

# NGTL System and Foothills Pipelines Ltd.

CUSTOMER

NOVEMBER 10, 2022

FOR INFORMATIONAL PURPOSES ONLY

# Welcome and Thank You for Joining Us

## Participating via WebEx:

- Please sign-in through WebEx application including your full name and company
- To reduce background noise and improve audio quality, all WebEx participants will be placed on mute when entering the meeting
- Please submit your questions via using the raise hand function and coming off mute or the chat function and we will answer at the best possible opportunity



# Forward Looking Information

This presentation includes certain forward-looking information. Statements that are forward-looking are based on certain assumptions and on what we know and expect today and generally include words like anticipate, expect, believe, may, will, should, estimate or other similar words.

The information provided is for informational purposes only and is not to be relied upon for any other purpose whatsoever. The information is based upon certain assumptions that may or may not be accurate, and therefore is subject to various risks and uncertainties. TC Energy shall not be liable for damages sustained as a result of any use or reliance on such information.

The outages listed in this presentation are not an exhaustive list. Outage date, duration, and impact may be subject to change. Refer to the Daily Operating Plan (DOP) for all planned outages with potential service impact.

No  
impact to FT

Refers to outage periods where FT impact is not expected

Potential  
impact to FT

Refers to outage periods where there is potential of FT impact

Partial  
impact to FT

Refers to outage periods where FT impact is expected



# Important Notes



Outage information in this presentation may not be accurate beyond the November 10, 2022 NGTL/Foothills Customer Operations (WebEx only) meeting



For current outage and capability information, please refer to the most recent Daily Operating Plan ([DOP](#)), the [Dashboard](#) and [bulletins](#).



This meeting covers operational and project-related topics that impact operations on the NGTL and Foothills systems. For information on focused Commercial and Regulatory topics, please contact your [Marketing Representative](#)

# Winter Driving Tips

## Before

- Check weather / road reports
- Perform a 360 walkaround
- Clear snow and ice off your vehicle for maximum visibility
- Buckle up
- Allow for extra travel time

## While Driving

- Reduce your speed
- Do not use cruise control
- Lengthen your following distance, stopping on ice is double the distance than on dry pavement
- To avoid skidding, do not steer while accelerating or braking

## Dangerous Conditions

Beware of:

- Black ice which looks like shiny asphalt
- Steel and concrete bridges are likely to be icy
- Never pass a snow-plow



# Agenda

1. Project Updates
2. Review of October/November Operations
3. Review of Upcoming 2022 DOP Outages
4. 2023 Operational Outlook



# Project Updates

FOR INFORMATIONAL PURPOSES ONLY

# 2021 Expansion Project Update – ISD Summary (since Oct. 13, 2022 update)



*Note: EDML/Clearwater/West Path 2022 capacity requires 100% of NGTL 2021 Expansions to be in service*





# 2021 Expansion Project Update (since Oct. 13, 2022 update)

Facilities already in-service (Map I.D.# 1, 2, 3, 4, 5, 8, 9)

Colt (Map I.D.# 5)

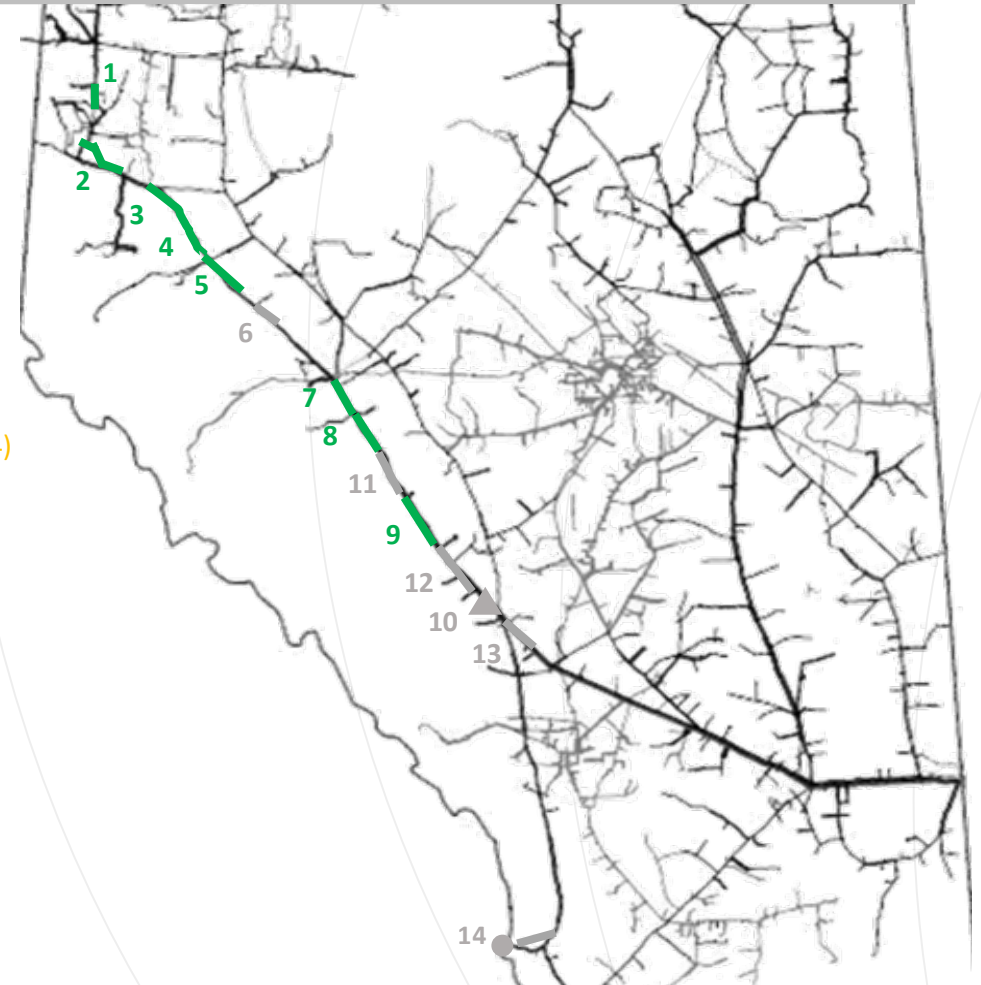
- Activities remaining: ~ 9 km of mainline
  - Construction has commenced in high ground areas
  - ISD expected latter half of Q1 2023

3 km of Pipe Adjacent to Little Smoky R that connects DVN/DVS (Map I.D.# 4)

- Activities remaining: ~ 3 km of mainline
  - February 15<sup>th</sup> Caribou RAP
  - Early works commenced for ROW preparation
- ISD expected latter half of Q1 2023

Availability of capacity remains subject to:

Ground conditions, weather & road access/conditions, heated labour market, environmental and regulatory requirements and LTO approval by the CER



Project team continues to evaluate opportunities to expedite construction safely and in compliance with applicable regulatory requirements



# Other Project Updates – ISD Summary (since Oct. 13, 2022 update)

NGTL Projects:	
Edson Mainline Expansion	In Service <i>*change since last update</i>
North Corridor Expansion	Bear Canyon, North Star, Red Earth, Hidden Lake North U/A (ISD Apr 2023)
Intra-Basin Expansion	Sunrise (ISD Apr 2023) <i>*change since last update</i> Saturn (ISD Nov 2023) Saddle Hills U/A (ISD April 2024) <i>*change since last update</i> Emerson Creek C/S (ISD April 2024)
WestPath 2022/2023	Raven (In Service) <i>*change since last update</i> ABC (ISD Nov 2022) Turner Valley, Lundbreck and Longview (ISD Nov 2023)
FH Projects: <i>No changes to estimated in-service dates since last update</i>	
Yahk Section Loop	ISD Jan 2023
Elko Section Loop	ISD Nov 2023



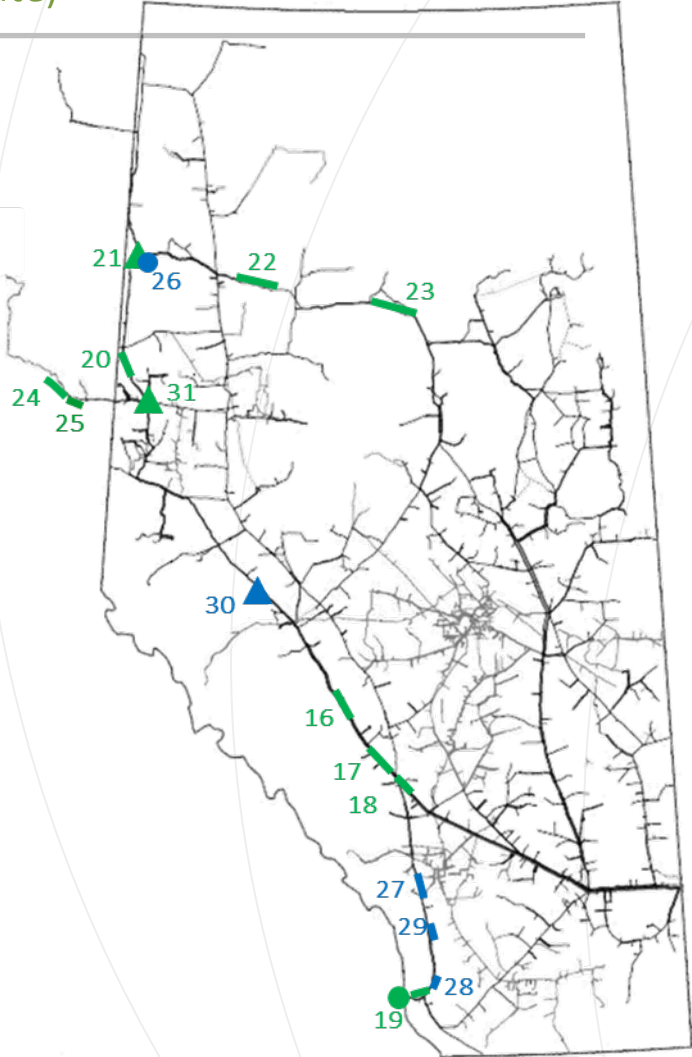
# Other Project Updates – NGTL (since Oct. 13, 2022 update)

## Edson Mainline Expansion

- Facilities already in-service (Map I.D. # 16, 17, 18)

## North Corridor Expansion (Bear Canyon (Map I.D. # 20), North Star (Map I.D. # 22), Red Earth (Map I.D. # 23), Hidden Lake North U/A (Map I.D. # 21))

- North Star Mainline construction complete. Tie ins on going
- Red Earth Construction plans continue to be assessed to mitigate risks around Caribou Restrictive Activity Period (RAP) on sections of Red Earth
  - All sections are required to be in service for full NCE capacity
  - Frost packing, access preparation and clearing commenced
  - HDD site prep
- Hidden Lake North Unit Addition 60% construction complete, on track
- ISD April 2023



*Note: EDML/Clearwater/West Path 2022 capacity requires 100% of NGTL 2021 Expansions to be in service*



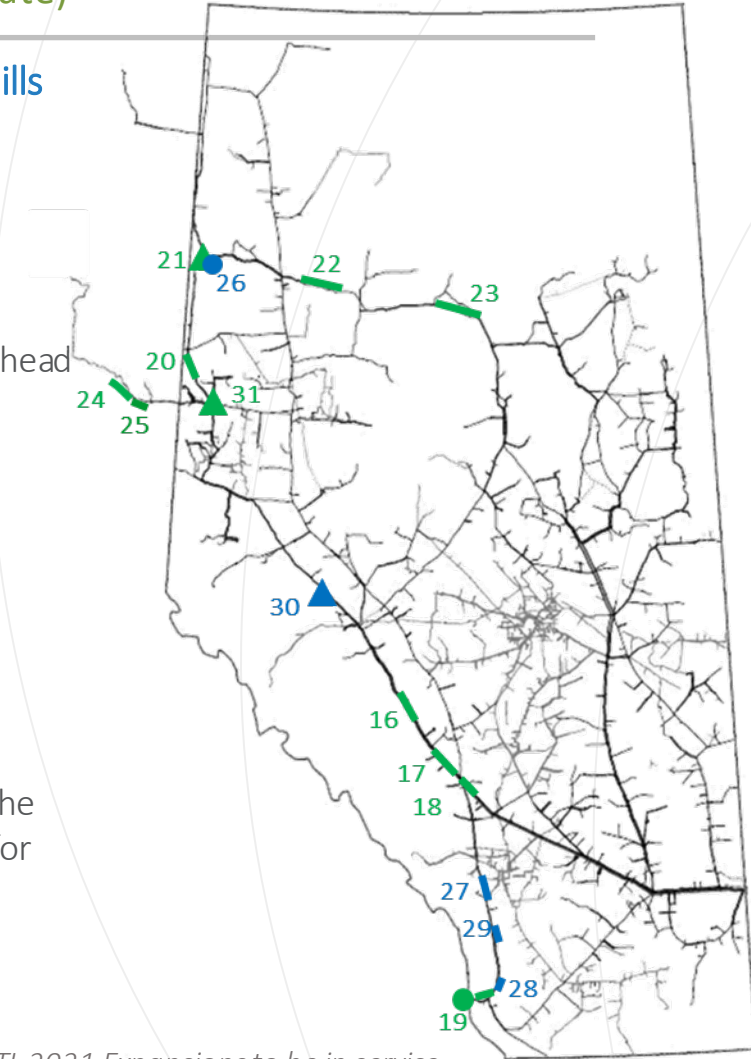
# Other Project Updates – NGTL (since Oct. 13, 2022 update)

## Intra-Basin Expansion (Sunrise (Map I.D. #24), Saturn (Map I.D. #25), Emerson Creek C/S (Map I.D. #30), Saddle Hills U/A (Map I.D. #31))

- Sunrise – Stripping and grading complete. Stringing ongoing. HDD casing install ongoing.
  - ISD April 2023
- Saturn - pending BC OGC permits – continue consultation with Rightsholder
  - ISD November 2023
- Emerson Creek C/S construction progressing on schedule. Piling and compressor unit concrete blocks ahead of schedule
  - ISD April 2024
- Saddle Hills U/A Prime contractor has been awarded. Fabrication and construction commences in Q1
  - ISD April 2024

## West Path 2022/2023

- ABC (Map I.D. #19) – LTO filed November 2
  - ISD November 2022
- Turner Valley (Map I.D. #27) /Lundbreck (Map I.D. #28) /Longview (Map I.D. #29)
  - CER issued Recommendation report in May 2022. On July 19, 2022, NGTL received notice that the Governor in Council (GIC) decision to grant the Certificate of Public Convenience and Necessity for the NGTL West Path 2023 project had been delayed into November 2022
  - Working closely with other federal agencies to provide the required information for outstanding permits and land rights
  - ISD November 2023



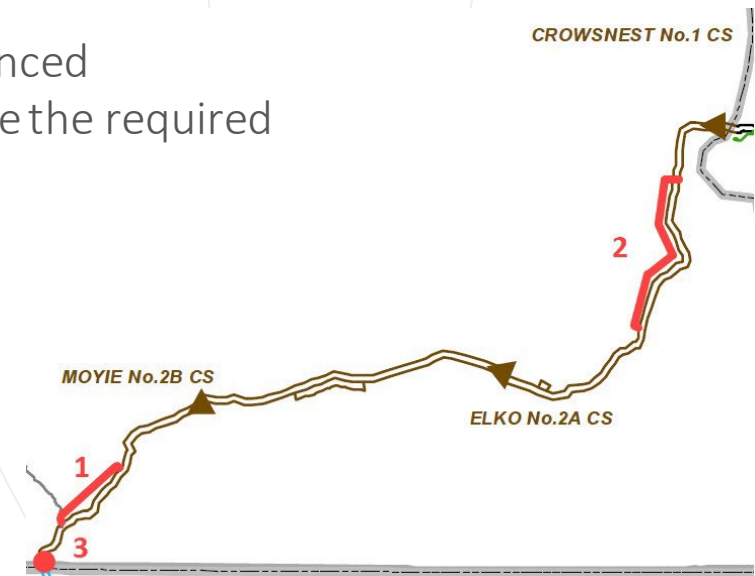
*Note: EDML/Clearwater/West Path 2022 capacity requires 100% of NGTL 2021 Expansions to be in service*



# Other Project Updates – FH (since Oct. 13, 2022 update)

## West Path 2022/2023

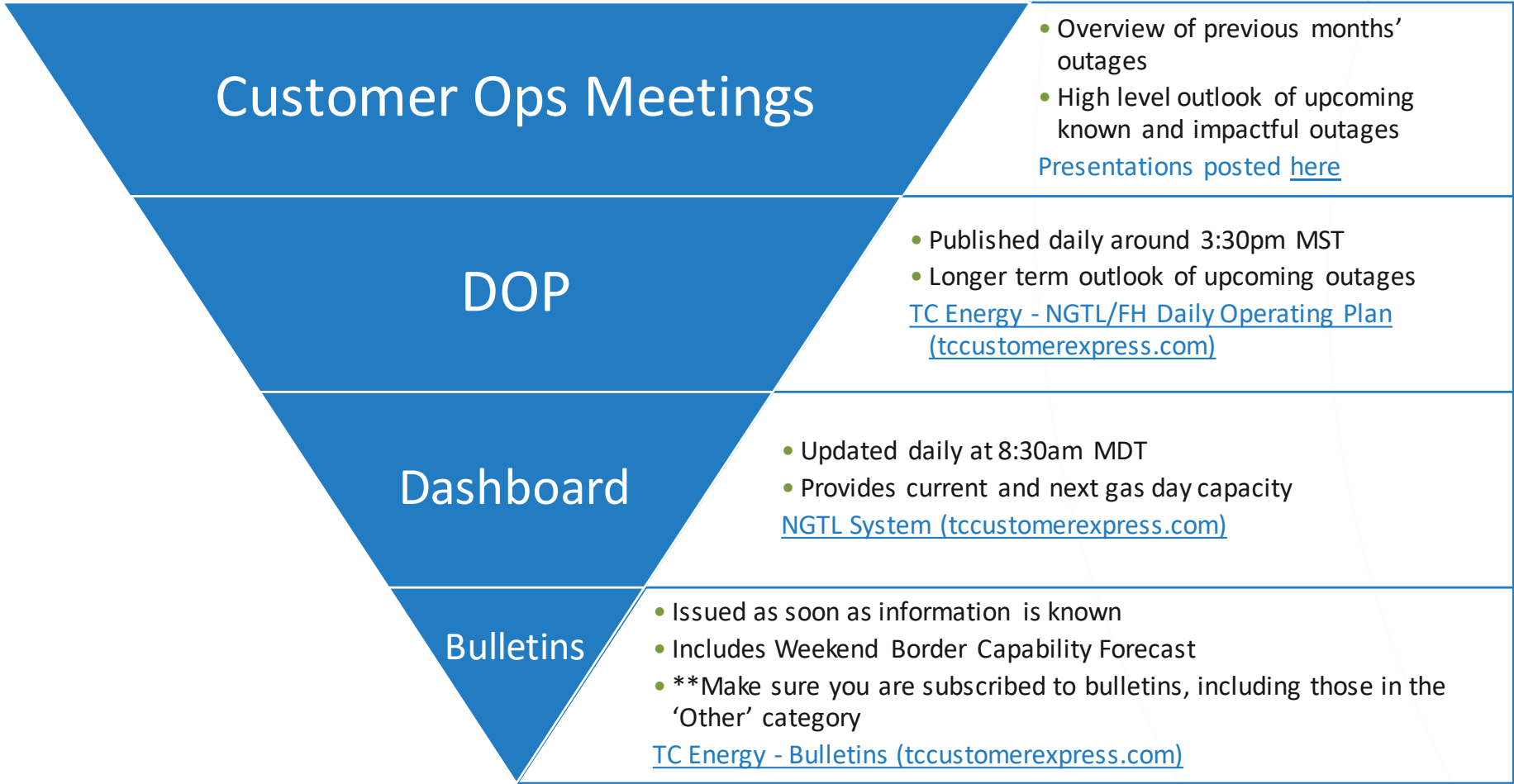
- **Yahk** (Map I.D. # 1)
  - Grade and blasting continues to progress
  - Mainline activities ongoing, mechanical completion in December
  - ISD January 2023
- **Elko** (Map I.D. # 2)
  - Preparing the ROW for winter and demobilization has commenced
  - Working closely with municipal and federal agencies to provide the required information for outstanding permits and land rights
  - ISD November 2023



Note: NGTL WestPath 2022 capacity requires 100% of NGTL 2021 Expansions to be in service



# Outage Communication Tools – Order



Each level of communication supersedes all information provided in communications above it.



# Review of October/November Operations

# West Gate

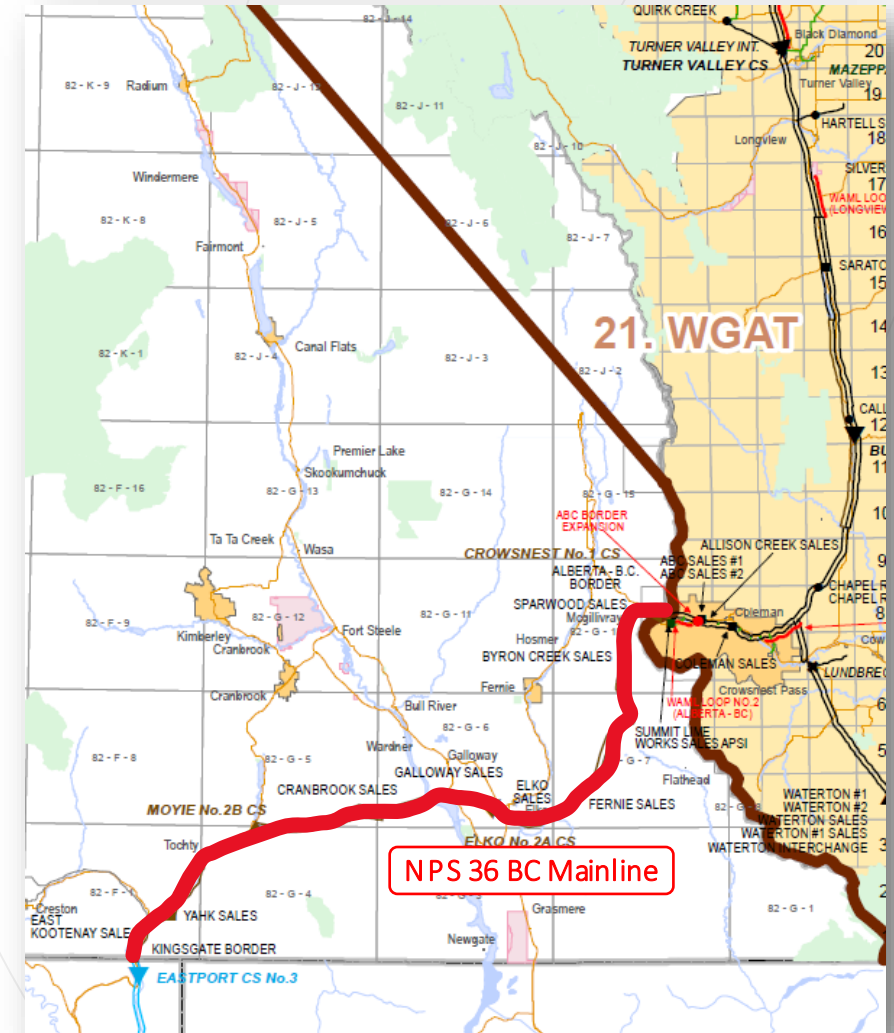
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# NPS 36 BC Mainline – Pipeline Maintenance

## Background:

- **Planned:** NPS 36 BC Mainline Pipeline Maintenance: Oct 23 – 28
  - Unplanned extension to October 29
- **Capability communicated in DOP:**
  - Oct 23 – 24: 62 10<sup>6</sup>m<sup>3</sup>/d
  - Oct 25 – 27: 54 10<sup>6</sup>m<sup>3</sup>/d
  - Oct 28: 62 10<sup>6</sup>m<sup>3</sup>/d (actual authorization: 60 10<sup>6</sup>m<sup>3</sup>/d)
  - Oct 29: 62 10<sup>6</sup>m<sup>3</sup>/d (actual authorization: 56 10<sup>6</sup>m<sup>3</sup>/d)
- **Service Allowable:** 0% IT-D, Partial FT-D

Bulletin Date	Effective Date	Service Allowable	Comments
Oct 19	Oct 23 (08:00 MST)	0% IT, Partial FT (FHBC)	NPS 36 BC Mainline Pipeline Maintenance starts
Oct 27	Oct 30 (08:00 MST)	Unrestricted	Bulletin communicating unplanned extension of outage to Oct 29 with FT restriction to be lifted on Oct 30



# Upstream James River/ East Gate



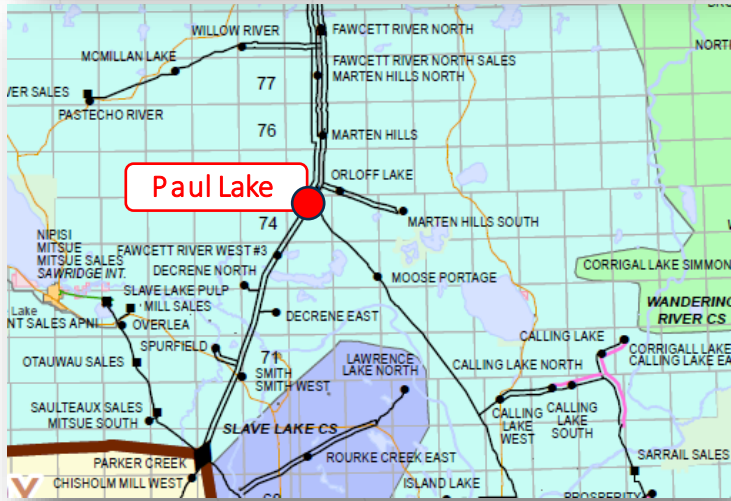
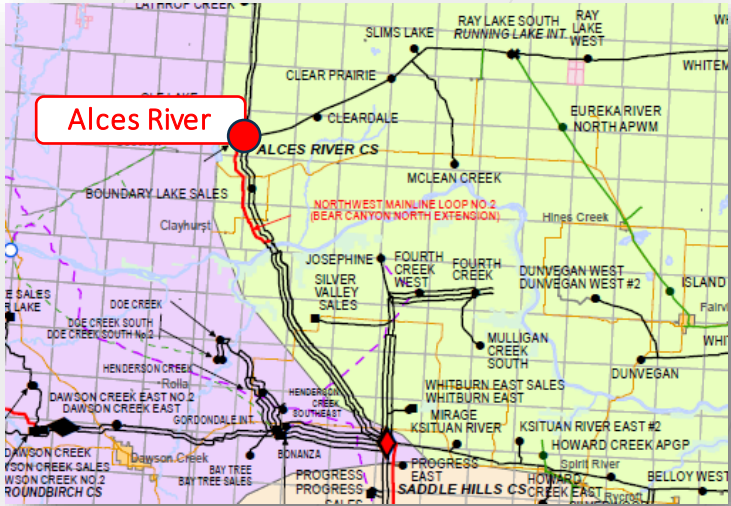
# Alces River – Compressor Station Maintenance

## Paul Lake – Compressor Station Maintenance



### Background:

- Planned:
  - Alces River and Paul Lake – Compressor Station Maintenance: October 17 – 18
    - Alces River unplanned extension to October 20
- Capability communicated in DOP:
  - USJR: 337 10<sup>6</sup>m<sup>3</sup>/d (Alces River), 336 10<sup>6</sup>m<sup>3</sup>/d (Paul Lake)
  - EGAT: 135 10<sup>6</sup>m<sup>3</sup>/d (Alces River), 133 10<sup>6</sup>m<sup>3</sup>/d (NPS 36 GPML)
- Service Allowable:
  - USJR: 0% IT-R; Greater EGAT: Partial IT-D, 100% FT-D



Bulletin Date	Effective Date	Service Allowable	Comments
Oct 12	Oct 17 (08:00 MST)	USJR: 0% IT-R Greater EGAT: Partial IT-D, 100% FT-D	Alces River and Paul Lake Compression Maintenance starts
Oct 19		USJR: 0% IT-R Greater EGAT: Partial IT-D, 100% FT-D	Unplanned repair required on startup for Alces River; outage extended to Oct 20
			Alces River unplanned repairs completed on Oct 20



# NPS 48 Edson Mainline Loop 3 – Pipeline Modifications

## Background:

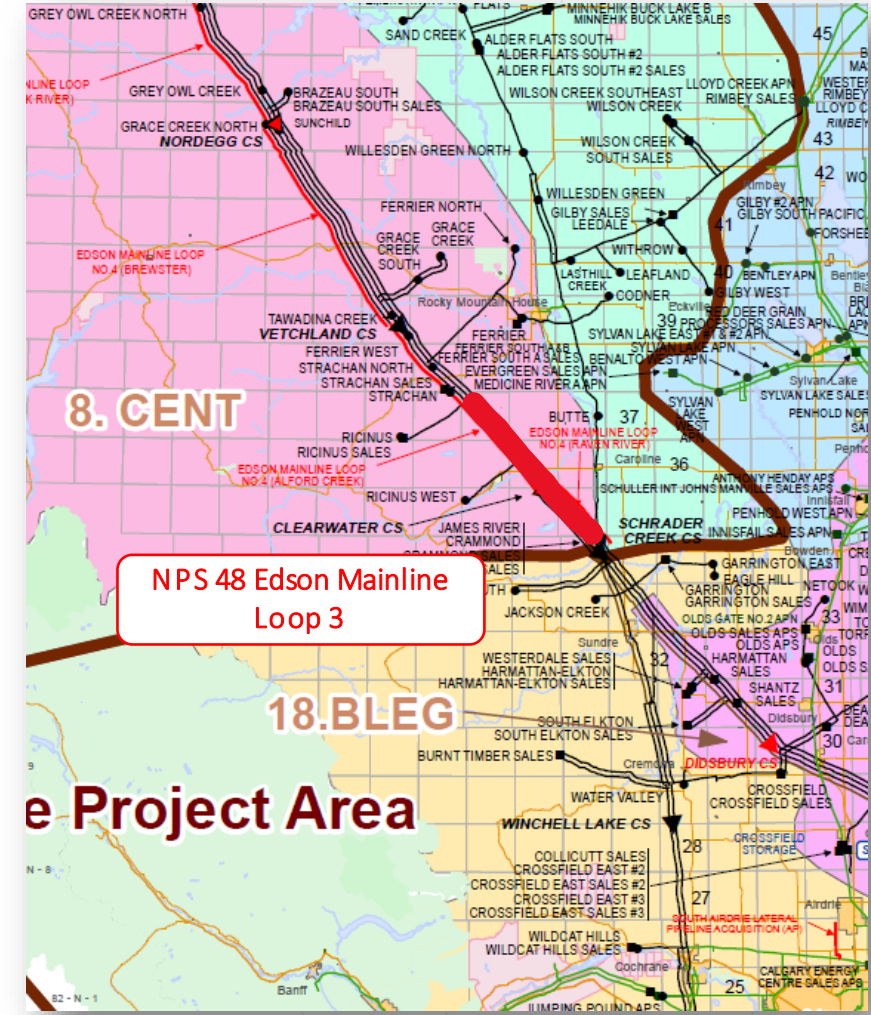
- **Planned:** NPS 48 Edson Mainline Loop 3 Pipeline Modifications: Oct 25 – 27
  - Unplanned extension to Oct 29
- **Capability communicated in DOP:**
  - USJR: 329 10<sup>6</sup>m<sup>3</sup>/d
  - EGAT: 131 10<sup>6</sup>m<sup>3</sup>/d
- **Service Allowable:**
  - USJR: 0% IT-R
  - Lower EGAT: Partial IT-D, 100% FT-D

## Monday, October 24: Next Day Prediction of Authorization Level

- **Dashboard prediction for next day:**
  - WGAT: 54 10<sup>6</sup>m<sup>3</sup>/d
  - EGAT: 140 10<sup>6</sup>m<sup>3</sup>/d

## Tuesday, October 25: Outage Commences

- **System Status:** Healthy



# NPS 48 Edson Mainline Loop 3 – Pipeline Maintenance

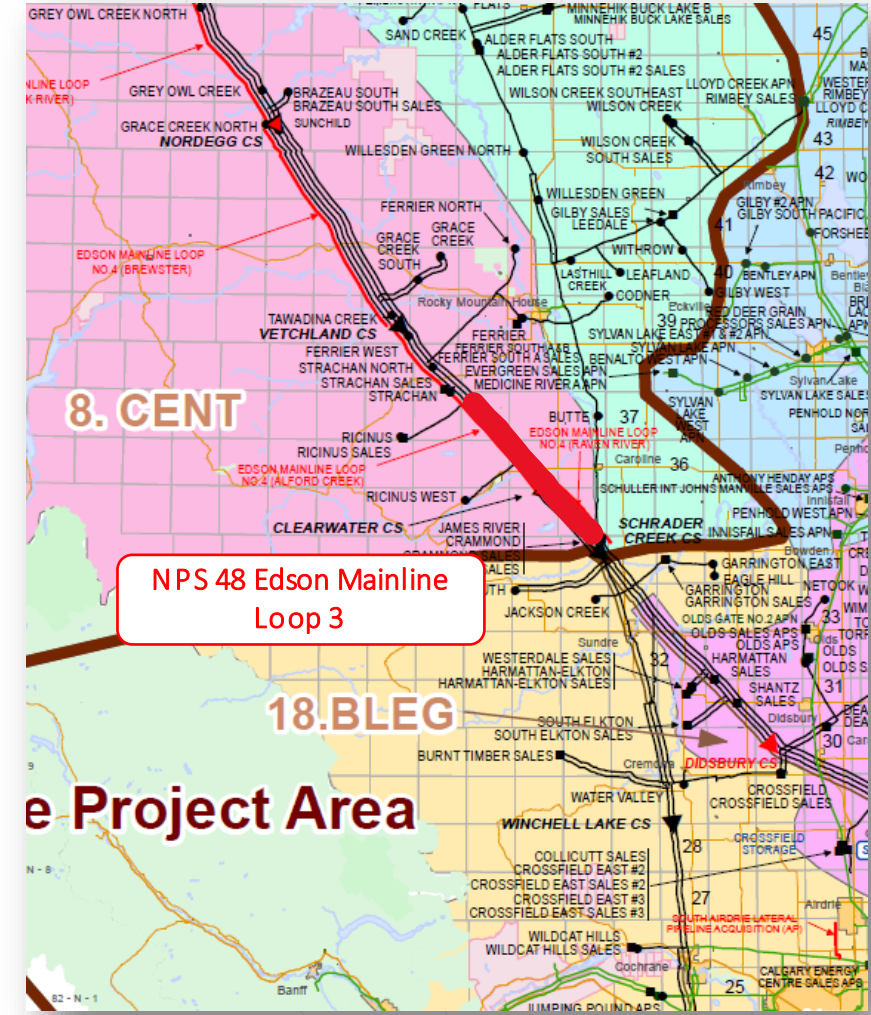
Wednesday, October 26: Outage Continues

- **Morning:** System Healthy
- **Dashboard prediction for next day:** 140 10<sup>6</sup>m<sup>3</sup>/d
- **Afternoon:** System Manageable
  - USJR linepack increasing with unexpected less favorable distribution of supply response

**Decision Point:** EGAT authorization level left at 140 10<sup>6</sup>m<sup>3</sup>/d with outage on track to be completed by noon the following day (Oct 27)

- **Evening:** System reaches MOP in West of Saddle Area
  - Gas Control requests localized producers to reduce flows

**Note:** Earliest opportunity to reduce service levels ID1 following day (Oct 27)





# NPS 48 Edson Mainline Loop 3 – Pipeline Maintenance

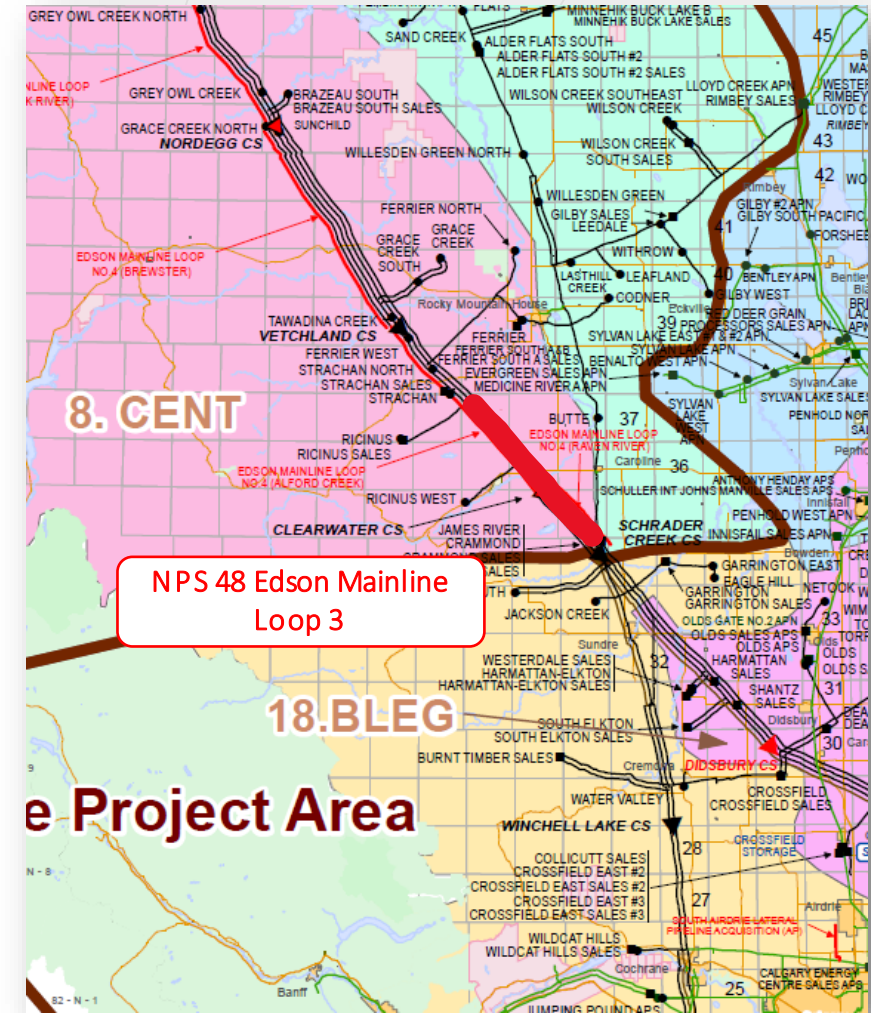
**Thursday, October 27:** Outage Expected to be Complete by noon

- **Morning:** System remains at MOP in West of Saddle Area
- **Dashboard prediction for next day:** 140 10<sup>6</sup>m<sup>3</sup>/d
- **Afternoon:** Outage scope completed
  - High system utilization resulting in pressure differentials too high to safely enable required configuration changes

**Decision Point:** Bulletin published communicating EGAT authorization level decreased from 140 10<sup>6</sup>m<sup>3</sup>/d to 131 10<sup>6</sup>m<sup>3</sup>/d for next day (Oct 28)

**Note:** Reduction of EGAT IT-D expected to be adequate to stabilize system

- **Evening:** System remains at MOP in West of Saddle Area but system linepack showing a draft



# NPS 48 Edson Mainline Loop 3 – Pipeline Maintenance

**Friday, October 28:** Supply response from EGAT IT-D reduction not adequate

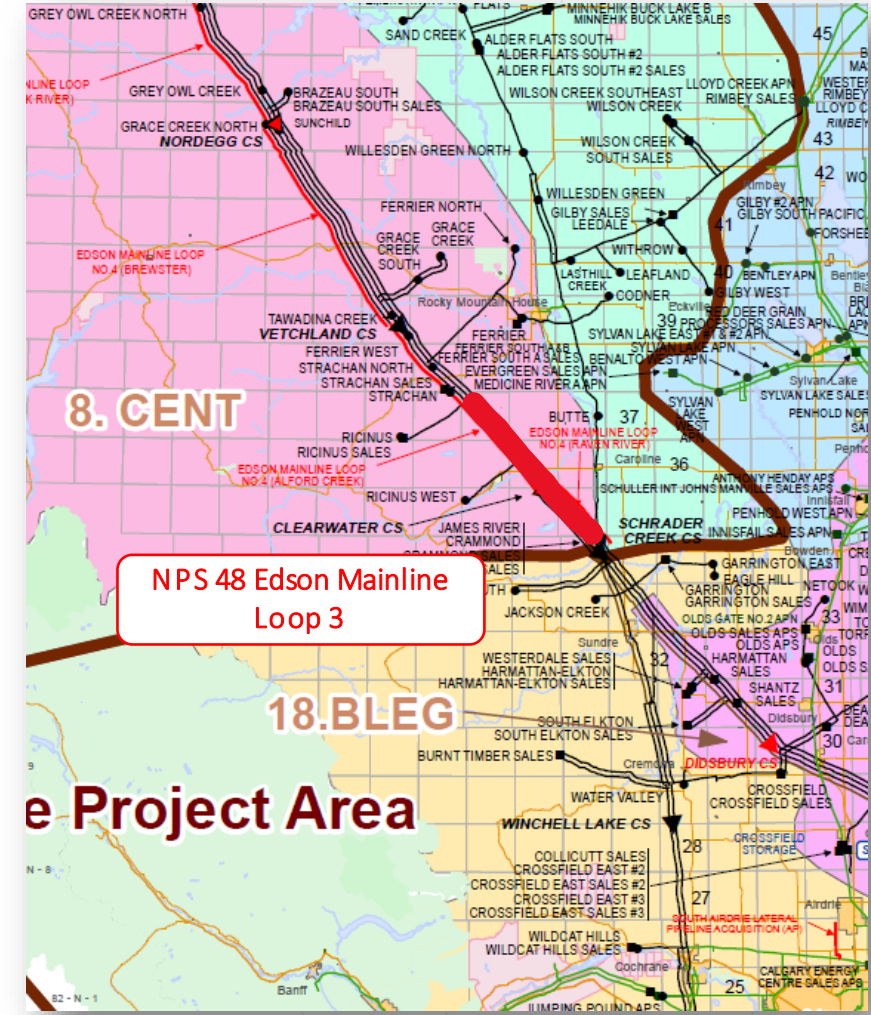
- **Early Morning:** System remains at MOP in West of Saddle Area
- **Dashboard prediction for next day:** 131 10<sup>6</sup>m<sup>3</sup>/d
- **Mid Morning:** Supply response from EGAT IT-D reduction
  - Was not resulting in rapid enough of a system draft

**Decision Point:** Bulletin published communicating USJR FT-R restriction effective 08:00 MST for next day (Oct 29)

- **Afternoon:** Supply response from EGAT IT-D reduction continues with system linepack drafting
- **Evening:** Configuration changes safely completed

**Saturday, October 29:** 63% USJR FT-R restriction commences

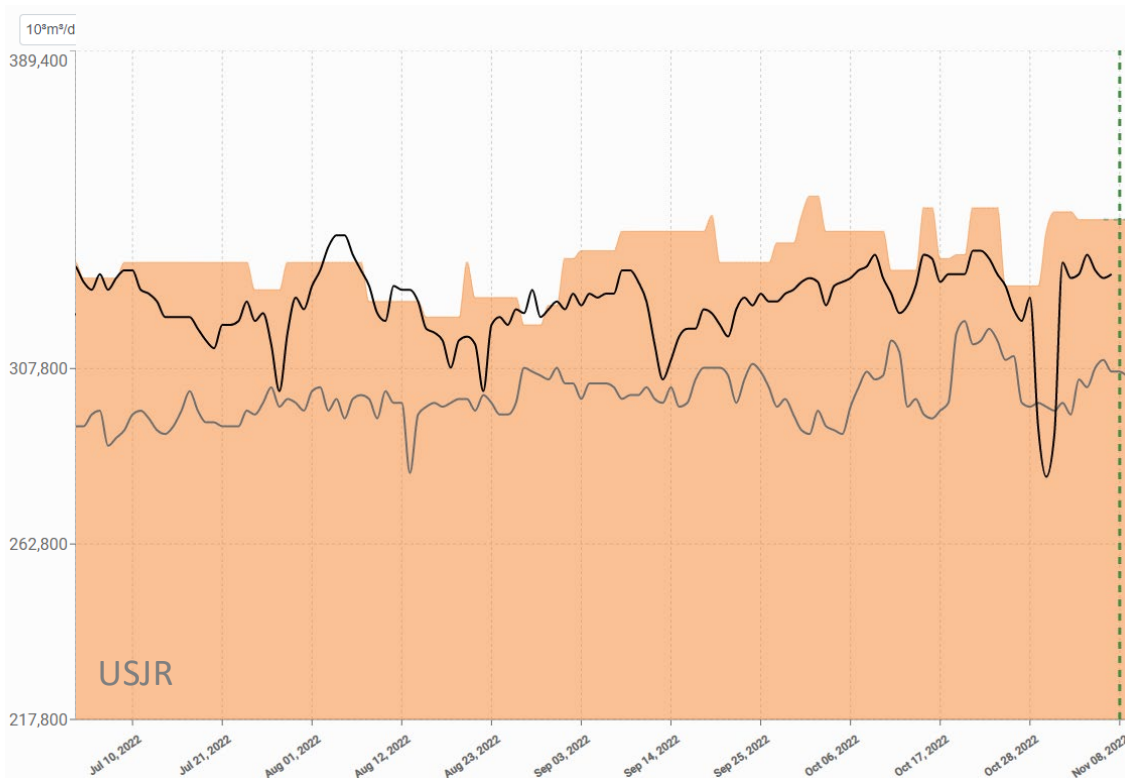
- **Early Morning:** Strong draft observed in USJR
  - Gas Control notifies localized producers to restore flows back to previous levels





# USJR Supply Response

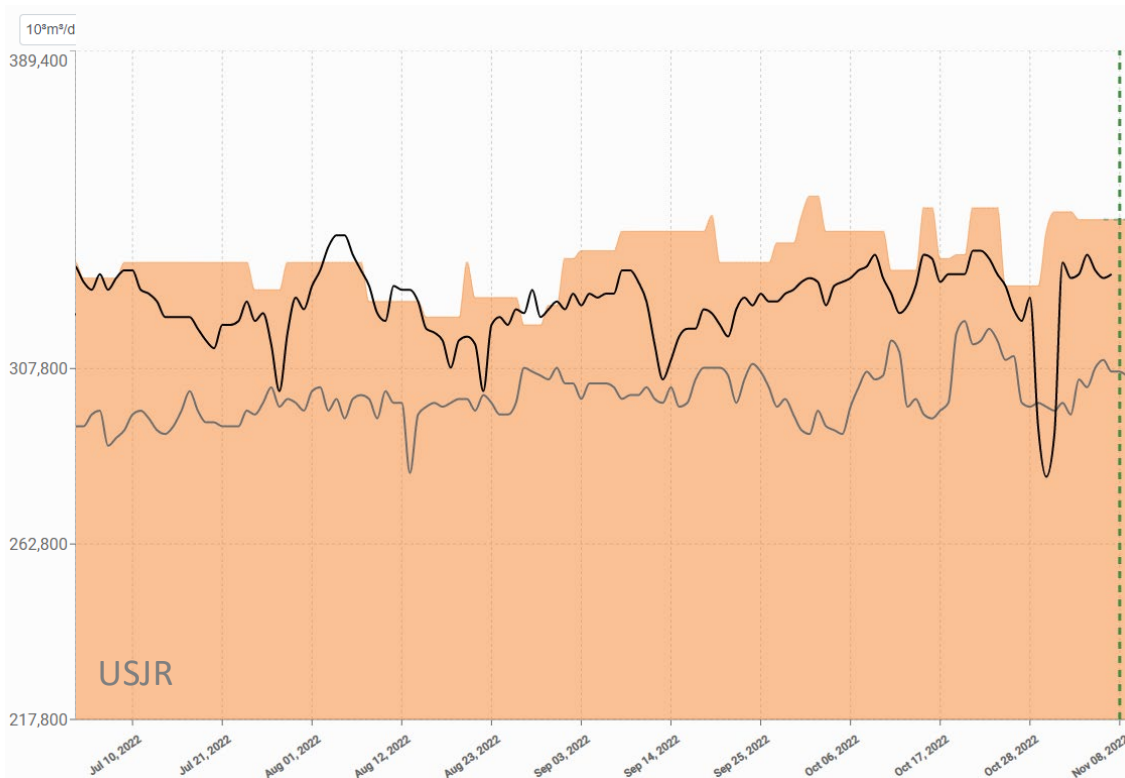
The bulletin indicated an expectation of 10-15  $10^6\text{m}^3/\text{d}$  of supply reduction but the decrease was much more, why?



- The expected reduction was calculated based on current flow levels at the time the decision was made to restrict USJR FT-R and bulletin was published
- Once the USJR FT-R restriction commenced the morning of Oct 29, supply slowly decreased over the morning resulting in a strong system draft
- Once USJR flows leveled out, authorization utilization was observed to be 95%

# USJR Supply Response

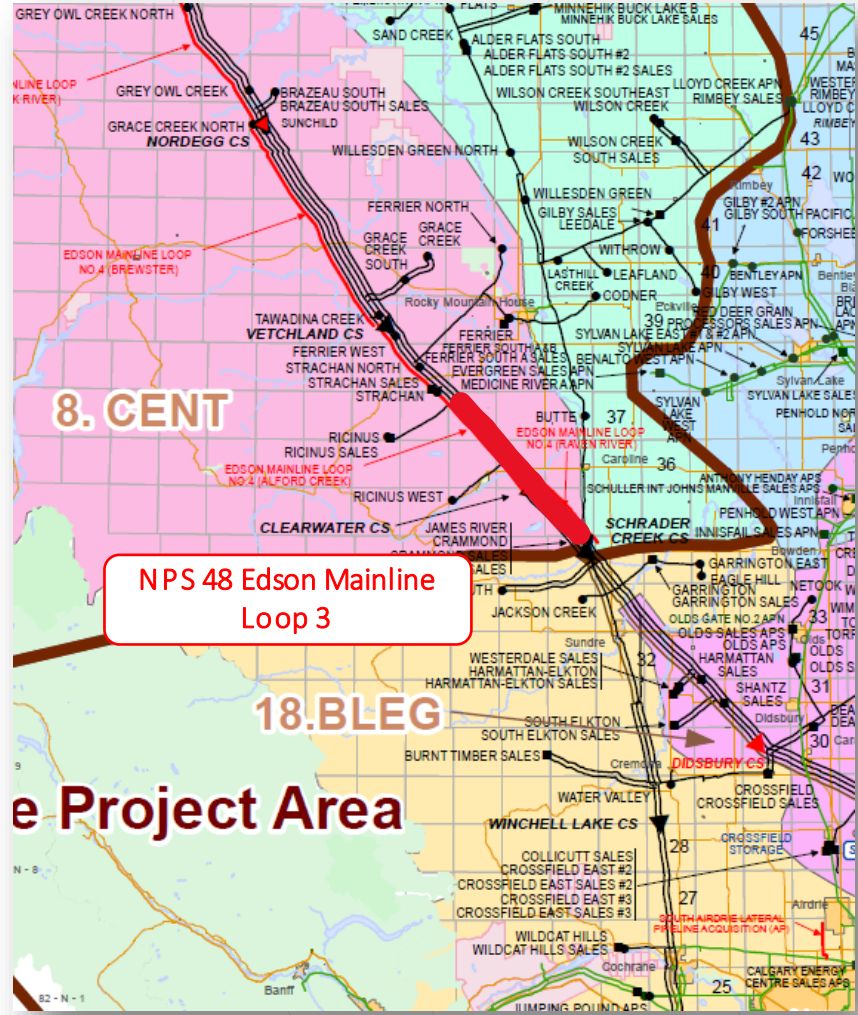
If the decrease in USJR flow was more than you anticipated, why didn't you increase or lift the FT-R restriction sooner?



- It is common for the system to take anywhere from 4 to 12 hours (or sometimes more) to settle out following a change or reduction of flows
- Once the FT-R restriction came into effect on Oct 29, the system required transient time to draft enough to redistribute system linepack and allow localized production that had been impacted to increase back to normal levels
- Redistribution of linepack progressed into Oct 30
- On the evening of Oct 30, there was a large power outage in the West of Saddle area resulting in an additional  $\sim 15 \times 10^6 \text{ m}^3/\text{d}$  decrease of supply. This further expedited the draft on the system allowing confidence in communicating the end of the FT-R restriction effective Nov 1 at 08:00 MST

# Summary of Observations

- Based on past experience leading into the outage, we believed that there was an adequate level of IT-D available to manage the outage
- In this case, the available downstream IT-D was not adequate to manage the broad area outage due to the unexpected distribution of the supply response
  - Supply response was still upstream of the bottleneck; however, West of Saddle flows remained strong and the majority of the supply response was observed to be from the more southern portion of USJR with a less effective hydraulic equivalency



# NPS 36 Northwest Mainline Loop – Pipeline Modifications

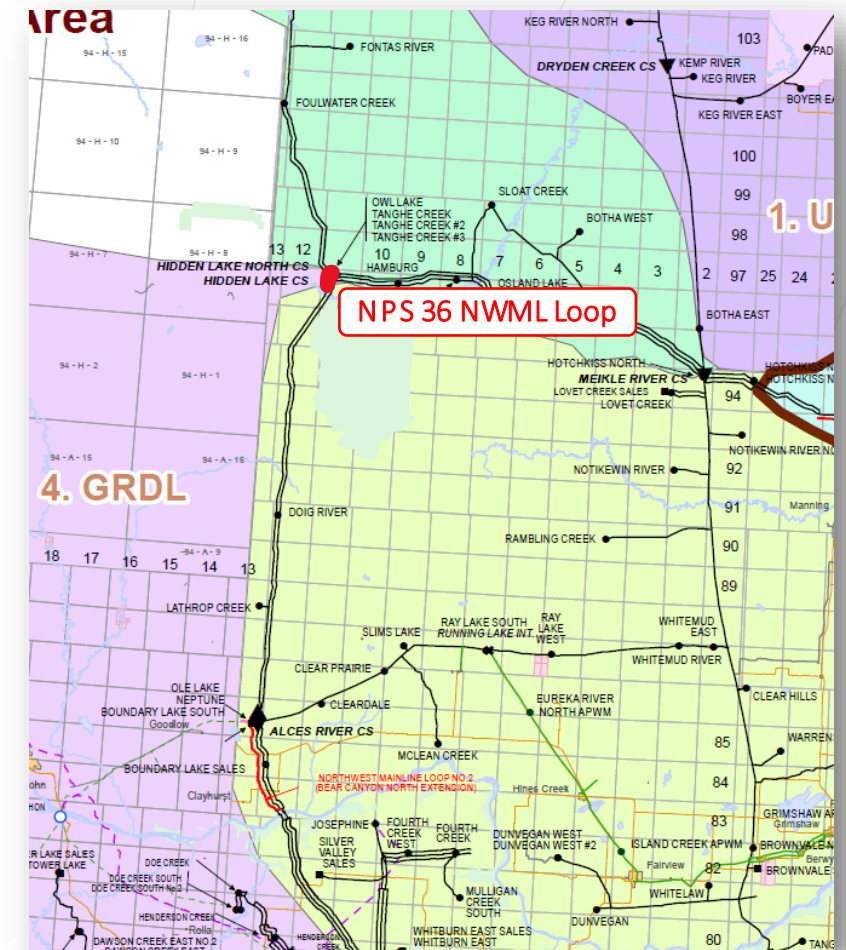


## Background:

- Planned:
  - NPS 36 Northwest Mainline Loop Pipeline Modifications: Oct 31 – Nov 3
    - Unplanned extension to Nov 5
- Capability communicated in DOP:
  - USJR:  $348 \times 10^6 \text{m}^3/\text{d}$
  - EGAT:  $147 \times 10^6 \text{m}^3/\text{d}$
- Service Allowable:
  - USJR: 0% IT-R; Greater EGAT: Partial IT-D, 100% FT-D

Bulletin Date	Effective Date	Service Allowable	Comments
Oct 28	Oct 29 (08:00 MST)	USJR: 0% IT-R, 63% FT-R	Continuation of FT-R restriction from NPS 48 EDSML Loop 3 outage
Oct 31	Nov 1 (08:00 MST)	USJR: 0% IT-R Greater EGAT: Partial IT-D, 100% FT-D	System recovered, transition back to broad area IT-D restriction
Nov 4	Nov 5 (08:00 MST)	USJR: 0% IT-R	NPS 36 NWML Loop outage extended to Nov 5. EGAT Partial IT-D restriction lifted due to lower demand than authorized quantities and extremely low FT utilization

0% IT-R (USJR) remains in place due to the Hidden Lake Compressor Station Outage

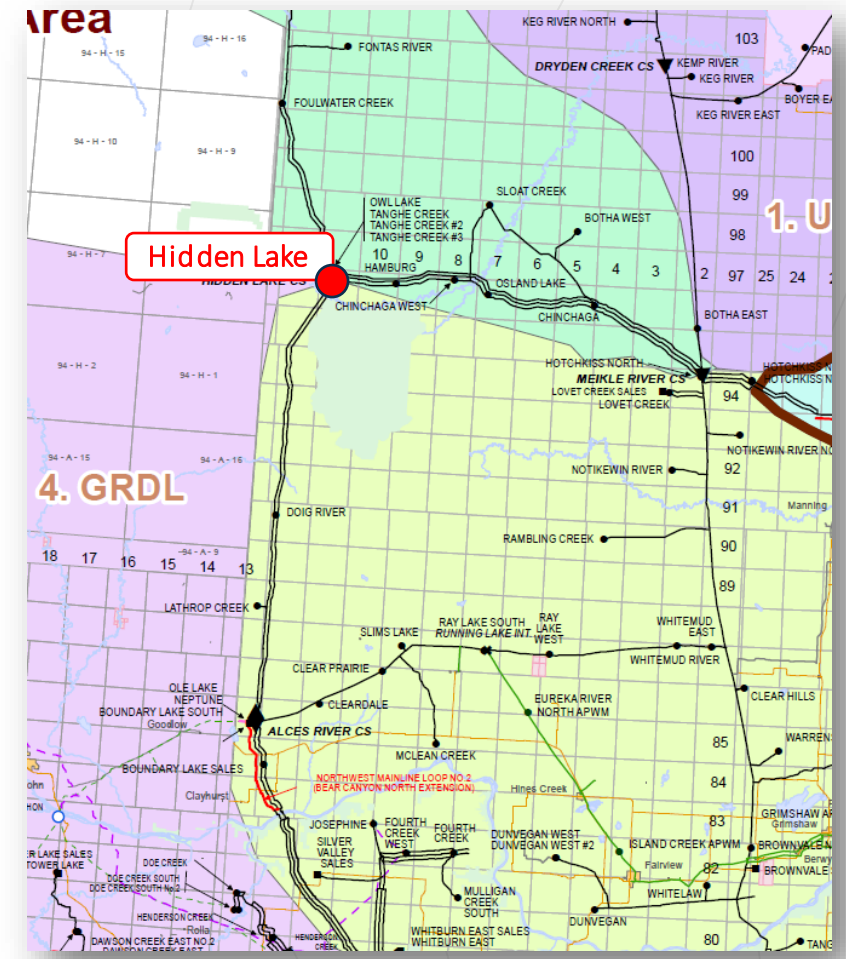




# Hidden Lake – Compressor Station Modifications

## Background:

- **Planned:** Hidden Lake Compressor Station Modifications
  - Original dates: Nov 3 – 9
  - Revised dates: Nov 6 – 13 (due to unplanned delays from NWML outage)
- **Capability communicated in DOP:**
  - USJR: 346 10<sup>6</sup>m<sup>3</sup>/d
  - EGAT: 145 10<sup>6</sup>m<sup>3</sup>/d
- **Service Allowable:**
  - USJR: 0% IT-R, 100% FT-R (Initially)
  - USJR: 15% IT-R, 100% FT-R (Nov 8)



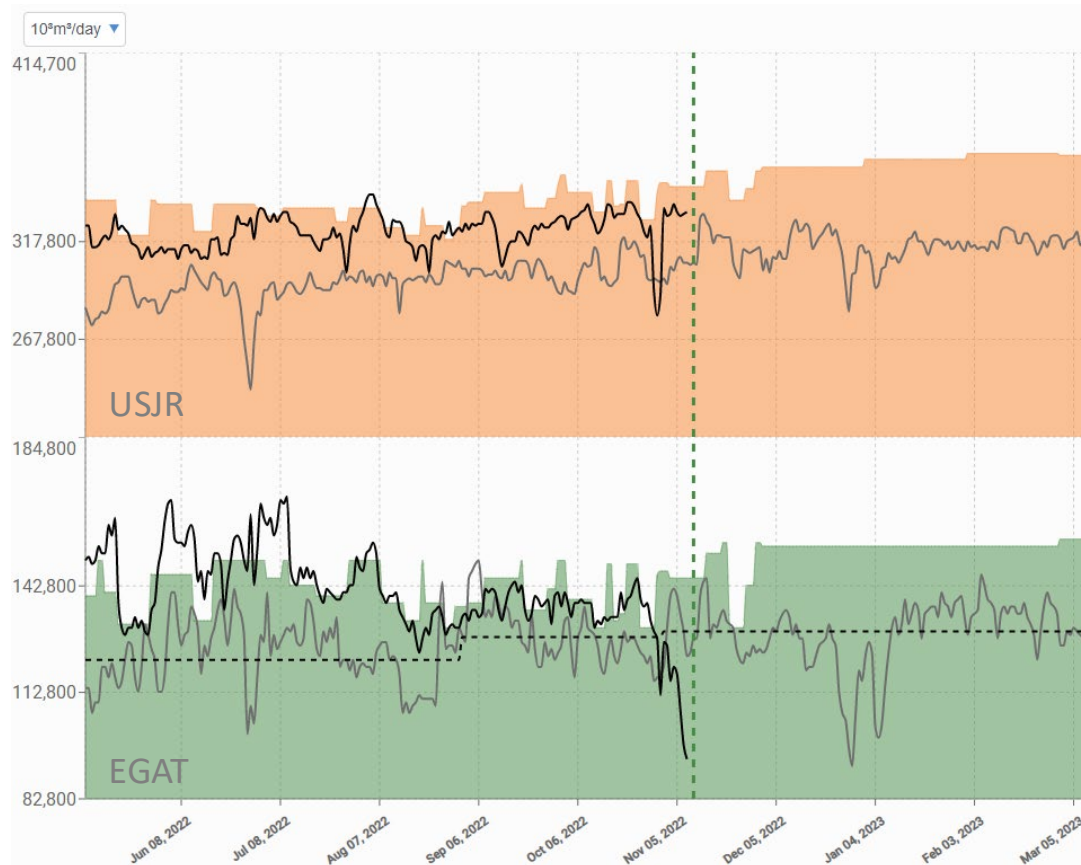
Bulletin Date	Effective Date	Service Allowable	Comments
	Nov 6	USJR: 0% IT-R, 100% FT-R	Hidden Lake outage starts
Nov 7	Nov 7 (17:00 MST)	USJR: 15% IT-R, 100% FT-R	Observed lower receipts with cold weather
Nov 9	Nov 9 (17:00 MST)	USJR: 25% IT-R, 100% FT-R	Observed continuation of lower receipts with cold weather
			Hidden Lake outage on track to be completed by Nov 13





# EGAT Authorization

Why was the actual authorization level for EGAT during the NPS 36 NWML Loop and Hidden Lake outages lower than what was showing in the DOP?



- Required to allow system transients to settle following transition from FT-R restriction back to the broad area IT-D restriction
- With gradual USJR supply increase over the course of the day (Nov 1), continuation of less favorable distribution of supply response was observed
- On Nov 3, low utilization of authorized quantities at EGAT was observed. As a result, the EGAT authorization level was increased for the following gas day
- With continuation of lower demand than authorized quantities and extremely low FT utilization; service allowable for EGAT was changed from Partial IT-D to unrestricted effective Nov 5

# Local Delivery

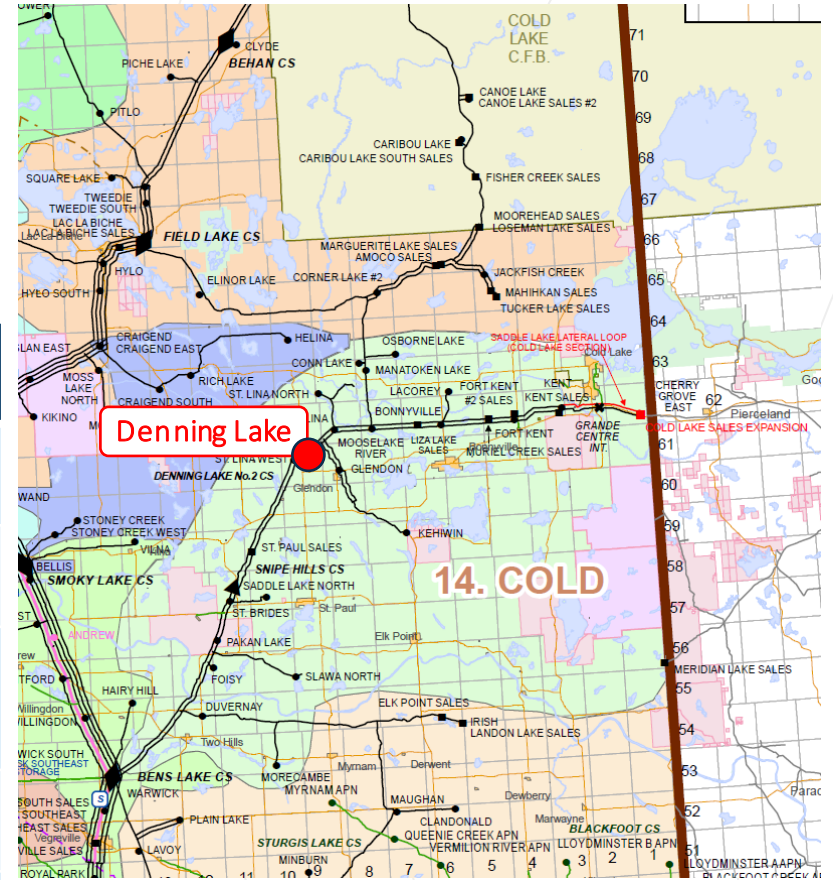
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# Denning Lake – Unplanned Compressor Station Outage

## Background:

- **Unplanned:** Denning Lake Compressor Station Maintenance: Nov 7 - 10
- **Capability communicated in DOP:** 20 10<sup>6</sup>m<sup>3</sup>/d (typical flows 21-22 20 10<sup>6</sup>m<sup>3</sup>/d)
- **Service Allowable:**
  - Local Delivery: 0% IT-D, 80% FT-D (initially)
  - Local Delivery: 0% IT-D, 90% FT-D (starting Nov 8)

Bulletin Date	Effective Date	Service Allowable	Comments
Nov 7			Unplanned Denning Lake outage starts. Advisory Bulletin published
Nov 7	Nov 7 (17:00 MST)	Local Delivery: 0% IT-D, 80% FT-D	Bulletin published communicating Local FT-D restriction
Nov 8	Nov 7 (13:00 MST)	Local Delivery: 0% IT-D, 90% FT-D	Update communicating expected end date of outage with authorization level increase
Nov 9		Local Delivery: 0% IT-D, 90% FT-D	Update communicating outage on track to be completed on Nov 10
Nov 10	Nov 11 (08:00 MST)	Local Delivery: 100% IT-D, 100% FT-D	Update communicating outage on track to be completed on Nov 10 and FT-D restriction to be lifted on Nov 11



# Review of DOP Outages (2022)

From DOP as of Wednesday November 9

# Upstream James River Receipt Area (USJR)

No impact to FT

Potential impact to FT

Partial impact to FT

Outage Description	Start	End	USJR Capability (10 <sup>6</sup> m <sup>3</sup> /d)	USJR Impact (10 <sup>6</sup> m <sup>3</sup> /d)	Area Outage Capability (10 <sup>6</sup> m <sup>3</sup> /d)	Outage Area Typical Flows (10 <sup>6</sup> m <sup>3</sup> /d)	Service Allowable Location/Area
Hidden Lake – Compressor Station Modifications	6-Nov-22	13-Nov-22	346	8	223	160-190	Potential impact to FT-R USJR U/S of Latornell
Clearwater – Compressor Station Maintenance	21-Nov-22	25-Nov-22	339	15	N/A	280-320	Potential impact to FT-R USJR
NPS 36 Western Alberta System Mainline Ext – Pipeline Maintenance	22-Nov-22	28-Nov-22	345	9	235	165-205	Potential impact to FT-R USJR U/S of Berland

# East Gate Delivery Area (EGAT)

Outage Description	Start	End	Capability (10 <sup>6</sup> m <sup>3</sup> /d)	Impact (10 <sup>6</sup> m <sup>3</sup> /d)	System	Service Allowable Location/Area
Beiseker B3 – Compressor Station Maintenance	14-Nov-22	18-Nov-22	152	3	NGTL	No impact to FT-D anticipated Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28
Clearwater – Compressor Station Maintenance	21-Nov-22	25-Nov-22	131	24	NGTL	No impact to FT-D anticipated Empress/McNeill Borders Segments 15, 16, 17, 18, 19, 20, 23, partial 21, and partial 28

# Foothills Zone 9 (FHSK)

Outage Description	Start	End	Capability (10 <sup>6</sup> m <sup>3</sup> /d)	System	Service Allowable Location/Area
NPS 42 Foothills Mainline Zone 9 – Pipeline Maintenance	3-Dec-22	15-Dec-22	25	FHSK	No impact to FT anticipated Monchy Border Foothills Saskatchewan

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information





# 2023 Operational Outlook

From DOP as of Wednesday November 9

# 2023 Operational Outlook

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- Outages with the most significant impact to system capability have been added to the DOP
- There will be more outages added over the next couple months
- Start and End Dates, Durations, Capability, Area of impact may be revised as new information becomes available or further optimization opportunities are identified

***Outages and/or maintenance work is posted to the DOP if there is reasonable expectation that the event could or will result in a change to service authorization levels.***

Optimization efforts are on going and we will continue to focus on safety, optimizing system capacity, and minimizing outage impacts.



# Base Capability

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**Base Operational Capability:** Capability with no outages and known and expected operational constraints

Average receipt and delivery flow (recently observed)

Expected System Configuration

Zero Storage

Linepack at desired level and well distributed

Known long term pressure limitations

All compression available

Monthly temperature assumptions

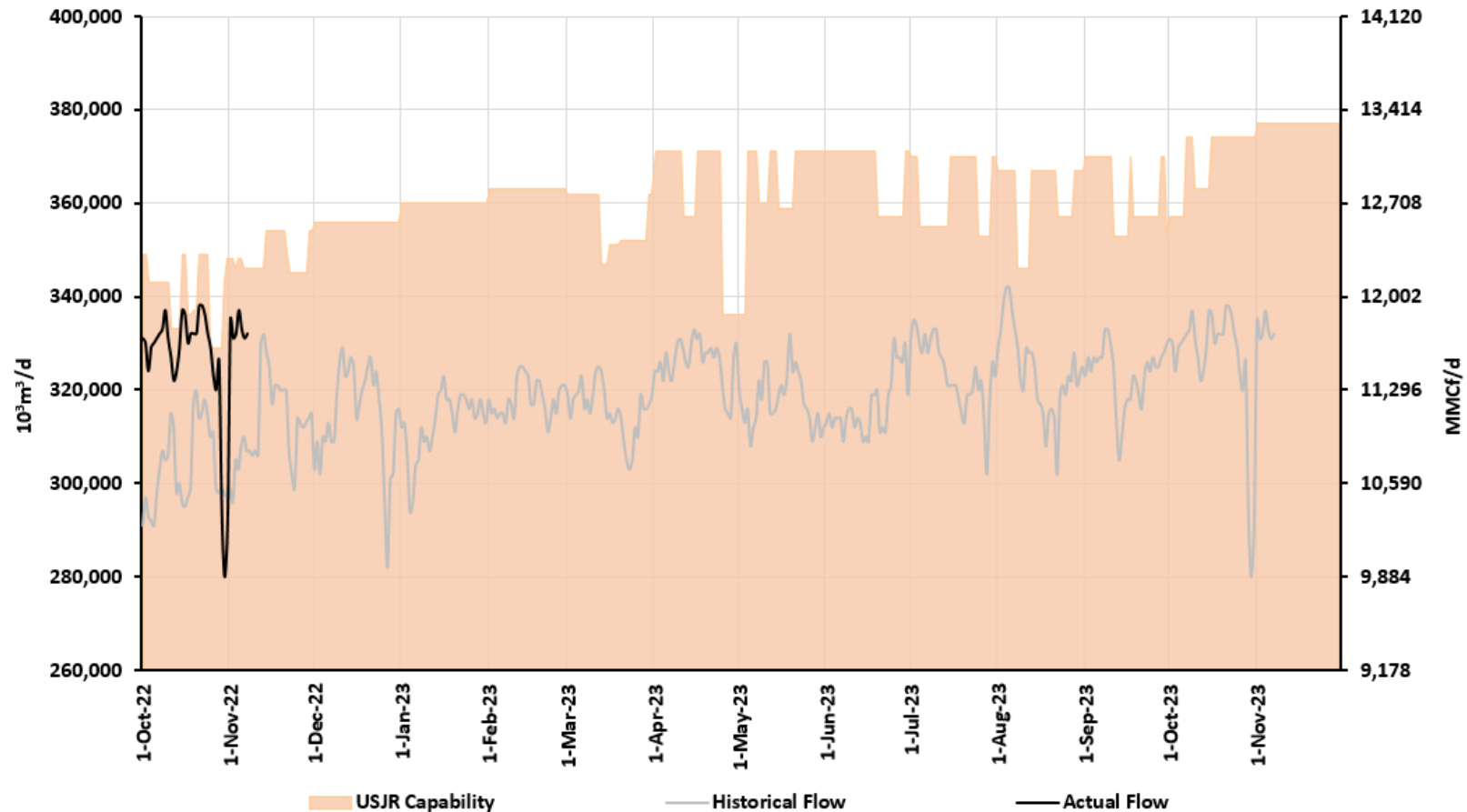
Base capabilities have been determined using the best information known at this time but could be subject to change based on incoming results of summer maintenance activities

# Daily Operating Plan (DOP) – Facility Assumptions

Date	Expansion Facilities
Current	90% scenario of 2021 expansion
February 1, 2023	<b>Foothills BC Expansion:</b> <ul style="list-style-type: none"> <li>BC Mainline Loop 2 (Yahk)</li> </ul>
March 1, 2023	<b>2021 Expansion:</b> <ul style="list-style-type: none"> <li>GPML Loop 2 (3km section adjacent to Little Smoky River that connects to DVN/DVS)</li> </ul>
April 1, 2023	<b>2021 Expansion:</b> <ul style="list-style-type: none"> <li>GPML Loop 2 (Colt section)</li> </ul> <b>North Corridor Expansion:</b> <ul style="list-style-type: none"> <li>NWML Loop 2 (Bear Canyon), NCC Loop (North Star 2), NCC Loop (Red Earth 3), Hidden Lake North Unit Addition</li> </ul> <b>Intra-basin Expansion:</b> <ul style="list-style-type: none"> <li>Groundbirch Mainline Loop (Sunrise)</li> </ul>
November 1, 2023	<b>Intra-basin Expansion:</b> <ul style="list-style-type: none"> <li>Groundbirch Mainline Loop (Saturn)</li> </ul> <b>2023 West Path:</b> <ul style="list-style-type: none"> <li>WASML Loop 2 (Turner Valley), WASML Loop 2 (Lundbreck), WASML Loop 2 (Longview)</li> </ul> <b>Foothills BC Expansion:</b> <ul style="list-style-type: none"> <li>BC Mainline Loop 2 (Elko)</li> </ul>



# Upstream James River (USJR)



MMM-YY	USJR Base Capability $10^6 m^3/d$
Nov-22	354
Dec-22	356
Jan-23	360
Feb-23	363
Mar-23	362
Apr-23	371
May-23	371
Jun-23	371
Jul-23	370
Aug-23	367
Sep-23	370
Oct-23	374
Nov-23	377

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information



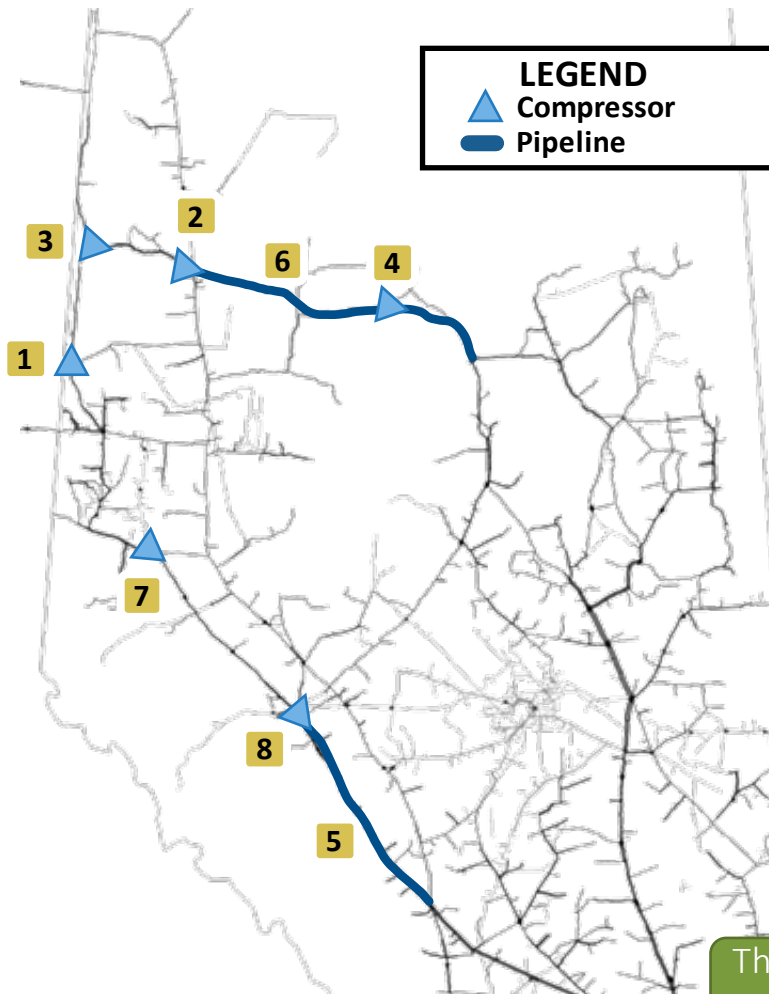


# Upstream James River (USJR)

No impact to FT

Potential impact to FT

Partial impact to FT



Facility Outage	Start Date	End Date	USJR Capability	Impact	Area
			10 <sup>6</sup> m <sup>3</sup> /d	10 <sup>6</sup> m <sup>3</sup> /d	
1. Alces River Compressor Station Maintenance	MAR-13	MAR-19	351	11	Upstream Latornell
2. Meikle River D Compressor Station Maintenance	MAR-13	MAR-15	347	15	Upstream Latornell
3. Hidden Lake North Compressor Station Maintenance	MAR-20	MAR-29	352	10	Upstream Latornell
4. Goodfish <sup>1</sup> Compressor Station Maintenance	MAR-20	MAR-29	352	10	Upstream Latornell
5. NPS 48 Edson Mainline Loop 4 Pipeline Maintenance	APR-11	APR-15	357	14	Upstream James River
6. NPS 42 North Central Corridor Pipeline Maintenance	APR-25	MAY-03	336	35	Upstream Latornell
7. Gold Creek Compressor Station Maintenance	MAY-08	MAY-11	360	11	Upstream Berland*
8. Swartz Creek Compressor Station Maintenance	MAY-15	MAY-20	359	12	Upstream James River

\*Risk to FT-R expected to be within a subset of USJR only. If adequate downstream IT-D/IT-S exists to offset an FT-R curtailment, area of IT-D/IT-S curtailment could include portions of segments 7, 8, and 9 based on hydraulic equivalency analysis and location of the bottleneck.

<sup>1</sup>Requires work to be completed within the Caribou RAP – currently pending CER approval

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information

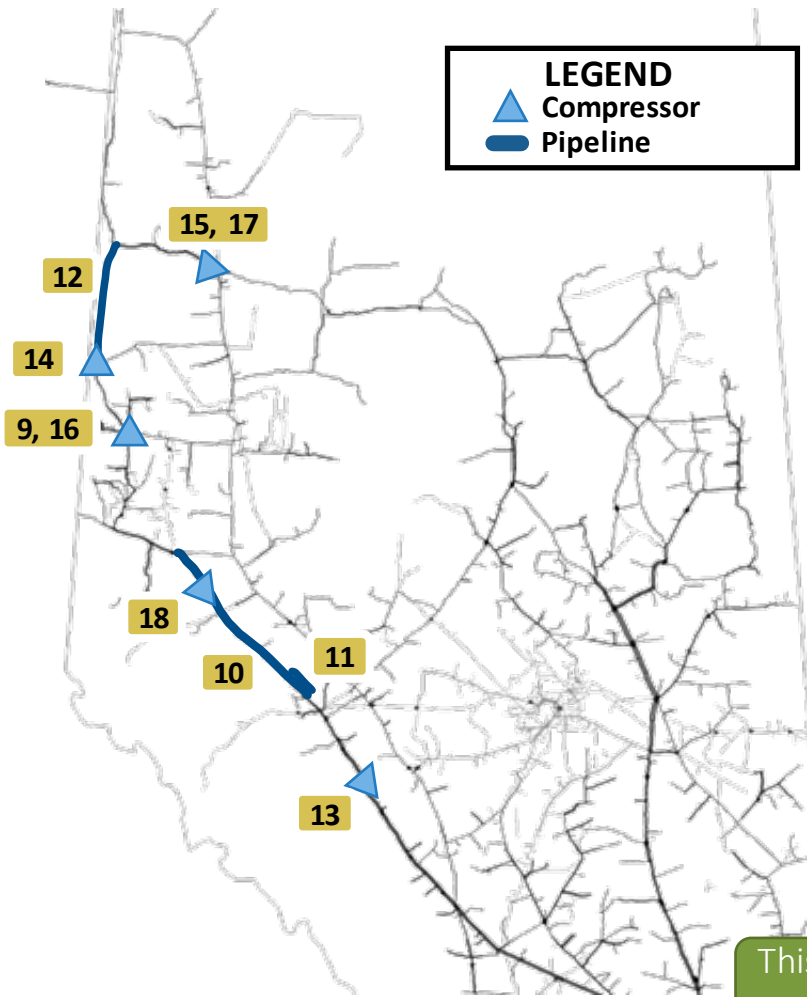


# Upstream James River (USJR)

No  
impact to FT

Potential  
impact to FT

Partial  
impact to FT

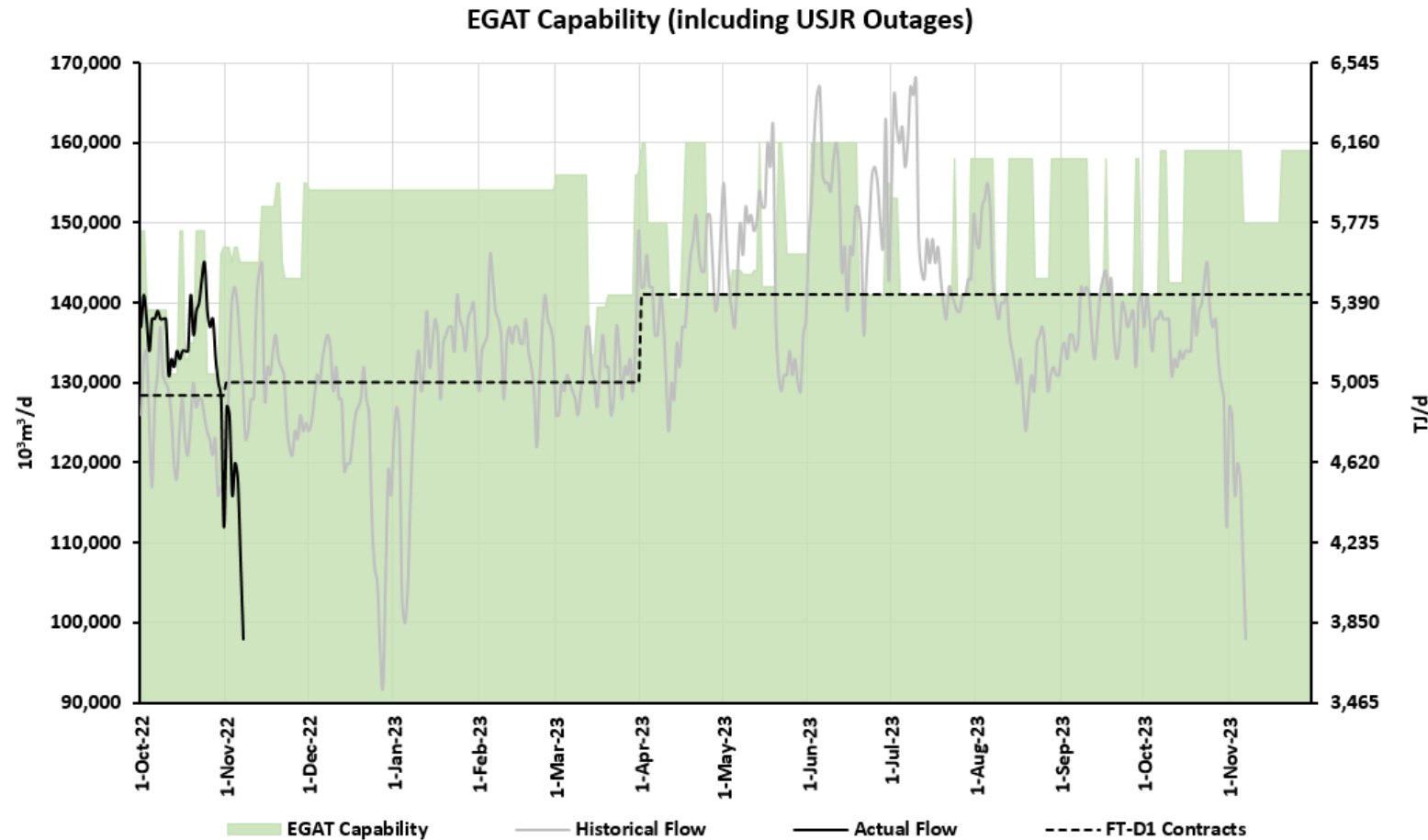


Facility Outage	Start Date	End Date	USJR Capability	Impact	Area
			10 <sup>6</sup> m <sup>3</sup> /d	10 <sup>6</sup> m <sup>3</sup> /d	
9. Saddle Hills B#3 Compressor Station Maintenance	JUN-19	JUN-24	357	14	Upstream Latornell
10. NPS 48 Grande Prairie Mainline Loop 2 Pipeline Maintenance	JUN-24	JUN-28	357	14	Upstream James River
11. NPS 36 Grande Prairie Mainline Pipeline Modification	JUL-4	JUL-14	355	15	Upstream James River
12. NPS 36 Northwest Mainline Loop Pipeline Maintenance	JUL-25	JUL-29	353	17	Upstream Latornell
13. Nordegg B3 & B5 Compressor Station Maintenance	AUG-8	AUG-12	346	21	Upstream James River
14. Alces River Compressor Station Maintenance	AUG-21	AUG-26	357	10	Upstream Latornell
15. Meikle River C Compressor Station Maintenance	SEP-11	SEP-16	353	17	Upstream Latornell
16. Saddle Hills B#3 Compressor Station Maintenance	SEP-18	SEP-27	357	13	Upstream Latornell
17. Meikle River D Compressor Station Maintenance	SEP-30	OCT-6	353 (Sep) 357 (Oct)	17	Upstream Latornell
18. Latomell Compressor Station Maintenance	OCT-10	OCT-15	363	11	Upstream James River

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information



# East Gate (EGAT) – currently in DOP



MMM-YY	EGAT Base Capability $10^6 \text{m}^3/\text{d}$	EGAT Contracts $10^6 \text{m}^3/\text{d}$
Nov-22	155	130
Dec-22	154	130
Jan-23	154	130
Feb-23	154	130
Mar-23	156	130
Apr-23	160	141
May-23	160	141
Jun-23	160	141
Jul-23	158	141
Aug-23	158	141
Sep-23	158	141
Oct-23	159	141
Nov-23	159	141

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information



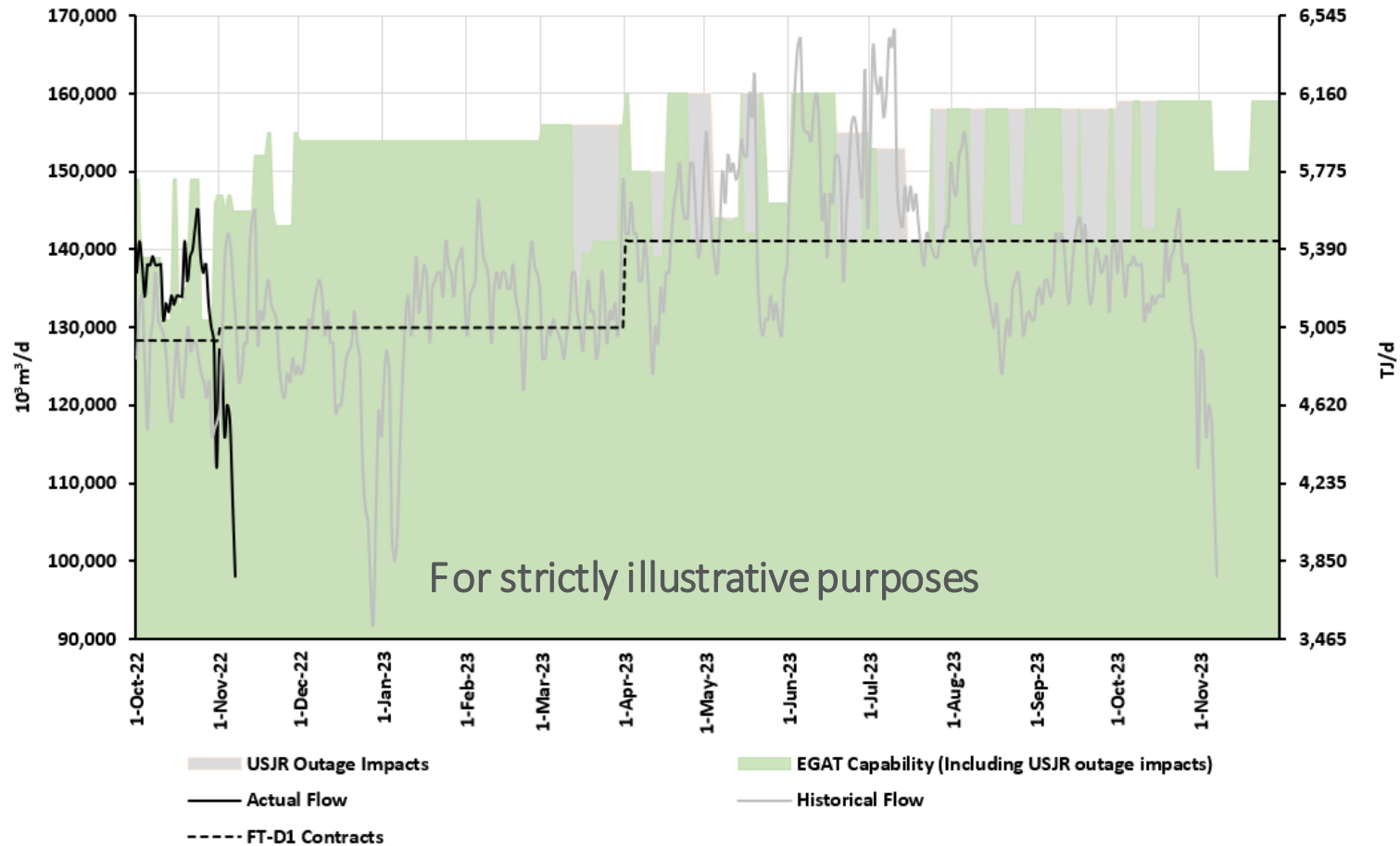


# EGAT Capability

- All reported USJR outages are currently also reported in the EGAT area table indicating that we would consider if there is adequate downstream IT-D available to manage a broad area outage prior to implementing an upstream FT-R restriction
- Whether or not a reduction of downstream IT-D will be adequate to manage flows through the bottleneck for a broad area outage is highly dependent on system and contract utilization at the time
- Leading into the outage, if a reduction of IT-D availability is not expected to be adequate to manage a broad area outage:
  - An upstream FT-R restriction could be utilized
  - EGAT could remain unrestricted (the outage would be removed from the EGAT table and chart in DOP)
- We will continue to follow our guiding principles and established protocol of first considering reducing availability of all IT services prior to curtailing FT services



# East Gate (EGAT) – illustrative



EGAT capability is not expected to be limiting. The overall system bottleneck is still expected to be upstream in the USJR area

For strictly illustrative purposes, this version of the EGAT chart highlights which impacts are resulting from USJR outages currently listed and communicated.

This chart is not representative of our actual expectations. The chart in the DOP (Slide 41) and this chart represent two extremes. Expectation is that actual results will fall somewhere in between the two charts.

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information

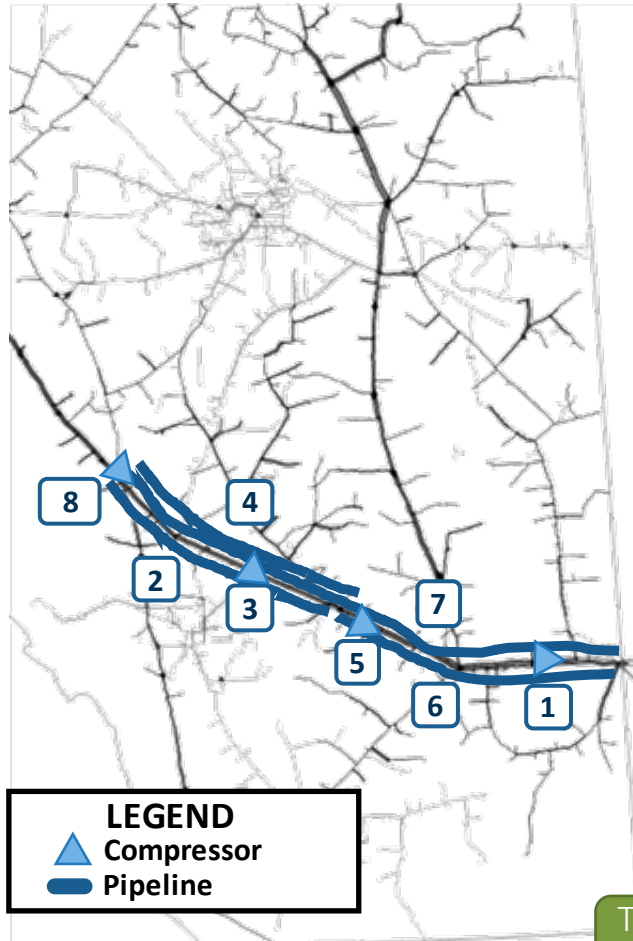


# East Gate (EGAT)

No impact to FT

Potential impact to FT

Partial impact to FT



Outage Description	Start Date	End Date	EGAT Capability	Impact	Area
			10 <sup>6</sup> m <sup>3</sup> /d	10 <sup>6</sup> m <sup>3</sup> /d	
1. Jenner Compressor Maintenance	Apr-03	Apr-16	150	10	Lower EGAT
2. NPS 42 Foothills Zone 6 Pipeline Maintenance	May-04	May-13	144	16	Lower EGAT
3. Beiseker A Compressor Maintenance	May-23	May-27	154	6	Lower EGAT
4. NPS 42 Edson & CAS Mainline Loop Pipeline Maintenance	May-24	Jun-01	146	14	Lower EGAT
5. Crawling Valley Compressor Maintenance	Jun-19	Jul-16	155 (June) 153 (July)	5	Lower EGAT
6. NPS 36 EAS Mainline Loop 2 Pipeline Maintenance	Jul-05	Jul-14	153	5	Lower EGAT
7. NPS 48 Edson & CAS & EASML Loop 3&4 <sup>1</sup> Pipeline Maintenance	Jul-15	Jul-23	142	16	Lower EGAT
8. Clearwater A6 Compressor Maintenance	Nov-06	Nov-19	150	9	Lower EGAT

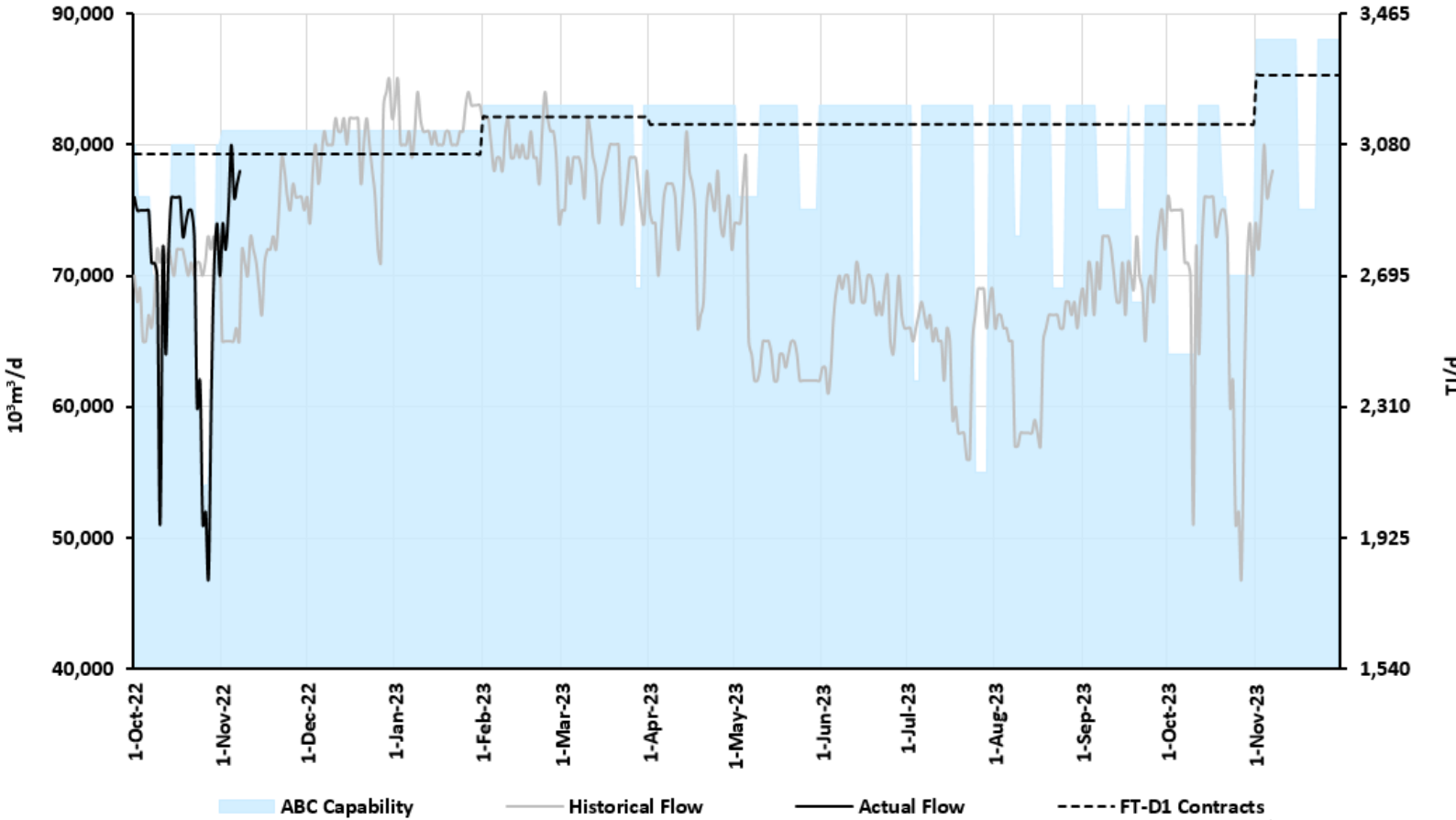
<sup>1</sup>Expected to be managed by reducing all EGAT IT-D but has potential to impact EGAT FT-D service

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information





# West Gate (WGAT)



MMM-YY	ABC Base Capability 10 <sup>6</sup> m <sup>3</sup> /d	ABC Contracts 10 <sup>6</sup> m <sup>3</sup> /d
Nov-22	81	79.3
Dec-22	81	79.3
Jan-23	81	79.3
Feb-23	83	82.1
Mar-23	83	82.1
Apr-23	83	81.5
May-23	83	81.5
Jun-23	83	81.5
Jul-23	83	81.5
Aug-23	83	81.5
Sep-23	83	81.5
Oct-23	83	81.5
Nov-23	88	85.3

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information

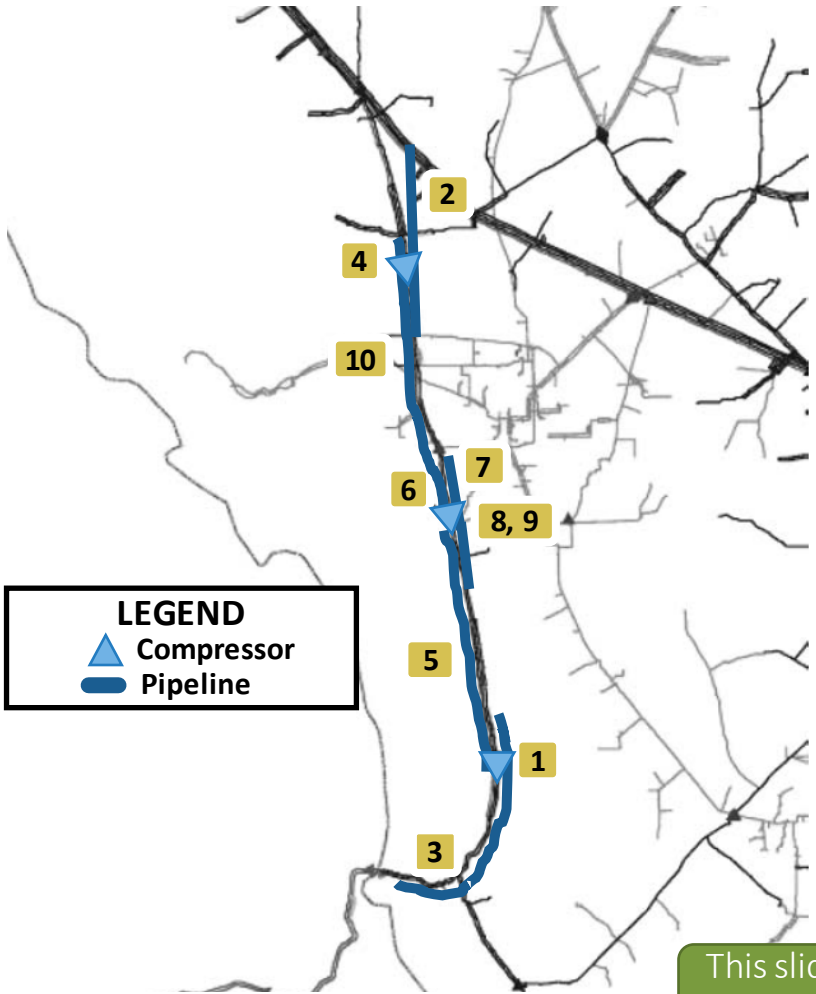


# West Gate (WGAT) - NGTL

No impact to FT

Potential impact to FT

Partial impact to FT



Outage Description	Start Date	End Date	ABC Capability	Impact	Area
			10 <sup>6</sup> m <sup>3</sup> /d	10 <sup>6</sup> m <sup>3</sup> /d	
1. Burton Creek Compressor Station Maintenance	Mar-27	Mar-29	69	14	AB-BC & AB-MN Borders
2. NPS 42 Western Alberta System Mainline Loop Pipeline Maintenance	May-02	May-09	76	7	AB-BC & AB-MN Borders; Segment 22 and Partial 21
3. NPS 42 Western Alberta System Mainline Loop Pipeline Maintenance	Jul-25	Jul-29	55	28	AB-BC & AB-MN Borders
4. Winchell Lake Compressor Station Maintenance	Aug-08	Aug-10	73	10	AB-BC & AB-MN Borders; Segment 22 and Partial 21
5. NPS 36 Western Alberta System Mainline Pipeline Maintenance	Sep-06	Sep-16	75	8	AB-BC & AB-MN Borders
6. NPS 36 Western Alberta System Mainline Segment 1 Pipeline Modifications	Oct-01	Oct-11	64	19	AB-BC & AB-MN Borders; Segment 22 and Partial 21
7. NPS 36 Western Alberta System Mainline Segment 2 Pipeline Modifications	Oct-01	Oct-11	64	19	AB-BC & AB-MN Borders
8. Turner Valley A1 & A2 Compressor Station Maintenance Maintenance	Oct-20	Oct-31	76	7	AB-BC & AB-MN Borders
9. Turner Valley Compressor Station Maintenance Maintenance	Oct-22	Oct-31	70	13	AB-BC & AB-MN Borders
10. NPS 36 Western Alberta System Mainline Pipeline Maintenance	Nov-16	Nov-22	75	13	AB-BC & AB-MN Borders; Segment 22 and Partial 21

Note: Dates may change as optimization and alignment opportunities are coordinated with downstream operators.

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information

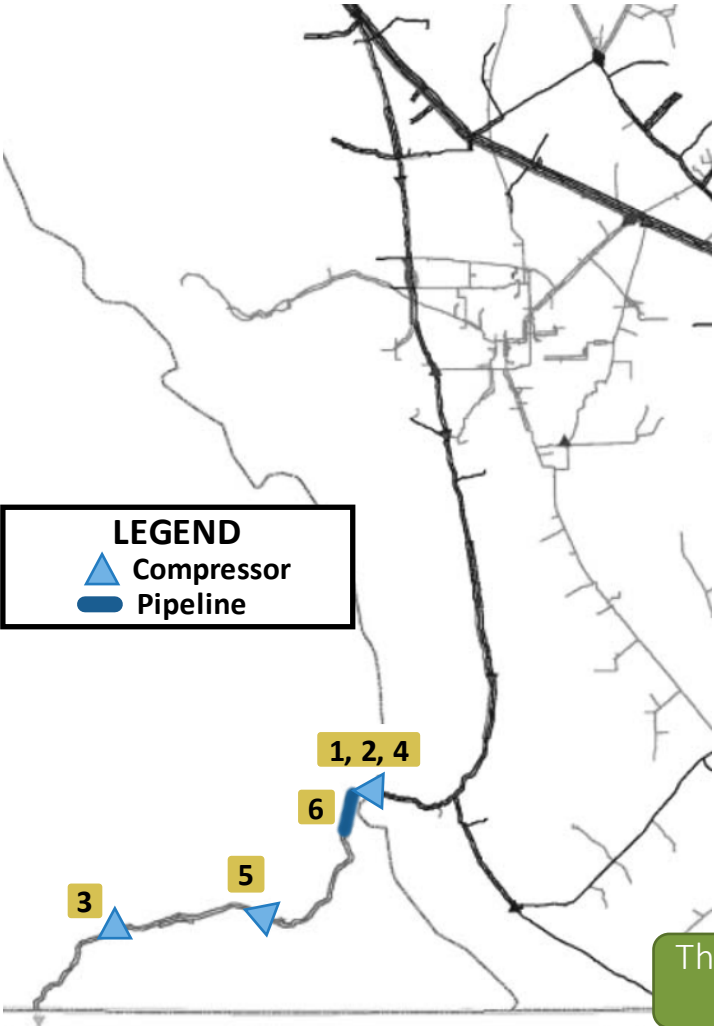


# West Gate (WGAT) - FHBC

No impact to FT

Potential impact to FT

Partial impact to FT



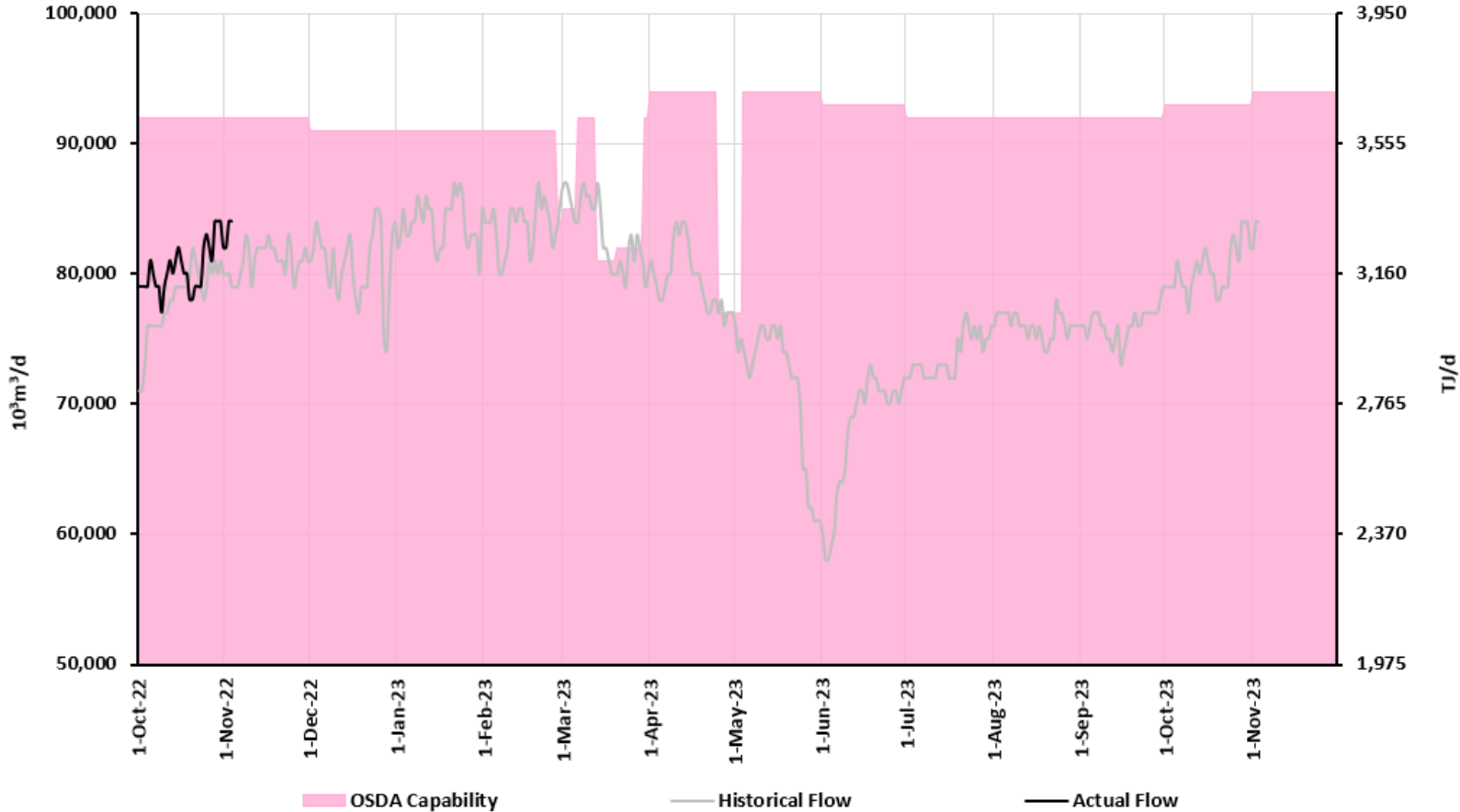
Outage Description	Start Date	End Date	ABC Capability	Impact	Area
			10 <sup>6</sup> m <sup>3</sup> /d	10 <sup>6</sup> m <sup>3</sup> /d	
<b>1. Crowsnest K</b> Compressor Station Maintenance	May-24	May-30	75	8	Foothills BC
<b>2. Crowsnest A</b> Compressor Station Maintenance	Jul-03	Jul-05	62	21	Foothills BC
<b>3. Moyie</b> Compressor Station Maintenance	Aug-21	Aug-25	69	14	Foothills BC
<b>4. Crowsnest B</b> Compressor Station Maintenance	Sep-11	Sep-13	75	8	Foothills BC
<b>5. Elko</b> Compressor Station Maintenance	Sep-18	Sep-22	68	15	Foothills BC
<b>6. NPS 48 BC Mainline Loop</b> Pipeline Modifications	Oct-01	Oct-11	64	19	Foothills BC

*Note: Dates may change as optimization and alignment opportunities are coordinated with downstream operators.*

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information



# Oil Sands Delivery Area (OSDA)



MMM-YY	OSDA Base Capability $10^6 \text{m}^3/\text{d}$
Nov-22	92
Dec-22	91
Jan-23	91
Feb-23	91
Mar-23	92
Apr-23	94
May-23	94
Jun-23	93
Jul-23	92
Aug-23	92
Sep-23	92
Oct-23	93
Nov-23	94

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information

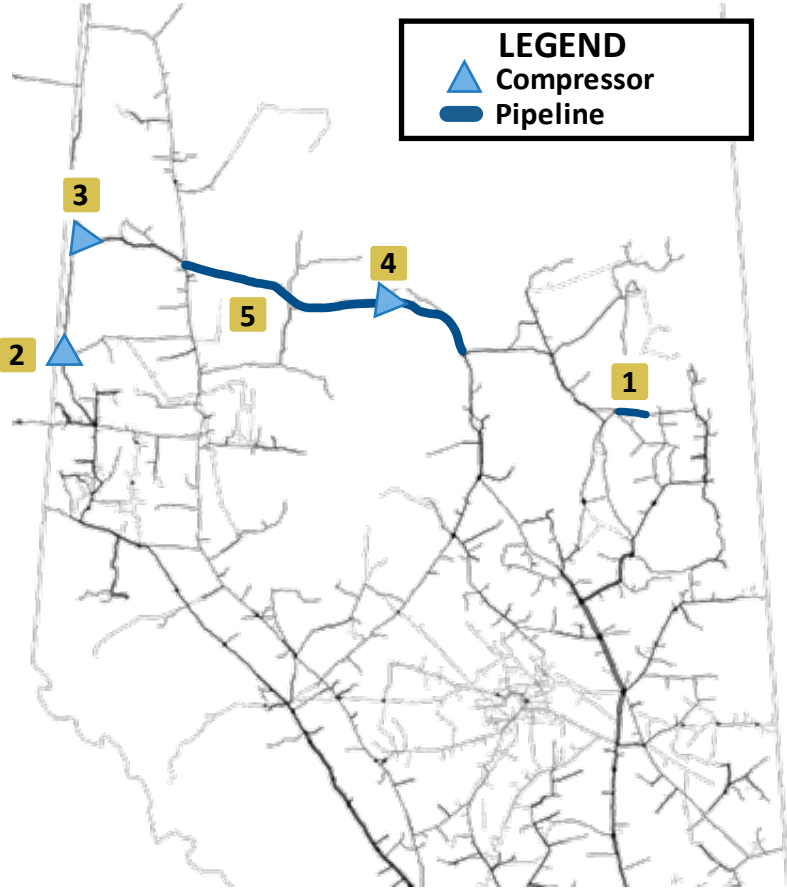


# Oil Sands Delivery Area (OSDA)

No impact to FT

Potential impact to FT

Partial impact to FT



Facility Outage	Start Date	End Date	OSDA Capability 10 <sup>6</sup> m <sup>3</sup> /d	NEDA Capability 10 <sup>6</sup> m <sup>3</sup> /d	Impact 10 <sup>6</sup> m <sup>3</sup> /d	Area
1. NPS 30 Leismer-Kettle River Crossover <sup>1</sup> Pipeline Modification	FEB-27	MAR-05	84	-	7	OSDA
2. Alces River Compressor Station Modification	MAR -13	MAR-19	82	139	10	NEDA
3. Hidden Lake North Compressor Station Modification	MAR-20	MAR-29	83	140	9	NEDA
4. Goodfish <sup>2</sup> Compressor Station Modification	MAR-20	MAR-29	83	140	9	NEDA
5. NPS 42 North Central Corridor <sup>3</sup> Pipeline Maintenance	APR-25	MAY-03	77	120	17	NEDA

<sup>1</sup>Winter access required – subject to change if during a period of extreme cold and ground conditions permit deferral

<sup>2</sup>Requires work to be completed within the Caribou RAP – currently pending CER approval

<sup>3</sup>Collecting plant turnaround schedules and will make best efforts to schedule and align with periods of lower flow to reduce impacts

This slide may not be accurate beyond the November 10 NGTL/Foothills Customer Operations meeting on WebEx. Please refer to the DOP on TC Customer Express for current outage information



# 2023 Operational Outlook

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- With a significant number of expansion facilities recently placed in-service, overall system capability has increased with all facilities available.
- EGAT capability is not expected to be the limiting factor. The overall system bottleneck is still expected to be upstream in the USJR area.
- All reported USJR outages are currently also reported in the EGAT area table indicating that we would consider if there is adequate downstream IT-D available to manage a broad area outage prior to implementing an upstream FT-R restriction.
- Whether or not a reduction of downstream IT-D will be adequate to manage flows through the bottleneck for a broad area outage is highly dependent on system and contract utilization at the time
- We will continue to follow our guiding principles and established protocol of first considering reducing availability of all IT services prior to curtailing FT services





# 2023 Outage Communication Schedule

*End of November/  
Early December*

*End of December/  
Early January*



All Q1 2023 outages  
posted to DOP

All remaining  
known outages for 2023  
posted to DOP

Refer to the Daily Operating Plan (DOP) for the most current outage information



# REMINDER: Plant Turnaround Information

- Where possible, we will continue to make all efforts to align maintenance with customer maintenance activities to maximize coordination opportunities and minimize impacts
- All customer specific information received will remain strictly confidential within the outage planning and coordination teams

## Most common places to find the form:

- Customer Express
- Bottom of the Daily Operation Plan (DOP)

Where to send the form: [ab\\_bc\\_ops\\_planning@tcenergy.com](mailto:ab_bc_ops_planning@tcenergy.com)

The image shows a screenshot of a web form titled "PLANT TURNAROUND INFORMATION FORM" with the TC Energy logo in the top right corner. The form includes a "Date:" field and an "Email to:" field with the address [ab\\_bc\\_ops\\_planning@tcenergy.com](mailto:ab_bc_ops_planning@tcenergy.com). Below this is a section for "Your Contact Information:" with fields for "Your Name:", "Company Name:", "Phone:", "Secondary Phone (Optional):", and "Email:". A section titled "Please select one of the following:" contains two checkboxes: "Information for new Plant Turnaround" and "Update to existing Plant Turnaround information". The "Plant Turnaround Information:" section includes fields for "NGTL Meter Station Name:", "NGTL Meter Station Number:", "Start Date:", "End Date:", "Start Time:", and "End Time:". It also has a "Type of Plant Turnaround:" section with checkboxes for "Complete Turnaround (Zero Flow)" and "Partial Turnaround:", followed by "Expected Flow during turnaround:" and "Typical Flow:" fields, both with a value of  $10^3\text{m}^3/\text{d}$ . An "Additional Comments:" section is provided as a large text area. At the bottom, there is a footer with the email [ab\\_bc\\_ops\\_planning@tcenergy.com](mailto:ab_bc_ops_planning@tcenergy.com) and the text "Direct any questions to the Pipeline @ (403) 920-7473."

Plant turnaround information is VERY important to us!  
Please report your maintenance and turnaround schedules for 2023 and beyond  
**Click HERE for the PTA form**

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