



ENBRIDGE GAS INC.

Final Monitoring Report

Low-Carbon Energy Project (EB-2019-0294)

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Acronyms and Abbreviations

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Acronyms and Abbreviations

Dillon	Dillon Consulting Limited
Enbridge Gas	Enbridge Gas Inc.
EPP	Environmental Protection Plan
ER	Environmental Report
m	metre(s)
NPS	nominal pipe size
OEB	Ontario Energy Board
ROW	right-of-way
the Project	Low-Carbon Energy Project
TOC	Technology and Operations Centre
XHP	Extra High Pressure

1.0

Introduction

On October 29, 2020, the Ontario Energy Board (OEB), in its Decision and Order for EB-2019-0294, granted Enbridge Gas Inc. (Enbridge Gas) leave to construct the “Low-Carbon Energy Project” consisting of infrastructure for a hydrogen-blended gas distribution pilot project (the Project) in close proximity to its Technology and Operations Centre (TOC) in the City of Markham, Ontario.

Construction of the Project began on April 1, 2021, and the pipeline was energized with an in-service date of October 1, 2021. Enbridge Gas filed notifications of these Project milestones with the OEB, in accordance with the Conditions of Approval for the Project. Enbridge Gas filed the Post-Construction (Interim) Report with the OEB on December 17, 2021.

Condition 6(b) in Schedule C of the OEB Decision and Order (EB-2019-0294), states that:

- 6. Both during and after construction, Enbridge Gas shall monitor the impacts of construction, and shall file with the OEB an electronic (searchable PDF) version of each of the following reports:*
- (b) A final monitoring report, no later than fifteen months after the in-service date, or, where the deadline falls between December 1 and May 31, the following June 1, which shall:*
- i. Provide a certification, by a senior executive of the company, of Enbridge Gas’ adherence to Condition 3;*
 - ii. Describe the condition of any rehabilitated land;*
 - iii. Describe the effectiveness of any actions taken to prevent or mitigate any identified impacts of construction;*
 - iv. Include the results of analyses and monitoring programs and any recommendations arising therefrom; and*
 - v. Include a log of all complaints received by Enbridge Gas, including the date/time the complaint was received; a description of the complaint; any actions taken to address the complaint; and the rationale for taking such actions.*

This Final Monitoring Report has been prepared to satisfy the requirements set out in Condition 6(b), as outlined above. The executive certification required pursuant to condition 6(b)(i) is provided in **Appendix A**.

1.1

Project Description

The Project included the installation of new pipelines and facilities. An overview of the Project is provided on the map in **Appendix B**.

A total of 685¹ m of pipeline was installed including:

- 380 m of nominal pipe size (NPS) 6-inch extra-high pressure steel pipeline;
- 295 m of the NPS 6-inch high pressure steel pipeline; and,
- 10 m of NPS 8-inch intermediate pressure polyethylene pipeline.

Approximately 257 m of NPS 6 extra-high pressure steel natural gas pipeline was constructed along the municipal road right-of-way on Woodbine Avenue. The remaining pipeline was constructed on Enbridge Gas-owned property.

The facilities included five new stations, all of which were constructed on Enbridge Gas-owned property:

- The hydrogen station regulates hydrogen flow from the existing hydrogen storage tanks to the inlet of the hydrogen blending station. The hydrogen station ensures that no more than 2% hydrogen by volume is blended with standard natural gas;
- The hydrogen blending station/regulation station regulates the pressure of the natural gas feed from extra-high pressure to high pressure. This station supplies natural gas to the district station and into the isolated network. Hydrogen is injected downstream of this station;
- The district station regulates the pressure of the blended gas from high-pressure to intermediate pressure and introduces the blended gas into the blended gas area;
- A sales station for the natural gas vehicle compressor, which regulates the pressure of natural gas feed from extra high pressure to intermediate pressure; and,²
- An extra high pressure (XHP) filter station that is installed upstream of the regulation station, which filters out any debris from the upstream pipeline.²

¹ The minor variance between the total length of pipe installed (685 m) and what was proposed (755 m) is a result of techniques used to estimate length in early Project planning, which underpins the Project description in the Leave-to-Construct application approved by the OEB. Exact pipe length is determined once installation is complete.

² In the EB-2019-0293 Decision and Order dated October 29, 2020, the OEB granted leave to construct 3 stations: (i) a hydrogen station, (ii) a hydrogen blending station, and (iii) a district station. The sales station installed as part of the Project was determined to be required in early Project planning to facilitate connection of the Technology and Operations Centre natural gas vehicle (NGV) compressor, the need for the station was described in Enbridge Gas' pre-filed evidence at Exhibit B, Tab 1, Schedule 1, Attachment 1 paragraph 30. Total cost of this station is \$31,000. During the design stage of the Project, it was determined that a filter station was required to be installed upstream of the Hydrogen Blending Station to protect downstream equipment and prevent failure of regulators from debris that may exist in the gas system. The total cost of this station is \$128,000.

In addition, in order to isolate the blended gas area from the rest of the existing distribution system, two connections within the existing system were disconnected (Disconnects). Both are located at the intersection of Major Mackenzie Drive and Hazelton Avenue.

1.2 Studies Completed for the Project

As part of the Project, Enbridge Gas conducted the studies listed in **Table 1** to inform the design, planning and permitting process, identify environmental and socio-economic impacts potentially resulting from construction, and reduce impacts through the application of documented mitigation measures.

Table 1: Studies Completed for the Project

Study	Completed By	Date
Stage 1 Archaeological Assessment	Timmins Martelle Heritage Consultants	March 2019
Environmental Report	Dillon Consulting Limited (Dillon)	May 2019
Environmental Report Addendum	Dillon	September 2019
Environmental Report Addendum #2	Dillon	December 2019
Environmental Report Amendment	Dillon	March 2020
Environmental Protection Plan	Dillon	March 2021
Phase 1 Environmental Site Assessment	Dillon	April 2021
Environmental Activity Sector Registration (EASR): Enbridge Gas Inc. Low Carbon Energy Project: Hydrogen Blending	Ortech Consulting Inc.	April 2021
Emission Summary and Dispersion Modelling (ESDM) Report	Ortech Consulting Inc.	April 2021
Acoustic Assessment Report	HGC Engineering	April 2021
Excess Materials Management Plan	Dillon	August 2021

2.0

Construction Effects and Mitigation Measures

Mitigation and restoration measures and any additional recommendations arising therefrom, were implemented to minimize potential environmental effects due to the construction of the Project and were documented in Section 2.0 of the Post-Construction (Interim) Report filed with the OEB on December 17, 2021. All construction and rehabilitation activities were completed in accordance with the OEB's Decision and Order in EB-2019-0294 and the Conditions of Approval. Since the filing of the Interim Report, no additional analyses and monitoring programs were required.

All Project activities were conducted in accordance with Enbridge Gas Construction Policies and Procedures, the mitigation measures and inspection and monitoring recommendations outlined in the Environmental Report (ER) and Environmental Protection Plan (EPP), and all recommendations and directives by the Ontario Pipeline Coordinating Committee (OPCC) review. Representative conditions along the Project area and additional actions required were identified in Appendix B (Restoration Log) of the Post-Construction (Interim) Report.

2.1

Current Conditions

A final inspection of all work areas associated with the Project was performed on April 13, 2023, and subsequent restoration work and site inspection was completed on May 11, 2023. A summary of the observations made during these inspections is provided in **Appendix C** of this report, along with photos of the current site conditions.

2.2

Residual Issues

Overall, construction activities were carried out with a high level of respect for the environment.

During the site inspection conducted on April 13, 2023, the Project area was observed to be largely revegetated and stable. Additional top soil and seed and/or mulch was applied to areas identified as having a minor degree of settlement or poor revegetation. The majority of these sites are located on the Enbridge Gas-owned TOC property.

With the implementation of these additional restoration efforts, all action items identified in the Post-Construction (Interim) Report have been completed and no further environmental issues related to the Project are anticipated.

3.0

Comments and Complaints

A log of comments and complaints received during and after Project construction, up to the filing of the Post-Construction (Interim) Report, is provided in **Table 2**, below.³

³ No new complaints have been received since the filing of the Post-Construction (Interim) Report (December 17, 2021).

Table 2: Comment and Complaint Log

Date Received	Contact Name	Contact Type	Method of Contact	Comment	Resolution
May 19, 2021	Not provided	Resident/property owner (east of Woodbine Avenue)	In-person/on-site	Resident stated concern about water being pumped from the Project excavation into an adjacent ditch.	• A water holding tank was placed on-site to store the discharged water, which was then shipped off-site to an appropriate disposal facility once full. • Homeowner was satisfied.
May 28, 2021	██████ ████████, Executive Assistant to Councillor Ho	City of Markham Councillor’s Office	Phone call and email	Councillor Ho’s office called an Enbridge Gas representative about a complaint that was received from a constituent regarding the level of dust in the Project area.	• On May 28, 2021, the Enbridge Gas representative stated they would look into the issue and committed to contacting the Councillor’s office back with additional information. • On June 1, 2021, an Enbridge Gas representative called Councillor’s Ho’s office leaving a detailed voice message explaining that the dust was not created by an Enbridge Gas construction crew. Subsequent to leaving the Councillor’s office a voicemail, the Enbridge Gas representative followed up with an email explaining that the dust in the area may have been initiated from the construction company working adjacent to the Mobis Parts Canada Corp at Honda Blvd. and Mobis Drive. The Enbridge Gas representative further indicated that the Enbridge Gas construction crews also experienced thick dust the previous week and had difficulty seeing the road. Enbridge Gas stated that they believed the dust would have headed towards all the homes on the east side of Woodbine Avenue. Enbridge Gas provided a map highlighting the Enbridge Gas work area vs the other construction company work site. • On June 1, 2021, the Councillor’s office responded back via email, thanking Enbridge Gas for the information and the photos.
August 25, 2021	██████	Resident in blended gas distribution area	Phone call to Project 1-800 number	Resident left a voicemail asking how the Project would affect their monthly bill.	• On September 3, 2021, an Enbridge Gas representative called the resident back and explained that they would see a slight increase in gas usage on their monthly bill compared to traditional natural gas. Enbridge Gas representative noted that the increase is anticipated to be less than \$10 per year based on the typical gas usage of a residential home. • The resident indicated they had no further issues or concerns.
August 26, 2021	██████ ████████	Resident in blended gas distribution area	Email to the Project email address	Resident requested details on how the Project would affect them as a consumer in the near and long-term, as far as monthly energy usage. They also asked how the addition of hydrogen gas would affect the flame in their gas range and they inquired whether there was any danger to them living close to the Enbridge Gas Technology and Operations Centre.	• On September 8, 2021, an Enbridge Gas representative emailed the resident with responses to their concerns. The Enbridge Gas representative stated that the Project would not have a material effect on consumers, noting that there would only be a slight increase in an individual’s gas usage compared to traditional natural gas. The Enbridge Gas representative explained that the increase in usage is anticipated to amount to less than \$10 per year based on typical gas usage of a residential home and noted that Enbridge Gas would be reimbursing homeowners \$10 per year for the 5-year life of the Project. The Enbridge Gas representative stated that the low blend percentage of the gas would not affect the resident’s gas range or other gas appliances and explained how this was thoroughly researched, tested, and confirmed prior to initiating the Project. The Enbridge Gas representative assured the resident that safety is at the core of Enbridge Gas’s operations and the Technology and Operations Centre is built and operated to the highest regulatory and industry standards.

4.0

Summary

This Final Monitoring Report has been prepared in accordance with the OEB Decision and Order in EB-2019-0294. It describes the condition of all rehabilitated land and the effectiveness of any actions taken to prevent or mitigate any identified impacts of construction, includes the results of analyses and monitoring programs and any recommendations arising therefrom, and includes a log of all complaints received by Enbridge Gas in relation to the Project.

Measures implemented during construction and restoration have been successful. All residual issues identified during the Post-Construction (Interim) Report have been resolved.

Appendix A

Executive Certifications



**Low Carbon Energy Project
EB-2019-0294
Decision and Order
October 29, 2020**

I hereby certify that Enbridge Gas Inc. has implemented all the recommendations of the Environmental Report filed in the proceeding, and all the recommendations and directives identified by the Ontario Pipeline Coordinating Committee review in accordance with the OEB's Decision and Order in EB-2019-0294 and the Conditions of Approval, as per Condition 6 (b)(i).

May 26, 2023

Date

Wes Armstrong

Wes Armstrong

Director, STO

Enbridge Gas Inc.

Condition 6 (b)(i).

6. Both during and after construction, Enbridge Gas shall monitor the impacts of construction, and shall file with the OEB an electronic copy (searchable PDF) version of each of the following reports:
 - b) A final monitoring report, no later than fifteen months after the in-service date, or, where the deadline falls between December 1 and May 31, the following June 1, which shall:
 - i. Provide a certification, by a senior executive of the company, of Enbridge Gas' adherence to Condition 3

Condition 3

Enbridge Gas shall implement all the recommendations of the Environmental Report filed in the proceeding, and all the recommendations and directives identified by the Ontario Pipeline Coordinating Committee review.

Appendix B

Project Overview Map



ENBRIDGE GAS INC.

LOW-CARBON ENERGY PROJECT

PROJECT OVERVIEW

FIGURE 1



- | | | |
|---------------------------------|--------------------------|------------------------------------|
| Disconnect / Reconnect Location | Hydrogen Station | Installed NPS 6 and NPS 8 Pipeline |
| Existing Hydrogen Tanks | Sales Station | Enbridge Property |
| District Station | XHP Filter Station | Watercourse |
| Regulation Station | Installed NPS 2 Pipeline | Waterbody |



MAP DRAWING INFORMATION:
 DATA PROVIDED BY MNRF, YORK REGION
 MAP CREATED BY: LK/DR
 MAP CHECKED BY: AL
 MAP PROJECTION: NAD 1983 UTM Zone 17N
 FILE LOCATION: I:\GIS\189005 - Enbridge

SCALE 1:6,000
 0 0.04 0.08 0.16 km

 PROJECT: 18-9005 STATUS: DRAFT DATE: 2021-11-30

Appendix C

Restoration Log

Location	Current Condition (April 13/May 11, 2023)	Recommendations/ Actions	Representative Photo (April 13/May 11, 2023)	Photo #
Woodbine Avenue at tie-in location, east side	Area is stable and revegetated and restored to pre-construction conditions.	None required		1
Woodbine Avenue	Topsoil and seed applied. Area is stable and has been restored to pre-construction conditions.	None required		2

Location	Current Condition (April 13/May 11, 2023)	Recommendations/ Actions	Representative Photo (April 13/May 11, 2023)	Photo #
Woodbine Avenue	Topsoil and seed applied. Area is stable and has been restored to pre-construction conditions.	None required		3
Woodbine Avenue	Topsoil and seed applied. Area is stable and has been restored to pre-construction conditions.	None required		4

Location	Current Condition (April 13/May 11, 2023)	Recommendations/ Actions	Representative Photo (April 13/May 11, 2023)	Photo #
Woodbine Avenue and Victoria Square Boulevard	Topsoil and seed applied. Area is stable and has been restored to pre-construction conditions.	None required		5
Woodbine Avenue and Victoria Square Boulevard	Topsoil and seed applied. Area is stable and has been restored to pre-construction conditions.	None required		6

Location	Current Condition (April 13/May 11, 2023)	Recommendations/ Actions	Representative Photo (April 13/May 11, 2023)	Photo #
Woodbine Avenue entrance to Enbridge TOC property, northwest side (drilling location)	Settlement at drilling location returned to pre-construction grade and seeded. Area is stable and has been restored to pre-construction conditions.	None required		7
Woodbine Avenue entrance to Enbridge TOC property, northwest side (drilling location)	Settlement at drilling location returned to pre-construction grade and seeded. Area is stable and has been restored to pre-construction conditions.	None required		8

Location	Current Condition (April 13/May 11, 2023)	Recommendations/ Actions	Representative Photo (April 13/May 11, 2023)	Photo #
Eastern portion of southern Enbridge TOC property near to Woodbine Avenue entrance	Temporary erosion and sediment controls removed from site. Area is stable and topsoil and seed has been applied. Fill material shown in photo from snow plowing and is not related to the Project.	None required		9
Northern soil storage area, located on Enbridge TOC property	Topsoil and seed applied. Area is stable and erosion and sediment controls have been removed from site.	None required		10

Location	Current Condition (April 13/May 11, 2023)	Recommendations/ Actions	Representative Photo (April 13/May 11, 2023)	Photo #
Swale pathway at Enbridge TOC property	No evidence of erosion. Area revegetated and stable and wood chips applied thinly over site in areas with tire rutting. Temporary erosion and sediment controls removed.	None required		11
Enbridge TOC property near to above-ground infrastructure	Area revegetated and stable with no evidence of erosion near the roadway. Wood chips applied thinly over site in areas with tire rutting.	None required		12

Location	Current Condition (April 13/May 11, 2023)	Recommendations/ Actions	Representative Photo (April 13/May 11, 2023)		Photo #
Enbridge TOC property access road	Area is stable with no evidence of erosion.	None required			13