

Sahtu Land and Water Board Annual Water Licence Staff Report # 3

Applicant: Enbridge Pipelines (NW) Inc.		
Location: KP 158 Near Little Smith Creek	File Numbers: S20L1-001	
Date Prepared: August 22, 2023	Date of Board Meeting: November 7, 2023	
Subject/Project Name: Enbridge Pipeline – Little Smith Creek 2022 Annual Water Licence		
Report		

1.0 Purpose/Report Summary

The purpose of this Report is to present to the Sahtu Land and Water Board for information on the public review completed for the **2022 Annual Water Licence Report for Enbridge Pipeline (NW) Inc. – Little Smith Creek** required by licence S20L1-001.

Although formal Board approval of the Annual Report is not required under the licence, the Board must be satisfied that the licensee has met the requirements of the licence.

2.0 Background

- a) March 4, 2021 Construction on the pipeline replacement was completed and all equipment and materials were fully demobilized with all topsoil and woody material placed over disturbed areas;
- b) March 16, 2021 Final inspection was conducted by GNWT Lands Inspectors, and no conditions are outstanding;
- c) **June/July 2021** The licence intends to visit the site again to conduct their Year 1 Post Construction Environmental Monitoring;
- d) Winter 2021/2022 Additional reclamation work may occur if the Post Construction Environmental Monitoring Report shows any deficiencies;
- e) **February 2022** The applicant identified a few minor deficiencies on the Right-of-Way (ROW) with all tasks being completed in February of 2022.
- f) **July 19, 2022** Letter sent out to Applicant and Tulit'a Distribution List Members indicating that public review of the 2021 Annual Water Licence Report wasn't necessary.

- g) June/July 2022 The applicant conducted a site inspection for their Post-Construction Environmental Monitoring studies with additional reclamation work occurring in winter of 2022/2023 if any additional site deficiencies are found.
- h) **March 31, 2023** Submission of 2022 Annual Water Licence Report and Year 2 Post Construction Monitoring Report.

Licence #	Report Received Date	Report Distributed Online Review System (ORS)	Distribution List	Review Comments Due Date	Proponent Response Due Date	Public Review Outcome
S20L1-001	March 31,	April 25 <i>,</i> 2023	Tulit'a	May 18,	May 30,	Comments
	2023		District (JG)	2023	2023	Provided

3.0 Discussion

3.1 – Project Overview – S20L1-001 – Industrial Water Licence – Enbridge Pipelines (NW) Inc. – Little Smith Creek

Water Licence S20L1-001 (the licence) entitles Enbridge Pipelines (NW) Inc. (Licensee) to use water and deposit waste and associated uses for an Industrial undertaking to replace a segment of pipeline within the Line 21 ROW supported by Off-ROW activities.

Activities permitted under the licence:

- 1. Construction, maintenance, and reclamation of temporary off ROW workspaces for drill sites, camps, laydown and laydown and fuel storage areas, barge landing site, sumps, and related facilities;
- 2. Fuel and hazardous materials use and storage;
- 3. Withdrawal of water for hydrovac and horizontal directional drilling and related activities;
- 4. Deposit of waste to a licenced facility;
- 5. On-site deposit of hydrovac slurry waste to a sump;
- 6. Progressive Reclamation and associated Closure and Reclamation activities.

3.2 Summary of Major Activities Undertaken During the 2022 Reporting Period

1) No other activities other than what was listed in Condition a) of the Licensee's 2022 Annual Water Licence Report were conducted.

3.3 Summary of Enbridge Pipelines (NW) Inc. 2022 Annual Water Licence Report

- 1) Waste Management Plan
 - a. No updates or changes were made to the original plan;
 - b. No sump was used;

- c. No drilling mud was used in 2022. Total amount of drilling mud waste removed from the site was 0 tonnes;
- d. The Licensee camp was not used, and the total amount of sewage water (including grey water) removed off-site was 0m³.
- 2) Spill Contingency Plan
 - a. No unauthorized discharges or reportable spills occurred as part of the project;
 - b. The Licensee's Spill Response Plan was reviewed during the environmental training that occurred when new employees were orientated.
 - c. No other spill training exercises were conducted as part of this project.
- 3) Progressive Reclamation Activities Closure and Reclamation
 - a. The project site was fully reclaimed prior to demobilization on March 7, 2021. All topsoil was put back and any woody material was layered back over the disturbed area.

3.4 Summary of Enbridge Pipelines (NW) Inc. 2 Year Post-Construction Monitoring Report

In February 2022, the Licensee completed additional reclamation work at the project site to address issues identified during the Year 1 Post Construction Environmental Monitoring Report (2021) site visit and consisted of the following:

- 1) Repairing the settlement at the HDD entry pit and exit pit;
- 2) Addressing the natural spring that appeared after the pipeline removal (surface channeling) by installing a diversion berm;
- 3) Repairing the location which had a small loss of containment during the completion of the horizontal directional drill (HDD), by installing a small clay plug.

The Licensee reports in the Year 2 Post Construction Environmental Monitoring Report that the project footprint is on a positive trajectory to achieving equivalent land capability. Mentioning that native vegetation within the project footprint is becoming naturally established and no major vegetation, soil, or landscaped issues were observed. The Licensee will be going on site in Q2 2023 to remove small items of garbage around the HDD entry pit, HDD exit pit, and camp site.

4.0 Public Review

The 2022 Annual Water Licence Report and Year 2 Post Construction Environmental Monitoring Report was put up for public review via the ORS on April 25, 2023. Comments were provided by Government of the Northwest Territories – Environment and Climate Change:

GNWT-ECC Comment ID 1:

As part of the review of the Annual Report, the applicant has included the Year 2 Post-Construction Environmental Monitoring Report. GNWT-ECC notes that while the description on the ORS is clear that the Annual Report is not for Board approval, it is unclear if this monitoring report is for Board approval. GNWT-ECC notes that Table 2 of the report compares closure objectives and closure criteria to the Year 2 PCEM Results. For the results that indicate "complete", it is unclear whether these components will continue to be monitored or if there are components of the monitoring being proposed to be discontinued.

Recommendation:

GNWT-ECC recommends that if the results of the Year 2 Post-Construction Environmental Monitoring Report are being used to alter any monitoring plan components, this report be reissued for review and be for Board approval. This will ensure that all parties understand the purpose of the reports and the implications for future monitoring.

Licensee Response:

All components of Table 2 of the Year 2 PCEM Post-Construction Environmental Monitoring Program report (Year 2 PCEM) marked "complete" will continue to be monitored by Enbridge NW Operations as part of ongoing operations and maintenance of the Line 21 pipeline. Section 1.2 of the Year 2 PCEM states: "Following the completion of the PCEM Program in 2023, Enbridge will continue monitoring the site as part of ongoing operations and maintenance of the Line 21 pipeline."

The results of the Year 2 PCEM are not being used to alter any monitoring plan components and, therefore, the Year 2 PCEM is not required to be re-issued for review and Board approval. Future monitoring will still occur for the life of the Line 21 pipeline but will be part of the operations and maintenance group and not the project construction team that was involved with the Line 21 KP158 Pipe Replacement Project at Little Smith Creek.

Board Staff Response: Board Staff agree with the Licensee and recommend that the Year 2 Post-Construction Monitoring Report not be put up as a separate review.

5.0 Conclusion and Recommendation

Board staff have reviewed all evidence related to this item and conclude that the licensee has met the requirements of licence for annual reporting of activities.

Board staff recommend that the Board:

- 1) Receive the Enbridge Pipelines Little Smith Creek 2022 Annual Water Licence Report for information, noting that the Board is satisfied the licensee has met the requirements of the Licence;
- 2) Receive the Year 2 Post Construction Monitoring Report as information, noting that minor clean-up of the project site is required in Q2 2023;
- 3) Endorse/Support the draft letter to be sent by Board Staff to the licensee indicating Board satisfaction with the 2022 Annual Water Licence Report.

Respectfully Submitted:	Reviewed by:	Approved By:
Benjamin Roy	Bonie Boorn	Pel
Benjamin Roy Regulatory Technician	Bonnie Bergsma, M.Sc. Regulatory Coordinator	Paul Dixon Executive Director
	Specialist	

6.0 Attachments

- 6.1 Board Satisfaction Letter
- 6.2 GNWT-ENR (Now ECC) Review Comment Letter
- 6.3 Enbridge Pipelines (NW) Inc. Review Comment Response
- 6.4 Review Comment Table
- 6.5 Enbridge Pipelines (NW) Inc. 2022 Annual Water Licence Report Cover Page
- 6.6 Enbridge Pipelines (NW) Inc. 2022 Annual Water Licence Report
- 6.7 Year 2 Post Construction Environmental Monitoring Report



Sahtu Land and Water Board P.O Box 1 Fort Good Hope, NT XOE OHO Phone: 867-598-2413 Fax: 867-598-2325 www.slwb.com

November 8, 2023

Sarah Mckenzie, Enbridge Pipeline (NW) Inc. 10175 – 101 Street NW Edmonton, AB T5J 0H3 File: S20L1-001

Sent by email

Dear Sarah Mckenzie,

Enbridge Pipeline (NW) Inc. – Little Smith Creek 2022 Annual Water Licence Report – Board Satisfaction

The Sahtu Land and Water Board (SLWB) met on November 7, 2023, to consider the 2022 Annual Water Licence Report submitted on March 31, 2023, in accordance with Part B, Condition 16 and Schedule 1 of Licence S20L1-001. Based on Board staff review, the Board was satisfied that the Licensee has met the requirements of the Licence.

The ongoing cooperation of Enbridge Pipeline (NW) Inc. is appreciated. If you have any questions or concerns, please contact Benjamin Roy at broy@slwb.com.

Respectfully,

Benjamin Rod

Benjamin Roy Regulatory Technician Government of Gouvernement des Northwest Territories Territoires du Nord-Ouest

May 18, 2023

Bonnie Bergsma Regulatory Coordinator Sahtu Land and Water Board Box 1 Fort Good Hope, NT X0E 0H0

Dear Bonnie Bergsma,

RE: S20L1-001 Little Smith Creek Enbridge Pipelines NW 2022 Annual Water Licence Report

The Department of Environment and Climate Change (ECC), Government of the Northwest Territories has reviewed the application at reference based on its mandated responsibilities under the *Waters Act.* GNWT-ECC has provided comments and recommendations for the consideration of the Sahtu Land and Water Board at this time.

For any technical questions, please contact Bryana Matthews, Regulatory & Science Advisor with the Regulatory and Permitting Division at Bryana_Matthews@gov.nt.ca.

Please contact <u>GNWT_EA@gov.nt.ca</u> with any general questions or concerns.

Sincerely,

Sjensen

Shakita Jensen Regulatory Analyst Department of Environment and Climate Change

Enbridge Pipelines (NW) Inc. ("Enbridge NW") Little Smith Creek 2022 Annual Water Licence Report

Enbridge NW Response to Government of Northwest Territories ("GNWT") Comment dated May 18, 2023

Year 2 Post-Construction Environmental Monitoring Report

Comment:	As part of the review of the Annual Report, the applicant has included the Year 2 Post-Construction Environmental Monitoring Report. GNWT- ECC notes that while the description on the ORS is clear that the Annual Report is not for Board approval, it is unclear if this monitoring report is for Board approval.
	GNWT-ECC notes that Table 2 of the report compares closure objectives and closure criteria to the Year 2 PCEM Results. For the results that indicate "complete", it is unclear whether these components will continue to be monitored or if there are components of the monitoring being proposed to be discontinued.
Recommendation:	GNWT-ECC recommends that if the results of the Year 2 Post- Construction Environmental Monitoring Report are being used to alter any monitoring plan components, this report be re-issued for review and be for Board approval. This will ensure that all parties understand the purpose of the reports and the implications for future monitoring.
Response:	All components of Table 2 of the Year 2 PCEM Post-Construction Environmental Monitoring Program report (Year 2 PCEM) marked "complete" will continue to be monitored by Enbridge NW Operations as part of ongoing operations and maintenance of the Line 21 pipeline. Section 1.2 of the Year 2 PCEM states: <i>"Following the completion of the PCEM Program in 2023, Enbridge will continue monitoring the site as part of ongoing operations and maintenance of the Line 21 pipeline."</i>
	The results of the Year 2 PCEM are not being used to alter any monitoring plan components and, therefore, the Year 2 PCEM is not required to be re-issued for review and Board approval. Future monitoring will still occur for the life of the Line 21 pipeline but will be part of the operations and maintenance group and not the project construction team that was involved with the Line 21 KP158 Pipe Replacement Project at Little Smith Creek.

Reviewer Comments and Proponent Responses

Project: Little Smith Creek Board: Sahtu Land and Water Board Organization: Enbridge Pipelines (NW) Inc.

No.	Торіс	Reviewer Comment	Reviewer Recommendation	Proponent Response
GNWT	-ENR - EAM (E	nvironmental Assessment and Mor	itoring) - Environmental Regulator	y Analyst
1	GNWT-ECC Cover Lette r	Please see attached.	N/A	
2	Year 2 Post- Constructio n Environm ental Monit oring Repor t	As part of the review of the Annu al Report, the applicant has inclu ded the Year 2 Post-Construction Environmental Monitoring Repor t. GNWT-ECC notes that while th e description on the ORS is clear that the Annual Report is not for Board approval, it is unclear if thi s monitoring report is for Board a pproval. GNWT-ECC notes that Table 2 of the report compares closure obje ctives and closure criteria to the Year 2 PCEM Results. For the res ults that indicate "complete", it i s unclear whether these compon ents will continue to be monitore d or if there are components of t he monitoring being proposed to be discontinued.	GNWT-ECC recommends that if t he results of the Year 2 Post-Con struction Environmental Monitori ng Report are being used to alter any monitoring plan component s, this report be re-issued for rev iew and be for Board approval. T his will ensure that all parties un derstand the purpose of the repo rts and the implications for futur e monitoring.	Please see attached.



Karin Schmidt Sr. Advisor Law, Regulatory Affairs

tel 403-231-3948 karin.schmidt@enbridge.com Enbridge 200, 425 – 1st Street SW Calgary, AB T2P 3L8 Canada

March 31, 2023

E-FILE

Sahtú Land and Water Board P.O. Box 1 Fort Good Hope NT X0E 0H0

Attention: Bonnie Bergsma, Regulatory Specialist

Dear Ms. Bergsma,

Re: Enbridge Pipelines (NW) Inc. ("Enbridge") Line 21 Replacement Project at KP 158 near Little Smith Creek (the "Project") Sahtú Land and Water Board ("SLWB") Water Licence – Licence No. S20L1-001 – Condition 9 – Annual Review and Condition 16 – Annual Water Licence Report Land Use Permit – Permit No. S20P-003 Condition 54 – Spill Contingency Plan

Attached is the Annual Water Licence Report for Water Licence No. S20L1-001 relating to the Project. Also, attached as part of Enbridge's Closure and Reclamation Plan is the Year 2 (2022) Post-Construction Environmental Monitoring ("PCEM") Report, which represents the final PCEM report.

With respect to Condition 9 of Water Licence No. S20L1-001, Enbridge has reviewed the following plans for the Project and has determined that the Plans listed below do not require any revisions:

- 1. L21 KP158 Environmental and Socio-Economic Assessment
- 2. L21 KP158 Closure and Reclamation Plan
- 3. L21 KP158 Spill Contingency Plan
- 4. L21 KP158 Waste Management Plan
- 5. L21 KP158 Environmental Protection Plan

With respect Land Use Permit No. S20P-003 Condition 54 there are no changes required to the Spill Contingency Plan.

Should you have any questions or concerns, please contact me at (403) 231-3948 or by e-mail at <u>karin.schmidt@enbridge.com</u>.

Sincerely,

R. Schmidt

Karin Schmidt Sr. Advisor

Water Licence Annual Report

Line 21 Pipe Replacement at KP 158 near Little Smith Creek (Licence No. S20L1-001) March 2023





Introduction

Enbridge has prepared this Annual Water Licence Report to fulfill Condition 16 of Water Licence S20L1-001, granted by the Minister of Environment and Natural Resources in accordance with the *Mackenzie Valley Resource Management Act* and Northwest Territories (NWT) *Waters Act*.

Condition 16 in Part B of SAHTU Land and Water Board (SLWB) Water Licence S20L1-001 states:

Beginning March 31, 2021 and no later than every year after thereafter, the Licensee shall submit an Annual Water Licence Report to the Board and Inspector. The Report shall be in accordance with the requirements of Schedule 1, Condition 1:

Schedule 1: Annual Water Licence Report

	Condition	Rationale
1.	The Annual Water Licence Report referred to in Part B, Condition 16 of this Licence shall include, but not be limited to, the following information about the activities conducted during the previous calendar year:	This condition sets out the information requirements for the Annual Water Licence Report. The list of information requirements will be customized to reflect the Licence conditions; it
	 b) An updated Project schedule: 	may not include all of these items, and/or may
	 c) The monthly and annual quantities in cubic metres of fresh Water obtained from all sources, as required in Part B, Condition 15 of this Licence; 	include additional, project-specific items that are not in this list.
	 A summary of the calibration and status of the meters and devices referred to in Part B, Condition 15 of this Licence; 	public record for a project, annual reporting is still
	 A summary of engagement activities conducted in accordance with the approved Engagement Plan, referred to in Part B, Condition 17 of this Licence; 	required for seasonal or temporary shut-down periods. The licensee should explain that no work was done during specific time periods or for the
	f) A summary of how Traditional Knowledge was incorporated into decision making;	full year. If volume reporting is required (e.g., monthly or annual water use or waste deposit
	 g) A summary of major maintenance activities conducted in accordance with this Licence; 	volumes)the Licensee should enter zero where
	 h) A summary of activities conducted in accordance with the approved Waste Management Plan, referred to In Part F, Condition 3 of this Licence, including: A summary of approved updates or changes to the process or facilities required for the management of Waste; A map depicting the location of the Sump; Results of drilling waste tests and action taken; Monthly and annual quantities, in cubic metres, of Drilling Wastes discharged to Sump or removed offsite; Monthly and annual quantities, in cubic metres, of Sewage and Greywater removed off-site and disposed of at an approved facility identified by disposal location; 	
	 i) A summary of activities conducted in accordance with the approved Spill Contingency Plan, referred to in Part H, Condition 2 of this Licence, including: A list and description for all Unauthorized Discharges, Including the date, NWT spill number, volume, location, summary of the circumstances and follow- up actions taken, and status (i.e. open or closed), in accordance with the reporting requirements In Part H, Condition 3 of this Licence; and An outline of any spill training carried out. 	
	 A summary of Progressive Reclamation activities conducted in accordance with the Closure and Reclamation Plan, referred to in Part I, Condition 1 of this Licence. 	



	Condition	Rationale
k)	A list of any non-compliance(s) with the conditions of this Licence or any directive from the Board pursuant to the conditions of this licence;	
1)	A summary of actions taken to address concerns, non- conformances, or deficiencies in any reports filed by an Inspector;	
m)	Any other details requested by the Board by December 31 of the year being reported.	

Brief Summary of Project Activities

a) A brief summary of Project activities;

Enbridge operates Line 21 which runs parallel to Little Smith Creek, approximately 67 km southeast of the Hamlet of Tulita. This area has been monitored for slope movement since 1985 and engineering assessments determined that preventative maintenance was required due to continued slope movement. To avoid any potential future impact to Line 21 from the encroaching bank of the creek, Enbridge replaced an approximately 515-metre segment of the pipe during January-March 2021.

Updated Project Schedule

b) An updated Project Schedule

Post construction monitoring took place in the fall of 2022 and identified that the Project footprint is on a positive trajectory to achieving equivalent land capability. Native vegetation within the Project footprint is becoming naturally established and no major vegetation, soil, or landscape issues were observed. One small berm had to be repaired this winter (due to some minor settling) and, therefore, the project required water to freeze in access to the site. These quantities of water are reported on below.

Monthly Annual Quantities of Fresh Water

c) The monthly and annual quantities in cubic metres of fresh Water obtained from all sources, as required in Part B, Condition 15 of this Licence;

Total volume of water used for this project in 2023 was 813 m³.

- January 2022 261 m³
- February 2022 552 m³

Summary of Calibration

d) A summary of the calibration and status of the meters and devices referred to in Part B, Condition 15 of this Licence;

The water truck contractor calibrated the volume based on the total amount the truck could haul based on the inboard flow meter – one load was equivalent to $16m^3$.

Engagement Activities

e) A summary of engagement activities conducted in accordance with the approved **Engagement Plan**, referred to in Part B, Condition 17 of this Licence;



Enbridge has engaged and continues to engage stakeholders and Indigenous groups identified in the engagement plan (2019) originally filed with the application. Those include:

- Tulita District Land Corporation
- Tulita District Benefits Corporation
- Norman Wells Land Corporation
- Tulita Land Corporation
- Fort Norman Metis Community
- Tulita Dene Band
- Tulita Renewable Resource Council
- Hamlet of Tulita
- Norman Wells Renewable Resource Council
- Town of Norman Wells

In 2022, Enbridge engaged with communities in the Tulita District of the Sahtu Region, on planned or actual project work, as well as ongoing operations and maintenance work. Engagement occurred on a regular basis through email, virtual meetings or in-person with the goal of addressing any questions or concerns in a timely manner regarding 2-3 weeks of civil reclamation work required in the area of the original project location.

Additional topics of discussion with stakeholders and Indigenous groups that occur throughout the year include Public Awareness Program, emergency response exercises and participation, community investment opportunities, economic inclusion and business opportunities, Enbridge's Path to Reconciliation goals; and the introduction of Enbridge's first Indigenous Reconciliation Action Plan (IRAP).

At a minimum, Enbridge plans to maintain a similar level of engagement and consultation in the Tulita District of the Sahtu Region in 2023. If there are any issues or concerns raised, Enbridge will work with local stakeholders to resolve them in a timely manner.

Summary of Traditional Knowledge Incorporated into Decision Making

f) A summary of how Traditional Knowledge was incorporated into decision making;

As noted in Enbridge's Water Licence Annual Report from 2022, Enbridge included a Traditional Knowledge report (from summer 2019) as part of the ESA submission (Environmental and Socio-Economic Assessment) and this information was used in the development of the Environmental Protection Plan.

Summary of Major Maintenance Activities

g) A summary of major maintenance activities conducted in accordance with this Licence;

No other activities other than what was listed in Condition a) of this report were conducted as part of this Water License.

Summary of Activities – Waste Management Plan

- h) A summary of activities conducted in accordance with the approved Waste Management Plan, referred to In Part F, Condition 3 of this Licence, including:
 - i. A summary of approved updates or changes to the process or facilities



required for the management of Waste;

- *ii.* A map depicting the location of the Sump;
- iii. Results of drilling waste tests and action taken;
- *iv.* Monthly and annual quantities, in cubic metres, of Drilling Wastes discharged to Sump or removed offsite;
- v. Monthly and annual quantities, in cubic metres, of Sewage and Greywater removed off-site and disposed of at an approved facility identified by disposal location;

Responses:

- i. No updates or changes were made to the original plan;
- ii. No sump was used;
- iii. No drilling mud was used in 2023. Total amount of drilling mud waste removed from site was 0 tonnes;
- iv. An Enbridge camp was not used so the total amount of sewage water (including grey water) removed off-site was 0 m³.

Summary of Activities – Spill Contingency Plan

- *i)* A summary of activities conducted in accordance with the approved **Spill Contingency Plan**, referred to in Part H, Condition 2 of this Licence, including:
 - *i.* A list and description for all Unauthorized Discharges, Including the date, NWT spill number, volume, location, summary of the circumstances and follow-up actions taken, and status (i.e. open or closed), in accordance with the reporting requirements In Part H, Condition 3 of this Licence; and
 - ii. An outline of any spill training carried out.

Responses:

- i. No unauthorized discharges or reportable spills occurred as part of the project;
- ii. Enbridge's spill response plan was reviewed during the Environmental training that occurred when new employees were orientated. No other spill training exercises were conducted as part of this Project.

Summary of Progressive Reclamation Activities – Closure and Reclamation

j) A summary of Progressive Reclamation activities conducted in accordance with the **Closure and Reclamation Plan**, referred to in Part I, Condition 1 of this Licence.

The project site was fully reclaimed prior to demobilization on March 7, 2021. All topsoil was put back and any woody material was layered back over the disturbed area.

Non-Compliance

k) A list of any non-compliance(s) with the conditions of this Licence or any directive from the Board pursuant to the conditions of this licence;

No non-compliances have been identified.



Summary of Actions

I) A summary of actions taken to address concerns, non-conformances, or deficiencies in any reports filed by an Inspector;

See k) above.

Other

m) Any other details requested by the Board by December 31 of the year being reported.

No additional details were requested by the Board.



ENBRIDGE PIPELINES (NW) INC.

Year 2 (2022) Post-Construction Environmental Monitoring Report

Line 21 KP 158 (Little Smith Creek) Planned Maintenance Project

Table of Contents

Acronyms and Abbreviations

1.0	Introduction		1
	1.1 Project	Description	1
	<i>1.2</i> Plan Pu	Irpose and Scope	2
2.0	Post-Construction	n Environmental Monitoring Program	4
	2.1 Object	ves	4
	2.2 Metho	ds	4
	2.2.1	Vegetation Monitoring	4
	2.2.2	Soil Assessment	5
	2.2.3	Landscape Assessment	5
	2.3 Results	;	6
3.0	Conclusions and	Recommendations	9
4.0	References		10
	Tables		
	Table 1: Project	Closure Objectives and Criteria	2

Table 2: Year 2 PCEM Program Results in Relation to Project Closure Objectives and Criteria.......6

Appendices

- А **Environmental Issues List**
- В Photos

Enbridge Pipelines (NW) Inc.



Acronyms and Abbreviations

Dillon	Dillon Consulting Limited
EIL	Environmental Issues List
Enbridge	Enbridge Pipelines (NW) Inc.
HDD	horizontal directional drill
km	kilometre(s)
KP	kilometre post
m	metre(s)
NPS	nominal pipe size
PCEM	Post-Construction Environmental Monitoring
ROW	Right-of-Way
SLWB	Sahtú Land and Water Board
the Project	Line 21 KP 158 (Little Smith Creek) Planned Maintenance Project

Year 2 (2022) Post-Construction Environmental Monitoring Report - Line 21 KP 158 (Little Smith Creek) Planned Maintenance Project



Enbridge Pipelines (NW) Inc.

February 2023, Rev. 0 – 18-8582

1.0 Introduction

Enbridge Pipelines (NW) Inc. (Enbridge) replaced a segment of the Line 21 pipeline southeast of kilometre post (KP) 158 near Little Smith Creek in the Northwest Territories (NWT) (the Project). The Project is located in the Sahtú Region of the NWT, approximately 80 kilometres (km) southeast of the Hamlet of Tulita and approximately 140 km southeast of the Town of Norman Wells.

The Project was required to protect the Line 21 pipeline from potential impacts of slope instability at a meander bend along Little Smith Creek near KP 158 and to support the continued safe operation of the pipeline.

Enbridge received the necessary regulatory approvals for the Project from the Sahtú Land and Water Board (SLWB) on September 17, 2020, including:

- Type A Land Use Permit (No. S20P-003); and,
- Type B Water Licence (No. S20L1-001).

Construction was completed over the course of thirteen weeks, between December 28, 2020 and March 13, 2021. The pipeline was returned to normal service on March 4, 2021.

In February, 2022, Enbridge completed additional reclamation work at the Project site to address issues identified during the Year 1 PCEM (2021) site visit. This work consisted of:

- Repairing the settlement at the HDD entry pit and exit pit;
- Addressing the natural spring that appeared after the pipe removal (surface channeling) by installing a diversion berm; and,
- Repairing the location which had a small loss of containment during the completion of the horizontal directional drill (HDD), by installing a small clay plug.

1.1 **Project Description**

The Project involved the removal of an approximately 510-metre (m) segment of the existing Line 21 pipeline (nominal pipe size [NPS] 12) and replacing it with a new, approximately 520-m NPS 12 pipeline segment at a greater depth of cover. The pipeline was installed via HDD within the existing Enbridge right-of-way (ROW).

Project construction included upgrades to existing access roads, as well as the following temporary infrastructure:

- Airstrip (the Project used the existing airstrip to transport crews directly to and from site by plane as a precaution to prevent the spread of COVID-19 to the local communities);
- Construction camps (three small camps);



Enbridge Pipelines (NW) Inc.

- Laydown yard (fuel and equipment storage); and,
- Temporary workspace (i.e., HDD work sites and pipeline stopple/tie-in locations).

1.2 Plan Purpose and Scope

The Water Licence issued by the SLWB on September 17, 2020 stipulates that Enbridge comply with the approved Closure and Reclamation Plan for the Project. The approved Closure and Reclamation Plan (prepared by Dillon Consulting Limited [Dillon], dated August 2020) states the following in regards to post-construction environmental monitoring (PCEM):

"Enbridge will implement a PCEM Program to determine if remedial measures are warranted. Monitoring will occur in spring following break-up and in the summer/fall during the growing season for the first two years. Following year two, monitoring will only be conducted in summer during the growing season. Following the completion of the PCEM Program in 2023, Enbridge will continue monitoring the site as part of ongoing operations and maintenance of the Line 21 pipeline.

A report will be completed each year of the PCEM Program to summarize the results of the PCEM fieldwork and will be submitted to the SLWB as part of the Annual Water License Report."

The purpose of this PCEM report is to report on the status of the Project closure objectives and criteria outlined in Table 8 of the approved Closure and Reclamation Plan (reproduced in **Table 1**, below).

Closure Objective	Closure Criteria
Remove all garbage and construction material from the Project footprint	All materials brought to the Project footprint are removed following final site clean-up and reclamation (e.g., garbage, matting, fencing, gravel, etc.)
Return the landscape to	Surface contours are comparable to the surrounding representative area
pre-construction condition	Pre-construction surface drainage is restored
	Surface stoniness is consistent with the representative area
	No ponding, subsidence, or slumping is observed
Achieve soil stability	Erosion is not observed (beyond typical natural erosion in the Project area)
	Erosion controls are functional or removed if no longer required
	Slopes are stable and no soil movement is observed
	No severe compaction or soil mixing is observed (i.e., vegetation regrowth is not noticeably stunted)
Revegetate the Project footprint	No large bare areas are observed
	Species composition is consistent with the surrounding representative area, as defined above
	Average desirable vegetation density is comparable to the surrounding representative area
	Overall vegetation health is similar to the surrounding representative area

Table 1: Project Closure Objectives and Criteria

Enbridge Pipelines (NW) Inc.



Closure Objective	Closure Criteria
No increased presence of weeds and/or invasive vegetation	Weeds and/or invasive species represent the species composition observed in the surrounding representative area, as defined above
Sumps (if used)	Pre-construction surface drainage is restored
	No ponding, subsidence, or slumping is observed
	Erosion is not observed (beyond typical natural erosion in the Project area)
	Slopes are stable and no soil movement is observed
	No large bare areas are observed
	Species composition is consistent with the surrounding representative area
	Average desirable vegetation density is comparable to the surrounding representative area
	Overall vegetation health is similar to the surrounding representative area
	Weeds and/or invasive species represent the species composition observed in the surrounding representative area, as defined above
	No severe compaction or soil mixing is observed (i.e., vegetation regrowth is not noticeably stunted)

Typical PCEM reporting involves the use of an Environmental Issues List (EIL), which is a comprehensive listing of observed issues and recommendations for additional reclamation based on on-the-ground fieldwork. The list is carried forward to each subsequent year of PCEM and issues that have been successfully addressed are noted as resolved. The EIL for the second year (Year 2, 2022) PCEM program is provided in **Appendix A**.



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2.0 Post-Construction Environmental Monitoring Program

2.1 Objectives

The objectives of the PCEM Program are to:

- Evaluate the recovery of areas disturbed during pipeline construction;
- Assess the status of any outstanding environmental issues identified from Project construction;
- Address the Project closure objectives and criteria outlined in the approved Closure and Reclamation Plan (see **Table 1** of this report);
- Identify any new environmental issues that may have arisen;
- Recommend corrective measures to be implemented to address outstanding environmental issues in a timely manner; and,
- Populate the EIL to provide the starting point for subsequent PCEM reporting.

2.2 Methods

The methods for monitoring the status of environmental issues is based on the fundamental principle that the success of land reclamation is measured against representative site conditions (i.e., adjacent or within the vicinity of the Project footprint). Where no known limitations to normal management and ecosystem function for that land type are evident during PCEM, mitigation measures will be determined to be effective.

2.2.1 Vegetation Monitoring

The Project footprint was inspected for vegetation issues, such as low vegetation establishment and weed infestation issues. Vegetation parameters assessed include the following:

- Vegetation type, density, height, and health;
- Bare soil exposure;
- Presence of a positive growth trajectory for vegetation; and,
- Weed distribution, density, and species present.

A positive trajectory is a subjective visual observation involving an examination of the overall plant community. If a vegetated area contains desirable species (i.e., species that are native), the area could be considered to have a 'positive' trajectory. These areas are anticipated to continue to establish more desirable species which will generally out-compete the existing weeds over time. Most of the time, these areas do not require additional remedial work to continue to improve; only additional monitoring to ensure successful re-vegetation continues.



2.2.2	Soil Assessment
	Soil assessments were conducted at areas where differences were observed in vegetation establishment and health on the Project footprint compared to conditions off the Project footprint. Vegetation issues were used to target the locations of potential underlying soil issues. The soil assessments were qualitative and based on visual observations only.
2.2.2.1	Topsoil and Subsoil Compaction
	Soil compaction was assessed by visual observations of physical soil characteristics (e.g., aggregate size and strength) and vegetation establishment on the Project footprint.
	The degree of compaction was determined by comparing characteristics present on the Project footprint with equivalent soil and vegetation characteristics observed off of the Project footprint.
2.2.2.2	Topsoil/Subsoil Mixing
	Soil mixing was assessed by identifying obvious changes in vegetation establishment on the Project footprint compared to off the Project footprint.
2.2.3	Landscape Assessment
	The indicators for the determination of landscape and terrain reclamation success include the following four subcategories: coarse fragment content; contour and drainage re-establishment; microtopography (landform features); and erosion (soil stability). Success of landscape and terrain reclamation was determined by comparing consistency of the reclaimed Project footprint with the pre-construction conditions and/or the surrounding landscape.
2.2.3.1	Coarse Fragments
	The presence of coarse fragments (e.g., stones, gravel, and woody debris) can affect the management of soils and landscapes on all land uses. Where an excess of coarse fragments was evident as a result of construction activities on the Project footprint (when compared to control sites off of the Project footprint), the degree of excess material was noted and the affected area was delineated and documented.
2.2.3.2	Contour and Drainage Re-Establishment
	Proper contour re-establishment involves returning any disturbed area to its pre-existing state without altering natural drainage patterns or topography. Where alterations to natural drainage patterns were evident, the degree of disturbance on the Project footprint was delineated and documented.



2.2.3.3 Microtopography Microtopography was assessed by comparing landform features within the reclaimed topography on the Project footprint to the naturally occurring landform features found off of the Project footprint. Excessive elevation changes (including trench subsidence and trench crowning) and a delineation of the affected area were recorded. Erosion 2.2.3.4 Erosion monitoring involved an assessment of the effects of wind and water on the Project footprint (e.g., erodible soils, slopes, and areas slow to establish vegetation cover) after final clean-up was complete, and included an assessment of the current function and effectiveness of any erosion or sediment controls, as well as water diversion measures implemented during or after construction. Results 2.3 The ground reconnaissance for the second year (2022) PCEM program was conducted by Enbridge Operations on May 31, 2022 (via helicopter) and by Dillon staff on October 4, 2022 (on-foot) to assess the degree of reclamation success within the Project footprint. Table 2 provides the results of the Year 2 (2022) PCEM Program in relation to the closure objectives and criteria outlined in the approved Closure and Reclamation Plan. Detailed results specific to each Project area are provided in the EIL in Appendix A. Representative photos of the Project footprint are included in Appendix B.

Closure Objective	Closure Criteria	Year 2 PCEM Results
Remove all garbage and construction material from the Project footprint	All materials brought to the Project footprint are removed following final site clean-up and reclamation (e.g., garbage, matting, fencing, gravel, etc.)	To be resolved. Small items of garbage observed at the HDD entry and exit pits, as well as the camp site remain. A follow-up site visit was scheduled for Q4 2022 to remove the garbage; however, due to snow coverage, Enbridge Operations was unable to complete this reclamation activity. A second site visit has been scheduled for Q2 2023 to remove the garbage.
Return the landscape to pre-construction condition	Surface contours are comparable to the surrounding representative area	Complete. The settling observed near the HDD exit pit and the hole at the inadvertent return location were repaired in 2022.

Table 2: Year 2 PCEM Program Results in Relation to Project Closure Objectives and Criteria



Closure Objective	Closure Criteria	Year 2 PCEM Results	
	Pre-construction surface drainage is restored	Complete. A diversion berm was installed in 2022 to address surface drainage issues (see Photo 5 and Photo 6 in Appendix B). While the berm is still functional, Enbridge is conducting additional berm maintenance activities in winter 2023 based on field observations in 2022.	
	Surface stoniness is consistent with the representative area	Complete.	
	No ponding, subsidence, or slumping is observed	Complete. The settling observed near the HDD exit pit and the hole at the inadvertent return location were repaired in 2022. A diversion berm was installed to address surface drainage issues.	
Achieve soil stability	Erosion is not observed (beyond typical natural erosion in the Project area)	Complete. Minor erosion was observed from the spring near the removed pipeline in 2021. This erosion is still present but no further erosion was observed in 2022 following the installation of the diversion berm.	
	Erosion controls are functional or removed if no longer required	Complete.	
	Slopes are stable and no soil movement is observed	Complete.	
	No severe compaction or soil mixing is observed (i.e., vegetation regrowth is not noticeably stunted)	Complete.	
Revegetate the Project footprint	No large bare areas are observed	Complete. Note: The camp and laydown area are not fully vegetated (see Photo 8 and 9 in Appendix B); however, the existing conditions in these areas were documented in the Closure and Reclamation Plan as being sparsely vegetated with some bare land and the goal for reclamation is to return the site to its pre-construction condition. As such, this criterion is considered complete.	
	Species composition is consistent with the surrounding representative area, as defined above	Complete.	
	Average desirable vegetation density is comparable to the surrounding representative area	Complete.	
	Overall vegetation health is similar to the surrounding representative area	Complete.	





Closure Objective	Closure Criteria	Year 2 PCEM Results
No increased presence of weeds and/or invasive vegetation	Weeds and/or invasive species represent the species composition observed in the surrounding representative area, as defined above	Complete.
Sumps (if used)	Pre-construction surface drainage is restored No ponding, subsidence, or slumping is observed	N/A – sumps were not used for the Project.
	Erosion is not observed (beyond typical natural erosion in the Project area)	_
	Slopes are stable and no soil movement is observed	
	No large bare areas are observed	
	Species composition is consistent with the surrounding representative area	
	Average desirable vegetation density is comparable to the surrounding representative area	
	Overall vegetation health is similar to the surrounding representative area	-
	Weeds and/or invasive species represent the species composition observed in the surrounding representative area, as defined above	
	No severe compaction or soil mixing is observed (i.e., vegetation regrowth is not noticeably stunted)	



Enbridge Pipelines (NW) Inc.

3.0 Conclusions and Recommendations

The results of the Year 2 (2022) PCEM Program indicate that the Project footprint is on a positive trajectory to achieving equivalent land capability. Native vegetation within the Project footprint is becoming naturally established and no major vegetation, soil, or landscape issues were observed.

Enbridge Pipelines (NW) Inc.



4.0 References

Dillon Consulting Limited (Dillon). 2020. Environmental and Socio-Economic Assessment for the Enbridge Pipelines (NW) Inc. Line 21 Planned Maintenance at KP 158 near Little Smith Creek. July 2020, Rev. 2. 84 pp. + appendices.

Dillon Consulting Limited (Dillon). 2020. *Closure and Reclamation Plan for the Enbridge Pipelines (NW) Inc. Line 21 Planned Maintenance at KP 158 near Little Smith Creek*. August 2020, Rev. 1. 39 pp. + appendices.



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Appendix A

Environmental Issues List

Enbridge Pipelines (NW) Inc.



ltem				Observations and Recommendations	
#	Location	Issue(s) Observed (2021)	Repair Work Completed (2022)	(2022)	Status
1	HDD exit pit	Settling	Re-contouring to repair settling completed in 2022	The settling area observed near the exit pit was observed to be filled and mounded with a mixture of soil and mulch	Resolved
2	Vicinity of HDD exit pit	Hole created by inadvertent return during construction	Hole filled in 2022	The hold was observed to be filled and mounded with a mixture of soil and mulch	Resolved
3	Along removed pipe alignment	Water from a spring is creating surface erosion	Diversion berm installed in 2022	The diversion berm installed along and across the groundwater seepage was observed to be mitigating further erosion	Resolved
4	HDD entry pit, HDD exit put, camp site	N/A	N/A	Small items of garbage observed that require removal	To be resolved Q2 2023

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Endridge Action Plan
N/A
N/A
N/A
Enbridge has scheduled a site visit for O2 2022 to the

Enbridge has scheduled a site visit for Q2 2023 to the remove garbage left on site. The initial site visit to remove the garbage was unsuccessful due to snow coverage at the time.



Appendix B

Photos

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(October 4, 2022).

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trench (facing south). Note the sign indicating the berm has settled (October 4, 2022).

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Photo 10: Garbage observed at the perimeter of the camp site (October 4, 2022). Scheduled to be removed Q2, 2023.



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