# INSPECTION OFFICER ORDER NO. LMR – 001 – 2024

IN THE MATTER OF THE CANADIAN ENERGY REGULATOR ACT,
AN ORDER UNDER SECTION 109

Michelle Podavin, President, is the Accountable Officer under the *Canada Energy Regulator Onshore Pipeline Regulations* (OPR) for **Plains Midstream Canada ULC (Plains)**, a Company who owns and operates certain facilities regulated by the Canada Energy Regulator (CER), including the Plains Windsor Storage Facility and Terminal (Windsor Station), located in Windsor, Ontario. Plains is the holder of CER authorizations for facilities located at the Windsor Station, under the *Canadian Energy Regulator Act* (CER Act).[1]

## RELEVANT FACTS

### *Summary of Windsor Station and Regulatory Context*

The Windsor Station was constructed in the mid-1970s and approved for operations under NEB Certificate of Public Convenience and Necessity (CPCN) OC-29. Caverns E1, E3, E5, and I-4 are subject to CER jurisdiction, along with ancillary works and related surface facilities including product injection pumps, surface brine storage, brine pumps, handling, metering and dehydration facilities and surface piping.[2] The NEB authorized the transfer of the ownership of the Windsor Station facilities to Plains in 2013.

The Windsor Station includes a high vapour pressure underground hydrocarbon cavern storage system that serves as a hub for the Eastern Delivery System and Windsor to Sarnia Pipeline gas pipeline systems. Aboveground brine ponds are an integral component of the operation of the hydrocarbon storage caverns, as brine is displaced from the caverns and stored in aboveground ponds when the hydrocarbon products are pumped into the storage caverns.

There are five brine storage ponds at the Windsor Station. Four large storage ponds known as Brine Ponds 1, 2, 3 and 5 range from 4.3 to 5.2 hectares in surface area. Brine Pond 4 is a small, 0.1 hectare pond connected to the north of Brine Pond 2. Brine Ponds 1 to 3 were constructed as uncovered, clay-lined retention ponds in the early- to mid-1970s. The NEB authorized the addition of a high density polyethylene (HDPE) cover on Brine Pond 3. Brine Pond 5 was constructed as a clay-lined retention pond with floating HDPE cover in 1995.[3]

[1] On 28 August 2019, the *National Energy Board Act* was repealed and replaced by the CER Act.
[2] See NEB Order XO-1-73, authorizing the construction of the Windsor Station. Subsequent NEB or CER orders authorizing or amending facilities include Order MO-25-86, Order MO-15-74, XO-24-92, MO-004-2013, CPCN OC-29, CPCN OC-52, and Order XO-C18-29-93 (authorizing upgrades on the high-pressure bring facilities) as amended.
[3] NEB Order XO-A010-27-99.

***Summary of Relevant Windsor Station Compliance Verification Activities***

Contamination at the Windsor Station was first reported to the NEB in 2010 by the owner at the time. Since then, the CER has issued Information Requests (IRs) and taken enforcement actions by issuing Notices of Non-Compliance (NNCs) during multiple Compliance Verification Activities (CVAs).

1. **REM-0309:** On 30 March 2015, two years after Plains acquired the Windsor Station, the Company was compelled by the NEB to submit a Notice of Contamination (NOC) for the contamination at the Windsor Station under Information Exchange Meeting CV1415-103. This contamination was assigned the remediation file number REM-0309, and Plains reported that "Seepage from the brine ponds ha[d] resulted in localized salinity exceedances in the shallow groundwater".[4] Plains did not report the potential for off-facility contaminant migration in either the NOC or the Annual Updates for REM-0309, and in 2018 and 2022, noted that the conditions remained stable with no change in results from the previous years.

   In October 2022, the CER sent an IR under REM-0309 requesting Plains report if the salinity in groundwater had migrated off-facility. Plains responded to the IR in January 2023 by reporting that assessment activities had only been completed within the Windsor Station, that off-facility impacts remained unknown, and that "No potential sensitive receptors ha[d] been identified to be at risk".

2. **CV2122-335:** Between November 2021 and February 2022, a CER Officer conducted CVA CV2122-335, including a Field Inspection and Implementation Assessment (IA) Meeting, inclusive of elements associated with the management and maintenance of the berms of brine ponds at the Windsor Station.

3. **CV2425-108:** On 13 May 2024, a Field Inspection at the Windsor Facility was initiated to verify compliance of the operating facility and gather further information on the potential hazard posed by the salinity contamination reported under REM-0309. Information pertaining to Plains' management of the contamination and the site conditions were compelled under IR 1, and the CER Officer's review of Plains' IR 1 Response resulted in the issuance of NNC 3.[5,6]

4. **CV2425-345**: As a result of CV2425-108, an IA meeting under CV2425-345 was conducted on 10 October 2024 to gather additional information on Plains' plans to manage the contamination seeping from the brine ponds, and clearly articulate the CER's expectations for managing the contamination described under CV2425-108. Discussion topics included the development of Remedial Action Plan and/or Risk Management Plan to meet the CER's *Remediation Process Guide* requirements, delineating the extent of the salinity impacts on- and off-facility, quantifying and qualifying the extent of the hazard via the Risk Assessment

[4] Brine is saltwater, typically with high levels of dissolved sodium and chloride salts. When released into the environment, the salts in brine can cause adverse effects to soil structure and function, impaired plant functioning or death, and the salinization of drinking water supplies and freshwater aquatic environments.
[5] NNC 1 and NNC 2, issued under CV2425-108, are not relevant to this IOO.
[6] *Response to Canada Energy Regulator Information Request, Plains Windsor Liquefied Gases Storage and Distribution Terminal, Windsor, Ontario* by WSP Canada Inc. for Plains Midstream, dated 24 July 2024.

process, the protection of any off-facility receptors, and contaminant source control activities.

During this IA meeting, Plains confirmed that it had not assessed Brine Ponds 1 to 5 for seepage as their physical integrity program did not account for seepage. Plains also confirmed that the Brine Ponds represent a probable ongoing source of contamination.

***Summary of Site Information Demonstrating the Hazard***

This section summarizes selected portions of information submitted to the CER by Plains under the above-referenced CVAs and remediation file REM-0309.

1. **Electromagnetic surveys:** Four electromagnetic 31 (EM31) surveys have been done at the Windsor Station since 2000 to identify areas with elevated subsurface conductivity.[7]
   i. EM survey results have shown elevated subsurface conductivity between the brine ponds, along the surveyable perimeters of Brine Ponds 1 to 5, and the northern, southern and western property boundaries since at least 2000, and portions of the eastern property boundary since at least 2021.
   ii. Elevated subsurface conductivity was measured within an off-property parcel of land to the west of Brine Pond 1 as early as 2000, indicating that the contamination had likely already emanated off-facility.

2. **Site conditions:** Plains' IR 1 Response under CV2425-108 gave details on site conditions at the Windsor Station, including that the ponds are underlain by sandy soils, which typically allow brine to move readily with groundwater flow.

3. **Chloride in groundwater at the property boundaries**
   i. Groundwater interception trench: Plains initiated the installation of a groundwater interception trench adjacent to the western and southern sides of Brine Pond 1 to collect contaminated groundwater in 2001. Despite the ongoing operation of the trench, groundwater from monitoring wells downgradient of the trench (beside the western property boundary) continue to have chloride concentrations above the 2,300 mg/L Ontario Ministry of Environment, Conservation and Parks (MECP) Table 7 Site Condition Standard, with maximum of 28,400 mg/L measured in June 2023.[8,9]
   ii. Sheet pile wall: Plains installed a sheet pile wall to 6 metres below ground surface adjacent to the north of Brine Pond 3 in 2022.[10] Results from monitoring wells on the downgradient side of the sheet pile wall (beside the northern property boundary) continue to have chloride concentrations above the MECP Table 7 Site Condition Standard, with a maximum of 33,000 mg/L measured in April 2024.[11]

[7] Measurements of elevated subsurface conductivity in an EM31 survey represent areas of likely elevated subsurface chloride.
[8] Ontario Regulation 153/04 Table 7 Full Depth Generic Site Condition Standard in a Non-Potable Ground Water Condition as part of the Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Ontario *Environmental Protection Act*.
[9] For the southwestern portion of the facility, June 2023 groundwater results are the most recent data available to the CER.
[10] In CV2425-345, Plains reported that the installation of the sheet pile was to act as a barrier for northward salinity migration and it was considered "source control" for Brine Pond 3.
[11] Plains reported under CV2425-345 that the chloride in groundwater appears to be migrating around the sheet pile wall since its installation based on an increasing trend in the chloride concentrations in monitoring wells at the wall's eastern and western termini.

*The CER acknowledges that Plains took mitigative actions by installing the groundwater interception trench and sheet pile wall, however, analytical results indicate that they have not controlled the off-facility migration of chloride in groundwater toward the north, south and west.*

***Reasonable Grounds***

The information summarized above indicates that Plains has not adequately prevented, managed and mitigated hazards and potential hazard to people and the environment associated with the contamination seeping from the brine ponds.

To date, Plains has not determined the extent the salinity impacts that have emanated off-facility (i.e., completed delineation) in all potentially affected media, nor has it assessed the magnitude of the hazard and risk to potential receptors beyond the Windsor Station through a Human Health and Ecological Risk Assessment, despite knowing that:

1. EM31 surveys have shown elevated subsurface conductivity at the northern, southern, and western property boundaries, along with the off-facility parcel of land to the west of Brine Pond 1, since at least 2000.
2. Subsurface conditions at the Windsor Station are highly conducive to chloride transport in groundwater.
3. Concentrations of chloride in groundwater sampled from monitoring wells at the northern, southern and western property boundaries have historically been and continue to be above the MECP Table 7 Site Condition Standard despite the installation of the groundwater interception trench and subsurface sheet pile wall.

Considering the relevant facts and history, notably CV2122-335, CV2425-108 and CV2425-345, it is the view of the CER Officer that Plains has not demonstrated that it has taken adequate action to ensure that risks to human health and the environment associated with the brine contamination emanating from the Windsor Station have been managed and mitigated.

The CER Officer also finds that Plains has not demonstrated it has completed sufficient and appropriate assessments or conducted adequate corrective actions by maintaining, upgrading and/or retrofitting Brine Ponds 1 to 5 and ancillary facilities to minimize or prevent the seepage of brine into the environment from the Windsor Station.

As such, the undersigned CER Officer has reasonable grounds to believe that there are hazards and risks to potential receptors, both human and environmental, that have not adequately been assessed, quantified and/or qualified, and the source of the contamination has not been controlled.

## REGULATORY REFERENCES

***Canadian Energy Regulator Act (S.C. 2019, c. 28, s. 10)*** (CER Act)

Section 94 of the CER Act

The holder must take all reasonable care to ensure the safety and security of persons, the safety and security of regulated facilities and abandoned facilities and the protection of property and the environment.

***CER Onshore Pipeline Regulations SOR/99-294*** **(OPR)**

Subsection 6.5 (1) of the OPR
A company shall, as part of its management system and the programs referred to in section 55,

Paragraph 6.5 (1)(c) establish and implement a process for identifying and analyzing all hazards and potential hazards;

Paragraph 6.5 (1)(e) establish and implement a process for evaluating the risks associated with the identified hazards and potential hazards, including the risks related to normal and abnormal operating conditions;

Paragraph 6.5 (1)(f) establish and implement a process for developing and implementing controls to prevent, manage and mitigate the identified hazards, potential hazards and risks and for communicating those controls to anyone who is exposed to the risks;

Subsection 55 (1) of the OPR
A company shall conduct audits, with a maximum interval of three years, of the following programs,

Paragraph 55 (1)(b) the integrity management program referred to in section 40, including the pipeline control system referred to in section 37;

Paragraph 55 (1)(e) the environmental protection program referred to in section 48;

Section 13 of the OPR
A storage facility shall,

Subsection 13 (c) have a containment area or a system designed to prevent the release or migration of stored products or toxic substances.

Section 40 of the OPR
A company shall develop, implement and maintain an integrity management program that anticipates, prevents, manages and mitigates conditions that could adversely affect safety or the environment during the design, construction, operation, maintenance or abandonment of a pipeline.

Section 48 of the OPR
A company shall develop, implement and maintain an environmental protection program that anticipates, prevents, manages and mitigates conditions that could adversely affect the environment.

## MEASURES TO BE TAKEN

*Based on the facts referenced herein, where the Inspection Officer has reasonable grounds to believe that there is or is likely to be a contravention of Parts 2 to 5 or section 335 of the CER Act, or for a purpose referred to in subsection 102(2) CER Act, the Inspection Officer may, by Order, direct a person to*

a. *stop doing something that is in contravention of Parts 2 to 5 or section 335 or cause it to be stopped;*
b. *take any measure that is necessary in order to comply with Parts 2 to 5 or section 335 or mitigate the effects of non-compliance;*
c. *stop doing something that may cause a hazard to the safety or security of persons, or damage to property or the environment or cause it to be stopped; or*
d. *take any measure that is necessary to prevent or mitigate the hazard to the safety or security of persons or damage to property or the environment.*

**Plains Midstream Canada ULC** is ORDERED pursuant to subsections 109(1) and 109(2) of the CER Act to:

☒ Take measures specified below under Specified Measures as per paragraphs (b) and (d) above

☐ Stop doing something as specified below under Specified Measures as per paragraphs (a) and (c) above

☐ Suspend work associated with a facility, including a regulated facility, abandoned facility or ground disturbance, until the hazardous or detrimental situation has been remedied to the satisfaction of an Inspection Officer or until this order is stayed or rescinded.

## SPECIFIED MEASURES

1. Conduct the following studies, or cause them to be conducted:
    i. A **Human Health and Ecological Risk Assessment** (HHERA) to quantify and qualify the risk posed by the salinity emanating from the Windsor Station to people and the environment;
    ii. An **Engineering Assessment** that includes an evaluation of the integrity of the brine containment infrastructures (including ancillary infrastructures) and a list of possible corrective actions to manage and mitigate seepage; and
    iii. A **Feasibility Assessment** of the possible corrective actions to ensure integrity of brine containment as proposed in 1ii. above.
2. Submit a scope of work, including details on the qualifications of the persons or third party companies carrying out the studies, and confirmation that the studies in Specified Measures (1i.) and (1ii.), have been initiated as soon as practicable but no later than **31 January 2025**.
3. Submit a report to the undersigned CER Officer that summarizes the findings of the completed HHERA, Engineering Assessment and Feasibility Assessment, as soon as practicable but no later than **31 January 2026**.

4. Submit a corrective action plan that includes the selected corrective actions as informed by the results produced in Specified Measure 1, and any other relevant information, as soon as practicable but no later than **31 March 2026**.
5. Apply to the Commission under the applicable sections of the CER Act or Regulations, as necessary, to implement the selected corrective actions to ensure integrity of brine containment and protection of the environment, as soon as reasonably practicable after the completion of Specified Measure 4, but no later than **30 September 2026**.
6. Until an application is made to the Commission pursuant to Specified Measure 5, Plains shall provide quarterly updates to the CER Officer regarding its progress with Specified Measures 1 and 4.

## EFFECTIVE DATE OF THE ORDER

This Inspection Officer Order takes effect immediately on 14 November 2024 at the time of delivery of this Order to the Company to whom it is directed. Nothing in this Order shall be construed as reducing, increasing, or otherwise affecting what may be required of the Company to whom it is directed to comply with all applicable legislative or legal requirements.

## COMPLIANCE WITH THIS INSPECTION OFFICER ORDER IS MANDATORY

Failure to comply with an Inspection Officer Order issued under section 109 of the CER Act is an offence under section 112 of the CER Act.

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| **Inspection Officer** | 14 November 2024 | |
| | **Date** | |
| | [redacted] | [redacted] |
| | **IO Designation Number** | **Signature** |
| | 210-517 10 Ave SW, Calgary AB T2R 0A8 | |

*Please note that:*

1. *In compliance with the CER's Enforcement Policy, this Order will be posted on the CER's website.*
2. *All submissions to the CER in response to the Order are to be provided within the CER Operations Regulatory Compliance Application (ORCA) quoting the associated CVA #, Inspection Officer Order #, and any specific measure with which the submission is associated. In addition, the Company is requested to send a copy of any response provided in the ORCA to the Inspection Officer via email.*