundwater Flow: south and west to the unnamed drain adjacent to the landfill.
- Conclusion: Based on the depth to groundwater (greater than 25m BGS) and the presence of several residential dwellings located between the landfill and the PPR, it is expected that the potential for project interaction with leachate or methane migration from this landfill to be low. Notwithstanding the low potential for project interaction with leachate or methane migration, due to the lack of natural or physical barriers, EPCOR will collect and send a groundwater sample for independent analysis to confirm that no leachate or methane is present during the construction period. Where the presence of landfill leachate is confirmed, those areas will be identified on a map and mitigation measures will be taken to prevent the pipeline from behaving as a conduit for landfill leachate.

Landfill 8

- Location: Located in Kincardine south of Broadway Street, in Figure 1.7
- Closest Point: Approximately 370m north, 500m south and 470m west of the Kincardine Bypass
- Nearby Surface Water Features: Kincardine River, located approximately 100m west
- Landfill Type: A8 (Rural Municipal/Domestic Waste Class B Criteria (Humans))
- Barriers: 1. Kincardine River provides a natural barrier that intercepts receiving groundwater from the landfill to the north and east; 2. Residential subdivision is located between the landfill location and Kincardine Bypass
- Pipeline installation depth: less than 2m deep
- Static Water Depth: 15-25m below ground surface (BGS)
- Inferred Groundwater Flow: west toward the Kincardine River (located immediately adjacent to the landfill site) and into Lake Huron
- Conclusion: Based on a residential subdivision/dwellings between the landfill site and the Kincardine Bypass, the depth to groundwater (greater than 15m BGS) and the inferred groundwater flow (west away from the PPR), it is expected that the potential for project interaction with leachate or methane migration from this landfill to be low.

- Location: Located near Reids Corners south of Concession 4, in Figure 1.10
- Distance: Approximately 360m south of the PPR

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Reference: OPCC - MECP, MNRF, HSM Comment Response

- Nearby Surface Water Features: Tributary of Boyd Creek located less than 25m north and Rutledge Drain located 100m south
- Landfill Type: Unknown
- Barriers: A tributary of Boyd Creek is located between the landfill location and PPR
- Pipeline installation depth: less than 2m deep
- Static Water Depth: >50m below ground surface (BGS)
- Inferred Groundwater Flow: north to Boyd Creek and south to Rutledge Drain (located south of the landfill)
- Conclusion: Based on the close proximity of Boyd Creek and Rutledge Drain to the landfill, the depth to groundwater (greater than 50m BGS) and the inferred groundwater flow north to Boyd Creek and south to Rutledge Drain, there is no pathway to the PPR and it is expected that the potential for project interaction with leachate or methane migration from this landfill to be low. Notwithstanding the low potential for project interaction with leachate or methane migration, due to the lack of natural or physical barriers, EPCOR will collect and send a groundwater sample for independent analysis to confirm that no leachate or methane is present during the construction period. Where the presence of landfill leachate is confirmed, those areas will be identified on a map and mitigation measures will be taken to prevent the pipeline from behaving as a conduit for landfill leachate.

Sincerely.

Stantec Consulting Ltd.

Environmental Consultant

Phone: 519 780 8186 Fax: 519-836-2493

Emily.Hartwig@stantec.com

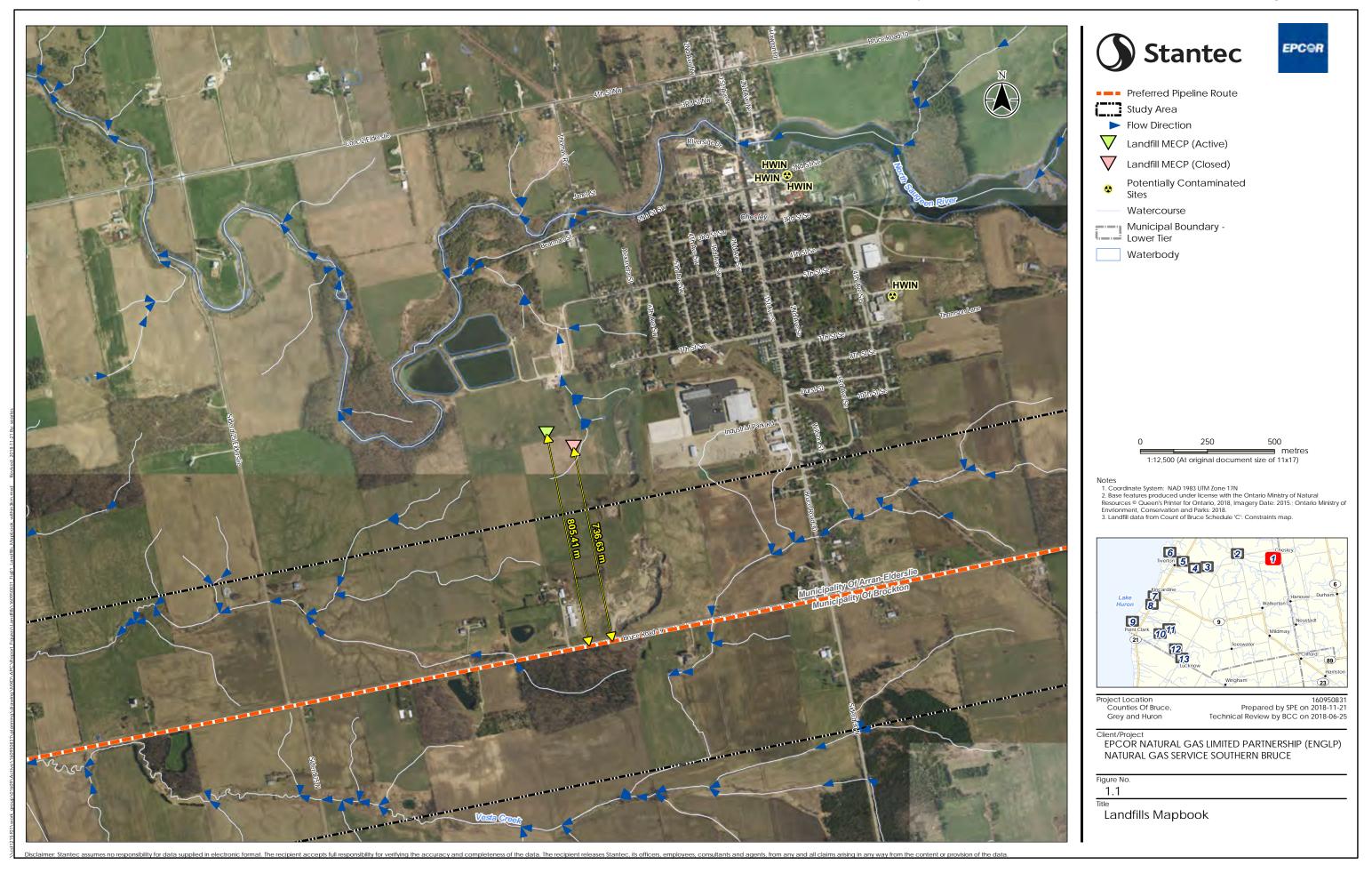
Attachment: Landfills Mapbook, Figures 1.1-1.13

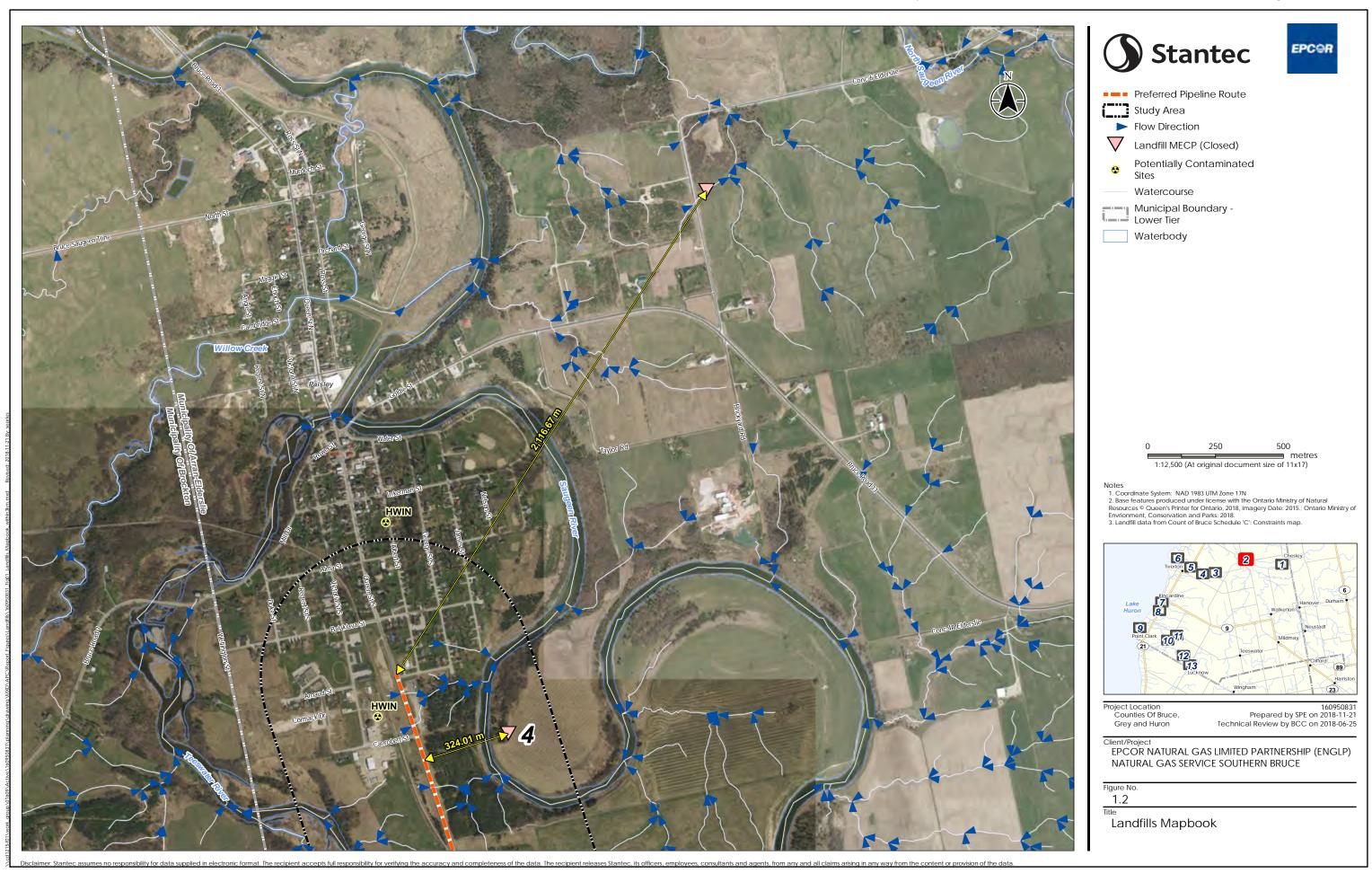
Rooly Georgopoulos B.Sc.

Senior Associate – Environmental Services

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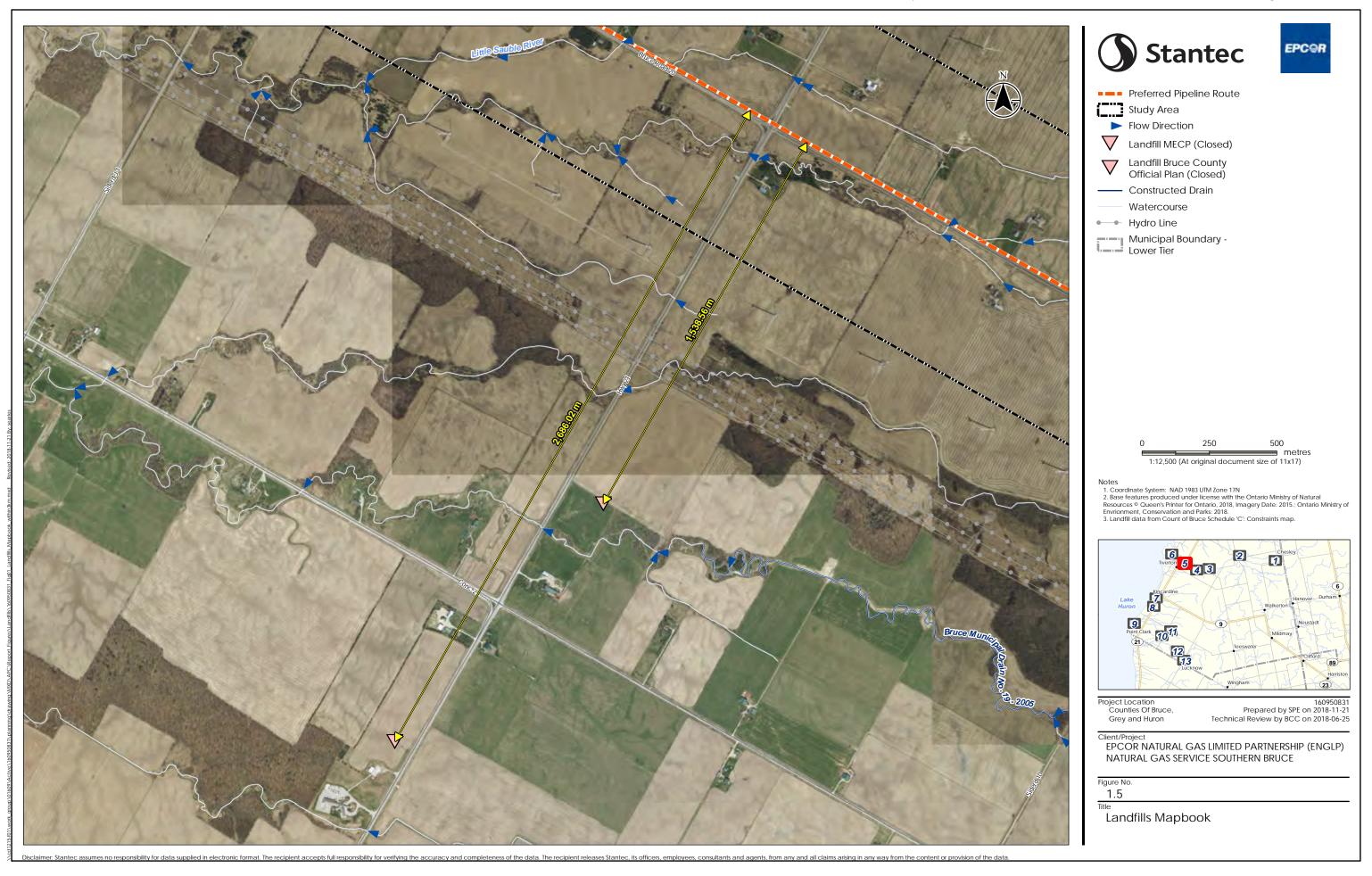
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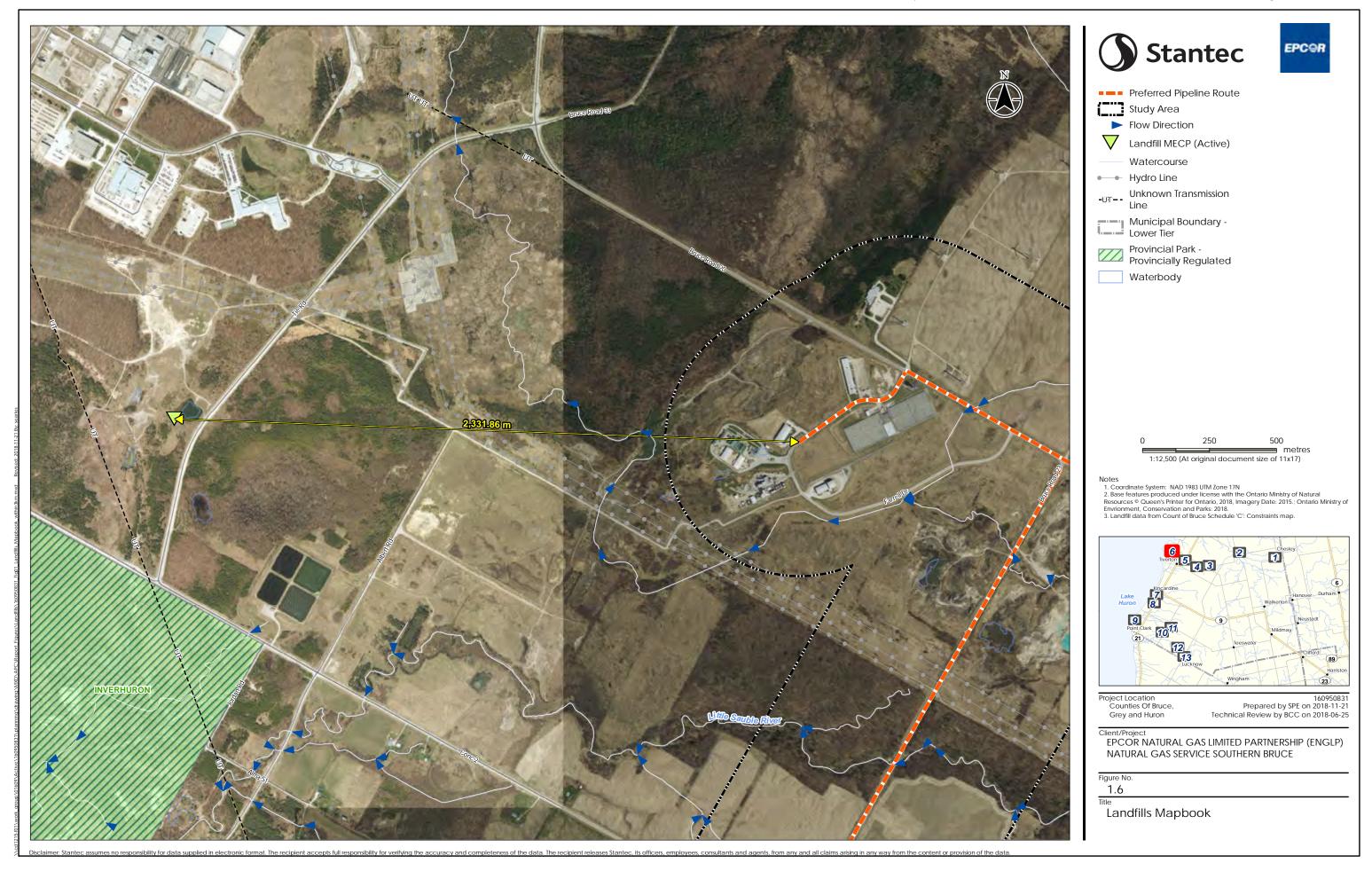


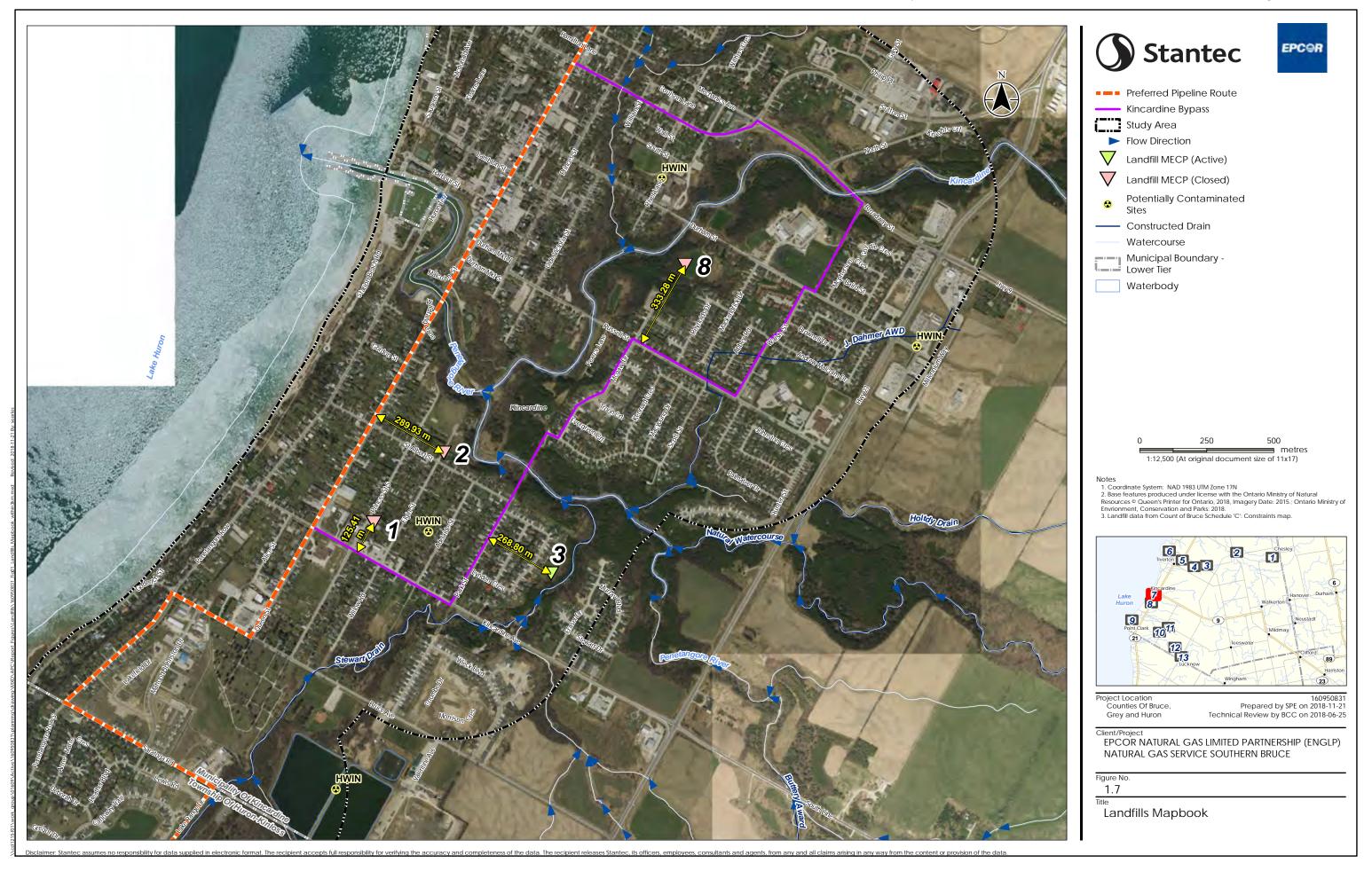


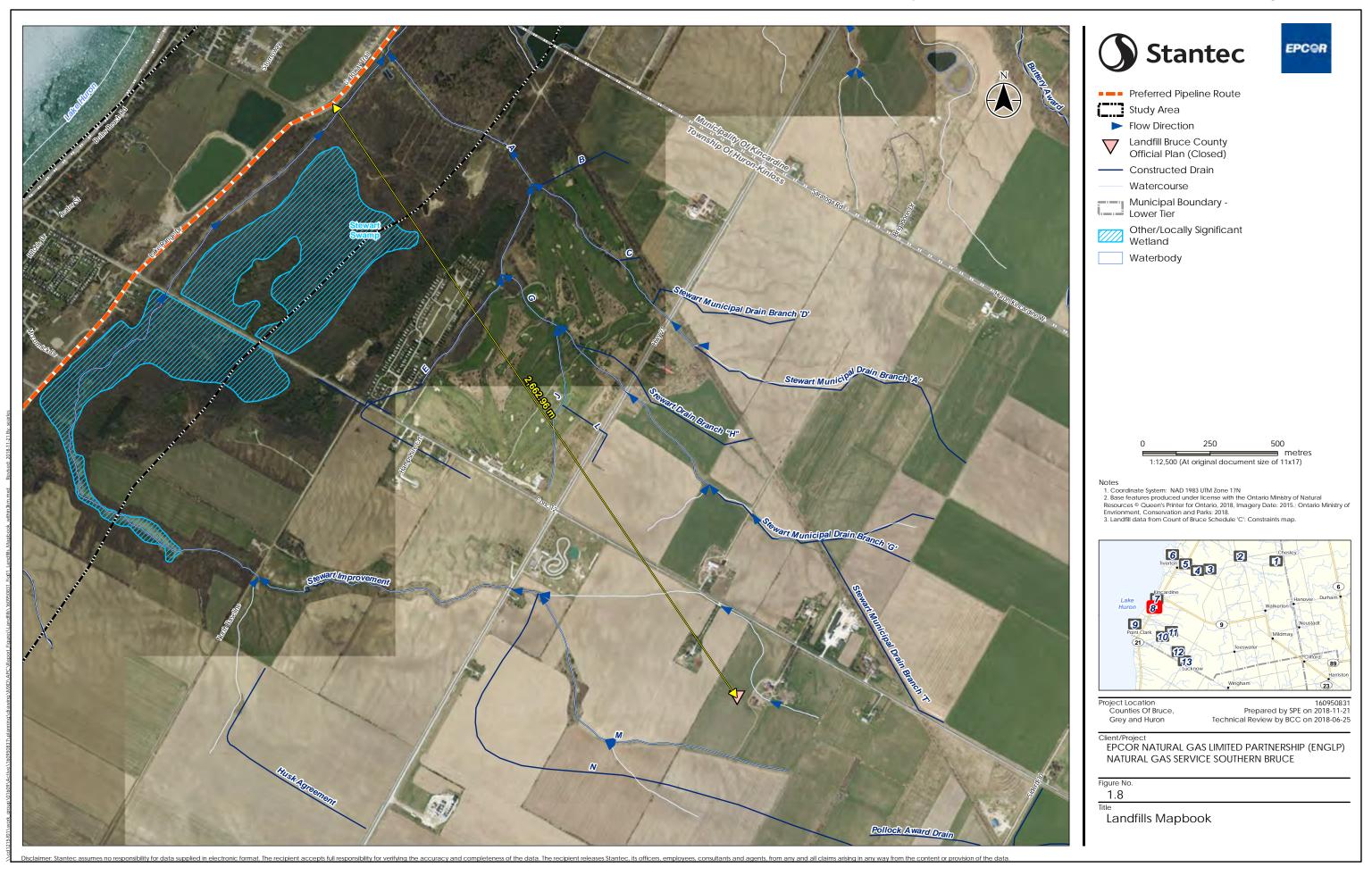


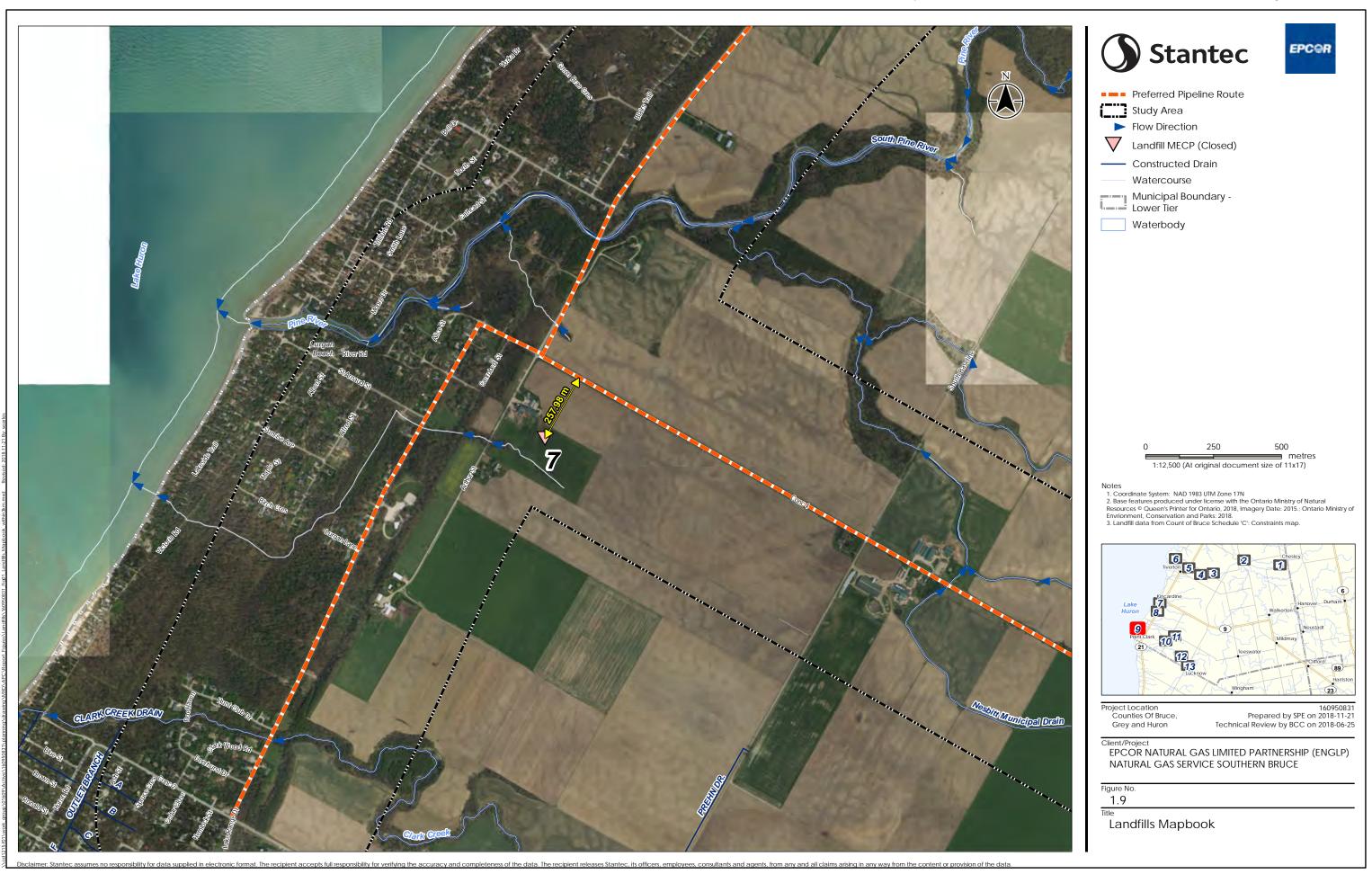




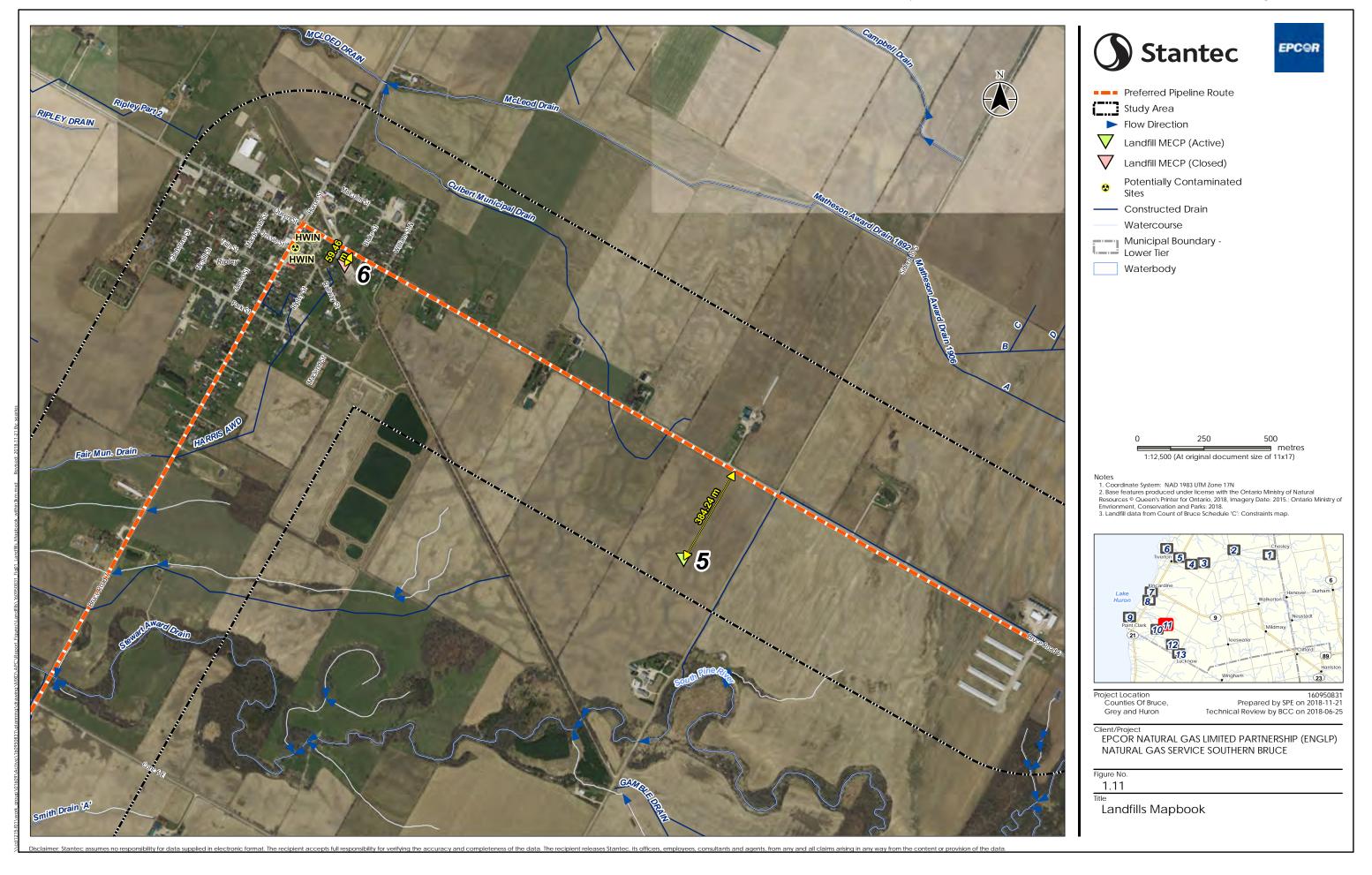




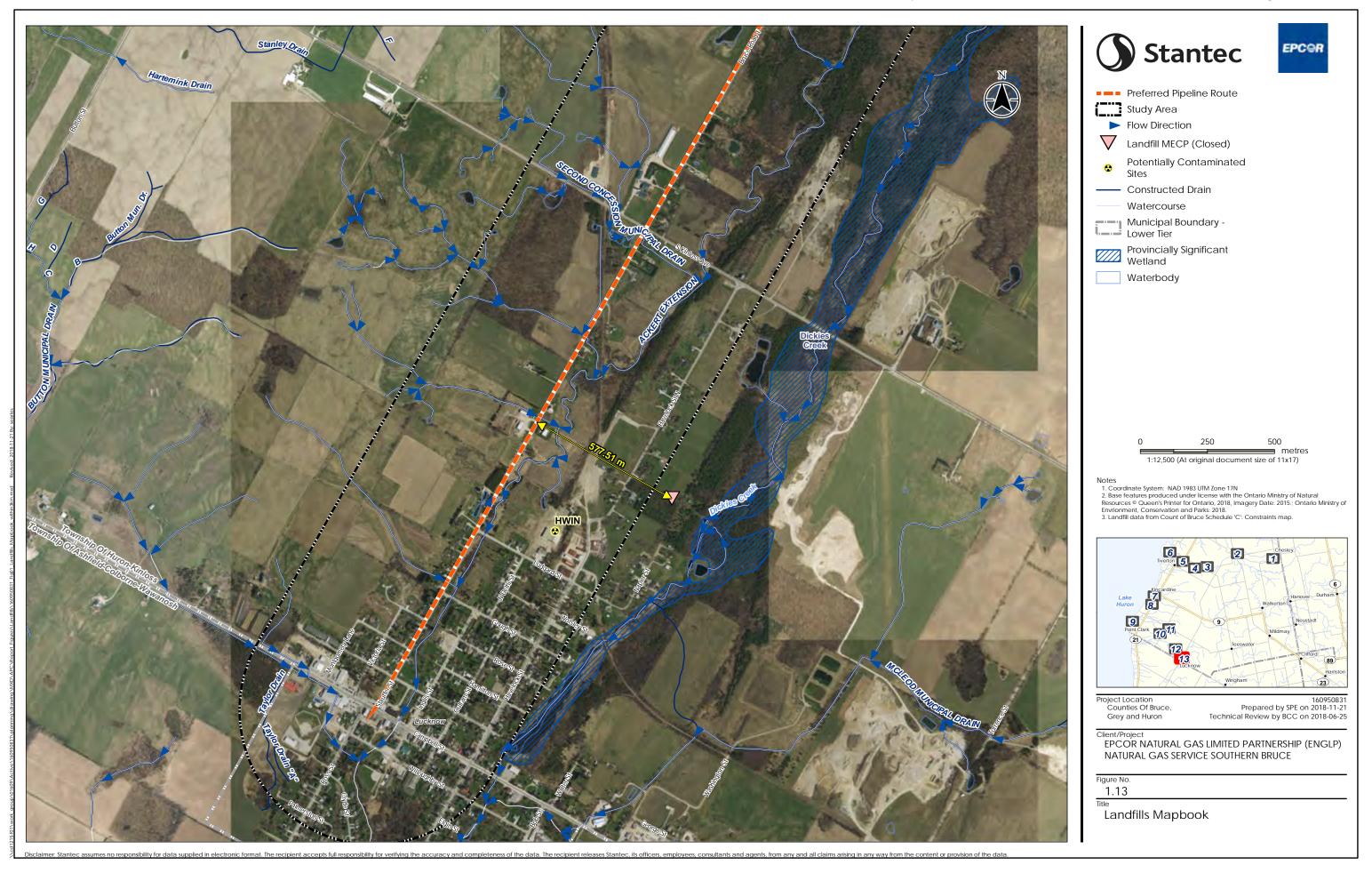












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Exhibit A Tab 10

Schedule 1 Page 1 of 5

LAND MATTERS

1. The Preferred Route as defined in section 2.7 of the Environmental Report for this project is

described in Tab 3, Schedule 1.

2. EPCOR has determined that the majority of the alignment will be within existing road allowance and

will not require additional easement agreements. EPCOR does not anticipate encountering barriers

that will force the line outside of the road allowance, but if the situation does arise, EPCOR will

address through the implementation of the mitigation measures identified in the Environmental

Report. The sections below outline EPCOR's approach for situations in which additional requirements

may potentially be needed.

Easements

3. If certain sections of the proposed Preferred Route are outside the road allowances (at this time the

alignment determined by EPCOR is within road allowances), EPCOR will obtain an easement from

private landowners or appropriate government authorities and/or municipalities.

4. If an easement is required on private lands, EPCOR will use its standard form to execute as required.

Approvals/Permits

5. A summary of the potential permits and regulatory requirements is included in Table 1-1 of the

Environmental Report for this project. EPCOR will also seek necessary licenses and approvals from

the TSSA Fuels Safety Division as per O. Reg. 210/01.

Encroachment Permit

6. EPCOR will obtain encroachment permits from the MTO to work within provincial highway 21 rights-

of-way.

7. An additional encroachment permit will be obtained from Grey County in order to access County

Roads along the proposed route.

Archeological Clearance

8. A Stage 1 Archaeological Assessment for the Preferred Route, as identified in section 2.7 of the

Environmental Report, was completed by Stantec and is contained in Appendix E of the

Environmental Report. The Stage 1 Archaeological Assessment was submitted to the OPCC and

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Exhibit A

Tab 10

Schedule 1 Page 2 of 5

Indigenous communities for their review and comment on July 17, 2018. As of the date of the Leave

to Construct submission, EPCOR received comments from the Historic Saugeen Métis. The Stage 1

Archaeological Assessment has been finalized and submitted to the MTCS for acceptance.

9. The Stage 1 Archaeological Assessment, involved background research and a property inspection, and

resulted in the determination that portions of the study area meet the criteria for archaeological

potential and require further Stage 2 Archaeological Assessment in accordance with section 2.1.1 and

2.1.2 of the MTCS 2011 Standards and Guidelines for Consultant Archaeologists (Government of

Ontario 2011) ("Archaeologist Guidelines").

10. As a result, some lands will require a Stage 2 Archaeological Assessment in accordance with the

Archaeologist Guidelines. The objective of the Stage 2 Archaeological Assessment will be to

document any archaeological resources within the portions of the study area, defined in section 2.2

of the Environmental Report, still retaining archaeological potential and to determine whether these

archaeological resources require further assessment. It is anticipated that the Stage 2 Archaeological

Assessment will be limited to only the areas subject to potential construction disturbance, and the

specific areas where a Stage 2 Archaeological Assessment is required will be determined once

detailed engineering is completed. It is the intent of EPCOR to stay within the previously disturbed

road allowance.

11. To reduce the disturbance to potential archaeological sites, EPCOR will employ trenchless technology

where appropriate.

12. The results from the Stage 1 Archaeological Assessment are being considered as EPCOR finalizes the

alignment in order to minimize or avoid disruption to sensitive archeological areas. In areas with the

potential for archaeological resources, where avoidance is not possible, EPCOR will conduct a Stage 2

Archaeological Assessment as indicated by the Stage 1 Archaeological Assessment report. . Mitigation

and protective measures for these areas are described in the Environmental Report, section 4.49 and

a summary of potential effects and recommended mitigation and protection measures can be found

in the Environmental Report in Table 4-7.

13. The Stage 1 Archaeological Assessment also identified several historic cemeteries (e.g. Verdun

Methodist Cemetery, Kincardine Cemetery, Evangelical United Brethren Cemetery, and Shiloh

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Exhibit A

Tab 10

Schedule 1

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Community Cemetery) within the proposed route. The route alignment avoids these areas and

EPCOR will follow the recommendations as described in the recommendations, found in section 4 of

Appendix E of the Environmental Report.

14. The results of any subsequent Stage 2 Archaeological Assessments will be filed with the Board and

the MTCS upon completion.

River Crossing

15. River and watercourse crossings will be completed using Horizontal Directional Drilling to minimize

environmental impacts. EPCOR will implement all environmental mitigation measures as outlined in

the Environmental Report as part of the EPP in order to avoid any serious harm to fish and fish

habitat. These measures include designing the drill path to an appropriate depth, completing the

work during the appropriate timing window, and installation of appropriate sediment and erosion

control measures (i.e., silt fencing around disturbed areas, development of a contingency plan, etc.).

If these measures are followed, a project of this nature is considered low risk to fish and fish habitat.

16. Permits under Ontario Regulations 169/06 and 164/06 (Regulation of Development, Interference with

Wetlands and Alterations to Shorelines and Watercourses), as per the Conservation Authorities Act,

1990 will be required for work within Saugeen Valley Conservation Authority and Maitland Valley

Conservation Authority Regulated Areas.

Highway Crossings

17. The Preferred Route minimized MTO highway crossings as much as possible. The mainline will cross

highway 21 at two locations: Bruce Road 20 in Kincardine and Concession Road 4 Huron-Kinloss. An

encroachment permit under the *Highways Act* will be obtained from the MTO.

Temporary Work Space Agreements

18. Temporary work space agreements will be required in sections of the route where the road

allowance is too narrow and/or construction procedures require a larger area than available.

Identification of these areas will be finalized during detailed design. Agreements for temporary

working and access rights will be negotiated with private land owners or municipalities where

required.

19. Schedule 3 contains agreements that will be negotiated and executed with landowners as required.

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Road Allowance

- 20. The Preferred Route will maximize the use of county and municipal road right-of-ways along the existing road allowances along Grey Road 25, Bruce Road 19, Bruce Road 20, Bruce Road 23, Lake Range Drive and Concession 4. Road use municipal consent agreements with Grey County and Bruce County will be obtained in order to install the pipeline along county road allowances.
- 21. The table below summarizes the road allowances that will be used for the construction of this project.

County	Road	Approximate Distance (km)
Grey County	Grey Road 25	11.0
	Grey Road 3	0.3
	Bentinck-Sullivan	5.7
Bruce County	Bruce Road 19	7.7
	Bruce Road 3	4.8
	Brant-Elderslie	8.4
	Concession 18	7.3
	Bruce Road 1	1.1
	Bruce Road 20	17.0
	Bruce Energy Centre	0.5
	Bruce Road 23	15.4
	Queen street	4.1
	Bruce Avenue	0.3
	Penetangore Row	0.6
	Saratoga Road	0.6
	Lake Range Drive	10.0
	Lake Range Drive-Point Clark	2.3
	Concession 4	17.8
	Bruce Road 7	3.1
	Huron Street (Bruce Road 7)	1.0
	Queen Street (Bruce Road 6)	0.5
	Bruce Road 6	2.6
	Grey Ox Avenue(Concession 4)	4.1
	Bruce Road 1	3.4
	Stauffer Street (Bruce Road 1)	0.8

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Exhibit A

Tab 10

Schedule 1

Page 5 of 5

Water

22. The contactor will execute construction methods to maintain dewatering of excavations to less than

400,000 liters per day. If dewatering activities that will generate between 50,000 and 400,000 liters

per day of water are required, EPCOR will register these activities with the Environmental Activity and

Sector Registry as per the Environmental Protection Act and the Ontario Water Resources Act, 1990.

Permits for Species at Risk

23. EPCOR will conduct additional consultation with the Ministry of Natural Resources and Forestry to

determine permit requirements under the Endangered Species Act ("ESA") for the protected species

identified in the Environmental Report.

24. For watercourses supporting aquatic species at risk, the proposed Horizontal Directional Drilling

construction method may require either the submission of a Notice of Activity Form or Information

Gathering Form to the MNRF to allow the Project to proceed without a permit under the ESA. This

will be confirmed through consultation with the MNRF.

Permits for Clearing Vegetation

25. No permit is necessary to clear vegetation, however, mitigation measures identified in the

Environmental Report will be followed to ensure nests are not harmed or destroyed during the bird

nesting season. All vegetation clearing and removal will be completed outside the primary breeding

and nesting period for birds to the extent possible. If vegetation clearing must occur during the bird

nesting season, nest sweeps will be required at a maximum of seven days prior to vegetation removal

during the bird nesting season (April 1 to August 31), as per the MBCA. If nests are found, clearing of

the area will cease until the young have naturally fledged.

Negotiations to Date

26. EPCOR has started consultation and discussion with upper and lower tier municipalities concerning

the mainline alignment along the road right of ways.

27. EPCOR has identified potential private land that will be required for the installation of pressure

regulating stations and valve sites. A preliminary list and affidavit regarding search of title is included

in Tab 10, Schedule 3.

Natural Gas Pipeline Form of Easement

PIPELINE EASEMENT

THIS AGREEMENT made the ● day of ●, 201●

BETWEEN:

EPCOR NATURAL GAS LIMITED PARTNERSHIP

("EPCOR")

- and -

[REGISTERED OWNER]

(the "Owner")

WHEREAS:

A. The Owner is the registered owner of an estate in fee simple, subject to such encumbrances, liens and interests as are at the date hereof set forth in the parcel register, in the lands situated in the Province of Ontario and legally described as:

PIN ●: [Legal Description] (the "Lands").

B. The Owner has agreed to grant to EPCOR a right-of-way and easement across all or a portion of the Lands in accordance with the terms and conditions contained in this Agreement.

IN CONSIDERATION OF the mutual covenants and agreements set forth herein and for other good and valuable consideration, the receipt and sufficiency of which is acknowledged by each of the parties, and in consideration of the payment of the Fee (as defined below) by EPCOR to the Owner, EPCOR and the Owner agree as follows:

1. GRANT

1.1 The Owner hereby grants, conveys and transfers unto EPCOR the exclusive right, licence, liberty, privilege and easement on, over, across, along, in, under and through that portion of the Lands outlined in red and/or shown as cross-hatched on the attached Schedule "A" and described as follows:

[Legal Description] (the "Right-of-Way")

to lay down, construct, operate, maintain, inspect, patrol (including aerial patrol), alter, relocate, remove, replace, reconstruct and repair a line of pipe together

with all facilities or works of EPCOR useful in connection with or incidental to its undertaking, including, but without limiting the generality of the foregoing, all such pipes, drips, valves, fittings, connections, meters, cathodic protection equipment and other equipment and appurtenances, whether or not similar to the foregoing, as may be useful or convenient in connection therewith or incidental thereto for the carriage, transmission, conveyance, transportation and handling of oil, natural and artificial gas and other gaseous or liquid hydrocarbons and any product or by-product thereof (such line of pipe together with such related facilities or works being referred to collectively as the "**Pipeline**").

1.2 The right to use the Right-of-Way in the manner stated in this Agreement, shall be for as long a period as EPCOR may desire to exercise the right.

2. FEE

2.1 Upon the execution of this Agreement by EPCOR and the Owner, EPCOR shall pay to the Owner the sum of ● (\$●) exclusive of Harmonized Sales Tax (the "Fee"), the receipt of which is acknowledged by the Owner. The payment of the Fee by EPCOR is the sole consideration and inducement for the execution by the Owner of this Agreement and is the total compensation payable by EPCOR to the Owner for the right to use the Right-of-Way as stated in this Agreement.

3. RIGHT OF ACCESS

- **3.1** EPCOR shall have the right at any time and from time to time to do whatever may be required for the enjoyment of the rights granted under this Agreement, including the removal of any boulder or rock or the trimming and removal of all trees, shrubs and other vegetation on, over, across, along, in, under and through the Right-of-Way.
- **3.2** Upon execution of this Agreement by EPCOR and the Owner, EPCOR may ingress and egress at any and all times on, over, along, across, along, in, under and through the Right-of-Way with its servants, agents, employees, contractors and subcontractors (collectively, the "**Authorized Representatives**"), on foot and/or with vehicles, supplies, machinery and equipment, for all purposes useful or convenient in connection with or incidental to the exercise and enjoyment of the rights granted pursuant to this Agreement.
- 3.3 EPCOR and its Authorized Representatives shall have the right of ingress and egress from the Right-of-Way at any and all times on, over across, along, in, under and through the Lands for the purposes of exercising the rights granted under this Agreement. This right of access shall be used only in cases of necessity or emergency, as determined by EPCOR in EPCOR's sole and absolute discretion. EPCOR shall pay reasonable compensation to the Owner of the Lands for any damage caused by EPCOR and its Authorized Representatives in the exercise of the right of access as granted to EPCOR under this Clause 3.3.

3.4 The rights, licences, liberties, privileges and easements specifically described in Clauses 1 and 3 are being referred to collectively as the "**Easement Rights**".

4. PIPELINE

- **4.1** Notwithstanding any rule of law or equity to the contrary, the Pipeline shall at all times remain a chattel and the personal property of EPCOR or its assigns and shall not become part of the Lands, notwithstanding that it may be annexed or affixed to the Lands or abandoned by EPCOR.
- **4.2** EPCOR shall install, construct, operate and maintain the Pipeline in a responsible manner so as to minimize damage to the Right-of-Way and shall, where practicable, after any such work restore the Right-of-Way to substantially its original level and condition, save and except for any soil rise above grade to allow for soil settlement. EPCOR shall not be responsible for any damages caused by subsidence after levelling is completed, provided the subsidence does not occur as a result of negligence on the part of EPCOR. Notwithstanding the foregoing, or Clause 7.1, EPCOR shall only be obligated to compensate the Owner for damage to buildings or improvements that may be placed within the Right-of-Way, and arising from the exercise by EPCOR of its rights under this Agreement, if EPCOR has given its prior written consent pursuant to Clause 5.2 to the placement of such buildings or improvements within the Right-of-Way.
- **4.3** If at any time EPCOR shall require the Right-of-Way for any part of the Pipeline to be located above ground, EPCOR shall consult with the Owner as to the appropriate location of such part of the Pipeline and shall locate such part of the Pipeline insofar as may be practicable so to do, in such a fashion as to provide a minimum of inconvenience to the Owner. EPCOR shall furnish to the Owner a plan of the intended location. EPCOR shall have the right to fence and use such portions of the Right-of-Way as may in its opinion be required. EPCOR shall compensate the Owner for any inconvenience caused to the Owner and for all damage occurring as a result of fencing any such portion of the Right-of-Way.
- **4.4** EPCOR may at any time for whatsoever reason or cause abandon the Pipeline in accordance with the then-applicable legislation, regulations and governmental directions. In the event of the abandonment of the Pipeline, EPCOR may, at its option, either leave the Pipeline in place or remove it. In the event of removal, EPCOR shall conserve, reclaim and remediate the portion of the Lands affected by the exercise of the rights herein granted, insofar as it is practicable to do so and in accordance with the then-applicable legislation, regulations and governmental directions. In the event of removal and subject to the then-applicable legislation, EPCOR agrees to discharge the Right-of-Way and the Easement Rights in the appropriate Land Registry Office within three (3) years from the effective date of the removal of the Pipeline.

5. OWNER'S USE OF RIGHT-OF-WAY

- **5.1** The Owner shall not use the Right-of-Way in any manner which may conflict with the rights of EPCOR as granted to EPCOR pursuant to this Agreement.
- **5.2** The Owner shall not, without the prior written consent of EPCOR, stockpile, excavate, drill, install, erect, construct or place above, through, on or under the Right-of-Way any pavement, building, fence, pit, well, pipe, foundation, sidewalk, or other structure or improvement, or do or permit to be done any mining, quarrying, land levelling or other work or activity of any like or similar nature on, in or under the Right-of-Way. The Owner shall not permit any of these activities to occur by others.
- **5.3** The Owner shall not alter the surface grade level of the Right-of-Way in any manner which would affect the rights granted to EPCOR pursuant to this Agreement.
- **5.4** The Owner shall not plant any trees within the Right-of-Way.
- **5.5** The Owner shall not store or otherwise place toxic, hazardous, dangerous, flammable, potentially explosive, noxious or waste substances or contaminants (the "**Hazardous Materials**") within the Right-of-Way, nor shall the Owner permit the storage or placement by a third party of such substances within the Right-of-Way.
- **5.6** The Owner shall be responsible for the maintenance of the Right-of-Way, including but not limited to such items as grass cutting and clean-up, replacement and repair of the Right-of-Way in such a manner that it shall be suitable at all times for EPCOR's use as permitted by this Agreement. The Owner shall undertake any maintenance directed by EPCOR to maintain the said Right-of-Way within sixty (60) days of receiving written notification.
- **5.7** Subject to the foregoing and to the provisions of applicable legislation, regulations and governmental directions, and provided that there is no interference with the Easement Rights, the Owner shall have the right to use and enjoy the Right-of-Way. In addition, EPCOR hereby grants permission to the Owner to cross the buried Pipeline with ordinary farming vehicles as necessary in connection with ordinary cultivation, as such vehicles are defined by EPCOR from time to time and communicated in writing to the Owner at the address set out in Clause 9.

6. ENVIRONMENTAL OBLIGATIONS

6.1 EPCOR and the Owner shall comply with all applicable legislation, regulations and governmental direction dealing with environmental issues,

including the Hazardous Materials (the "Environmental Laws"), related to the Right-of-Way.

- 6.2 The Owner represents and warrants that the Right-of-Way has not been used for the storage of the Hazardous Materials. If EPCOR encounters any Hazardous Materials in undertaking any work within the Right-of-Way, it shall give notice to the Owner. At the expense of the Owner, EPCOR (or, at EPCOR's option, the Owner) shall effect the removal of such Hazardous Materials in accordance with the Environmental Laws.
- **6.3** The responsibility of EPCOR and the Owner with respect to environmental obligations, as required by this Agreement, shall continue to be enforceable during and after the termination of this Agreement.

7. INDEMNITY AND COMPENSATION

- **7.1** Except for the negligence or willful misconduct of the Owner, its employees, agents, contractors, subcontractors and those persons for whom the Owner is responsible in law, EPCOR shall:
 - (a) be liable to the Owner for; and
 - (b) indemnify and save harmless the Owner, its employees, agents, contractors, subcontractors and those persons for whom the Owner is responsible in law from and against

any and all claims, suits, actions, demands, expenses, damages and costs which may be brought or made against the Owner or which the Owner may pay or incur by reason of any breach, violation or non-performance by EPCOR of any covenant, term or provision of this Agreement, or by reason of the gross negligence of EPCOR, its agents, employees, contractors, subcontractors and those persons for whom EPCOR is responsible in law, in the exercise of the rights as granted to EPCOR under this Agreement.

8. QUIET ENJOYMENT

8.1 EPCOR by performing and observing the terms and conditions of this Agreement shall and may peaceably hold and enjoy all the rights granted under this Agreement, without hindrance, molestation or interruption on the part of the Owner or any person claiming by, through, under, from or in trust for, the Owner.

9. ADDRESS FOR CONSENT OR NOTICE

9.1 Any written consent required to be obtained from, and any notices to be given to, EPCOR or the Owner, as the case may be, pursuant to this Agreement shall be in writing and obtained or effected by delivering the request or notice to

EPCOR or the Owner in person or by registered mail, postage prepaid, addressed as follows:

To EPCOR:

EPCOR Natural Gas Limited Partnership 39 Beech Street East Alymer, Ontario N5H 3J6

To the Owner:

[Insert the Owner's address]

When mailed, any such request or notice shall be deemed to be given to, and received by the addressee seven (7) days after the mailing thereof.

10. DISPUTE RESOLUTION

- **10.1** In the event of a determination by either party in regard to a matter in dispute between EPCOR and the Owner as to the interpretation or effect of any of the terms or conditions of this Agreement, and where notice of such determination has been delivered to EPCOR or the Owner, as the case may be, the determination shall be conclusively deemed to have been accepted by the parties, unless, within ten (10) days of the receipt of notice of the determination the party receiving the notice gives written notice to the other party (the "**Arbitration Notice**") of their desire to have the matter in dispute resolved by arbitration.
- **10.2** Within seven (7) days of receipt of the Arbitration Notice, the parties shall mutually appoint an arbitrator (the "**Arbitrator**"). In the event that the parties shall fail to agree on the appointment of the Arbitrator, then either party may, on written notice to the other, apply to the Ontario Superior Court of Justice for the appointment of the Arbitrator, pursuant to the *Arbitration Act*, 1991, S.O. 1991, c. 17. as amended (the "**Arbitration Act**").
- **10.3** The Arbitrator shall be directed to makes its determination on the basis of a presumption that this Agreement does not require amendments. Any determination of the Arbitrator shall include a determination as to payment of the costs of the arbitration. The determination of the Arbitrator shall be final and binding on the parties and there shall be no right to appeal of such decision to the courts.
- **10.4** Except as modified by this Agreement, the provisions of the Arbitration Act and its regulations or any successive legislation shall apply.

11. GENERAL

11.1 Entire Agreement

There are no conditions, either subsequent or precedent, except as stated in this Agreement. This Agreement is the entire agreement between EPCOR and the Owner and no representations or warranties have been made by EPCOR, except as stated in this Agreement.

11.2 Governing Law

This Agreement shall be governed by and construed in accordance with the laws in force in the Province of Ontario and the laws of Canada applicable therein.

11.3 EPCOR's Lands (Dominant Tenement)

The rights granted under this Agreement, including the Easement Rights, are declared to be appurtenant to the lands of EPCOR being:

PIN ●: [Legal Description]

11.5 Further Assurances

The parties hereto will execute such further assurances of the Right-of-Way and the rights granted under this Agreement as may be required.

11.6 Assignment

EPCOR shall, without the consent of the Owner, have the right to assign, in whole or in part, to any person, partnership, trust, government, agency or corporation, the rights granted, transferred and conveyed under this Agreement, including the Easement Rights or to grant the right to use the Right-of-Way, in whole or in part, in accordance with the terms and conditions contained in this Agreement to any person, partnership, trust, government, agency or corporation.

11.7 Enurement

This Agreement, including all covenants contained herein and all rights granted hereunder, is and shall be of the same force and effect for all intents and purposes as a covenant running with the Lands and shall extend to, be binding upon and enure for the benefit of the heirs, executors, administrators, successors-in-title and assigns of the parties respectively.

11.8 Severability

If any term or condition of this Agreement is invalid or unenforceable under any applicable statute or is declared invalid or unenforceable by a court of competent jurisdiction, then such term or condition shall be deemed to be severed from this

Agreement, provided however, that the remainder of this Agreement shall not be affected, shall continue in full force and effect and each remaining term and condition shall be valid and be enforced to the fullest extent permitted by law.

11.9 Additional Taxes

EPCOR agrees that no taxes, rates, assessments, charges, levies or impositions of any kind or nature of any governmental authority shall be payable by or placed upon the Owner in relation to any use of the Right-of-Way by EPCOR pursuant to this Agreement, and if any such taxes, rates, assessments, charges, levies or impositions shall be levied, imposed, or placed, EPCOR shall make payment thereof. All taxes or assessments in the nature of sales taxes, good and services taxes or value added taxes which may be charged, levied or assessed as a result of this Agreement, whether or not such taxes are charged, levied or assessed as against the Owner, shall be the responsibility of EPCOR, and EPCOR shall on written demand by the Owner, pay to the Owner any and all such taxes.

11.10 Outstanding Charges, Taxes, Liens, etc.

Notwithstanding any other provision in this Agreement, if EPCOR determines that:

- (a) there are outstanding charges, taxes, builders' liens, writs of execution, judgments or other encumbrances which are registered against the Lands; or
- (b) there are any overdue amounts outstanding under any agreement for sale, mortgage or other financial encumbrance that is registered against the Lands:

EPCOR may, but is not obligated to, pay all or a portion of the compensation or other amounts payable under this Agreement to the holder of such charge, lien, writ of execution, judgment, mortgage or other financial encumbrance, or to such vendor or mortgagee to satisfy and discharge such encumbrance or to obtain a postponement from the encumbrance holder. The payment of any amount to such third party shall be deemed to be payment of such amount to the Owner. For greater certainty, EPCOR shall not be required to obtain the Owner's consent prior to making such payment. EPCOR shall provide to the Owner written confirmation of any such payments within thirty (30) days of making such payments.

11.11 Sole Remedy

It is understood and agreed that notwithstanding any other provision in this Agreement and notwithstanding any rights that any person having an interest may have in law or in equity, should EPCOR fail to pay any payments payable

hereunder, the sole remedy of any such person having an interest shall be to recover from EPCOR such amount and any interest payable thereon, and in no event shall such person having an interest for whatever reason, interfere with, hinder, molest or interrupt EPCOR in its enjoyment of any of the rights granted, transferred and conveyed under this Agreement, including the Easement Rights.

11.12 Personal Information

The Owner consents to the collection and use of its personal information within this Agreement. EPCOR collects this type of personal information for the purposes of general land rights acquisition and regulatory disclosure. The Owner consents to the collection, use and disclosure of its personal information for these legitimate business purposes in relation to land matters of EPCOR.

11.13 In this Agreement:

- the word "shall" is to be read and interpreted as mandatory;
- the word "may" is to be read and interpreted as permissive;

and

11.9.3 the word "Owner" shall be read and interpreted as meaning an individual, a partnership, a corporation, a trust, an unincorporated organization, a government, or any department or agency thereof, and the heirs, executors, administrators or other legal representatives of any individual.

11.14 Counterparts

This Agreement may be executed in any number of counterparts and all of which taken together will constitute one and the same instrument. All parties agree that this Agreement may be transmitted by telecopier or electronic transmission via email and that the reproduction of signatures by way of telecopier or electronic transmission via email were executed originals will be treated as though such reproduction were executed originals and each party undertakes to provide the other with a copy of this Agreement bearing original signatures within a reasonable time after written request therefore.

[Remainder of page left intentionally blank. Signature page to follow.]

IN WITNESS WHEREOF EPCOR AND THE OWNER HAVE EXECUTED THIS AGREEMENT ON THE \bullet DAY OF \bullet 201 \bullet .

EPCOR:

Technical Approval:	EPCOR NATURAL GAS LIMITED PARTNERSH by its general partner EPCOR ONTAF UTILITIES INC.	
As to content:		
As to form:	Per:c/s	
OWNER:		
Witness:		
Witness:		

SCHEDULE "A"

RIGHT-OF-WAY

Natural Gas Pipeline Form of Work Space Agreement Osler Draft: September 5, 2018

WORK SPACE AGREEMENT

THIS AGREEMENT made the day \bullet of \bullet , 201 \bullet

BETWEEN:

[REGISTERED OWNER]

(the "Owner")

- and -

[EPCOR ENTITY]

("EPCOR")

WHEREAS:

A. The Owner is the registered owner of an estate in fee simple, subject to such encumbrances, liens and interests as are at the date hereof set forth in the parcel register, in the lands situated in the Province of Ontario and legally described as:

PIN ●: [Legal Description] (the "Lands").

- B. EPCOR has acquired a right-of-way (the "**Right-of-Way**") from the Owner on, over, across, along, in, under and through a certain portion of the Lands for the purpose, *inter alia*, of constructing and operating a pipeline and related facilities or works (collectively, the "**Pipeline**") as more particularly described in a grant of the Right-of-Way between the Owner and EPCOR.
- C. EPCOR wishes to enter on to and use that portion of the Lands described in Schedule "A" hereto (the "Work Space Area") for the purposes described in this Agreement.
- D. The Owner has agreed to allow EPCOR to enter on to and use the Lands on the terms and conditions hereafter described.

NOW THEREFORE in consideration of the payment of the sum of One Dollar (\$1.00) by EPCOR to the Owner, the receipt and sufficiency of which is hereby acknowledged by the Owner, and of the mutual agreements and terms and conditions contained herein, EPCOR and the Owner agree as follows:

1. Grant, Fee and Term. In consideration of the payment of the sum of \bullet Dollars ($\$ \bullet$) (the "Fee"), the Owner hereby grants to EPCOR and its directors, officers, servants, agents, employees, contractors, subcontractors and invitees (collectively, the "Authorized Representatives") the right, licence, privilege and liberty to clear, enter and use the Work Space Area with vehicles, materials, machinery and equipment for the period of \bullet (\bullet) months commencing on \bullet (the "Commencement Date") as set out in a written notice from EPCOR to

the Owner (the "Commencement Date Notice"), as such period may be extended from time to time (the "Term") pursuant to this Agreement, for all purposes useful and convenient in connection with or incidental to the exercise and enjoyment of the rights and privileges provided for in the Right-of-Way, including, without limitation, for access roads, horizontal directional drilling, construction lay down and staging areas and material and equipment storage (collectively referred to as "EPCOR's Works").

The Owner shall not use the Work Space Area in any manner which may conflict with the rights of EPCOR as granted to EPCOR pursuant to this Agreement.

EPCOR shall deliver the Fee to the Owner with the Commencement Date Notice.

- **2. Extension Rights.** EPCOR shall have the right, at its election, to extend the Term from time to time on a month by month basis for all or a portion of the Work Space Area. Such extension(s) shall be effective upon delivery of a written notice thereof to the Owner prior to the expiry of the Term, as same may have been extended, and payment to the Owner of a sum of Dollars (\$●). [NTD: Consider adding a formula for calculating consideration]
- **3. Costs.** The costs of EPCOR's Works shall be at the sole expense of EPCOR.
- **4. Compensation.** EPCOR shall compensate the Owner for any and all damage incurred by the Owner, where such damage occurs as a direct result of the operations of EPCOR and the Authorized Representatives in carrying out EPCOR's Works.
- 5. Indemnity. Unless loss or damage is directly attributable to the negligence or willful misconduct of the Owner, its servants, agents, employees and those persons for whom the Owner is responsible in law, EPCOR shall not have a claim against the Owner for any loss or damage by whomsoever caused to EPCOR's property. EPCOR shall indemnify and save the Owner harmless from and against any and all claims, demands, losses, or damages, of every nature and kind (including consequential losses or damages) which may hereafter be brought against (or suffered by) the Owner as a result of EPCOR's Works or in any way arising from EPCOR's or its Authorized Representatives' operations, except and to the extent that such claims, losses, or damages are directly attributable to the negligence or willful misconduct of the Owner or of its servants, agents, employees or those persons for whom the Owner is responsible in law.
- **6. Restoration.** EPCOR shall, as soon as it is reasonably practical to do so upon the expiry or earlier termination of the Term, restore the surface of the Work Space Area as may be reasonably possible back to the state and condition similar to the surrounding environment and consistent with the then-current use of the Lands. The costs of such restoration shall be at the sole expense of EPCOR.
- 7. **Termination Rights.** EPCOR may, at any time for whatsoever reason or cause, at its election on notice in writing to the Owner, terminate this Agreement. Upon giving such notice and provided EPCOR has restored the Work Space Area as required hereunder, if applicable, this Agreement shall be of no further effect and EPCOR shall stand relieved of all of its obligations hereunder other than those which accrued prior to the date of termination.

- **8. Compliance with Laws.** EPCOR shall ensure that the Authorized Representatives comply with all relevant legislation, regulations and governmental directions in relation to its activities on the Work Space Area
- **9. Insurance.** During the performance of EPCOR's Works, EPCOR shall maintain, and ensure that any of the Authorized Representatives maintain, in full force and effect the following policies of insurance (each an "**Insurance**"): [**NTD: EPCOR to confirm it for such coverage**]
 - (a) General Liability Insurance in an amount not less than (\$●) per occurrence for personal injury and/or property damage. Such policy shall be endorsed to include the following:
 - (i) Blanket Contractual Liability (including this Agreement);
 - (ii) Non-Owned Automobiles;
 - (iii) Attached Machinery (as applicable);
 - (iv) Hook Liability (as applicable);
 - (v) Independent Contractors (as applicable);
 - (vi) Products & Completed Operations (as applicable);
 - (vii) Excavation, collapse, shoring and pile driving (as applicable);
 - (viii) Broad from Property Damage;
 - (ix) Broad from Loss of Use (as applicable);
 - (x) Employees as Additional Insureds;
 - (xi) Sudden and accidental pollution liability; and
 - (xii) Cross liability.
 - (b) Standard Owned Automobile Liability coverage in an amount not less than (\$●) per accident for bodily injury and/or property damage.
 - (c) Environmental Liability Insurance in an amount not less than (\$●) per occurrence and in the aggregate.
- **10. Notices.** Any notices to be given to, EPCOR or the Owner, as the case may be, pursuant to this Agreement shall be in writing and obtained or effected by delivering such notice notice to EPCOR or the Owner in person or by registered mail, postage prepaid, addressed as follows:

To EPCOR:

[EPCOR Entity]

Land Servicing – Customer Connections SSC, main floor c/o 2000, 10423-101 St. NW Edmonton, Alberta T5H 0E8

To the Owner:

[Insert the Owner's address]

When mailed, any such request or notice shall be deemed to be given to, and received by the addressee seven (7) days after the mailing thereof. [NTD: Language similar to that found in the Pipeline Easement. Consider adding provision for electronic notice]

- 11. Entire Agreement. This Agreement sets forth the entire agreement and understanding between the parties as to the subject matter contained herein, and the Owner agrees that there are no representations, warranties, agreements, terms or conditions affecting this Agreement other than as contained herein.
- 12. No Interest in Land. This Agreement does not constitute a right or interest in land.
- 13. Assignment. EPCOR shall, without the consent of the Owner, have the right to assign, in whole or in part, to any person, partnership, trust, government, agency or corporation, interest in this Agreement or any of the rights, privileges and benefits accruing to EPCOR hereunder.

The Owner shall not assign all or any part of its interest in this Agreement or any of the rights, privileges and benefits accruing to the Owner hereunder without the prior written consent of EPCOR, which consent may not be unreasonably withheld or delayed. Upon and to the extent of such assignment to and assumption by the assignee, this Agreement shall thenceforth be construed as if originally made with such assignee or assignees instead of the Owner and the Owner shall, to the extent of such assignment and assumption, thereupon be relieved of all liabilities and obligations whatsoever arising out of this Agreement.

The Owner and, if applicable, the spouse of the Owner, each covenant and agree that if they transfer, assign, charge, lease or otherwise dispose of all or any part of their interest in the Lands they will obtain and deliver to EPCOR an assumption agreement in the form of Schedule "B" attached hereto, from such transferee in favour of EPCOR assuming and agreeing to be bound by all of the terms of this Agreement as if the transferee had been an original signatory to this Agreement.

- **14. Further Assurances.** The parties hereto agree to do, make and execute, if necessary, at no further cost or condition to the other except payment of reasonable out-of-pocket costs, such other instruments, plans, documents, acts, matters and things and take such further action as may reasonably be required by the other party in order to effectively carry out the true intent of this Agreement.
- **15. Governing Law.** This Agreement shall be governed by and construed in accordance with the laws in force in the Province of Ontario and the laws of Canada applicable therein.
- 16. TIME IS TO BE CONSIDERED OF THE ESSENCE OF THIS AGREEMENT and therefore, whenever in this Agreement either EPCOR or the Owner is required to do something by a particular date, the time for the doing of the particular thing shall only be amended by written agreement of EPCOR and the Owner.
- **17. Enurement.** The terms and conditions of this Agreement shall enure to the benefit of and be binding upon the respective heirs, executors, administrators, successors and assigns of EPCOR and the Owner.

- 18. Severability. If any term or condition of this Agreement is invalid or unenforceable under any applicable statute or is declared invalid or unenforceable by a court of competent jurisdiction, then such term or condition shall be deemed to be severed from this Agreement, provided however, that the remainder of this Agreement shall not be affected, shall continue in full force and effect and each remaining term and condition shall be valid and be enforced to the fullest extent permitted by law.
- **19. Survival.** The terms and conditions of this Agreement shall survive the expiry or earlier termination of the Term.
- **20. Counterparts.** This Agreement may be executed in any number of counterparts and all of which taken together will constitute one and the same instrument. All parties agree that this Agreement may be transmitted by telecopier or electronic transmission via email and that the reproduction of signatures by way of telecopier or electronic transmission via email were executed originals will be treated as though such reproduction were executed originals and each party undertakes to provide the other with a copy of this Agreement bearing original signatures within a reasonable time after written request therefore.

[Remainder of page left intentionally blank. Signature page to follow.]

IN WITNESS WHEREOF EPCOR AND THE OWNER HAVE EXECUTED THIS AGREEMENT ON THE \bullet DAY OF \bullet 201 \bullet .

OWNER: [REGISTERED OWNER]				
Per:				
Name:				
Per:				
Name:				
EPC	OR: COR ENTITY]			
Per:				
Per:				
	have authority to bind the corporation			

SCHEDULE "A" WORK SPACE AREA

SCHEDULE "B"

AGREEMENT TO BE BOUND

TO: [EPCOR ENTITY] ("EPCOR")

RE: [Transfer, assignment, sale, lease, charge, etc.] by [REGISTERED OWNER]

(the "Assignor") of PIN \bullet : [Legal Description] (the "Lands") to \bullet (the

"Assignee")

WHEREAS:

- A. EPCOR has acquired a right-of-way (the "**Right-of-Way**") from the Assignor on, over, across, along, in, under and through a certain portion of the Lands for the purpose, *inter alia*, of constructing and operating a pipeline and related facilities or works (collectively, the "**Pipeline**") as more particularly described in a grant of the Right-of-Way between the Assignor and EPCOR.
- B. In connection with the construction of the Pipeline the Assignor and EPCOR has entered into a Work Space Agreement dated ●, 201● wherein the Assignor granted to EPCOR, without limitation, the right to use a portion of the Lands for work space including, without limitation, space for access roads, horizontal directional drilling, construction lay down and staging areas and material and equipment storage (the "Work Space Agreement").
- C. The Assignor has entered into an [Agreement of Purchase and Sale/Lease/etc.] with the Assignee for the [sale/lease/etc.] of the Lands.
- D. The terms of the Work Space Agreement state that the Assignor will obtain an assumption agreement in favour of EPCOR from the Assignee agreeing in writing to be bound by all of the terms of the Work Space Agreement.

NOW THEREFORE for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the undersigned, intending to be legally bound hereby, hereby covenants and agrees as follows:

- 1. The Assignor has assigned all of its right, title and interest in the Work Space Agreement to the Assignee.
- 2. The Assignee acknowledges receipt of a copy of the Work Space Agreement.
- 3. The Assignee covenants and agrees with the Assignor to be bound by the Work Space Agreement and all of the terms and conditions of the Work Space Agreement to the same extent as if it had been an original party thereto, as it may be amended from time to time from and after the date hereof.

4.	The address of the Assigned Agreement is:	e for the purposes of	of Section 10 (Notices) of the Work Space
	Name: Address: Attention: Facsimile Number:	•	
5.	This Agreement to be Bour permitted assigns.	nd shall be binding	upon the undersigned, its successors and
DATE	CD this \bullet day of \bullet , 201 \bullet .		
ASSIC	SNEE:		
		By:	
			Name:
		By:	Title:
		27.	Name:
			Title:

PROVINCE OF ONTARIO)	IN THE MATTER OF title to subject lands outlined in Schedule "A";
)	AND IN THE MATTER OF the South Bruce Natural Gas Pipeline Project.
)	Natural Gas i sperme i roject.

I, ADRIANA DIAMOND, of the City of Vaughan, MAKE OATH AND SAY THAT:

- 1. I am a law clerk with the firm of Osler, Hoskin & Harcourt LLP, solicitors for EPCOR Natural Gas Limited Partnership on this matter and as such have knowledge of the matters hereinafter set out.
- I was provided with a report prepared by EPCOR Utilities Inc. outlining the preliminary locations of the pressure regulating stations and above-ground valve sites intended to be installed on the steel section of the South Bruce Natural Gas Pipeline. Accordingly, I conducted a search of title to these properties on February 14 and 15, 2019.
- 3. As a result of my searches of title, I determined the owners and encumbrancers with land, or registered interest in land, which would be affected by the construction of the proposed pipeline and facilities. Attached and marked as Schedule "A" is a list of all such owners and encumbrancers.

SWORN BEFORE ME)	
at the City of Toronto,)	
in the Province of Ontario,)	(1) Digums
this 19 th day of February, 2019.)	CE DIMINIO NO
On Old		Adriana Diamond
1111 1118		

LEGAL_1:53487889-1

Section	ID	PIN	Registered Owner(s)	Address for Service (Owners)	Encumbrancers	Address for Service (Encumbrancers)	Notes
1.2	-	-	-	-		-	land not required
1.3	С	33186- 0436				n/a	
	C1	33187- 0013			2 mtgs in favour of: St. Stanislaus – St. Casimir's Polish Parishes Credit Union Limited	220 Roncesvalles Avenue, Toronto ON M6R 2L7	
	C2	33187- 0010			Mtg in favour of: Farm Credit Canada	Suite 200 – 1133 St. George Boulevard, Moncton, New Brunswick E1E 4E1	
1.4	-	33182- 0127	The Trustees of the Vesta Congregation of the Methodist Church	The Presbyterian Church in Canada 50 Wynford Drive Toronto, ON M3C 1J7 Canada - The United Church of Canada 3250 Bloor Street West, Suite 200 Toronto ON M8X 2Y4		n/a	Municipal tax office said that based on roll number for this PIN, the land is owned by the Presbyterian Church – included addresses for United and Presbyterian as Methodist church is associated with

						both
1.5	P	33181- 0760			n/a	
	P1	33189- 0094			n/a	
	P2	33189- 0017			n/a	
1.6	-	33290- 0035			n/a	
1.7	T1	33293- 0003		Mtg in favour of: The Toronto-Dominion Bank	56 Main Street South, P.O. Box 520, Seaforth ON NOK 1W0	

	1				T	1	1
	T2	33287- 0130					
1.8	-	33286- 0162	BEC Business & Innovation Centre Inc.	1-2351 Huron Street, DANCOR Campus, London ON N5V 0A8	Mtg in favour of: Huron Bio- Energy Inc.	1-2351 Huron Street, DANCOR Campus, London ON N5V 0A8	
1.9	-	33293- 0134	The Corporation of the Township of Kincardine	Municipality of Kincardine 1475 Concession 5, Kincardine ON N2Z 2X6		n/a	this address taken from the municipality's website
	alternate 1	33293- 0193	The Corporation of the Municipality of Kincardine	Municipality of Kincardine 1475 Concession 5, Kincardine ON N2Z 2X6		n/a	They updated their name from "township" to "municipality" in 2014 but did not update title to the other two properties to reflect this change
	alternate 2	33293- 0182	The Corporation of the Township of Kincardine	Municipality of Kincardine 1475 Concession 5, Kincardine ON N2Z 2X6		n/a	
	alternate 3	33293- 0026				n/a	

1.10	K1	33303- 0194		Easement: KN15145 in favour of The Hydro-Electric Power Commission of Ontario (now known as Hydro One)	Hydro One Networks Inc. 483 Bay Street, South Tower, 8 th Floor Reception, Toronto ON M5G 2P5	Owner's Address from Corporation Profile Report - Several other easements, but only the Hydro One easement is near your plotted K1 marker
	K2 & K3	33303- 0866			N/a - See notes	There are easements, but they are not near the relevant sites as plotted on your map

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FIRST NATIONS AND MÉTIS COMMUNITY CONSULTATIONS

Consultation Summary

EPCOR looks to foster positive and productive relationships with all Indigenous rights-holder groups
including First Nations and Métis communities. EPCOR views First Nations and Métis communities as
an integral part of the communities in which EPCOR operates. EPCOR works with First Nations and
Métis communities to build an understanding of project related interests, ensure regulatory
requirements are met, mitigate or avoid project impacts, and provide mutually beneficial
opportunities.

2. The information presented in this section reflects EPCOR's First Nations and Métis communities' engagement activities for the Project up to September 14, 2018, although such engagement is continuing and will continue throughout construction and the life of the Project.

First Nations and Métis Community Engagement Program Objectives

3. The design of the First Nations and Métis community engagement program was based on adherence to the Environmental Guidelines. The consultation program for the Project included the following objectives:

- Identify interested and potentially affected parties early in the process.
- Inform and educate interested parties about the nature of the Project, potential impacts, and proposed mitigation measures.
- Identify opportunities for participation in the consultation program in a clear, concise, relevant and timely manner.
- Provide a forum for the identification of issues.
- Identify how input will be used in the planning stages of the Project.
- Summarize issues for resolution and resolve as many issues as feasible.
- Revise the program to meet the needs of those being consulted, as feasible.
- Develop a framework for ongoing communication during the construction and operation phase of the Project.

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First Nation and Métis Community Identification

4. In the fall of 2015, prior to receiving the MOE Duty to Consult delegation letter, EPCOR contacted

several First Nations and Métis communities and delivered a Letter of Commencement for the

Project, notification of open houses and an invitation to either attend the open house. The following

First Nations and Métis communities were contacted:

Saugeen First Nation

Chippewas of Nawash Unceded First Nation

• Métis Nation of Ontario Great Lakes Métis Council

• Historic Saugeen Métis

Beausoleil First Nation

Chippewas of Kettle and Stony Point First Nation

5. A series of community open houses were held in partnership with Arran-Elderslie, Huron Kinloss and

Kincardine: Thursday, October 15, 2015 at the Chesley Community Centre; Friday, October 16, 2015

at the Ripley-Huron Community Centre; and Saturday, October 17, 2015 at the Kincardine Municipal

Administration Building.

6. In the event that a First Nations or Métis community was unable to attend the information sessions,

these groups were invited to suggest a date and time convenient to them, and its consultation staff,

to meet and discuss the proposed Project. In November and December of 2015, EPCOR met with the

Saugeen First Nation and Chippewas of Nawash Unceded First Nation (acting together as the Saugeen

Ojibway Nation) and the Historic Saugeen Métis to discuss the Project.

7. The Métis Nation of Ontario contacted EPCOR by telephone around the same time and asked

questions about the Project but did not request to meet.

8. The Chippewas of Kettle and Stony Point First Nation wrote a letter to EPCOR, dated November 16,

2015, that indicated they had no concerns with the project but asked to be kept informed of future

developments.

9. The letter indicated the proponent to be Hydro One: EPCOR followed up on November 20, 2015 with

the consultation coordinator from Chippewas of Kettle and Stony Point First Nation to confirm they

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understood that EPCOR was the proponent and that there were no concerns with the project at this

time.

Ministry of Energy ("MOE") Delegation of Duty to Consult

10. On April 19, 2017, EPCOR received correspondence from the MOE that the duty to consult had been

delegated to the Company (See Tab 11, Schedule 2). Further information on EPCOR's consultation

activities can be found later in this schedule under the heading First Nations and Métis Nations

Identification and subsequent sections. The following First nations and Métis communities were

included in the MOE's delegation letter:

• Saugeen First Nation

• Chippewas of Nawash Unceded First Nation

• Métis Nation of Ontario Great Lakes Métis Council

• Historic Saugeen Métis

11. Subsequent to the issuance of the Southern Bruce Expansion Decision²¹, the consultation program for

the Project was reinitiated, with a follow up study commencement letter in May 8, 2018. First Nations

and Métis communities identified as being either affected by or having an interest in the Project were

notified and engaged in order to identify and address concerns about the Project. Leading up to

submission of the leave to construct application, EPCOR has met with the Saugeen Ojibway Nation

("SON"), Métis Nation of Ontario and Georgian Bay Traditional Territory Consultation Council and

Historic Saugeen Métis ("HSM").

12. EPCOR further engaged the Métis Nation of Ontario; the Ministry of Rights-Holder Affairs; and

Indigenous and Northern Affairs Canada in order to inform them of the Project and commence

consultation.

13. In the MOE's letter to EPCOR clarifying the duty to consult requirements, the Great Lakes Traditional

Territory Consultation Council ("GBTTCC") was identified as an additional community that may have

an interest in the Project based on Treaty rights.

14. The Métis Nation of Ontario also requested that the GBTTCC be consulted.

-

²¹ EB-2016-0137/0138/0139: Decision and Order - South Bruce Expansion Application, April 12, 2018

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15. The MOE clarified on June 20, 2018 that they would defer to the recommendation of the Métis

Nation of Ontario and that consultation via the MNO with the GBTTCC would suffice. Correspondence

between EPCOR, the MOE, and affected communities regarding consultation can be found in Tab 11,

Schedules 2 and 3.

16. Further to EPCOR's determination of potentially affected First Nations and Métis communities, the

Aboriginal and Treaty Rights Information System was reviewed to determine additional information

on the location and nature of established and potential Rights-Holder and Treaty rights. The search

confirmed that the Project does not traverse any reserve land.

17. Information gathered during the course of EPCOR's engagement with First Nations and Métis

communities was incorporated into the accompanying Environmental Report (see Tab 8 Schedule 2).

EPCOR continues to have conversations with these First Nations and Métis communities to

understand, and incorporate where possible, their feedback on the Environmental Report and the

Project as a whole.

Overview of First Nations and Métis Nations Engagement Program Activities

18. First Nation and Métis community consultation has been conducted through phone calls, in-person

meetings, Project mail-outs, open houses and email communications. During these engagement

activities, EPCOR representatives have provided an overview of the Project, responded to questions

and interests, and reviewed input and concerns expressed by First Nations and Métis communities. In

order to accurately document First Nations and Métis community engagement activities and ensure

follow-up, applicable supporting documents are tracked.

Project Information Mail Outs

19. EPCOR distributed an initial study commencement letter via mail or e-mail to First Nations and Métis

community leaders and consultation representatives on October 8, 2015 to inform them of the

Project and how they could get involved and provide comments on the Project. The Project was

reinitiated and a follow up study letter was sent to the First Nations and Métis communities on May

8, 2018.

20. The purpose of these letters was to provide Project updates and details on the Information Sessions,

as well as to solicit information on planning principles or guidelines that may affect the Project,

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background environmental and socio-economic information, and other developments proposed in the area. The letter to First Nations and Métis communities also requested information on adverse impacts that the Project may have on constitutionally protected Treaty rights and measures for mitigating those adverse impacts.

Calls and Emails

21. EPCOR has engaged all identified First Nations and Métis communities either by phone, email and/or standard mail. These methods were used to notify First Nations and Métis communities of the Project.

Face to Face Meetings

22. EPCOR took the opportunity to meet face to face with the First Nations and Metis communities that requested these meetings. Initially, EPCOR met with Historic Saugeen Métis (HSM) on November 30, 2015, and Saugeen Ojibway Nation (SON) on December 3, 2015. After the projected was reinitiated, EPCOR received requests for face to face meetings. EPCOR met with representatives from the Métis Nation of Ontario (MNO) on June 14, 2018; the SON on June 15, 2018; and the HSM on June 25, 2018. EPCOR again met with the SON on November 9, 2018 to review comments they had on the Stage 1 Archaeology Assessment and Environmental Report. At that meeting it was decided that SON and EPCOR's representatives would cooperatively conduct a field review of some areas of high importance/likelihood of Stage 2 requirements for archaeological assessment. These field studies were conducted the week of November 19, 2018.

Summary of Responses

23. Of the seven First Nations and Métis communities that were identified and contacted, five expressed an interest in the Project and requested copies of the completed archaeological assessment reports, one communicated that they had no concerns with the Project as detailed and one did not respond to Project notification. Between June 15 and June 26, 2018, EPCOR provided copies of the Stage 1 Archaeological Assessment report to the interested communities. On July 18, 2018, EPCOR provided the draft version of the Environmental Report to the interested First Nations and Métis communities. EPCOR is committed to sharing subsequent archaeological assessments and the Environmental Report with the interested First Nations and Métis communities.

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- 24. The five First Nations and Métis communities that expressed interest in learning more about the Project presented EPCOR with their consultation models, which developed into three specific engagement groups:
 - The Saugeen Ojibway Nation ("SON"): representing the Saugeen First Nation and the Chippewas of Nawash Unceded First Nation
 - The GBTTCC: representing the Métis Nation of Ontario ("MNO") and the Métis communities that hold traditional rights in the project area
 - The Historic Saugeen Métis ("HSM")
- 25. Interests raised by these Nations to date are briefly summarized below:

SON

- SON expressed interest in understanding what studies had already been conducted and
 which remained outstanding. SON had a particular interest in how EPCOR would determine
 whether there would be a Stage 2 Archaeological Assessment and how they could participate
 in that process.
- SON looked to understand the leave to construct application process as well as other regulatory mechanisms that had taken place, such as the Generic Hearing.
- SON expressed a concern related to streams, and the depths that will be drilled underneath
 these streams. HDD is the preferred method, however there is still potential for groundwater
 interference.
- SON looked for clarification as to the route alignment and if it would physically be located in road-allowance/ROW or further out
- SON wanted to know who is responsible for identifying the turtle nesting habitats
- SON requested an infographic detailing the HDD process, the entry and exit pit locations, the average length range for the HDD, space requirements etc.
- SON expressed a concern with phragmites along the route, and the potential for the plant to spread due to construction activities. It was suggested that Dr. Janice Gilbert should be consulted.
- SON enquired as to where the source of seed mix for reseeding would come from and if there was an ability for SON to provide input to the seed mix

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- SON stated that if the construction activities take place later in the season, seasonal depressions such as ephemeral ponds may no longer be present and enquired as to whether emergence surveys would be conducted in the spring to determine where potential nesting sites are located
- SON indicated that there may be some gaps in archaeological review and that some
 resources more pertinent to the Southern Bruce area may have been overlooked. It was
 suggested that new information as provided by the SON should be reviewed and high-lighted
 areas could be visited.

GBTTCC

- GBTTCC had questions regarding where and how EPCOR currently operates across Canada and what its future plans might be.
- GBTTCC looked to understand the economics of the Project and the type of risk-tolerance EPCOR had.
- GBTTCC looked to understand general construction timelines, methods and routing.
- GBTTCC looked to get a greater sense of the type of environmental mitigation strategies that would be used to both protect bio-diversity during construction, through operations and in the event of an accidental discharge.

HSM

- HSM looked to understand the leave to construct application process as well as other regulatory mechanisms that had taken place, such as the Generic Hearing. The HSM specifically had interest in how the timelines for the Project approval had evolved.
- HSM expressed interest in how EPCOR would determine whether there would be a Stage 2
 Archaeological Assessment and how they could participate in that process.

Ongoing First Nations and Métis Community Engagement Activities

26. EPCOR will continue to engage with all identified First Nations and Métis communities in open and transparent dialogue concerning the Project. EPCOR will continue to offer meaningful opportunities for the exchange of information, responding to inquiries, and hearing and responding to any interests and concerns that may arise, including those related to potential economic and business

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opportunities. This engagement will occur through Project update notification, community meetings

and continued involvement in reviewing the Archaeological Assessments and Environmental Report

required for this Project. EPCOR will hear and address (as feasible) concerns and seek information on

the exercise of, and potential impacts to, Treaty rights in the Project area. EPCOR anticipates that it

will continue its active involvement in community events and initiatives in an effort to maintain long-

term relationships with First Nations, Métis communities and rights-holder community groups.

27. A summary of EPCOR's First Nations and Métis community engagement activities for the Project

current as of February 13, 2019 is provided in Tab 11, Schedule 4.

Ministry of Energy

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Indigenous Energy Policy

VIA EMAIL

May 4, 2017

Andrew Laycock Specialist, Government Relations EPCOR Utilities Inc. Suite 2000 10423-101 St. Edmonton AB T5H 0E8

Re: Southern Bruce County Natural Gas Pipeline

Dear Mr. Laycock:

Thank you for your email dated March 6, 2017 notifying the Ministry of Energy of the intention of EPCOR Utilities Inc. (EPCOR) to apply for Leave to Construct for the Owen Sound Reinforcement Phase 4 Pipeline Project and requesting clarification on Duty to Consult requirements.

I understand that EPCOR is proposing to construct a natural gas transmission pipeline network servicing communities in Southern Bruce County. The transmission pipeline will have a total length of approximately 145km. The pipeline with begin at the Dornoch Station and will terminate in the community of Lucknow.

The gas distribution network, as currently proposed, will service the communities of Chelsey, Paisley, Kincardine, Point Clark, Lurgan Beach, Ripley and Lucknow. In addition to servicing these seven communities, the project will provide opportunity to service residences and commercial and industrial businesses along the route.

The Ministry has reviewed the information provided relative to its current understanding of the interests of First Nation and Métis communities in the area and has determined that it may have the potential to affect First Nation and Métis communities who hold or claim Aboriginal or treaty rights protected under Section 35 of Canada's *Constitution Act*, 1982.

As you are aware, the Government of Ontario (the Crown) has a constitutional duty to consult and accommodate First Nation and Métis communities when Crown project

approvals may lead to an appreciable adverse impact on established or asserted Aboriginal or treaty rights. While the legal duty to consult falls on the Crown, the Crown may delegate the day-to-day, procedural aspects of consultation to project proponents. The Ministry of the Energy is delegating the procedural aspects of consultation to EPCOR through this letter.

Based on the Crown's preliminary assessment of First Nation and Métis community rights and project impacts, the following Aboriginal communities should be consulted on the basis that they have or may have constitutionally protected Aboriginal or treaty rights that may be adversely affected by the Project:

Community	Mailing Address
Saugeen First Nation*	RR 1
	Southampton ON N0H 2L0
Chippewas of Nawash Unceded First	RR 5
Nation *	Wiarton ON N0H 2T0
Métis Nation of Ontario Great Lakes	380 9 th Street East
Métis Council **	Owen Sound ON N4K 1P1
Historic Saugeen Métis	204 High Street
	Southampton ON N0H 2L0

Notes:

- * Saugeen Ojibway Nation (SON) is collectively the Chippewas of Nawash Unceded First Nation and Saugeen First Nation. You should contact the SON's Environment Office at 25 Maadookii Subdivision, Neyaashiinigmiing ON N0H 2T0 to discuss how best to share project information and to engage with the SON. This office is responsible for managing the collective consultation interests and activities of both SON communities.
- ** It is common practice to copy the Métis Nation of Ontario Consultation Unit on correspondence to MNO community Councils at 500 Old St. Patrick Street, Unit D Ottawa ON K1N 9G4.

This rights-based consultation list is based on information that is subject to change. First Nation and Métis communities may make new rights assertions at any time, and other developments (e.g. the discovery of Aboriginal archaeological sites) can occur that may require additional Aboriginal communities to be notified and/or consulted. If you become aware of potential rights impacts on communities that are not listed above at any stage of the consultation and approval process, kindly bring this to the attention of the Ministry with any supporting information regarding the claim. The Ministry will then assess whether it is necessary to include the community on the rights-based consultation list above.

The Ministry relies on consultation conducted by proponents when it assesses the Crown's obligations and directs proponents during the regulatory process. EPCOR's responsibilities for procedural aspects of consultation include:

- Providing the First Nation and Métis communities with timely notice of the project for the purposes of considering possible impacts on their Aboriginal and/or treaty rights;
- Providing First Nation and Métis communities with information about the project including anticipated impacts, and information on timelines;
- Following up with First Nation and Métis communities to ensure they received project information and that they are aware of the opportunity to express comments and concerns about the project;
- · Explaining the regulatory and approval processes that apply to the project;
- Gathering information about how the project may adversely impact the relevant Aboriginal and/or treaty rights (for example, hunting, fishing) or sites of cultural significance (for example, burial grounds, archaeological sites);
- Considering the comments and concerns raised by First Nation and Métis communities and providing responses;
- Where appropriate, discussing accommodation, including mitigation or other measures to address potential adverse impacts on Aboriginal and/or treaty rights;
- Where appropriate, developing and discussing with the Crown appropriate accommodation measures;
- Taking reasonable steps to foster positive relationships with the First Nation and Métis communities;
- Bearing the reasonable costs associated with these procedural aspects of consultation; and
- Maintaining records of activities in relation to carrying out the delegated procedural aspects of consultation and providing information to the Ministry.

If you have any questions about this letter or require any additional information please contact Michelle Schlag, Senior Advisor at 416-327-7158 or michelle.schlag@ontario.ca

Sincerely,

Shannon McCabe

A/Manager

Indigenous Energy Policy

C: Rooly Georgopoulos, Senior Project Manager Stantec Consulting Ltd Mark Iamarino, Environmental Planner Stantec Consulting Ltd

Ministry of Energy

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Ministère de l'Énergie

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Tél: (416) 314-2599



Indigenous Energy Policy

VIA EMAIL

May 4, 2017

George Govier Lands and Resource Coordinator Historic Saugeen Métis 204 High Street Southampton ON N0H 2L0

Re: Southern Bruce County Pipeline Project

Dear Mr. Govier:

This letter is to notify you that the Ministry of Energy on behalf of Ontario has delegated the procedural aspects of consultation to EPCOR Utilities Inc. (EPCOR) for its proposed Southern Bruce County Pipeline Project in relation to the Ontario Energy Board's Leave to Construct approval process.

EPCOR is proposing to construct a natural gas transmission pipeline network servicing communities in Southern Bruce County. The transmission pipeline will have a total length of approximately 145km. The pipeline with begin at the Dornoch Station and will terminate in the community of Lucknow.

The gas distribution network as currently proposed will service the communities of Chelsey, Paisley, Kincardine, Point Clark, Lurgan Beach, Ripley and Lucknow. In addition to servicing these seven communities, the project will provide opportunity to service residences and commercial and industrial businesses along the route.

I encourage representatives of your community to participate in efforts made by EPCOR to consult your community on its proposed project so that you can receive project information and understand if there are any potential impacts on Aboriginal or treaty rights. The consultation process is an opportunity to provide your community's feedback to EPCOR and the Crown, including any suggestions or proposals your community might have for mitigating, avoiding or accommodating any potential impacts to Aboriginal or treaty rights. Ministry officials are also available should you wish to contact

the Crown directly. Please note that none of the foregoing should be taken to imply approval of this project.

Should you or any members of your community have any questions regarding the material above, please contact Michelle Schlag, Senior Advisor at 416-327-7158 or michelle.schlag@ontario.ca.

Sincerely,

Shannon McCabe

A/Manager

Indigenous Energy Policy

C: Andrew Laycock, Specialist, Government Relations EPCOR Utilities Inc. Rooly Georgopoulos, Senior Project Manager Stantec Consulting Ltd Mark lamarino, Environmental Planner Stantec Consulting Ltd

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Indigenous Energy Policy

VIA EMAIL

May 4, 2017

Peter Coture, President Great Lakes Métis Council 380 9th Street East Owen Sound ON N4K 1P1

Re: Southern Bruce County Pipeline Project

Dear Mr. Coture:

This letter is to notify you that the Ministry of Energy on behalf of Ontario has delegated the procedural aspects of consultation to EPCOR Utilities Inc. (EPCOR) for its proposed Southern Bruce County Pipeline Project in relation to the Ontario Energy Board's Leave to Construct approval process.

EPCOR is proposing to construct a natural gas transmission pipeline network servicing communities in Southern Bruce County. The transmission pipeline will have a total length of approximately 145km. The pipeline with begin at the Dornoch Station and will terminate in the community of Lucknow.

The gas distribution network as currently proposed will service the communities of Chelsey, Paisley, Kincardine, Point Clark, Lurgan Beach, Ripley and Lucknow. In addition to servicing these seven communities, the project will provide opportunity to service residences and commercial and industrial businesses along the route.

I encourage representatives of your community to participate in efforts made by EPCOR to consult your community on its proposed project so that you can receive project information and understand if there are any potential impacts on Aboriginal or treaty rights. The consultation process is an opportunity to provide your community's feedback to EPCOR and the Crown, including any suggestions or proposals your community might have for mitigating, avoiding or accommodating any potential impacts to Aboriginal or treaty rights. Ministry officials are also available should you wish to contact

the Crown directly. Please note that none of the foregoing should be taken to imply approval of this project.

Should you or any members of your community have any questions regarding the material above, please contact Michelle Schlag, Senior Advisor at 416-327-7158 or michelle schlag@ontario.ca.

Sincerely,

Shannon McCabe

A/Manager

Indigenous Energy Policy

C: Andrew Laycock, Specialist, Government Relations EPCOR Utilities Inc.
Rooly Georgopoulos, Senior Project Manager Stantec Consulting Ltd
Mark Iamarino, Environmental Planner Stantec Consulting Ltd
Métis Nation of Ontario Consultation Unit

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Indigenous Energy Policy

VIA EMAIL

May 4, 2017

Chief Gregory Nadjiwon Chippewas of Nawash Unceded First Nation RR 5 Wiarton ON N0H 2T0

Re: Southern Bruce County Pipeline Project

Dear Chief Nadjiwon:

This letter is to notify you that the Ministry of Energy on behalf of Ontario has delegated the procedural aspects of consultation to EPCOR Utilities Inc. (EPCOR) for its proposed Southern Bruce County Pipeline Project in relation to the Ontario Energy Board's Leave to Construct approval process.

EPCOR is proposing to construct a natural gas transmission pipeline network servicing communities in Southern Bruce County. The transmission pipeline will have a total length of approximately 145km. The pipeline with begin at the Dornoch Station and will terminate in the community of Lucknow.

The gas distribution network as currently proposed will service the communities of Chelsey, Paisley, Kincardine, Point Clark, Lurgan Beach, Ripley and Lucknow. In addition to servicing these seven communities, the project will provide opportunity to service residences and commercial and industrial businesses along the route.

I encourage representatives of your community to participate in efforts made by EPCOR to consult your community on its proposed project so that you can receive project information and understand if there are any potential impacts on Aboriginal or treaty rights. The consultation process is an opportunity to provide your community's feedback to EPCOR and the Crown, including any suggestions or proposals your community might have for mitigating, avoiding or accommodating any potential impacts to Aboriginal or treaty rights. Ministry officials are also available should you wish to contact

the Crown directly. Please note that none of the foregoing should be taken to imply approval of this project.

Should you or any members of your community have any questions regarding the material above, please contact Michelle Schlag, Senior Advisor at 416-327-7158 or michelle.schlag@ontario.ca.

Sincerely,

Shannon McCabe

A/Manager

Indigenous Energy Policy

C: Andrew Laycock, Specialist, Government Relations EPCOR Utilities Inc. Rooly Georgopoulos, Senior Project Manager Stantec Consulting Ltd Mark Iamarino, Environmental Planner Stantec Consulting Ltd SON Environment Office

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Tél: (416) 314-2599



Indigenous Energy Policy

VIA EMAIL

May 4, 2017

Chief Lester Anoquot Saugeen First Nation RR 1 Southampton ON N0H 2L0

Re: Southern Bruce County Pipeline Project

Dear Chief Anoquot:

This letter is to notify you that the Ministry of Energy on behalf of Ontario has delegated the procedural aspects of consultation to EPCOR Utilities Inc. (EPCOR) for its proposed Southern Bruce County Pipeline Project in relation to the Ontario Energy Board's Leave to Construct approval process.

EPCOR is proposing to construct a natural gas transmission pipeline network servicing communities in Southern Bruce County. The transmission pipeline will have a total length of approximately 145km. The pipeline with begin at the Dornoch Station and will terminate in the community of Lucknow.

The gas distribution network as currently proposed will service the communities of Chelsey, Paisley, Kincardine, Point Clark, Lurgan Beach, Ripley and Lucknow. In addition to servicing these seven communities, the project will provide opportunity to service residences and commercial and industrial businesses along the route.

I encourage representatives of your community to participate in efforts made by EPCOR to consult your community on its proposed project so that you can receive project information and understand if there are any potential impacts on Aboriginal or treaty rights. The consultation process is an opportunity to provide your community's feedback to EPCOR and the Crown, including any suggestions or proposals your community might have for mitigating, avoiding or accommodating any potential impacts to Aboriginal or treaty rights. Ministry officials are also available should you wish to contact

the Crown directly. Please note that none of the foregoing should be taken to imply approval of this project.

Should you or any members of your community have any questions regarding the material above, please contact Michelle Schlag, Senior Advisor at 416-327-7158 or michelle.schlag@ontario.ca.

Sincerely

Shannon McCabe

A/Manager

Indigenous Energy Policy

C: Andrew Laycock, Specialist, Government Relations EPCOR Utilities Inc. Rooly Georgopoulos, Senior Project Manager Stantec Consulting Ltd Mark Iamarino, Environmental Planner Stantec Consulting Ltd SON Environment Office



Stantec Consulting Ltd. 300W-675 Cochrane Drive, Markham, ON L3R 0B8



July 18, 2018 File: 160950831

Attention: Mr. Doran Ritchie Land Use Planning Coordinator SON Environmental Office Saugeen Ojibway Nation (SON) 25 Maadookii Subdivision Neyaashiinigmiing, ON, NOH 2TO

Dear Mr. Ritchie,

Reference: EPCOR Natural Gas Limited Partnership – Proposed Natural Gas Pipeline to Serve Southern

Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

Following the approval of the pipeline, a Permit to Take Water (PTTW) may be required from the Ministry of the Environment and Climate Change (MOECC) before construction begins.

EPCOR retained Stantec Consulting Ltd. to undertake an environmental study of the construction and operation of the proposed pipeline and related facilities. The environmental study is intended to fulfill the requirements of the OEB's *Environmental Guidelines for the Location, Construction and Operation of Hydrocarbon Pipelines and Facilities in Ontario, 7th Edition* (2016). An electronic copy on USB and hardcopy of the Environmental Report (ER), summarizing the results of the environmental study, have been made available for your review.

Please forward any comments you may have regarding the ER and project to the undersigned. Your comments would be appreciated by August 24, 2018.

Sincerely,

Andrew Laycock

Specialist, Government Relations EPCOR Southern Bruce Gas Inc.

Phone: 780-412-3873 Fax: 780-412-3096 alaycock@epcor.com

Attachment: Environmental Report

c. Rooly Georgopoulos, Senior Project Manager, Stantec Consulting Ltd.



Stantec Consulting Ltd. 300W-675 Cochrane Drive, Markham, ON L3R 0B8



July 18, 2018 File: 160950831

Attention: Mr. George Govier Coordinator Lands

Resources and Consultation Historic Saugeen Metis 204 High Street Southampton, ON, NOH 2L0

Dear Mr. Govier,

Reference: EPCOR Natural Gas Limited Partnership – Proposed Natural Gas Pipeline to Serve Southern

Bruce - Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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c. Rooly Georgopoulos, Senior Project Manager, Stantec Consulting Ltd.



Stantec Consulting Ltd. 300W-675 Cochrane Drive, Markham, ON L3R 0B8



July 18, 2018 File: 160950831

Attention: Mr. Jesse Fieldwebster

Consultation Assessment Coordinator, Consultation Métis Nation of Ontario 355 Cranston Crescent PO Box 4 Midland, ON, L4R 4K6

Dear Mr. Fieldwebster,

Reference: EPCOR Natural Gas Limited Partnership – Proposed Natural Gas Pipeline to Serve Southern

Bruce – Environmental Report

EPCOR Natural Gas Limited Partnership (EPCOR) is proposing to construct a natural gas pipeline in Southern Bruce, Ontario consisting of approximately 75 km of Nominal Pipe Size (NPS) 8 to 6-inch steel high pressure (HP) pipe and approximately 52 km of NPS 6-inch high density polyethylene (HDPE) pipe (the Project). This pipeline will be the backbone for service to multiple communities throughout Southern Bruce. Through a combined 165 km of distribution piping, natural gas service will be provided to a maximized number of customer connections including residential, commercial, agricultural and industrial customers. The pipeline will originate from the Union Dornoch Meter and Regulator Station in the Township of Chatsworth and terminate in the community of Lucknow in the Township of Huron-Kinloss. If approved, construction of the natural gas pipeline is expected to begin in the Spring of 2019.

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Andrew Laycock

Specialist, Government Relations EPCOR Southern Bruce Gas Inc.

Phone: 780-412-3873 Fax: 780-412-3096 alaycock@epcor.com

Attachment: Environmental Report

c. Rooly Georgopoulos, Senior Project Manager, Stantec Consulting Ltd.

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First Nations and Métis Community Engagement Activities

This section reflects EPCOR's First Nations and Métis communities' engagement activities for the Project up to September 14, 2018, although such engagement is continuing and will continue throughout construction and the life of the Project. EPCOR will continue to engage with First Nations and Métis communities in order to ensure their concerns and comments are fully understood and provide, where possible, input into the development of mitigation strategies. The included summaries address comments received to date regarding the Environmental Report.

			Historic Saug	een Métis – Er	ngagem	ent Activities Summary			
#	Correspondent	Туре	Date	Time	#	Correspondent	Туре	Date	Time
1	Historic Saugeen Métis to: EPCOR	Email	12-Nov- 15		17	EPCOR to: Historic Saugeen Métis	Email	16-Jul- 18	4:48 PM
2	EPCOR to: Historic Saugeen Métis	Email	16-Nov- 15		18	Historic Saugeen Métis to: EPCOR	Email	17-Jul- 18	11:41 AM
3	Historic Saugeen Métis to: EPCOR	Email	18-Nov- 15		19	EPCOR to: Historic Saugeen Métis	Email	18-Jul- 18	1:53 PM
4	EPCOR to: Historic Saugeen Métis	Email	20-Nov- 15		20	Historic Saugeen Métis to: EPCOR	Email	19-Jul- 18	9:21 AM
5	Historic Saugeen Métis to: EPCOR	Email	23-Nov- 15		21	Historic Saugeen Métis to: EPCOR	Email	19-Jul- 18	9:22 AM
6	EPCOR to: Historic Saugeen Métis	Email	23-Nov- 15		22	EPCOR to: Historic Saugeen Métis	Email	19-Jul- 18	10:11 AM
7	Historic Saugeen Métis	In- person meeting	30-Nov- 15		23	Historic Saugeen Métis to: EPCOR	Email	15-Aug- 18	1:01 PM
8	EPCOR to: Historic Saugeen Métis	Email	26-Jun- 18		24	EPCOR to: Historic Saugeen Métis	Email	27-Aug- 18	3:27 PM
9	Historic Saugeen Métis to: EPCOR	Email	26-Jun- 18		25	Historic Saugeen Métis to: EPCOR	Email	28-Aug- 18	7:52 AM
10	Stantec to: Historic Saugeen Métis	Email	26-Jun- 18		26	EPCOR to: Historic Saugeen Métis	Email	30-Aug- 18	4:03 PM
11	Historic Saugeen Métis to: Stantec	Email	27-Jun- 18		27	Historic Saugeen Métis to: EPCOR	Email	31-Aug- 18	9:04 AM
12	Historic Saugeen Métis	In- person meeting	28-Jun- 18		28	Historic Saugeen Métis to: EPCOR	Email	4-Sep- 18	12:41 PM
13	Historic Saugeen Métis to: EPCOR	Email	6-Jul-18	11:20 AM	29	Historic Saugeen Métis to: EPCOR	Email	21-Sep- 18	
14	EPCOR to: Historic Saugeen Métis	Email	10-Jul-18	10:29 AM	30	Historic Saugeen Métis to: EPCOR	Email	05-Oct- 18	

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15	Historic Saugeen Métis to: EPCOR	Email	10-Jul-18	10:48 AM	31	EPCOR to: Historic Saugeen Métis	Email	10-Oct- 18	
16	EPCOR to: Métis Nation of Ontario	Email	16-Jul-18	2:49 PM	32	EPCOR to: Historic Saugeen Métis	Email	19-Oct- 18	

Historic Saugeen Métis Comments and Concerns :							
Comment	Response						
HSM looked to understand the leave to construct application process as well as other regulatory mechanisms that had taken place, such as the Generic Hearing.	EPCOR explained the regulatory process to date and the progress on the leave to construct application along with the expected submission timeframe.						
The HSM specifically had interest in how the timelines for the Project approval had evolved.	An overview of the competitive process that was implemented for this Project was explained and the impact to the original project timelines was discussed.						
HSM expressed interest in how EPCOR would determine whether there would be a Stage 2 Archaeological Assessment and how they could participate in that process.	The ER/AA process was explained and HSM participation in the Stage 2 Archaeological Assessment was discussed.						
HSM expressed satisfaction with EPCOR's consultation and engagement efforts to date. HSM is pleased with EPCOR's approach and feel it supports the community's asserted Aboriginal rights. HSM understands that more details will be developed and discussed as the project continues and looks forward to the opportunity to comment.	EPCOR is glad that the HSM are satisfied with engagement efforts to date and commits to continuing the dialogue as the project continues to ensure the HSM feel engaged through planning and construction.						

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		Métis Nation of Ontario – Engagement Activities Summary										
#	Correspondent	Туре	Date	Time	#	Correspondent	Туре	Date	Time			
1	EPCOR to: Métis Nation of Ontario	Email	25-Nov-15		54	Métis Nation of Ontario to: EPCOR	Phone	17-Sep-18				
2	EPCOR to: Métis Nation of Ontario	Email	12-May-17		55	EPCOR to: Métis Nation of Ontario	Email	1-Oct-18	10:19 AM			
3	Métis Nation of Ontario to: EPCOR	Email	29-May-17		56	EPCOR to: Métis Nation of Ontario	Email	9-Oct-18	8:26 AM			
4	Métis Nation of Ontario to: EPCOR	Email	24-Apr-18		57	Métis Nation of Ontario to: EPCOR	Email	9-Oct-18	8:50 AM			
5	EPCOR to: Métis Nation of Ontario	Email	24-Apr-18		58	EPCOR to: Métis Nation of Ontario	Email	9-Oct-18	1:48 PM			
6	Métis Nation of Ontario to: EPCOR	Email	8-May-18		59	Métis Nation of Ontario to: EPCOR	Email	9-Oct-18	3:38 PM			
7	EPCOR to: Métis Nation of Ontario	Email	15-May-18		60	Métis Nation of Ontario to: EPCOR	Email	10-Oct-18	6:48 AM			
8	Métis Nation of Ontario to: EPCOR	Email	31-May-18		61	EPCOR to: Métis Nation of Ontario	Email	10-Oct-18	7:53 AM			
9	EPCOR to: Métis Nation of Ontario	Email	31-May-18		62	Métis Nation of Ontario to: EPCOR	Email	11-Oct-18	11:36 AM			
10	MNO and Georgian Bay Métis Council to: EPCOR	In-person	14-Jun-18		63	EPCOR to: Métis Nation of Ontario	Email	11-Oct-18	1:48 PM			
11	Métis Nation of Ontario to: EPCOR	Email	3-Jul-18	12:51 PM	64	Métis Nation of Ontario to: EPCOR	Email	12-Oct-18	7:38 AM			
12	EPCOR to: Métis Nation of Ontario	Email	9-Jul-18	1:40 PM	65	Métis Nation of Ontario to: EPCOR	Email	14-Oct-18	5:51 PM			
13	Métis Nation of Ontario to: EPCOR	Email	9-Jul-18	2:01 PM	66	EPCOR to: Métis Nation of Ontario	Email	14-Oct-18	7:33 PM			
14	EPCOR to: Métis Nation of Ontario	Email	9-Jul-18	2:22 PM	67	Métis Nation of Ontario to: EPCOR	Email	15-Oct-18	7:25 AM			
15	EPCOR to: Métis Nation of Ontario	Email	9-Jul-18	3:40 PM	68	EPCOR to: Métis Nation of	Email	15-Oct-18				

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			Métis Nation of	f Ontario – En	gagen	nent Activities Sumr	nary		
#	Correspondent	Туре	Date	Time	#	Correspondent	Туре	Date	Time
						Ontario			
16	EPCOR to: Métis Nation of Ontario	Email	10-Jul-18	10:29 AM	69	Métis Nation of Ontario to: EPCOR	Telecon ference	19-Oct-18	
17	Métis Nation of Ontario to: EPCOR	Email	23-Jul-18	11:39 AM	70	EPCOR to: Métis Nation of Ontario	Email	19-Oct-18	
18	EPCOR to: Métis Nation of Ontario	Email	23-Jul-18	12:34 PM	71	Métis Nation of Ontario to: EPCOR	Email	19-Oct-18	8:54 AM
19	Métis Nation of Ontario to: EPCOR	Email	24-Jul-18	12:06 PM	72	Métis Nation of Ontario to: EPCOR	Email	02-Nov-18	11:53 AM
20	Métis Nation of Ontario to: EPCOR	Phone	24-Jul-18		73	Métis Nation of Ontario to: EPCOR	Email	06-Nov-18	1:53 PM
21	Métis Nation of Ontario to: EPCOR	Email	24-Jul-18	2:05 PM	74	Métis Nation of Ontario to: EPCOR	Email	15-Nov-18	1:14 PM
22	Métis Nation of Ontario to: EPCOR	Email	3-Aug-18	12:13 PM	75	EPCOR to: Métis Nation of Ontario	Email	16-Nov-18	10:12 AM
23	Métis Nation of Ontario to: EPCOR	Email	3-Aug-18	2:43 PM	76	Métis Nation of Ontario to: EPCOR	Email	16-Nov-18	4:25 PM
24	EPCOR to: Métis Nation of Ontario	Email	3-Aug-18	4:43 PM	77	EPCOR to: Métis Nation of Ontario	Email	28-Nov-18	4:26 PM
25	Métis Nation of Ontario to: EPCOR	Email	8-Aug-18	7:25 AM	78	Métis Nation of Ontario to: EPCOR	Email	28-Nov-18	4:24 PM
26	Métis Nation of Ontario to: EPCOR	Email	8-Aug-18	8:19 AM	79	EPCOR to: Métis Nation of Ontario	Email	13-Dec-18	10:12 AM
27	EPCOR to: Métis Nation of Ontario	Email	8-Aug-18	10:11 AM	80	Métis Nation of Ontario to: EPCOR	Email	13-Dec-18	10:44 AM
28	EPCOR to: Métis Nation of Ontario	Phone	8-Aug-18		81	EPCOR to: Métis Nation of Ontario	Email	13-Dec-18	11:09 AM
29	Métis Nation of Ontario to: EPCOR	Email	8-Aug-18	1:19 PM	82	Métis Nation of Ontario to: EPCOR	Email	13-Dec-18	11:13 AM
30	EPCOR to: Métis Nation of Ontario	Email	10-Aug-18	5:30 PM	83	Métis Nation of Ontario to:	Email	14-Dec-18	8:59 AM

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	Métis Nation of Ontario – Engagement Activities Summary											
#	Correspondent	Туре	Date	Time	#	Correspondent	Туре	Date	Time			
						EPCOR						
31	Métis Nation of Ontario to: EPCOR	Email	13-Aug-18	7:27 AM	84	EPCOR to: Métis Nation of Ontario	Email	14-Dec-18	9:10 AM			
32	Métis Nation of Ontario to: EPCOR	Email	20-Aug-18	10:37 AM	85	Métis Nation of Ontario to: EPCOR	Email	14-Dec-18	9:18 AM			
33	EPCOR to: Métis Nation of Ontario	Email	20-Aug-18	10:57 AM	86	EPCOR to: Métis Nation of Ontario	Email	14-Dec-18	9:55 AM			
34	EPCOR to: Métis Nation of Ontario	Email	20-Aug-18	12:19 PM	87	Métis Nation of Ontario to: EPCOR	Email	17-Dec-18	2:43 PM			
35	EPCOR to: Métis Nation of Ontario	Email	28-Aug-18	10:25 AM	88	Métis Nation of Ontario to: EPCOR	Email	20-Dec-18	5:42 AM			
36	Métis Nation of Ontario to: EPCOR	Email	30-Aug-18	2:13 PM	89	Métis Nation of Ontario to: EPCOR	Email	28-Dec-18	12:54 PM			
37	EPCOR to: Métis Nation of Ontario	Email	30-Aug-18	3:13 PM	90	Métis Nation of Ontario to: EPCOR	Email	08-Jan-19	3:41 PM			
38	Métis Nation of Ontario to: EPCOR	Phone	30-Aug-18		91	EPCOR to: Métis Nation of Ontario	Email	08-Jan-19	4:06 PM			
39	EPCOR to: Métis Nation of Ontario	Email	31-Aug-18	5:30 PM	92	Métis Nation of Ontario to: EPCOR	Email	17-Jan-19	6:33 AM			
40	Métis Nation of Ontario to: EPCOR	Email	5-Sep-18	8:51 AM	93	EPCOR to: Métis Nation of Ontario	Email	17-Jan-19	9:47 AM			
41	EPCOR to: Métis Nation of Ontario	Email	5-Sep-18	9:35 AM	94	Métis Nation of Ontario to: EPCOR	Email	25-Jan-19	2:14 PM			
42	EPCOR to: Métis Nation of Ontario	Phone	5-Sep-18		95	EPCOR to: Métis Nation of Ontario	Email	25-Jan-19	4:14 PM			
43	EPCOR to: Métis Nation of Ontario	Email	6-Sep-18	9:55 AM	96	Métis Nation of Ontario to: EPCOR	Email	25-Jan-19	4:17 PM			
44	Métis Nation of Ontario to: EPCOR	Email	6-Sep-18	10:03 AM	97	EPCOR to: Métis Nation of Ontario	Phone	29-Jan-19				
45	EPCOR to: Métis Nation of Ontario	Email	6-Sep-18	10:07 AM	98	Métis Nation of Ontario to:	Email	29-Jan-19	11:21 AM			

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	Métis Nation of Ontario – Engagement Activities Summary								
#	Correspondent	Туре	Date	Time	#	Correspondent	Type	Date	Time
						EPCOR			
46	EPCOR to: Métis Nation of Ontario	Email	7-Sep-18	8:22 PM	99	Métis Nation of Ontario to: EPCOR	Email	11-Feb-19	1:42 PM
47	Métis Nation of Ontario to: EPCOR	Email	10-Sep-18	7:26 AM	100	EPCOR to: Métis Nation of Ontario	Email	11-Feb-19	1:49 PM
48	EPCOR to: Métis Nation of Ontario	Phone	10-Sep-18		101	Métis Nation of Ontario to: EPCOR	Email	11-Feb-19	1:56 PM
49	Métis Nation of Ontario to: Stantec	Phone	10-Sep-18		102	Métis Nation of Ontario to: EPCOR	Email	11-Feb-19	2:17 PM
50	Stantec to: Métis Nation of Ontario	Email	10-Sep-18	11:10 AM	103	EPCOR to: Métis Nation of Ontario	Email	11-Feb-19	2:22
51	Métis Nation of Ontario to: Stantec	Email	10-Sep-18	11:11 AM	104	Métis Nation of Ontario to: EPCOR	Email	11-Feb-19	2:36
52	Métis Nation of Ontario to: Stantec	Email	10-Sep-18		105	Métis Nation of Ontario to: EPCOR	Phone	12-Feb-19	
53	EPCOR to: Métis Nation of Ontario	Email	17-Sep-18						

Métis Nation of Ontario Comments and Concerns:	
Comment	Response
GBTTCC had questions regarding where and how EPCOR currently operates across Canada and what its future plans might be	EPCOR reviewed its various operations throughout Canada and the United States. EPCOR's plans in the Ontario market were also discussed.
GBTTCC looked to understand the economics of the Project and the type of risk-tolerance EPCOR had.	Information around EPCOR's Common Infrastructure Plan was provided.
GBTTCC looked to understand general construction timelines, methods and routing.	The construction schedule, preferred route and construction methods were reviewed.
GBTTCC looked to get a greater sense of the type of environmental mitigation strategies that would be used to both protect bio-diversity during construction, through operations and in the event of an accidental discharge.	EPCOR and Stantec discussed the mitigation measures outlined in the Environmental Report and encouraged the GBTTCC to review and provide comments on the Environmental Report.

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		Saugee	n Ojibway N	lation – Eng	gageme	nt Activities Summary			
#	Correspondent	Туре	Date	Time	#	Correspondent	Туре	Date	Time
1	EPCOR to: Saugeen	Email	23-		41	EPCOR to: Saugeen	Email	5-Sep-18	4:27
	Ojibway Nation		Nov-15			Ojibway Nation			PM
2	Saugeen Ojibway	Email	24-		42	EPCOR to: Saugeen	Email	5-Sep-18	4:37
	Nation to: EPCOR		Nov-15			Ojibway Nation			PM
3	Saugeen Ojibway	In-person	3-Dec-		43	EPCOR to: Saugeen	Phone	5-Sep-18	
	Nation	meeting	15			Ojibway Nation			
4	Saugeen Ojibway	Email	28-Jan-		44	Saugeen Ojibway	Email	6-Sep-18	7:54
	Nation to: EPCOR		16			Nation to: EPCOR			AM
5	EPCOR to: Saugeen	Email	28-Jan-		45	EPCOR to: Saugeen	Email	6-Sep-18	8:38
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6	EPCOR to: Saugeen	Email	13-Jul-		46	Saugeen Ojibway	Email	6-Sep-18	9:57
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7	EPCOR to: Saugeen	Email	1-Feb-		47	EPCOR to: Saugeen	Email	6-Sep-18	10:3
	Ojibway Nation		18			Ojibway Nation			7
									AM
8	Saugeen Ojibway	In-person	15-Jun-		48	EPCOR to: Saugeen	Email	13-Sep-	8:45
	Nation	Meeting	18			Ojibway Nation	<u> </u>	18	AM
9	Stantec to: Saugeen	Email	19-Jun-		49	Saugeen Ojibway	Email	3-Oct-18	8:36
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10	Saugeen Ojibway	Email	25-Jun-		50	EPCOR to: Saugeen	Email	3-Oct -	10:3
	Nation to: EPCOR		18			Ojibway Nation		18	6
11	Causaan Oiibuuau	Dhana Call	27 1		F1	FDCOD to Course	Dhana	4 Oct 10	AM
11	Saugeen Ojibway	Phone Call	27-Jun-		51	EPCOR to: Saugeen	Phone	4-Oct-18	
12	Nation to: EPCOR	Email	18 10-Jul-	10:29	52	Ojibway Nation EPCOR to: Saugeen	Phone	9-Oct-18	
12	EPCOR to: Saugeen Ojibway Nation	EIIIaii	10-Jul- 18	10:29 AM	52	Ojibway Nation	Phone	9-001-18	
13	EPCOR to: Saugeen	Email	16-Jul-	5:04	53	EPCOR to: Saugeen	Phone	10-Oct	
13	Ojibway Nation	EIIIaii	18-Jul-	9.04 PM	33	Ojibway Nation	Priorie	18	
14	Saugeen Ojibway	Email	17-Jul-	7:54	54	EPCOR to: Saugeen	Phone	12-Oct-	
14	Nation to: EPCOR	Liliali	18	AM	74	Ojibway Nation	FIIOTIC	18	
15	EPCOR to: Saugeen	Email	17-Jul-	8:16	55	Saugeen Ojibway	Email	12-Oct-	
13	Ojibway Nation	Liliali	18	AM		Nation to: EPCOR	Liliali	18	
16	Saugeen Ojibway	Email	17-Jul-	9:10	56	EPCOR to: Saugeen	Email	12-Oct-	9:08
10	Nation to: EPCOR	Lilian	18	AM	30	Ojibway Nation	Lilian	18	AM
17	EPCOR to: Saugeen	Email	23-Jul-	10:33	57	EPCOR to: Saugeen	Email	12-Oct-	4:19
1/	Ojibway Nation	Lillali	18	AM	"	Ojibway Nation	Liliali	18	PM
18	EPCOR to: Saugeen	Phone	3-Aug-	/ \\VI	58	Saugeen Ojibway	Email	15-Oct-	1 1 1 1
10	Ojibway Nation		18			Nation to: EPCOR	Lindii	18	
19	EPCOR to: Saugeen	Email	10-	11:17	59	EPCOR to: Saugeen	Email	15-Oct-	8:29
10	Ojibway Nation	Linan	Aug-18	AM		Ojibway Nation	Liliuii	18	AM
20	EPCOR to: Saugeen	Phone	13-	7 11 1	60	EPCOR to: Saugeen	Email	15-Oct-	12:5
20	Ojibway Nation	THORE	Aug-18			Ojibway Nation	Linaii	18	6
	Jibway Nation		/ NG 10			Sibway Nation		10	PM
21	EPCOR to: Saugeen	Email	13-	10:01	61	Saugeen Ojibway	Email	17-Oct-	

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	T			1		ent Activities Summary	1_	Τ_	т
#	Correspondent	Type	Date	Time	#	Correspondent	Туре	Date	Time
	Ojibway Nation		Aug-18	AM		Nation to: EPCOR		18	
22	EPCOR to: Saugeen	Email	13-	12:01	62	EPCOR to: Saugeen	Email	17-Oct-	8:25
	Ojibway Nation		Aug-18	PM		Ojibway Nation		18	AM
23	Saugeen Ojibway	Email	14-	8:04	63	EPCOR to: Saugeen	Email	23-Oct-	10:0
	Nation to: EPCOR		Aug-18	AM		Ojibway Nation		18	6
									AM
24	EPCOR to: Saugeen	Email	14-	8:05	64	Saugeen Ojibway	Email	23-Oct-	11:5
	Ojibway Nation		Aug-18	AM		Nation to: EPCOR		18	9
									AM
25	EPCOR to: Saugeen	Phone	15-		65	EPCOR to: Saugeen	Email	23-Oct-	3:27
	Ojibway Nation		Aug-18			Ojibway Nation		18	PM
26	EPCOR to: Saugeen	Email	15-	10:28	66	Saugeen Ojibway	Email	30-Oct-	1:29
	Ojibway Nation		Aug-18	AM		Nation to: EPCOR		18	PM
27	EPCOR to: Saugeen	Phone	16-		67	EPCOR to: Saugeen	Email	6-Nov-	1:29
	Ojibway Nation		Aug-18			Ojibway Nation		18	PM
28	EPCOR to: Saugeen	Email	16-	7:52	68	EPCOR to: Saugeen	In-person	9-Nov-	9:33
	Ojibway Nation		Aug-18	AM		Ojibway Nation	Meeting	18	AM
29	EPCOR to: Saugeen	Email	20-	10:07	69	Saugeen Ojibway	Email	9-Nov-	9:18
	Ojibway Nation		Aug-18	AM		Nation to: EPCOR		18	AM
30	EPCOR to: Saugeen	Email	20-	10:07	70	EPCOR to: Saugeen	Email	9-Nov-	9:33
	Ojibway Nation		Aug-18	AM		Ojibway Nation		18	AM
31	EPCOR to: Saugeen	Email	28-	8:20	71	EPCOR to: Saugeen	Email	7-Dec-18	4:24
	Ojibway Nation		Aug-18	AM		Ojibway Nation			PM
32	EPCOR to: Saugeen	Email	28-	10:22	72	EPCOR to: Saugeen	Email	20-Dec-	3:41
	Ojibway Nation		Aug-18	AM		Ojibway Nation		18	PM
33	Saugeen Ojibway	Phone	30-		73	Saugeen Ojibway	Email	02-Jan-	6:41
	Nation to: EPCOR		Aug-18			Nation to: EPCOR		19	AM
34	Saugeen Ojibway	Email	30-	10:45	74	EPCOR to: Saugeen	Email	02-Jan-	7:53
	Nation to: EPCOR		Aug-18	AM		Ojibway Nation		19	PM
35	EPCOR to: Saugeen	Email	31-	3:31	75	EPCOR to: Saugeen	Email	02-Jan-	7:58
	Ojibway Nation		Aug-18	PM		Ojibway Nation		19	PM
36	EPCOR to: Saugeen	Email	31-	5:30	76	Saugeen Ojibway	Email	02-Jan-	5:40
	Ojibway Nation		Aug-18	PM		Nation to: EPCOR		19	PM
37	Saugeen Ojibway	Email	5-Sep-	6:42	77	EPCOR to: Saugeen	Email	03-Jan-	11:1
	Nation to: EPCOR		18	AM		Ojibway Nation		19	9
									AM
38	EPCOR to: Saugeen	Email	5-Sep-	2:28	78	Saugeen Ojibway	Email	03-Jan-	
	Ojibway Nation		18	PM		Nation to: EPCOR		19	
39	Saugeen Ojibway	Email	5-Sep-	2:37		EPCOR to: Saugeen	Email	29-Jan-	8:17
	Nation to: EPCOR		18	PM		Ojibway Nation		19	AM
40	EPCOR to: Saugeen	Email	5-Sep-	2:38		Saugeen Ojibway	Email	07-Feb-	9:13
	Ojibway Nation		18	PM		Nation to: EPCOR		19	AM

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Saugeen Ojibway Nation Comments and Concerns:	
Comment	Response
SON expressed interest in understanding what studies had	EPCOR reviewed the status of studies completed and anticipated
already been conducted and which remained outstanding.	future studies.
SON had a particular interest in how EPCOR would determine	The ER/AA process was explained and SON participation in the
whether there would be a Stage 2 Archaeological Assessment	Stage 2 Archaeological Assessment was discussed.
and how they could participate in that process.	
SON looked to understand the leave to construct application process as well as other regulatory mechanisms that had taken place, such as the Generic Hearing.	EPCOR explained the regulatory process to date and the progress on the leave to construct application along with the expected submission timeframe. Additionally, an overview of the competitive process that was implemented for this Project was explained and the impact to the original project timelines was discussed.
SON expressed a concern related to streams, and the depths that will be drilled underneath these streams. HDD is the preferred method, however there is still potential for groundwater interference.	Timing windows as imposed by the Ministry of Natural Resources and Forestry (MNRF) and the local conservation Authority (CA) will be followed.
Following governmental requirements for hydrogeology is mandatory, but there are SON specific requirements that need to be followed. Standard practices are extremely outdated, last information collected was 1984. The SON has a fisheries ecologist on staff to provide guidance.	EPCOR acknowledges these conversations are on-going, and as such any new information or questions are encouraged.
Request that SON/third-party consultant have a hand in developing the hydrogeology assessment moving forward.	An amendment to the hydrogeological section of the Environmental Report can be completed by means of a technical memo.
SON looked for clarification as to the route alignment and if it would physically be located in road-allowance/ROW or further out?	EPCOR is working with the municipalities to have the pipeline constructed as close to the asphalt portion of the road as possible. The actual routing line will be determined during detailed design.
SON wanted to know who is responsible for identifying the turtle nesting habitats.	Adjacent habitats to the running line will be avoided to the extent possible, and where these areas cannot be avoided, additional mitigation measures will be implemented and enforced (i.e., additional field visits, exclusionary fencing, etc.).
SON requested an infographic detailing the HDD process, the entry and exit pit locations, the average length range for the HDD, space requirements etc.	An infographic/memo will be developed to provide an overview of the HDD process.
SON expressed a concern with phragmites along the route, and the potential for the plant to spread due to construction activities. It was suggested that Dr. Janice Gilbert should be	EPCOR has noted in the comment response table of the ER that the best management practices, as developed by Janice Gilbert, will be implemented.
consulted.	The lead ecologist for the project has noted EPCOR were overly conservative in their approach to develop the terrestrial section of the ER, and therefore provided detailed and potential mitigation measures that may need to be implemented, if required.
	Once the detailed design and routing are determined, a windshield survey could be conducted to solidify Phragmites mitigation measures that could be implemented for the required areas along

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Saugeen Ojibway Nation Comments and Concerns:						
Comment	Response					
	the route. Based on the results of the survey, the mitigation methods will be updated and may include clearing specific areas of Phragmites that are in direct proximity to the excavation area. This information will be shared with the SON and additional consultation may be requested.					
SON enquired as to where the source of seed mix for reseeding would come from and if there was an ability for SON to provide input to the seed mix.	EPCOR feels that as long as the seed mix meets the regulatory requirements, the potential seed mix source (i.e. a local source) can be adequately reviewed and implemented. EPCOR will request the preferred local seed mix from the SON during construction.					
SON stated that if the construction activities take place later in the season, seasonal depressions such as ephemeral ponds may no longer be present. Would emergence surveys be conducted in the spring to determine where potential nesting sites are located?	EPCOR stated that this could be considered during the detailed design phase, and an early season survey / inspection can be completed to identify any seasonal depressions which may be impacted by construction.					
SON indicated that there may be some gaps in archaeological review and that some resources more pertinent to the Southern Bruce area may have been overlooked. It was suggested that new information as provided by the SON should be reviewed and high-lighted areas could be visited.	EPCOR was agreeable to reviewing these new pieces of information and arranging for a co-operative high-lighted area field review including SMEs from both EPCOR and SON.					