



ATHABASCA OIL CORPORATION
LEISMER D054 PERFORMANCE REPORT 2021
JUNE 2022

ATHABASCA
OIL CORPORATION

SUMMARY

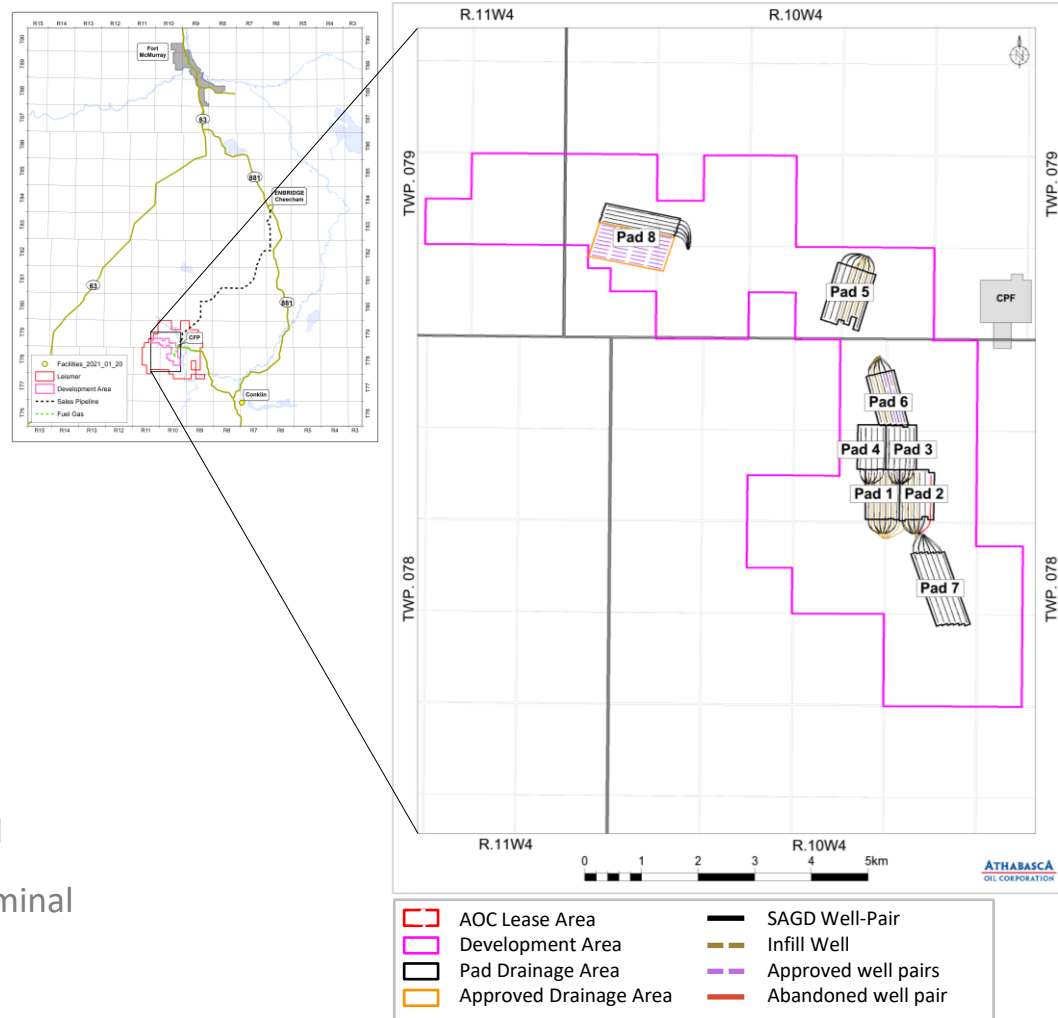
- Development Overview
- Subsurface
- Surface Operations
- Regulatory and Compliance

PROJECT DETAILS

- First steam September 2010
- Approved processing capacity 40,000 bbl/d
- 8 producing pads
 - 45 horizontal well pairs
 - 15 infill wells
- Approved for development
 - Pad 8 (9 additional well pairs)
 - Pad 6 (2 infills)

INFRASTRUCTURE

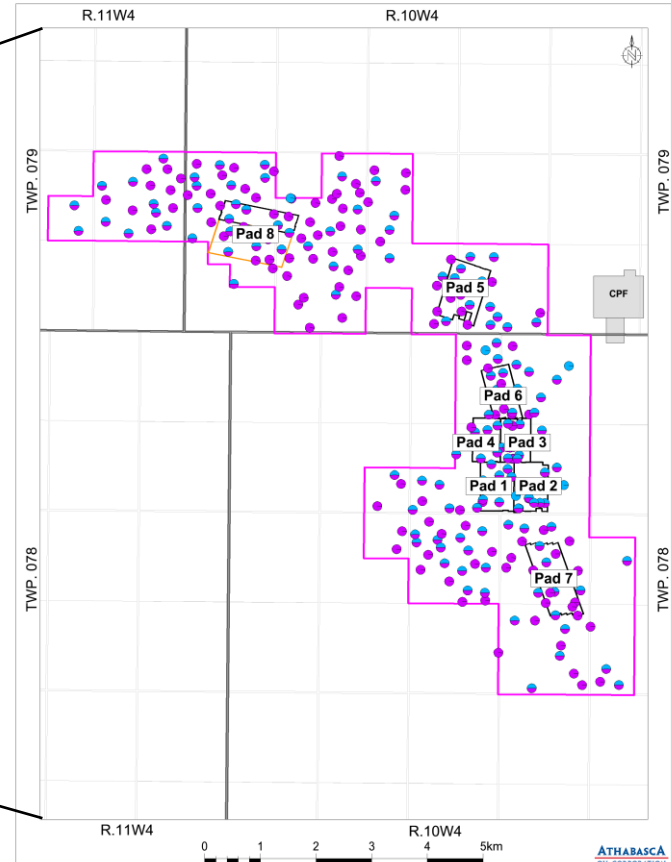
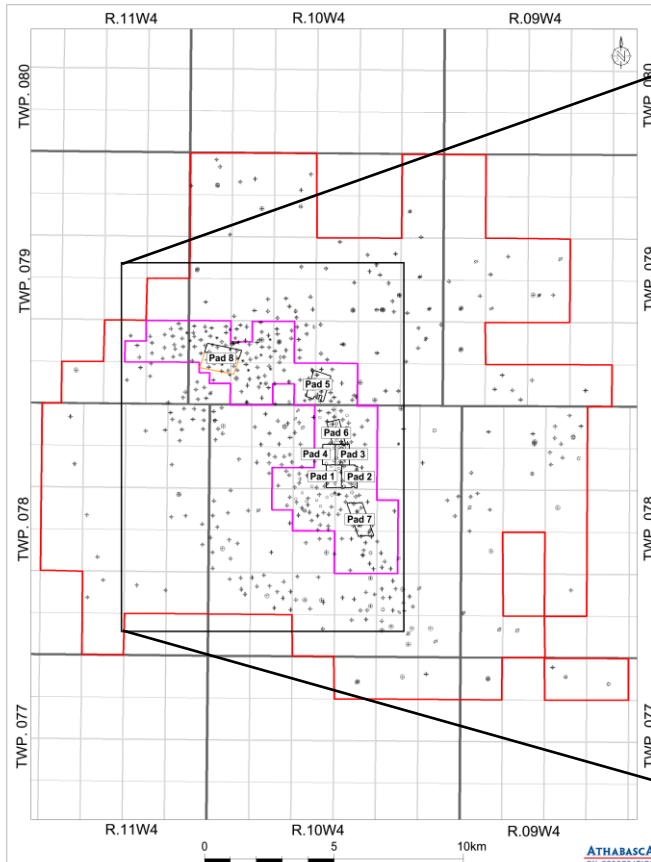
- Fuel gas from TransCanada Pipeline (TCPL)
- Dilbit export to Enbridge Cheecham Terminal
- Diluent supply from Enbridge Cheecham Terminal





SUBSURFACE

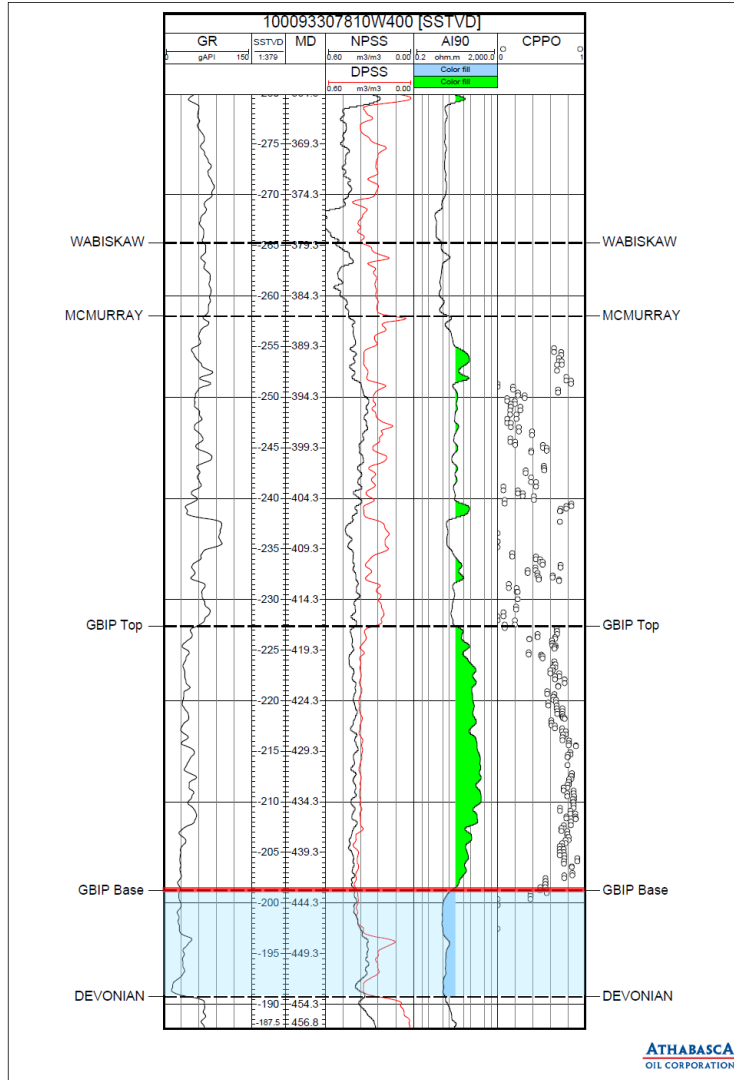
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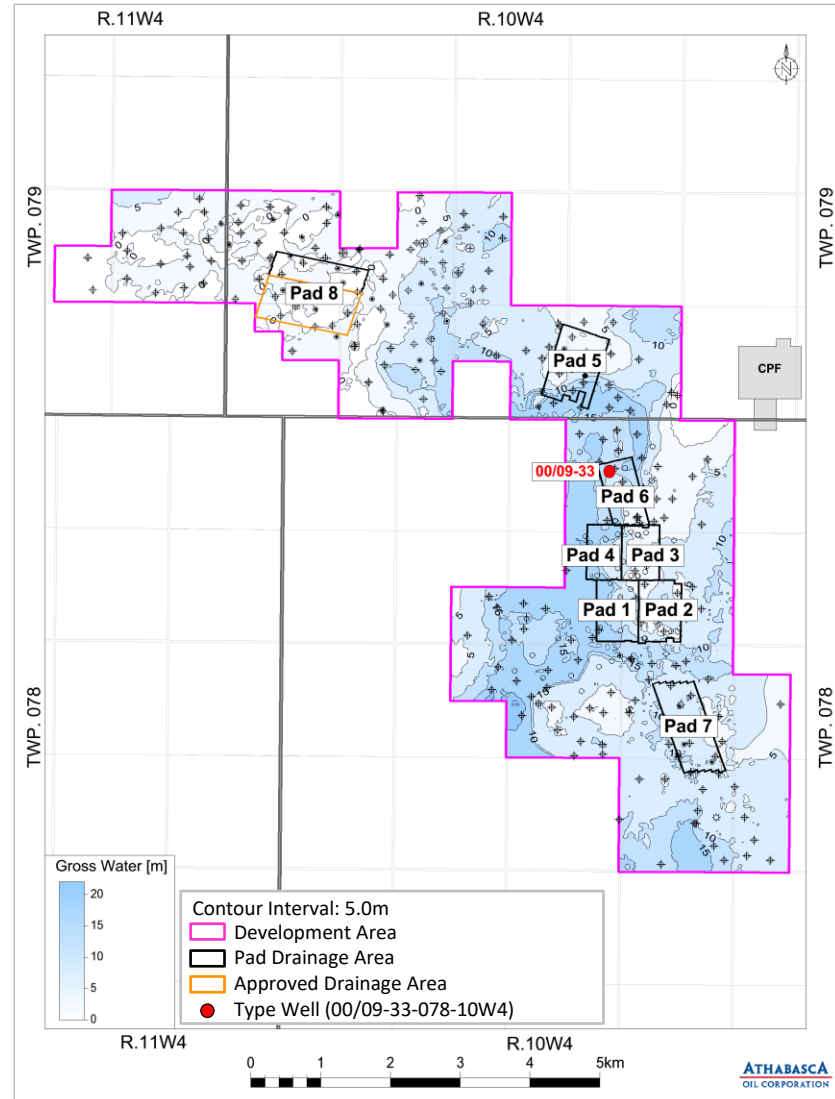
Area	Area (km ²)	Cored Wells	Image Logs
Lease Area	326	370	625
Development Area	37.4	145	244

- ▭ AOC Lease Area
- ▭ Development Area
- Pad Drainage Area
- Approved Drainage Area
- Cored Well
- Image Log(HMI) Well

BOTTOM WATER THICKNESS MAP

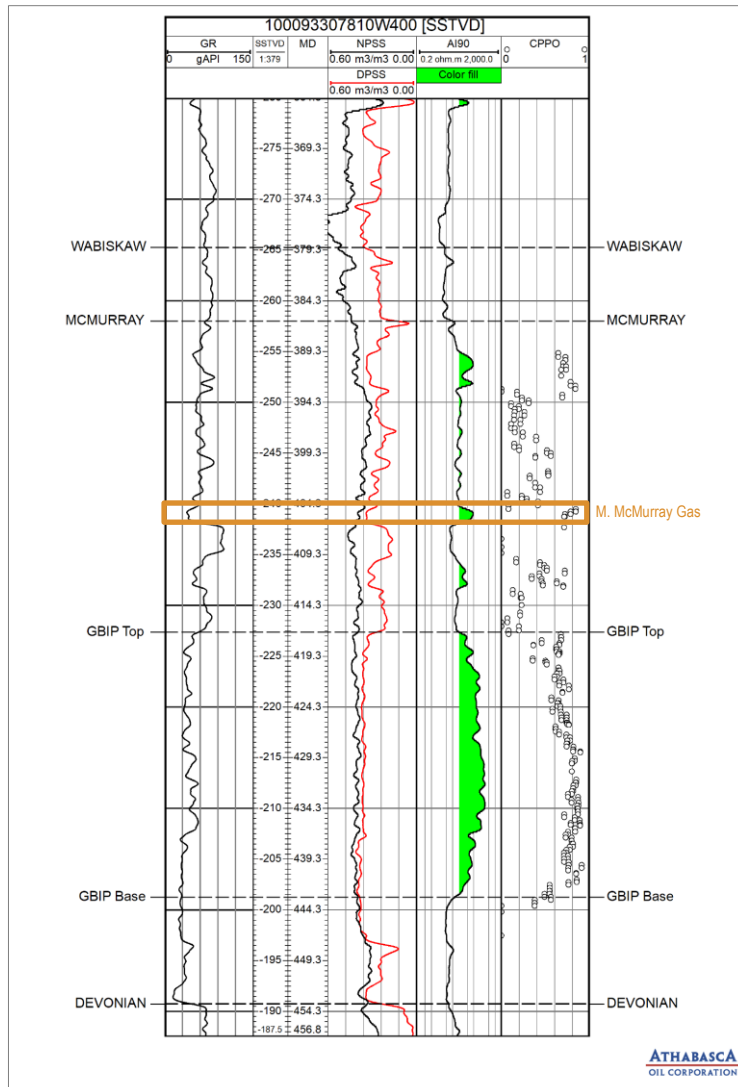


Elevation Range 191 -213 masl



TOP GAS THICKNESS MAP

MINIMAL GAS THICKNESS AND LIMITED DISTRIBUTION WITHIN DEVELOPMENT AREA

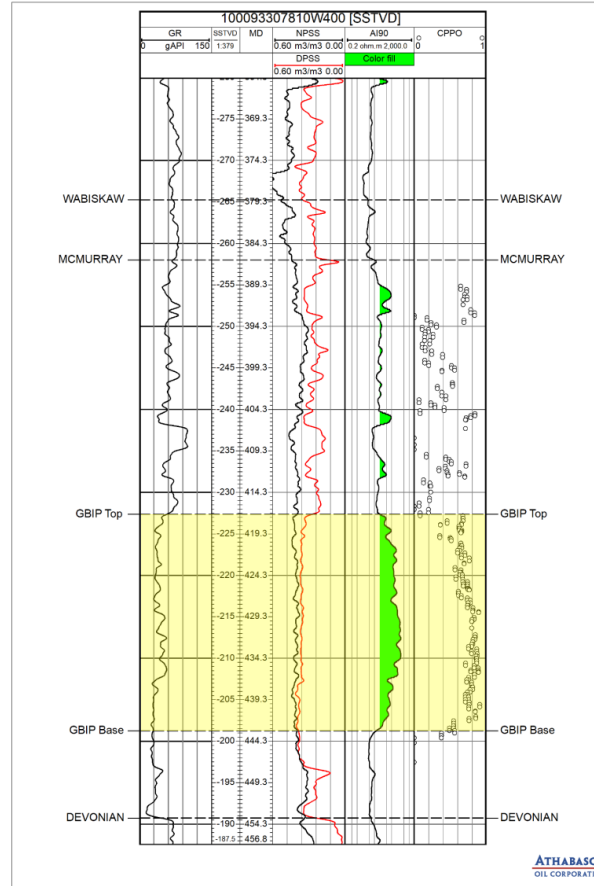


RESERVOIR CRITERIA

- Facies classification based on percentage mud
 - F1: Breccia = variable
 - F2: Sand = 0-10%
 - F3: Sandy IHS = 10-30%
 - F4: Muddy IHS = 30-70%
 - F5: Mud = >70%
- Gross Bitumen in Place (GBIP) Reservoir criteria: F1-4, <1m F5

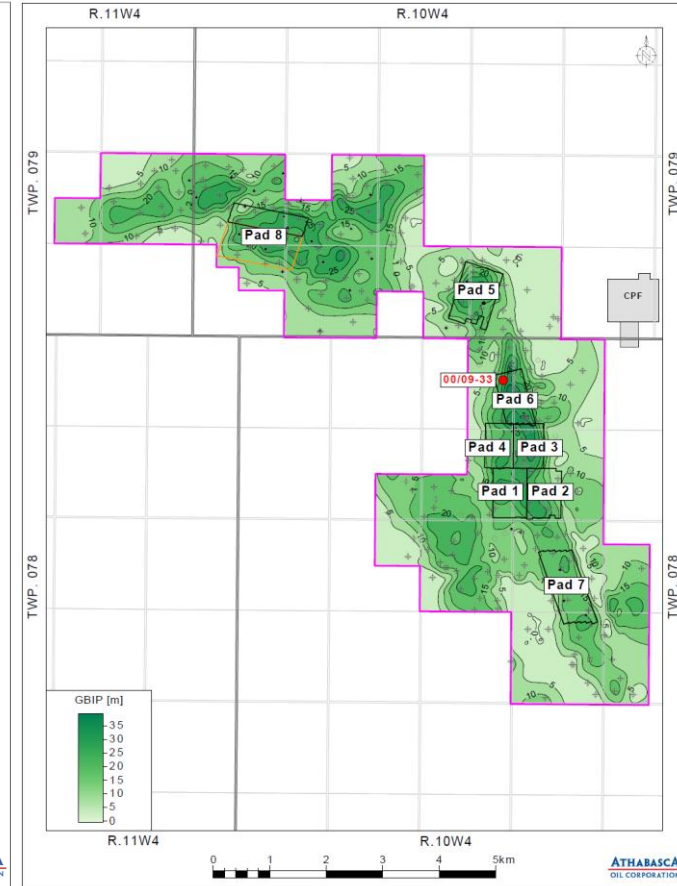
NET PAY CRITERIA

- Gross Bitumen in Place (GBIP) Petrophysical criteria:
 - Porosity (PHIT) $\geq 27\%$
 - Saturation (SwT) $\leq 50\%$



Elevation Range: 202 -241 masl

NET PAY ISOPACH



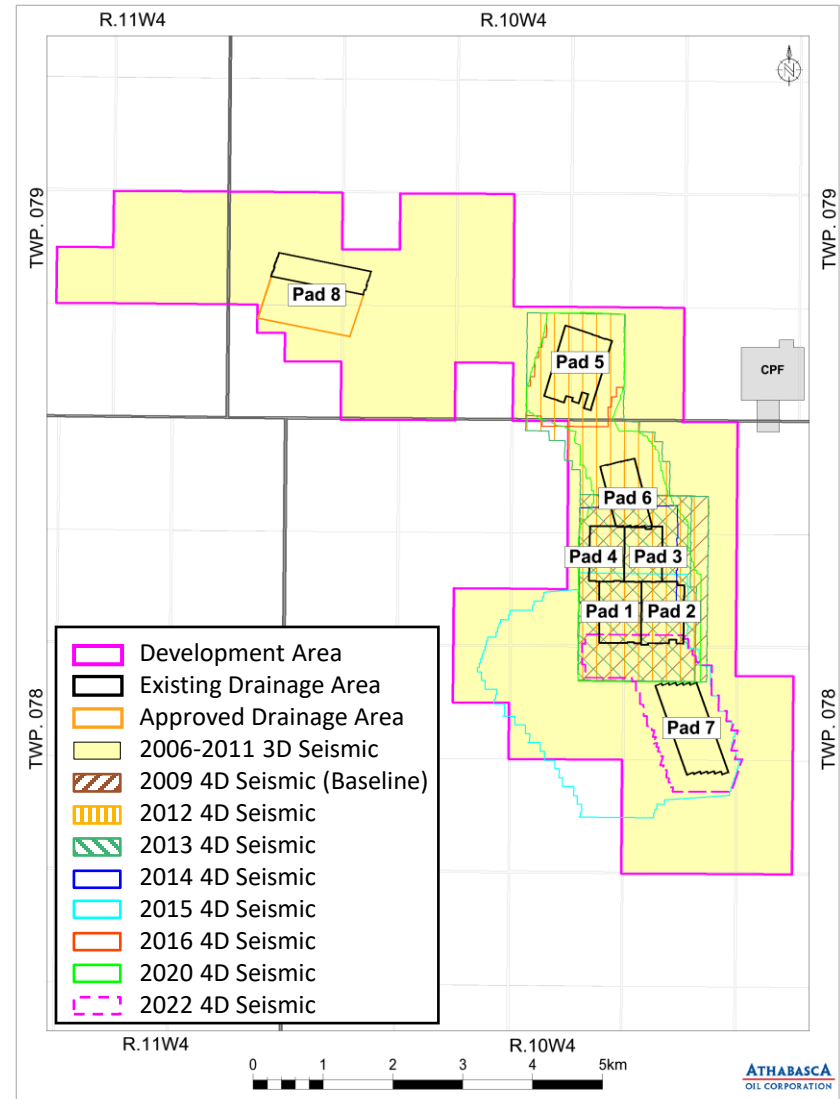
- Contour Interval: 5.0m
- Development Area
- Pad Drainage Area
- Approved Drainage Area
- Type Well (00/09-33-078-10W4)

2021

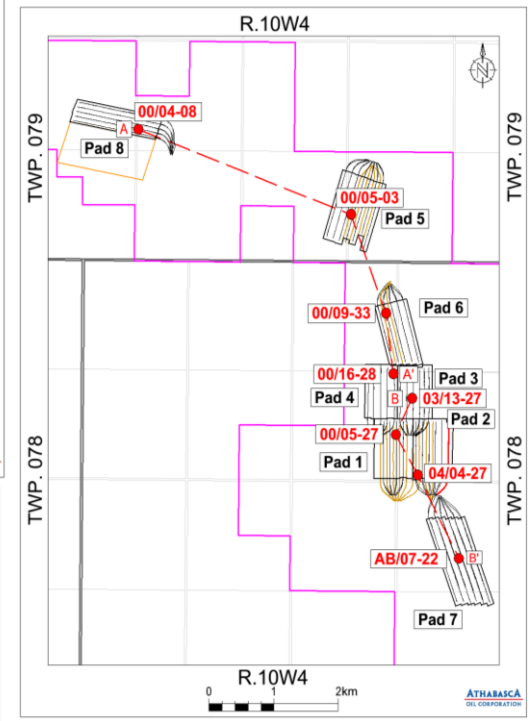
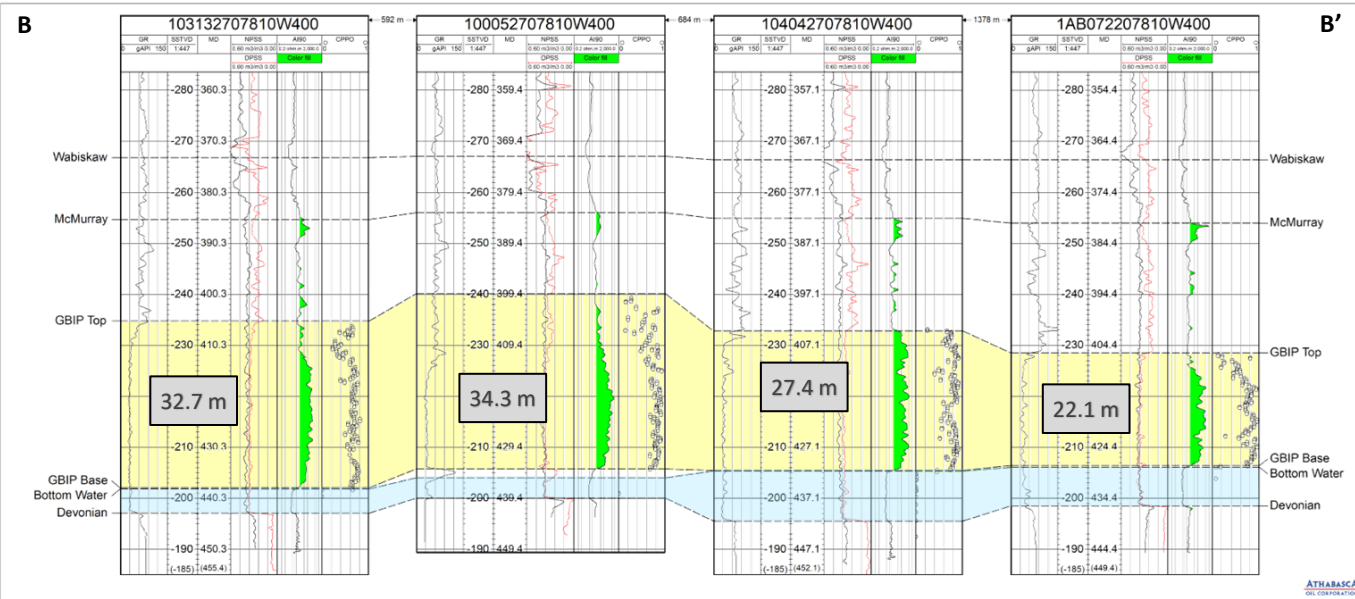
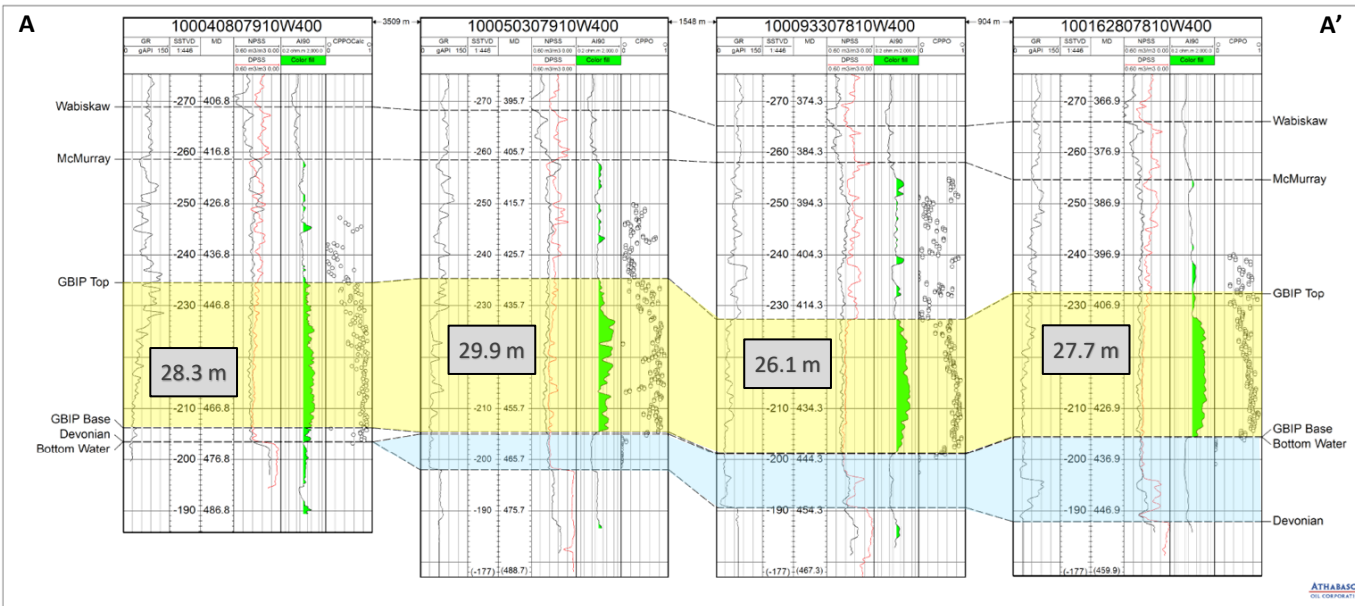
- No new acquisition
- Completed Pad 7 acquisition in Q1 2022

HISTORICAL

- Q1 2020: 7.1 km² 4D seismic acquired for Pads 1-6
 - First monitor for Pad 6
 - Second monitor for Pad 5
 - Fourth monitor for Pads 1-4
- 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
- Development area covered by data acquired in 2006, 2007, 2008 and 2011 and merged into one continuous 3D



PADS 1-8 STRUCTURAL CROSS SECTION N-S



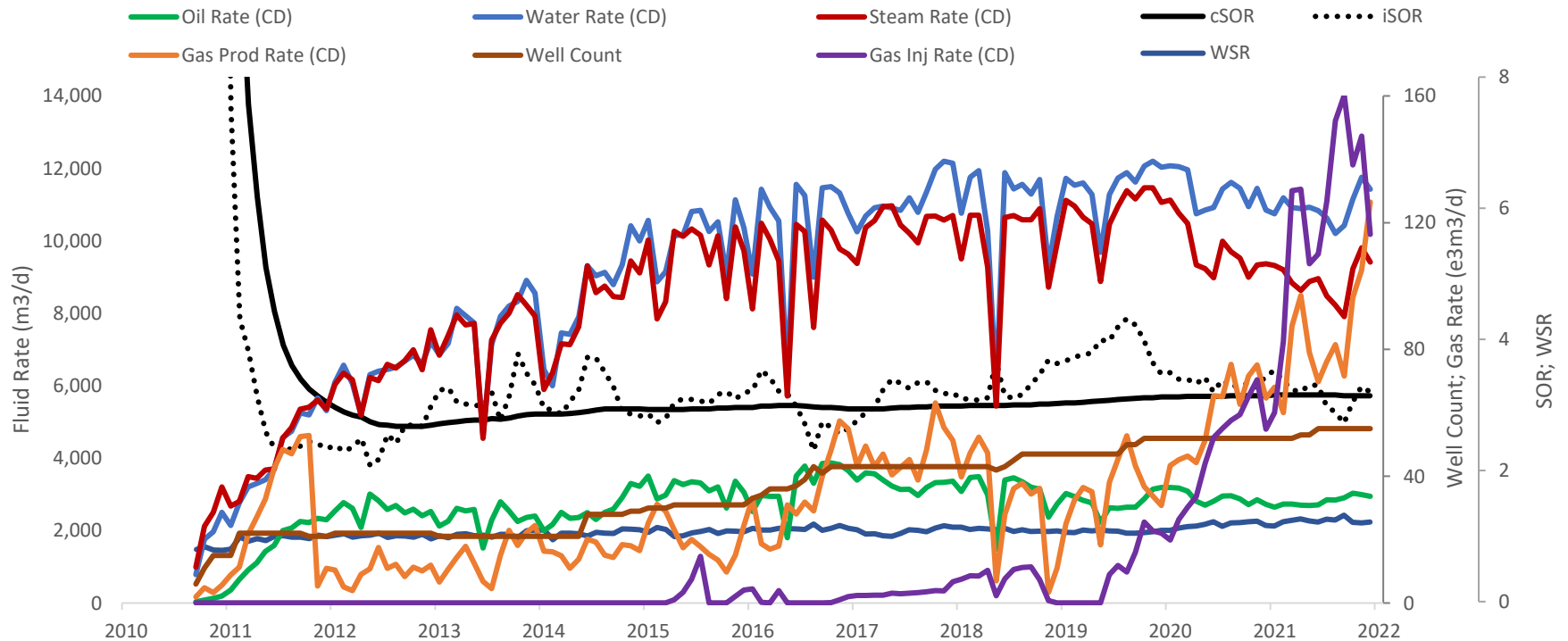
- Development Area
- Pad Drainage Area
- Approved Drainage Area
- Cross Section index line

Gross GBIP thickness

REPORTING YEAR HIGHLIGHTS

- 8 producing pads (45 SAGD well pairs and 15 infill wells)
 - *Pad 8 began steam circulation in Q4 2021*
- NCG co-injection on Pads 1-6 for SOR management

LEISMER FIELD PRODUCTION



PAD RESERVOIR PROPERTIES AND RECOVERY FACTOR

RESERVOIR PROPERTIES

- Original Reservoir Pressure: 2,300 to 2,600 kPa
- Original Reservoir Temperature: 14°C
- Depth: 410 to 444 m TVD (-230 to -216 m subsea)

Pad	Well Pairs	Infills	Lateral Length	Area	Oil Saturation	Porosity	Perm Kh	Perm Kv	Net Pay	GBIP Net	Cumulative Production	Recovery Factor	EUR =	EUR RF
													Producible Bitumen in place	
			(m)	(10 ³ m ²)	(frac)	(frac)	(D)	(D)	(m)	(10 ³ m ³)	(10 ³ m ³)	(%)	(10 ⁶ m ³)	(%)
1	6	6	775	527	0.83	0.34	5.4	3.7	26.8	4,077	2,478	61%	2.6 - 3.1	65-75%
2	5	3	745	398	0.81	0.33	4.7	3.4	21.4	3,208	1,917	60%	2.1 - 2.4	65-75%
3	6	0	690	421	0.81	0.34	5.9	4.5	28.9	3,513	1,882	54%	1.9 - 2.3	55-65%
4	5	0	695	393	0.81	0.34	5.2	3.7	24.2	2,699	1,270	47%	1.5 - 1.7	55-65%
5	7	4	900	694	0.82	0.34	5.5	4.1	23.6	4,630	1,550	33%	2.5 - 3.0	55-65%
6	5	2	860	468	0.80	0.35	5.6	4.4	35.3	4,707	1,328	28%	2.6 - 3.1	55-65%
7	6	0	1,250	752	0.80	0.34	4.8	4.0	18.6	3,918	679	17%	2.1 - 2.5	55-65%
8	5	0	1,250	468	0.82	0.35	6.2	4.9	25.8	3,516	NA	NA	NA	NA
Total	45	15		4,121						30,268	11,104	37%		

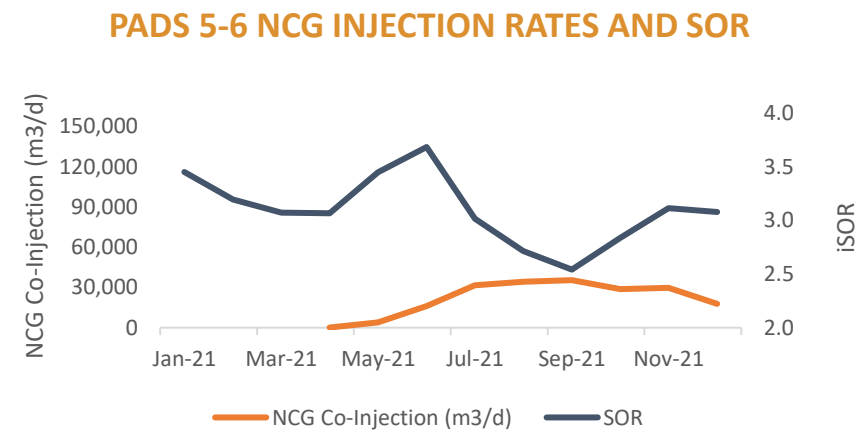
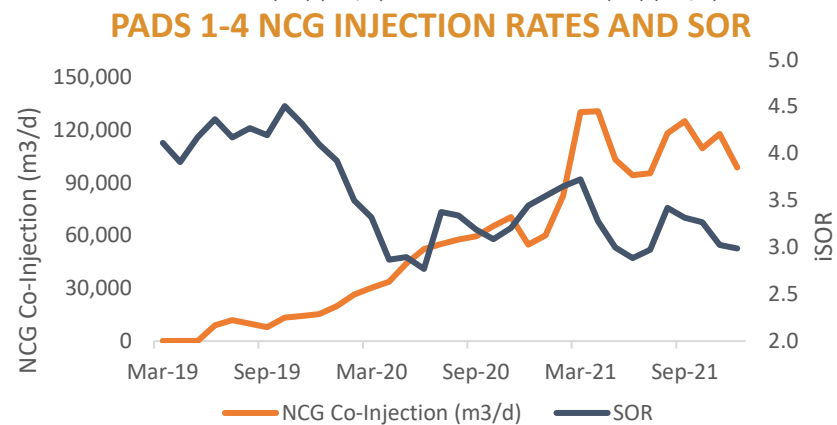
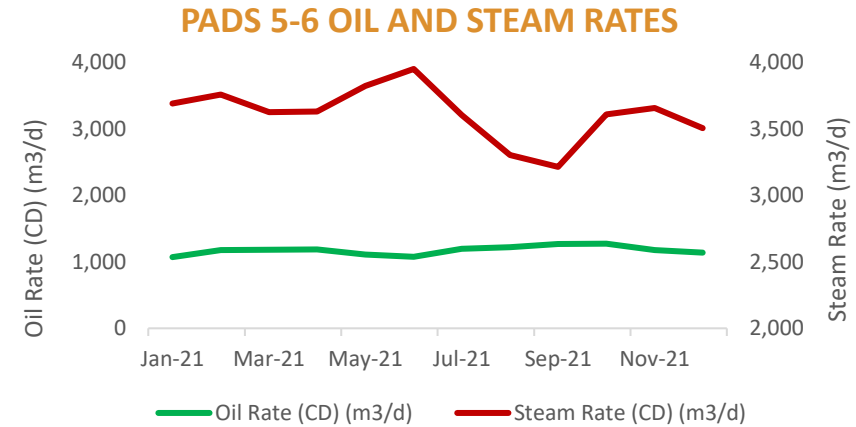
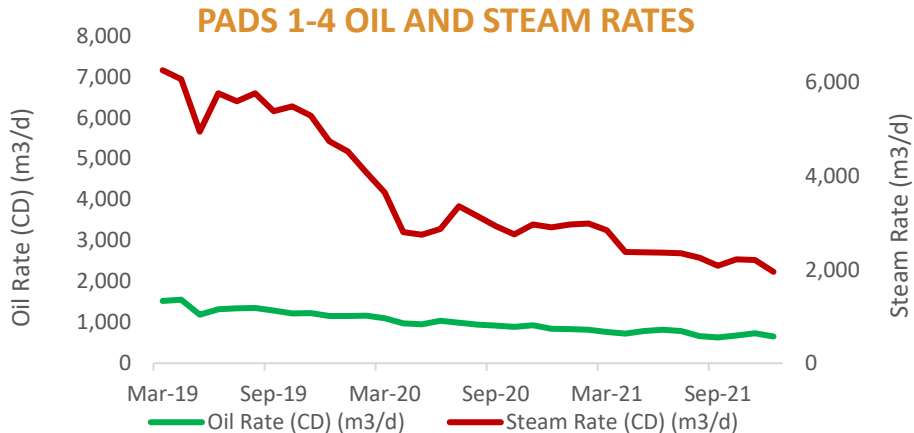
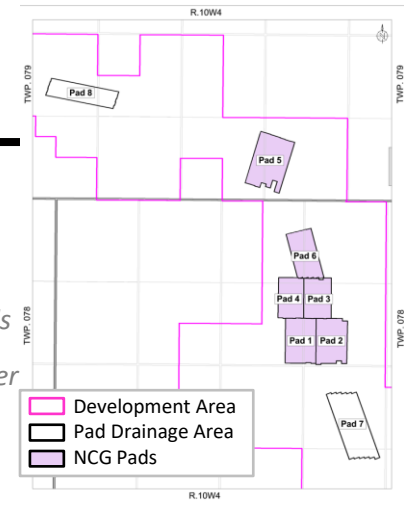
- Cumulative production as of December 31, 2021
- No production from Pad 8 in 2021
- Volumes include 50 m at heel and toe of well pair
- GBIP= Gross bitumen in place, GBIP NET is based on PHIT >= 27% and SwT <= 50%
- EUR = Estimated Ultimate Recovery of Bitumen = Producible Bitumen in Place within the GBIP interval
- RF = The ratio of recoverable bitumen reserves to the estimated bitumen in place in the reservoir
- Oil Saturation and porosity averages based on net SoT and PHIT
- Project area GBIP Net-hydrocarbon pore volume* ~ 380 10⁶m³, Full Project Area=268 10⁶m²
- Development area GBIP Net-hydrocarbon pore volume* ~ 145 10⁶m³, Development Area=37 10⁶m²

*Project and development area volumes constrained to >10m GBIP Net

NON-CONDENSABLE GAS CO-INJECTION

SUMMARY

- NCG Co-Injection started in 2019 for SOR optimization
 - Pads 1-4 NCG co-injection used for SOR management; continue to see improved SOR on these pads
 - NCG co-injection has been helpful in balancing steam chamber pressure in relation to bottom water
 - No observed negative impact of gas injection to recovery factor outlook and wellbore integrity
- NCG implemented to Pads 5-6 starting in May 2021, continue to optimize



CLASS 1B DISPOSAL APPROVAL 11479C

- Basal McMurray injection wells
 - 00/12-33-078-10W4/00
 - 00/13-33-078-10W4/00
- Clearwater B injection wells
 - F2/01-10-078-10W4/00
 - F2/04-28-078-10W4/00
- Extensive monitoring network
 - Basal McMurray
 - Clearwater B
 - Lower Grand Rapids

BASAL MCMURRAY MONITORING

- Pressure declining, consistent with reservoir operating strategy

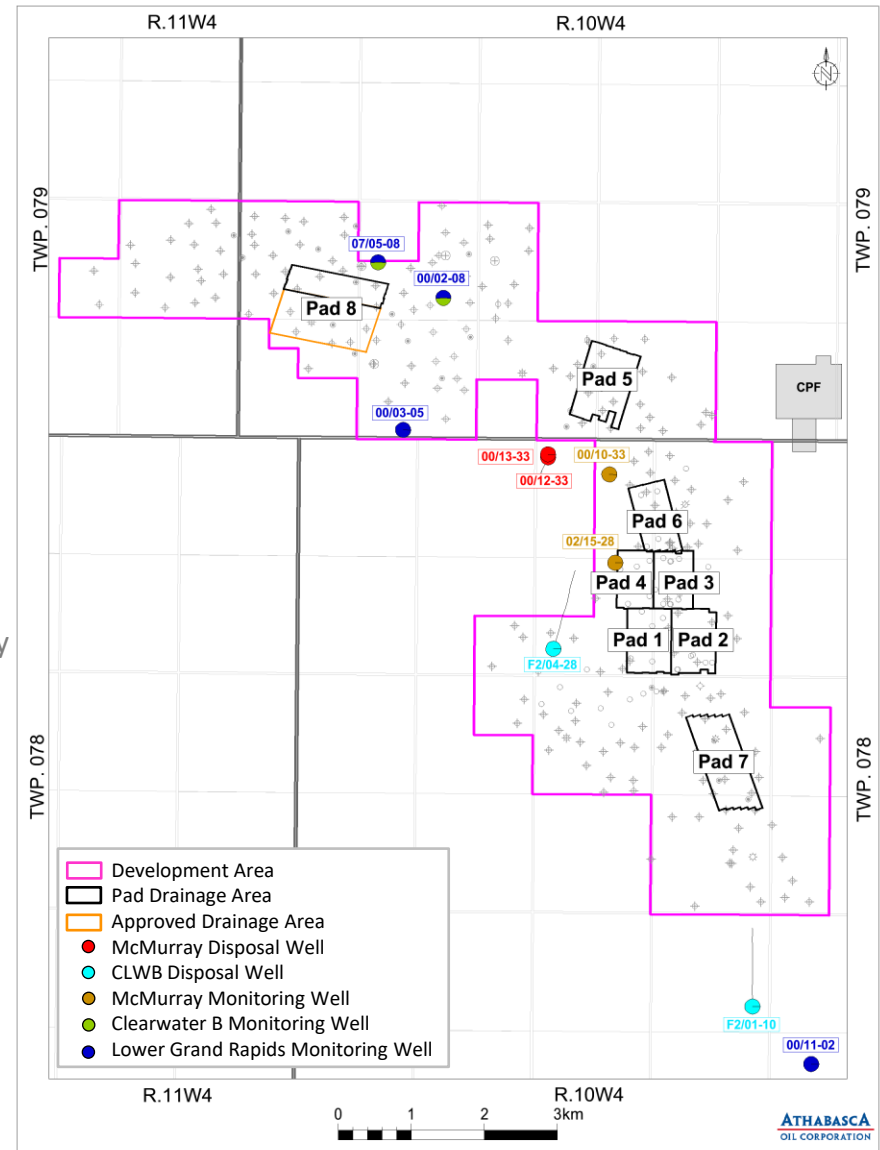
CLEARWATER B MONITORING

- No pressure response at Clearwater B monitoring wells

LOWER GRAND RAPIDS MONITORING

- Pressure response in Lower Grand Rapids monitoring wells remains consistent with pumping rates of the Lower Grand Rapids source water wells

No unexpected responses observed at any of the monitoring wells during the reporting year



INNOVATION AND LEARNINGS

- Continue optimizing NCG co-injection to improve SOR
- Steam splitters and FCDs are implemented on new well pairs moving forward
- Evaluating infill well performance in relation to well placement
 - *Pad 6 infills are currently performing among the best in Leismer*
- No immediate plans for future pilots

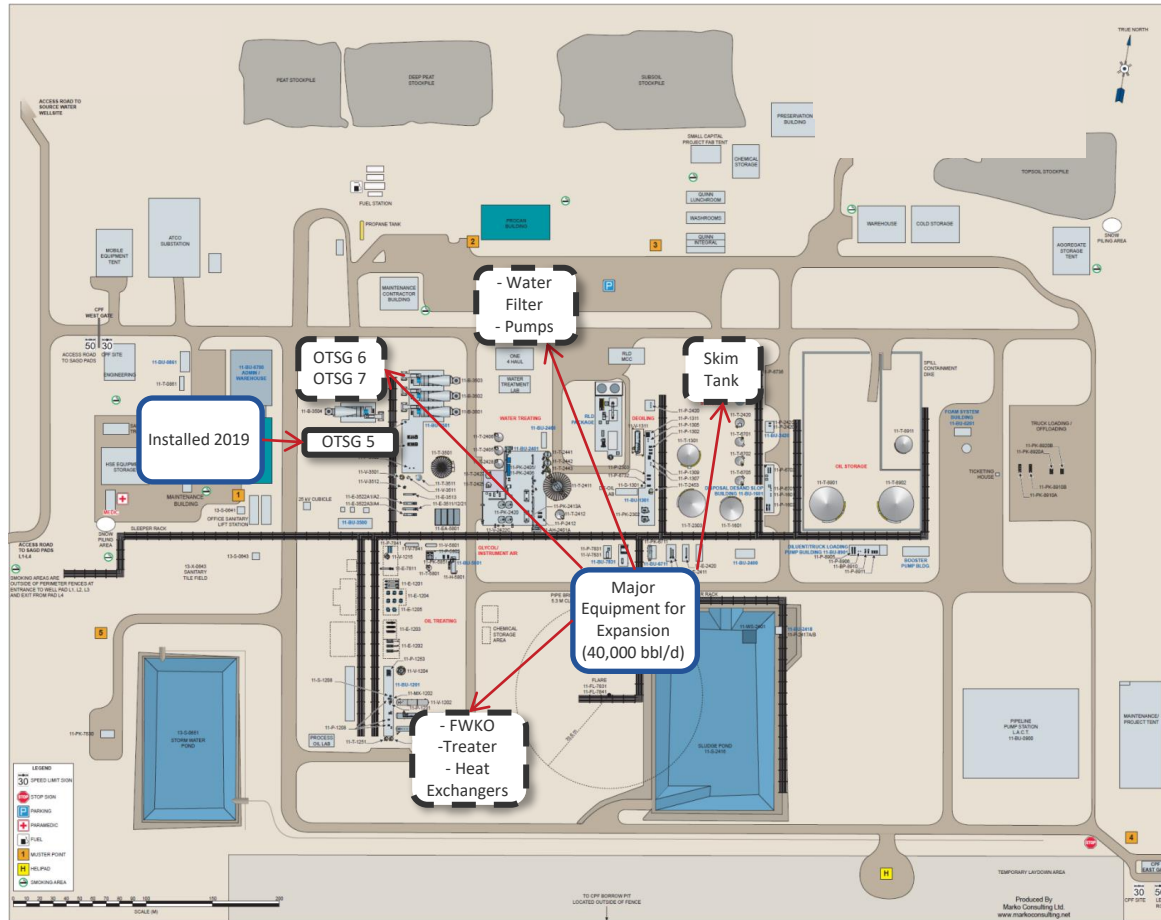


SURFACE OPERATIONS

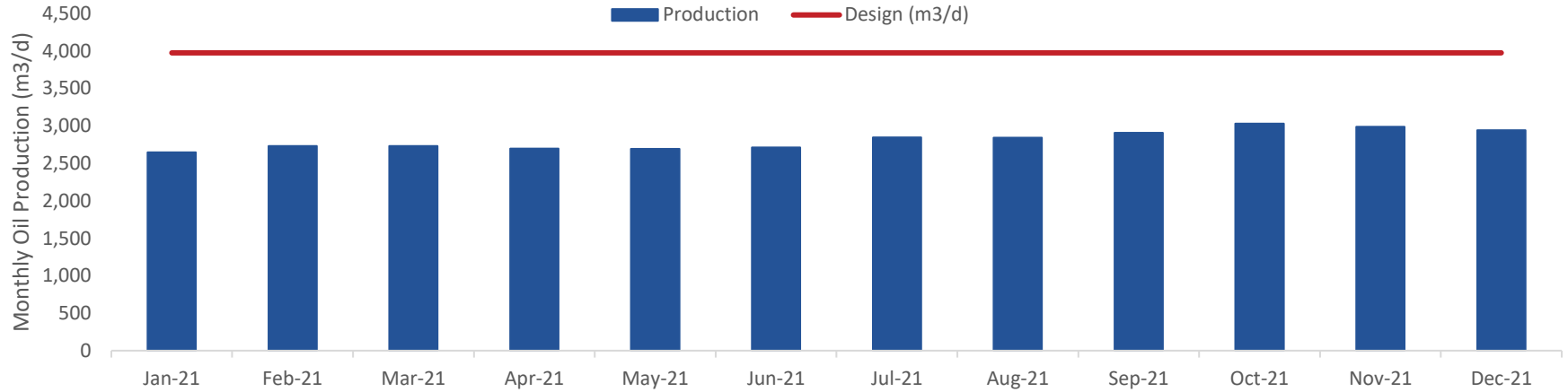
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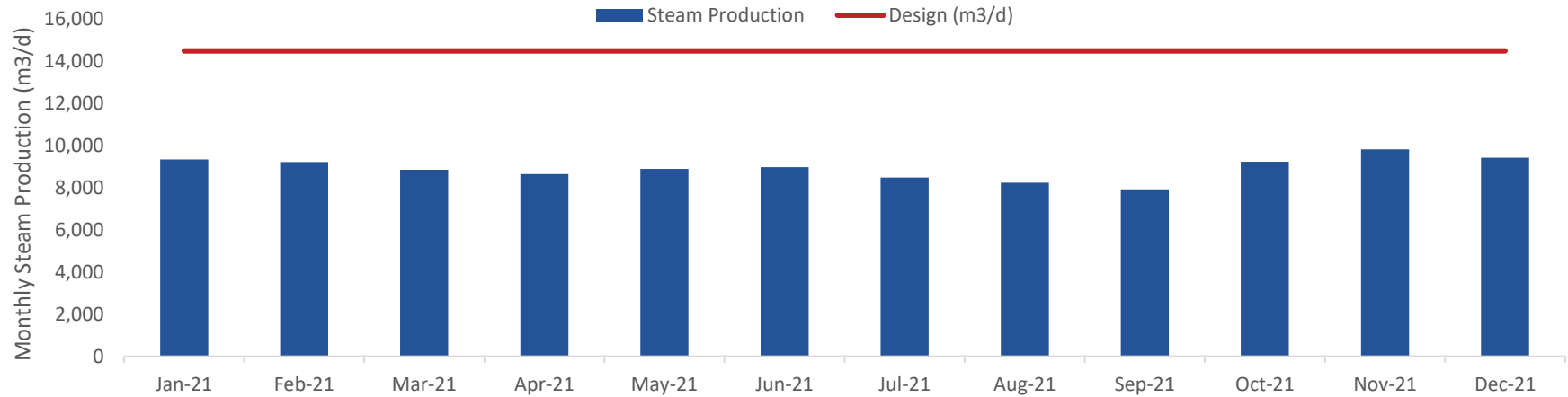
NO MODIFICATIONS MADE TO THE CPF DURING THE REPORTING PERIOD



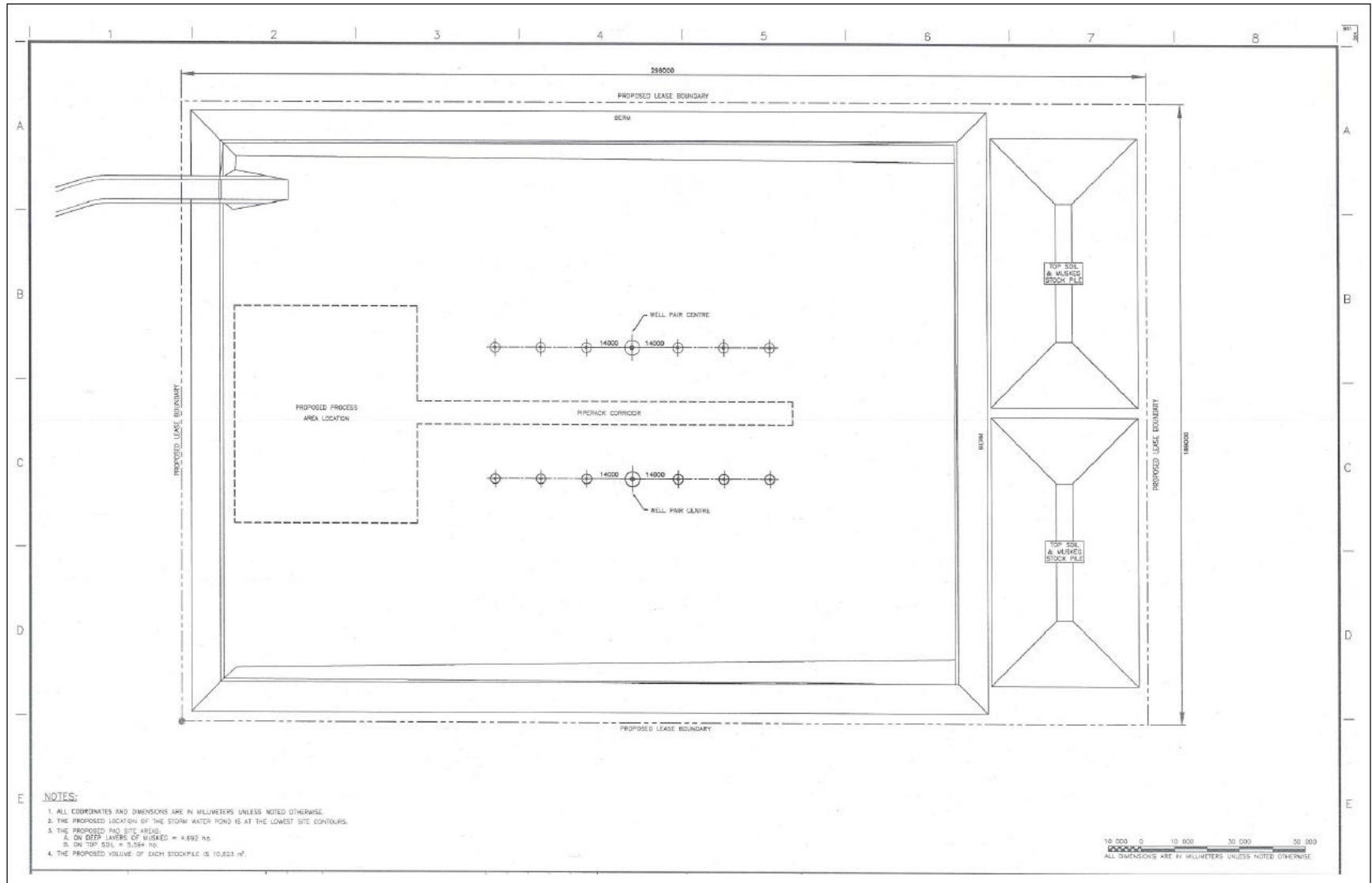
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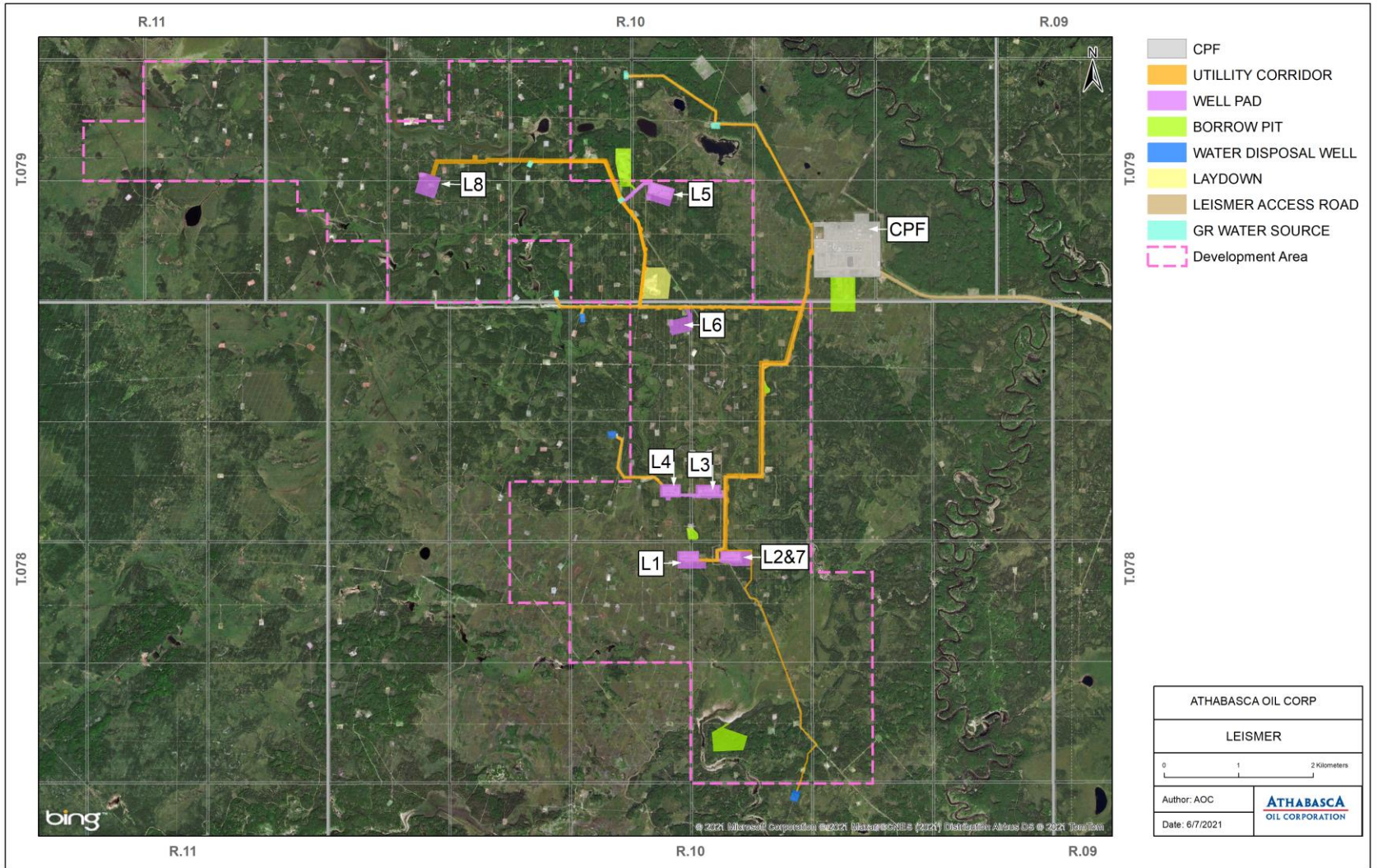
STEAM



TYPICAL WELL PAD SCHEMATIC (PAD 6)



SURFACE DEVELOPMENT OVERVIEW

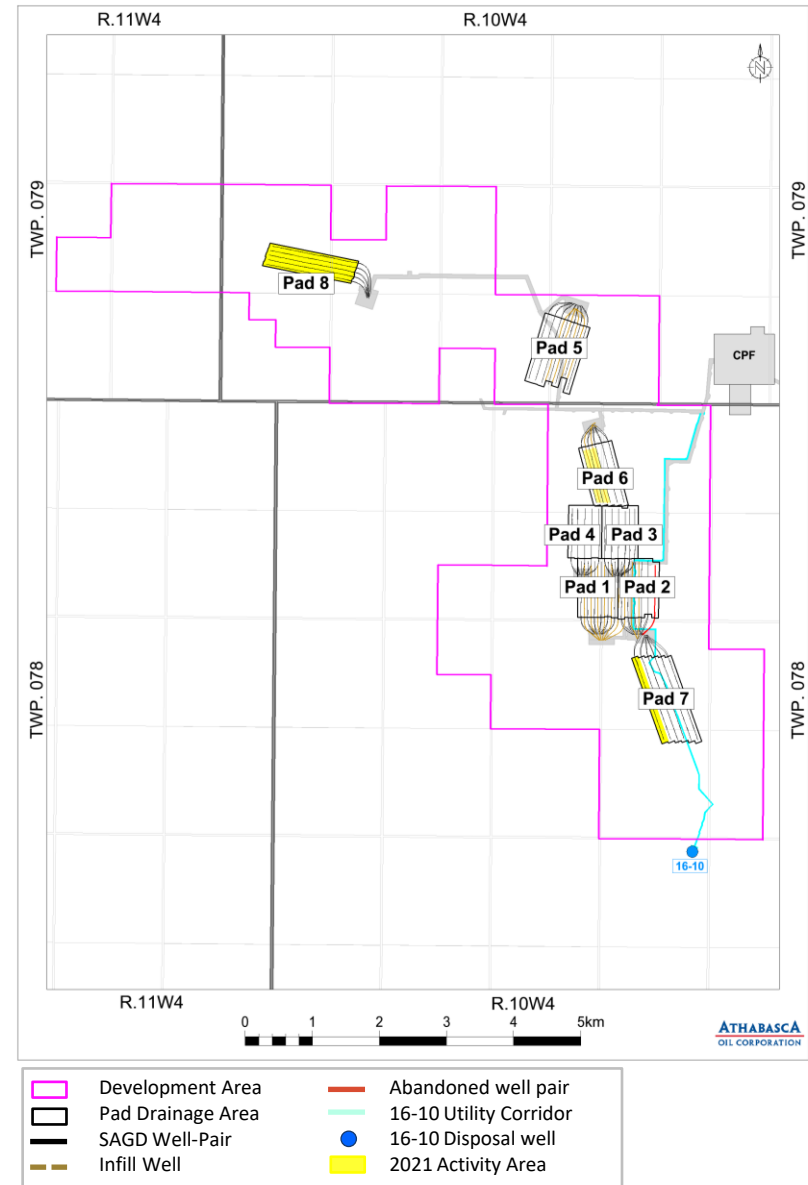


2021 ACTIVITY

- Pad 6 - drilled 2 infill wells
- Pad 7 - drilled 1 SAGD well pair (L7P6)
- Pad 8 - drilled 5 SAGD well pairs and completed construction of above ground pipeline and surface facilities
- Continued expanding NCG co-injection across the field for pressure management and SOR management

SUSPENSION AND ABANDONMENT

- 2021 - no suspension or abandonment of SAGD wells
- Historical
 - 1 producer/injector well pair abandoned February 2020
 - L2P1 (106/11-27-078-10W4/00)
 - L2I1 (100/06-27-078-10W4/00)





REGULATORY & COMPLIANCE

APPROVALS, AMENDMENTS, AND RENEWALS

Application No. or Approval No.	Approval Date	Description
Application No. 1932418	March 18, 2021	D051 Class III Licenses L5 and L6 NCG Injection
Application No. 1932731	April 5, 2021	D051 Class IV Licenses L7P6 Steam Injection
Water Act License No. 00297242	June 8, 2021	Voluntary License Cancellation – lower grand rapids water not required to support surface activities (construction, drilling)
Water Act License No. 00273542	June 8, 2021	Voluntary License Cancellation – lake sources not required to support surface activities (construction, drilling)
EPEA Approval No. 241311-01-01 Amendment	October 6, 2021	Modifications to Groundwater Monitoring Program
Application No. 1933919	August 24, 2021	D051 Class IV Licenses L8 Steam Injection
Application No. 1933932 D023 Category 2	September 17, 2021	NCG Rate Increase

Notes: EPEA – Environmental Protection and Enhancement Act Approval

NON-COMPLIANCE SUMMARY

Non-Compliance and Voluntary Self Disclosures (VSD)

Reference	Event	Corrective Action
EDGE 0375405	Passive air monitoring station sampling was not completed on time (January)	Preventative maintenance system modified to generate a monthly workorder for sampling.
VSD 11167	Initiated steam injection at one L7 well pair prior to receipt of D051 Class IV license (April)	Well Start-up Plan template was modified to include confirmation of D051 license prior to well start-up and Manager sign-off.
EDGE 0381426	Passive air monitoring station sampling was not completed on time (June)	Task (passive sampling) added to the weekly maintenance schedule that is reviewed daily
VSD 11185	Unable to complete well test in accordance with Directive 017 due to damaged Coriolis meter (July)	New Coriolis meter ordered and installed

SPILLS

- 5 reportable spills
- 0 reportable hydrocarbon spills

INSPECTIONS

Inspections			
Event	License	Inspection ID	Result
AER Well Service Operations January 26, 2021	W0410404	507026	Satisfactory
AER Drilling Operations January 26, 2021	W0498942	507022	Satisfactory
AER Pipeline Inspection February 25, 2021	P50043	507646	Satisfactory
AER Facility Inspection August 30, 2021	F38516	513861	Satisfactory
AER Well Site Inspection August 30, 2021	W0410388	513862	Satisfactory
AER Well Service Operations December 6, 2021	W0410408	516651	Satisfactory

AUDITS

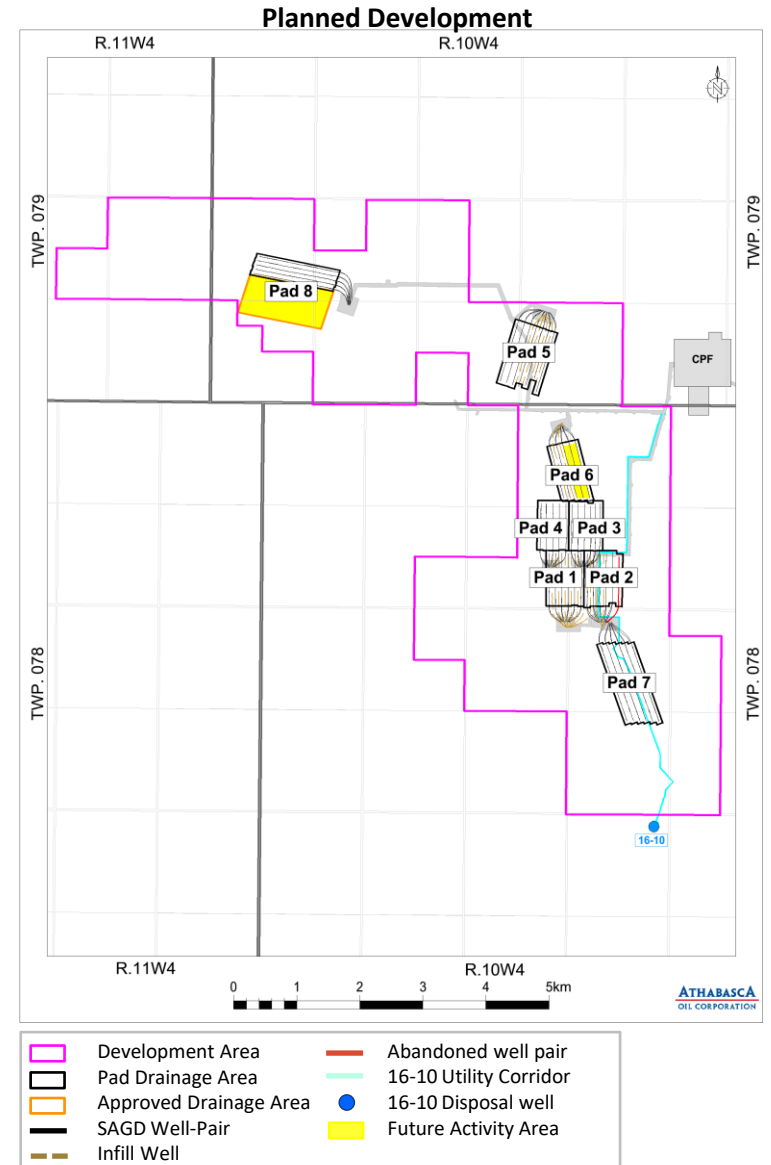
- No audits in 2021

2022 ACTIVITY

- Turnaround scheduled for May
- Pad 6 - drill 2 additional infill wells
- Pad 8 – drill 5 additional well pairs
- Continue expanding NCG co-injection across the field for pressure management and SOR management
- Complete facility design for CO₂ capture from OTSG 5
- Renewal of TIER II Water Act License No. 239880
- Oil Sands Conservation Act Commercial Scheme amendment for sustaining pads

FUTURE OPERATIONS

- Pad 8 – drill remaining 4 well pairs
- CPF design modifications for oil production of 28,000 bpd
- Develop additional pads in accordance with CPF capacity and production declines
- Implement CO₂ capture and storage project



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