



ATHABASCA OIL CORPORATION

FOCUSED | EXECUTING | DELIVERING

LEISMER D054 PERFORMANCE REPORT

JUNE 2021

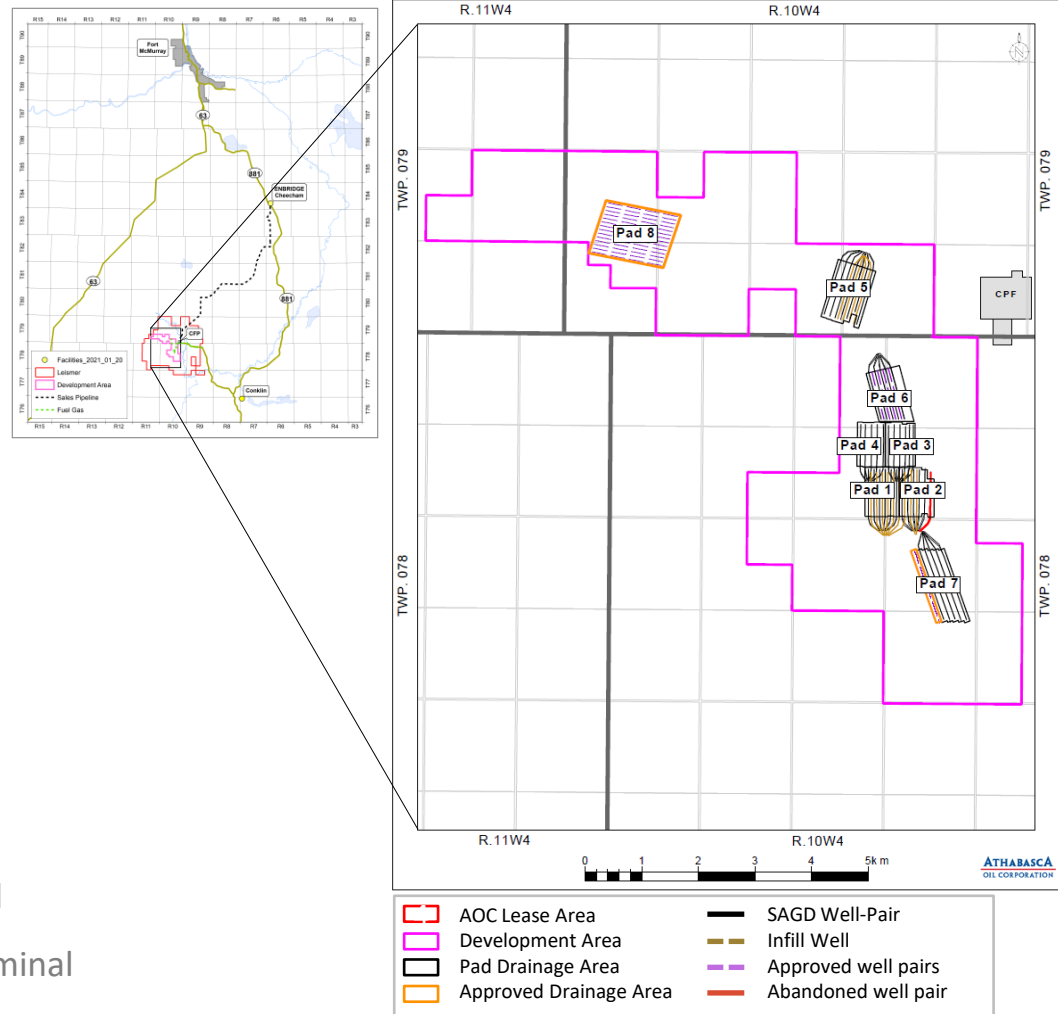
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OIL CORPORATION

SUMMARY

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

PROJECT DETAILS

- First steam September 2010
- Approved processing capacity 40,000 bbl/d
- 7 producing pads
 - 39 horizontal well pairs
 - 13 infill wells
- Approved for development
 - Pad 8 (14 well pairs)
 - Pad 6 (4 infills)
 - L7P6 (1 well pair)



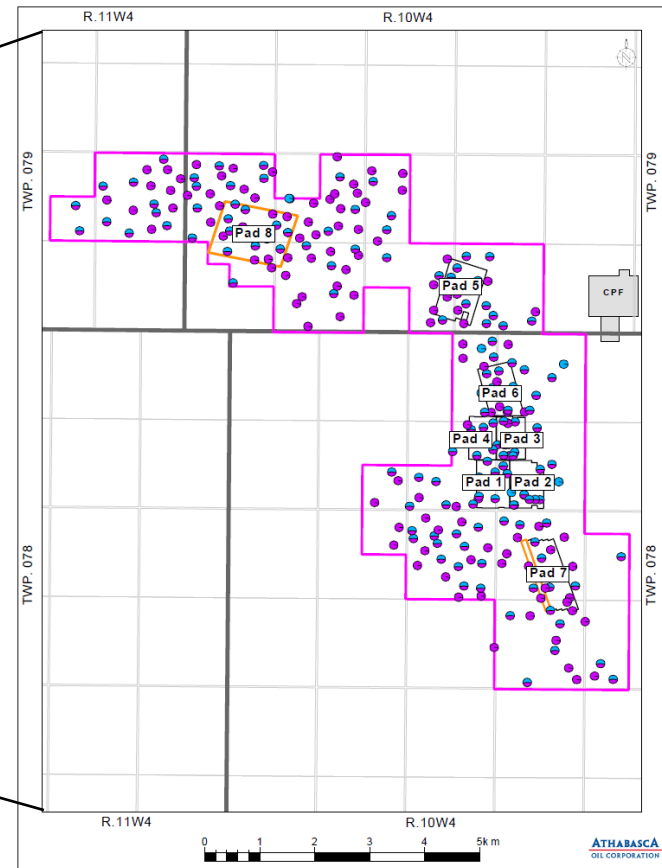
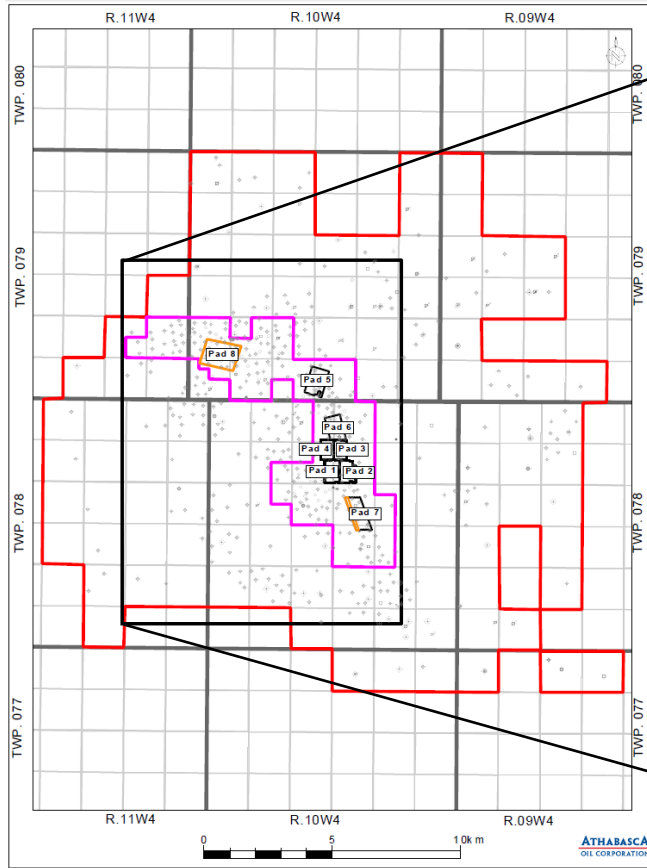
INFRASTRUCTURE

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



SUBSURFACE

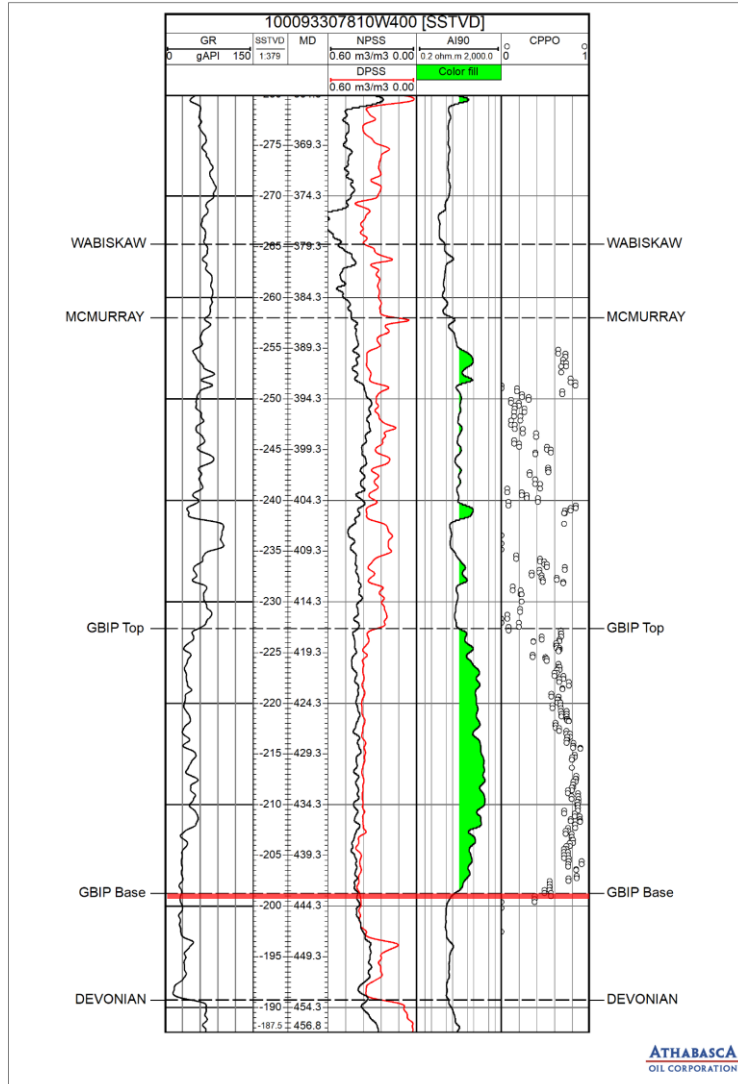
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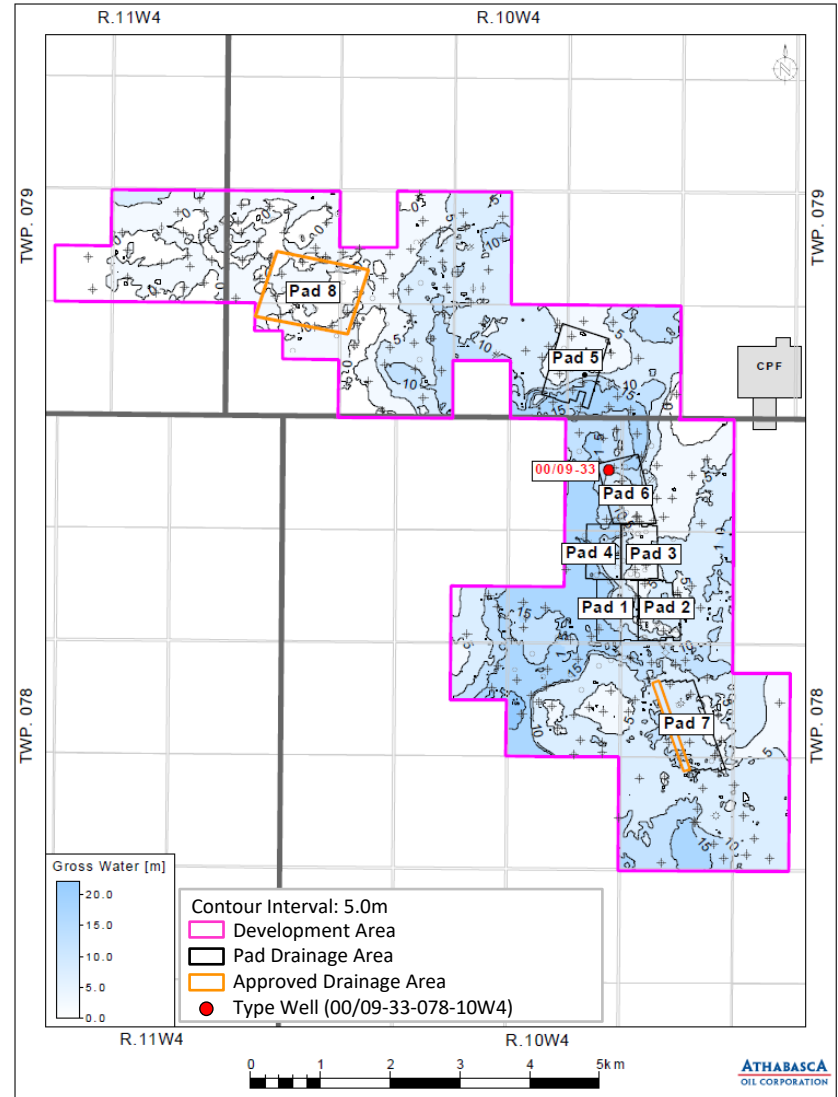
Area	Area (km ²)	Cored Wells	Image Logs
Lease Area	326	370	625
Development Area	37.4	145	244

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

BOTTOM WATER THICKNESS MAP

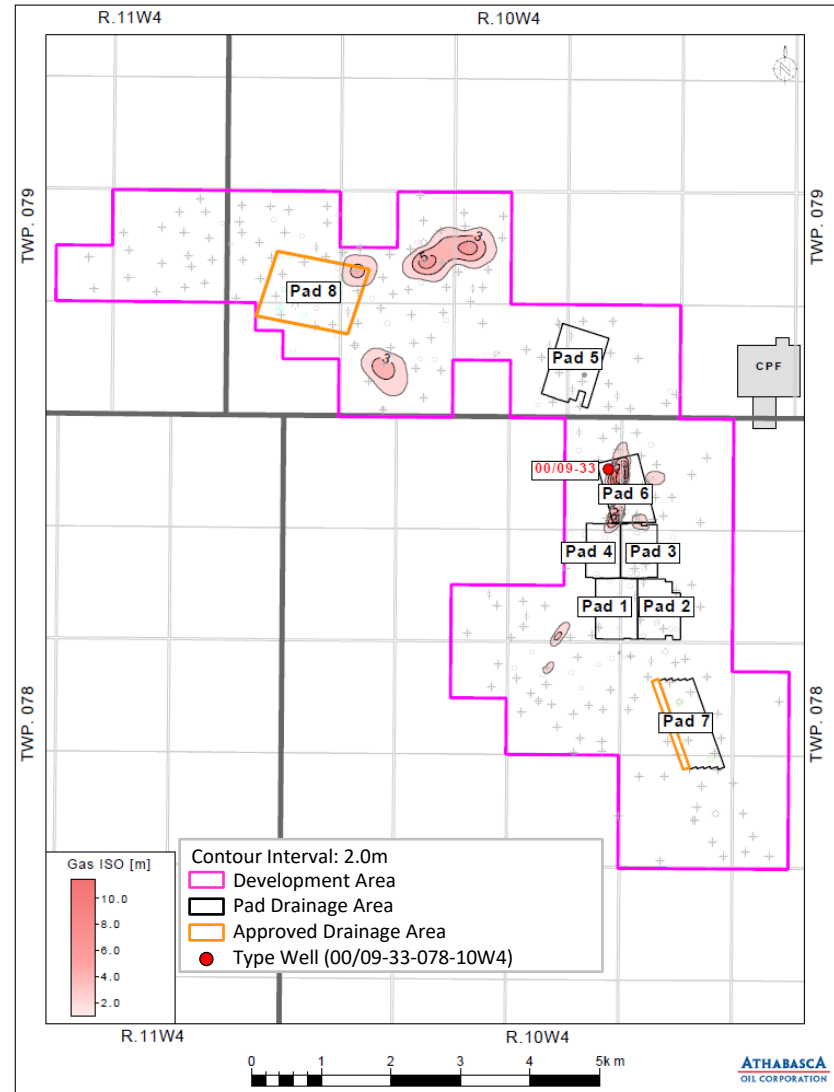
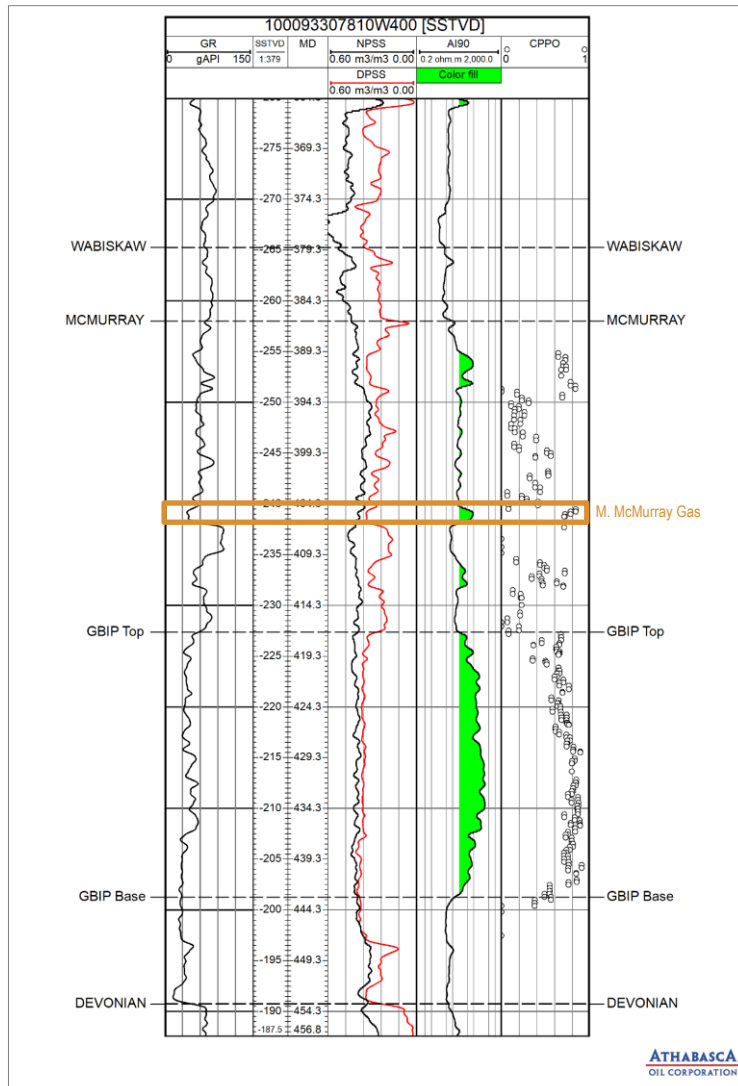


Elevation Range 191 -213 masl



TOP GAS THICKNESS MAP

MINIMAL GAS THICKNESS AND LIMITED DISTRIBUTION WITHIN DEVELOPMENT AREA

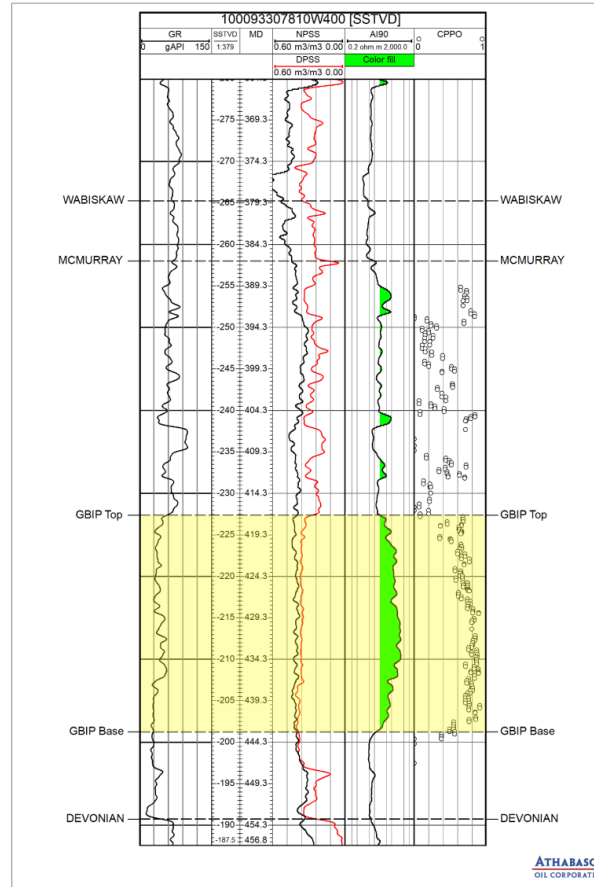


RESERVOIR CRITERIA

- 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

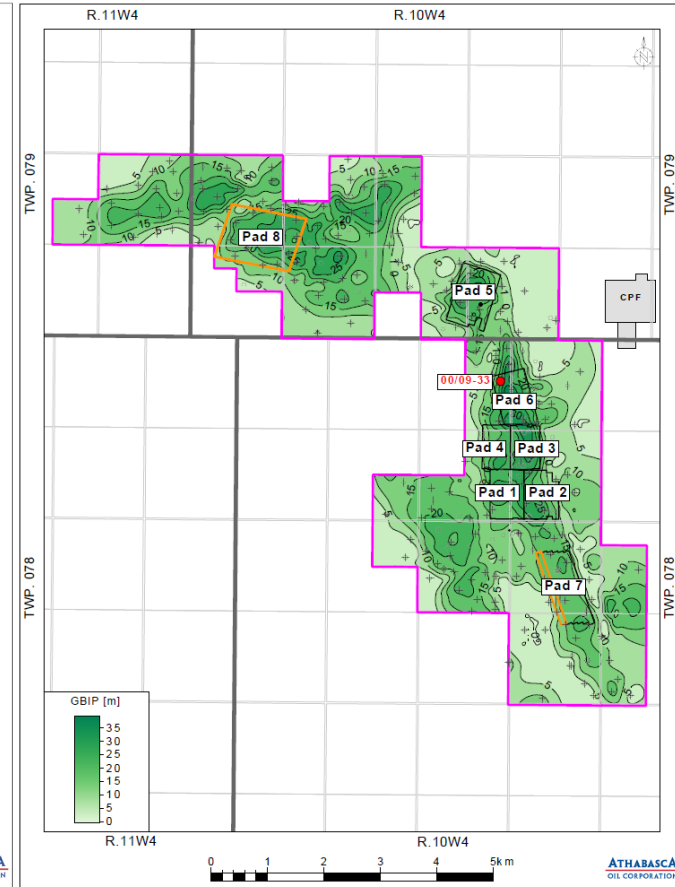
NET PAY CRITERIA

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



Elevation Range: 202 -241 masl

NET PAY ISOPACH



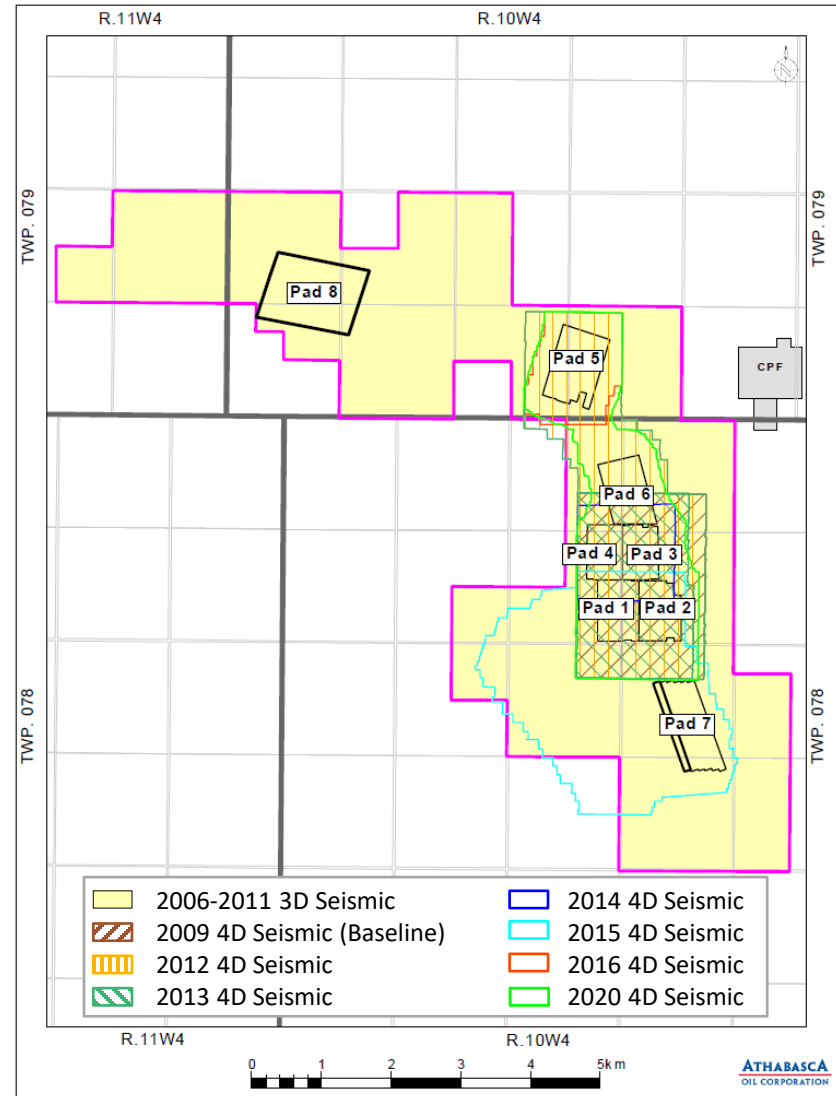
- Contour Interval: 5.0m
- Development Area
- Pad Drainage Area
- Approved Drainage Area
- Type Well (00/09-33-078-10W4)

2020

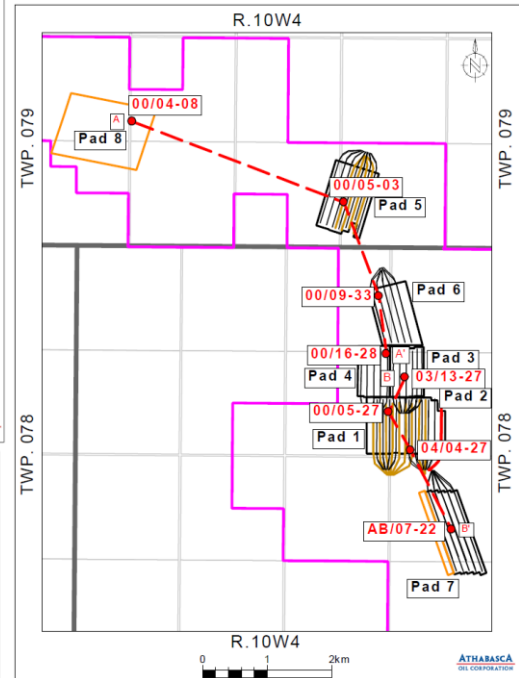
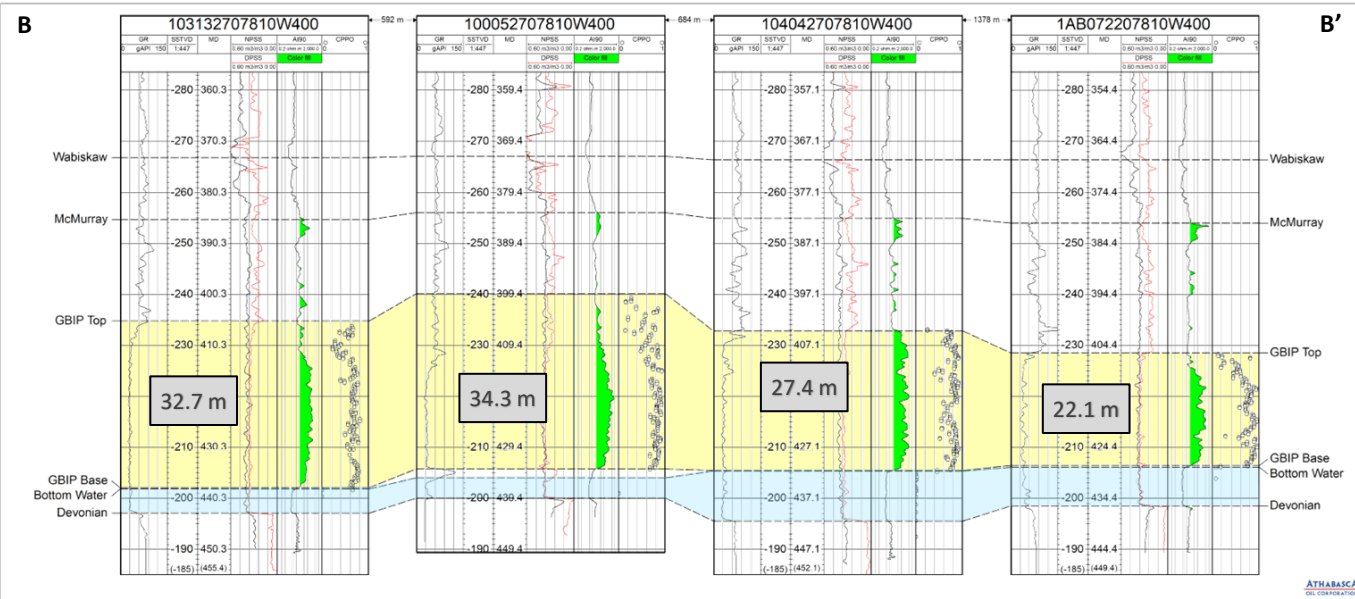
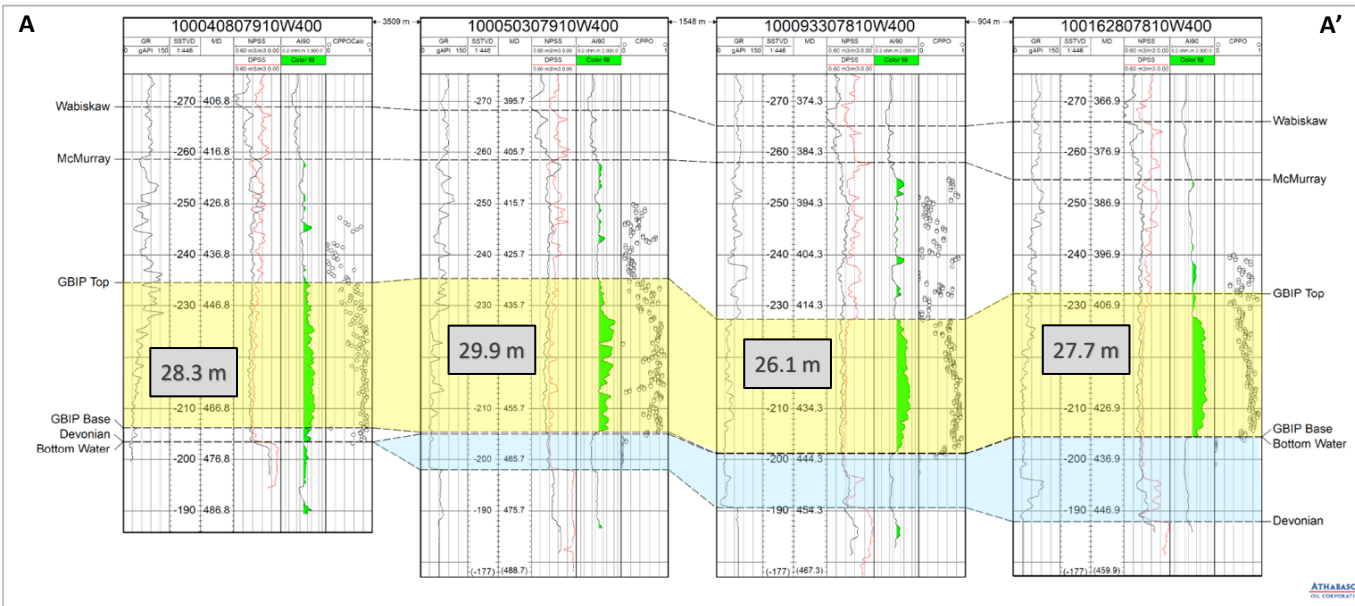
- Q1 2020: 7.1 km² 4D seismic acquired for Pads 1-6
 - First monitor for Pad 6
 - Second monitor for Pad 5
 - Fourth monitor for Pads 1-4

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
- 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

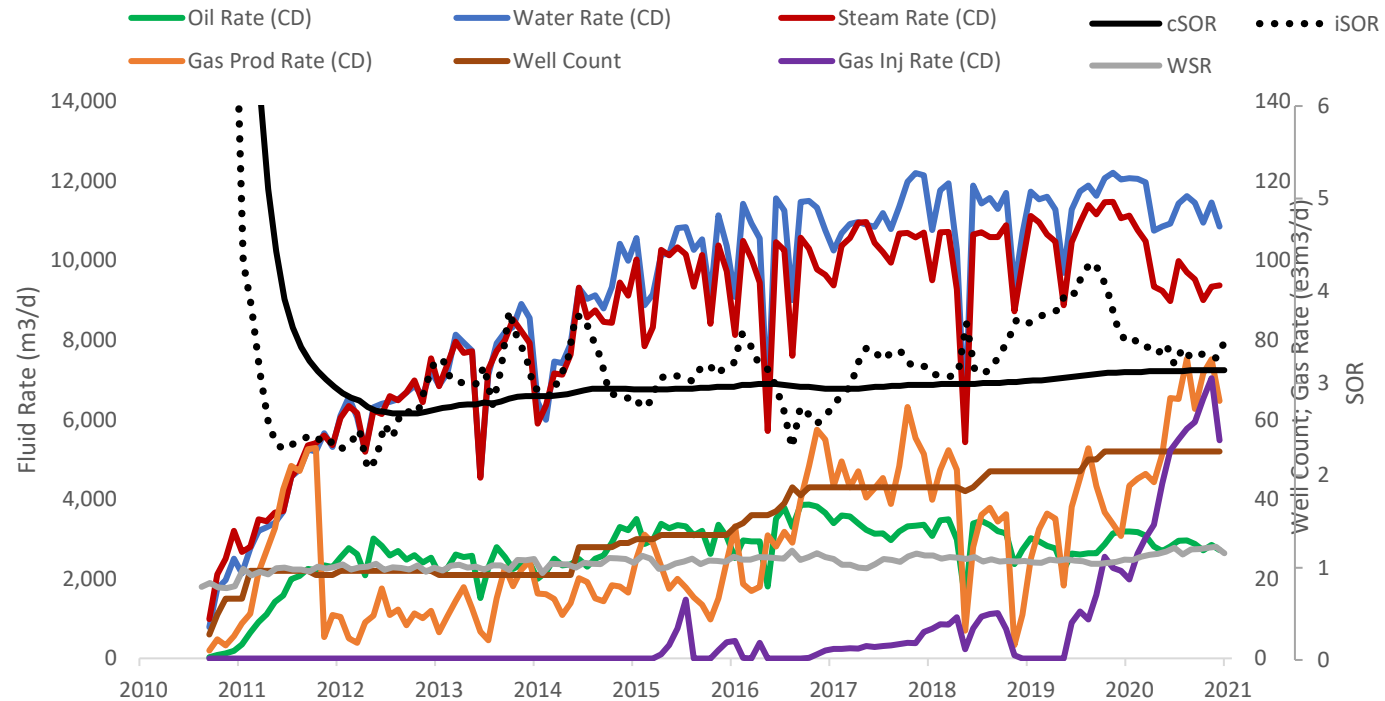


Gross GBIP thickness

REPORTING YEAR HIGHLIGHTS

- 7 producing pads (39 SAGD well pairs and 13 infill wells)
- NCG co-injection on Pads 1-4 for SOR management
- Production curtailed temporarily in March 2020 due to extreme oil price volatility

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)

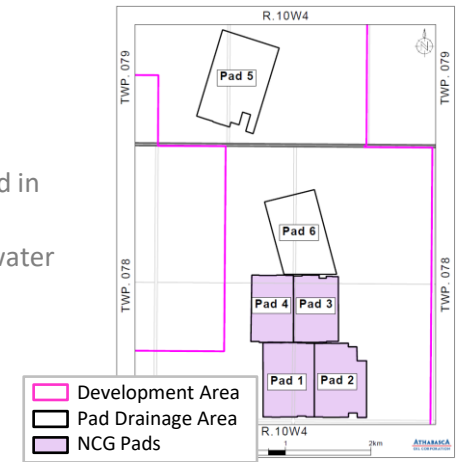
Pad	Well Pairs	Infills	Lateral Length (m)	Area (10 ³ m ²)	Oil Saturation (frac)	Porosity (frac)	Perm Kh (D)	Perm Kv (D)	Net Pay (m)	GBIP Net (10 ³ m ³)	Cumulative Production (10 ³ m ³)	Recovery Factor (%)	EUR =	EUR RF (%)
													Producible Bitumen in place (10 ⁶ m ³)	
1	6	6	775	527	0.83	0.34	5.4	3.7	26.8	4,077	2,405	59%	2.6 - 3.1	65-75%
2	5	3	745	398	0.81	0.33	4.7	3.4	21.4	3,208	1,866	58%	2.1 - 2.4	65-75%
3	6	0	690	421	0.81	0.34	5.9	4.5	28.9	3,513	1,845	53%	1.9 - 2.3	55-65%
4	5	0	695	393	0.81	0.34	5.2	3.7	24.2	2,699	1,254	46%	1.5 - 1.7	55-65%
5	7	4	900	694	0.82	0.34	5.5	4.1	23.6	4,630	1,423	31%	2.5 - 3.0	55-65%
6	5	0	860	468	0.80	0.35	5.6	4.4	35.3	4,707	1,166	25%	2.6 - 3.1	55-65%
7	5	0	1,250	621	0.80	0.34	5.0	5.0	19.2	3,380	442	13%	1.9 - 2.2	55-65%
Total	39	13		3,522						26,212	10,401	40%		

- Cumulative production as of December 31, 2020
- 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
- Pad 6 infills and L7P6 not included in calculation (drilled in 2021)
- Oil Saturation and porosity averages based on net SoT and PHIT
- Project area GBIP Net-hydrocarbon pore volume* ~ 380 10⁶m³, Full Project Area=262 10⁶ m²

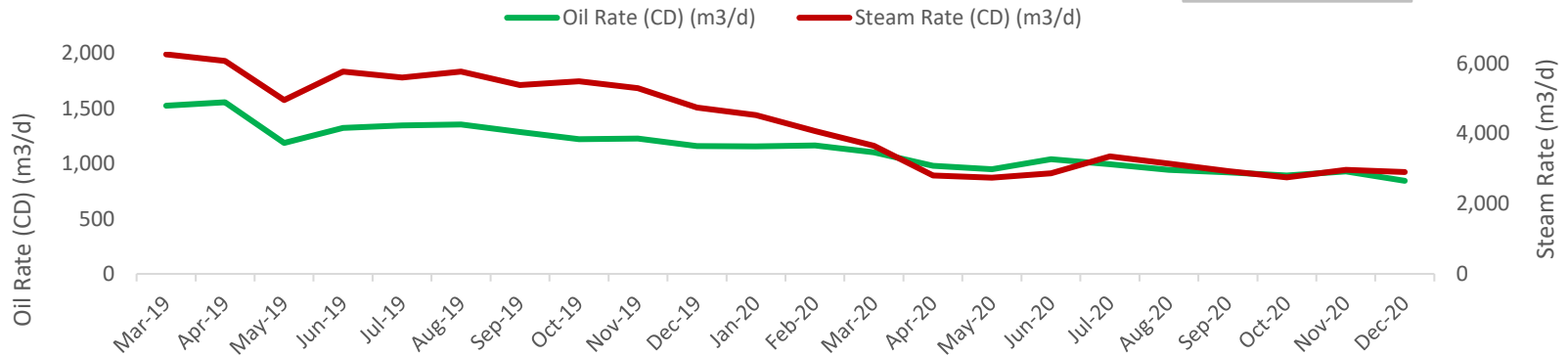
*Project area volume constrained to >10m GBIP Net

SUMMARY

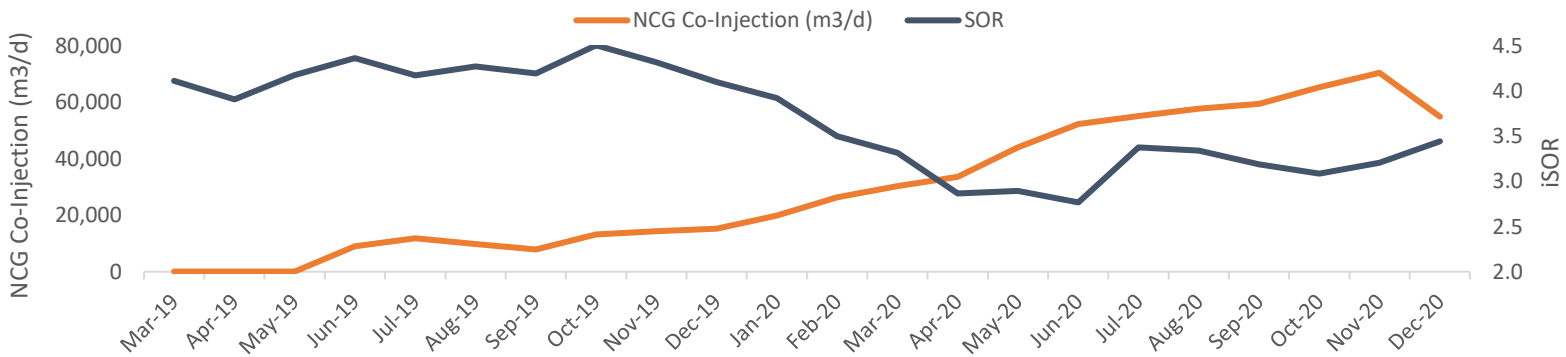
- Pads 1-4 NCG co-injection used for SOR management
 - *Field continues to see the benefit of NCG co-injection leading to improved SOR*
- Injection started in 2019 for SOR optimization, maximum monthly rate of 70,000m³/d was achieved in November 2020
- NCG co-injection has been helpful in balancing steam chamber pressure in relation to the bottom water
- No observed negative impact of gas injection to recovery factor outlook and wellbore integrity
- Coordinate and plan for implementation on Pads 5 and 6 in 2021



PADS 1-4 OIL AND STEAM RATES



PADS 1-4 NCG INJECTION RATES AND SOR



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

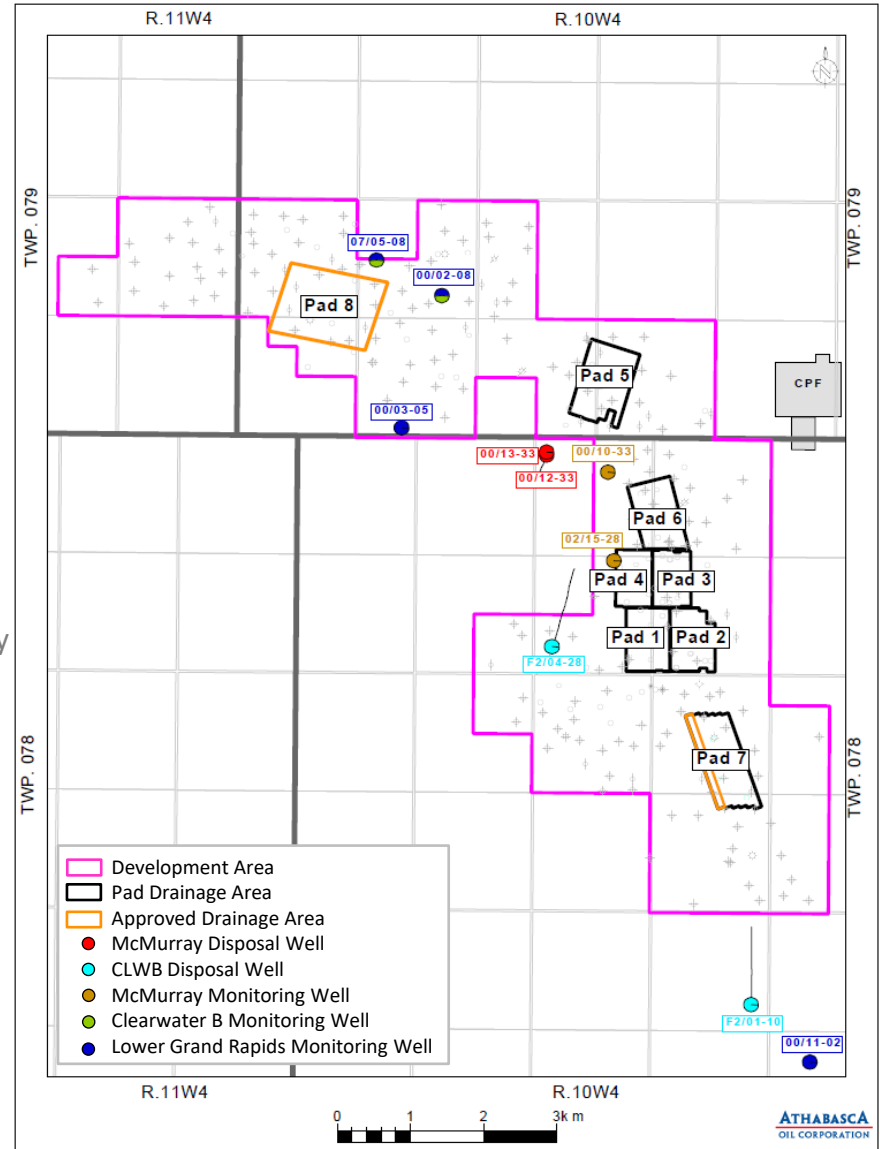
CLEARWATER B MONITORING

- 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

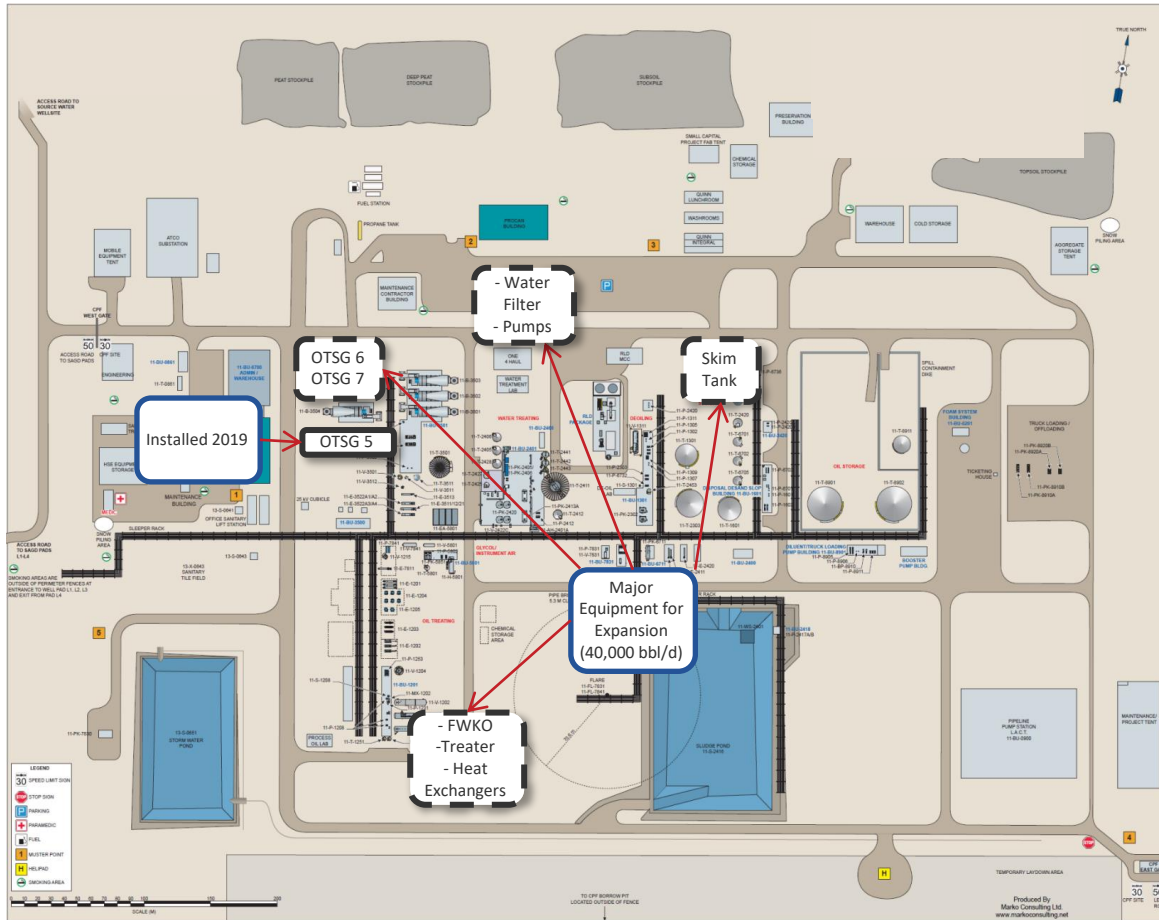
- Continue optimizing NCG co-injection to improve SOR
- Steam splitters and FCDs are implemented on new wellpairs moving forward
- Evaluating infill well performance in relation to well placement
 - *Pad 6 infills are currently performing among the best in Leismer*
- No immediate plans for future pilots



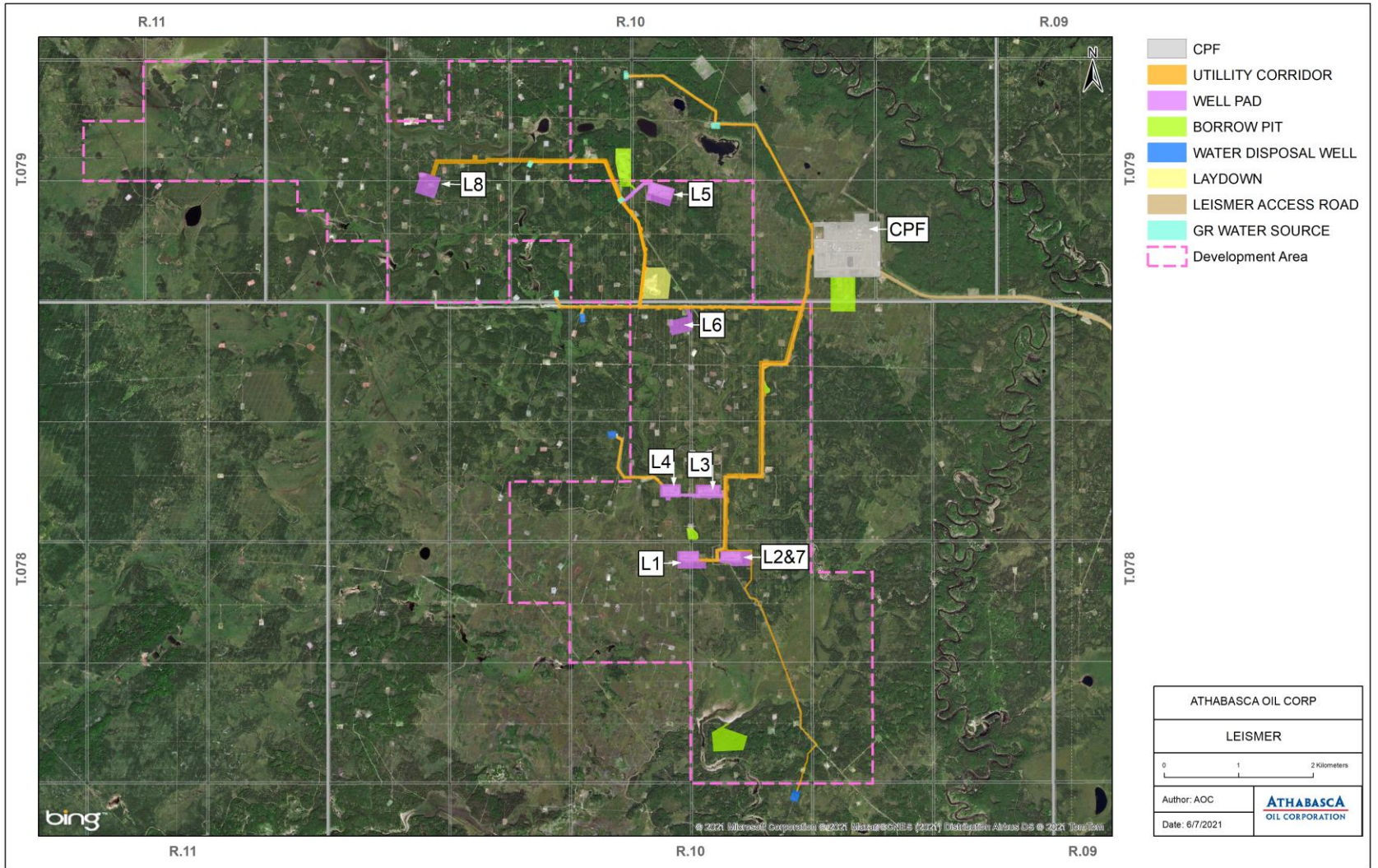
SURFACE OPERATIONS

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CENTRAL PROCESSING FACILITY



SURFACE DEVELOPMENT OVERVIEW

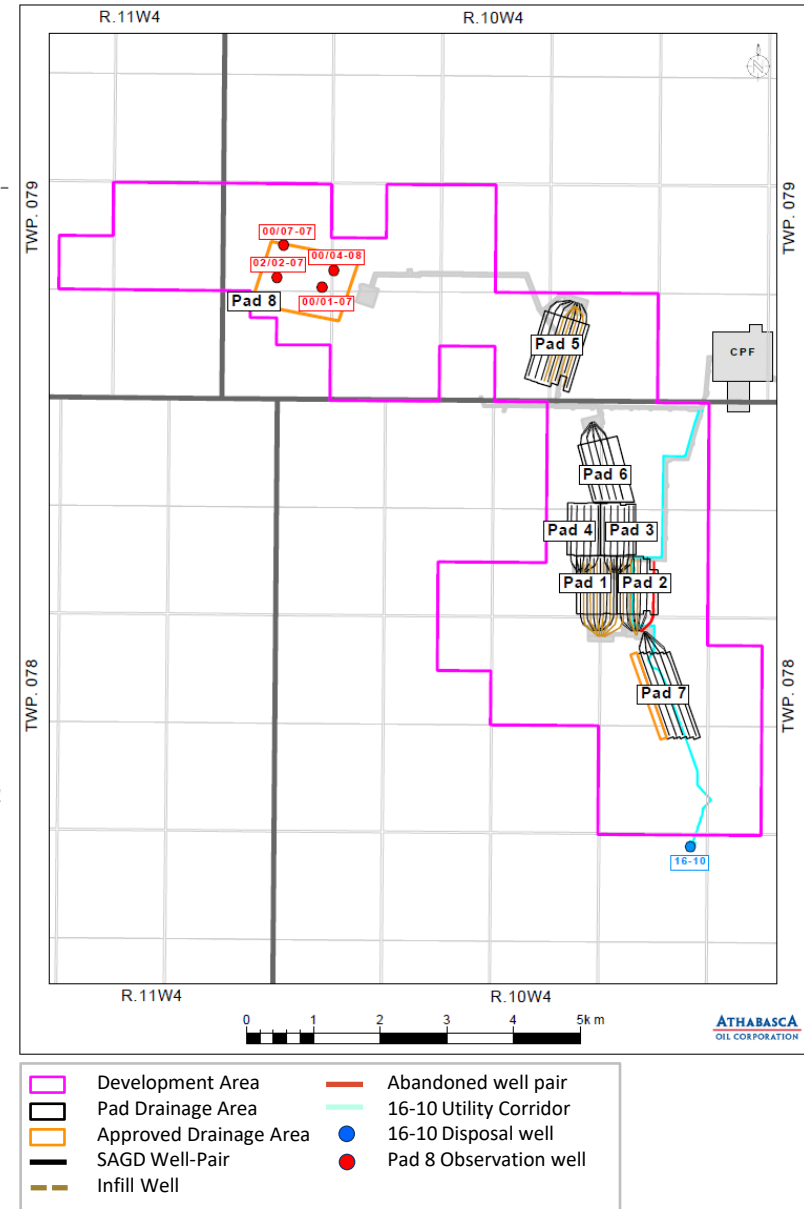


2020 ACTIVITY

- Pad 8 observation wells drilled (4)
- Pipeline and surface infrastructure constructed for injection location 16-10-078-10W4 (Clearwater B)
- Injection initiated into Clearwater B formation
- EPEA Approval No. 241311 renewed for additional 10-year term
- No CPF modifications were made that required an AER application approval

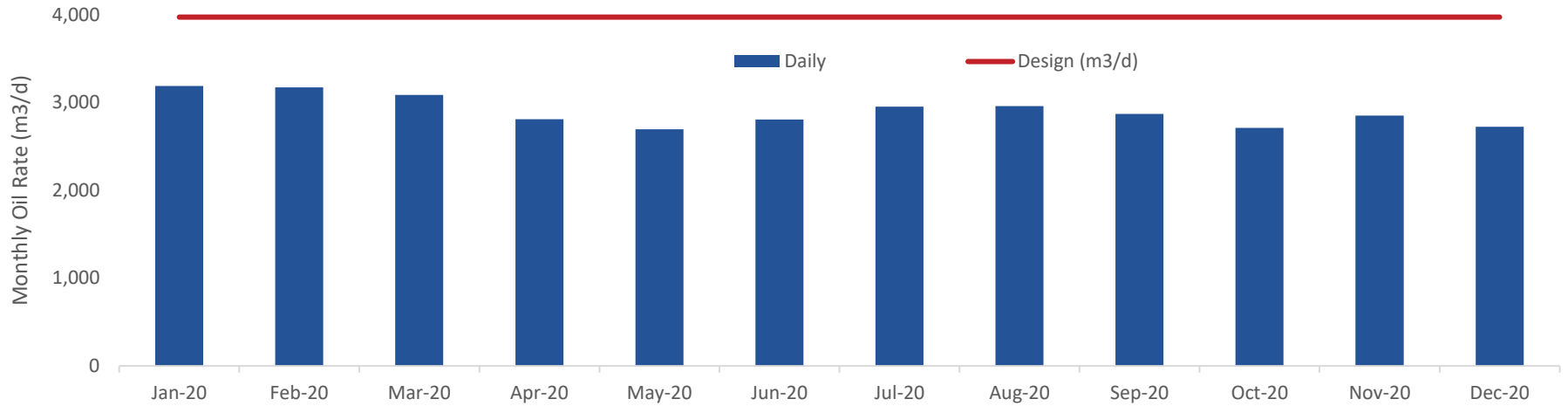
SUSPENSION AND ABANDONMENT

- 1 producer/injector well pair abandoned February 2020
 - L2P1 (106/11-27-078-10W4/00)
 - L2I1 (100/06-27-078-10W4/00)
 - Abandoned due to poor reservoir quality and has been offline since February 2014

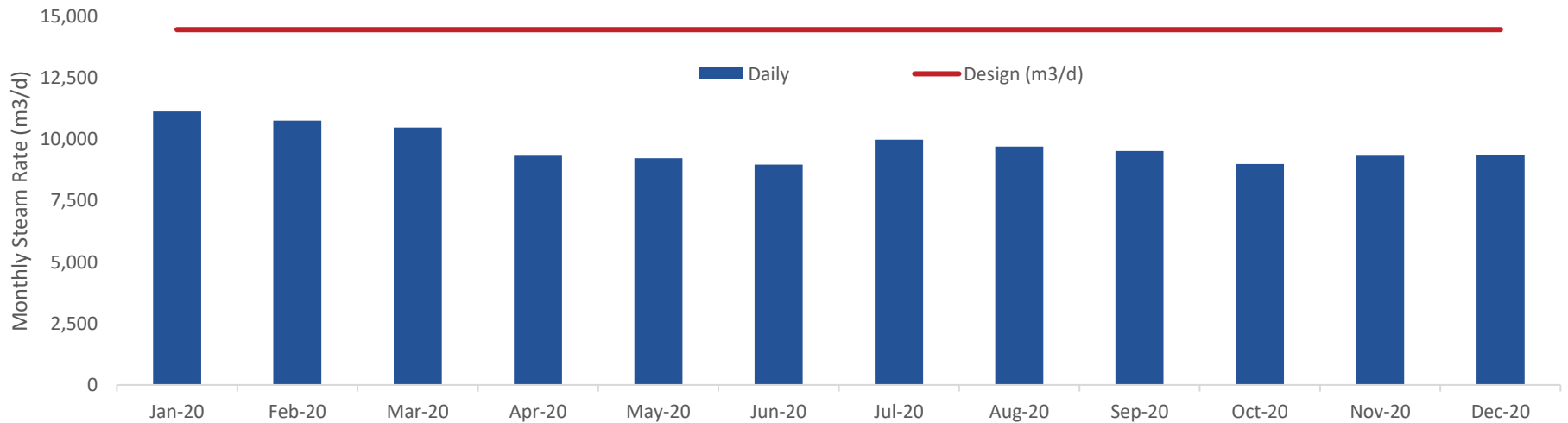


LEISMER OIL AND STEAM PERFORMANCE

OIL PERFORMANCE



STEAM PERFORMANCE





REGULATORY & COMPLIANCE

APPROVALS, AMENDMENTS AND RENEWALS

Application No. or Approval No.	Approval Date	Description
WA License 00364442 Renewal	February 6, 2020	Water use from CPF storm water pond
Application No. 1926761	March 3, 2020	D051 Class 1b Disposal Well License
WA License 00364731 Renewal	March 13, 2020	Water use from well pad storm water ponds
Application No. 1928401	May 7, 2020	Category 2 Amendment NCG injection without steam
Application No. 009-241311	August 12, 2020	EPEA Approval Renewal for additional 10 year term
D056 License P50064	October 19, 2020	Pipeline License - CPF to Pad 8 steam line
D056 License P50043	October 19, 2020	Pipeline License - CPF To Pad 8 emulsion line
D056 License P50041	October 19, 2020	Pipeline License - CPF to Pad 8 fuel gas line

Notes

EPEA – Environmental Protection and Enhancement Act Approval

WA - Water Act

INSPECTIONS

Inspections			
Event	License	Inspection ID	Result
AER Pipeline Inspection January 23, 2020	P51231	496631	Satisfactory
AER Pipeline Inspection February 5, 2020	P51231	498051	Satisfactory
AER Pipeline Inspection February 5, 2020	P51231	498026	Satisfactory
AER Wellsite Inspection February 5, 2020	W0496549	498030	Satisfactory
AER Facility Inspection June 23, 2020	F51680	501625	Satisfactory
AER Facility Inspection June 25, 2020	F45749	501854	Satisfactory
AER Facility Inspection June 25, 2020	F45751	501855	Satisfactory
AER Facility Inspection June 25, 2020	F45758	501856	Satisfactory
AER Facility Inspection June 25, 2020	F48462	501857	Satisfactory
AER Facility Inspection June 25, 2020	F45299	501858	Satisfactory
AER Facility Inspection June 25, 2020	F45070	501859	Satisfactory
AER Facility Inspection August 31, 2020	F38516	503411	Satisfactory
AER Wellsite Inspection August 31, 2020	W0373095	503391	Satisfactory
AER Wellsite Inspection August 31, 2020	W0409449	503392	Satisfactory

AUDITS

Audits			
Event	License	Activity ID	Result
Public Lands Act Applications, January 9, 2020	1630729	1649406 & 1649407	Satisfactory
Directive for Assessment of Thermally Mobilized Constituents in Groundwater for Thermal In Situ Operations, March 31, 2020	EPEA 241311	N/A	Satisfactory

SPILLS

- 0 reportable spills in 2020

NON-COMPLIANCE SUMMARY

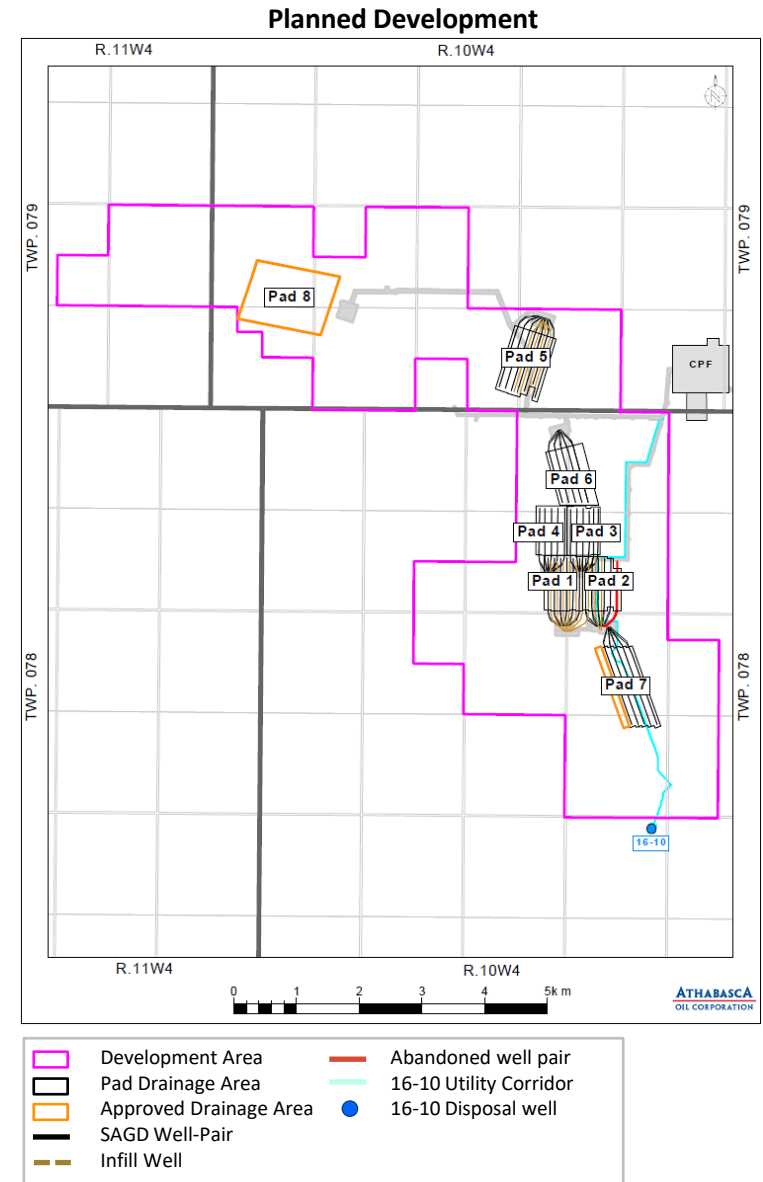
Reportable Incidents, Notices of Non-Compliance and Voluntary Self Disclosures (VSD)		
Reference	Event	Corrective Action
VSD ID111100	Interim Directive ID 2003-01, non-compliance for testing of non-serious surface casing vent flows (October)	Internal guidance developed outlining regulatory requirements, responsibility and test schedule
EDGE 0365643	EPEA Approval 241311, heavy rain caused breach in run-off control system resulting in surface water release without sampling and analytical (April)	Control system (berm) repaired, run-off control system to be inspected regularly to ensure integrity
EDGE 0317294	EPEA Approval 241311, surface run-off pond released after field screen, but without confirmatory lab analysis (August)	Requirements for lab analysis in addition to field screen were communicated to field operations and will be revisited in spring 2021
ID 373886	Small flame occurred when heat trace tubing ruptured and fluid contacted steam line (November)	Evaluate potential to remove heat tracing loops in direct contact with steam piping

2021 ACTIVITY

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

FUTURE OPERATIONS

- Renewal of TIER II Water Act License No. 239880 (2022)
- Pad 8 – drill remaining approved well pairs (9) in accordance with approved capital programs



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