



**From:** cmis.noreply@bc-er.ca  
**Sent:** Wednesday, November 1, 2023 3:38 PM  
**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2023-3137 - FortisBC Energy Inc.  
**Attachments:** 2023-3137 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2023-3137.

For the latest information go to the CM-IS Permit Holder Application at <https://cmis-ph.bc-er.ca/>

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Emergency: 1-800-663-3456



## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2023-3137  
Inspection Date: 2023-10-24  
Inspection Outcome: In Compliance

### Inspection Comment:

#### Woodfibre Site

##### Quarry Area - AD# 100114575

- \* Quarry area has been cleared and wood removed offsite. Invasive plants onsite from prior industrial activity. Soils containing invasive plants are being buried, tarped and isolated to prevent further spreading.
- \* Discussed storage of PAG rock. To be lined/covered and water to be pumped to water treatment plant.
- \* R1-318 - Burm has been established around perimeter of stream. Discussed ESC & ECB measures for location.
- \* Lower toe slope quite saturated. Sumps/pumps with the use of filter bags may be required for excess pooling.
- \* Access road to quarry site - road has been widened, 750mm culvert installed at crossing. Discussed potential stream impacts of downward hydraulic pumping due to rock truck traffic at crossing location.

##### West Portal (Drill Entrance)

- \* Entrance has been cleared, grubbed, and test blasting occurring. Wood has been removed from site.
- \* 750mm temporary culvert installed. Permanent 1500mm concrete pipe installation planned. Riprap looked good; entrance of culvert is sealed with sandbags. Remainder of stream planned to have riprap installed.
- \* Viewed water discharge authorization site.
- \* Viewed site plans for water treatment plant.

#### BC Rail Site

##### East Portal (Drill Entrance)

- \* Sheet piles established at east portal entrance. Soils being excavated and removed from site by Sumas Transport. Clean fill being brought in. No groundwater noted within sheet piling.
- \* Water treatment facility almost complete. Water tanker will be used for initial commissioning prior to use of POD. Discussion held regarding system redundancies.
- \* No discharge occurring at time of inspection.

Drilled Well West of BC Rail Site - AD#: 100116923 POD# 001

\* Site was clean and orderly. Discussed water volume reporting requirements.

BC Rail Storm Water Discharge Location

\* Sondes placed +/- 80 metres upstream and downstream of discharge location.

No non-compliances noted during inspection.

A satisfactory Inspection was conducted.

The following were the only items that were inspected during this Inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this Inspection.

Permit: 100110343

Road Number: 05852

Segment IDs (Location): 001 (From NTS: A- 001-K/092-G-11 To NTS: D- 001-K/092-G-11)

Permit: 100114575

AACT Number: 00219557

Site Type: Access

Permit: 100114575

AACT Number: 00219558

Site Type: Storage Area

Permit: 100084403

CIAS Number: 0005644

Location ID (Crossing Type): 1 (Culvert)

Permit: 100114575

CIAS Number: 0007156

Location ID (Crossing Type): 9 (Culvert)

Permit: 100117552

CIAS Number: 0007957

Location ID (Crossing Type): 2 (Bank Erosion Protection)

Permit: 100116923

STWU Number: 0006458

POD Number (POD Type): 001 (Water Source Dugout)

Permit: 100084403

Permit Holder: FortisBC Energy Inc.



Inspection Number: 2023-3137  
Inspection Date: 2023-10-24

Letter ID: L2304768  
Letter Date: 2023-11-01

---

S19

Compliance & Enforcement Officer  
Authorized BCER Employee

**From:** cmis.noreply@bc-er.ca  
**Sent:** Wednesday, March 27, 2024 1:23 PM  
**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2024-1179 - FortisBC Energy Inc.  
**Attachments:** 2024-1179 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2024-1179.

For the latest information go to the CM-IS Permit Holder Application at <https://cmis-ph.bc-er.ca/>

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## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2024-1179  
Inspection Date: 2024-03-05  
Inspection Outcome: In Compliance

### Inspection Comment:

Inspection conducted March 05, 2024. BCER C&E, Fortis staff and Tsleil-Waututh Nation (TWN) representatives on site for inspection.

#### Barge Landing - Headwaters of Indian Arm

- No additional works or cutting have occurred.

#### KP 14 East Laydown

- Cutting is occurring.
- Discussion of timber marking requirements and procedures once decked.
- No Fortis activity on access road to laydown. Viewed HDPE culvert previously installed at S6 crossing.

#### KP 14 West Laydown

- No machine activity has occurred yet.
- Discussion around bird sweeps prior to machine activity.
- Viewed post-1846 CMT adjacent to FSR.
- Engagement and collaboration ongoing between TWN and Fortis regarding CMT's and utilization of root wads and brushy tops for enhancement projects.

#### Indian River Crossing

- No activity at time of inspection. Minor R.O.W hand falling occurred prior to inspection. Discussed pipeline crossing method, bridge install, potential for subsurface flows, and hotline proximity.
- Noted small log deck adjacent to FSR. Timber marking not observed at time, however, Fortis provided photo documentation at the end of the day showing stamped logs were buried under snow.

#### Hixon Laydown

- Noted ribboned off tree retention area due to Western Yew, as well as 3 metre wide vegetation buffer around perimeter of laydown.
- No observable water leaving site at time of inspection, soil appears to be well-draining.
- Viewed hydrovac slurry mix pit. Discussed potential of amphibian migration if left in current state.
- Discussed snow fence maintenance. Fortis provided photo documentation at the end of the day showing snow fence improvement.
- Noted large garbage bin full of steel only (old logging debris).
- Brief discussion around idling and secondary containment.

Workspace 00216013

- Clearing occurred prior to inspection. Area currently snow covered.

No non-compliances noted during inspection.

A satisfactory Inspection was conducted.

The following were the only items that were inspected during this Inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this Inspection.

Permit: 100111735  
Pipeline Project ID: 000025844  
Segment IDs (Location): 1 (From NTS: B- 026-C/092-G-10 To NTS: B- 058-I/092-G-11)

Permit: 100111735  
AACT Number: 00215948  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00215949  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00215950  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00216013  
Site Type: Workspace



Permit: 100111735  
AACT Number: 00216071  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00216072  
Site Type: Workspace

Permit: 100115467  
AACT Number: 00222450  
Site Type: Access

Permit Holder: FortisBC Energy Inc.

---

S19  
Compliance & Enforcement Officer  
Authorized BCER Employee

**From:** Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Sent:** Tuesday, March 5, 2024 10:13 PM  
**To:** s19  
**Cc:** Boylan, Patrick; Ryan Hennessey  
**Subject:** In field observations - March 5 inspection  
**Attachments:** 2330 - EGP\_20240305\_134959.jpg; 2330 - EGP\_Timber mark Hixon deck\_20240305\_134518.jpg; 2330 - EGP\_Timber mark at Hixon deck\_20240305\_134329.jpg; 2330 - EGP\_timber mark.jpg; Hixon Yard Timber Mark\_20240305\_155958.jpg

Hi s19

Just wanted to share some photos from the field today following the inspection in the Indian River Valley on the EGP Project in response to observations in the field for:

- Timber mark on the timber decked at Hixon Yard
- Maintenance of snow fencing on the perimeter of the hydro-vac sump at Hixon yard

Thanks,

**Todd Lewis, B.Sc, P.Geo, P.Ag**  
FortisBC, Environment Manager (contractor) – EGP  
s22  
[todd.lewis@fortisbc.com](mailto:todd.lewis@fortisbc.com)



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SMJV - Ryan Hennessey  
2330 - EGP  
2024.03.05 13:49  
10U 507756 5483599  
Altitude: 7m



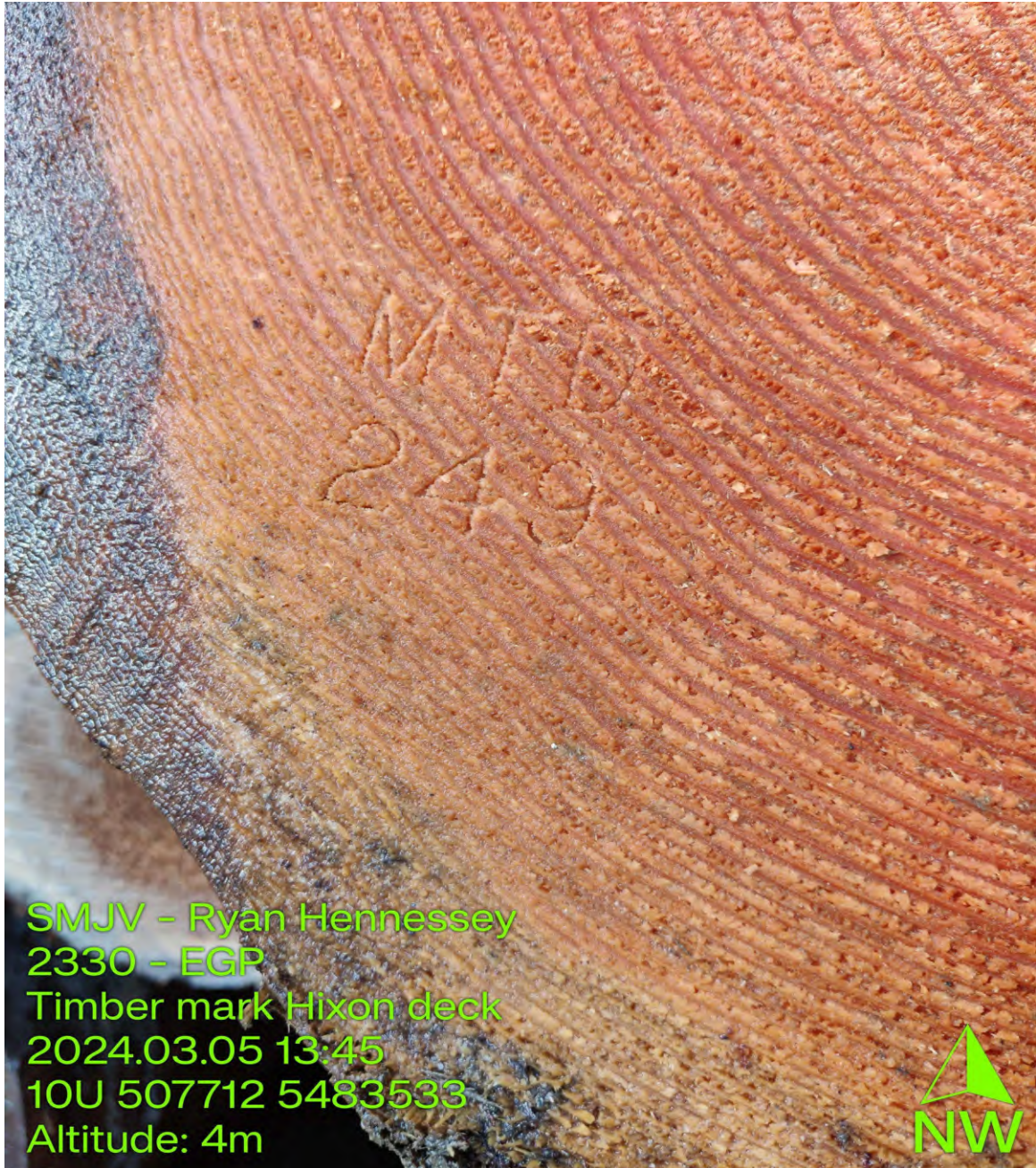




SMJV - Ryan Hennessey  
2330 - EGP  
Timber mark at Hixon deck  
2024.03.05 13:43  
10U 507707 5483531  
Altitude: 2m







SMJV - Ryan Hennessey  
2330 - EGP  
Timber mark Hixon deck  
2024.03.05 13:45  
10U 507712 5483533  
Altitude: 4m







SMJV - Ryan Hennessey  
2330 - EGP  
2024.03.05 13:46  
10U 507718 5483536  
Altitude: 3m







Hixon Yard Timber Mark  
2024.03.05 15:59  
10U 507678 5483541 (±16m)  
Altitude: 10m



**From:** cmis.noreply@bc-er.ca  
**Sent:** Wednesday, March 27, 2024 1:23 PM  
**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2024-1180 - FortisBC Energy Inc.  
**Attachments:** 2024-1180 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2024-1180.

For the latest information go to the CM-IS Permit Holder Application at <https://cmis-ph.bc-er.ca/>

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## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2024-1180  
Inspection Date: 2024-03-06  
Inspection Outcome: In Compliance

### Inspection Comment:

Inspection conducted March 06, 2024. BCER C&E, Fortis staff, and Kwikwetlem First Nation representative on site for inspection.

#### Stream 413

- Viewed crossing. Culvert upgrade planned by BC Hydro. Noted this crossing is outside BCER permitted area.

#### Shoefly 7

- Noted good topsoil storage separation.
- Discussion around utilizing approved seed mix to establish early rooting to promote stability along perimeter ditch and topsoil storage.
- Discussed invasive plant management including sweeps and machine inspections.

#### Shoefly 5

- Viewed NCD culvert install. Potential for seeding discussed again.
- Discussed chance find procedures (CFP). Fortis informed BCER C&E that all staff on site have CFP training.

#### Shoefly 2

- Observed active pump-around for preparation for 600mm culvert install across shoefly.
- Viewed receiving end of pump-around. No signs of active scouring or erosion at time of inspection but discussed options to mitigate water velocity to reduce likelihood of potential erosion or scouring during high water events.
- Viewed previously used filter bag for pump-around across access road. No signs of scouring or erosion at time of inspection. Discussion around utilizing flat ground for filter bags in the future where possible.

#### Shoefly 1

- Noted minor sheens on road surface actively being cleaned up through use of spill pads.
- Inspected spill kit, confirmed both oil only and universal spill pads were readily available.
- Observed decked timber with correct timber marking.

#### Road 1

- Viewed Mantle Creek crossing. Noted good rock armouring. Water running clear.
- Noted sections of ditch line along road that have been packed in and should be re-established.
- Viewed NCD 419.1 and identified need for ESC measures along Road 1. Fortis provided photo documentation of ESC measures March 9, 2024. Additionally, Fortis confirmed that road upgrades are planned for this section (capping with aggregate and crowing road), and that discussions with crews have occurred around reducing speed when pooling water is observed.

#### Ancillary #00204445 (future powerline workspace)

- Viewed area, noted old fire pits and non-project garbage from previous recreational users. No works active on this site.

#### V1 Compressor

Toured site with Fortis representatives and discussed future upgrades planned for site.

No non-compliances noted during inspection.

A satisfactory Inspection was conducted.

The following were the only items that were inspected during this Inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this Inspection.

Permit: 100116095

Road Number: 06396

Segment IDs (Location): 001 (From NTS: C- 093-C/092-G-07 To NTS: B- 092-C/092-G-07), 004 (From NTS: C- 082-C/092-G-07 To NTS: B- 092-C/092-G-07)





Permit: 100008469  
AACT Number: 00207066  
Site Type: Workspace

Permit: 100008469  
AACT Number: 00207067  
Site Type: Workspace

Permit: 100008469  
AACT Number: 00207068  
Site Type: Workspace

Permit: 100008469  
AACT Number: 00207069  
Site Type: Workspace

Permit: 100008469  
AACT Number: 00207073  
Site Type: Workspace

Permit: 100115467  
AACT Number: 00222442  
Site Type: Access

Permit: 100115467  
AACT Number: 00222443  
Site Type: Access

Permit: 100115467  
AACT Number: 00222444  
Site Type: Access

Permit: 100115467  
AACT Number: 00222445  
Site Type: Access

Permit: 100115467  
AACT Number: 00222446  
Site Type: Access

Permit Holder: FortisBC Energy Inc.



---

S19

Compliance & Enforcement Officer  
Authorized BCER Employee

**From:** s19  
**Sent:** Monday, March 11, 2024 2:57 PM  
**To:** Lewis, Todd; s19  
**Cc:** Boylan, Patrick  
**Subject:** RE: [External Email] - RE: In field observations - March 5-7 inspection

Thanks for the clarification, Todd. No further questions at this time on my end.



---

s19

We acknowledge and respect the many Indigenous Territories and Treaty areas, each with unique cultures, languages, legal traditions and relationships to the land and water, which the British Columbia government acknowledges the Métis and Inuit people living across B.C.

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**From:** Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Sent:** Monday, March 11, 2024 2:48 PM  
**To:** s19  
**Cc:** Boylan, Patrick <patrick.boylan@fortisbc.com>  
**Subject:** RE: [External Email] - RE: In field observations - March 5-7 inspection

Hi s19

Road upgrades are planned for this section of road that will include capping with aggregate and crowning the road to mitigate pooling of water at this location. Discussions have been had with crews on lowering speed when pooling water is observed on the roads. Drainage, Erosion and Sediment Control (DESC) inspections occur regularly to verify effectiveness of DESC measures and maintenance of these measures occur as required, based on site conditions and weather.

Thanks,

Todd Lewis  
FortisBC, Environment Manager (contractor) – EGP  
s22  
[todd.lewis@fortisbc.com](mailto:todd.lewis@fortisbc.com)

**From:** s19  
**Sent:** Monday, March 11, 2024 11:20 AM  
**To:** Lewis, Todd <[Todd.Lewis@fortisbc.com](mailto:Todd.Lewis@fortisbc.com)>; s19  
**Cc:** Boylan, Patrick <[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)>  
**Subject:** [External Email] - RE: In field observations - March 5-7 inspection

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Hi Todd,

Thank you for the follow up documentation of items discussed during last weeks inspections. Regarding NCD 419.1: Will splash over from vehicles will be mitigated when water is pooling in that location? Wondering if any conversations have occurred with workers on site to slow down or avoid pooling water when travelling through this area.

Thanks,



S19

We acknowledge and respect the many Indigenous Territories and Treaty areas, each with unique cultures, languages, legal traditions and relationships to the land and water, which the British Columbia government acknowledges the Métis and Inuit people living across B.C.

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**From:** Lewis, Todd <[Todd.Lewis@fortisbc.com](mailto:Todd.Lewis@fortisbc.com)>  
**Sent:** Saturday, March 9, 2024 3:11 PM  
**To:** s19

Cc: Boylan, Patrick <[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)>

Subject: RE: In field observations - March 5-7 inspection

Hi s19

I just wanted to follow up with an email to provide the some of the additional information that we discussed in the field and during the debrief.

Photos attached:

- March 6 visit to EGP South:
  - o installation of ESC measures at NCD 419.1 on Road 1 to address visibly turbid water runoff from the road
- March 7 visit to WLNG site (NPS 10 relocation and West Portal permanent culvert):
  - o Re-establishment of ditch line on the landfill perimeter road (NPS 10 relocation)
  - o Installation of rock armouring of the exposed bank and energy dissipation at the outlet of the temporary bypass for the permanent culvert installation (West Portal)





















If you have any questions, please don't hesitate to reach out.  
Thanks,

**Todd Lewis**  
FortisBC, Environment Manager (contractor) – EGP  
s22  
[todd.lewis@fortisbc.com](mailto:todd.lewis@fortisbc.com)





© 10 N 515843 5464501 ±13ft ▲ 803ft







S SW W NW  
150 180 210 240 270 300 330

● 10 N 515845 5464497 ±13ft ▲ 798ft

d/s

Clean Water

Km 1.33 Rd1  
EGP South

ESC, WC419.1 NCD  
Mar 06 2024 13:55:48





© 10 N 515848 5464503 ±13ft ▲ 809ft



Km 1.33 Rd1  
EGP South

ESC. WC419.1 NCD  
Mar 06 2024, 13:55:08

---

**From:** Lewis, Todd

**Sent:** Tuesday, March 5, 2024 9:13 PM

**To:** s19

**Cc:** Boylan, Patrick <[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)>; Ryan Hennessey <[ryan.hennessey@surerus.com](mailto:ryan.hennessey@surerus.com)>

**Subject:** In field observations - March 5 inspection

Hi s19

Just wanted to share some photos from the field today following the inspection in the Indian River Valley on the EGP Project in response to observations in the field for:

- Timber mark on the timber decked at Hixon Yard
- Maintenance of snow fencing on the perimeter of the hydro-vac sump at Hixon yard

Thanks,

**Todd Lewis, B.Sc, P.Geo, P.Ag**

FortisBC, Environment Manager (contractor) – EGP

s22

[todd.lewis@fortisbc.com](mailto:todd.lewis@fortisbc.com)



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**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2024-1181 - FortisBC Energy Inc.  
**Attachments:** 2024-1181 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2024-1181.

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## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2024-1181  
Inspection Date: 2024-03-07  
Inspection Outcome: In Compliance

### Inspection Comment:

Inspection conducted March 07, 2024. BCER C&E, BCER Stewardship, Fortis staff, and Squamish Nation representatives on site during inspection.

#### Rock Quarry - Woodfibre

- Perimeter berm has been improved since last inspection. Noted silt fencing keyed in well and coco mat covering berm. Fortis plans to seed berm in the future.
- Noted clearing on the north side of perimeter berm was completed by BC Hydro.
- Observed non-project related scouring of stream adjacent to quarry due to high-water events. Discussed potential of rock armouring to prevent further scouring. Additional permitting would be required.
- Discussed management of non-project related garbage observed at quarry site. Historical industrial garbage is being uncovered at the quarry. Garbage is to be hauled away and not reburied.
- Viewed downslope drainage from quarry.

#### Curtain Burner

- Viewed active curtain burner operations. Spoke with operators about process. Confirmed that all material entering burner is natural. Operators stated burn registration has been obtained and venting is checked prior to burning.

#### NPS 10 Relocate

- West creek - area felled, stumps intact. No ground disturbance has occurred.
- East creek - area cleared, stumps intact. Historical berm in place appears to handle rain events well.
- Landfill perimeter road ditch line has been filled in during operations. Noted water running down running surface. Requested ditch line to be reestablished prior to upcoming rains. Fortis provided photo documentation to BCER of reestablished ditch line March 9, 2024.



### East Portal

- Portal blasting now complete (+/- 25 metres into face).
- Sandbag dam will be removed and flow will be directed into HDPE culvert inside concrete pipe prior to upcoming rain. Pumps will be left in for redundancy. Temporary pipe will be removed upon final tie in.
- Observed +/-3 metre drop from culvert outfall. Identified potential for erosion due to velocity of water. Discussed measures to mitigate velocity. Fortis provided photo documentation to BCER of rip rap placed at culvert outfall March 9, 2024.
- Sond/discharge location observed.

### Woodfibre Site

- Observed west settling pond location from afar - blasting was planned shortly and unable to access this area.
- Viewed east settling pond. Discussed potential for amphibian migration and viewed outfall location.

### BC Rail

- Viewed portal and observed tunnel boring machine under construction.
- BCER representatives walked through water treatment plant processes.
- Viewed shaker system.
- BCER C&E requested safety data sheets prior to commencement of drilling for any additives which will be used in tunnel slurry. This has now been received by BCER.
- BCER representatives viewed treatment plant discharge location.

### Pipe Yard

- Discussed QAQC with pipe receiving. Noted markings on pipe where damage had been identified. All damage was minor in nature, no quarantine was needed.
- Viewed each size of pipe to be used throughout project. Pipe is stored separately based on size.

No non-compliances noted during inspection.

A satisfactory inspection was conducted.

The following were the only items that were inspected during this inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this inspection.

Permit: 100008382  
Pipeline Project ID: 000003770  
Segment IDs (Location): 3 (From NTS: B- 063-J/092-G-11 To NTS: D- 001-K/092-G-11)

Permit: 100084403  
Pipeline Project ID: 000025418  
Segment IDs (Location): 3 (From NTS: B- 010-J/092-G-11 To NTS: B- 010-J/092-G-11)

Permit: 100110343  
AACT Number: 00239379  
Site Type: Storage Area

Permit: 100110343  
AACT Number: 00239380  
Site Type: Storage Area

Permit: 100110343  
AACT Number: 00239381  
Site Type: Storage Area

Permit: 100114575  
AACT Number: 00219557  
Site Type: Access

Permit: 100114575  
AACT Number: 00219558  
Site Type: Storage Area

Permit: 100114575  
AACT Number: 00219559  
Site Type: Storage Area

Permit Holder: FortisBC Energy Inc.

---

s19

Compliance & Enforcement Officer  
Authorized BCER Employee

**From:** Boylan, Patrick <patrick.boylan@fortisbc.com>  
**Sent:** Thursday, March 14, 2024 8:52 AM  
**To:** s19  
**Cc:** Thinda, Ricky; Lewis, Todd  
**Subject:** SDS as requested  
**Attachments:** SDS\_Hydrogel-2021.pdf

Hi s19

Please see the attached SDS as requested.

I engaged with our Indigenous Relations team regarding including regulatory folks on future indigenous orientations/info sessions, and they agree that this is a good idea! There is another Teams session with the local archaeologist who works for Kwikwetlem FN coming up (I particularly enjoyed this one). We'll keep you posted on what's upcoming.

Thanks and have a great day,  
Patrick

**Patrick Boylan, P.Ag.**  
FortisBC, Environmental Inspection Manager (contractor) – EGP  
s22  
[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)



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# WYO-BEN, INC.

## SAFETY DATA SHEET

### SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Trade Name**                    **HYDROGEL®**  
**Chemical Family**                        Mineral  
**Application**                                Drilling Fluids  
**Manufacturer/Supplier**                Wyo-Ben, Inc.  
1345 Discovery Drive  
Billings, MT 59102 USA  
Telephone:        800.548.7055  
Facsimile:        406.656.0748  
**Emergency Phone Number**        CHEMTREC®    1.800.424.9300

### SECTION 2 — HAZARD IDENTIFICATION

**Hazard Classification**                Carcinogenicity (Category 1A)  
Specific Target Organ Toxicity (Repeated Exposure) (Category 1)  
**Signal Word**                                Danger  
**Hazard Statements**                        May cause cancer.  
Causes damage to organs through prolonged or repeated exposure.  
**Hazard Symbol**



#### Precautionary Statements

**Prevention**                                Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breath dust. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product.  
**Response**                                If exposed or concerned: Get medical advice/attention.  
Get medical attention/advice if you feel unwell.  
**Storage**                                        Store locked up.  
**Disposal**                                        Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Hazards Not Otherwise Classified

May cause eye and respiratory irritation.

### SECTION 3 — COMPOSITION/INFORMATION ON INGREDIENTS

Substance	CAS Number	Percent
Crystalline Silica, quartz	14808-60-7	≤6%

## SECTION 4 — FIRST AID MEASURES

<b><u>Inhalation</u></b>	If inhaled, remove to a dust free area. Get medical attention if respiratory irritation develops or if breathing becomes difficult. Inhalation may aggravate existing respiratory illness.
<b><u>Eyes</u></b>	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.
<b><u>Skin</u></b>	Wash with soap and water. Seek medical attention if irritation persists.
<b><u>Ingestion</u></b>	Do Not induce vomiting. First aid measures not normally required.
<b><u>Notes to Physician</u></b>	Treat symptomatically

## SECTION 5 — FIRE FIGHTING MEASURES

<b><u>Suitable Extinguishing Media</u></b>	Product is non-combustible. All standard firefighting media may be used.
<b><u>Unsuitable Extinguishing Media</u></b>	None
<b><u>Special Exposure Hazards</u></b>	None known. Product is not combustible.
<b><u>Special Protective Equipment and Precautions for Firefighters</u></b>	None for product. Wear self-contained breathing apparatus (SCBA) and full protective gear. Caution: slippery when wet.
<b><u>NFPA Ratings</u></b>	Health 1, Flammability 0, Reactivity 0

## SECTION 6 — ACCIDENTAL RELEASE MEASURES

<b><u>Personal Precautionary Measures</u></b>	Use appropriate protective equipment. Avoid creating and breathing dust. Prevent further leakage or spillage if safe to do so.
<b><u>Environmental Precautionary Measures</u></b>	No special environmental precautions required
<b><u>Procedure for Cleaning/Absorption</u></b>	Prevent further leakage or spillage if safe to do so. Avoid generating dust. Collect using appropriate dustless method. Dispose in landfill according to local, state and federal regulations.

## SECTION 7 — HANDLING AND STORAGE

<b><u>Handling Precautions</u></b>	This product contains quartz which may become airborne. Avoid breathing dust. Avoid creating dusty conditions. Promptly clean up spills to avoid breathing airborne dust. Use only with adequate ventilation to keep exposure below recommended exposure limits. Wear a NIOSH/MSHA European Standard En 149, or equivalent certified for silica bearing dust, respirator when using this product. Material is slippery when wet.
<b><u>Storage Information</u></b>	Use good housekeeping in storage and work areas to prevent accumulation of dust. Close container when not in use. Do not reuse empty container.

## SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

### **Occupational Exposure Limits**

Substance	CAS Number	ACGIH TLV-TWA	OSHA PEL-TWA*
Crystalline Silica, quartz	14808-60-7	0.025 mg/m <sup>3</sup>	$\frac{10 \text{ mg/m}^3}{\% \text{SiO}_2 + 2}$

\* Quartz from Bentonite was specifically excluded from the new, lower PEL in the 2016 OSHA Respirable Crystalline Silica rulemaking. More restrictive exposure limits may be enforced by some states, agencies, or other authorities.

<b><u>Engineering Controls</u></b>	Use approved industrial ventilation and local exhaust as required to maintain exposures below applicable exposure limits.
<b><u>Personal Protective Equipment</u></b>	If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.
<b><u>Respiratory Protection</u></b>	Not normally needed. If significant exposures exceeding occupational exposure limit are possible use NIOSH/MSHA respirator approved for silica bearing dust.
<b><u>Hand Protection</u></b>	Standard work gloves.
<b><u>Skin Protection</u></b>	Wear clothing appropriate for the work environment. Dusty clothing should be laundered before reuse. Use precautionary measures to avoid creating dust when removing or laundering clothing.
<b><u>Eye Protection</u></b>	Wear safety glasses or goggles to protect against exposure.
<b><u>Other Precautions</u></b>	None known.

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

<b><u>Physical State</u></b>	Powdered Solid
<b><u>Color</u></b>	Light tan to gray as dry powder
<b><u>Odor</u></b>	Odorless
<b><u>pH</u></b>	8 – 10 (5% aqueous suspension)
<b><u>Specific Gravity @ 20 C (Water=1)</u></b>	2.45 – 2.55
<b><u>Density @ 20 C (lbs/gallon)</u></b>	Not determined
<b><u>Bulk Density @ 20 C (lbs/ft<sup>3</sup>)</u></b>	49 - 55
<b><u>Boiling Point/Range (F/C)</u></b>	Not applicable
<b><u>Freezing Point/Range (F/C)</u></b>	Not applicable
<b><u>Vapor Pressure @ 20 C (mmHg)</u></b>	Not applicable
<b><u>Vapor Density (Air=1)</u></b>	Not applicable
<b><u>Percent Volatiles</u></b>	Not applicable
<b><u>Evaporation Rate (Butyl Acetate=1)</u></b>	Not applicable
<b><u>Solubility in Water (g/100ml)</u></b>	Insoluble, forms colloidal suspension
<b><u>Solubility in Solvents (g/100ml)</u></b>	Not applicable
<b><u>VOCs (lbs/gallon)</u></b>	Not applicable
<b><u>Viscosity, Dynamic @ 20 C (centipoise)</u></b>	3.5 – 12.5 (6% aqueous suspension)
<b><u>Viscosity, Kinematic @ 20 C (centistokes)</u></b>	Not determined
<b><u>Partition Coefficient/n-Octanol/Water</u></b>	Not applicable
<b><u>Molecular Weight (g/mole)</u></b>	Not applicable
<b><u>Flash Point/Range (F/C)</u></b>	Not applicable
<b><u>Flash Point Method</u></b>	Not applicable
<b><u>Autoignition Temperature (F/C)</u></b>	Not applicable



**Flammability Limits in Air – Lower (%)** Not applicable

**Flammability Limits in Air – Upper (%)** Not applicable

## SECTION 10 — STABILITY AND REACTIVITY

**Reactivity:** Nonreactive

**Chemical Stability:** Stable

**Possibility of Hazardous Reactions:** Will not occur.

**Conditions to Avoid:** None known

**Incompatibility (Materials to Avoid):** None known

**Hazardous Decomposition Products:** None

**Additional Guidelines:** Not applicable

## SECTION 11 — TOXICOLOGICAL INFORMATION

**Principle Route of Exposure** Eye or skin contact, inhalation.

### **Symptoms Related to the Physical, Chemical and Toxicological Characteristics**

**Inhalation** Inhaled crystalline silica in the form of quartz from occupational sources is carcinogenic to humans (IARC, Group 1).

**Skin Contact** May cause skin irritation due to drying.

**Eye Contact** May cause mechanical eye irritation.

**Ingestion** None known

**Aggravated Medical Conditions** Individuals with respiratory disease, including but not limited to asthma and bronchitis, or subject to eye irritation, should not be exposed to respirable quartz-bearing dust.

**Chronic Effects/Carcinogenicity** Silicosis: Excessive inhalation of respirable crystalline silica dust may cause a progressive, disabling, and sometimes-fatal lung disease called silicosis. Symptoms include cough, shortness of breath, wheezing, non-specific chest illness, and reduced pulmonary function. This disease is exacerbated by smoking. Individuals with silicosis are predisposed to develop tuberculosis.

Cancer Status: The International Agency for Research on Cancer (IARC, 1997) concludes that there is sufficient evidence in humans for carcinogenicity of inhaled crystalline silica from occupational sources (IARC Group 1), that carcinogenicity was not detected in all industrial circumstances studied and that carcinogenicity may depend on characteristics of the crystalline silica or on external factors affecting its biological activity. See IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997). The National Toxicology Program (NTP) classifies respirable crystalline silica as “Known to be a human carcinogen” (NTP 9<sup>th</sup> Report on Carcinogens, 2000). The American Conference of Governmental Industrial Hygienists (ACGIH) classifies crystalline silica, quartz, as a suspected human carcinogen (A2).

**Other Information** See “Adverse Effects of Crystalline Silica Exposure” published by the American Thoracic Society Medical Section of the American Lung Association, American Journal of Respiratory and Critical Care Medicine, Volume 155, pages 761-768 (1997).

## Toxicity Tests

<b>Oral Toxicity</b>	Not determined
<b>Dermal Toxicity</b>	Not determined
<b>Inhalation Toxicity</b>	Not determined
<b>Primary Irritation Effect</b>	Not classified
<b>Carcinogenicity</b>	Refer to IARC Monograph 68, Silica, Some Silicates and Organic Fibres (June 1997).
<b>Genotoxicity</b>	Not classified
<b>Reproductive/Developmental Toxicity</b>	Not classified

## **SECTION 12 — ECOLOGICAL INFORMATION**

<b><u>Mobility (Water/Soil/Air)</u></b>	Not determined
<b><u>Persistence/Degradability</u></b>	Not determined
<b><u>Bio-accumulation</u></b>	Not determined
<b><u>Ecotoxicological Information</u></b>	
<b>Acute Fish Toxicity</b>	Not determined
<b>Acute Crustaceans Toxicity</b>	Not determined
<b>Acute Algae Toxicity</b>	Not determined
<b><u>Chemical Fate Information</u></b>	Not determined
<b><u>Other Information</u></b>	Not applicable

## **SECTION 13 — DISPOSAL CONSIDERATIONS**

<b><u>Disposal Method</u></b>	If product should become a waste dispose in a licensed landfill according to federal, state and local regulations.
<b><u>Contaminated Packaging</u></b>	Follow all applicable national or local regulations.

## **SECTION 14 — TRANSPORT INFORMATION**

<b><u>Land Transportation</u></b>	
<b>DOT</b>	Not regulated as dangerous goods
<b>Canadian TDG</b>	Not regulated as dangerous goods
<b>ADR</b>	Not regulated as dangerous goods
<b><u>Air Transportation</u></b>	
<b>ICAO/IATA</b>	Not regulated as dangerous goods
<b><u>Sea Transportation</u></b>	
<b>IMDG</b>	Not regulated as dangerous goods
<b><u>Other Transportation Information</u></b>	
<b>Labels</b>	None

## SECTION 15 — REGULATORY INFORMATION

### US Regulations

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311, 312) Hazard Class</b>	Chronic Health Hazard
<b>EPA SARA (313) Chemicals</b>	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
<b>EPA CERCLA/Superfund Reportable Spill Quantity</b>	Not applicable
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
<b>California Proposition 65</b>	This product contains crystalline silica (respirable) which is a substance known to the State of California to cause cancer.

### Canadian Regulations

<b>Canadian DSL Inventory</b>	All components listed on inventory or are exempt.
<b>WHMIS Hazard Class</b>	This product contains crystalline silica (respirable) and is classified as a Class D, Division 2, Subdivision A substance.

## SECTION 16 — OTHER INFORMATION

<b>Prepared</b>	03/18/2015
<b>Last Revision</b>	09/08/2021

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## Keough, Dana

---

**From:** Boylan, Patrick <patrick.boylan@fortisbc.com>  
**Sent:** Thursday, April 25, 2024 11:53 AM  
**To:** s19  
**Cc:** Thinda, Ricky; Lewis, Todd; Conquergood, Heather  
**Subject:** RE: SDS as requested  
**Attachments:** CP KELCO GEOVIS SDS.pdf; SDS\_Citric\_Acid\_EN.pdf; SDS\_Soda\_Ash\_EN.pdf

Hi s19

Some additional SDS's have been provided for the soft ground TBM Slurry Machine. I've attached them for your reference/records.

Thanks!  
Patrick

---

**From:** Boylan, Patrick  
**Sent:** Thursday, March 14, 2024 8:52 AM  
**To:** s19  
**Cc:** Thinda, Ricky <Ricky.Thinda@fortisbc.com>; Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Subject:** SDS as requested

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A HUBER COMPANY

# Safety Data Sheet

OSHA HazCom Standard 29 CFR 1910.1200(g) and GHS Rev 03  
Canadian Workplace Hazardous Material Information System (WHMIS) 2015  
Mexico NOM-018-STPS-2000; NOM-018-STPS-2015  
GHS (Globally Harmonized System)

## GEOVIS® XT

Issue Date 18/Jan/2024  
Print Date 19/Jan/2024

Revision Number 1.4  
Page 1 of 10

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

Product Name: GEOVIS® XT

Pure substance/mixture Substance

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Rheology Modifier

Uses advised against None known.

#### 1.3. Details of the supplier of the safety data sheet

Company: Kelco Oil Field Group  
Division of CP KELCO ApS  
10920 W. Sam Houston Parkway North  
Suite 800  
Houston, Texas 77064 USA

Tel: +1 (713) 895-7575

Tel: +1 (800) 331-3677

Fax: +1 (713) 895-7586

Kelco Oil Field Group  
Regus House  
1 Berry Street  
Aberdeen  
AB25 1HF  
SCOTLAND

Tel: +44 - 1224 - 843784

E-mail customer.request@cpkelco.com

Internet www.cpkelco.com

1.4. Emergency telephone number CHEMTREC: +1 800 424 9300 or International +1 703 527 3887

## GEOVIS® XT

Issue Date 18/Jan/2024  
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## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

<b>Physical Hazards</b>	Not classified
<b>Health Hazards</b>	Not classified
<b>Environmental Hazard</b>	Not classified
<b>OSHA Regulatory Status</b>	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>GHS Classification</b>	Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

### 2.2. Label elements

<b>Symbols/Pictograms</b>	None
<b>Signal Word</b>	Warning
<b>Hazard Statements</b>	May form combustible dust concentrations in air

### Precautionary Statements

<b>Prevention</b>	Employ good industrial hygiene practice Do not handle until all safety precautions have been read and understood Do not breathe dust Wear protective gloves/protective clothing/eye protection/face protection Combustible dust may form combustible (explosive) dust-air mixtures Take precautionary measures against static discharges
<b>Response</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing IF ON SKIN: Wash with plenty of soap and water
<b>Storage</b>	Store away from incompatible materials Keep in a dry place
<b>Disposal</b>	Dispose of contents/containers in accordance with local regulations

**Hazards not otherwise classified (HNOC)** COMBUSTIBLE DUST MAY FORM COMBUSTIBLE (EXPLOSIVE) DUST-AIR MIXTURES. Slippery, can cause falls if walked on.

## SECTION 3: Composition/information on ingredients

Pure substance/mixture                      Substance

Chemical Name	CAS Number	TSCA: United States	Canada (DSL)	Mexico	EU REACH registration number	OSHA Regulatory Status	WHMIS	% by Wt
Diutan gum	595585-15-2 125005-87-0	A:595585-15-2	Y: 125005-87-0	N	01-211986479 5-20	Combustible dusts	--	--

X / Y: Complies ; A: Active ; - / N: Exempt / Not Listed



## GEOVIS® XT

Issue Date 18/Jan/2024  
 Print Date 19/Jan/2024

Revision Number 1.4  
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<b>SECTION 4: First aid measures</b>
--------------------------------------

**4.1. Description of first aid measures**

<b>General Advice</b>	Employ good industrial hygiene practice. Wear suitable protective clothing, gloves and eye/face protection. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. When in doubt or if symptoms are observed, get medical advice.
<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
<b>Skin Contact</b>	Wash with plenty of soap and water.
<b>Ingestion</b>	Rinse mouth thoroughly with water.
<b>Inhalation</b>	Do not breathe dust. If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

<b>4.2. Most important symptoms and effects, both acute and delayed</b>	Dust contact with the eyes can lead to mechanical irritation. Contact with dust can cause mechanical irritation or drying of the skin.
---	--

<b>4.3. Indication of any immediate medical attention and special treatment needed</b>	Treatment should be symptomatic and supportive. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.
--	--

<b>SECTION 5: Firefighting measures</b>
---

<b>General Advice</b>	Treat as "Class A" fire. Product will burn when in contact with a flame. Self extinguishes when ignition source is removed. Tends to smoulder.
-----------------------	--

**5.1. Extinguishing media**

<b>Suitable Extinguishing Media</b>	Water spray (fog). Foam. Dry chemical. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable Extinguishing Media</b>	None known.

**5.2. Special hazards arising from the substance or mixture**

<b>Dust Explosion Hazard</b>	Can contain sufficient fines to cause a combustible dust explosion. Do not breathe smoke, gases or vapors generated
<b>Hazardous Combustion Products</b>	Carbon dioxide Carbon monoxide

**5.3. Advice for firefighters**

<b>Special protective equipment for firefighters</b>	Wear a self-contained breathing apparatus and chemical protective clothing.
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## GEOVIS® XT

Issue Date 18/Jan/2024  
 Print Date 19/Jan/2024

Revision Number 1.4  
 Page 4 of 10

**Fire-fighting measures** Water mist may be used to cool closed containers. Combustible dust may form combustible (explosive) dust-air mixtures.

**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures** Keep unauthorized personnel away. Ensure adequate ventilation. Avoid dust formation. Use only non-sparking tools. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Use personal protection recommended in Section 8.

**For non-emergency personnel** Keep unauthorized personnel away.

**For emergency responders** Keep unauthorized personnel away. Use personal protection recommended in Section 8.

**6.2. Environmental precautions** Avoid runoff to waterways and sewers.

**6.3. Methods and material for containment and cleaning up** Large Spill: Do not dry sweep dust. Wet dust with water before sweeping or use a vacuum to collect dust. Small Spill: Vacuum or sweep material and place in a disposal container. The use of water wash down is not recommended unless the spilled material is already wet.

**6.4. Reference to other sections** Section 8: Exposure controls and personal protection. See Section 13 for additional waste treatment information.

**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling** Do not handle until all safety precautions have been read and understood.  
 Minimize dust generation and accumulation  
 Do not breathe dust  
 Ensure adequate ventilation  
 Wear appropriate personal protective clothing to prevent skin contact  
 Handle in accordance with good industrial hygiene and safety practice  
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
 Use only non-sparking tools

**7.2. Conditions for safe storage, including any incompatibilities** Keep container tightly closed and dry. Store away from incompatible materials.

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Occupational exposure limits**

**OSHA** \*Dust: OSHA has not established specific exposure limits for this material. However, OSHA has established limits for particulates not otherwise regulated (PNOR) which are the least stringent exposure limits applicable to dusts.

**Diutan gum - 595585-15-2**  
 OSHA

Not established

## GEOVIS® XT

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**PNEC (Predicted No Effect Concentration)** No information available

**DNEL (Derived No Effect Level)** No information available

**Biological Limit Values** No information available

## 8.2. Exposure controls

**Engineering Measures** Provide a good standard of controlled ventilation (5 to 10 air changes per hour). Use exhaust ventilation to keep airborne concentrations below exposure limits. In case of insufficient ventilation, wear suitable respiratory equipment.

### Personal protective equipment

**Eye/Face Protection** Wear safety glasses with side shields (or goggles).

**Skin and Body Protection** Wear suitable protective clothing.

**Hand Protection** For operations where prolonged or repeated skin contact may occur, impervious gloves should be worn.

**Respiratory Protection** In case of inadequate ventilation wear respiratory protection.

**Thermal hazards** None known. Wear suitable protective clothing.

**Hygiene Measures** Follow general hygiene considerations recognized as common good workplace practices. The worker should wash daily at the end of each work shift, and prior to eating, drinking, smoking, etc.

**Environmental Exposure Controls** Dispose of in accordance with local regulations.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

<b>Physical State</b>	Solid Powder
<b>Color</b>	White to light tan
<b>Odor</b>	Slight odor
<b>Odor Threshold</b>	No information available
<b>pH:</b>	Neutral
<b>Melting Point / Melting Range</b>	Decomposes from approx. 448± 0.5 K without melting (OECD 101). Not highly flammable with a relative self-ignition temperature of 351°C. (93/69/33C Method A10, A16).
<b>Boiling Point</b>	Not applicable
<b>Freezing Point</b>	Not applicable
<b>Flash Point</b>	Not applicable
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid, gas)</b>	Not applicable
<b>Vapor Pressure</b>	Not applicable
<b>Vapor Density</b>	Not applicable
<b>Water Solubility</b>	Soluble



## GEOVIS® XT

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**Partition coefficient** No data available  
**Viscosity** >40,000 mPa . s (cP) (0.28% gum in seawater) (0.3 rpm)  
**Oxidizing Properties** Not oxidizing

### SECTION 10: Stability and reactivity

**10.1. Reactivity** None  
**10.2. Chemical stability** Stable under normal conditions  
**10.3. Possibility of hazardous reactions** No specific hazard known  
**10.4. Conditions to avoid** Dust formation Keep away from heat, sparks and flame  
**10.5. Incompatible materials** Strong oxidizing agents  
**10.6. Hazardous decomposition products** None known

### SECTION 11: Toxicological information

**General Information** Users are advised to consider national Occupational Exposure Limits or other equivalent values.

#### Information on Likely Routes of Exposure

**Inhalation** Do not breathe dust.  
**Skin** Not a skin sensitizer. Prolonged or repeated contact may dry skin and cause irritation.  
**Eyes** Dust contact with the eyes can lead to mechanical irritation.  
**Ingestion** Ingestion is not a likely route of exposure.

#### 11.1. Information on toxicological effects

##### Diutan gum - 595585-15-2

**Oral LD50** >5000 mg/kg (rat)  
**Inhalation LC50** >5 mg/l 4-hour (rat)  
**Chronic Effects** No adverse effects observed in long-term feeding studies with rats (up to 1,000 mg/kg/day). (OECD 407)  
**Mutagenicity** Chromosomal Abberations (mammalian): Non-clastogenic. (OECD 473) AMES Test- S. Typhimurium, E. Coli: Non-mutagenic. (OECD 471)

**Acute Toxicity** Based on available data, the classification criteria are not met.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

**Respiratory Sensitization** Based on available data, the classification criteria are not met.

**Skin Corrosion/Irritation** Based on available data, the classification criteria are not met.

**Skin Sensitization** Based on available data, the classification criteria are not met.

## GEOVIS® XT

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<b>Mutagenicity</b>	Based on available data, the classification criteria are not met.
<b>Reproductive Toxicity</b>	Based on available data, the classification criteria are not met.
<b>Carcinogenicity</b>	Based on available data, the classification criteria are not met.
<b>Specific target organ toxicity - Single exposure</b>	No data available.
<b>Specific target organ toxicity - Repeated exposure</b>	No data available.

## SECTION 12: Ecological information

**12.1. Ecotoxicity** Not considered to be harmful to aquatic life.

### Diutan gum - 595585-15-2

**96-Hour LC50**

**72-Hour EC50**

**48-Hour EC50**

**3-Hour EC50**

Rainbow trout: > 100 ai/l: No Observed Effect Concentration: 100 ai/l (OECD 203)  
Scenedesmus subspicatus: >100 ai/l active ingredient. No observed Effect Concentration: 100 ai/l (OECD 201)  
Daphnia magna: >100 ai/l active ingredient. No observed Effect Concentration: 100 ai/l (OECD 202)  
Sewage sludge: > 1000 mg ai/l. No Observed Effect Concentration: 1000 mg ai/l (OECD 209)

**12.2. Persistence and degradability** Readily biodegradable.

**12.3. Bioaccumulative potential** This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).

**Partition coefficient** No data available.

**Bioconcentration factor (BCF)** Not available.

**12.4. Mobility in soil** No data available.

**12.5. Results of PBT and vPvB assessment** This substance does not meet the criteria for classification as PBT or vPvB.

**12.6. Other adverse effects** None known

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**Contaminated Packaging** Product residue may remain in empty containers. Empty containers should be taken to an approved waste handling site for recycling or disposal.

**Waste codes** Waste codes should be assigned by the user based on the application for which

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the product was used

**Disposal Methods**

Dispose of waste product or used containers according to local regulations

**Diutan gum - 595585-15-2**

European Waste Catalog 160306

**SECTION 14: Transport information****Mode of Transportation (Road, Water, Air, Rail)**

**TDG -Canada** Not regulated  
**US DOT** Not regulated  
**IATA** Not regulated  
**IMDG/IMO** Not regulated  
**ICAO** Not regulated

- 14.1. UN number** None  
**14.2. UN proper shipping name** None  
**14.3. Transport hazard class(es)** None  
**14.4. Packing group** None  
**14.5. Environmental hazards** No  
**14.6. Special precautions for user** Not applicable  
**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**  
Not applicable

**SECTION 15: Regulatory information****Global Inventories****Pure substance/mixture****Substance**

Chemical Name	CAS Number	EC No	EU REACH registration number	Australia (AIIC)	Canada (DSL)	China (IECSC)	Japan	S. Korea (KECL)	Mexico	New Zealand	Philippines (PICCS)	Taiwan	TSCA: United States
Diutan gum	595585-15-2 125005-87-0	439-070-6	01-211986 4795-20	Y:595585-15-2	Y: 125005-87-0	registration number: T-122988	11-(4)-944 (ISHL): 125005-87-0	Y: 125005-87-0	N	Y:595585-15-2	N	Y	A:595585-15-2

X / Y: Complies ; A: Active ; - / N: Exempt / Not Listed

**Regulatory Restrictions / Status:**

This product is a naturally occurring substance derived from a genetically modified organism. No live GMOs are present in the product. The substance meets chemical control law requirements as listed. \* **For information on approved use of this product, or products in which this product is an ingredient, in other countries/regions not specified herein, please contact CP Kelco Regulatory Affairs.**

**US Federal Regulations**



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EPA**U.S. State Right-to-Know Regulations**

Chemical Name	CAS Number	California Proposition 65	Massachusetts	Minnesota	New Jersey	Pennsylvania
Diutan gum	595585-15-2 125005-87-0	N	N	N	N	N

Y: Listed ; N: Not Listed

**California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)**

This product does not contain any Proposition 65 chemicals

CANADA**WHMIS**

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR

**SECTION 16: Other information**

<b>Prepared by</b>	CP Kelco Global Regulatory Affairs Email: Regulatory.Affairs@cpkelco.com
<b>Reason for Version</b>	OSHA (Occupational Safety and Health Administration of the US Department of Labor).
<b>Training Advice</b>	Do not handle until all safety precautions have been read and understood.
<b>Abbreviations and acronyms</b>	<p>IARC (International Agency for Research on Cancer)            IATA (International Air Transport Association)            IMDG (International Maritime Dangerous Goods)            IUCLID (International Uniform Chemical Information Database)            WHMIS (Workplace Hazardous Materials Information System)            EPA SARA Title III Section 312 (40 CFR 370) Hazard Classification            DOT (Department of Transportation)            OSHA (Occupational Safety and Health Administration of the US Department of Labor)            TWA (Time-Weighted Average)            Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)            PPE (Personal Protection Equipment)            NIOSH (National Institute for Occupational Safety and Health)            TDG (Transport of Dangerous Goods) Canada            CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)            RQ (Reportable Quantity) (RQ/% in mixture)            STEL (Short Term Exposure Limit)            TLV® (Threshold Limit Value)            DNEL (Derived No Effect Level)            SVHC (Substances of Very High Concern)            Land transport (ADR/RID)            BOD (Biochemical oxygen demand)            COD (Chemical oxygen demand)            ICAO (International Civil Aviation Organization)            IMDG (International Maritime Dangerous Goods)            SCBA (Self-Contained Breathing Apparatus) Positive Pressure            PNEC (Predicted No Effect Concentration)            GHS (Globally Harmonized System)</p>

# Safety Data Sheet

## GEOVIS® XT

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### Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**

**SECTION 1: IDENTIFICATION**

PRODUCT IDENTIFIER:	<b>CITRIC ACID</b>
OTHER MEANS OF IDENTIFICATION:	None
RECOMMENDED USE:	Drilling fluid and cement additive
RESTRICTIONS ON USE:	None known
SUPPLIER IDENTIFIER:	<b>Di-Corp</b> <b>8750-53 Ave</b> <b>Edmonton, AB T6E 5G2</b> <b>780-440-4923</b>
EMERGENCY PHONE NUMBER:	780-468-4064 (24 hr)

**SECTION 2: HAZARD IDENTIFICATION**

CLASSIFICATION: Serious eye damage / eye irritation – Category 2

LABEL SYMBOLS:



SIGNAL WORD:

WARNING

CLASSIFICATION INFORMATION:

Causes serious eye irritation.

PRECAUTIONARY STATEMENTS:

Wash face, hands and any exposed skin thoroughly after handling. Wear eye protection/ face protection.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

OTHER HAZARDS:

None known.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
Citric acid	77-92-9	100

**SECTION 4: FIRST AID MEASURES**

SKIN CONTACT:	Wash thoroughly with water and soap. If irritation occurs and persists, obtain medical attention. Remove and launder contaminated clothing before rewearing.
EYE CONTACT:	Immediately flush with gently flowing warm water for minimum 15 minutes. Hold eyelids open to ensure thorough flushing. Neutral saline may be used as soon as it is available. Obtain medical attention when flushing is complete and no further irritation is felt.
INGESTION:	Do not induce vomiting. Rinse mouth with water. Give one to two glasses of water dilute. Obtain medical attention immediately. Never give anything by mouth if victim is unconscious, rapidly losing consciousness or convulsing.
INHALATION:	Move to area free from dust. If victim is not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If breathing difficulties or distress continues obtain medical attention.
MOST IMPORTANT SYMPTOMS / EFFECTS:	Causes serious eye damage / eye irritation.
IMMEDIATE MEDICAL ATTENTION / SPECIAL TREATMENT:	Treat symptomatically.



## SECTION 5: FIRE-FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA:	Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.
UNSUITABLE EXTINGUISHING MEDIA:	None known.
SPECIFIC FIRE HAZARDS:	Anhydrous citric acid is a potential combustible dust hazard. The dry powder can form explosive dust-air mixture, which can be ignited by a spark or flame. The solid material may burn if strongly heated. Autoignition temperature = 1010°C.
HAZARDOUS COMBUSTION PRODUCTS:	Oxides of carbon.
SPECIAL PROTECTIVE EQUIPMENT & PRECAUTIONS:	Self-contained breathing apparatus required for fire-fighting personnel.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Wear appropriate safety gear including eye and respiratory protection.

### METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN UP

Collect dry material by sweeping and shoveling; liquid material can be removed with a vacuum truck. Collect uncontaminated material for repackaging. Collect contaminated material in an approved container for disposal. Flush spill area thoroughly with water.

## SECTION 7: HANDLING AND STORAGE

### PRECAUTIONS FOR SAFE HANDLING

Avoid contact with eyes or prolonged skin contact. Avoid breathing dust. Use good personal hygiene and housekeeping. Launder contaminated clothing before reuse.

### CONDITIONS FOR SAFE STORAGE & INCOMPATIBILITIES

Store in cool, dry area away from incompatibles. Keep container tightly closed and properly labelled. Aqueous solutions of citric acid can, if in contact with reactive metal (iron, zinc, aluminum) form hydrogen which may create explosive mixtures. Avoid creating dust clouds when handling. Empty packages contain residual hazardous material and should be handled as if full.

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS:	Not established. Local nuisance dust levels apply.
ENGINEERING CONTROLS:	Use only with adequate ventilation. If user operations generate dust use process enclosure, local exhaust ventilation or other engineering controls to keep worker exposure below limits.
PERSONAL PROTECTIVE MEASURES	
RESPIRATORY PROTECTION:	Approved dust masks required for dust levels below TLV. Use a properly fitted particulate filter respirator complying with an approved standard if airborne concentrations exceeds TLV or if a risk assessment indicates this is necessary.
PROTECTIVE GLOVES:	Rubber gauntlets recommended.
EYE PROTECTION:	Wear tight fitting chemical goggles. Do not wear contact lenses.
OTHER PROTECTIVE EQUIPMENT (SPECIFY):	Protective clothing as required to prevent contact. Ensure eye-wash station and emergency shower are available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	White powder or granules
ODOUR:	Odourless
ODOUR THRESHOLD:	Not applicable
pH:	2.2 (1% aqueous solution)
MELTING POINT / FREEZING POINT:	153°C
BOILING POINT / RANGE:	Not applicable (decomposes)

FLASH POINT:	Not applicable
EVAPORATION RATE:	Not applicable
FLAMMABILITY:	Combustible
FLAMMABILITY / EXPLOSIVE LIMITS:	Not applicable
VAPOUR PRESSURE:	Not applicable
VAPOUR DENSITY:	Not applicable
RELATIVE DENSITY:	1.665
SOLUBILITY:	Soluble in water
PARTITION COEFFICIENT:	Not available
AUTO-IGNITION TEMPERATURE:	1010°C
DECOMPOSITION TEMPERATURE:	Not applicable
VISCOSITY:	Not applicable

## SECTION 10: STABILITY AND REACTIVITY

REACTIVITY:	May react violently with strong oxidizers if heated. May react violently with strong reducing agents. May generate heat and pressure in contact with strong bases. Corrosive to carbon steel and aluminum.
CHEMICAL STABILITY:	Stable.
POSSIBILITY OF HAZARDOUS REACTIONS:	Not available
CONDITIONS TO AVOID:	Avoid contact with strong oxidizers, strong reducing agents, strong bases and metals.
INCOMPATIBLE MATERIALS:	Strong oxidizers, strong reducing agents and strong bases.
HAZARDOUS DECOMPOSITION PRODUCTS:	May react with metals generating explosive hydrogen gas.

## SECTION 11: TOXICOLOGICAL INFORMATION

PRODUCT TOXICITY:	LD50 (Oral, rat) = 3000 mg/kg
SKIN CONTACT:	May cause mild to moderate irritation.
EYE CONTACT:	May cause moderate to severe irritation according to animal testing.
INGESTION:	Ingestion of large amounts may cause stomach pain and vomiting.
INHALATION:	Dusts and mists from solutions may cause temporary irritation of the nose and throat. The severity of these effects would depend on the airborne concentration, concentration of the solution and the duration of exposure.
CARCINOGENICITY:	Not listed by NTP, IARC, OSHA or ACGIH.
TERATOGENICITY:	No information available.
REPRODUCTIVE TOXICITY:	No information available.
MUTAGENICITY:	No information available.
CHRONIC TOXICITY:	No information available.
TARGET ORGAN EFFECTS:	Not available.

## SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY:	No information available.
PERSISTENCE AND DEGRADABILITY:	Not available.
BIOACCUMULATIVE POTENTIAL:	Not available.
MOBILITY IN SOIL:	Not available.
OTHER ADVERSE EFFECTS:	No known significant effects or critical hazards.

## SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. Empty containers, which have not been cleaned and purged, contain residual hazardous material and must be recycled, or disposed of, in accordance with local regulations.

## SECTION 14: TRANSPORTATION INFORMATION

TDG	Not regulated
DOT	Not regulated
IATA	Not regulated
IMDG	Not regulated
UN NUMBER:	Not applicable
PROPER SHIPPING NAME:	Not applicable
CLASS:	Not applicable
PACKING GROUP:	Not applicable
IMDG HAZARDS:	Not a marine pollutant
BULK TRANSPORT:	Not regulated
SPECIAL PRECAUTIONS:	None

## SECTION 15: REGULATORY INFORMATION

DSL:	Listed
WHMIS CLASS:	E
TSCA:	Listed

## SECTION 16: OTHER INFORMATION

REVISION DATE:	June 14, 2022
REPLACES:	February 6, 2018

The information contained herein is given in good faith, but no warranty, expressed or implied, is made.



## SECTION 1: IDENTIFICATION

PRODUCT IDENTIFIER: **SODA ASH**  
OTHER MEANS OF IDENTIFICATION: Sodium carbonate  
RECOMMENDED USE: Oilwell drilling fluid and cement additive  
RESTRICTIONS ON USE: None known  
SUPPLIER IDENTIFIER: **Di-Corp**  
**8750-53 Ave**  
**Edmonton, AB T6E 5G2**  
**780-440-4923**  
EMERGENCY PHONE NUMBER: 780-468-4064 (24 hr)

## SECTION 2: HAZARD IDENTIFICATION

CLASSIFICATION: Serious eye damage / eye irritation – Category 2

LABEL SYMBOLS:



SIGNAL WORD:

WARNING

CLASSIFICATION INFORMATION:

Causes serious eye irritation.

Wash face, hands and any exposed skin thoroughly after handling. Wear eye protection/ face protection.

PRECAUTIONARY STATEMENTS:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

OTHER HAZARDS:

None known.

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
Sodium carbonate	497-19-8	100

## SECTION 4: FIRST AID MEASURES

SKIN CONTACT: Wash thoroughly with water and soap. If irritation occurs and persists, obtain medical attention. Remove and launder contaminated clothing before rewearing.

EYE CONTACT: Immediately flush with gently flowing warm water for minimum 15 minutes. Hold eyelids open to ensure thorough flushing. Neutral saline may be used as soon as it is available. Obtain medical attention when flushing is complete and no further irritation is felt.

INGESTION: Do not induce vomiting. Rinse mouth with water. Give one to two glasses of water dilute. Obtain medical attention immediately. Never give anything by mouth if victim is unconscious, rapidly losing consciousness or convulsing.

INHALATION: Move to area free from dust. If victim is not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If breathing difficulties or distress continues obtain medical attention.

MOST IMPORTANT SYMPTOMS / EFFECTS: Causes serious eye damage / eye irritation.

IMMEDIATE MEDICAL ATTENTION / SPECIAL TREATMENT: Treat symptomatically.

## SECTION 5: FIRE-FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA:	Use media appropriate for packaging and surrounding materials.
UNSUITABLE EXTINGUISHING MEDIA:	None.
SPECIFIC FIRE HAZARDS:	Noncombustible. Soda ash does not burn but may decompose upon heating to produce corrosive and/or toxic fumes.
HAZARDOUS COMBUSTION PRODUCTS:	Toxic sodium oxide fumes can be generated by thermal decomposition at elevated temperatures. Oxides of carbon.
SPECIAL PROTECTIVE EQUIPMENT & PRECAUTIONS:	Self-contained breathing apparatus required for fire-fighting personnel.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Wear appropriate safety gear including eye and respiratory protection.

### METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN UP

Collect dry material by sweeping and shoveling; liquid material can be removed with a vacuum truck. Collect uncontaminated material for repackaging. Collect contaminated material in an approved container for disposal. Flush spill area thoroughly with water.

## SECTION 7: HANDLING AND STORAGE

### PRECAUTIONS FOR SAFE HANDLING

Avoid contact with eyes or prolonged skin contact. Avoid breathing dust. Use good personal hygiene and housekeeping. Launder contaminated clothing before reuse.

### CONDITIONS FOR SAFE STORAGE & INCOMPATIBILITIES

Store in a cool, dry, well-ventilated place away from acids. Product is hygroscopic, prolonged storage may cause product to cake and become wet from atmospheric moisture. Obey hazard warnings and handle empty containers as if they were full.

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS:	Not established. Local nuisance dust levels apply.
ENGINEERING CONTROLS:	Use only with adequate ventilation. If user operations generate dust use process enclosure, local exhaust ventilation or other engineering controls to keep worker exposure below limits.
PERSONAL PROTECTIVE MEASURES	
RESPIRATORY PROTECTION:	Approved dust masks required for dust levels below TLV. Use a properly fitted particulate filter respirator complying with an approved standard if airborne concentrations exceeds TLV or if a risk assessment indicates this is necessary.
PROTECTIVE GLOVES:	Rubber gauntlets recommended.
EYE PROTECTION:	Wear tight fitting chemical goggles. Do not wear contact lenses.
OTHER PROTECTIVE EQUIPMENT (SPECIFY):	Protective clothing as required to prevent contact. Ensure eye-wash station and emergency shower are available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	White granules
ODOUR:	Odourless
ODOUR THRESHOLD:	Not applicable
pH:	11.4 (1% aqueous solution)
MELTING POINT / FREEZING POINT:	153°C
BOILING POINT / RANGE:	Not available
FLASH POINT:	Not applicable

EVAPORATION RATE:	Not applicable
FLAMMABILITY:	Not applicable
FLAMMABILITY / EXPLOSIVE LIMITS:	Not applicable
VAPOUR PRESSURE:	Not applicable
VAPOUR DENSITY:	Not applicable
RELATIVE DENSITY:	2.52
SOLUBILITY:	212.5 g/L H <sub>2</sub> O @ 20°C
PARTITION COEFFICIENT:	Not available
AUTO-IGNITION TEMPERATURE:	Not applicable
DECOMPOSITION TEMPERATURE:	400°C
VISCOSITY:	Not available

## SECTION 10: STABILITY AND REACTIVITY

REACTIVITY:	Contact with acids will release carbon dioxide gas. Can react violently with red, hot aluminum metal; fluorine gas; lithium; and 2,4,6-trinitrotoluene. Sodium carbonate solutions (concentrations up to 35%) are corrosive to aluminum, lead, and zinc and zinc brasses at 21°C. Solid sodium carbonate is corrosive to aluminum at 100% relative humidity and normal temperatures.
CHEMICAL STABILITY:	Stable.
POSSIBILITY OF HAZARDOUS REACTIONS:	None under normal conditions of use.
CONDITIONS TO AVOID:	Exposure to air or moisture over prolonged periods.
INCOMPATIBLE MATERIALS:	Aluminum. Powdered aluminum. Acids.
HAZARDOUS DECOMPOSITION PRODUCTS:	Sodium oxides. Carbon oxides.

## SECTION 11: TOXICOLOGICAL INFORMATION

PRODUCT TOXICITY:	LD50 (Oral, rat) = 2800 mg/kg LD50 (Dermal, rabbit) > 2000 mg/kg LC50 (Inhal, rat) = 2.3 mg/L/2hr
SKIN CONTACT:	Non-irritating to intact skin. Minor irritation may occur on abraded skin. Prolonged contact may cause irritation (red, dry, cracked skin).
EYE CONTACT:	Dust and concentrated solutions may cause moderate to severe eye irritation.
INGESTION:	Although low in toxicity, ingestion can be harmful. May cause nausea, vomiting, stomachache and diarrhea.
INHALATION:	Excessive levels of airborne dust may irritate the mucous membranes and upper respiratory tract.
CARCINOGENICITY:	Not listed by NTP, IARC, OSHA or ACGIH.
TERATOGENICITY:	No information available.
REPRODUCTIVE TOXICITY:	No information available.
MUTAGENICITY:	No information available.
CHRONIC TOXICITY:	No information available.
TARGET ORGAN EFFECTS:	Not available.



## SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY:	LC50 (bluegill sunfish) = 300 mg/L/96hr EC50 (ceriodaphnia) = 200 - 227 mg/L/48hr
PERSISTENCE AND DEGRADABILITY:	Not applicable to inorganic substances.
BIOACCUMULATIVE POTENTIAL:	Does not bioaccumulate.
MOBILITY IN SOIL:	Dissociates into ions.
OTHER ADVERSE EFFECTS:	None know.

## SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. Empty containers, which have not been cleaned and purged, contain residual hazardous material and must be recycled, or disposed of, in accordance with local regulations.

## SECTION 14: TRANSPORTATION INFORMATION

TDG	Not regulated
DOT	Not regulated
IATA	Not regulated
IMDG	Not regulated
UN NUMBER:	Not applicable
PROPER SHIPPING NAME:	Not applicable
CLASS:	Not applicable
PACKING GROUP:	Not applicable
IMDG HAZARDS:	Not a marine pollutant
BULK TRANSPORT:	Not regulated
SPECIAL PRECAUTIONS:	None

## SECTION 15: REGULATORY INFORMATION

DSL:	Listed
WHMIS CLASS:	D2B, E
TSCA:	Listed

## SECTION 16: OTHER INFORMATION

REVISION DATE:	November 7, 2019
REPLACES:	February 14, 2018

The information contained herein is given in good faith, but no warranty, expressed or implied, is made.

**From:** Boylan, Patrick <patrick.boylan@fortisbc.com>  
**Sent:** Monday, June 24, 2024 9:38 AM  
**To:** s19  
**Cc:** Lewis, Todd; Conquergood, Heather; Anderson, Paul; Rudkevitch, Rachel; EGP Permits  
**Subject:** Follow up actions - Liner at secondary containment area

Hello s19

Please see the photos of the installed liner (Enviro Liner 3000 – Geomembrane) added to the secondary containment area at the west portal site.

Thanks and have a great day,

Patrick





**Patrick Boylan, P.Ag.**

FortisBC, Environmental Inspection Manager (contractor) – EGP  
s22

[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)



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**From:** cmis.noreply@bc-er.ca  
**Sent:** Wednesday, June 19, 2024 3:30 PM  
**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2024-2250 - FortisBC Energy Inc.  
**Attachments:** 2024-2250 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2024-2250.

For the latest information go to the CM-IS Permit Holder Application at <https://cmis-ph.bc-er.ca/>

Note: This email account is not monitored and will not be replied to.



**Compliance Management  
Information System**

T: 250-794-5200  
F: 250-794-5390  
Toll Free: 1-800-663-7867  
Emergency: 1-800-663-3456

## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2024-2250  
Inspection Date: 2024-06-04  
Inspection Outcome: In Compliance

### Inspection Comment:

Inspection conducted June 4, 2024. Tsleil-Waututh Nation representatives joined BCER and FortisBC on inspection.

#### KP 14 Lower Laydown

- \* Majority of site has been stumped and partially grubbed. Stripping will not occur until necessary.
- \* Walked eastern and southern perimeter of laydown.
- \* Noted one area along southern perimeter where water is pooling and leaving site. Running clear and no visible impacts off site at time of inspection. Discussed potential for sediment-laden runoff and potential amphibian migration into pooling water.
- \* Noted topsoil and subsoil piles are marked with stakes. BCER discussed improving signage for topsoil and subsoil piles.
- \* Noted small amount of sediment-laden water running below geo fabric off access road into adjacent NCD. Discussed potential improvements for water management on access road leading to laydown. BCER requests photos once corrective actions have been implemented. \* June 7, 2024 - Fortis provided BCER C&E update with photos of corrective actions related to water management on access road leading to laydown. BCER C&E satisfied with improvements at this time.

#### KP 14 Upper Laydown

- \* Ditch line connecting access road to FSR has been filled in with material. Noted influences off access onto FSR. Discussed potential improvements to mitigate runoff and reestablish ditch line along FSR. June 7, 2024 - Fortis provided BCER C&E photos of reestablished ditch line. BCER C&E satisfied with actions at this time.
- \* Area cleared, partially grubbed, access established.
- \* Post 1846 CMT buffered and left intact.
- \* Noted non-project related truck with visible sheet on tailgate from fuel containers. Fortis to address any potential cleanup.

#### Indian River Crossing and Workspace Area

- \* Midspan footer established, bridge ready for install when weather conditions allow. Bridge install expected to be imminent.
- \* Observed pump around discharge location. Discharge appears to have caused

minor erosion on bank. Discharge location and setup should be addressed to avoid further erosion. Additionally, high water from Indian River has caused water to pool within workspace adjacent to river. Discussed possibility of fish entrapment. BCER C&E request photos once corrective action for pump around discharge location has been addressed. \* June 5, 2024 - Fortis provided BCER C&E update with photos of improved discharge setup and location and confirmed that pooling water has subsided with confirmation by qualified professionals that no fish presence noted. BCER C&E satisfied with actions at this time.

\* WC 36.1 - Flood event at time of inspection. Dam and pump around in place but significant rainfall and high water caused loss of containment. Apparent connectivity to WC 37.1 (S3). Site inundated with water but contained to site. Additional pumps brought in while inspectors on site. Salvage crews on site during pump off. No water off site noted at time of event. BCER C&E requesting update on conditions. \* June 5, 2024 - Fortis provided BCER C&E an update within 24 hours as requested with photos confirming isolation regained and no surface water flow or sediment laden water observed off footprint. Pump down successful. Qualified professionals collaborated with Tsleil-Waututh Nation monitors on salvage and relocation. No fish mortality. BCER C&E satisfied with update provided.

#### Hixon Laydown

- \* Noted fencing improvements completed around perimeter of sump identified on a previous inspection. Amphibian fencing installed around perimeter of pit.
- \* Woody debris pile left on site for future rollback.
- \* Discussed potential for improved topsoil and subsoil pile signage.
- \* Culvert from Hixon Laydown crossing FSR running clear at time of inspection.

No non-compliances noted during inspection.

A satisfactory Inspection was conducted.

The following were the only items that were inspected during this Inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this Inspection.

Permit: 100111735  
AACT Number: 00215948  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00215985  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00216035  
Site Type: Workspace



Permit: 100111735  
AACT Number: 00216071  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00216072  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00216073  
Site Type: Workspace

Permit: 100115467  
AACT Number: 00222450  
Site Type: Access

Permit: 100111735  
CIAS Number: 0006978  
Location ID (Crossing Type): 48 (Flow Isolation)

Permit: 100115467  
CIAS Number: 0007377  
Location ID (Crossing Type): 5 (Culvert)

Permit: 100111735

Permit: 100115467

Permit Holder: FortisBC Energy Inc.

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S19 9

Compliance & Enforcement Officer  
Authorized BCER Employee

**From:** Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Sent:** Wednesday, June 5, 2024 9:54 PM  
**To:** s19  
**Cc:** Boylan, Patrick; Anderson, Paul; ben.rudmik; Conquergood, Heather; Rudkevitch, Rachel; Ryan Hennessey  
**Subject:** Follow up - WC 36.1 Update

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

Good Evening s19

As a follow up to yesterday's inspection, I am passing along some information related to the actions taken at WC 36.1 in the Indian River valley. As discussed earlier today, I wanted to let you know that we have regained isolation and clean water bypass of WC 36.1. Water levels began receding overnight on June 4th and SMJV has re-established successful isolation and clean water bypass of the watercourse that rose during the significant rain event observed over the previous two days. There has not been any surface water flow or sediment laden water observed off of the footprint downstream of WC 36.1.

Below I have attached photos showing surface water maintained at the isolation point. Pump watch continued during night shift on June 4<sup>th</sup> and day shift on June 5<sup>th</sup> and will continue (including night shift) until the water recedes. The forecast will continue to be monitored and pump watch assigned accordingly. Clean water bypass discharge energy diffusers were re-configured to prevent scour of the unstable right bank of the Indian River using poly and wrapped filter cloth.

Triton QPs on location today successfully salvaged and relocated 25 fish observed on the project footprint downstream of the isolation in WC 36.1 that escaped during the high-water event with no documented mortalities. The fish salvage effort was undertaken in collaboration with the TWN monitors on site and an update has been provided to TWN on the actions taken at this location.

Indian River water levels have receded and water backed up behind the sediment fencing near the river bank has subsided. Triton completed a fish search with no fish observed on the project footprint at that location.

Additional corrective actions from KP 14 laydown discussed during yesterday's debrief are currently being actioned and we will provide an update by end of day tomorrow.

Photos below of WC 36.1:

June 5, 8:21 am - viewing upstream isolation, clean water bypass. Pumps managing flow with no seepage past dam.





June 5, 2024 at 8:21:59 AM  
E 506816 N 5486054  
208° SW  
BC36.1. Clean water bypass managed. Water  
level maintained for fish salvage.



No flow observed at secondary dam installed yesterday to control seepage.





Viewing water level maintained to high water mark upstream of isolation in WC 36.1





Water level dropping at the Indian River. No fish stranded.



June 5, 2024 at 9:09:20 AM

E 506975 N 5486044

27° NE

IR water level receding. Pooled water dropped

QP checking for fish. No fish observed



Discharge diffusers re constructed to prevent erosion along the right bank.



June 5, 2024 at 9:12:10 AM  
E 506994 N 5486027  
80° E  
WC 36.1 discharge diffusers re construction.



Fish salvage complete. All fish relocated from workspace downgradient from WC 36.1 isolation as water was drawn down with QP on site.







June 5, 2024 at 12:52:30 PM  
E 506831 N 5486069  
64° NE  
Greater Vancouver  
WC36.1 clean water bypass functioning. Work  
space drained. Fish salvaged. Fish salvage  
complete. Last 4 fish removed.



**From:** s19  
**Sent:** Monday, June 10, 2024 1:56 PM  
**To:** Lewis, Todd; s19  
**Cc:** Conquergood, Heather; Boylan, Patrick; Anderson, Paul; Rudkevitch, Rachel  
**Subject:** RE: Follow up actions EGP North - June 4th inspection

Hi Todd,

Noting that we've received this update as well as the one submitted Wednesday, June 5<sup>th</sup>. Thank you very much for the promptness of these updates.



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s19

We acknowledge and respect the many First Nations, each with unique cultures, languages, legal traditions and relationships to the land and water, on whose territories the British Columbia Energy Regulator's work spans.

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**From:** Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Sent:** Friday, June 7, 2024 1:01 PM  
**To:** s19  
**Cc:** Conquergood, Heather <Heather.Conquergood@fortisbc.com>; Boylan, Patrick <patrick.boylan@fortisbc.com>; Anderson, Paul <paul.anderson@fortisbc.com>; Rudkevitch, Rachel <rachel.rudkevitch@fortisbc.com>  
**Subject:** Follow up actions EGP North - June 4th inspection

Hi s19

Following up to provide photo documentation of the two additional action items identified during the BCER inspection of EGP North on June 4, 2024. The pioneer access from the Stawamus-Indian FSR and upper KP 14 laydown has been removed and the ditch line re-established. When the laydown area access is required in the future, a ramp and culvert will be installed.

KP 14 upper laydown pioneer access removed and bar ditch re-established









June 6, 2024 at 11:38:49 AM  
E 500435 N 5495701  
215° SW  
Squamish-Lillooet  
KP 14 north yard pioneer access ramp  
removed. Bar ditch re established.



KP 14 lower laydown shoofly access wing wall keyed in and DESC installed (water bars with catchment



June 6, 2024 at 4:04:41 PM  
E 503626 N 5491722  
282° W  
KP south shoofly Wingwall install DESC





June 6, 2024 at 4:04:09 PM  
E 503605 N 5491730  
188° S  
KP south shoofly Wingwall install DESC



We will be following up with photo documentation and other information for the action items discussed during the subsequent inspections on June 5 and 6.

Safe travels back home.

Thanks,

**Todd Lewis, B.Sc, P.Geo, P.Ag**  
FortisBC, Environment Manager (contractor) – EGP  
s22  
[todd.lewis@fortisbc.com](mailto:todd.lewis@fortisbc.com)



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**From:** cmis.noreply@bc-er.ca  
**Sent:** Wednesday, June 19, 2024 3:30 PM  
**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2024-2251 - FortisBC Energy Inc.  
**Attachments:** 2024-2251 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2024-2251.

For the latest information go to the CM-IS Permit Holder Application at <https://cmis-ph.bc-er.ca/>

Note: This email account is not monitored and will not be replied to.



**Compliance Management  
Information System**

T: 250-794-5200  
F: 250-794-5390  
Toll Free: 1-800-663-7867  
Emergency: 1-800-663-3456



## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2024-2251  
Inspection Date: 2024-06-05  
Inspection Outcome: In Compliance

### Inspection Comment:

Inspection conducted June 5, 2024.

#### Shoefly 1

\* Observed hydrovac pit for Coquitlam Water Main locate. Discussed potential for amphibian migration. Construction supervisor noted area to be filled in once conditions allow.

\* Topsoil piles staked and marked. Discussed potential for improvements to signage. Noted minor sloughing of piles due to recent heavy rains. Earthen berm adjacent to piles preventing offsite soil migration.

#### Pipeline R.O.W between Shoefly 1 to Shoefly 3

\* Amphibian fencing including amphibian corridors in good condition at time of inspection.

\* Wetland 160 free of debris and stream running clear at time of inspection. Stumps left intact and flagged off.

\* Geo fabric installed at WC 355 to support machine crossing. Water running clear at time of inspection. Geo fabric to be removed once crossing is no longer needed.

\* 10 metre buffer around stream, stumps left intact.

\* Noted amphibian pitfall traps have been closed and lids weighted down. BCER C&E discussed snap on lids being sealed on pitfall traps to prevent possible entrapment when not in use.

#### Shoefly 6

\* Topsoil storage contained well, improvement from previous inspection.

\* Shoefly ditch established and seed establishing, improving stability. Improvement from previous inspection.

\* Noted minor erosion on upper perimeter ditch. Recent heavy rainfall has occurred, but overall holding well. Poly-lined NCD on slope of upper perimeter ditch for scour prevention noted. Discussed potential for additional ESC implementation.

\* Scouring noted on lower perimeter ditch. ESC needs maintenance once weather conditions allow. Lower perimeter ditch at capacity. Discussed potential improvements for when conditions allow.

#### KP 1+500 Slope

\* Sediment-laden water pooling on southern side of R.O.W due to channelizing of surface flows and multiple NCD's into one. Noted one culvert plugged requires maintenance to reestablish natural drainage pattern. BCER C&E requesting photos once additional ESC measures have been implemented. \* June 12, 2024 - Fortis has provided BCER C&E an update with photos for KP 1+500 slope showing reestablished drainage patterns. BCER C&E satisfied at this time with implemented actions.

#### V1 Compressor

- \* Clearing complete, stumps still intact.
- \* S5 running clear at time of inspection. Works around stream appear to have been done well.
- \* Noted groundwater beginning to channelize. Discussed potential improvements to water management.

No non-compliances noted during inspection.

A satisfactory Inspection was conducted.

The following were the only items that were inspected during this Inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this Inspection.

Permit: 100008469  
AACT Number: 00207068  
Site Type: Workspace

Permit: 100008469  
AACT Number: 00207072  
Site Type: Workspace

Permit: 100008469  
AACT Number: 00207074  
Site Type: Workspace

Permit: 100115467  
AACT Number: 00222442  
Site Type: Access

Permit: 100115467  
AACT Number: 00222443  
Site Type: Access

Permit: 100008469  
CIAS Number: 0006302  
Location ID (Crossing Type): 9 (Open Cut)



Permit: 100115467

---

S19

Compliance & Enforcement Officer  
Authorized BCER Employee



**From:** s19  
**Sent:** Wednesday, June 12, 2024 3:38 PM  
**To:** Lewis, Todd; s19  
**Cc:** Conquergood, Heather; Boylan, Patrick; Anderson, Paul; Rudkevitch, Rachel; EGP Permits  
**Subject:** RE: Follow up actions - June 5-6 inspection

Received. When conditions allow for ESC maintenance at the lower perimeter ditch adjacent to Shoefly 6 (Coquitlam) and the lower quarry drainage, please send a few photos for our documentation.

Thanks very much, Todd.



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s19

We acknowledge and respect the many First Nations, each with unique cultures, languages, legal traditions and relationships to the land and water, o

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**From:** Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Sent:** Wednesday, June 12, 2024 10:04 AM  
**To:** s19  
**Cc:** Conquergood, Heather <Heather.Conquergood@fortisbc.com>; Boylan, Patrick <patrick.boylan@fortisbc.com>; Anderson, Paul <paul.anderson@fortisbc.com>; Rudkevitch, Rachel <rachel.rudkevitch@fortisbc.com>; EGP Permits <EGP.Permits@fortisbc.com>  
**Subject:** Follow up actions - June 5-6 inspection

Hi s19

Following up to provide photo documentation and information related to the action items identified during the BCER inspection on June 5-6, 2024.

Attached is the template for the TBM Monitoring tracking sheet, an example of a filled out monitoring tracking sheet and the drill profile as requested during the debrief on June 6. As a follow up to the

Below are some photos and information from the WLNG site on June 6:

Secondary containment at West Portal will be replaced later this week with a more permanent solution. Our contractor has order the Enviro-Liner 3000 (spec sheet attached). It is expected on site later this week.

West Portal: yellow hose removed from WC 309-R2.





Jun 8, 2024 at 11:43:31  
10U 482026 5501913  
Woodfibre  
Squamish-Lillooet  
WC 309-R2

West Portal: designated smoking area moved to new location away from the secondary containment area.



Jun 10, 2024 at 12:13:11  
10U 481936 5501886  
Woodfibre  
Squamish-Lillooet  
Portal bench entrance secondary containment



EGP South: KP 1+500 slope. Drainage re-established across the ROW. Further improvements will be made once grade works start in this location.



EGP South: KP 1+500 slope. Drainage re-established across the ROW. Further improvements will be made once grade works start in this location.



Please let me know if you have any questions.  
Thanks,

**Todd Lewis**  
FortisBC, Environment Manager (contractor) – EGP  
s22  
[todd.lewis@fortisbc.com](mailto:todd.lewis@fortisbc.com)



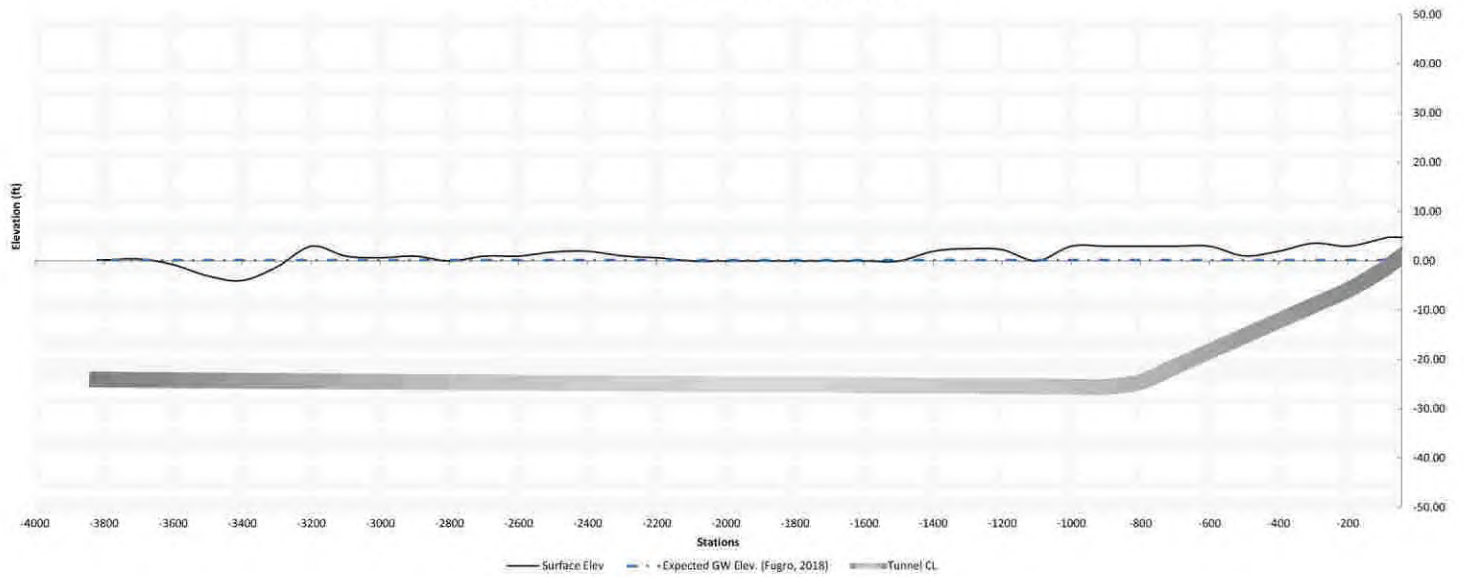


FACE SUPPORT PRESSURE CALCULATIONS

**Project:** Eagle Mountain - Woodfibre GAS Pipeline Project  
**Proj. Number:** APDU 2.4  
**Subject:** TBM Face Pressure: Schematic Profile and Groundwater Elevation  
**Dates:** 8/25/2022  
**Prepared by:** F. Mercuriello



Schematic Profile and Groundwater Elevations





**Project:** Eagle Mountain - Woodfibre Gas Pipeline Project  
**Proj. Number:** APDU 2.4  
**Subject:** Face Pressures calculated based on DAUB (2016)  
**Dates:** 8/25/2022  
**Prepared by:** F. Mercuriello



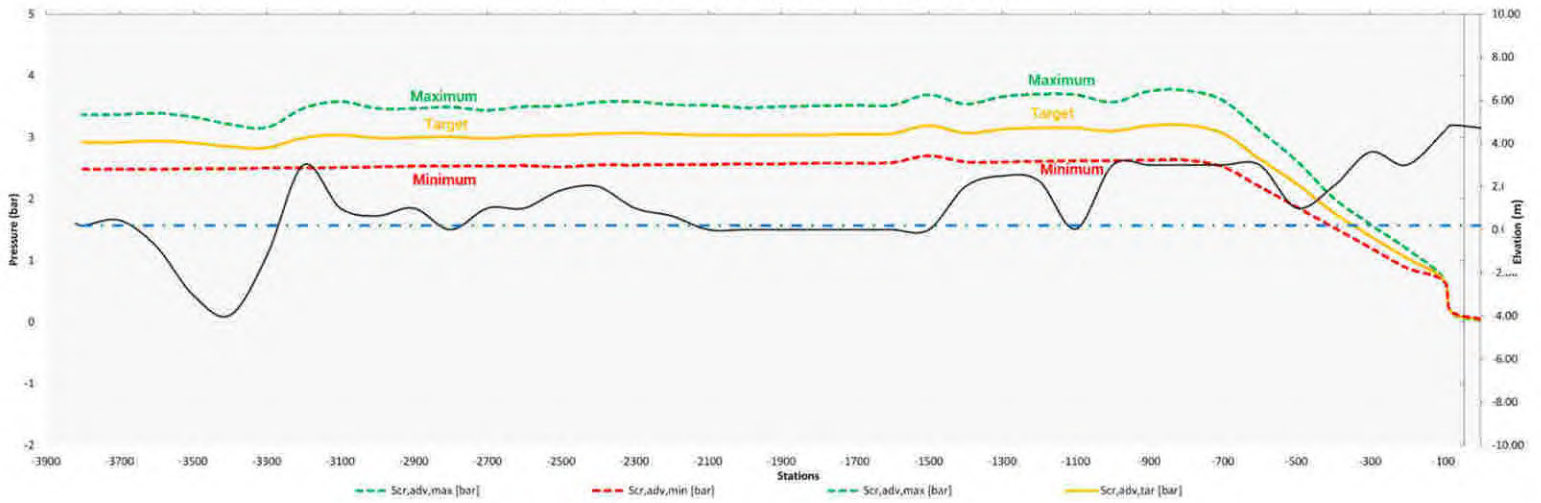
Station	Surface Elev. [m]	Tunnel CL [m]	Expected GW Elev [m]	Predominant Formation	Geological Formations at the Tunnel Face	Input Parameters - DAUB (2016)								TBM Face Pressure		
						$\gamma_{sat}$ [kN/m <sup>3</sup> ]	$t_{vis}$ [m]	$c'$ [kPa]	$\phi'$ [deg]	$\gamma_1$ [kN/m <sup>3</sup> ]	$c'_2$ [kPa]	$\phi'_2$ [deg]	$\gamma_2$ [kN/m <sup>3</sup> ]	$\sigma_{porewater}$ [bar]	$\sigma_{face}$ [bar]	$\sigma_{total}$ [bar]
80	4.84	-0.89	0.2	SD-B,T	Sand poorly graded/well graded	0.3	1.7	5.0	32	19.6	4.7	32	19.6	0.02	0.03	0.05
100	4.53	-1.89	0.2	SD-B,T	Sand with minor silt	0.6	2.0	5.0	32	19.6	4.7	32	19.6	0.16	0.17	0.18
200	3.00	-5.94	0.2	SD-B,T	Sand with minor silt	1.9	2.7	5.0	32	19.6	4.7	32	19.6	0.71	0.69	0.67
300	3.59	-9.04	0.2	SD-B,T	Sand with minor silt	2.8	3.8	5.0	32	19.6	4.7	32	19.6	1.19	1.04	0.88
400	2.00	-12.14	0.2	SD-B,T	Sand with minor silt	3.8	4.3	5.0	32	19.6	4.7	32	19.6	1.59	1.4	1.21
500	1.01	-15.24	0.2	SD-B,T	Sand with minor silt	4.7	5.0	5.0	32	19.6	4.7	32	19.6	2.02	1.78	1.54
600	3.00	-18.34	0.2	SD-B,T	Sand with minor silt	5.7	6.5	5.0	32	19.6	4.7	32	19.6	2.62	2.25	1.87
700	3.00	-21.44	0.2	SD-B,T	Sand with minor silt	6.6	7.4	5.0	32	19.6	4.7	32	19.6	3.11	2.65	2.2
800	3.00	-24.54	0.2	SD-B,T	Sand with minor silt	7.5	8.4	5.0	32	19.6	4.7	32	19.6	3.6	3.06	2.52
900	3.00	-25.56	0.2	SD-B,T	Sand with minor silt	7.9	8.7	5.0	32	19.6	4.7	32	19.6	3.76	3.2	2.63
1000	3.00	-25.51	0.2	SD-B,T	Sand with minor silt	7.8	8.7	5.0	32	19.6	4.7	32	19.6	3.75	3.19	2.63
1100	0.03	-25.46	0.2	SD-B,T	Sand with minor silt	7.8	7.8	5.0	32	19.6	4.7	32	19.6	3.57	3.1	2.62
1200	2.26	-25.41	0.2	SD-B,T	Sand with minor silt	7.8	8.4	5.0	32	19.6	4.7	32	19.6	3.69	3.15	2.62
1300	2.49	-25.36	0.2	SD-B,T	Sand with minor silt	7.8	8.5	5.0	32	19.6	4.7	32	19.6	3.7	3.15	2.61
1400	2.00	-25.31	0.2	SD-B,T	Sand with minor silt	7.8	8.3	5.0	32	19.6	4.7	32	19.6	3.66	3.13	2.6
1500	0.00	-25.26	0.2	SD-B,T	Sand with minor silt	7.8	7.7	5.0	32	19.6	4.7	32	19.6	3.54	3.07	2.6
1600	0.00	-25.21	0.2	SD-B,T	Sand with minor silt	7.7	7.7	5.0	32	19.6	4.7	32	19.6	3.69	3.19	2.7
1700	0.00	-25.16	0.2	SD-B,T	Sand with minor silt	7.7	7.7	5.0	32	19.6	4.7	32	19.6	3.52	3.06	2.59
1800	0.00	-25.11	0.2	SD-B,T	Sand with minor silt	7.7	7.7	5.0	32	19.6	4.7	32	19.6	3.52	3.05	2.58
1900	0.00	-25.06	0.2	SD-B,T	Sand with minor silt	7.7	7.6	5.0	32	19.6	4.7	32	19.6	3.51	3.04	2.58
2000	0.00	-25.01	0.2	SD-B,T	Sand with minor silt	7.7	7.6	5.0	32	19.6	4.7	32	19.6	3.5	3.04	2.57
2100	0.00	-24.96	0.2	SD-B,T	Sand with minor silt	7.7	7.6	5.0	32	19.6	4.7	32	19.6	3.48	3.03	2.57
2200	0.64	-24.91	0.2	SD-B,T	Sand with minor silt	7.7	7.8	5.0	32	19.6	4.7	32	19.6	3.52	3.04	2.56
2300	1.01	-24.86	0.2	SD-B,T	Sand with minor silt	7.6	7.9	5.0	32	19.6	4.7	32	19.6	3.53	3.05	2.56
2400	2.00	-24.81	0.2	SD-B,T	Sand with minor silt	7.6	8.2	5.0	32	19.6	4.7	32	19.6	3.58	3.07	2.55
2500	1.83	-24.76	0.2	SD-B,T	Sand with minor silt	7.6	8.1	5.0	32	19.6	4.7	32	19.6	3.57	3.06	2.55
2600	1.00	-24.71	0.2	SD-B,T	Sand with minor silt	7.6	7.8	5.0	32	19.6	4.7	32	19.6	3.51	3.03	2.52
2700	1.00	-24.66	0.2	SD-B,T	Sand with minor silt	7.6	7.8	5.0	32	19.6	4.7	32	19.6	3.5	3.02	2.54
2800	0.00	-24.61	0.2	SD-B,T	Sand with minor silt	7.6	7.5	5.0	32	19.6	4.7	32	19.6	3.44	2.98	2.53
2900	1.00	-24.56	0.2	SD-B,T	Sand with minor silt	7.5	7.8	5.0	32	19.6	4.7	32	19.6	3.49	3.01	2.53
3000	0.64	-24.56	0.2	SD-B,T	Sand with minor silt	7.5	7.7	5.0	32	19.6	4.7	32	19.6	3.47	3	2.53
3100	1.00	-24.46	0.2	SD-B,T	Sand with minor silt	7.5	7.8	5.0	32	19.6	4.7	32	19.6	3.47	2.99	2.52
3200	3.00	-24.41	0.2	SD-B,T	Sand with minor silt	7.5	8.4	5.0	32	19.6	4.7	32	19.6	3.58	3.04	2.51
3300	-1.23	-24.36	0.2	SD-B,T	Sand with minor silt	7.5	7.0	5.0	32	19.6	4.7	32	19.6	3.47	2.99	2.5
3400	-3.97	-24.31	0.2	SD-B,T	Sand with minor silt	7.5	6.2	5.0	32	19.6	4.7	32	19.6	3.16	2.83	2.5
3500	-3.04	-24.26	0.2	SD-B,T	Sand with minor silt	7.5	6.5	5.0	32	19.6	4.7	32	19.6	3.21	2.85	2.49
3600	-0.79	-24.21	0.2	SD-B,T	Sand with minor silt	7.4	7.1	5.0	32	19.6	4.7	32	19.6	3.33	2.91	2.49
3700	0.43	-24.16	0.2	SD-B,T	Sand with minor silt	7.4	7.5	5.0	32	19.6	4.7	32	19.6	3.39	2.94	2.48
3800	0.18	-24.11	0.2	SD-B,T	Sand with minor silt	7.4	7.4	5.0	32	19.6	4.7	32	19.6	3.37	2.92	2.48
3820	0.30	-24.08	0.2	SD-B,T	Sand with minor silt	7.4	7.4	5.0	32	19.6	4.7	32	19.6	3.37	2.92	2.48

FACE SUPPORT PRESSURE CALCULATIONS

**Project:** Eagle Mountain - Woodfibre GAS Pipeline Project  
**Proj. Number:** APDU 2.4  
**Subject:** Recommended TBM Pressure @ Tunnel Crown  
**Dates:** 8/25/2022  
**Prepared by:** F. Mercuriello



Recommended TBM Face Pressure @ Tunnel Crown







# ENVIRO LINER® 3000 - GEOMEMBRANE

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Enviro Liner® 3000 is an economical lining material made from blended/reprocessed polyethylene resins selected for optimum performance at the lowest cost.

April 2023		Enviro Liner® 3000				
Style	ASTM	Enviro Liner® 3020 Smooth <sup>1</sup>	Enviro Liner® 3030 Smooth <sup>2</sup>	Enviro Liner® 3040 Smooth <sup>3</sup>	Enviro Liner® 3130 Textured <sup>4</sup>	Enviro Liner® 3140 Textured <sup>5</sup>
Thickness (Nominal)	D5199	20 mil 0.5 mm	30 mil 0.75 mm	40 mil 1.0 mm	30 mil 0.75 mm	40 mil 1.0 mm
Tensile Strength at Break	D6693	74 ppi 13 N/mm	114 ppi 20 N/mm	148 ppi 26 N/mm	45 ppi 8 N/mm	60 ppi 10 N/mm
Elongation	D6693	500%	500%	500%	100%	100%
Tear Resistance	D1004	11 lbs 49 N	16 lbs 71 N	22 lbs 98 N	14 lbs 62 N	20 lbs 89 N
Puncture Resistance	D4833	30 lbs 130 N	45 lbs 200 N	60 lbs 270 N	40 lbs 178 N	55 lbs 245 N
Low Temp Impact	D1790	-40°F -40°C	-40°F -40°C	-40°F -40°C	-40°F -40°C	-40°F -40°C
Dimensional Stability	D1204 Max Chng	<2.0%	<2.0%	<2.0%	<2.0%	<2.0%

<sup>2</sup> In Stock. Please call your Sales Representative for pricing and availability.

<sup>1, 3, 4, 5 and 6</sup> Special Order. Please call Layfield Customer Service for more information.

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# ENVIRO LINER® 3000 - GEOMEMBRANE

April 2023

## Enviro Liner® 3000 Shop Seam Strengths

Style	ASTM D6392	Enviro Liner® 3020 Smooth	Enviro Liner® 3030 Smooth	Enviro Liner® 3040 Smooth	Enviro Liner® 3130 Textured	Enviro Liner® 3140 Textured
Heat Bonded Seam Strength	25 mm (1") Strip	25 ppi 4.4 N/mm	36 ppi 6.3 N/mm	48 ppi 8.4 N/mm	36 ppi 6.3 N/mm	48 ppi 8.4 N/mm
Peel Adhesion Strength (Wedge Welded)	25 mm (1") Strip	FTB 18 ppi 3.2 N/mm	FTB 29 ppi 5.1 N/mm	FTB 39 ppi 6.8 N/mm	FTB 29 ppi 5.1 N/mm	FTB 39 ppi 6.8 N/mm

April 2023

## Enviro Liner® 3000 Field Seam Strengths

Style	ASTM D6392	Enviro Liner® 3020 Smooth	Enviro Liner® 3030 Smooth	Enviro Liner® 3040 Smooth	Enviro Liner® 3130 Textured	Enviro Liner® 3140 Textured
Heat Bonded Seam Strength	25 mm (1") Strip	FTB 22 ppi 3.9 N/mm	FTB 29 ppi 5.1 N/mm	FTB 39 ppi 6.8 N/mm	FTB 29 ppi 5.1 N/mm	FTB 39 ppi 6.8 N/mm
Peel Adhesion Strength (Wedge Welded)	25 mm (1") Strip	FTB 19 ppi 3.3 N/mm	FTB 25 ppi 4.4 N/mm	FTB 33 ppi 5.8 N/mm	FTB 25 ppi 4.4 N/mm	FTB 33 ppi 5.8 N/mm

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For up-to-date technical information, be sure to visit us online at [www.LayfieldGroup.com](http://www.LayfieldGroup.com)



**From:** Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Sent:** Friday, June 21, 2024 2:38 PM  
**To:** s19  
**Cc:** Conquergood, Heather; Boylan, Patrick; Anderson, Paul; Rudkevitch, Rachel; EGP Permits  
**Subject:** RE: [External Email] - RE: Follow up actions - June 5-6 inspection

Hi s19

Just wanted to follow up on this email chain with some additional photos as requested in the below email.

Photo 1: ESC maintenance completed at the lower quarry drainage (NCD 319) at the WLNG site.



Photo 2: ESC maintenance has been completed (and is ongoing) in the perimeter ditch adjacent to shoofly 6 at EGP South. With the improved water management upslope on the KP 1+500 slope, this area has less water directed to it.





Photo 3: Stripping at the KP 1+500 slope. Water management with the installation of cross drains on the ROW has improved overall site drainage at this location.



Please let me know if you have any questions.  
Thanks and have a great weekend.

**Todd Lewis**  
FortisBC, Environment Manager (contractor) – EGP  
s22  
[todd.lewis@fortisbc.com](mailto:todd.lewis@fortisbc.com)

**From:** s19  
**Sent:** Wednesday, June 12, 2024 3:38 PM  
**To:** Lewis, Todd <[Todd.Lewis@fortisbc.com](mailto:Todd.Lewis@fortisbc.com)>;

s19



**Cc:** Conquergood, Heather <Heather.Conquergood@fortisbc.com>; Boylan, Patrick <patrick.boylan@fortisbc.com>; Anderson, Paul <paul.anderson@fortisbc.com>; Rudkevitch, Rachel <rachel.rudkevitch@fortisbc.com>; EGP Permits <EGP.Permits@fortisbc.com>

**Subject:** [External Email] - RE: Follow up actions - June 5-6 inspection

**CAUTION:** This is an external email.  
Do not respond, click on links or open attachments unless you recognize the sender.

Received. When conditions allow for ESC maintenance at the lower perimeter ditch adjacent to Shoefly 6 (Coquitlam) and the lower quarry drainage, please send a few photos for our documentation.

Thanks very much, Todd.



s19

We acknowledge and respect the many First Nations, each with unique cultures, languages, legal traditions and relationships to the land and water, c

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**From:** Lewis, Todd <Todd.Lewis@fortisbc.com>

**Sent:** Wednesday, June 12, 2024 10:04 AM

**To:** s19

**Cc:** Conquergood, Heather <Heather.Conquergood@fortisbc.com>; Boylan, Patrick <patrick.boylan@fortisbc.com>; Anderson, Paul <paul.anderson@fortisbc.com>; Rudkevitch, Rachel <rachel.rudkevitch@fortisbc.com>; EGP Permits <EGP.Permits@fortisbc.com>

**Subject:** Follow up actions - June 5-6 inspection

Hi s19

Following up to provide photo documentation and information related to the action items identified during the BCER inspection on June 5-6, 2024.

Attached is the template for the TBM Monitoring tracking sheet, an example of a filled out monitoring tracking sheet and the drill profile as requested during the debrief on June 6. As a follow up to the

Below are some photos and information from the WLNG site on June 6:

Secondary containment at West Portal will be replaced later this week with a more permanent solution. Our contractor has order the Enviro-Liner 3000 (spec sheet attached). It is expected on site later this week.

West Portal: yellow hose removed from WC 309-R2.





Jun 8, 2024 at 11:43:31  
10U 482026 5501913  
Woodfibre  
Squamish-Lillooet  
WC 309-R2

West Portal: designated smoking area moved to new location away from the secondary containment area.



Jun 10, 2024 at 12:13:11  
10U 481936 5501886  
Woodfibre  
Squamish-Lillooet  
Portal bench entrance secondary containment



EGP South: KP 1+500 slope. Drainage re-established across the ROW. Further improvements will be made once grade works start in this location.



EGP South: KP 1+500 slope. Drainage re-established across the ROW. Further improvements will be made once grade works start in this location.



Please let me know if you have any questions.  
Thanks,

**Todd Lewis**  
FortisBC, Environment Manager (contractor) – EGP  
s22  
[todd.lewis@fortisbc.com](mailto:todd.lewis@fortisbc.com)



**From:** Boylan, Patrick <patrick.boylan@fortisbc.com>  
**Sent:** Monday, June 24, 2024 9:38 AM  
**To:** s19  
**Cc:** Lewis, Todd; Conquergood, Heather; Anderson, Paul; Rudkevitch, Rachel; EGP Permits  
**Subject:** Follow up actions - Liner at secondary containment area

Hello s19

Please see the photos of the installed liner (Enviro Liner 3000 – Geomembrane) added to the secondary containment area at the west portal site.

Thanks and have a great day,

Patrick





**Patrick Boylan, P.Ag.**

FortisBC, Environmental Inspection Manager (contractor) – EGP  
s22

[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)



---

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**From:** s19  
**Sent:** Tuesday, June 25, 2024 2:04 PM  
**To:** Rudkevitch, Rachel; Boylan, Patrick; s19 ; Lewis, Todd  
**Cc:** Conquergood, Heather; Anderson, Paul; EGP Permits  
**Subject:** RE: [External Email] - RE: Follow up actions - Liner at secondary containment area

Hi all,

Thank you for the clarification, Rachel. I missed the attachments in the original e-mail but can confirm they were received. BCER C&E has no further questions at this time.

Thank you,



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s19

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**From:** Rudkevitch, Rachel <rachel.rudkevitch@fortisbc.com>  
**Sent:** Monday, June 24, 2024 4:28 PM  
**To:** s19 Boylan, Patrick <patrick.boylan@fortisbc.com>; s19 Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Cc:** Conquergood, Heather <Heather.Conquergood@fortisbc.com>; Anderson, Paul <paul.anderson@fortisbc.com>; EGP Permits <EGP.Permits@fortisbc.com>  
**Subject:** RE: [External Email] - RE: Follow up actions - Liner at secondary containment area

Good Afternoon s19

Please see the attached email submitted to BCER on June 12<sup>th</sup>, 2024, at 10:04am. The attached email had the following documents enclosed:

- EGP - FKM Monitoring BCR 24.06.10
- EGP - BCR SG TBM Face Pressure
- EGP - Monitoring Tracking Sheet - BCR Slurry TBM Advance

We did send multiple items at once, so hoping everything went through. Please confirm if these have been received.

Thanks,

**Rachel Rudkevitch | BASc, EIT**  
Construction Compliance Analyst (contractor) – EGP  
FortisBC Energy Inc.

s22

[rachel.rudkevitch@fortisbc.com](mailto:rachel.rudkevitch@fortisbc.com)

---

**From:** s19  
**Sent:** Monday, June 24, 2024 2:42 PM  
**To:** Boylan, Patrick <[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)>; Lewis, Todd <[Todd.Lewis@fortisbc.com](mailto:Todd.Lewis@fortisbc.com)>  
**Cc:** Conquergood, Heather <[Heather.Conquergood@fortisbc.com](mailto:Heather.Conquergood@fortisbc.com)>; Anderson, Paul <[paul.anderson@fortisbc.com](mailto:paul.anderson@fortisbc.com)>; Rudkevitch, Rachel <[rachel.rudkevitch@fortisbc.com](mailto:rachel.rudkevitch@fortisbc.com)>; EGP Permits <[EGP.Permits@fortisbc.com](mailto:EGP.Permits@fortisbc.com)>  
**Subject:** [External Email] - RE: Follow up actions - Liner at secondary containment area

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Resending this response with photos removed as it was too large and kicked back the e-mail from a few folks.



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**From:** s19  
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**To:** Boylan, Patrick <[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)>; Lewis, Todd <[Todd.Lewis@fortisbc.com](mailto:Todd.Lewis@fortisbc.com)>  
**Cc:** Conquergood, Heather <[Heather.Conquergood@fortisbc.com](mailto:Heather.Conquergood@fortisbc.com)>; Anderson, Paul <[paul.anderson@fortisbc.com](mailto:paul.anderson@fortisbc.com)>; Rudkevitch, Rachel <[rachel.rudkevitch@fortisbc.com](mailto:rachel.rudkevitch@fortisbc.com)>; EGP Permits <[EGP.Permits@fortisbc.com](mailto:EGP.Permits@fortisbc.com)>  
**Subject:** RE: Follow up actions - Liner at secondary containment area

Thank you for the update, Patrick. Also noting we've received Todd's update from Friday.

I believe the only outstanding request BCER C&E has at this time is the initial drill path at the BC Rail site and a copy of the first signed off IFR log (drill walk log) once implemented at the BC Rail site.



---

s19



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---

**From:** Boylan, Patrick <[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)>

**Sent:** Monday, June 24, 2024 9:38 AM

**To:** s19

**Cc:** Lewis, Todd <[Todd.Lewis@fortisbc.com](mailto:Todd.Lewis@fortisbc.com)>; Conquergood, Heather <[Heather.Conquergood@fortisbc.com](mailto:Heather.Conquergood@fortisbc.com)>; Anderson, Paul <[paul.anderson@fortisbc.com](mailto:paul.anderson@fortisbc.com)>; Rudkevitch, Rachel <[rachel.rudkevitch@fortisbc.com](mailto:rachel.rudkevitch@fortisbc.com)>; EGP Permits <[EGP.Permits@fortisbc.com](mailto:EGP.Permits@fortisbc.com)>

**Subject:** Follow up actions - Liner at secondary containment area

Hello s19

Please see the photos of the installed liner (Enviro Liner 3000 – Geomembrane) added to the secondary containment area at the west portal site.

Thanks and have a great day,

Patrick

**Patrick Boylan, P.Ag.**

FortisBC, Environmental Inspection Manager (contractor) – EGP

s22

[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)



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**From:** cmis.noreply@bc-er.ca  
**Sent:** Wednesday, June 19, 2024 3:30 PM  
**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2024-2252 - FortisBC Energy Inc.  
**Attachments:** 2024-2252 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2024-2252.

For the latest information go to the CM-IS Permit Holder Application at <https://cmis-ph.bc-er.ca/>

Note: This email account is not monitored and will not be replied to.



**Compliance Management  
Information System**

T: 250-794-5200  
F: 250-794-5390  
Toll Free: 1-800-663-7867  
Emergency: 1-800-663-3456



## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2024-2252  
Inspection Date: 2024-06-06  
Inspection Outcome: In Compliance

### Inspection Comment:

Inspection conducted June 6, 2024. Squamish Nation representatives joined BCER C&E and FortisBC on inspection.

#### Quarry Site

- \* Upper perimeter drain well-built, seed establishing and greening up. ESC well keyed in. Adjacent stream running clear at time of inspection.
- \* Ongoing site cleanup of historical waste - appears to be concerted effort to clean and organize site. Notable improvement from last inspection.
- \* Observed one location where surface runoff not being captured by lower sumps. Running clear at time of inspection. Terraced layout of quarry lowering velocity of runoff.
- \* Wattles along southern outflow from quarry require maintenance. Discussed additional ESC maintenance.
- \* Noted initial bore cuttings contain more fines than expected. Informed that cuttings expected to have significantly less fines when bore is fully operational.
- \* R318-R1 (Upper culvert on access road near quarry entrance) - Currently holding up well, and water running clean at time of inspection. Discussed potential for sediment splashing and hydraulic pumping due to downward force on running surface from heavy equipment during rainfall events.

#### NPS 10 Relocate

- \* Stream 308 (West Creek) - crossing complete, reclamation ongoing.
- \* Observed bypass discharge location. No evidence of scouring.
- \* Capped historical dump site - grey water discharge to sediment bags utilized initially until reaching capacity. Diffusers now in place and ready to use. This discharge location is an improvement from the previous discharge location.
- \* Stream 309 (East Creek) - crossing complete. Coarse rock throughout. Stream goes subsurface over pipe as per design. Access still to be removed. Excess rock and pipe still to be removed down to original grade. Eastern slope reclaimed. ECB and rollback on slope noted.

#### Hard Rock Portal

- \* Access road leading to portal site - swale and culvert requires improved design.

- \* Stream 309-R2 (Permanent culvert) - viewed culvert inflow and outflow. Inflow banks significantly armoured. Outflow no longer drops and has also been armoured well.
- \* Noted hoselay in stream Discussed elevating hoselay out of streams or removing all together. BCER requests photos once corrective actions complete.
- \* June 12, 2024 - FortisBC supplied BCER C&E an update with photos showing hoselay has been removed from stream. BCER C&E satisfied with corrective action.
- \* Observed secondary containment storage area. Smoking area is approximately 2 metres away from secondary containment. BCER C&E concerned with adequacy and efficacy of containment design, and proximity of containment area to smoking area. Discussed alternative materials for containment and suggested relocation of smoking area. BCER C&E requests photos once corrective actions have been completed. \* June 12, 2024 - FortisBC supplied BCER C&E an update with photo showing relocation of smoking area. Additionally, FortisBC has stated that secondary containment area will be replaced with a more permanent solution later in the week and attached the spec sheet for the new liner to be used. BCER C&E satisfied with corrective actions at this time but expect photo documentation to be sent when containment improvements complete.
- \* BCER Stewardship representative walked through portal water treatment plant with operator.

#### BC Rail

- \* BCER C&E following up with previously reported inadvertent fluid releases (IFR). Reviewed cause of mechanical release to site. All materials have been cleaned up from site. Berm containment area has been increased as an internal corrective action.
- \* Viewed portal and TBM operations. Discussed drill path and depth of cover. BCER requests copy of initial drilling stretch. Discussed drilling IFR and drill pressures. Visual monitor and procedure added post-IFR for early detection. BCER recommends the implementation of drill walk logs. BCER requests copy of first logs signed off once implemented.
- \* Walked through water treatment plant and grout unit, discussed current and future processes.

No non-compliances noted during inspection.

A satisfactory Inspection was conducted.

The following were the only items that were inspected during this Inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this Inspection.

Permit: 100084403  
Pipeline Project ID: 000025418  
Segment IDs (Location): 1 (From NTS: B- 063-J/092-G-11 To NTS: B- 063-J/092-G-11)



Permit: 100114575  
AACT Number: 00219557  
Site Type: Access

Permit: 100114575  
AACT Number: 00219558  
Site Type: Storage Area

Permit: 100114575  
AACT Number: 00219559  
Site Type: Storage Area

Permit: 100110343  
CIAS Number: 0006099  
Location ID (Crossing Type): 308 (Bank Erosion Protection)

Permit: 100114575  
CIAS Number: 0007156  
Location ID (Crossing Type): 9 (Culvert)

Permit: 100008382

Permit: 100084403

Permit: 100110343

Permit: 100114575

---

S19

Compliance & Enforcement Officer  
Authorized BCER Employee

**From:** s19  
**Sent:** Monday, June 24, 2024 2:42 PM  
**To:** Boylan, Patrick; s19 Lewis, Todd  
**Cc:** Conquergood, Heather; Anderson, Paul; Rudkevitch, Rachel; EGP Permits  
**Subject:** RE: Follow up actions - Liner at secondary containment area

Resending this response with photos removed as it was too large and kicked back the e-mail from a few folks.



---

s19

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**Sent:** Monday, June 24, 2024 2:38 PM  
**To:** Boylan, Patrick <patrick.boylan@fortisbc.com>; s19 Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Cc:** Conquergood, Heather <Heather.Conquergood@fortisbc.com>; Anderson, Paul <paul.anderson@fortisbc.com>; Rudkevitch, Rachel <rachel.rudkevitch@fortisbc.com>; EGP Permits <EGP.Permits@fortisbc.com>  
**Subject:** RE: Follow up actions - Liner at secondary containment area

Thank you for the update, Patrick. Also noting we've received Todd's update from Friday.

I believe the only outstanding request BCER C&E has at this time is the initial drill path at the BC Rail site and a copy of the first signed off IFR log (drill walk log) once implemented at the BC Rail site.



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---

**From:** Boylan, Patrick <[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)>  
**Sent:** Monday, June 24, 2024 9:38 AM



s19

To:

Cc: Lewis, Todd <[Todd.Lewis@fortisbc.com](mailto:Todd.Lewis@fortisbc.com)>; Conquergood, Heather <[Heather.Conquergood@fortisbc.com](mailto:Heather.Conquergood@fortisbc.com)>; Anderson, Paul <[paul.anderson@fortisbc.com](mailto:paul.anderson@fortisbc.com)>; Rudkevitch, Rachel <[rachel.rudkevitch@fortisbc.com](mailto:rachel.rudkevitch@fortisbc.com)>; EGP Permits <[EGP.Permits@fortisbc.com](mailto:EGP.Permits@fortisbc.com)>

Subject: Follow up actions - Liner at secondary containment area

Hello s19

Please see the photos of the installed liner (Enviro Liner 3000 – Geomembrane) added to the secondary containment area at the west portal site.

Thanks and have a great day,

Patrick

Patrick Boylan, P.Ag.

FortisBC, Environmental Inspection Manager (contractor) – EGP

s22

[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)



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**From:** s19  
**Sent:** Monday, May 27 2024 7:54 AM  
**To:** Boylan, Patrick; s19  
**Cc:** Lewis, Todd; Conquergood, Heather  
**Subject:** RE: Slurry spill at BC Rail

Thanks for the note Patrick,



---

s19

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**From:** Boylan, Patrick <patrick.boylan@fortisbc.com>  
**Sent:** Friday, May 24, 2024 9:10 PM  
**To:** s19  
**Cc:** Lewis, Todd <Todd.Lewis@fortisbc.com>; Conquergood, Heather <Heather.Conquergood@fortisbc.com>  
**Subject:** Slurry spill at BC Rail

Hello s19

There was another slurry spill at the BC Rail site early this morning.

A failed sealing gasket within the plumbing of the slurry treatment plant (STP) leaked, causing slurry to release onto the concrete pad. The primary containment area of the STP was breached and approximately 130-150L of slurry spilled onto the ground (gravel). The contractor crew used pumps and hoses to pump down the impacted area, pumping recovered fluid back to slurry treatment plant for recycling. A Vac truck was called during day shift to complete cleanup of the area and wash down impacted areas. The material spilled in bentonite and diutan gum.

I am completing the Form A for submission via KERMIT.

Thanks and have a great weekend,

Patrick

Patrick Boylan, P.Ag.  
FortisBC, Environmental Inspection Manager (contractor) – EGP  
s22  
[patrick.boylan@fortisbc.com](mailto:patrick.boylan@fortisbc.com)



**Keough, Dana**

---

**From:** s15  
**Sent:** Monday, May 27, 2024 11:45 AM  
**To:** ERP and Safety; Koosmann, Nicole; Dickinson, Sara; Curry, Sean; Incident Contacts; Antonenko, Peter  
**Subject:** UPDATED - Incident Notification 080632287-001 FortisBC Energy Inc., Minor, SQUAMISH

Incident #: [080632287-001](#)

Email Sent By: EBROIDIOI

Operator: FortisBC Energy Inc.

Contact: Boylan, Patrick

Contact Email: [Patrick.boylan@fortisbc.com](mailto:Patrick.boylan@fortisbc.com)

Incident Date: 24-MAY-24

Incident Time: 02:00 PST

Notification Date: 24-MAY-24

Notification Time: 21:20 PST

Location: UTM: 10-488407E, 5507377N

Land Type: Private

Field: SQUAMISH

Description of Incident (brief): A failed sealing gasket within the plumbing of the slurry treatment plant (STP) leaked, causing slurry to release onto the concrete pad. The primary containment area of the STP was breached and approximately 150L of slurry spilled onto the ground (gravel).

For more information, please contact the BCER Emergency Officer:

Ph: (250) 793-7084

Email: s15

## Minor Incident

Incident#: 080632287-001 Incident Date/Time: May 24, 2024 02:00 Created Date: May 24, 2024 Object Audit Report  
DGIR#: Location: UTM: 10-488407E, 5597377N Status: Completed Print Incident  
Threat Level: Minor Completed Date: Aug 19, 2024 Activity Report

Operator: FortisBC Energy Inc.

Save

### Information

Risk Value: 2  
DGIR#:   
Incident Date: May 24, 2024 Time: 02:00 PST (HH24:MM)  
Notification Date: May 24, 2024 Time: 21:20 PST (HH24:MM)  
Email Sent By: EBROID101

### Caller Information

Operator: FortisBC Energy Inc.  
Contact: Boylan, Patrick  
16705 Fraser Highway  
Surrey V4N0E8  
Phone: s22  
Email: Patrick.boylan@fortisbc.com

or, provide contact information in the fields below...

First Name:   
Last Name:   
Phone #: ( ) -   
Cell#: ( ) -   
Fax#: ( ) -   
Email:   
Mailing Address:

Caller Comments:

### Incident Details

Description of Event (Briefly Describe What Happened):

A failed sealing gasket within the plumbing of the slurry treatment plant (STP) leaked, causing slurry to release onto the concrete pad. The primary containment area of the STP was breached and approximately 150L of slurry spilled onto the ground (gravel).

### Site Type (Select One)

Well (Active)  Well (Abandoned/Suspended)  Well (Drilling & Completion)  
 Remote Sump  Battery/Plant/Facility  Tank Farm/Storage  
 Pipeline  Riser (Pipeline)  Road or Road Structure  
 Other:

### Incident Type (Check all that apply)

Spill (Gas, liquid, solid)  Fire/Explosion  
 Drilling Kick  Security (theft, threat, sabotage, terrorism)  
 Induced Seismicity  Well Bore Communication  
 Pipeline Boring  Vehicle  Equipment/Structural Damage  
 Other:



**Activity (Check all that apply)**

- Construction (road, lease, pipeline, facility)     Drilling/Exploration     Waste Management  
 Processing (natural gas, petroleum liquids, other)     Well Fracturing  
 Servicing     Repair     Flaring (emergency)  
 Well Testing     Pressure Testing     Transportation  
 Other:

**Consequences or Impacts (Check all that apply)**

- Worker Safety (injuries)     Property (government, public, private)  
 Economic (loss of and/or damage to equipment or infrastructure, loss of production, work stoppage)  
 Other: Reportable liquid spill on location, spilled slurry and impacted soil to be cleaned up/removed

**Area Information**

Land Type: Private  
 Field Name: SQUAMISH  
 Access: Two-wheel-drive  
 Name of road the asset is located on: Government Rd.  
 KM where the incident occurred: (km)  
 Distance to nearest residence/public facility: 1.00 (km)  
 Nearest City/Town/Public Camp: Squamish

**Cause (Check all that apply)**

- Third Party     Manufacturing Defect     Corrosion (internal, external)  
 Employee (procedural, behavioural)     Natural (weather, flood, fire)  
 Failure (material, mechanical, equipment, system)     Geological  
 Over Pressuring Equipment  
 Unknown at this time (Explain):  
 Other Factors:

**Causes/Remedial Actions**

Cause: A failed sealing gasket within the plumbing of the slurry treatment plant. Remedial Actions: Utilized pumps and hoses to pump down the impacted area, pumping recovered fluid back to slurry treatment plant for recycling. A Vac truck was mobilized during the day shift to complete cleanup of the area.

**Weather**

Weather Conditions: Cloudy  
 Wind Direction: (None)    Wind Strength: (None)  
 Temperature (C): 10.0  
 Comments: No wind

**Notification**

Agency:   
 Other Agency: Squamish Nation, BCER C&E

**Information for Spills Only**

Is spill off lease?:  Yes     No  
 Material Type:  v  
 Amount Spilled: 150.00    liters  
 Does Material contain H2S?  Yes     No     Unknown  
     If yes, how much?                      PPM

Has spill been cleaned up?:  Yes  No  NA

Date of Clean Up / Proposed Clean Up: May 24, 2024

Estimated Cleanup Cost: \$2,000.00

Internal Use Only

---

BCER Personnel Dispatched:  Yes  No

Risk to Public Health and Safety:  Yes  No



## INCIDENT CLASSIFICATION MATRIX

**Instructions:** Start at the top and continue down until you check off any one box in both consequence and probability to determine the incident classification. *This matrix is required as an attachment upon submission of an incident through the [Online Minor Incident Reporting System](#).*

**TABLE 1. CONSEQUENCE RANKING**

RANK	CONSEQUENCE (any one of the following)
4	<input type="checkbox"/> Major on site equipment or infrastructure loss <input type="checkbox"/> Major act of violence, sabotage, or terrorism which impacts permit holder assets <input type="checkbox"/> Reportable liquid spill beyond site, uncontained and affecting environment <input type="checkbox"/> Gas release beyond site affecting public safety
3	<input type="checkbox"/> Threats of violence, sabotage, or terrorism <input type="checkbox"/> Reportable liquid spill or gas release beyond site, potentially affecting public safety, environment, or property <input type="checkbox"/> HAZMAT worker exposure exceeding allowable <input type="checkbox"/> Major on site equipment failure
2	<input type="checkbox"/> Major on site equipment damage <input type="checkbox"/> A security breach that has potential to impact people, property or the environment <input type="checkbox"/> Reportable liquid spill or gas release potentially or beyond site, not affecting public safety, environment, or property
1	<input type="checkbox"/> Moderate on site equipment damage <input type="checkbox"/> A security breach that impacts oil and gas assets <input checked="" type="checkbox"/> Reportable liquid spill or gas release on location <input type="checkbox"/> **Occurrence of magnitude 4.0 or greater induced earthquake within 3 km of oil and gas operations or any earthquake which is felt on surface within a 3 km radius of oil and gas operations
0	<input type="checkbox"/> No consequential impacts

\*\* For this consequence criteria, a probability score of 2 or higher must be used.

**TABLE 2. PROBABILITY RANKING**

RANK	PROBABILITY (any one of the following)
4	<input type="checkbox"/> Uncontrolled, with control unlikely in near term
3	<input type="checkbox"/> Escalation possible; under or imminent control
2	<input type="checkbox"/> Escalation unlikely; controlled or likely imminent control
1	<input checked="" type="checkbox"/> Escalation highly unlikely; controlled or imminent control
0	<input type="checkbox"/> Will not escalate; no hazard; no monitoring required

**TABLE 3. INCIDENT RISK SCORE AND CLASSIFICATION**

CONSEQUENCE   1   + PROBABILITY   1   = RISK SCORE   2   (this must be completed)

RISK SCORE	ASSESSMENT RESULT
Minor (1-2)	<b>Notification Only;</b> permit holder must notify the Regulator online within 24 hours using the <a href="#">Form A: Minor Incident Notification Form</a> . In addition to Form A, spills must also be reported to EMBC.
Moderate (3-4)	<b>Level-1 Emergency;</b> immediate notification (call EMBC)
Major (5-6)	<b>Level-2 Emergency;</b> immediate notification (call EMBC)
Serious (7-8)	<b>Level-3 Emergency;</b> immediate notification (call EMBC)

SEE OVER

## SPILL REPORTING CRITERIA

Where the permit holder holds or maintains rights, the permit holder must report to the BC Energy Regulator, all spills of materials as identified below:

- A spill or release of any amount of materials which impacts water ways
- Hydrocarbons; 100 litres where the hydrocarbon contains no toxic materials and does not impact water ways
- Produced/salt water; 200 litres where the fluid contains no toxic materials
- Fresh water; 10,000 litres
- Drilling or invert mud; 100 litres
- Sour Natural gas; 10Kg or 15 m<sup>3</sup> by volume where operating pressure is >100 PSI
- Condensate; 100 litres
- Any fluid including hydrocarbons, drilling fluids, invert mud, effluent, emulsions, etc. which contain toxic substances; 25 litres

Please refer to the BC Environmental Management Act; [Spill Reporting Regulation](#), Spill Reporting Regulation Schedule “Reporting Levels for Certain Substances” for determining reportable spillage amounts of other substances:

## OTHER REPORTABLE INCIDENTS

The Regulator’s Incident Risk Classification Matrix is designed to assist permit holders in determining which incidents must be reported. However, some incidents, which do occur, may not meet the criteria outlined in the Incident Classification Matrix but still require notification to the Regulator as a minor notification. These include the following:

- Spills or release of hazardous substances which are not provincially regulated, such as radioactive substances;
- Major damage to oil and gas roads or road structures;
- Drilling kicks when any one of the following occur:
  - pit gain of 3 m<sup>3</sup> or greater
  - casing pressure 85% of MA
  - 50% out of hole when kicked
  - well taking fluid (LC)
  - associated spill
  - general situation deterioration, i.e. leaks, equipment failure, unable to circulate, etc
- Pipeline incidents, such as spills during construction phase, exposed pipe caused by flooding, pipeline over pressure, failure (without release) of any pressure control or ESD device during operations
- Security related issues which are relatively minor; such information may be required for tracking and monitoring purposes only





## BCER Incident Classification Matrix

Consequenc

BCER Incident Classification Matrix		Probability					
		4	3	2	1	0	
		<input type="checkbox"/> Uncontrolled, with control unlikely in near term	<input type="checkbox"/> Escalation possible; under or imminent control	<input type="checkbox"/> Escalation unlikely; controlled or likely imminent control	<input type="checkbox"/> Escalation highly unlikely; controlled or imminent control	<input type="checkbox"/> Will not escalate; no hazard; no monitoring required	
Consequenc	4	<input type="checkbox"/> Major on site equipment or infrastructure loss <input type="checkbox"/> Major act of violence, sabotage, or terrorism which impacts permit holder assets <input type="checkbox"/> Reportable liquid spill beyond site, uncontained and affecting environment <input type="checkbox"/> Gas release beyond site affecting public safety	Level 3	Level 3	Level 2	Level 2	Level 1
	3	<input type="checkbox"/> Threats of violence, sabotage, or terrorism <input type="checkbox"/> Reportable liquid spill or gas release beyond site, potentially affecting public safety, environment, or property <input type="checkbox"/> HAZMAT worker exposure exceeding allowable <input type="checkbox"/> Major on site equipment failure	Level 3	Level 2	Level 2	Level 1	Level 1
	2	<input type="checkbox"/> Major on site equipment damage <input type="checkbox"/> A security breach that has potential to impact people, property or the environment <input type="checkbox"/> Reportable liquid spill or gas release potentially or beyond site, not affecting public safety, environment, or property	Level 2	Level 2	Level 1	Level 1	Minor Notification Form
	1	<input type="checkbox"/> Moderate on site equipment damage <input type="checkbox"/> A security breach that impacts oil and gas assets <input type="checkbox"/> Reportable liquid spill or gas release on location <input checked="" type="checkbox"/> ** Occurrence of magnitude 4.0 or greater induced earthquake within 3 km of oil and gas operations or any earthquake which is felt on surface within a 3 km radius of oil and gas operations <input type="checkbox"/>	Level 2	Level 1	Level 1	Minor Notification Form	Minor Notification Form
	0	<input type="checkbox"/> No consequential impacts	Level 1	Level 1	Minor Notification Form	Minor Notification Form	No notification Required

**\*\* For this consequence criteria, a probability score of 2 or higher must be used.**

**From:** cmis.noreply@bc-er.ca  
**Sent:** Friday, July 26, 2024 12:16 PM  
**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2024-2890 - FortisBC Energy Inc.  
**Attachments:** 2024-2890 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2024-2890.

For the latest information go to the CM-IS Permit Holder Application at <https://cmis-ph.bc-er.ca/>

Note: This email account is not monitored and will not be replied to.



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Information System**

T: 250-794-5200  
F: 250-794-5390  
Toll Free: 1-800-663-7867  
Emergency: 1-800-663-3456

## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2024-2890  
Inspection Date: 2024-07-16  
Inspection Outcome: In Compliance

### Inspection Comment:

Conducted an inspection in the Indian Arm section of Fortis new construction.

Archaeology Site S18 : documented the site, appears to be off BCER regulated footprint. Reported back to BCER arch staff for response, response was provided July 23.

Hixon Laydown yard: Inspected the C-rings installed on site for fresh water storage. Active use, roughly 2/3 full at time of inspection. Netting and flagging bird deterrent in place. No sheen or wildlife observed within the rings. Discussed monitoring requirements, daily monitoring, documentation requirements as per Sec 51 of the Drilling and Production Regulation. This regulation only applies to the containment and storage of water based fluids with a concentration of total dissolved solids greater than 4000 ppm. The BC-ER does request any monitoring plans and/or documents that monitor wildlife and leaks within the C rings.

POD#1 Hixon: Signage in place, permit on site, water withdrawal records on site and available, compliant with WSA permit conditions withdrawal volume, flow, depth of stream. Request beefing up flex side secondary containment under pumps on site. Dry at time of inspection, follow up with photos requested, photos provided July 23. Reviewed fresh water release in area.

Indian River crossing: Witnessed TSN cultural awareness discussion with Fortis BC staff. Indian river crossing specific pipe strung on site, welding not active at time of inspection, discussed welding with general superintendent. Items discussed: WPS welders qualifications PQRs, repair procedures welder PQRs, visual inspections - inspector qualifications, coating of pipe still to be completed - //utilize (NASAM?) coater doing application//, one repair outstanding - planned for cutting out and weld again.

Indian River downstream of pipe install location - Discussed installation, pump around discharge location, not established at time of inspection. Discussed discharge location and discussed bank/scour protection potential installation. Photos provided of rig mats placed along banks, Fortis to follow up and confirm rig mats secured to avoid movement in periods of unexpected high water. Looked at permitted perimeter, discussed need to have a trench setback, anticipated 2:1 ratio with benches/steps. Looked at C/L location in proximity to permitted boundaries.



Indian River upstream of pipe install location - met Triton QEPs, requested fish salvage permit, permit was provided, determined to be valid, subject QEPs on site as per permit requirements. Discussed sump location and installation procedure. Discussed upstream meter by dam and aqua dam on adjacent Brandt Creek. Minor instream works occurring for access to sump locations. Discussed bedding/install of dams. Discussed interception ditch to collect groundwater/seepage through dams. Discussed fish scare/salvage process during construction. Discussed dewatering location for greywater management and techniques. Discussed flood forecast model and spill response. Discussed water quality monitoring, 7 SONDS in place, 24 hour coverage.

No non compliances noted during inspection.

A satisfactory Inspection was conducted.

The following were the only items that were inspected during this Inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this Inspection.

Permit: 100111735  
Pipeline Project ID: 000025844  
Segment IDs (Location): 1 (From NTS: B- 026-C/092-G-10 To NTS: C- 048-I/092-G-11)

Permit: 100111735  
AACT Number: 00215948  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00215986  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00215987  
Site Type: Workspace

Permit: 100111735  
AACT Number: 00215989  
Site Type: Workspace

Permit: 100111735  
CIAS Number: 0006978  
Location ID (Crossing Type): 326 (Bridge)



Permit: 100111735  
STWU Number: 0005984  
POD Number (POD Type): 001 (Stream/River)

Permit: 100111735  
Permit Condition:  
No instream works are permitted under this authorization.

---

S19

Compliance & Enforcement Officer  
Authorized BCER Employee

**From:** Charters, Megan  
**Sent:** Tuesday, July 23, 2024 10:06 AM  
**To:** 'Brady, Karen' s19  
**Cc:** Greenhalgh, James;  
**Subject:** RE: [External Email] - RE: Voicemail s18  
**Importance:** High

Hi Karen,

We can confirm that there is not BCER responsibility and the Archaeology Branch/MoF should be contacted.

Please let me know if you have any further questions.

Thanks,

Megan



**Megan Charters** MA,RPA (she/her)  
Manager, Heritage Conservation Program  
[Megan.Charters@bc-er.ca](mailto:Megan.Charters@bc-er.ca)

Fort St John  
[Office Address Directory](#)  
[BCER Web Site](#)

T. 250 794-5319  
F. 250-794-5390

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---

**From:** Charters, Megan <[Megan.Charters@bc-er.ca](mailto:Megan.Charters@bc-er.ca)>  
**Sent:** Thursday, July 18, 2024 3:42 PM  
**To:** 'Brady, Karen' <[karen.brady@fortisbc.com](mailto:karen.brady@fortisbc.com)>  
**Cc:** Greenhalgh, James <[James.Greenhalgh@bc-er.ca](mailto:James.Greenhalgh@bc-er.ca)>  
**Subject:** RE: [External Email] - RE: Voicemail - s18

Hi Karen,

s19

Thanks for the update, we are aware that is out there doing an inspection. I have not received any confirmation at this time of the regulatory responsibility. If Fortis is not clear on the regulatory authority for the project as it overlaps s18 as s19 indicated s19 is able to provide that confirmation.

Sorry I can't be of any more assistance than the above.

If you have any further questions, please don't hesitate to ask.

Cheers,

Megan



**Megan Charters** MA,RPA (she/her)  
Manager, Heritage Conservation Program  
[Megan.Charters@bc-er.ca](mailto:Megan.Charters@bc-er.ca)

Fort St John  
[Office Address Directory](#)  
[BCER Web Site](#)

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F. 250-794-5390

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---

**From:** Brady, Karen <[karen.brady@fortisbc.com](mailto:karen.brady@fortisbc.com)>  
**Sent:** Thursday, July 18, 2024 9:25 AM  
**To:** Charters, Megan <[Megan.Charters@bc-er.ca](mailto:Megan.Charters@bc-er.ca)>  
**Cc:** Greenhalgh, James <[James.Greenhalgh@bc-er.ca](mailto:James.Greenhalgh@bc-er.ca)>  
**Subject:** RE: [External Email] - RE: Voicemail - s18

Hi Megan

s19 (BCER) is conducting an inspection of EGP this week. s19 thinks that because the site is located on/adjacent to the FSR and not within a FortisBC permitted area, the sign installation may be not reportable to BCER. s19 indicated that s19 was going to take this back and let us know. I understand the inspection will be another day or two and just wanted to check in with you to see if you have connected and if you have any direction for us on how to proceed. If it turns out that we need to report to MoF, I don't want to appear to be tardy in reporting so if you could let us know or let us know when you might be able to let us know, that would be great.

Thanks, Karen.

Also – I can confirm that all impacts related to the sign install have ceased.

---

**From:** Charters, Megan <[Megan.Charters@bc-er.ca](mailto:Megan.Charters@bc-er.ca)>  
**Sent:** Friday, July 12, 2024 3:05 PM  
**To:** Brady, Karen <[karen.brady@fortisbc.com](mailto:karen.brady@fortisbc.com)>  
**Cc:** Greenhalgh, James <[James.Greenhalgh@bc-er.ca](mailto:James.Greenhalgh@bc-er.ca)>  
**Subject:** [External Email] - RE: Voicemail - s18

**CAUTION:** This is an external email.  
Do not respond, click on links or open attachments unless you recognize the sender.

Hi Karen,

I have received your voicemail regarding the self-disclosure of impact to s18 during the installation of a sign.

Please send along as soon as available:

- the BCER AA/AD permit number
- photos of the site and area impacted
- sketch map of the area of impact within the site
- confirmation that all impacts have ceased

Thank you,

Megan

**Megan Charters** MA,RPA (she/her)  
Manager, Heritage Conservation Program  
[Megan.Charters@bc-er.ca](mailto:Megan.Charters@bc-er.ca)

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F. 250-794-5390

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---

**From:** Brady, Karen <[karen.brady@fortisbc.com](mailto:karen.brady@fortisbc.com)>  
**Sent:** Friday, July 12, 2024 1:45 PM  
**To:** Charters, Megan <[Megan.Charters@bc-er.ca](mailto:Megan.Charters@bc-er.ca)>  
**Cc:** Greenhalgh, James <[James.Greenhalgh@bc-er.ca](mailto:James.Greenhalgh@bc-er.ca)>  
**Subject:** Voicemail

Hi Megan

I just left you a voicemail and wanted to be sure you received it and weren't on holidays or something.

Thanks, Karen.

**Karen Brady, BA, RPCA**  
FortisBC, Archaeology Lead (contractor) – EGP  
s22  
[karen.brady@fortisbc.com](mailto:karen.brady@fortisbc.com)

---

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**From:** Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Sent:** Friday, July 26, 2024 8:11 PM  
**To:** s19  
**Cc:** Rudkevitch, Rachel; Conquergood, Heather; Boylan, Patrick; EGP Permits  
**Subject:** Re: [External Email] - RE: Follow up - BCER inspection July 16

s19  
Hi  
I can confirm that the mats in place for bank protection are tied back using slings.  
Thanks  
Todd

---

**From:** s19  
**Sent:** Tuesday, July 23, 2024 11:04 AM  
**To:** Lewis, Todd <Todd.Lewis@fortisbc.com>; s19  
**Cc:** Rudkevitch, Rachel <rachel.rudkevitch@fortisbc.com>; Conquergood, Heather <Heather.Conquergood@fortisbc.com>; Boylan, Patrick <patrick.boylan@fortisbc.com>; EGP Permits <EGP.Permits@fortisbc.com>  
**Subject:** [External Email] - RE: Follow up - BCER inspection July 16

**CAUTION:** This is an external email.  
Do not respond, click on links or open attachments unless you recognize the sender.

Thanks Todd,

Could you confirm that the rig mat protection has been secured/cable tied back to ensure that they stay in place?



---

s19

We acknowledge and respect the many First Nations, each with unique cultures, languages, legal traditions and relationships to the land and water, c

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---

**From:** Lewis, Todd <Todd.Lewis@fortisbc.com>  
**Sent:** Tuesday, July 23, 2024 10:57 AM  
**To:** s19  
**Cc:** Rudkevitch, Rachel <rachel.rudkevitch@fortisbc.com>; Conquergood, Heather <Heather.Conquergood@fortisbc.com>; Boylan, Patrick <patrick.boylan@fortisbc.com>; EGP Permits <EGP.Permits@fortisbc.com>  
**Subject:** Follow up - BCER inspection July 16



Hi s19

As a follow up to last week's BCER inspection, I have attached some photos of the temporary bank protection installed at the downstream of the Indian River bypass by the diffusers as well as improvements made to the secondary containment at the Hixon Creek POD.

Apologies, I meant to send these during our debrief on Friday.

Any questions, please let me know.

Thanks

Todd

---

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07/17/2024 15:09:05

49° 31' 37" N, 122° 54' 11" W

IR. Placing mats at discharge location for bank protection. Fish salvage and scare complete.











**From:** cmis.noreply@bc-er.ca  
**Sent:** Friday, July 26, 2024 12:21 PM  
**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2024-2891 - FortisBC Energy Inc.  
**Attachments:** 2024-2891 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2024-2891.

For the latest information go to the CM-IS Permit Holder Application at <https://cmis-ph.bc-er.ca/>

Note: This email account is not monitored and will not be replied to.



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Information System**

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F: 250-794-5390  
Toll Free: 1-800-663-7867  
Emergency: 1-800-663-3456

## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2024-2891  
Inspection Date: 2024-07-17  
Inspection Outcome: In Compliance

### Inspection Comment:

Inspection of EGP south Coquitlam

Graded area - looks good, S6 not yet graded, temp crossing still in place, grading ongoing to Shoofly 6.

Shoofly 6 - culvert installed through laydown to back drainage channel. Ditch rock lined, sump established, sump will overflow outside of lined ditch. Monitor during rain events check when potential overflow may occur.

Steep slope - collection point for water. Exit point potential for sediment to leave site, manage when precipitation occurs. Sumps/silt fence establishment discussed. Culverts established on running track, some ditch blocks need to be established, culvert inlets need to stay clear of debris, culverts are small 300-400mm.

KP 0+000 to 1+275 establish drainages through site during grading activities to manage groundwater, surficial flows and streams as well as rain events that will occur during construction.

No non compliances found during inspection.

A satisfactory Inspection was conducted.

The following were the only items that were inspected during this Inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this Inspection.

Permit: 100008469  
Pipeline Project ID: 000003655  
Segment IDs (Location): 4 (From NTS: C- 075-C/092-G-07 To NTS: B- 003-F/092-G-07)

Permit: 100008469  
AACT Number: 00207068  
Site Type: Workspace

Permit: 100008469  
AACT Number: 00207070  
Site Type: Workspace



Permit: 100008469  
AACT Number: 00207071  
Site Type: Workspace

Permit: 100008469  
AACT Number: 00207072  
Site Type: Workspace

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S19

Compliance & Enforcement Officer  
Authorized BCER Employee

**From:** cmis.noreply@bc-er.ca  
**Sent:** Friday, July 26, 2024 12:28 PM  
**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2024-2893 - FortisBC Energy Inc.  
**Attachments:** 2024-2893 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2024-2893.

For the latest information go to the CM-IS Permit Holder Application at <https://cmis-ph.bc-er.ca/>

Note: This email account is not monitored and will not be replied to.



**Compliance Management  
Information System**

T: 250-794-5200  
F: 250-794-5390  
Toll Free: 1-800-663-7867  
Emergency: 1-800-663-3456

## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2024-2893  
Inspection Date: 2024-07-18  
Inspection Outcome: In Compliance

### Inspection Comment:

Inspection of FortisBC tunnel site.

Slope area/fuel storage organized and storage area thick liner in place, smoking area relocated. Tunneling operations on hold. Establishing rock conveyer/cement pad before restarting. No water discharge at time of inspection, hard line discharge hose noted in stream, low flow noted at time of inspection. Look for long term solution for hard line location ie. out of stream, away from vulnerable area for moving rock/debris.

Pipeline relocation - east and west creek running track removed and stream restored. Riser station complete. Compressor station prep ongoing, MSE wall.

No non compliances noted during inspection.

A satisfactory Inspection was conducted.

The following were the only items that were inspected during this Inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this Inspection.

Permit: 100008382  
Pipeline Project ID: 000003770  
Segment IDs (Location): 7 (From NTS: B- 010-J/092-G-11 To NTS: D- 001-K/092-G-11)

Permit: 100084403  
Pipeline Project ID: 000025418  
Segment IDs (Location): 3 (From NTS: B- 010-J/092-G-11 To NTS: B- 010-J/092-G-11)

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S19

Compliance & Enforcement Officer  
Authorized BCER Employee



**From:** cmis.noreply@bc-er.ca  
**Sent:** Friday, July 26, 2024 12:30 PM  
**To:** shima.shir@fortisbc.com; jennifer.barrera@fortisbc.com; CMISQA\_uat@bcogc.ca  
**Subject:** BCER CM-IS Notification: In Compliance Inspection Report 2024-2894 - FortisBC Energy Inc.  
**Attachments:** 2024-2894 Inspection Report.pdf

Dear Shima Shir, Jennifer Barrera, CMIS QA

Please find attached the In Compliance Inspection Report 2024-2894.

For the latest information go to the CM-IS Permit Holder Application at <https://cmis-ph.bc-er.ca/>

Note: This email account is not monitored and will not be replied to.



**Compliance Management  
Information System**

T: 250-794-5200  
F: 250-794-5390  
Toll Free: 1-800-663-7867  
Emergency: 1-800-663-3456

## Inspection Report

Permit Holder: FortisBC Energy Inc.  
Inspection: 2024-2894  
Inspection Date: 2024-07-19  
Inspection Outcome: In Compliance

### Inspection Comment:

Inspection of BC rail site.

NPS 10 - minor settling around pipe, +/- 50cm. Fortis integrity on site and monitoring works. Pipe supports in place while daylighting active. Minor IFR noted, ~ 20l, delineated, on project footprint. No sensitive receptors other than pipe ditch line noted in area.

Freshwater spill - 90m<sup>3</sup>, tank overflow while crews were offsite. Manual override/operator error. Spill remained on site and absorbed into gravel/evaporation. No flooding/erosion damage or impacts to infrastructure noted and no clean up/ site disturbance required. Corrective action - process changes and redundancies put into place. Will follow up with PIR to BCER.

Tunnel - 140m into boring at time of inspection, currently shut in due to subsidence issue. Discussed cement casing/seal/strapping install process.

Pipe yard, with contractor quality lead - viewed EGP south pipe, currently loading from yard to site.

No non compliances noted during inspection.

A satisfactory inspection was conducted.

The following were the only items that were inspected during this inspection and does not absolve the company of Non-Compliances which may not have been observed, nor any Non-Compliances which occur subsequent to this inspection.

Permit: 100084403

Pipeline Project ID: 000025418

Segment IDs (Location): 1 (From NTS: B- 063-J/092-G-11 To NTS: B- 063-J/092-G-11), 4 (From NTS: B- 063-J/092-G-11 To NTS: B- 063-J/092-G-11)

Permit: 100111735

Pipeline Project ID: 000025844

Segment IDs (Location): 1 (From NTS: B- 026-C/092-G-10 To NTS: C- 048-I/092-G-11)

s19

Compliance Enforcement Officer  
Authorized BCER Employee



<b>Project: EGP Tunnel Project</b>		<b>Project #: 150</b>	<b>Spill Report #: FKM047 Rev1</b>		
<b>Responsible Party: Michels</b>		<b>Date of Report:</b> 7/24/2024	<b>Division: CIPP</b>		
<b>Form Completed By:</b> Brian Coupal – FKM Environmental Manager					
<b>Spill Discovered By:</b> Ron Klinghagen – FKM Assistant Operations Manager					
<b>Subcontractor (If applicable):</b> n/a					
<b>Site Details</b>					
<b>Date of Spill: 7/13/2024</b>		<b>Time: 6:00 am</b> <b>Discovered</b>	<b>Temperature: 15° C</b>		
<b>Conditions: Clear</b>		<b>Precipitation (millimeters since spill): 0.0</b>			
<b>Spill Location</b>					
<b>Address or LD: BC Rail</b>		<b>Station or KP: Water Treatment Plant</b>			
<b>GPS Coordinates</b>		<b>W: 123.1606828</b>	<b>N: 49.7187288</b>		
<b>Release Details</b>					
<b>Substance:</b>	Well Water				
<b>Source:</b>	Well				
<b>Release to</b>	<b>Land:</b> <input type="checkbox"/> Pavement <input checked="" type="checkbox"/> Gravel <input type="checkbox"/> Crop/Pasture <input type="checkbox"/> Soil Soil type if applicable: n/a		<b>Water:</b> <input type="checkbox"/> Wetland <input type="checkbox"/> Stream or River <input type="checkbox"/> Lake or Pond <input type="checkbox"/> Storm Sewer Waterbody ID if applicable: n/a		
<b>Volume Released</b>	L: ~ 90,600	<b>Area of Spill</b>	m2: 2500	<b>~ Release Rate</b>	377.5 litres per min
<b>Volume Recovered</b>	#: 0	<b>Depth of Spill</b>	cm: 5	<b>Duration of Release</b>	~ 4 hours
<b>Release Description (Release details and any environmental impacts):</b>					
<p>During nightshift operations, well water was being pumped to the T4 tank within the Slurry Treatment Plant at BCR site. When sufficient water was within T4, the crews completed miscellaneous tidy up, completed their shift, and left BCR site.</p> <p>During the water treatment plant shut down, the well water pump was inadvertently left in the on position, which continued to pump water from the well and filled the pre-treatment storage tanks which resulted in them overflowing onto the ground. All personnel were offsite for a 4-hour period during crew change to observe the water accumulating within the tank and overflowing onto the ground. When the site manager arrived on site for the morning shift they identified large areas of pooled water. The water treatment plant day shift operator was immediately brought to site early to shut the pump off.</p> <p>The water which overflowed onto the ground was well water and not construction water. Typically this water has been used for dust suppression on the site or construction activities. No water entered the storm water drainage system or left the BCR site. There was no negative environmental impact from the overflowing well water to land.</p>					
<b>Nearest Sensitive Resource</b>					
<b>Resource: Watercourse</b>			<b>Distance from release (m): &gt; 500</b>		
<b>Clean-up Description (Actions taken to control or recover spill)</b>					



No actions required, water is from the well and used as dust suppression on the site. Water evaporated over the next couple of days.

Disposal Description		
<b>Storage:</b> Other (Describe) N/A	<b>Volume (m<sup>3</sup>):</b> 0	<b># of Containers:</b> n/a
<b>Transport Contractor:</b> N/A		
<b>Disposal Facility:</b> n/a		
<b>Date Transported:</b> N/A	<b>Preliminary Report Submitted to Client:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

**Additional Comments/Corrective Actions**

Well water was pumped from the pre-treatment WTP system to T4 tank for construction activities. When pumping to T4 was completed, the valve was shut off so water couldn't be pumped into T4 and would remain in the pre-treatment system. The well water pump was left on, which fills the pre-treatment tanks when the water is not diverted to T4. There is a shut-off valve on the pre-treatment tanks which automatically closes when the tanks are at capacity; but because the actual valve itself was set to manual override "Always Open" this prevented the valve from closing. The valve had been set to manual override to enable un-interrupted flow for the commissioning of the well water pump and variable speed drive. The water continued to pump for approximately 4 hours (136,000 litres), filling the pre-treatment storage tanks (45,400 litres), and then overflowing when full. The assistant operations manager discovered the tanks had overflowed when arriving for their shift, with water flooding parts of the area around the WTP and STP.

**Corrective Actions**

The shut off valve at the pre-treatment valve has been switched from manual override to automatic and a lock placed on the shut-off which will prevent the tanks from overflowing when the pump is left on. A pressure switch will be activated when the valve is automatically shut which is the primary control for the "Well pump system" which stops the pump once the WTP automatic volume level sensor shuts the WTP pretreatment valve.  
 A checklist/formal procedure is now being utilized as a pre and end of shift checklist ensuring no valves or pumps are left in the incorrect position.

Automatic Shut Off Valve: Manual Override / Not Functioning



Automatic Shut Off Valve Set Up: Functioning with Automatic Shut-off



**Well Water Intake Storage Tanks Where Spill Occurred**



**Area to East of Conveyor Belts at 6:30 am**





Area to East of Conveyor Belts at Noon



Area to East of Conveyor Belts at Noon





Area to West of STP at Noon



Area to West of STP at Noon

