



ATHABASCA OIL CORPORATION

LEISMER D54 PERFORMANCE REPORT

April 2019

ATHABASCA
OIL CORPORATION

DEVELOPMENT OVERVIEW

SUBSURFACE

- Geoscience
- 4-D Seismic & Monitoring
- Well Design & Instrumentation
- Scheme Performance
- Pilots
- Future Plans

SURFACE OPERATIONS & COMPLIANCE

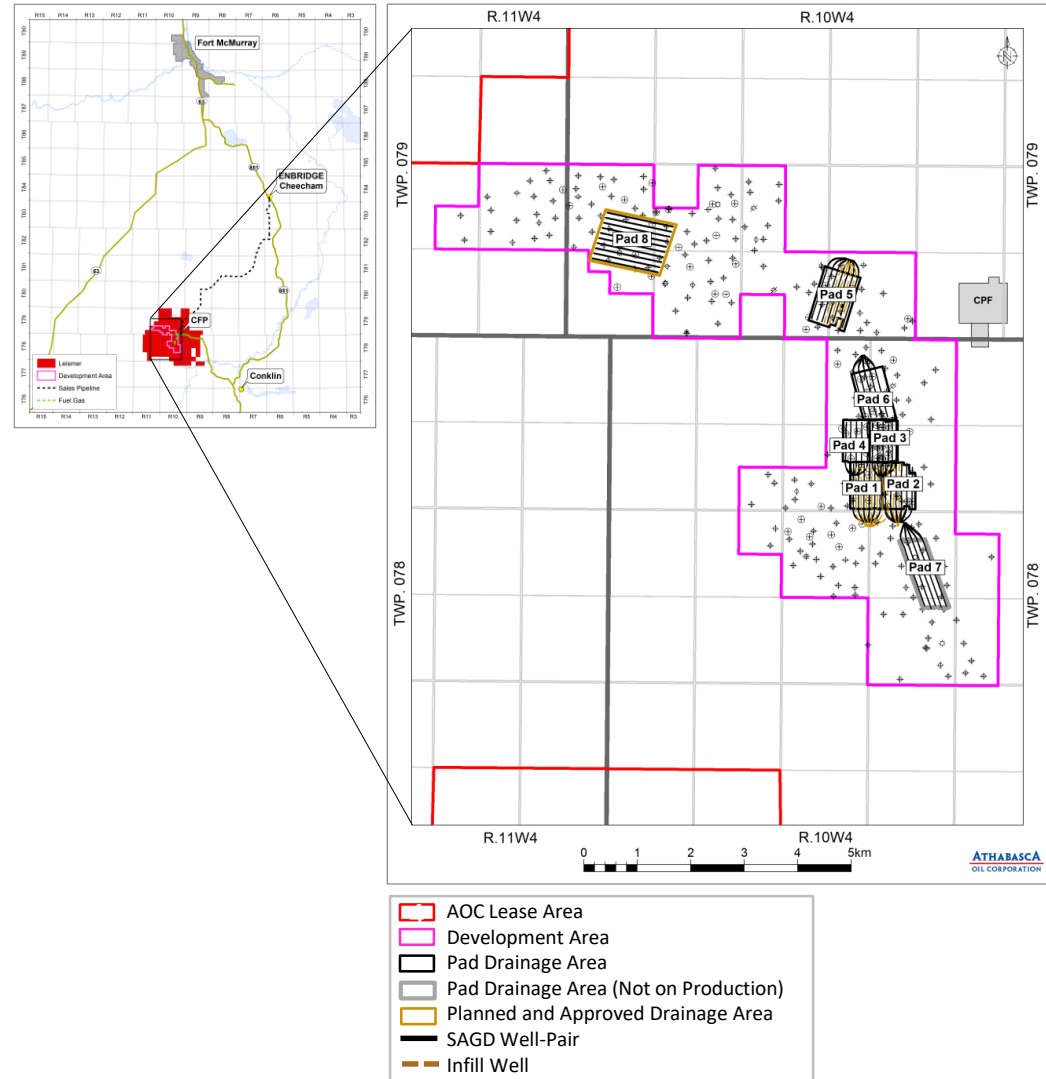
- Facilities
- Measurement & Reporting
- Facility Performance
- Water Production, Injection & Uses
- Sulphur Production
- Future Plans
- Compliance

PROJECT DETAILS

- First steam September 2010
- Approved processing capacity 40,000 bbl/d
- 6 producing pads
 - 35 horizontal well pairs
 - 13 infill wells
- 2 approved drainage areas
 - Pad 7 spud Q4 2018, first steam summer 2019
 - Pad 8 approval received September 2018

INFRASTRUCTURE

- Fuel gas from TransCanada Pipeline (TCPL)
- Dilbit export to Enbridge Cheecham Terminal
- Diluent supply from Enbridge Cheecham Terminal





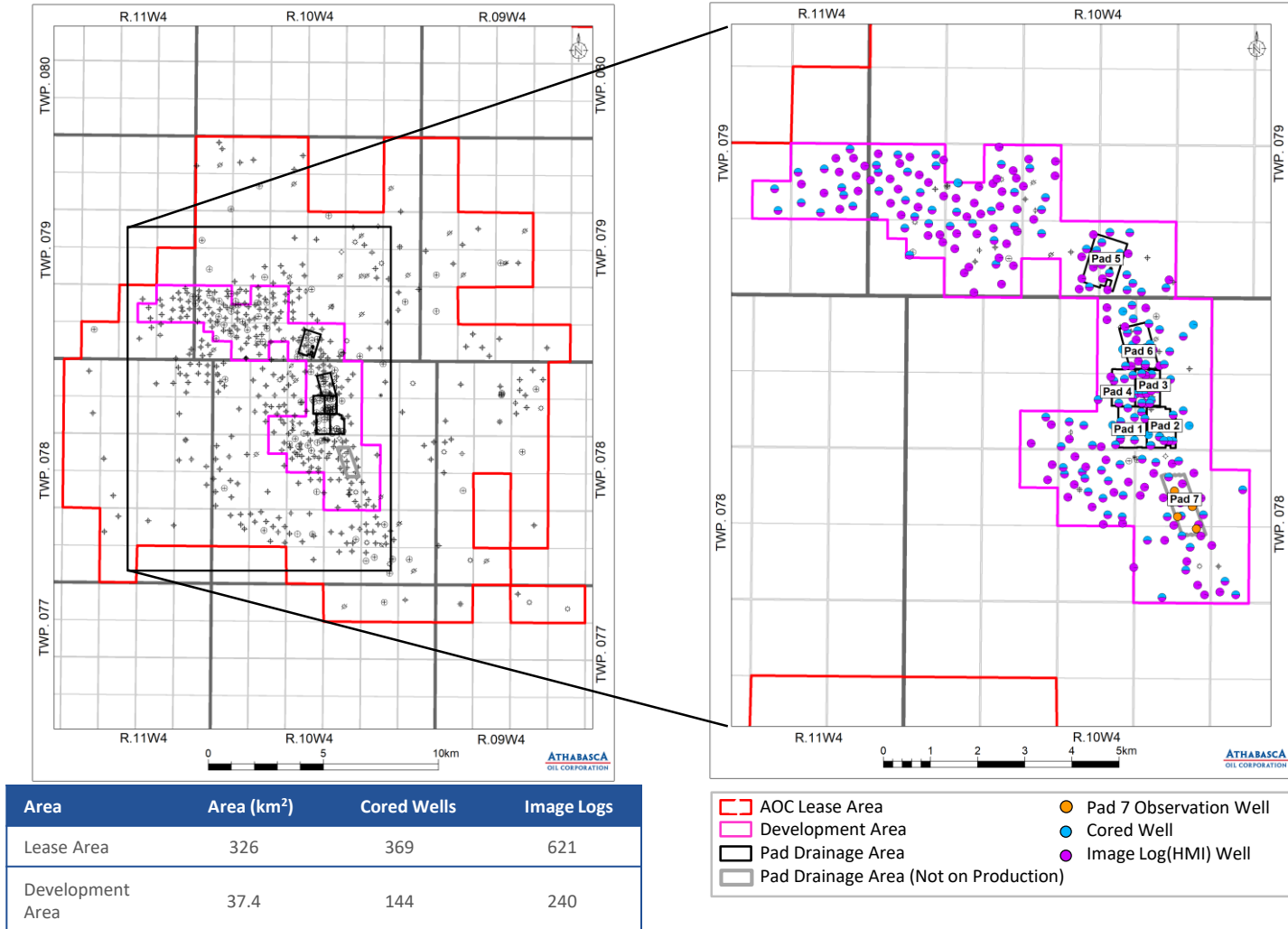
SUBSURFACE

GEOSCIENCE OVERVIEW

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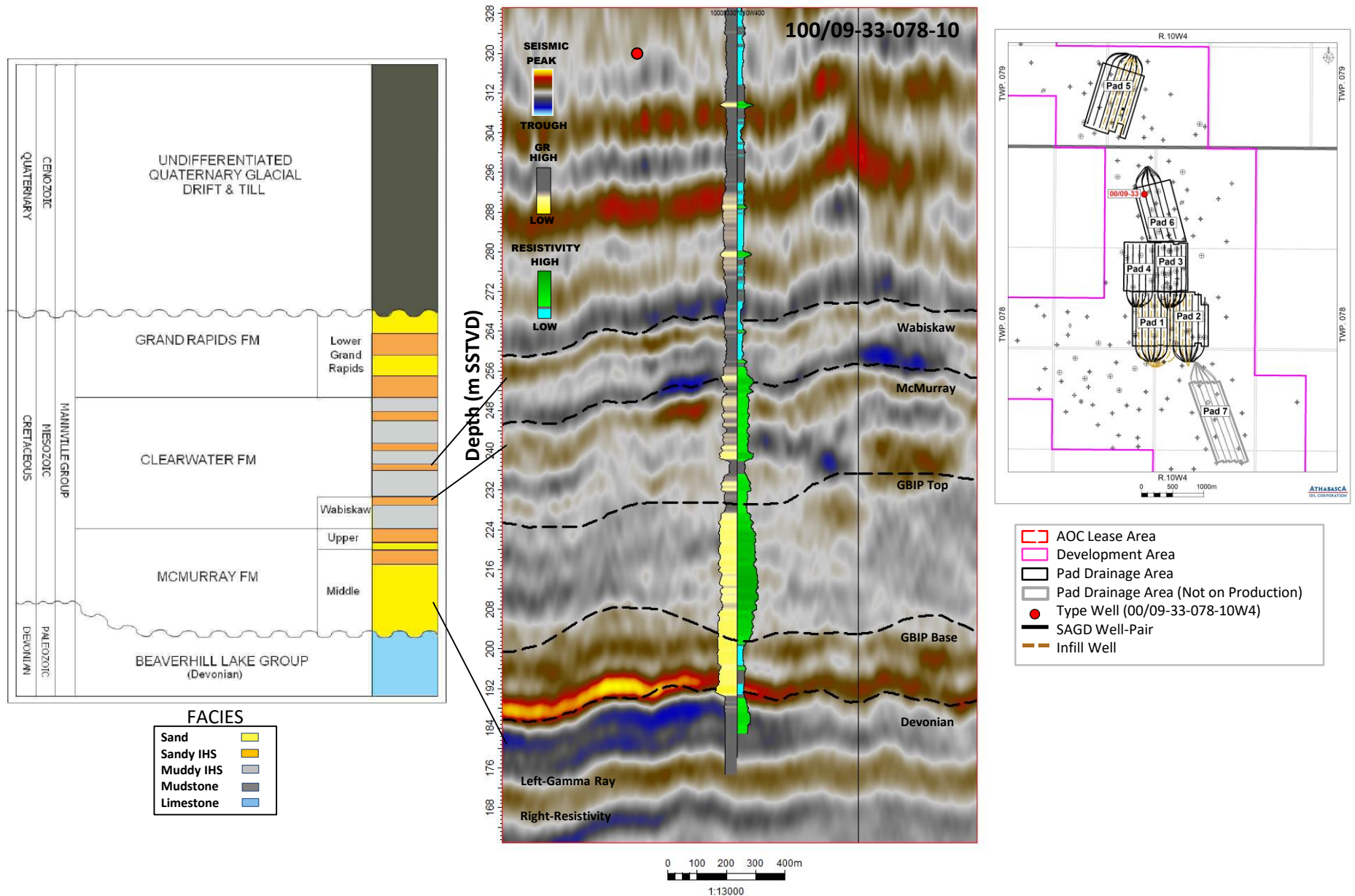
NO NEW GEOSCIENCE DATA ACQUIRED DURING THE REPORTING PERIOD

- Cores, petrophysics, geomechanical, fracture pressure or caprock integrity tests



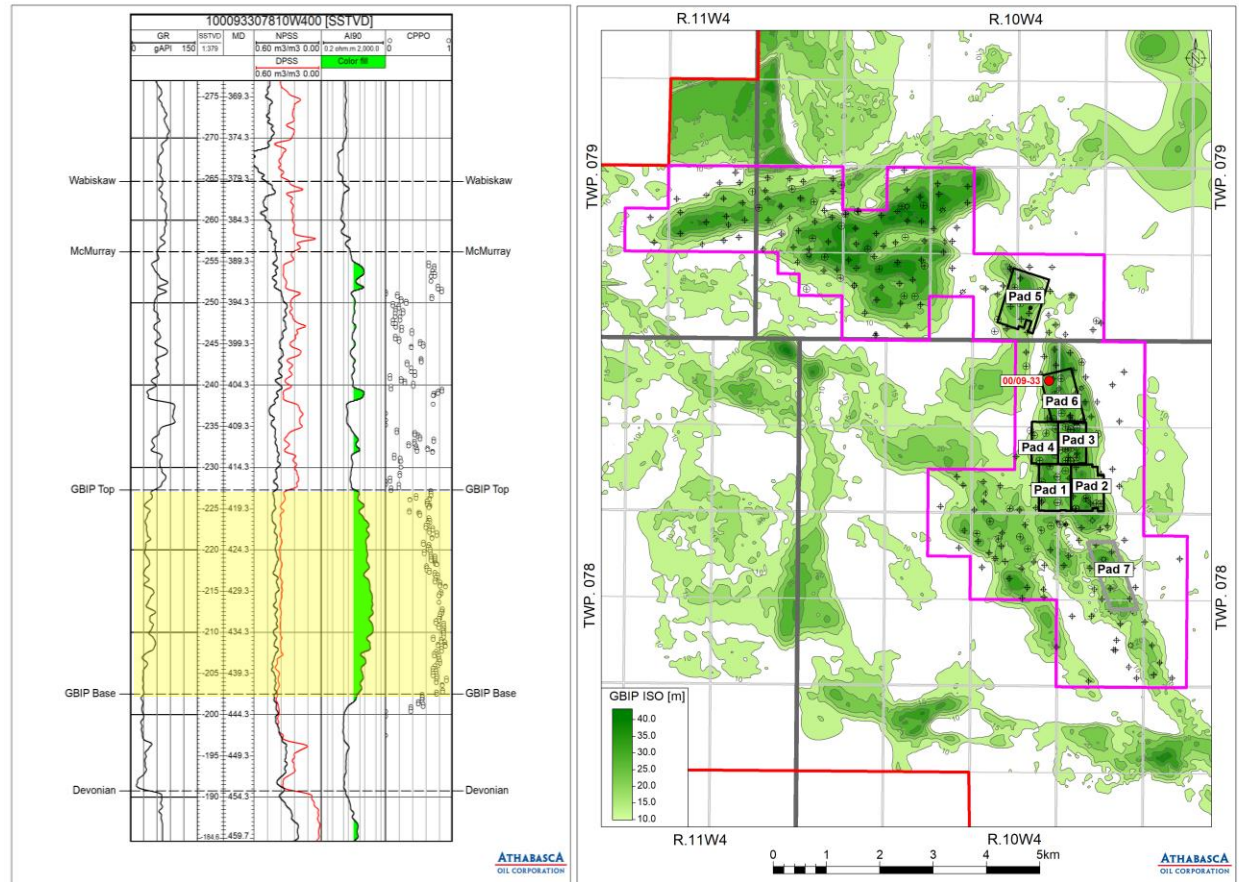
STRATIGRAPHY AND REFERENCE WELL

6



GROSS BITUMEN IN PLACE (GBIP)

- GBIP represents the total pay interval accessible via SAGD
- Petrophysical criteria:
 - Gamma Ray (GR) ≤ 75 API
 - Resistivity (RT) ≥ 40 ohm-m
 - Porosity (DPSS) $\geq 27\%$
- Non-Non-reservoir lithofacies (F6–F7) are not included if greater than 2m in thickness



ELEVATION RANGE

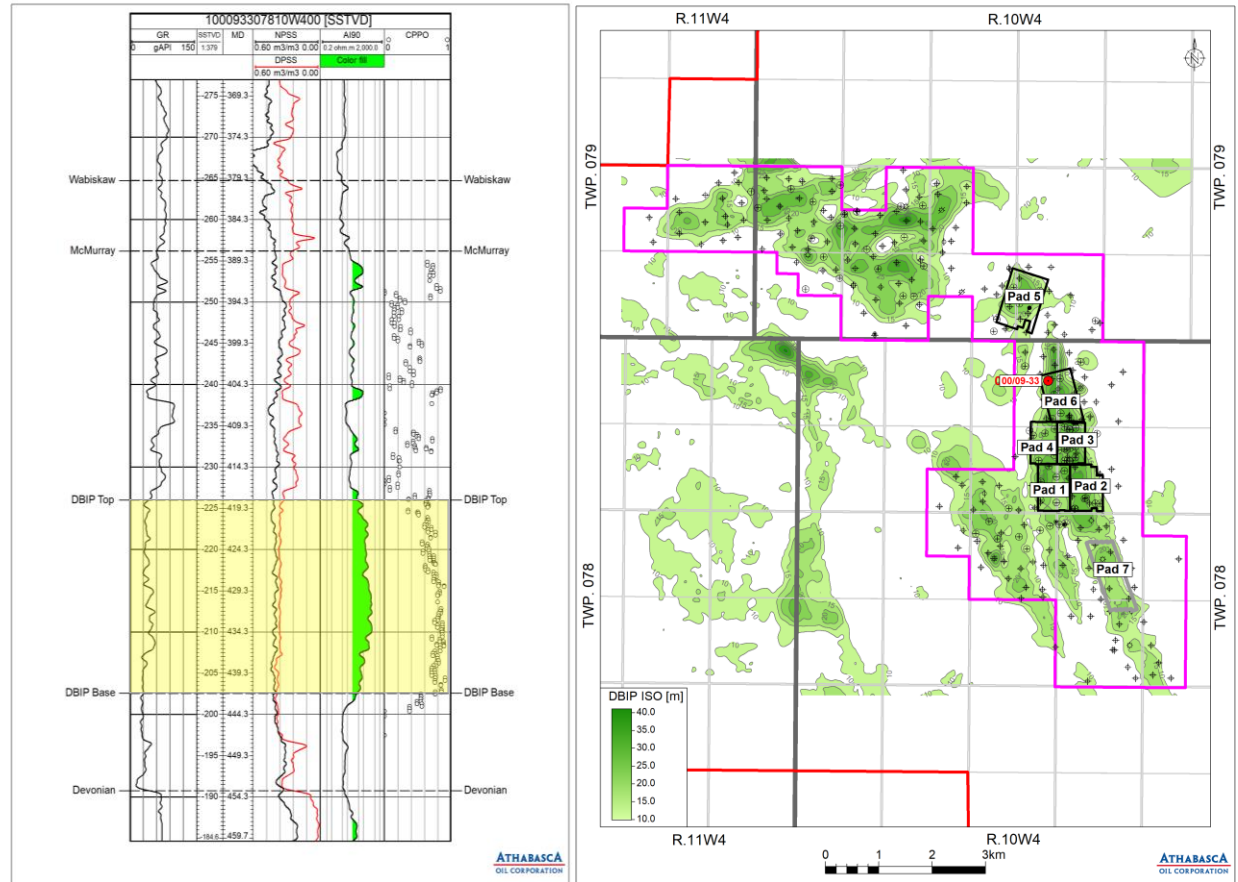
- 202 -241 masl

- ▭ AOC Lease Area
- ▭ Development Area
- ▭ Pad Drainage Area
- ▭ Pad Drainage Area (Not on Production)
- Type Well (00/09-33-078-10W4)

DEVELOPABLE BITUMEN IN PLACE (DBIP)

- DBIP has the same petrophysical properties as GBIP but is restricted to higher quality lithofacies:

- F1: Shale-Clast Breccia (if <5m)
- F2: Trough Cross-Bedded Sand
- F3: Current-Ripple Laminated Sand
- F4A-B: Sand with 5–10% Mud Interbeds



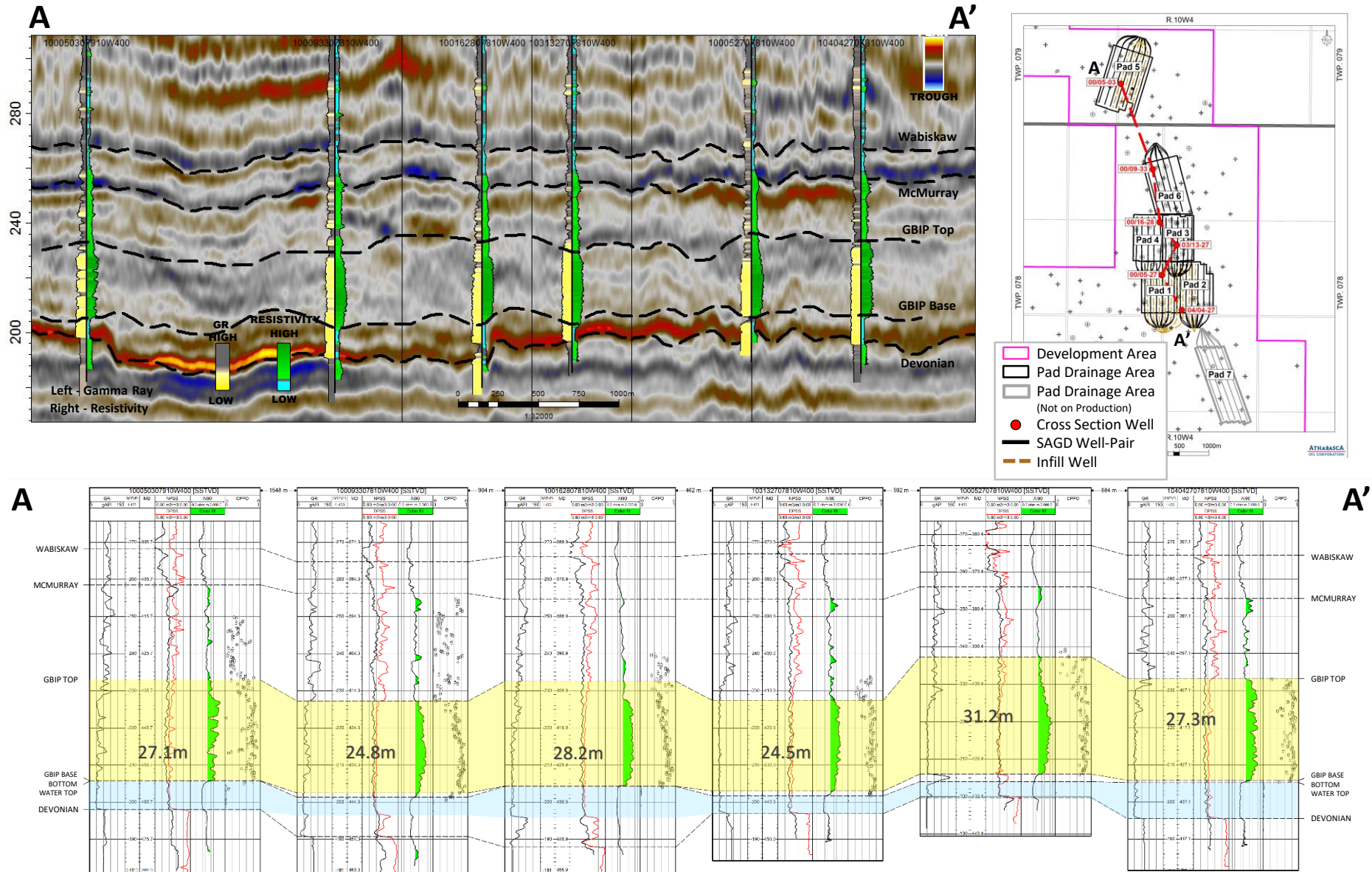
ELEVATION RANGE

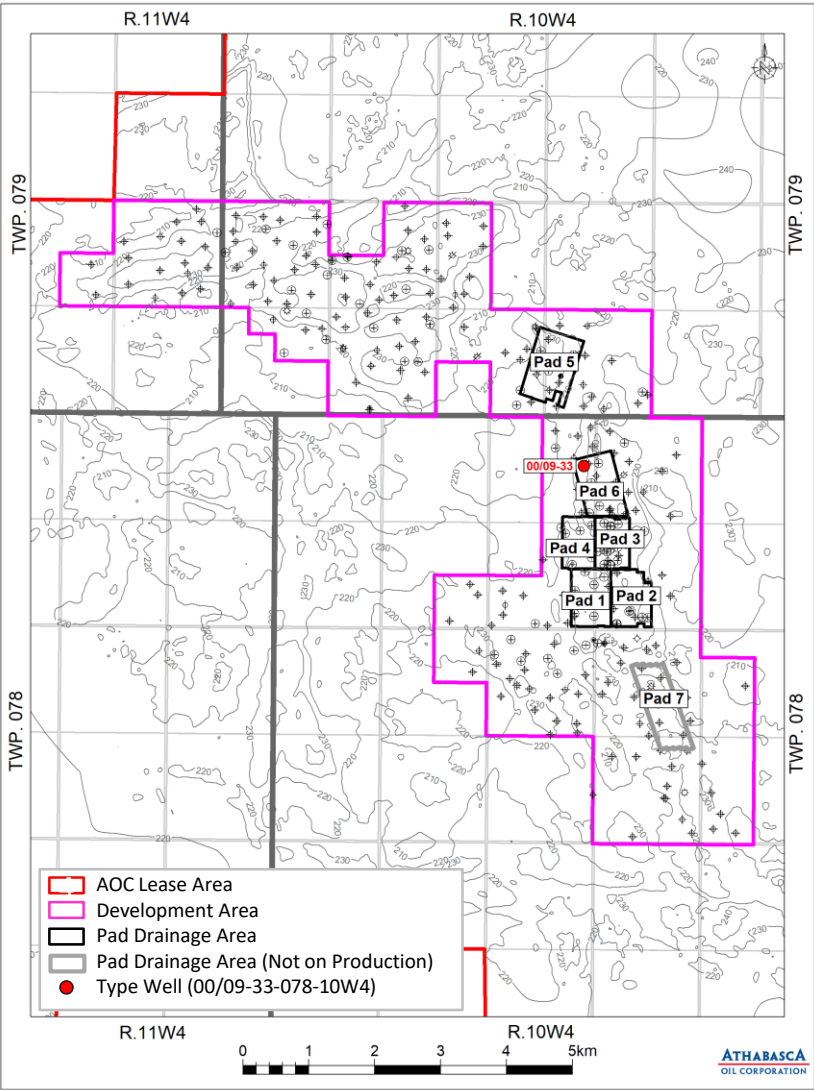
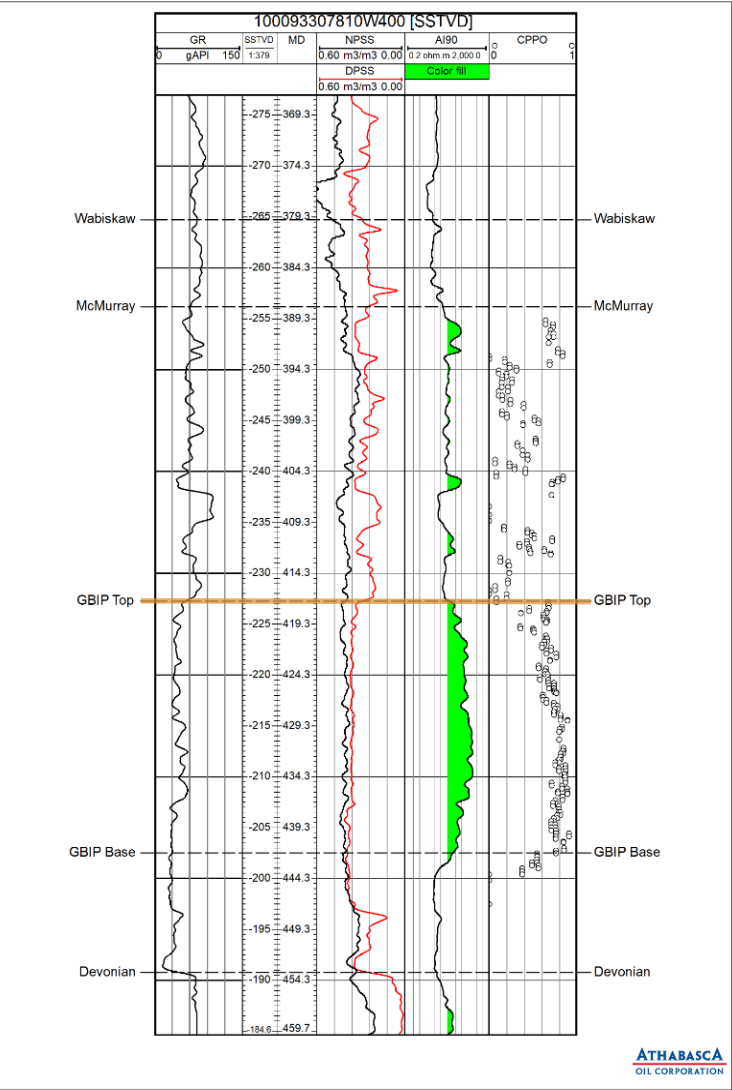
- 202 -237 masl

- AOC Lease Area
- Development Area
- Pad Drainage Area
- Pad Drainage Area (Not on Production)
- Type Well (00/09-33-078-10W4)

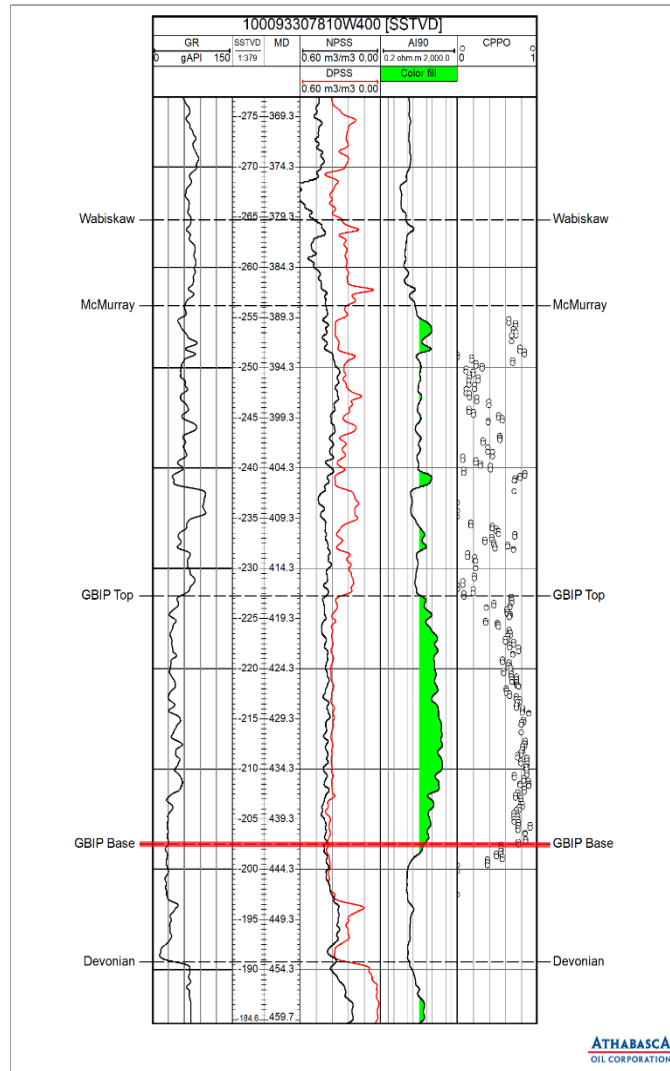
PADS 1-6 STRUCTURAL CROSS SECTION N-S

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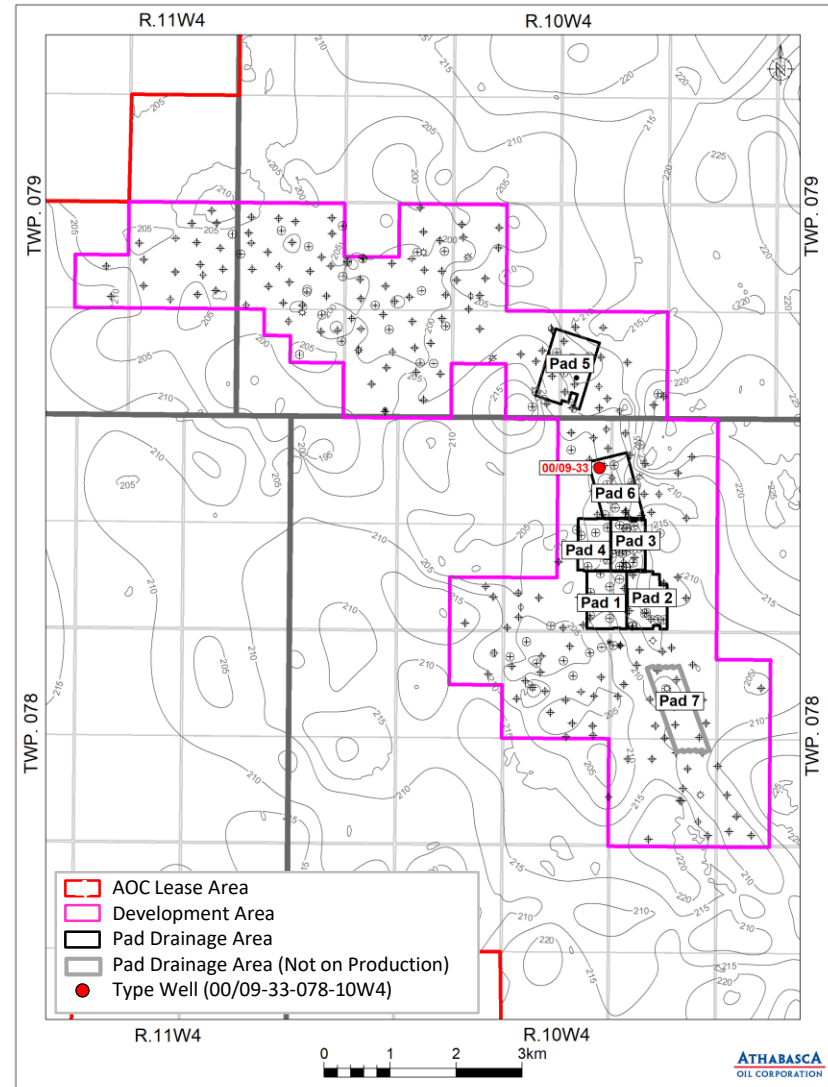




Elevation Range 202 -241 masl

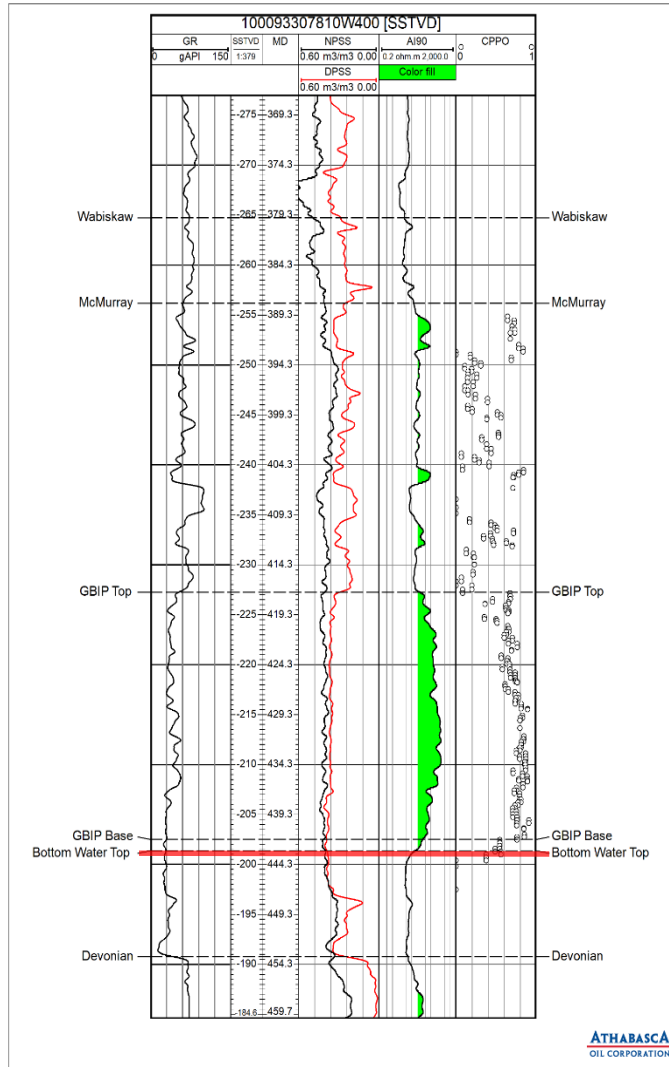


Elevation Range 193 -231 masl

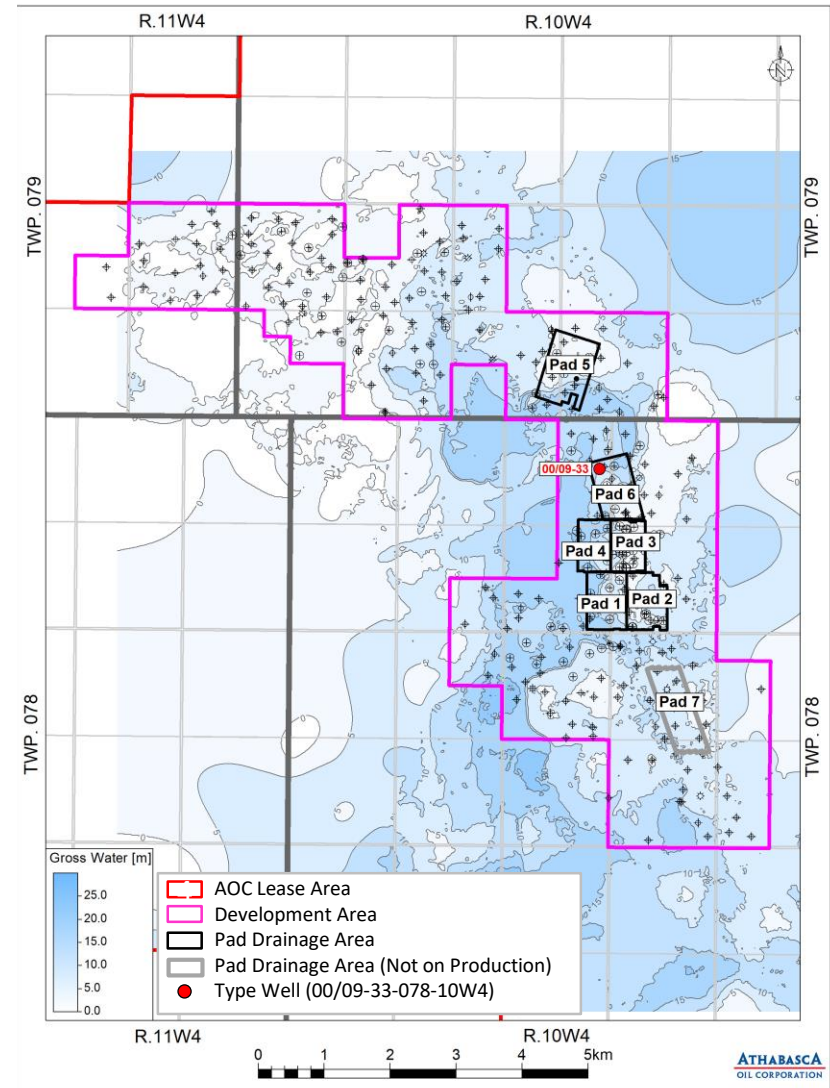


BOTTOM WATER THICKNESS MAP

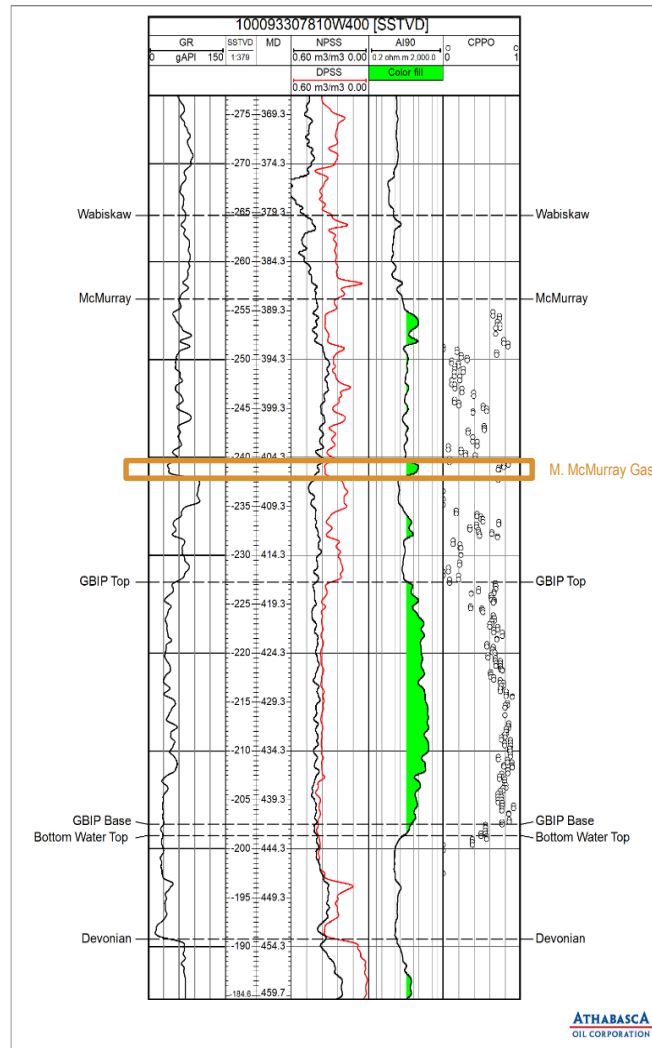
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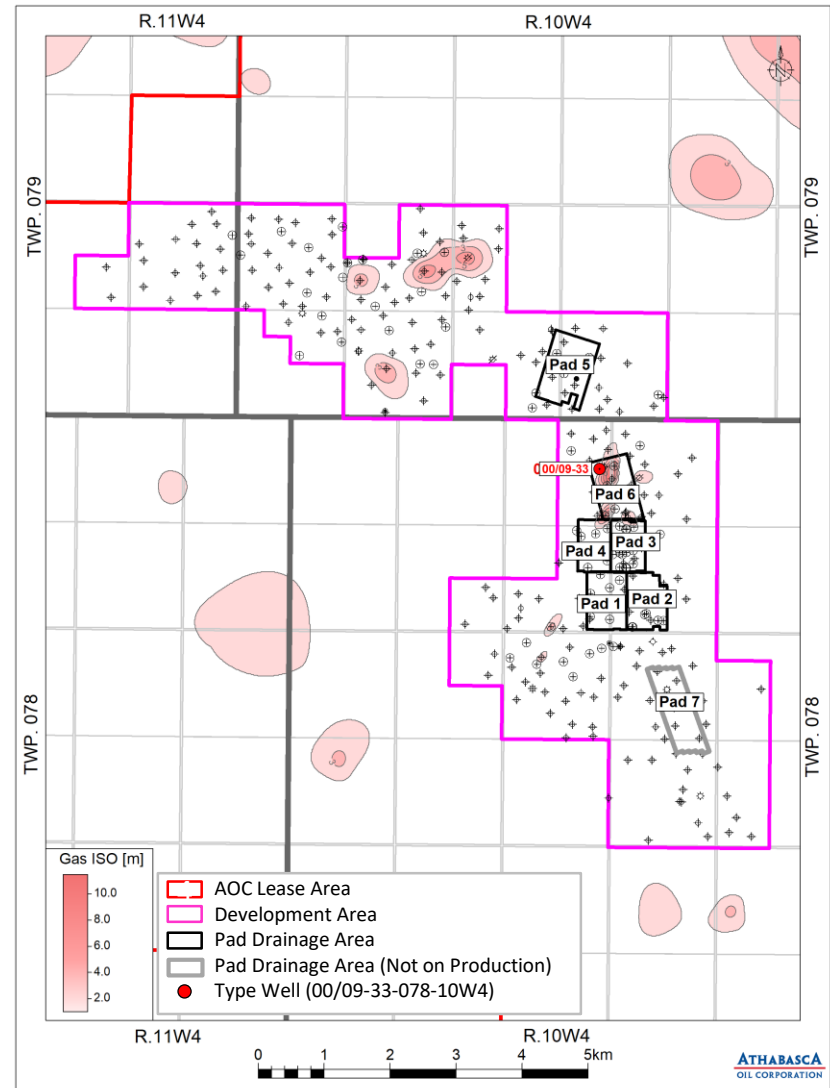
Elevation Range 191 -213 masl



MINIMAL GAS THICKNESS AND LIMITED DISTRIBUTION WITHIN DEVELOPMENT AREA



Elevation Range 221-253 masl



2018

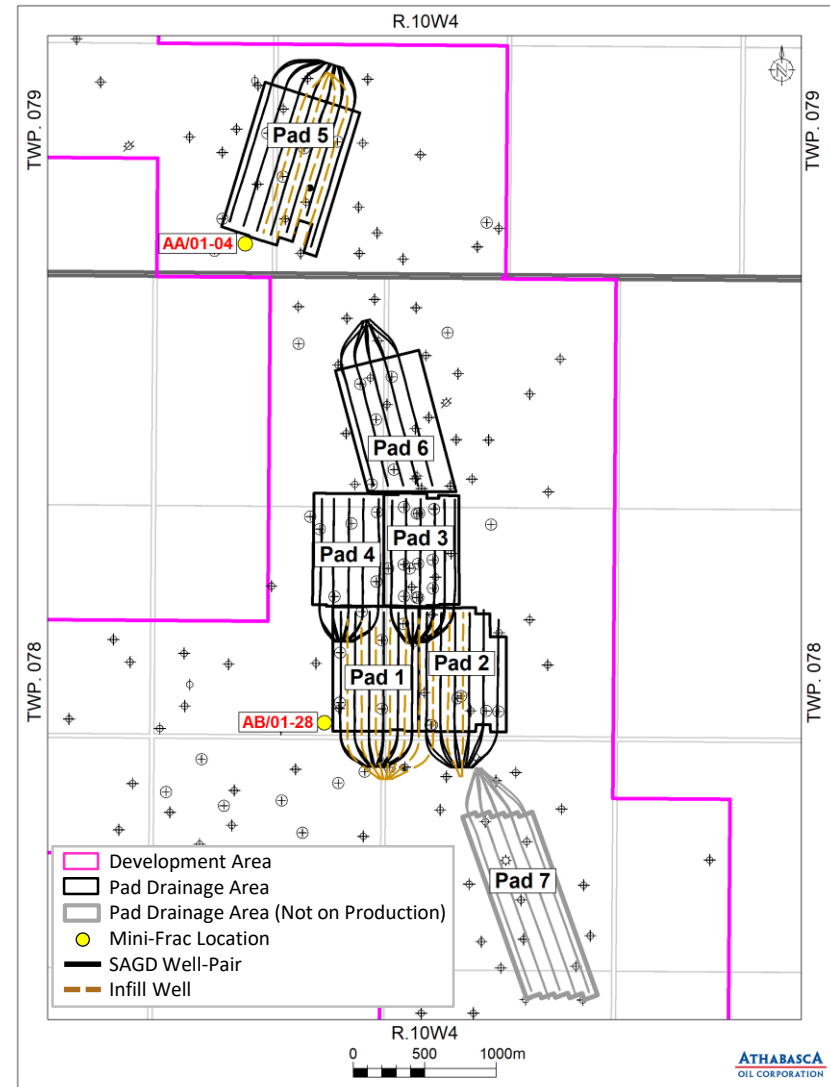
- No new caprock core, mini-frac or tri-axial testing completed during the reporting period

HISTORICAL

- Caprock defined as the Clearwater Formation
 - Includes regionally continuous shale of the Wabiskaw Member
 - mini-frac tests completed at two locations (01-04-079-10W4, 01-28-078-10W4)
- Approved maximum operating pressure is 5,500 kPag
- All injectors operating at ~ 3,000 - 3,300 kPag

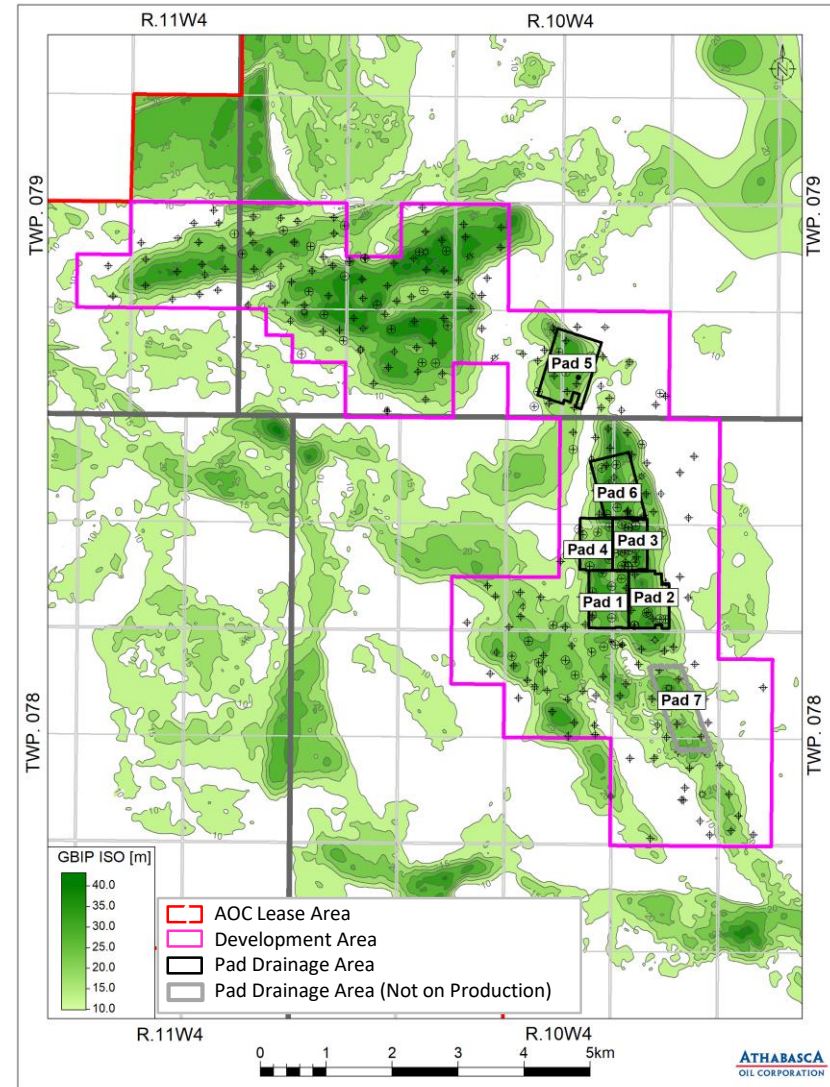
SURFACE HEAVE MONITORING

- No new data acquired during reporting period



RESERVOIR PROPERTIES

- Original Reservoir Pressure: 2,300 to 2,600 kPa
- Original Reservoir Temperature: 14°C
- Average Horizontal Permeability: 5 to 6 D
- Average Vertical Permeability: 4 to 5 D
- Depth: 410 to 444 m TVD (-230 to -216 m subsea)





SUBSURFACE

4D SEISMIC & MONITORING

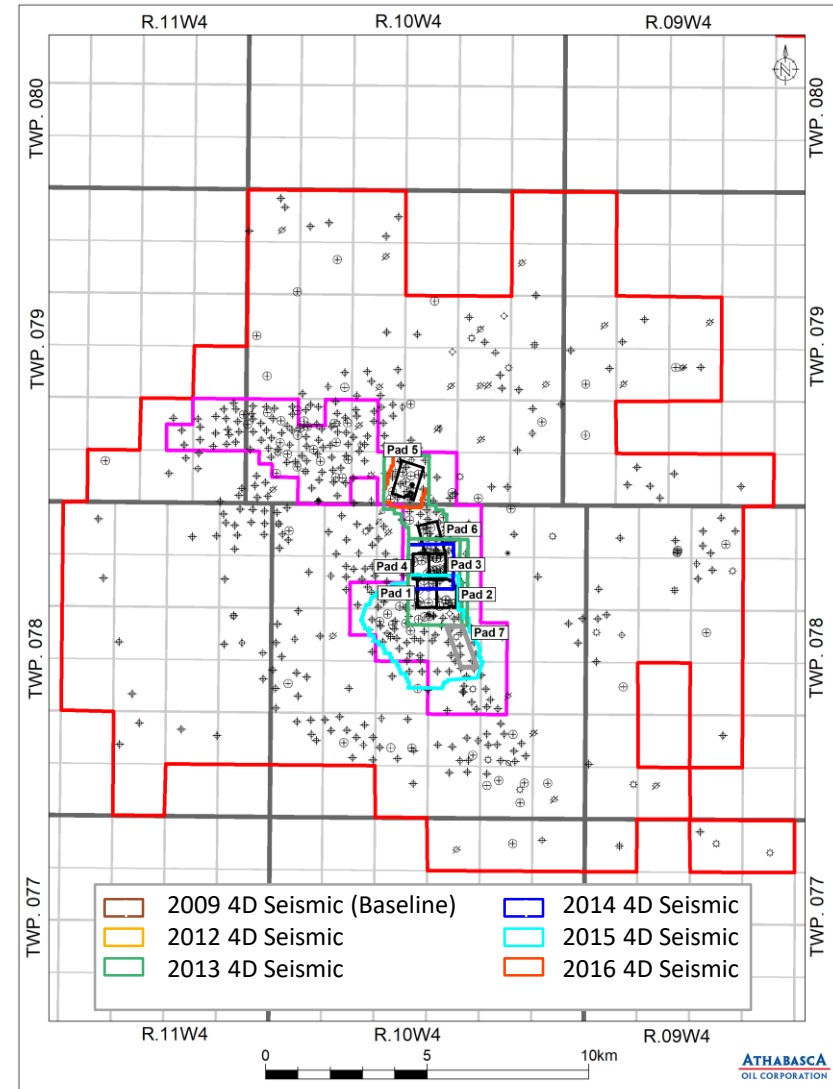
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2018

- No new data acquired during the reporting period

HISTORICAL

- Q1 2016: 2.0 km² first 4D survey for Pad 5
- Q1 2015: 9.0 km² 3D survey
 - Third 4D repeat survey (2.2 km² active SAGD Pads 1 & 2)
 - Repeat 3D seismic for higher resolution data
- Q1 2014: 2.1 km² 4D survey (active SAGD Pads 3 & 4)
- Q1 2013: 4.5 km² 3D survey
 - Second repeat survey (4.9 km² of active SAGD Pads 1–4)
- Q1 2012: 8.6 km² 3D survey
 - First 4D survey (4.9 km² of active SAGD Pads 1–4)
 - New baseline survey for Pads 5 and 6 (3.7 km²)
- Q1 2009: 4.9 km² baseline survey (pre-steam) Pads 1–4

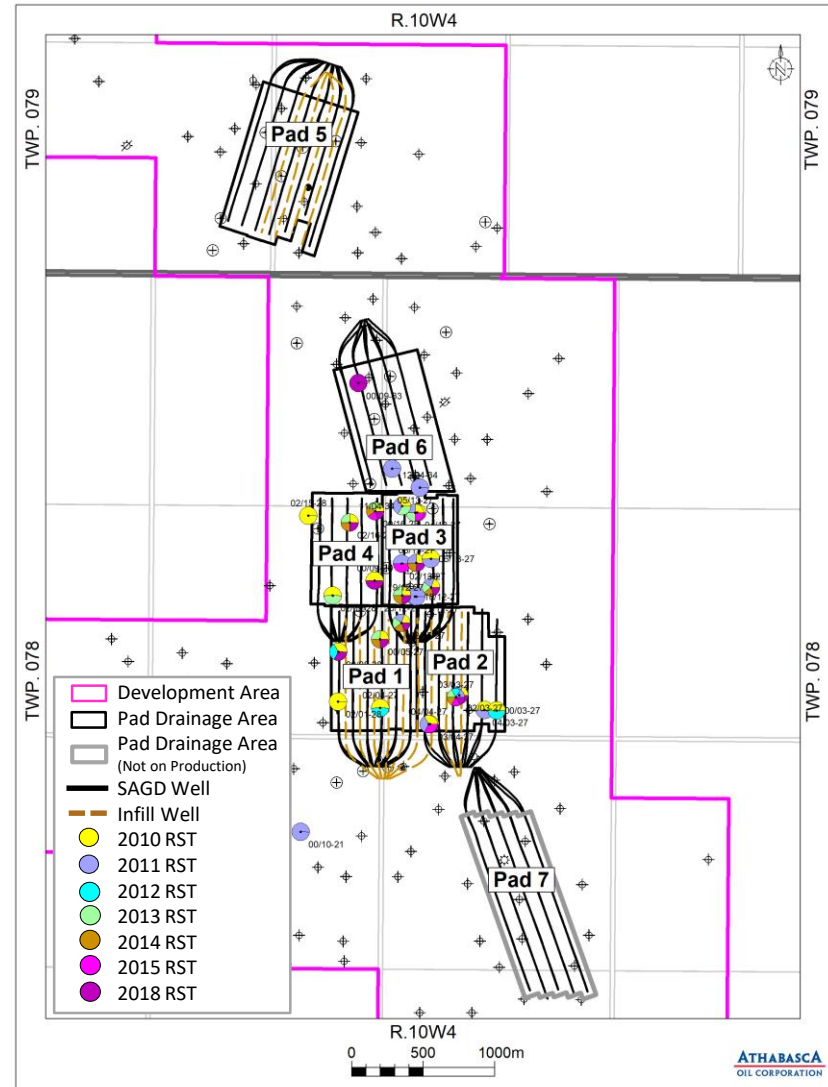


2018

- RSTs acquired from 13 wells during the reporting period

HISTORICAL

- Baseline acquired in 2010 - 23 wells
- 2011 - 18 wells
- 2012 - 7 wells
- 2013 - 12 wells
- 2014 - 11 wells
- 2015 - 6 wells
- 2018 - 13 wells
- Saturation log results show steam chamber thickness correlates with observation well temperature profiles





SUBSURFACE

WELL DESIGN, INSTRUMENTATION & ARTIFICIAL LIFT

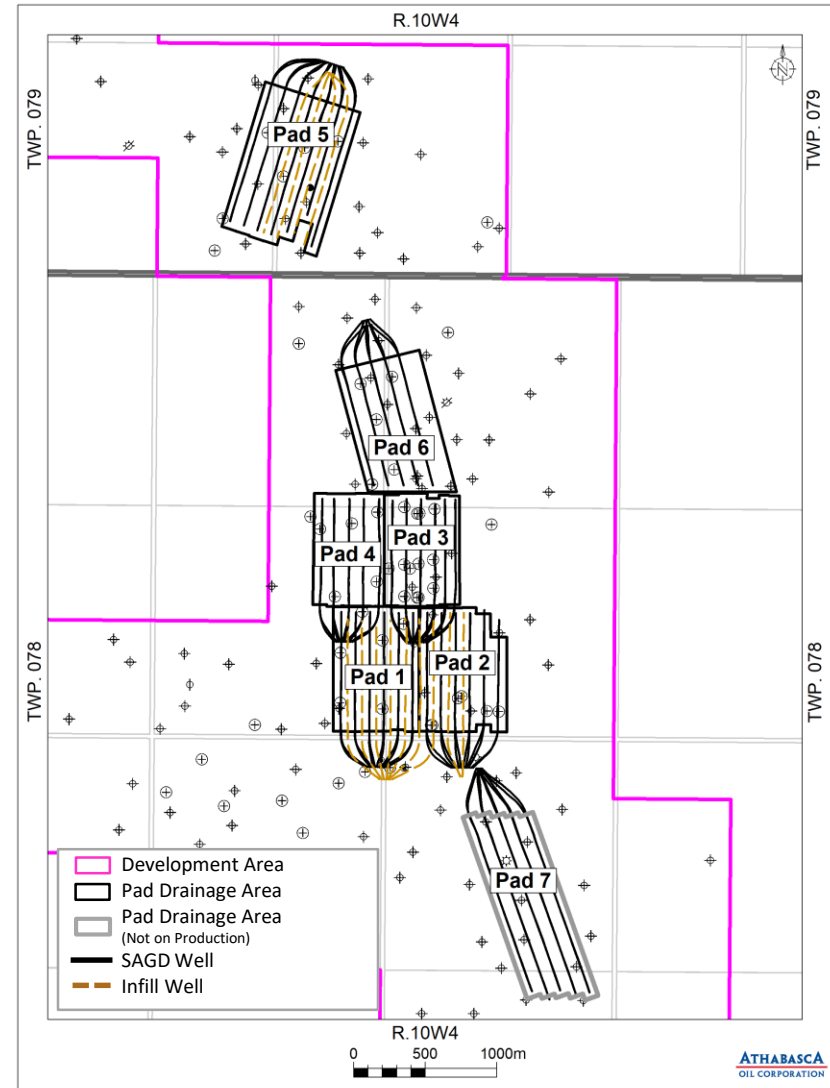
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2018

- 5 well pairs were drilled on Pad 7 during Q4 2018- Q1 2019

HISTORICAL

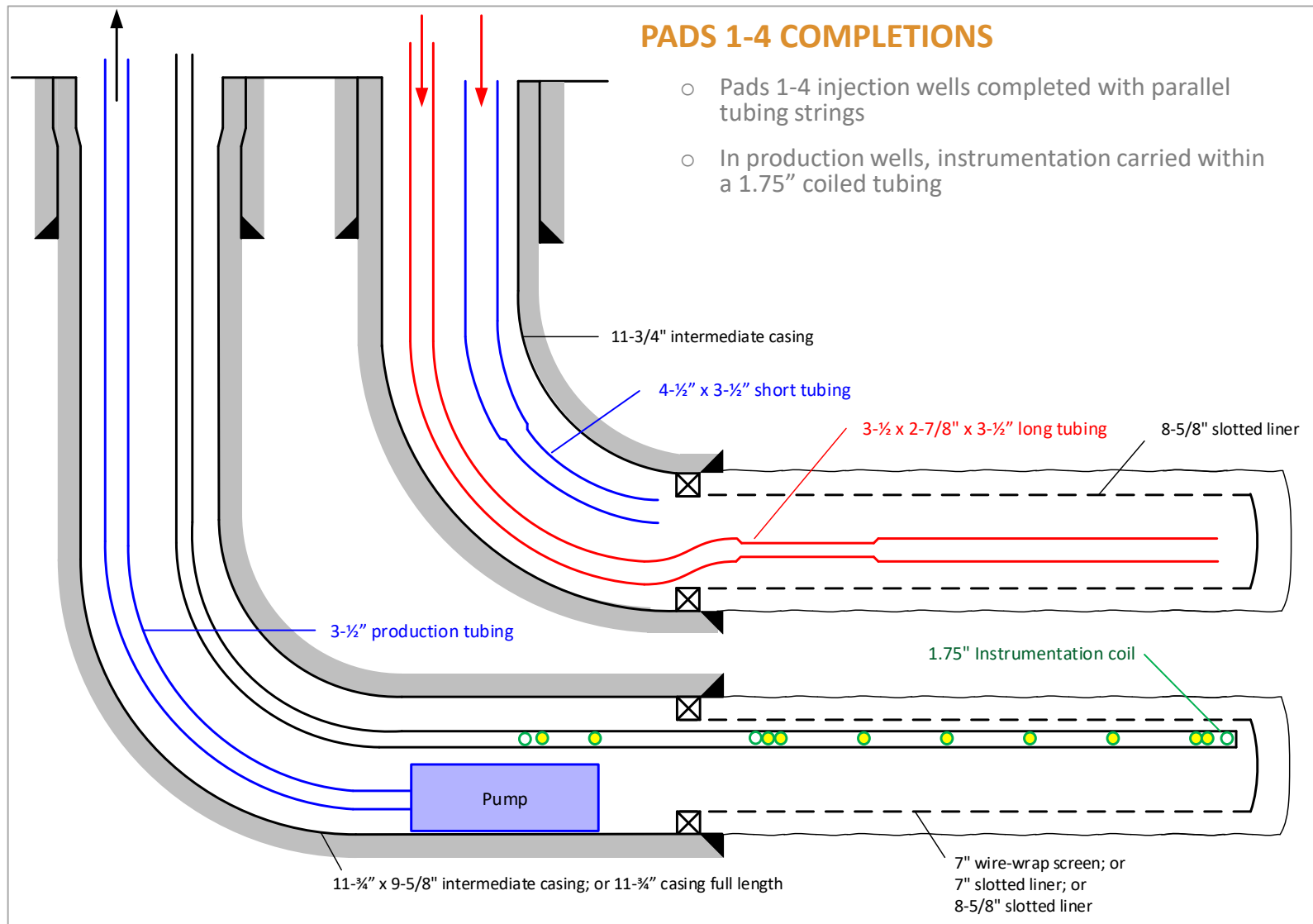
- The Leismer project includes a Central Processing Facility (CPF) and six well pads, with 35 well pairs and 13 infill wells



ARTIFICIAL LIFT

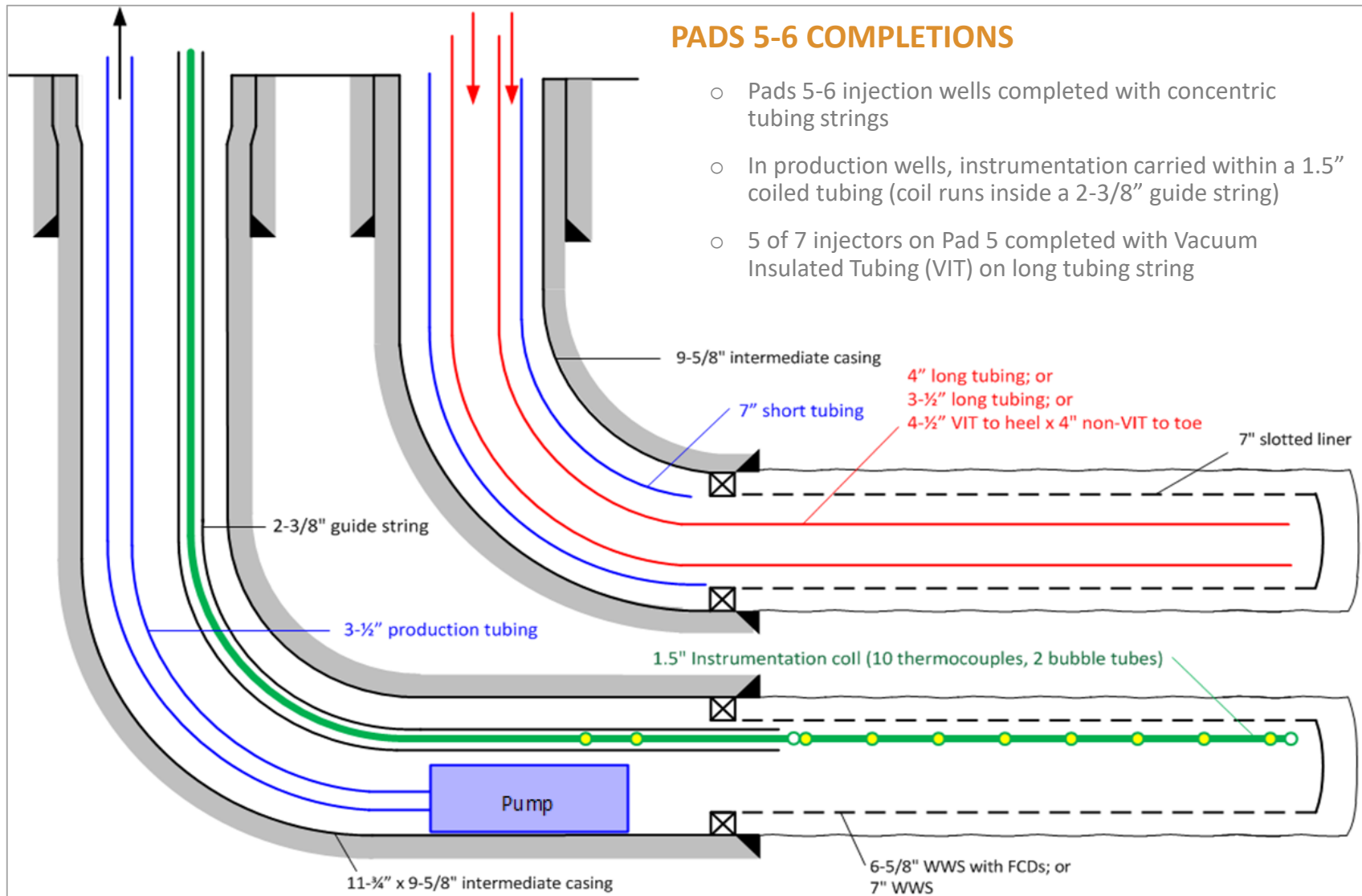
- All wells completed with ESP's with the exception of two infill wells
 - *Rod pumps installed on infills L5N3 and L5N4*
- Typical artificial lift operating conditions:
 - *Bottomhole pressure (BHP) range: 2,500-3,300 kPag*
 - *BHP temperature range: 180-235 °C*

| Artificial Lift Performance | ESP | Rod |
|--|-------|-----|
| Typical Minimum Rate (m ³ /d) | 120 | 100 |
| Typical Maximum Rate (m ³ /d) | 1,200 | 300 |



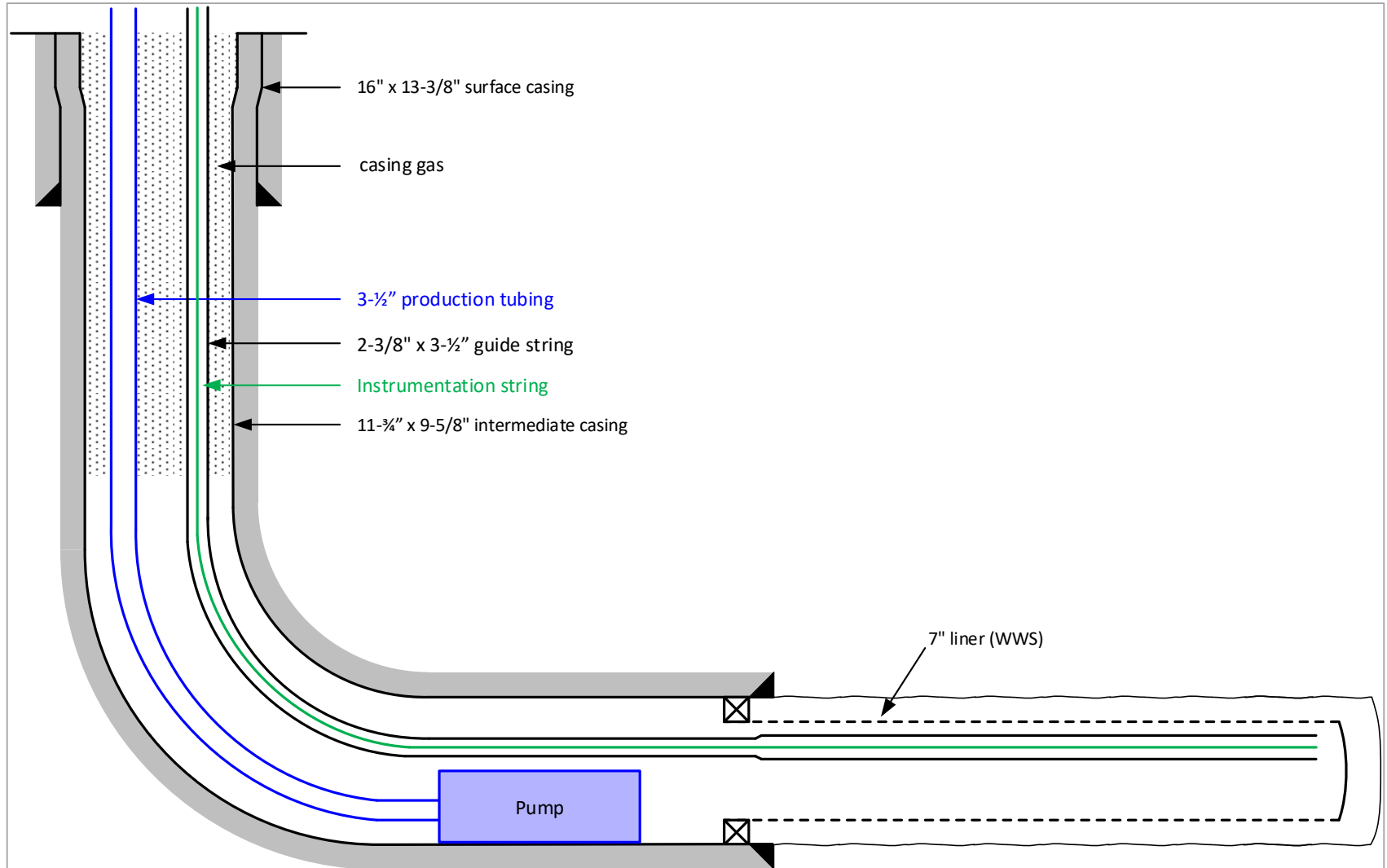
PADS 5-6 COMPLETIONS

- Pads 5-6 injection wells completed with concentric tubing strings
- In production wells, instrumentation carried within a 1.5" coiled tubing (coil runs inside a 2-3/8" guide string)
- 5 of 7 injectors on Pad 5 completed with Vacuum Insulated Tubing (VIT) on long tubing string



TYPICAL COMPLETION: INFILL WELL

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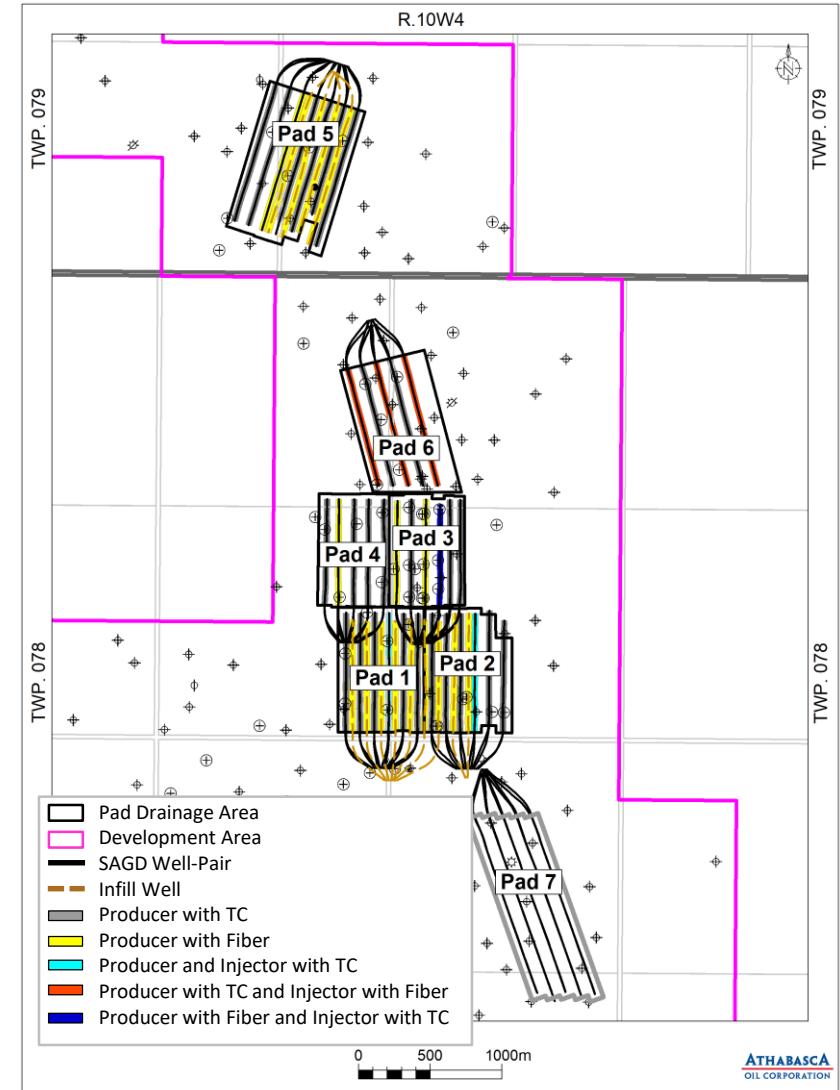


TEMPERATURE

- Mixture of thermocouples (TC) and fiber measurements
- Both systems adequate for temperature management along the wellbore

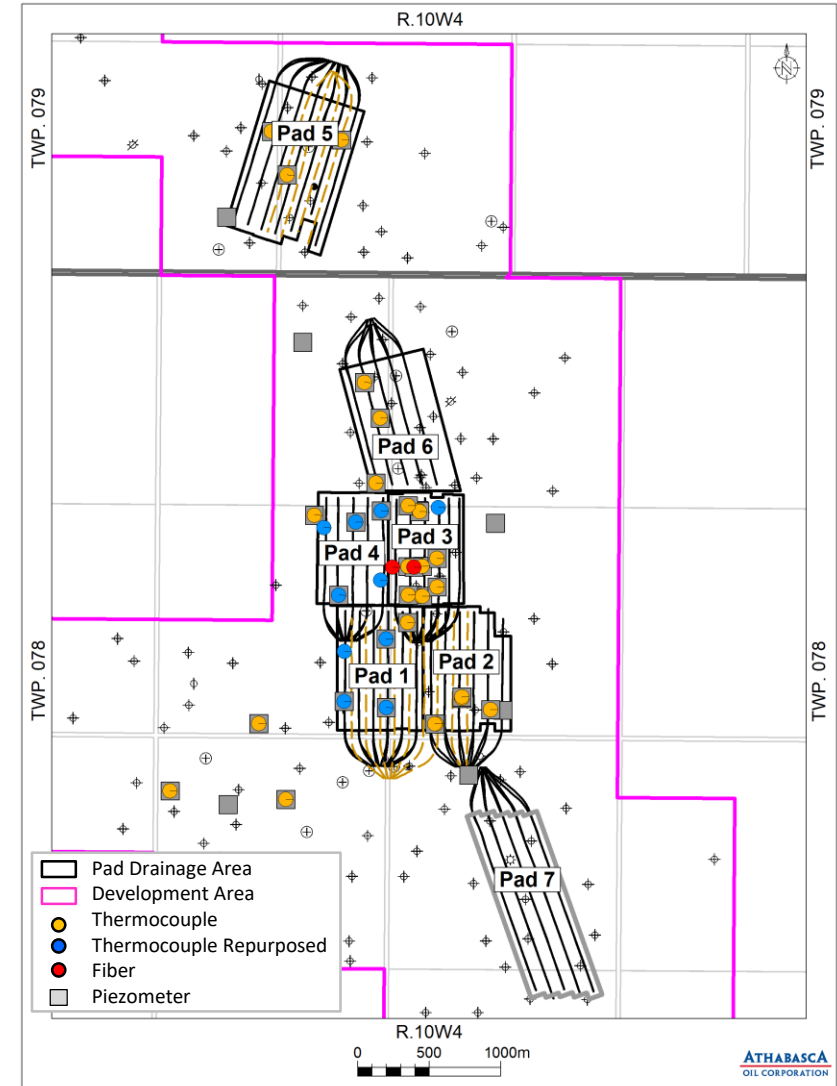
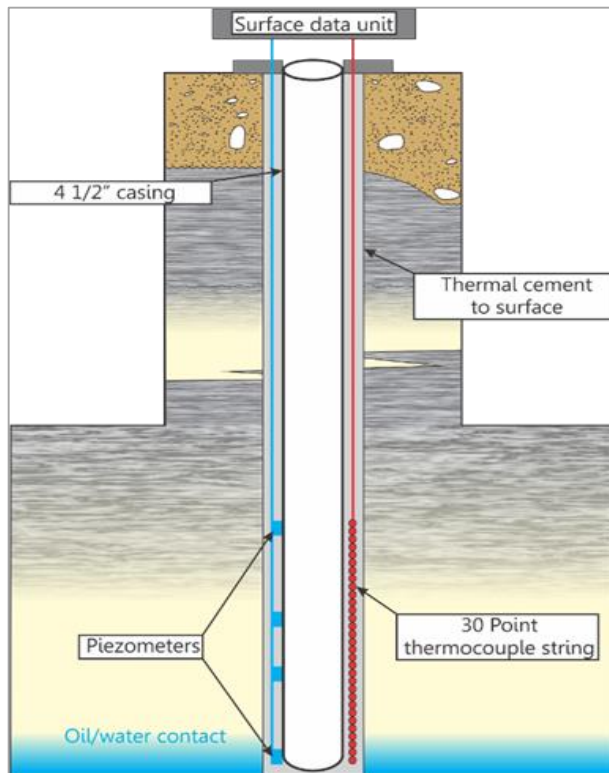
PRESSURE

- Injector BHP is measured with blanket gas
- Producer and infill BHP is measured using optical gauges and/or bubble tubes



OBSERVATION WELLS

- Instrumentation used to monitor reservoir pressure and temperature
- 30 thermocouples spaced at 1 m above, below, and within SAGD pay
- 10 thermocouple bundles installed in wells previously equipped with fibre optics (DTS), February 2018



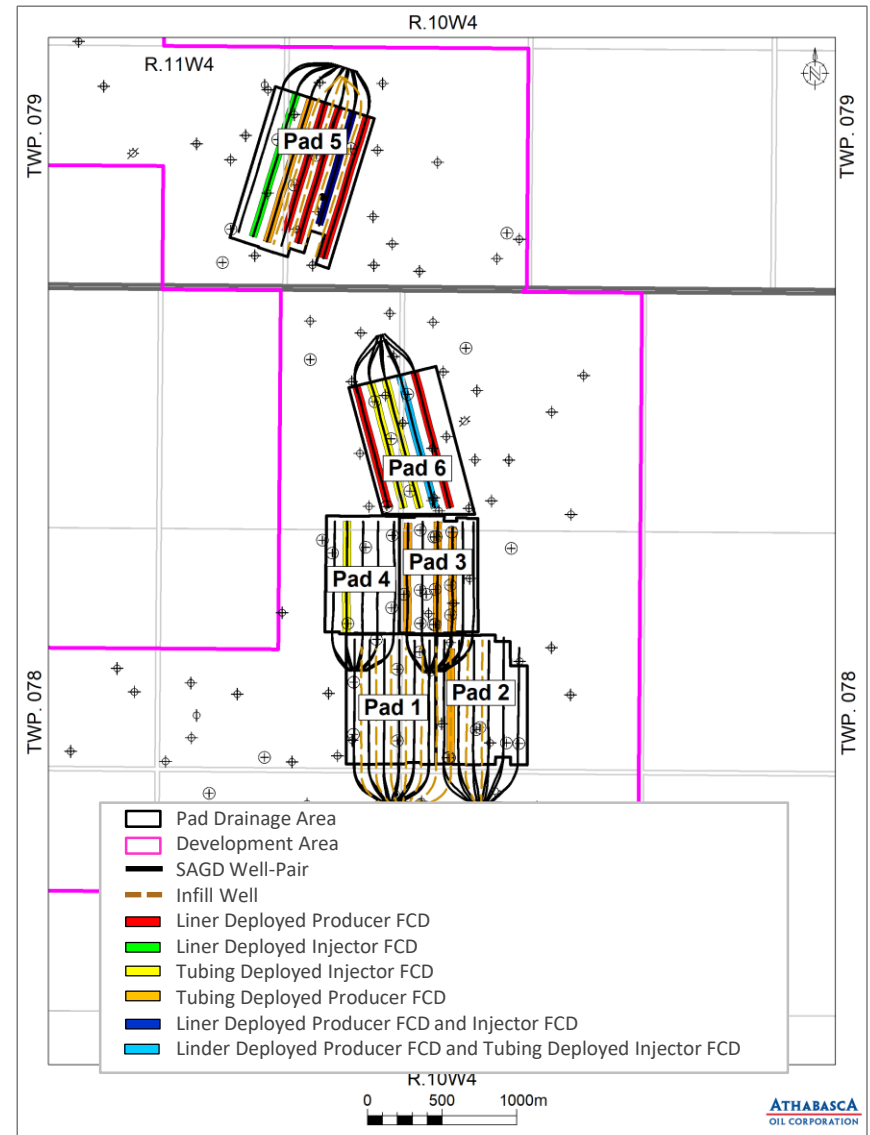
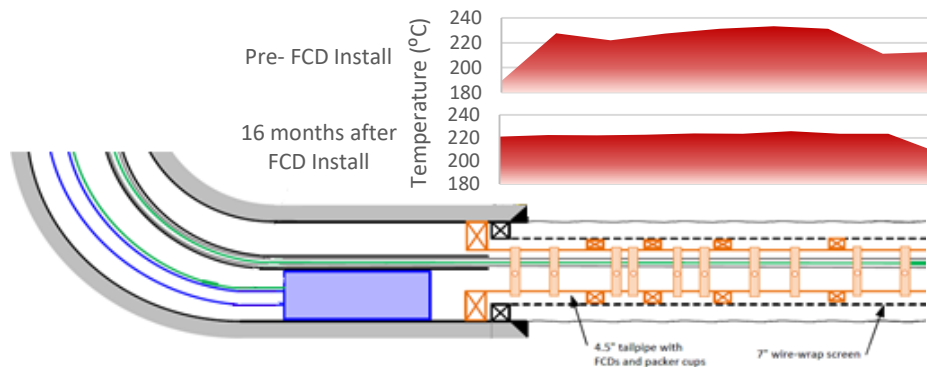
2018

- Installed 1 tubing deployed flow control device (FCD) into L3P3 in 2018

HISTORICAL

- Liner deployed and tubing deployed FCD configurations have been used to optimize asset performance
- Able to operate at lower subcool with positive impact on temperature conformance

L3P4 TEMPERATURE PROFILES





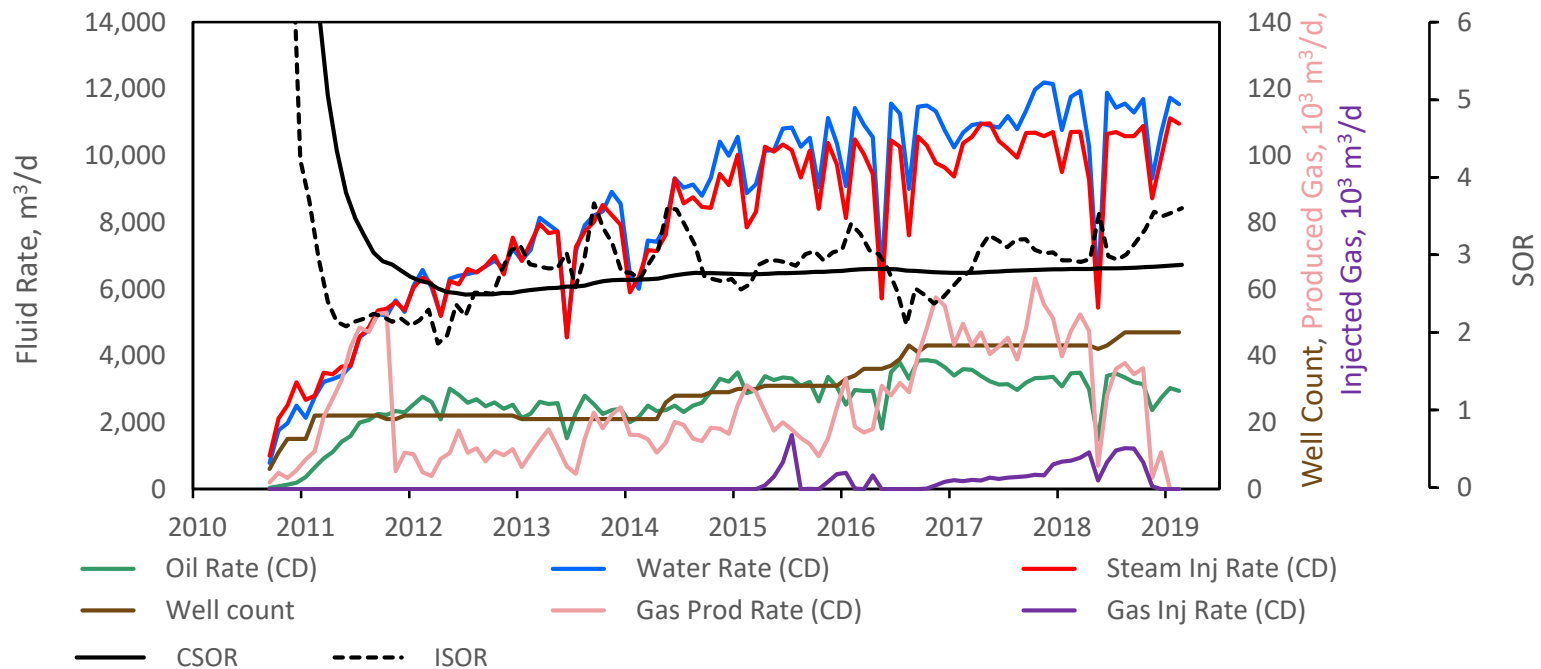
SUBSURFACE

SCHEME PERFORMANCE

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LEISMER CONTINUES TO BE A TOP-TIER OIL SANDS ASSET

- 6 producing pads
 - 35 SAGD well pairs (34 pairs on production) and 13 infill wells on production
- L3P3 FCD installed in May 2018
- 4 infill wells started on Pad 5 in June 2018
- Once through steam generator (OTSG) commissioned in September 2018 to improve reliability
 - Steam capacity increased to ~ 11,600 m³/d (73,000 bbl/d)
- Maximum produced monthly bitumen rate of 3,493m³/d (21,967 bbl/d) with SOR of 3.07 (Mar 2018)



| Pad | DBIP Above Producer (10 ³ m ³) | DBIP (10 ³ m ³) | GBIP (10 ³ m ³) | Cumulative Production (10 ³ m ³) | DBIP Above Producer Recovery Factor ¹ | DBIP Recovery Factor ¹ | GBIP Recovery Factor ¹ | Predicted Recovery Factor |
|-------|---|--|--|---|--|-----------------------------------|-----------------------------------|---------------------------|
| 1 | 2,590 | 3,467 | 3,914 | 2,066 | 80% | 60% | 53% | 65–75% |
| 2 | 2,857 | 2,821 | 3,344 | 1,661 | 58% | 59% | 50% | 65–75% |
| 3 | 2,650 | 3,003 | 3,443 | 1,658 | 63% | 55% | 48% | 50–60% |
| 4 | 1,747 | 2,236 | 2,433 | 1,126 | 64% | 50% | 46% | 50–60% |
| 5 | 2,739 | 3,477 | 4,479 | 973 | 36% | 28% | 22% | 50–60% |
| 6 | 2,914 | 3,471 | 3,836 | 686 | 24% | 20% | 18% | 65–75% |
| Total | 15,498 | 18,475 | 21,449 | 8,170 | 53% | 44% | 38% | ~65% |

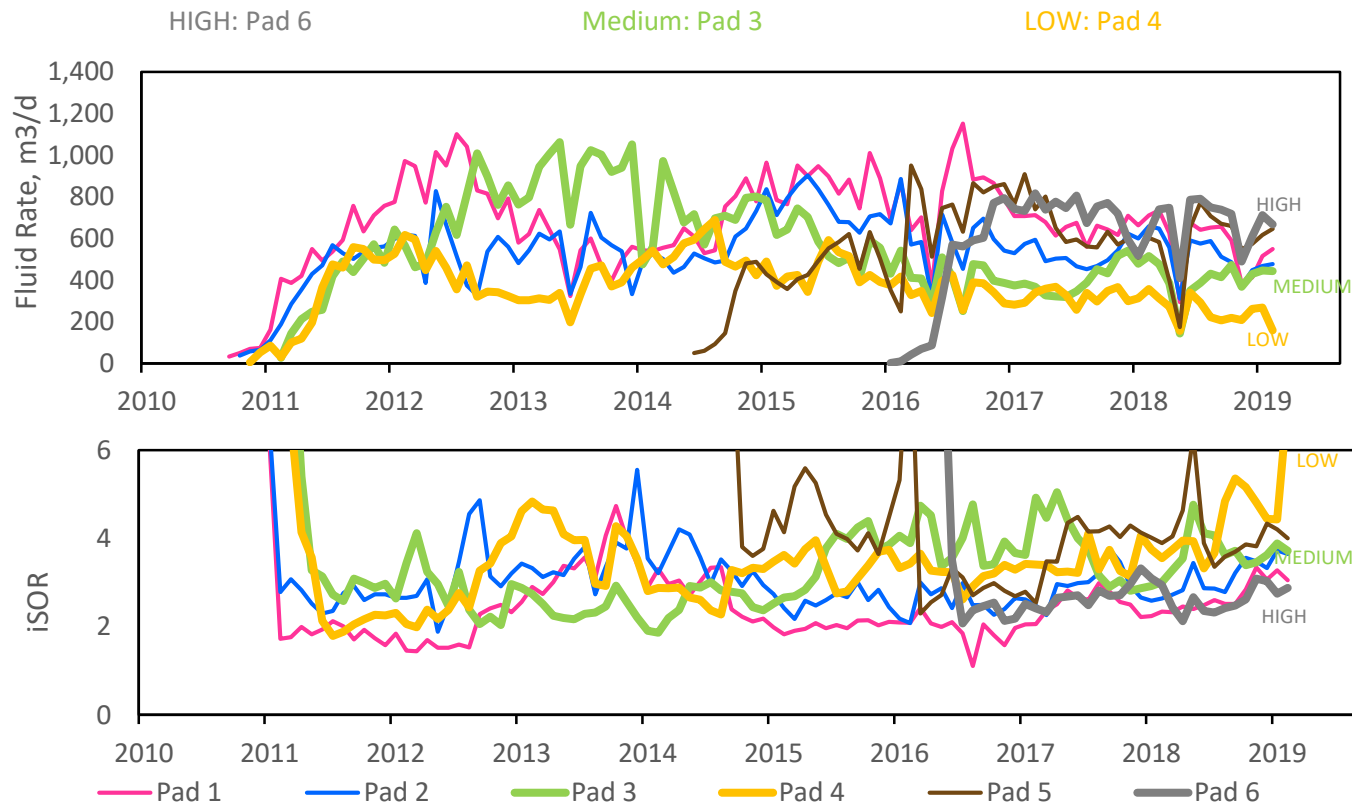
NOTES:

¹ Recovery Factor based on cumulative oil production in Feb 2019

- Volumetrics include 50 m at heel and toe of well pair

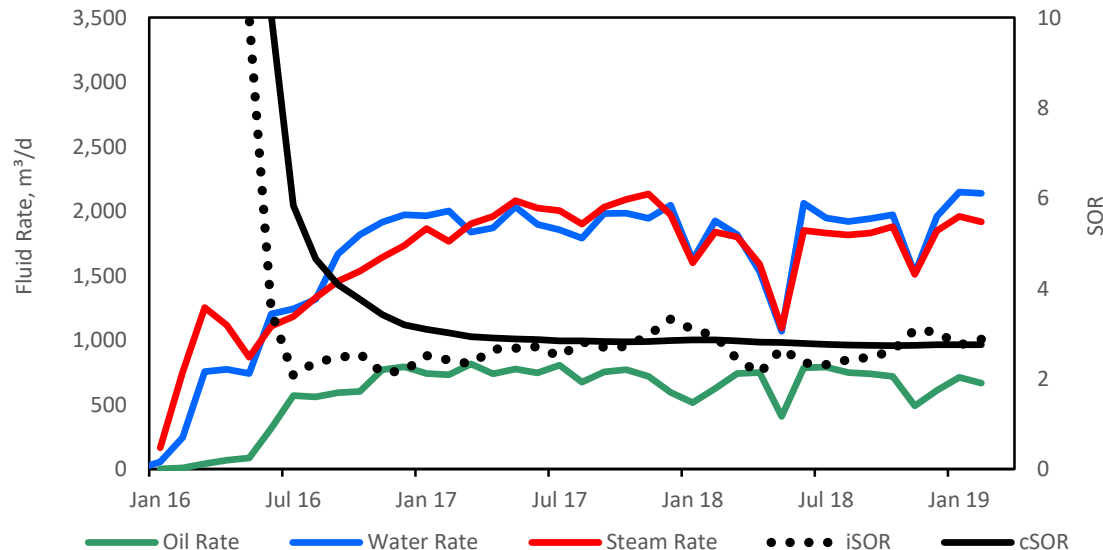
PAD PERFORMANCE DEPENDS ON GEOLOGY AND OPERATING PARAMETERS

- Pads 6, 3 and 4 selected as examples of high, medium and low performing pads, respectively
 - Selection based on average monthly oil rate and iSOR
 - Differences in the productivity of the wells primarily due to geological variability

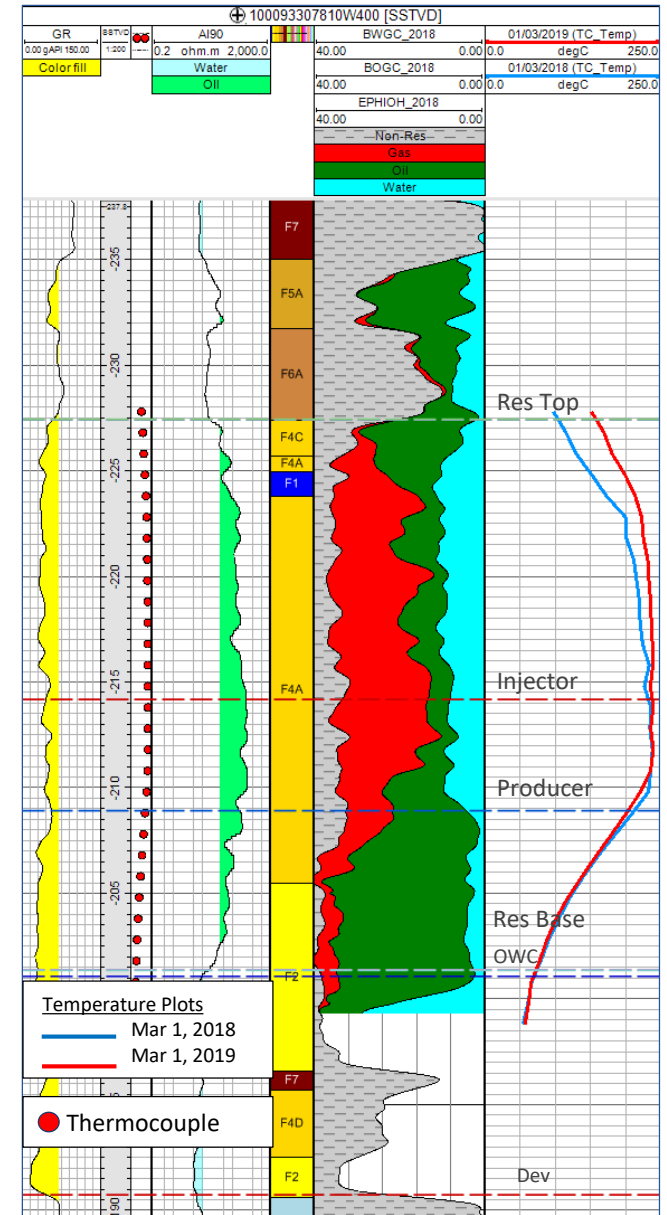


PAD 6 SUMMARY

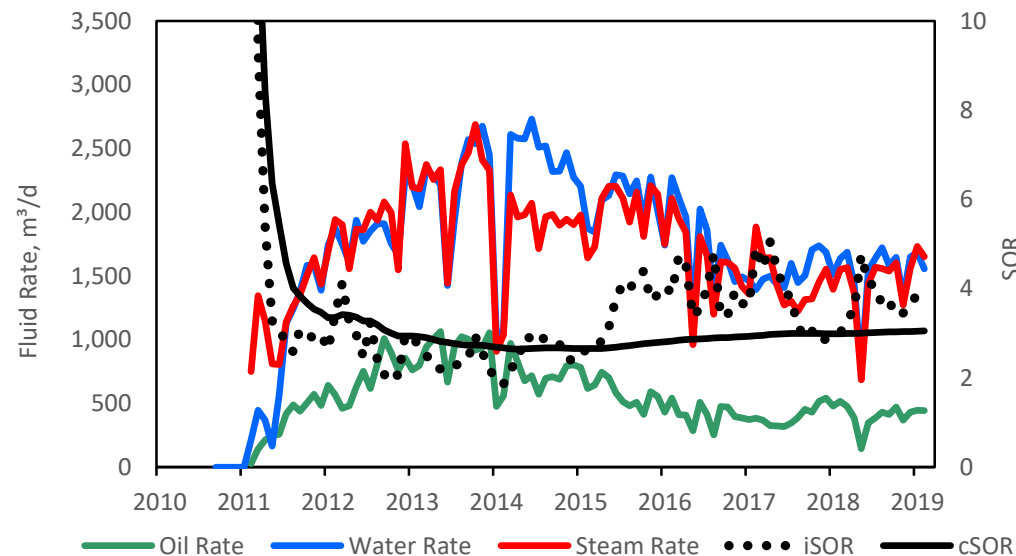
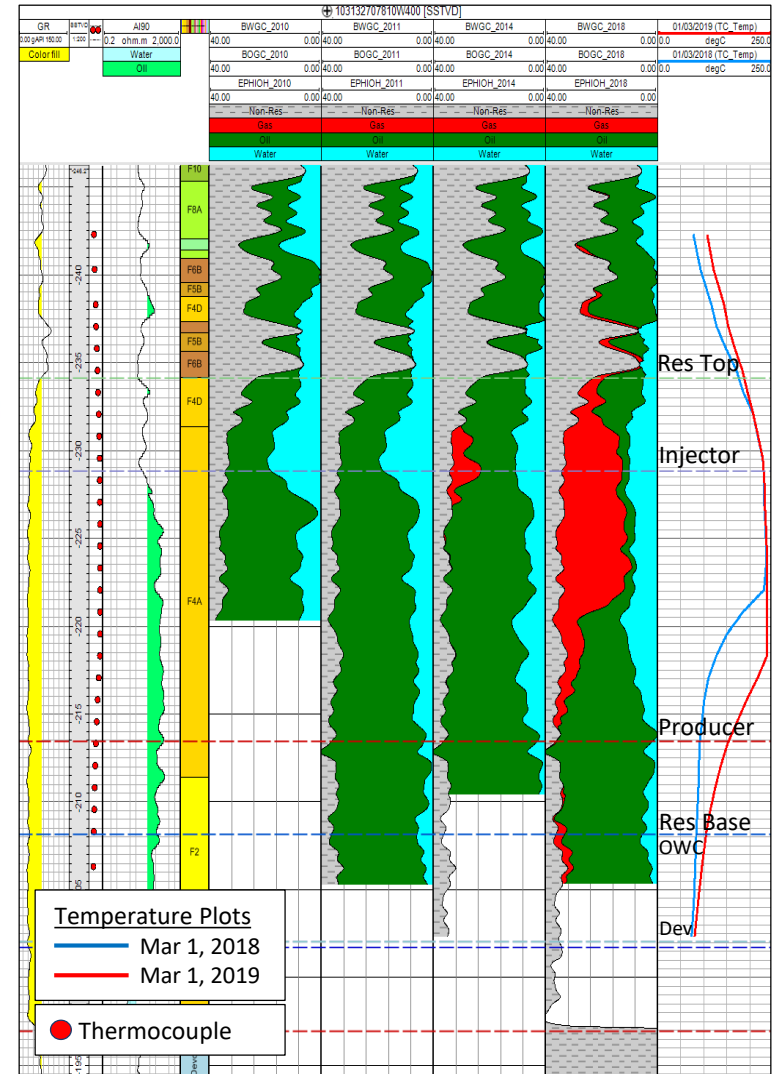
- First steam 2016
- Peak oil rate: ~790 m³/d (600-1300 bbl/d/wellpair)
- cSOR ~ 2.8
- High reservoir quality with thick pay
 - Mostly sandy reservoir
 - High oil saturation
- Significant steam chamber development since last reporting period
 - OBS well 100/09-33 shows 7 m steam chamber rise near heel of L6P5



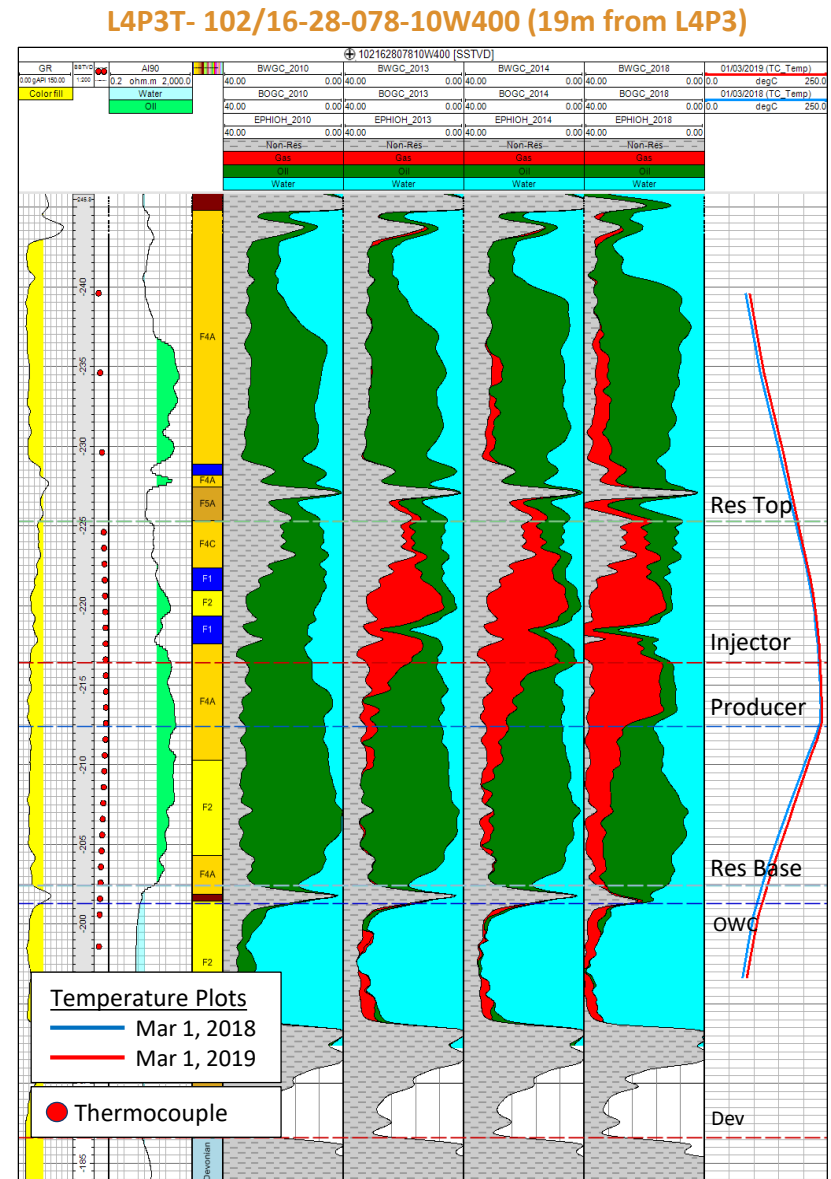
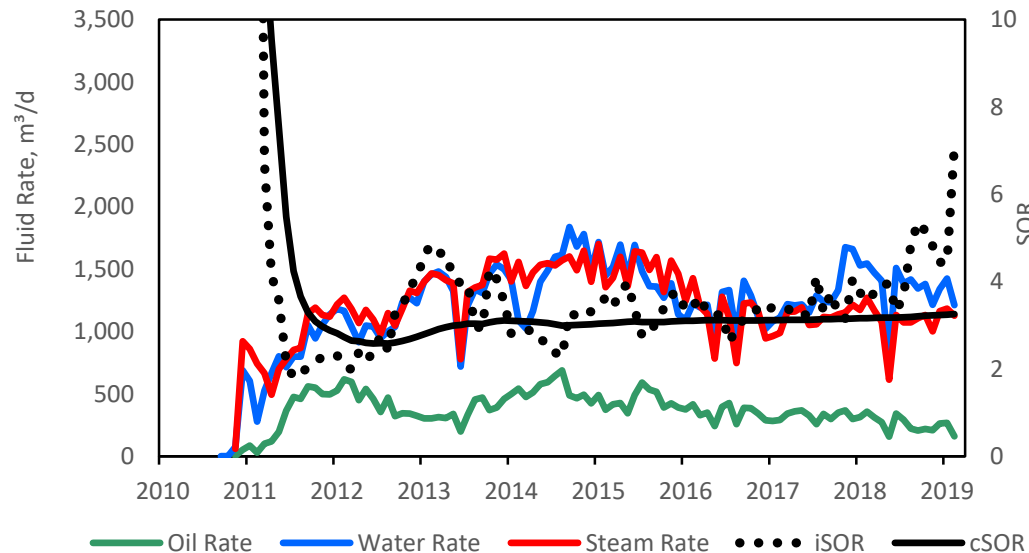
L6P5H-100/09-33-078-10W400 (15m from L6P5)



- L3P4M2- 103/13-27-078-10W400 (14m from L3P4)**

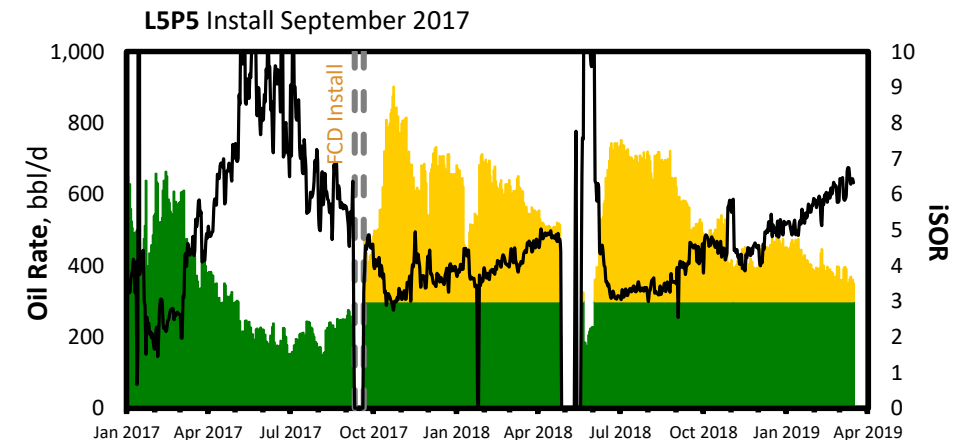
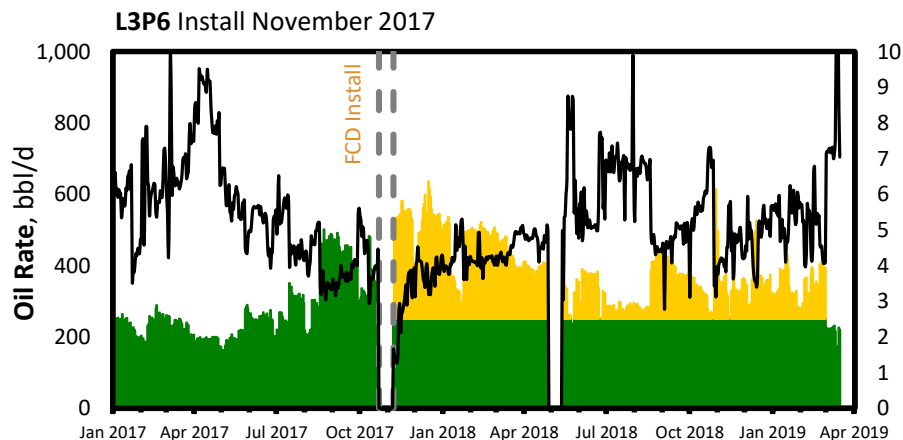
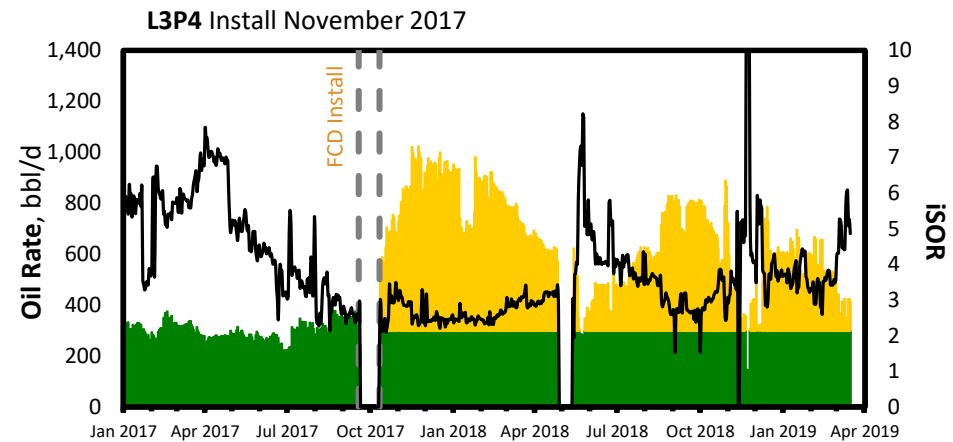
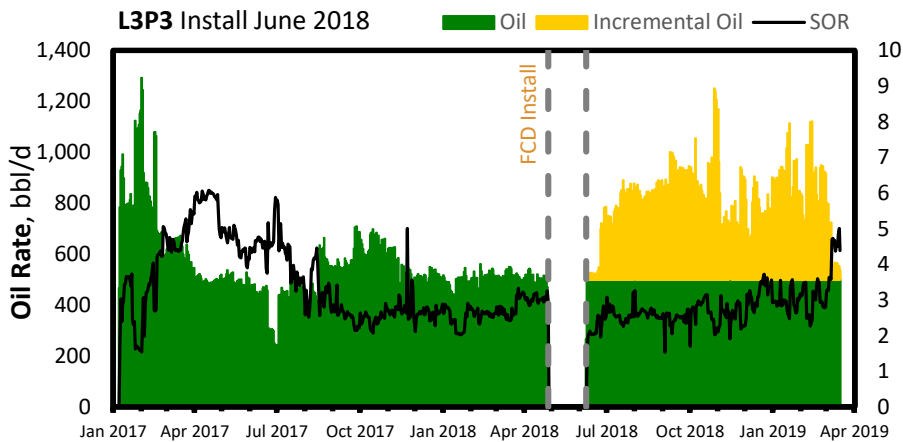


- First steam 2010
- Peak oil rate: 311 m3/d (150-700 bbl/d/wellpair)
- cSOR ~ 3.25
- Average reservoir quality
- Historical NCG co-injection on this pad



4 DEVICES HAVE BEEN INSTALLED AT LEISMER SINCE 2017

- After installation, oil production increased 125-150% per well



STEAM PRESSURE

- Steam upstream of pads 7,000–9,000 kPa
- Steam pressure let-down to 5,000–6,000 kPa at pads

STEAM QUALITY

- Steam quality decreases during transportation to well pads due to heat losses
 - *Estimated at 95% for Pads 1–4, 6*
 - *Estimated at 90% at Pad 5 due to longer, larger diameter pipe line*

WELL INTEGRITY

- No wellbore integrity failures during the reporting period (liner or casing)

ABANDONMENTS

- No producer/injector well pairs have been abandoned or suspended to date
- Well network in place to monitor conditions at 102/05-08-079-10W4
 - *107/05-08-079-10W4 observation well*
 - *100/02-08-079-10W4 observation well*
 - *Pressure differentials across the LGR and CLW-B have remained stable year over year*
- No near term plans for well pad abandonments



SUBSURFACE

PILOTS

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PAD 4 NCG PERFORMANCE

- Pad 4 NCG co-injection stopped Nov 2018 after installation of once through steam generator 5 (OTSG 5)

LEISMER FUTURE NCG PLANS

- Field-wide NCG co-injection approval received in Nov 2018
 - *Implementation as required in the medium term to optimize steam allocation*

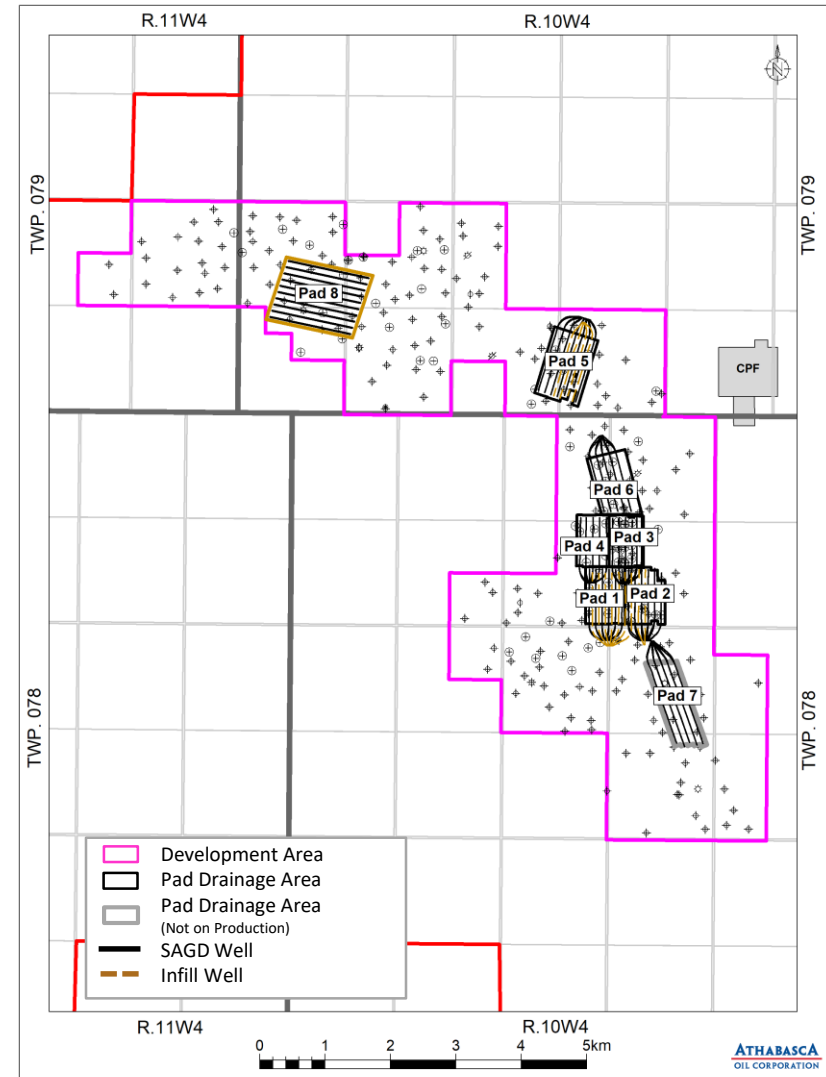


2019 SUBSURFACE DEVELOPMENT PLANS

- Finish Pad 7 well completions on 5 wellpairs
 - *Anticipated first steam in summer 2019*
 - *Producer wells completed with ESPs and FCDs*
- Evaluating opportunities for tubing deployed FCDs into producer wells on Pads 1-5
- Regulatory approval received for 10 well pairs and 9 infills on Pad 8, August 2018
- Regulatory approval received for 4 infills on Pad 6, September 2018

PAD ABANDONMENTS

- No pad abandonments anticipated at Leismer within next five years



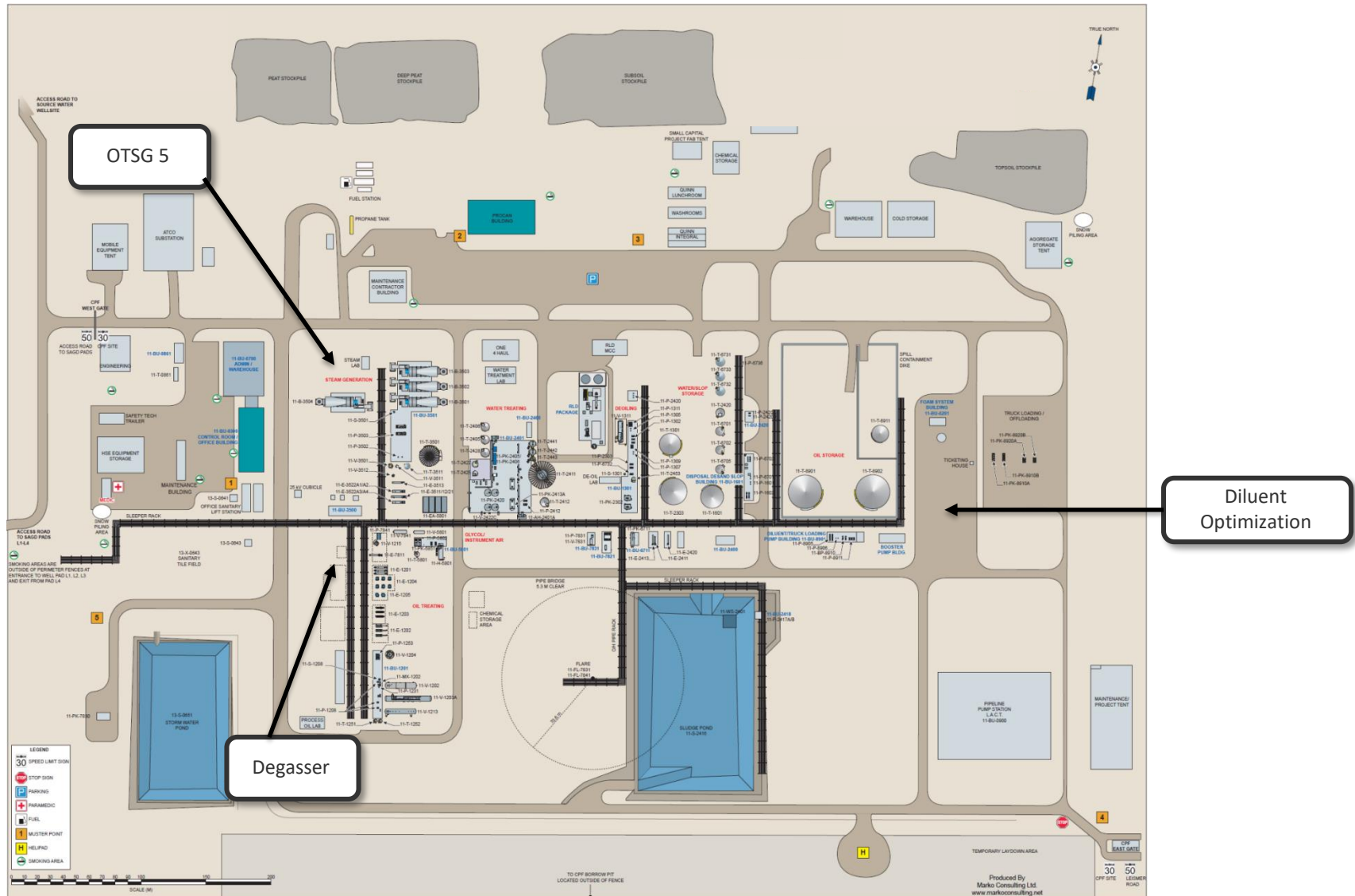


SURFACE OPERATIONS

FACILITIES

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INLET DEGASSER, OTSG 5 AND DILUENT OPTIMIZATION COMPLETED DURING REPORTING PERIOD



The diagram illustrates the SLOP TREATMENT SYSTEM, showing the flow of various streams and the operation of key equipment. The system is color-coded: red for gas/fuel paths, blue for water paths, and green for oil paths.

Key Equipment and Units:

- FWKO (Floating Water Knockout):** Receives Produced Emulsion and Diluent from Slop Treater. It separates water from the oil stream.
- Treater:** Receives the oil stream from FWKO and Diluent. It treats the oil before it goes to the Gas Boot.
- Gas Boot:** Receives the treated oil and Diluent. It separates gas from the oil.
- Treating Gas Separator:** Receives the gas from the Gas Boot. It separates the gas from the oil.
- Slop Tank TK-6701/2/5:** Receives Slop Vapor and Slop Re-Run. It separates the liquid from the gas.
- Skim Tank:** Receives Produced Water. It separates the water from the oil.
- IGF (Intermediate Gravity Separator):** Receives the oil from the Skim Tank. It separates the oil from the water.
- Ceramem:** Receives the oil from the IGF. It separates the oil from the water.
- OTSGs (Oil Treating Steam Generators) B-3501/2/3/4/5:** Receives the oil from the Ceramem. It treats the oil with steam.
- BFW Pumps (Boiler Feed Water Pumps):** Pump water from the BFW TK-3501 to the OTSGs.
- HP Steam Separator:** Receives steam from the OTSGs. It separates the high-pressure steam from the condensate.
- RLD (Residue Liquid Drum):** Receives the condensate from the HP Steam Separator. It separates the liquid from the gas.
- Diluent Tank Tk-8911:** Stores Diluent for use in the system.
- Sales Oil Tank-8901/2:** Stores Sales Oil for use in the system.
- De-Oiled H2O Tank T-2303:** Stores De-Oiled Water for use in the system.
- Warm Lime Softener:** Treats the water before it goes to the WAC.
- WAC (Water Air Cooler):** Cools the water before it goes to the After Filter.
- After Filter:** Filters the water before it goes to the Fuel Gas Mix Drum.
- Fuel Gas Mix Drum:** Receives gas from the After Filter and NG from Pipeline. It mixes the gas for use in the system.

Streams and Flows:

- Produced Emulsion:** Enters the FWKO.
- Slop Vapor:** Enters the Slop Tank.
- Slop Re-Run:** Enters the Slop Tank.
- Produced Water:** Enters the Skim Tank.
- Diluent from Slop Treater:** Enters the FWKO and Treater.
- Diluent To Oil Treatment:** Enters the Treater.
- Wet Produced Gas:** Enters the Gas Boot.
- Dry Oil from Slop Treater:** Enters the Gas Boot.
- Sales Oil:** Enters the Sales Oil Tank.
- De-Oiled H2O:** Enters the De-Oiled H2O Tank.
- Mixed Fuel:** Enters the OTSGs.
- High Pressure Condensate:** Enters the HP Steam Separator.
- Utility Steam:** Enters the system.
- Condensate Recycle:** Enters the system.
- Blowdown to Disposal:** Exits the system.
- Utility Fuel and Purge Gas:** Exits the system.
- NG from Pipeline:** Enters the Fuel Gas Mix Drum.



SURFACE

MEASUREMENT, ACCOUNTING AND REPORTING PLAN (MARP)

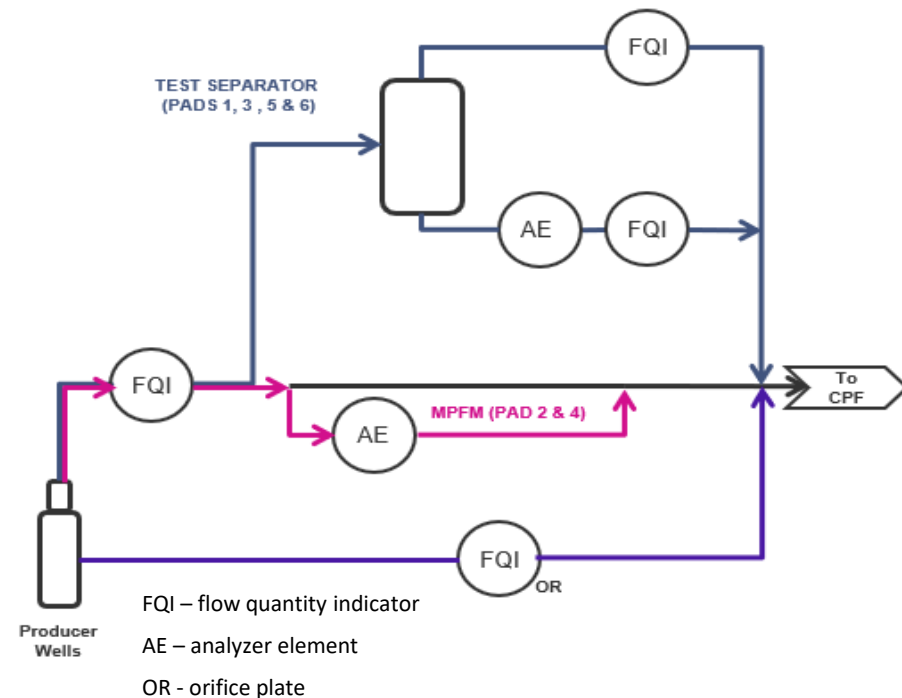
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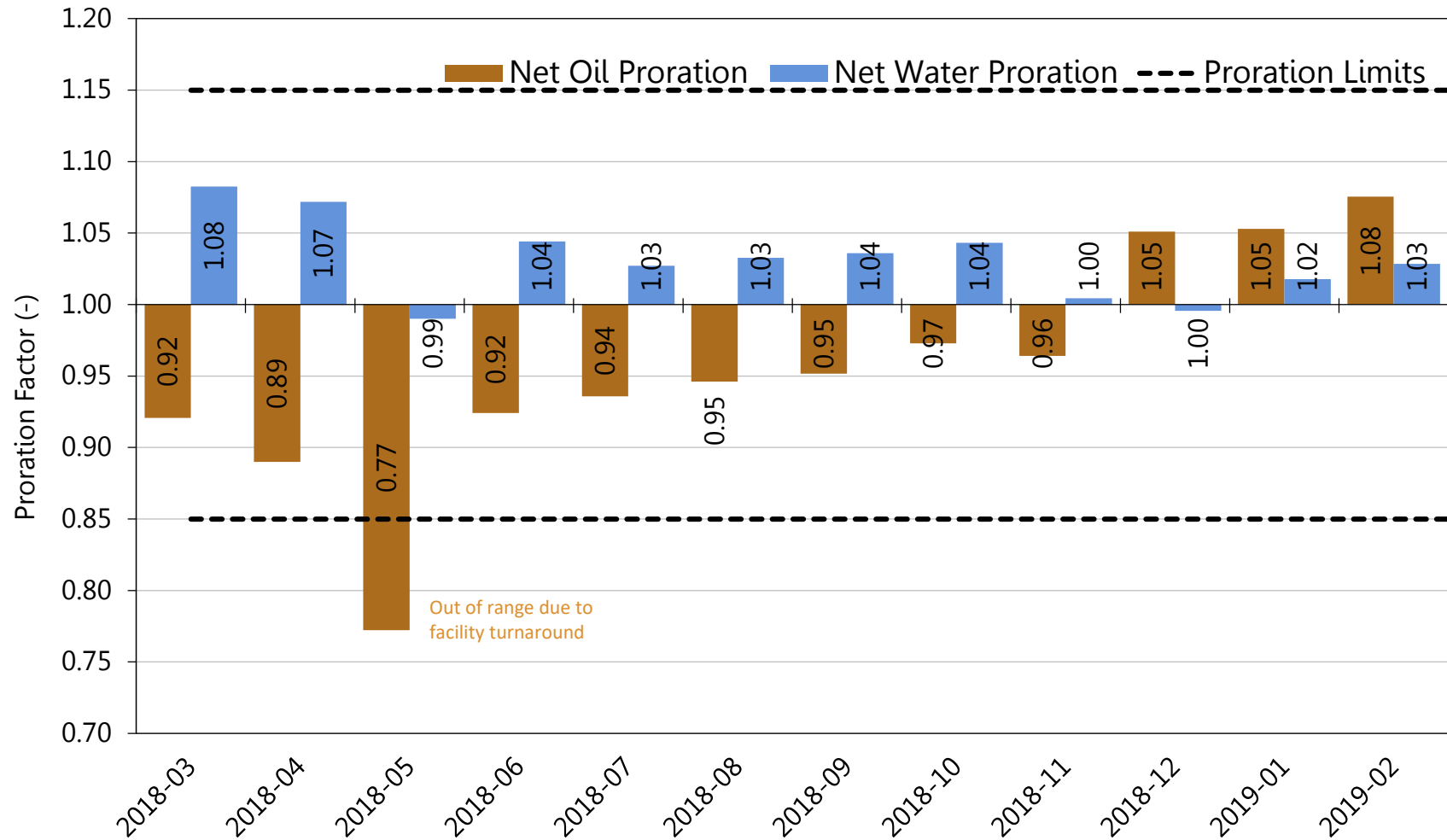
CPF

- MARP updated to reflect additional metering associated with OTSG 5, diluent optimization and degasser projects

WELL TESTING

- Well tests used to calculate daily bitumen and water production
- Six hour test with 1 hr. purge to improve oil calculation accuracy
- Pads 1, 3, 5 and equipped with full test headers and test separators
- Pad 4 equipped with full test header and Multi-Phase Flow Meters (MPFM)
- Pad 2 and 4 equipped with MFPM







SURFACE

FACILITY PERFORMANCE

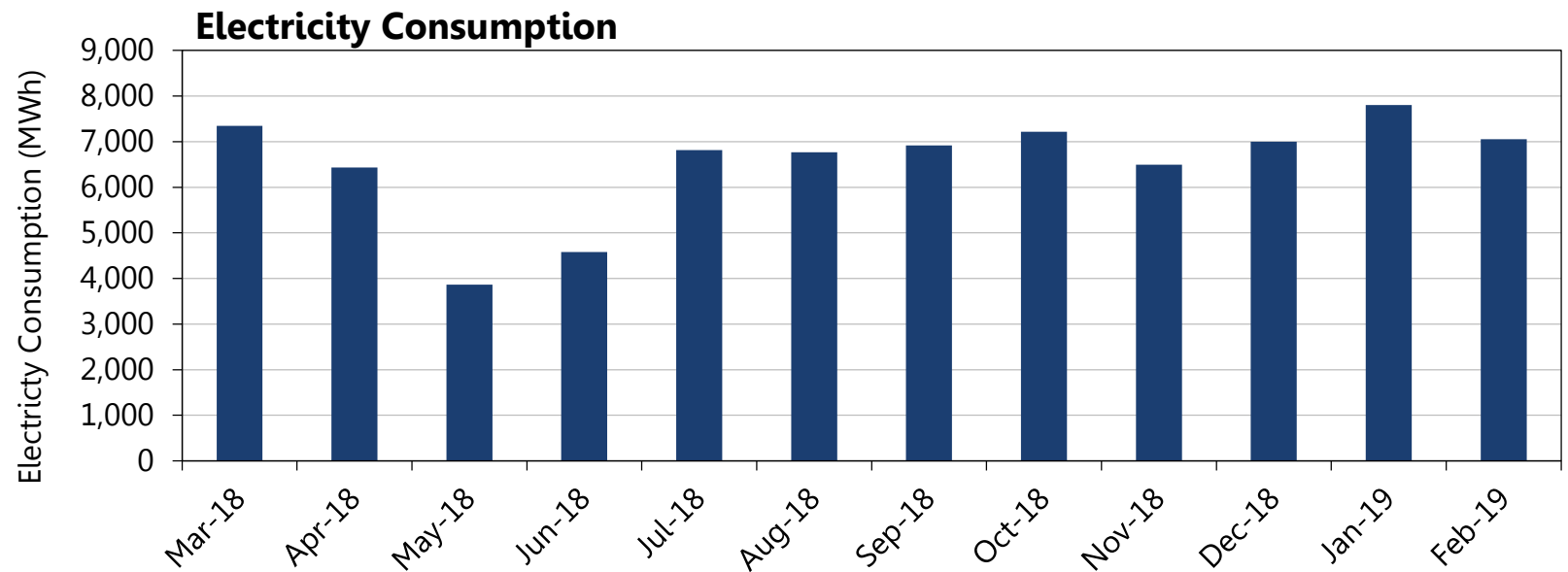
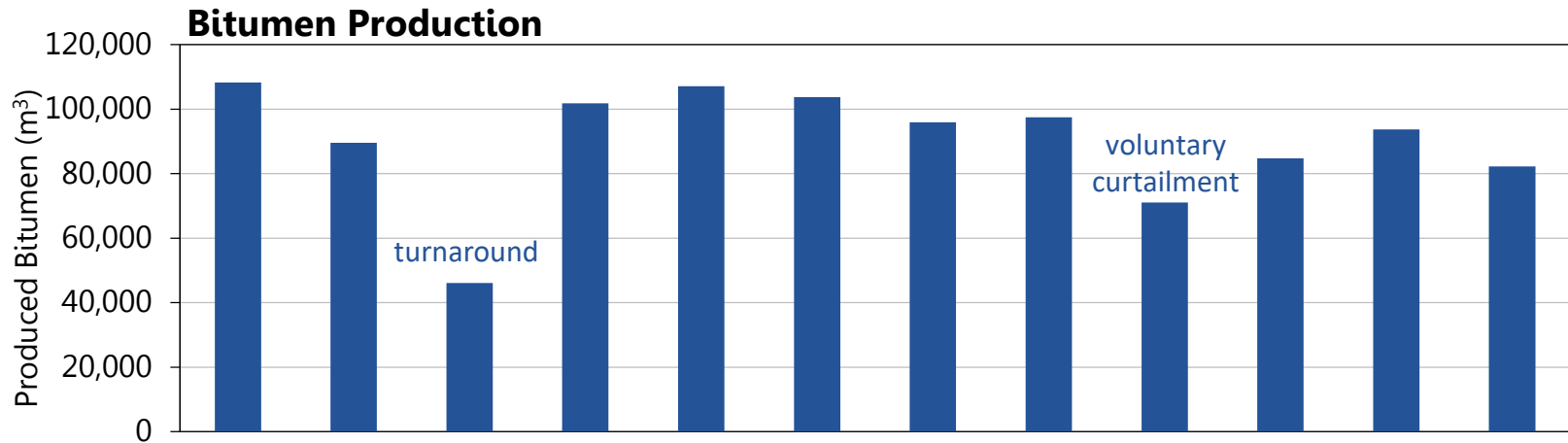
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SITE RELIABILITY HAS REMAINED HIGH

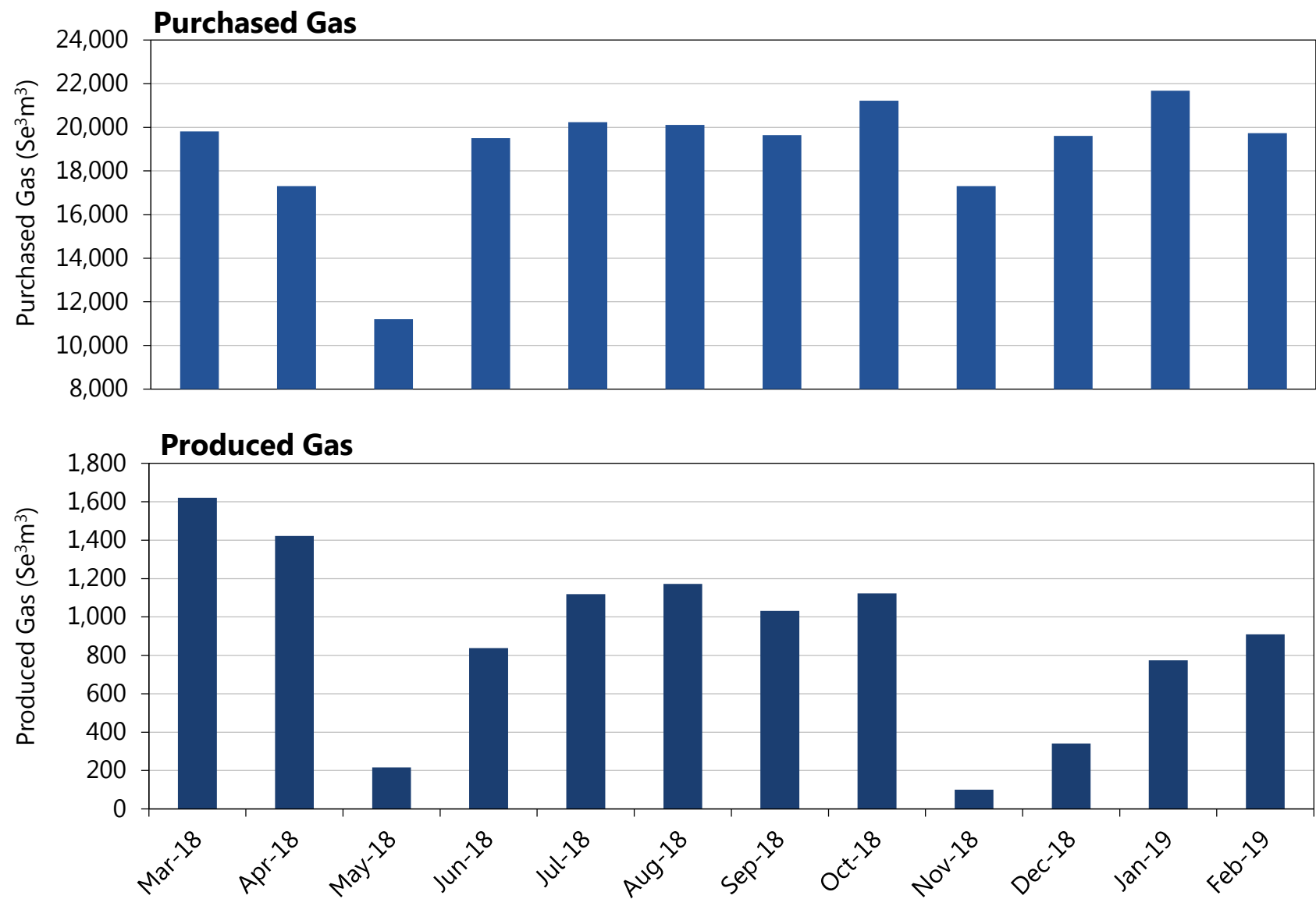
- CPF availability was 93% for 2018 including shutdown for planned turnaround
- Plant availability > 97% excluding turnaround
- Availability calculated based on steam capacity

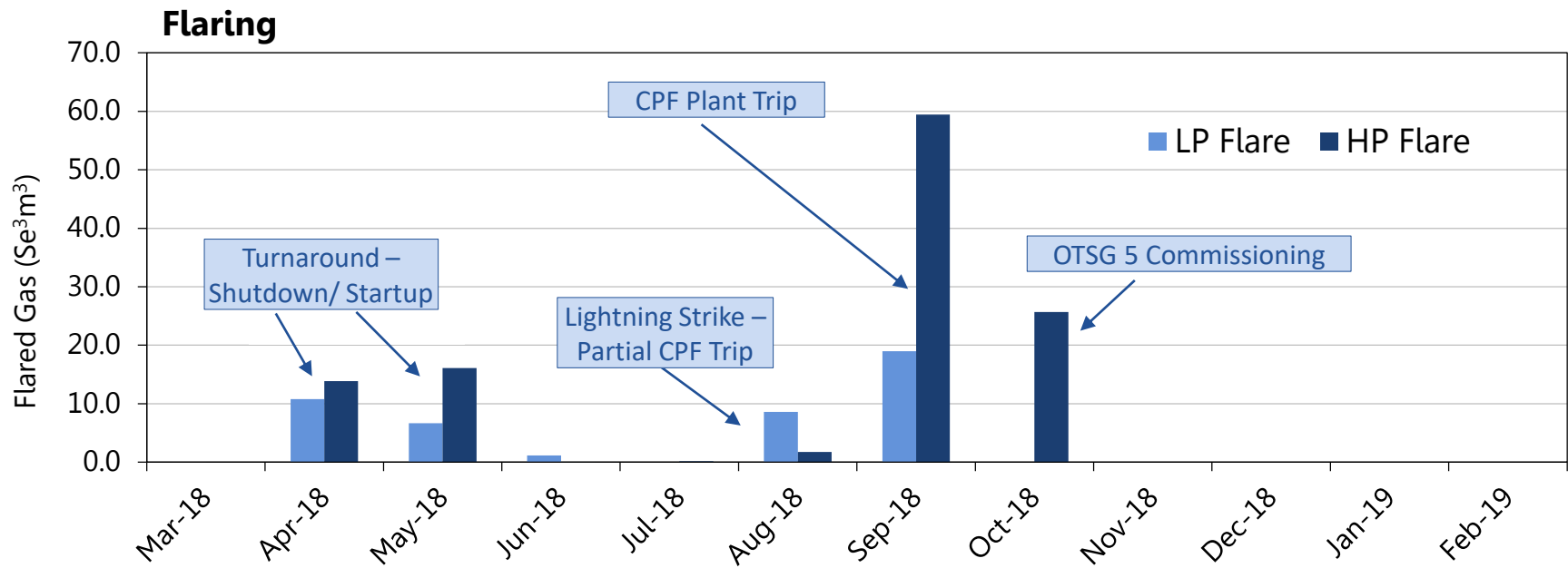
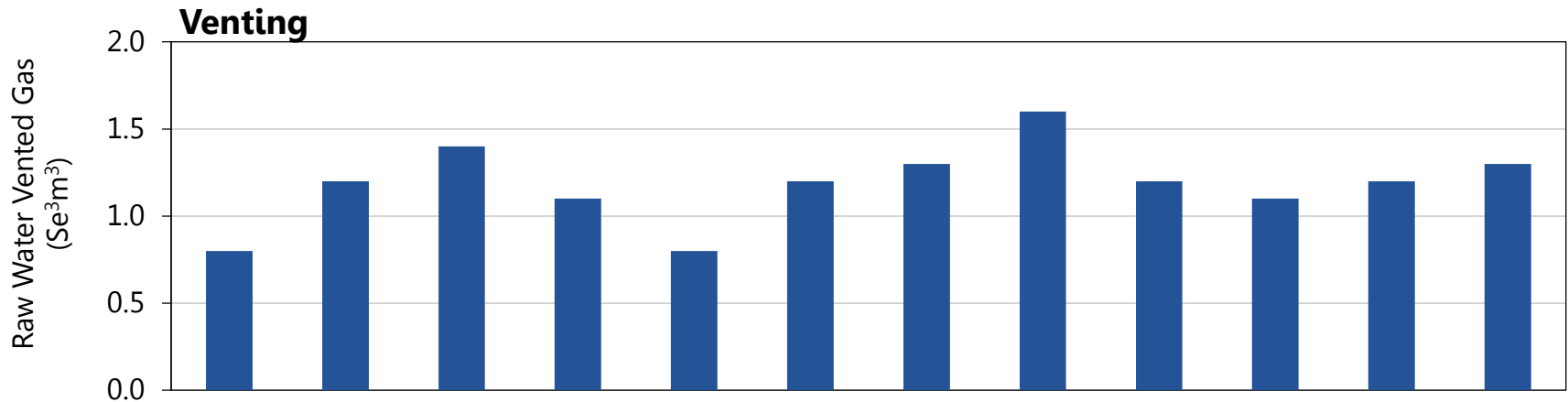
MAJOR ACTIVITIES

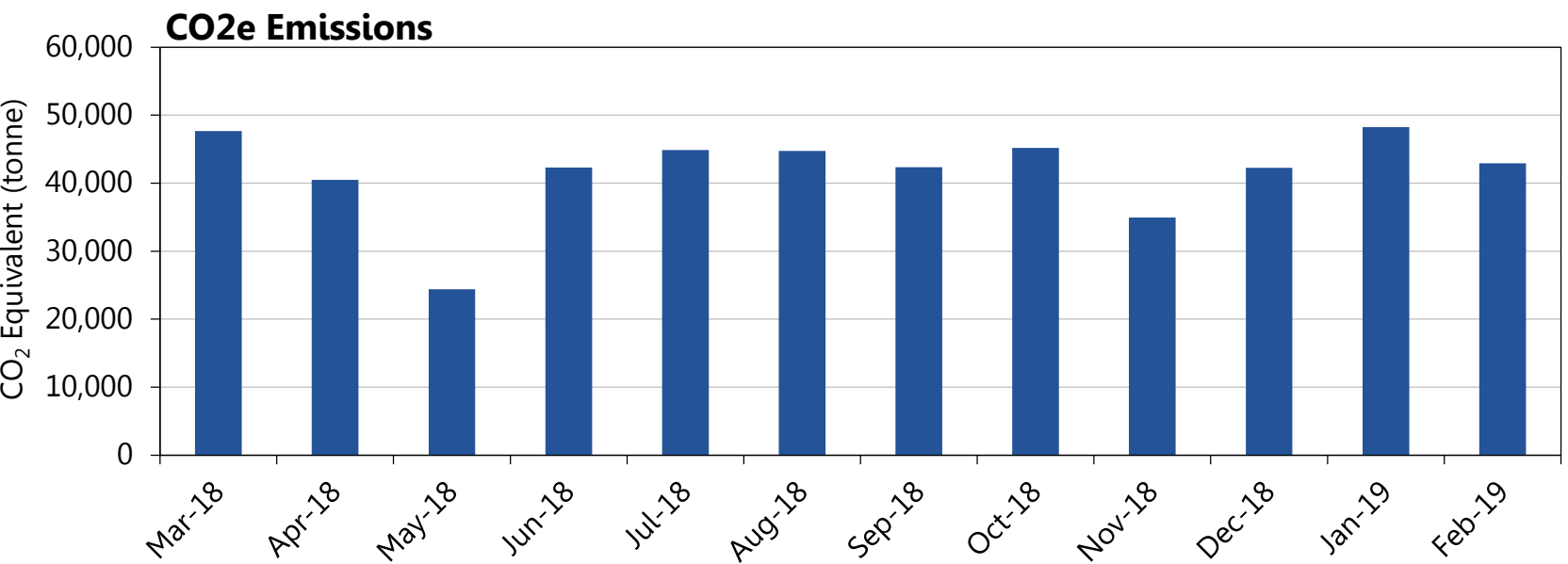
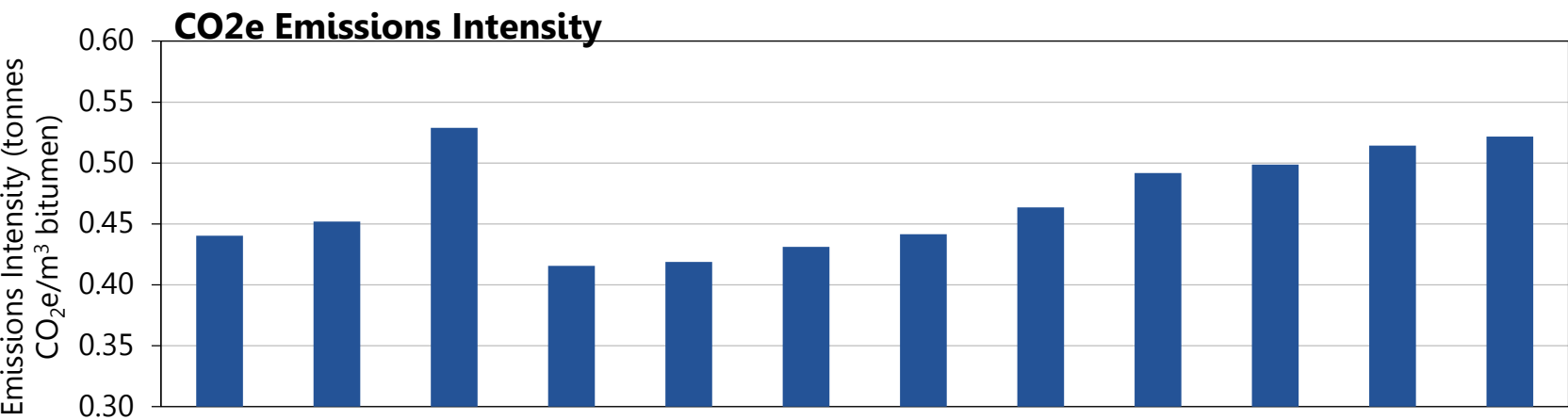
- Completed planned turnaround at CPF - May
- Completed Norlite pipeline tie-in (reduces diluent costs) - June
- Installed and start-up of de-gasser (reduces diluent use) - May
- Commissioned OTSG 5 (improves steam reliability) - September
- Completed diluent optimization at CPF (reduces diluent costs) - November



PURCHASED & PRODUCED GAS VOLUMES









SURFACE

WATER PRODUCTION, INJECTION & USES

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SOURCE WATER USE

- Water Act license allocation 317,915 m³/year (871 m³/day)
- Total non-saline water use from source wells during reporting period 199,000 m³ (545 m³/d)
 - 62% of license allocation
 - ~ 98.5% for process use at CPF
 - ~ 1.5% for domestic use at CPF
- No saline water use

SOURCE WATER MINIMIZATION

- Source water use reduced by approximately 20% from previous reporting period
- Source water intensity of 0.18 bbl water/bbl bitumen over the reporting period
- Balanced reservoir conditions minimize make-up water volume requirements
- High blowdown recycle rates minimize source water demand

TYPICAL WATER QUALITY

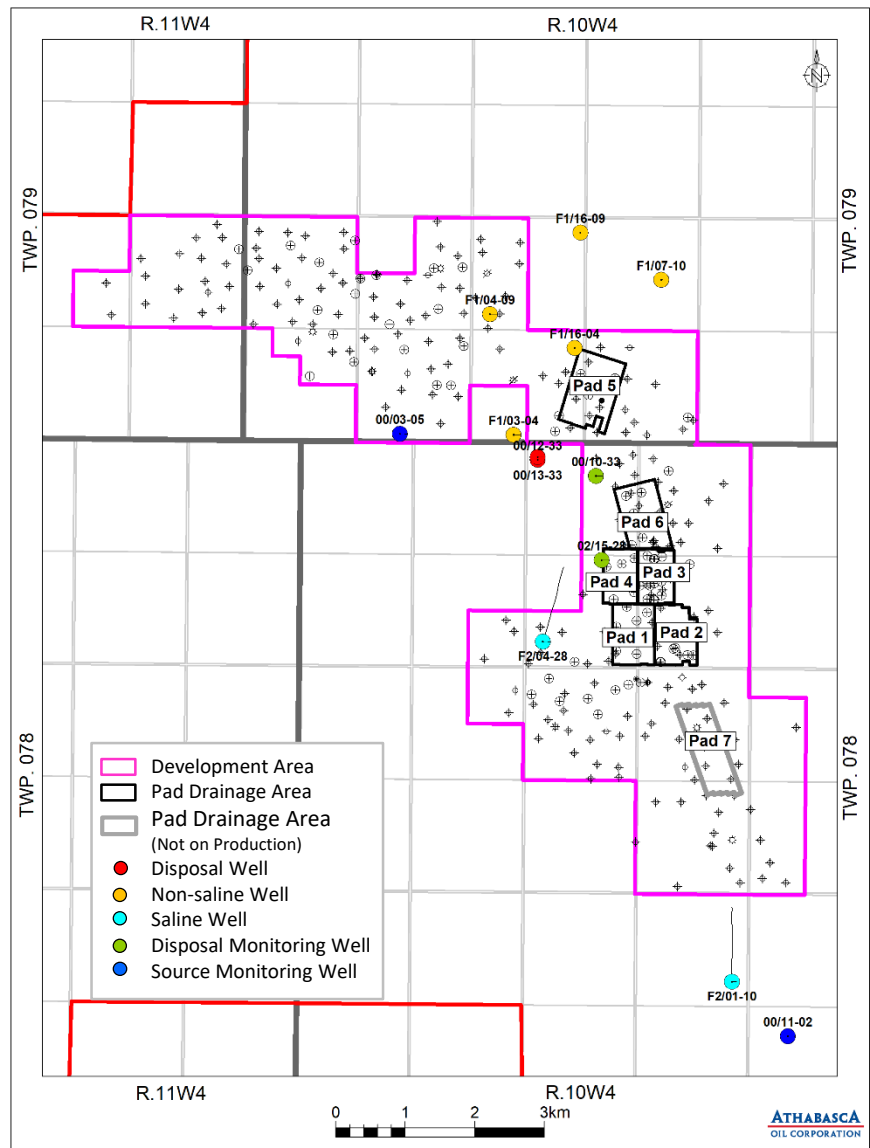
| Parameter | Non-saline Water | Produced Water | Disposal Water |
|--|------------------|----------------|----------------|
| TDS [mg/L] | 1,475 | 2,450 | 28,400 |
| pH [-] | 8.1 | 7.4 | 12.0 |
| Hardness [mg/L as CaCO ₃] | 4.7 | 22 | 1.1 |
| Total Alkalinity [mg/L as CaCO ₃] | 850 | 230 | 6,300 |
| SiO ₂ [mg/L] | 0 | 255 | 200 |
| Cl [mg/L] | 230 | 1200 | 11,000 |

SOURCE WATER NETWORK

- 5 Lower Grand Rapids non-saline wells
 - 1F1/16-09-079-10W4/00, 1F1/07-10-079-10W4/00
 - F1/04-09-079-10W4/00, 1F1/16-04-079-10W4/00
 - 1F1/03-04-079-10W4/00
- 2 Clearwater B saline wells
 - 1F2/04-28-078-10W4/00
 - 1F2/01-10-078-10W4/00
- 3 well source water monitoring network
 - 100/03-05-079-10 W4/00 (local)
 - 100/11-02-078-10 W4/00 (regional)
 - 100/03-22-081-08 W4/00 (regional)

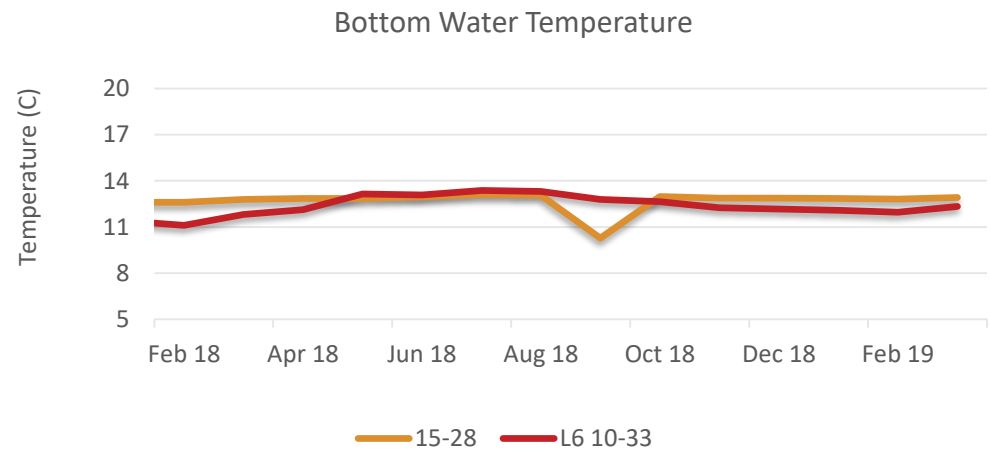
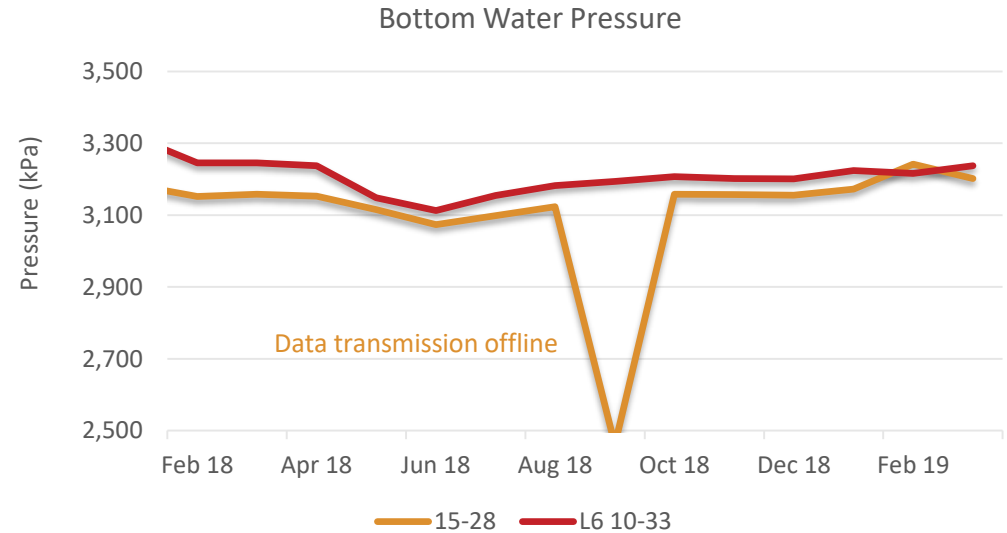
DISPOSAL NETWORK

- Class 1b Disposal, Approval No. 11479B
- 2 Basal McMurray disposal wells
 - 100/12-33-078-10W4/00
 - 100/13-33-078-10W4/00
- 2 well disposal monitoring network

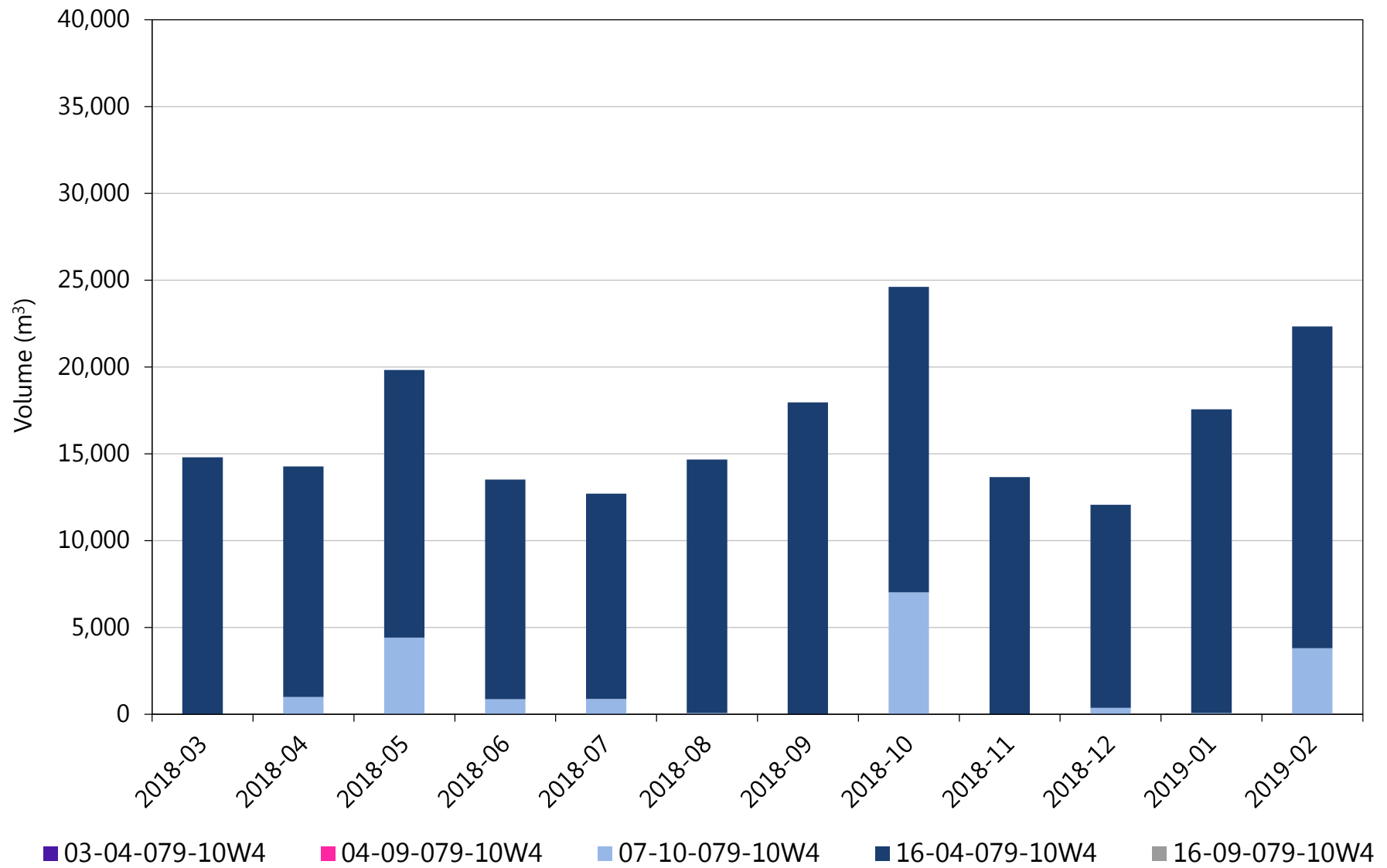


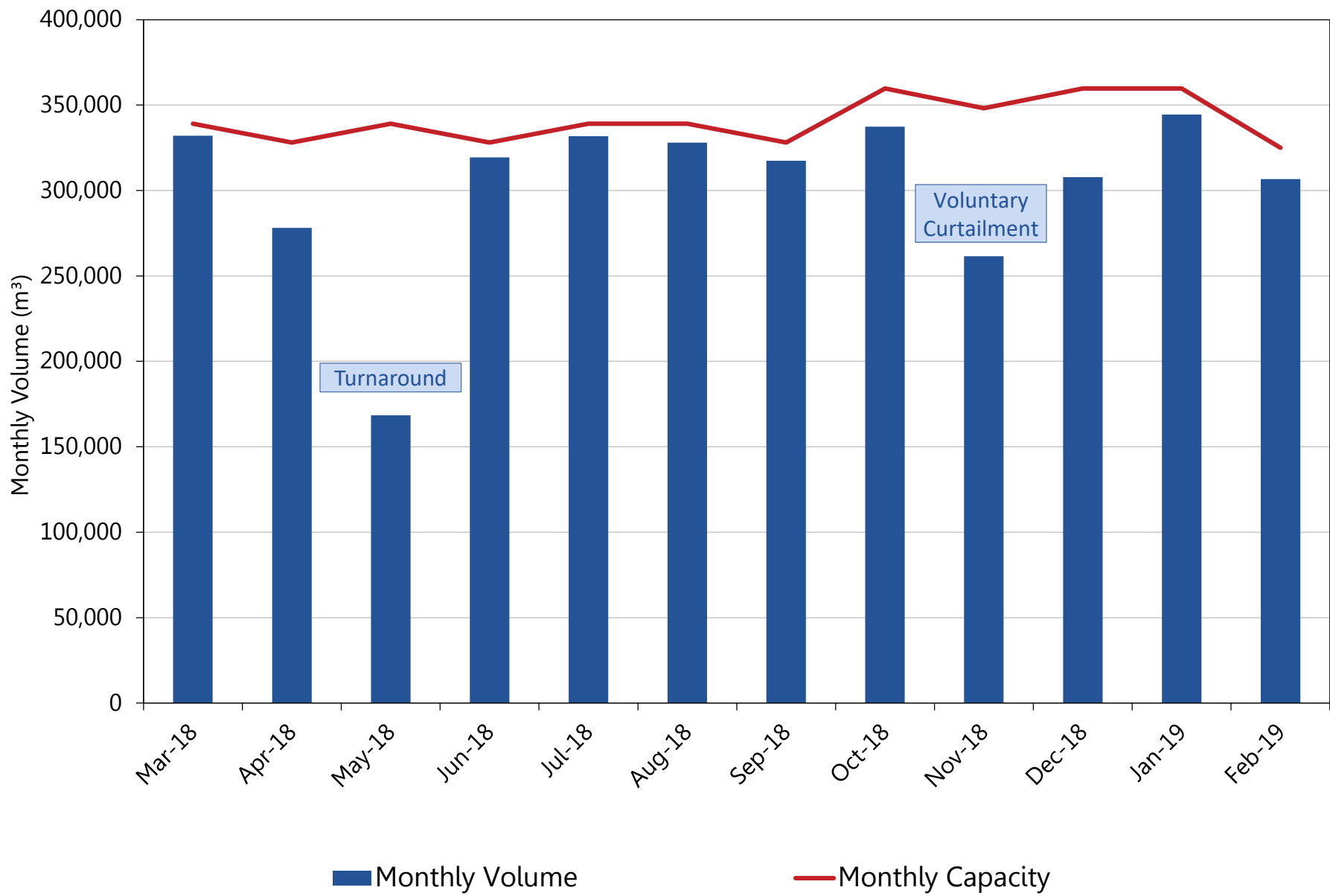
DISPOSAL WELL MONITORING

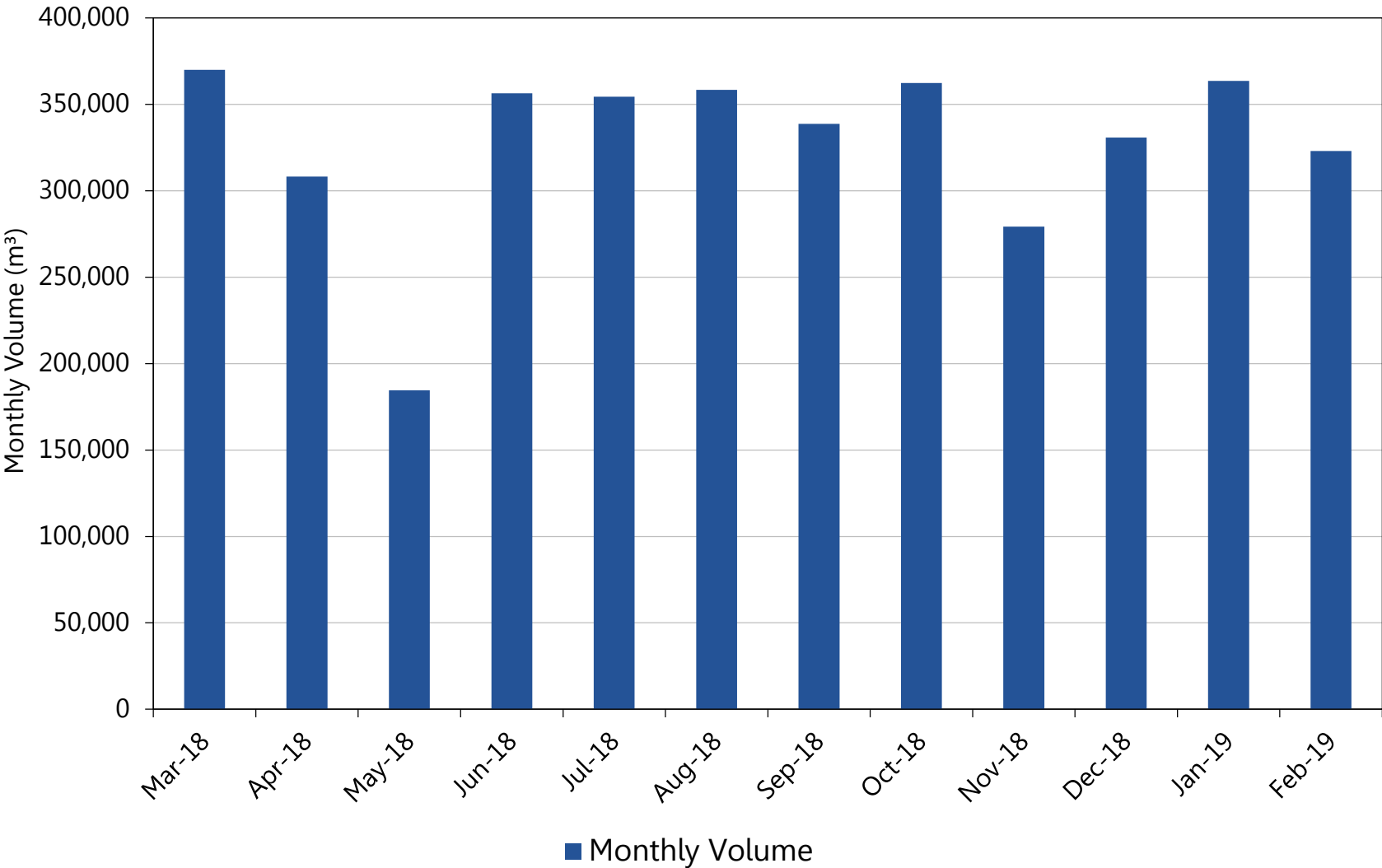
- 2 monitoring wells measuring pressure and temperature
 - 100/10-33-078-10W4/2
 - 102/15-28-078-10W4/00
- Bottom water temperature and pressure measurements consistent year-over-year

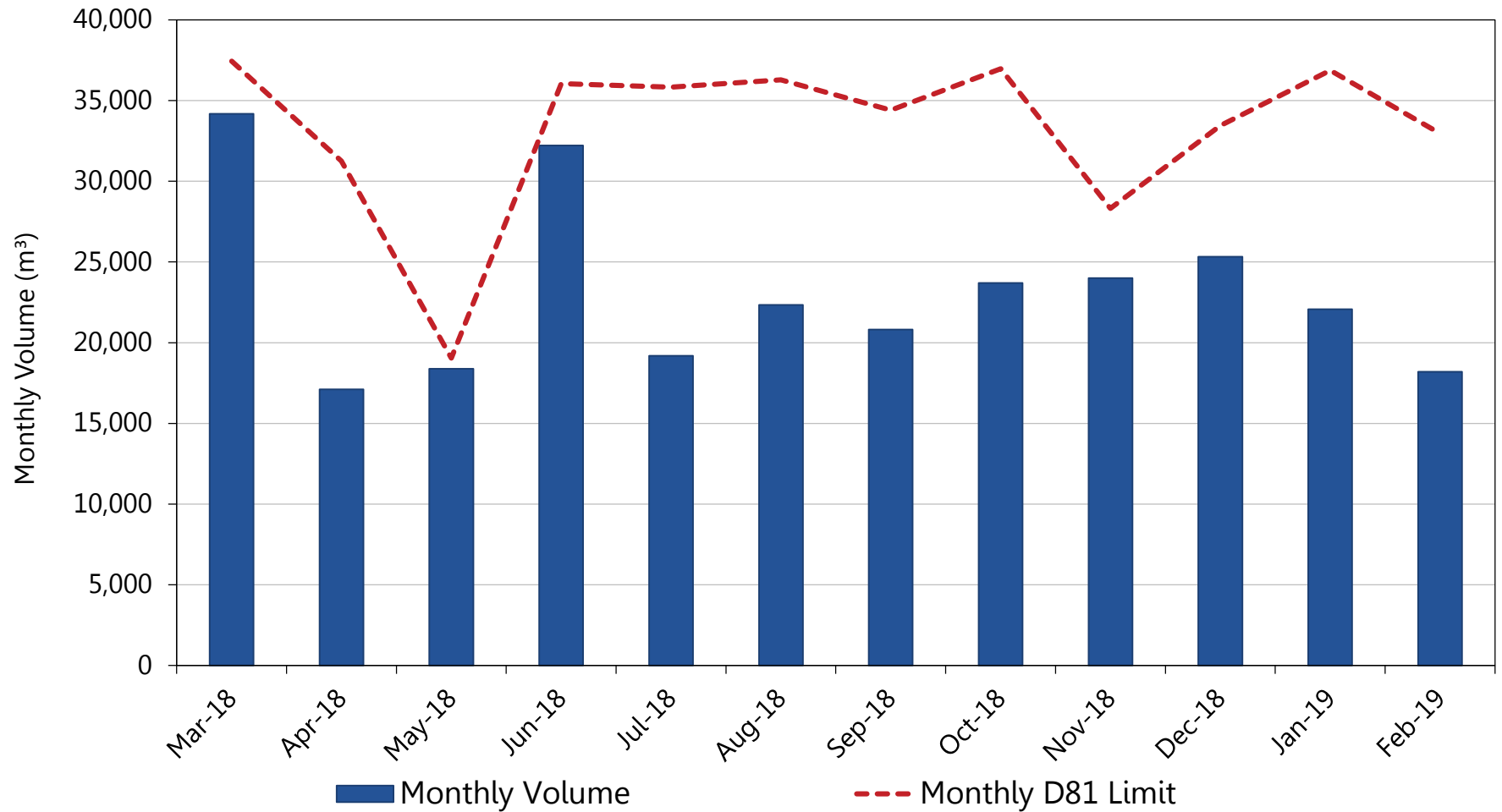


SOURCE WATER USAGE



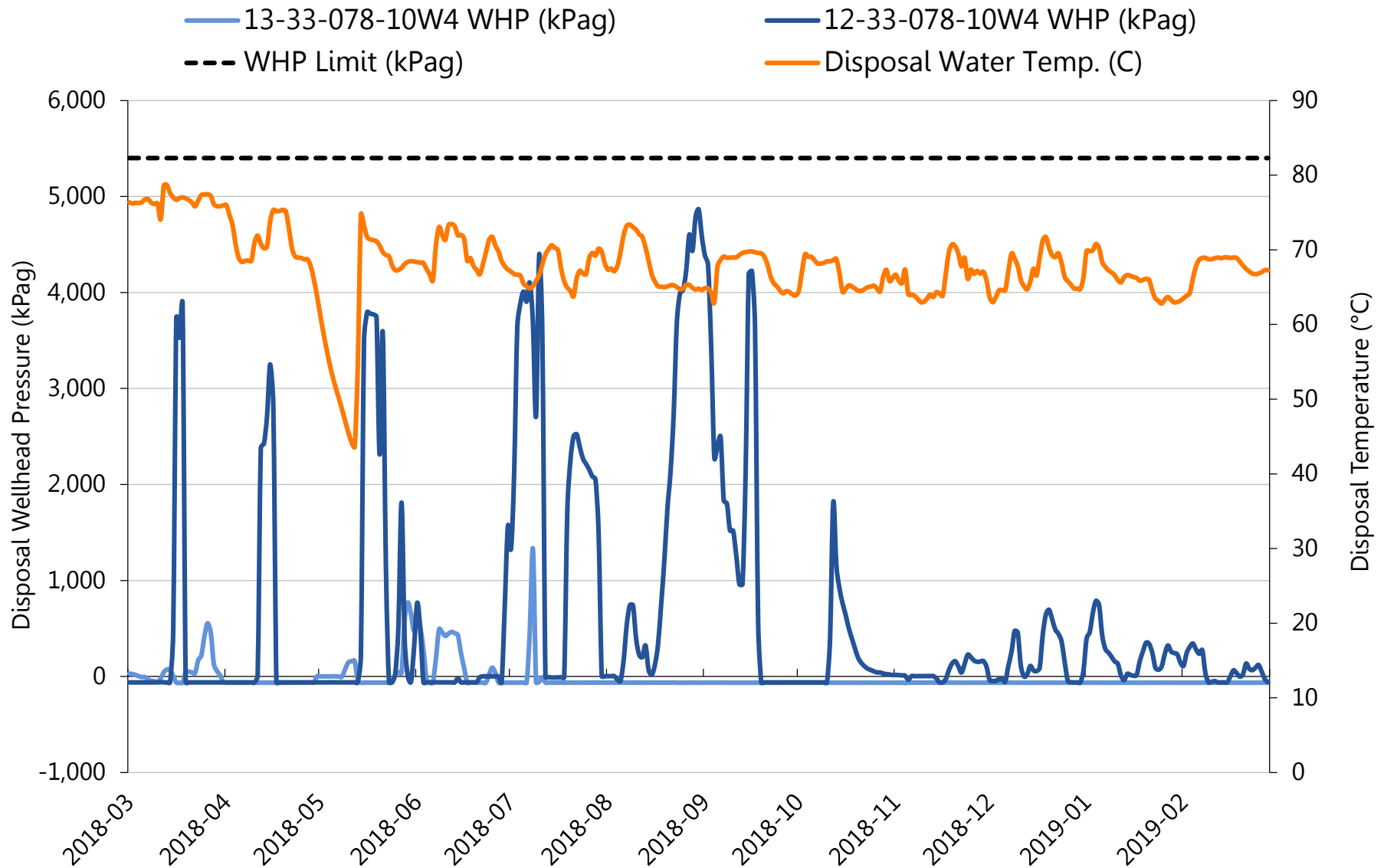


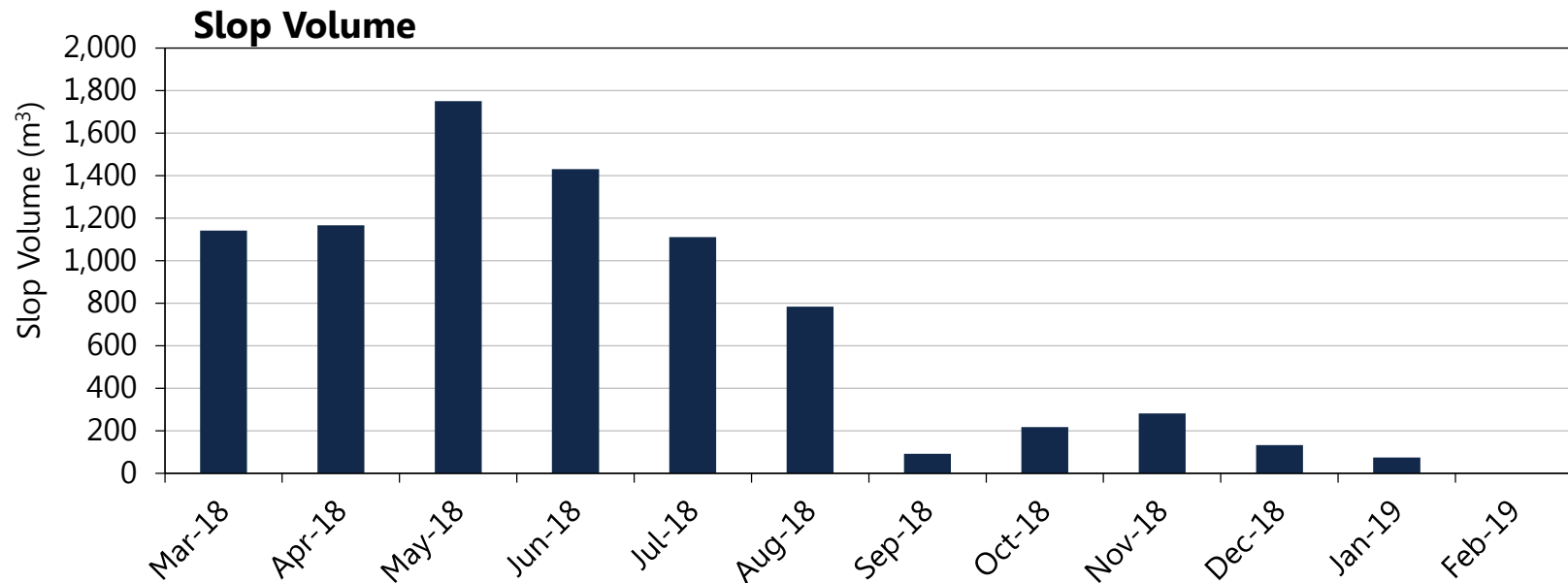
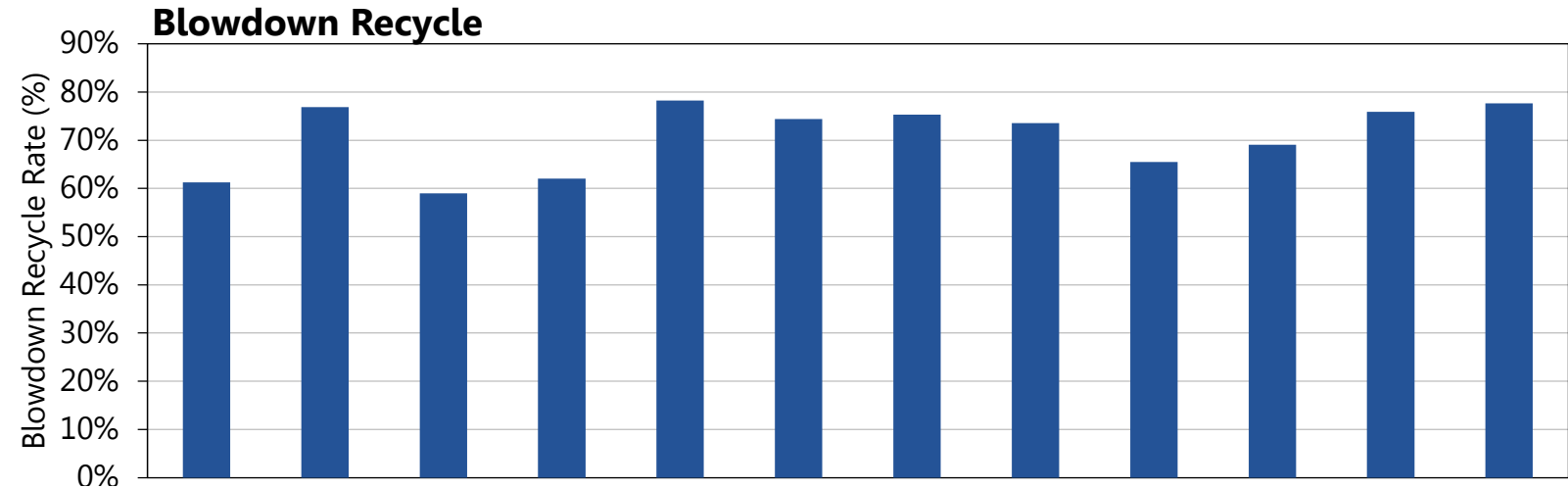




○ Disposal limit calculated as per Directive 081

DISPOSAL WATER PRESSURE & TEMPERATURE 61





SOLIDS DISPOSAL:

- Water treatment solids (lime softening) are pumped to settling pond
- The pond is dredged and solids removed for offsite disposal as required
- No disposal required during this reporting period

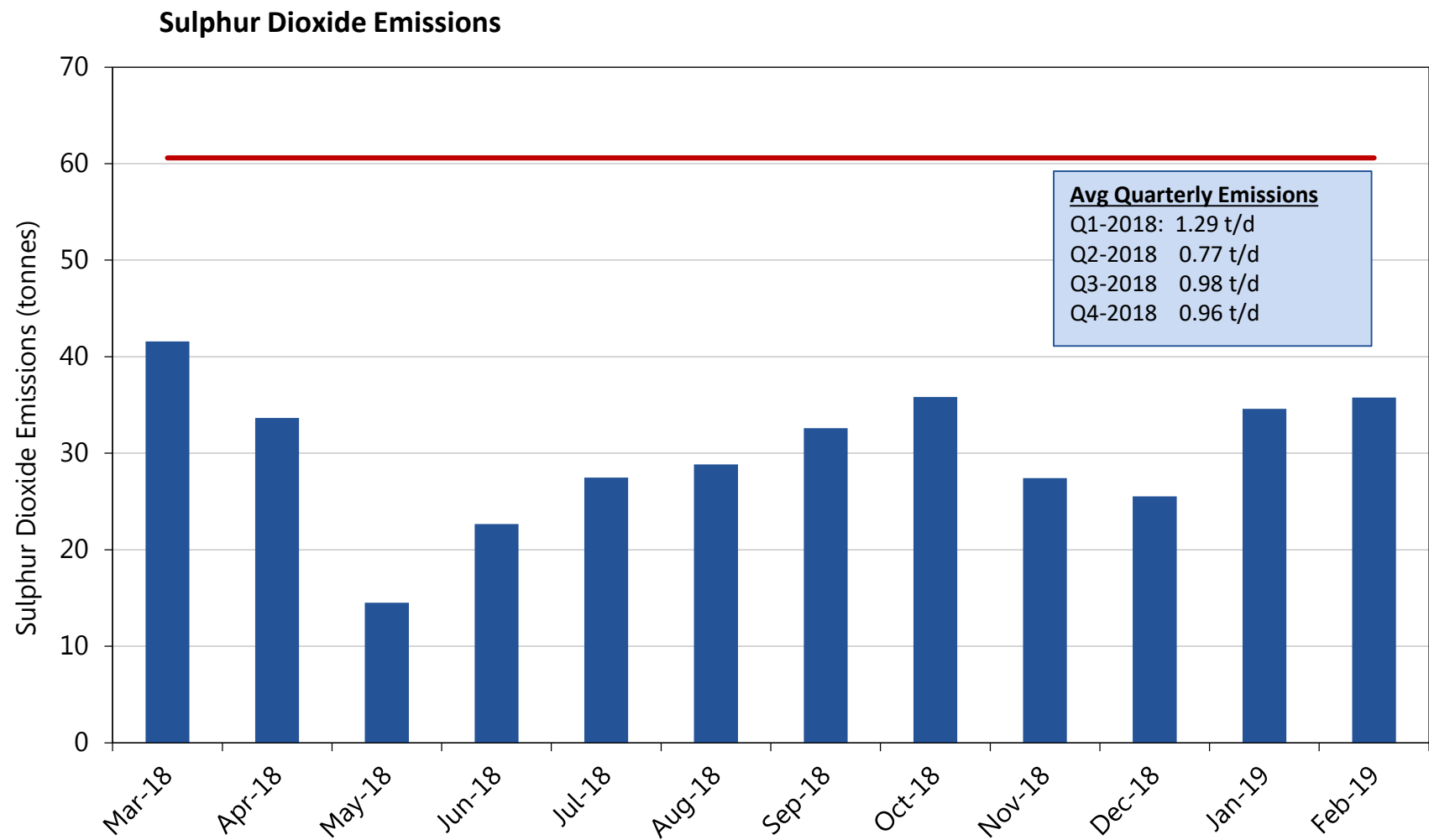


SURFACE
SULPHUR PRODUCTION

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SULPHUR & SULPHUR DIOXIDE REPORTING

- EPEA Approval No. 241311 limit is 2.0 t/d of SO₂ emissions
- Average daily SO₂ emissions over period was 0.99 t/d (50% of approval limit)
- SO₂ emissions are calculated based on analytical results of produced gas samples
- There are no sulphur recovery facilities at Leismer



LEISMER FUTURE PLAN

- CPF debottlenecking to support additional pads/production as required



COMPLIANCE
REGULATORY & ENVIRONMENT

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APPROVALS AND AMENDMENTS

| Date | Approval/Amendment | Activity |
|----------------|--|---|
| March 2018 | OSCA Approval No. 10935 EPEA 241311-00-06 | Replace approved 104.3 MW OTSG with a 124 MW OTSG |
| July 2018 | Disposal Approval No. 11479B | Amend monitoring well network (replacement well) |
| August 2018 | OSCA Approval No. 10935V | Pad 8 Development - 10 well pairs and 9 infill wells |
| September 2018 | OSCA Approval No. 10935W | Pad 6 Infill Development – 4 infill wells |
| November 2018 | OSCA Approval No. 10935X | Non-Condensable Gas Co-injection – project pads as required |
| January 2019 | WA License No. 00239880 | Amendment to measure water level when a well is producing |

Notes

- OSCA – Oil Sands Conservation Act (scheme approval)
- EPEA – Environmental Protection and Enhancement Act Approval
- WA - Water Act

| Inspections | | | |
|------------------------------------|--------------------------|---------------|-------------------------|
| Event | Location | Inspection ID | Result |
| AER Watercourses, August 3, 2018 | LOC 930765 LOC 931332 | 47717 | Satisfactory |
| AEP Borrow Pit, July, 11, 2018 | SML 140055 | N/A | Compliance, August 2018 |
| AER EPEA 241311, October 22, 2018 | CPF 08-02-079-10 W4 | 482196 | Satisfactory |
| AER Pipeline, October 22, 2018 | License 58659 | 482196 | Satisfactory |
| AER EPEA 241311, November 22, 2018 | CPF 08-02-079-10 W4 | 482418 | Satisfactory |

AUDITS

- AER, July 27, 2018, requested the Site-Specific Liability Assessment (SSLA) for CPF
 - *SSLA Submitted, August 2018*

| Non-Compliance Summary | |
|---|---|
| Event | Corrective Action |
| April 18, 2018 – AER Notice of Non-Compliance (MARP), Directive 017, Section 12.3.2 January 21, 2019 - AER requested Directive 017 Variance for bitumen measurement outside the scheme boundary (MARP) | AOC submitted requested information May 24, 2018 AOC submitted Directive 017 Variance Request February 7, 2019 |
| August 27, 2018 – heavy rain washed out berm resulting in unapproved release of surface water (EPEA Approval No. 241311) | AOC repaired damaged berm and inspected entire berm system to ensure no further potential |
| January 30, 2019 – transducer failure prevented daily water level measurement in wells (Water Act Approval No. 239880) | AOC completed equipment repair and replacement |

From March 1, 2018 to February 28, 2019 there were 3 reportable releases

AIR QUALITY MONITORING

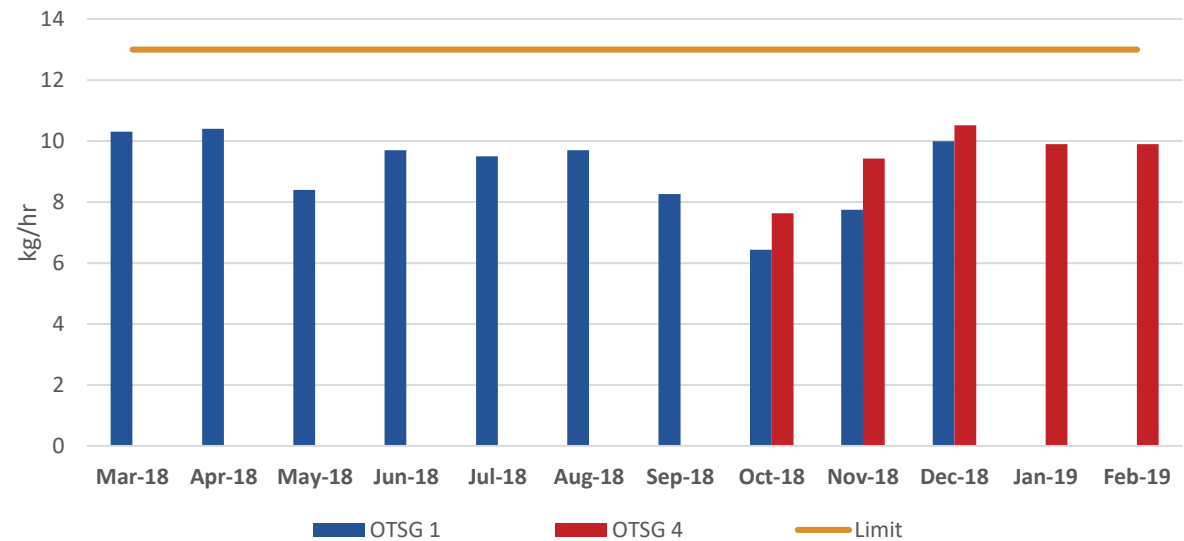
- Passive air monitoring – no exceedances (SO_2 , NO_2 , H_2S) of Ambient Air Quality Objectives
- Continuous ambient air monitoring
 - *WBEA air monitoring station used, Q1 2018 – only March 2018 data applicable for this reporting period*
 - *No exceedances (SO_2 , NO_2 , H_2S) of Ambient Air Quality Objectives*
- All monitoring stations registered as required by new Air Monitoring Directive - Jan. 2019
- Leismer has 2 CEMS units reporting data
 - *New CEMS units on OTSG 4 & OTSG 5 installed and certified during reporting period*
 - *CEMS unit on OTSG 1 decommissioned December 2018*



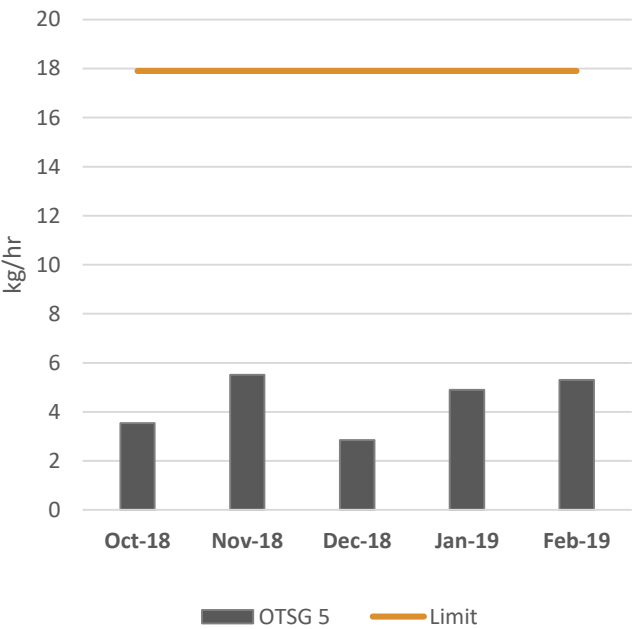
NO_x MONTHLY AVERAGE

- New CEMS installed on OTSG 4 & 5, operational October 2018
- CEMS on OTSG 1 no longer reporting as of January 2019

OTSG 1 & 4 - Monthly Average NO_x



OTSG 5 - Monthly Average NO_x



ENVIRONMENTAL PROTECTION & ENHANCEMENT ACT (EPEA) APPROVAL

- EPEA monitoring programs and/or reports completed during the reporting period:
 - *Monthly and annual air emissions*
 - *Industrial wastewater and runoff*
 - *Groundwater water - including thermal screening assessment for well pads, new requirement June 2018*
 - *Soil Monitoring Program report and Soil Management Program Proposal*
 - *Conservation and Reclamation*
 - *Wildlife – wildlife monitoring report is submitted every 3 years (May 15, 2018)*
- The AER authorized the following program/plans during the reporting period:
 - *Reclamation Monitoring Program - October 2018*
 - *Project-Level Conservation, Reclamation and Closure Plan - January 2019*

WATER ACT

- All diversions were below license limits and monthly and annual reporting completed
 - *Groundwater licenses (0239880, 0029742, 00368609)*
 - *Surface water licenses (00273542, 00364442, 00364731)*

RECLAMATION PROGRAMS

- MSL 121772 - completed soil placement, contouring, woody debris placement in preparation for tree planting in spring 2019
- Outstanding OSE sites (251) received reclamation certificates in January 2019
- AOC has received reclamation certificates for **all** OSE programs at Leismer



AOC IS A FUNDING MEMBER OF:

- Oil Sands Environmental Monitoring
- Wood Buffalo Environmental Association (WBEA) – air shed monitoring
- Regional Industry Caribou Collaboration (RICC)
- Oil Sands Black Bear Partnership
- Faster Forests – reclamation research industry collaboration
- Industrial Footprint Reduction Options Group (iFROG) – wetland reclamation industry collaboration

AOC PARTICIPATES IN:

- Various CAPP Committees
 - *Oil Sands Environmental Policy and Regulatory Committee*
 - *NE Alberta Caribou Working Group*
 - *Indigenous Affairs Committee*
 - *Air Issues Committee*

ATHABASCA OIL CORPORATION LEISMER PROJECT IS IN COMPLIANCE WITH AER APPROVALS AND REGULATORY REQUIREMENTS

- For the period of March 1, 2018 to February 28, 2019 AOC has no unaddressed non-compliant events

The logo for Athabasca Oil Corporation features the word "ATHABASCA" in a large, bold, blue serif font. A thick red horizontal line is positioned directly beneath "ATHABASCA". Below this line, the words "OIL CORPORATION" are written in a smaller, blue, all-caps sans-serif font.

ATHABASCA

OIL CORPORATION

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