

Suncor MacKay River In Situ Project

2025 Directive 54 Performance Report

Commercial Scheme Approval No. 8668

June 30, 2026

Reporting Period:
January 1, 2025 to December 31, 2025

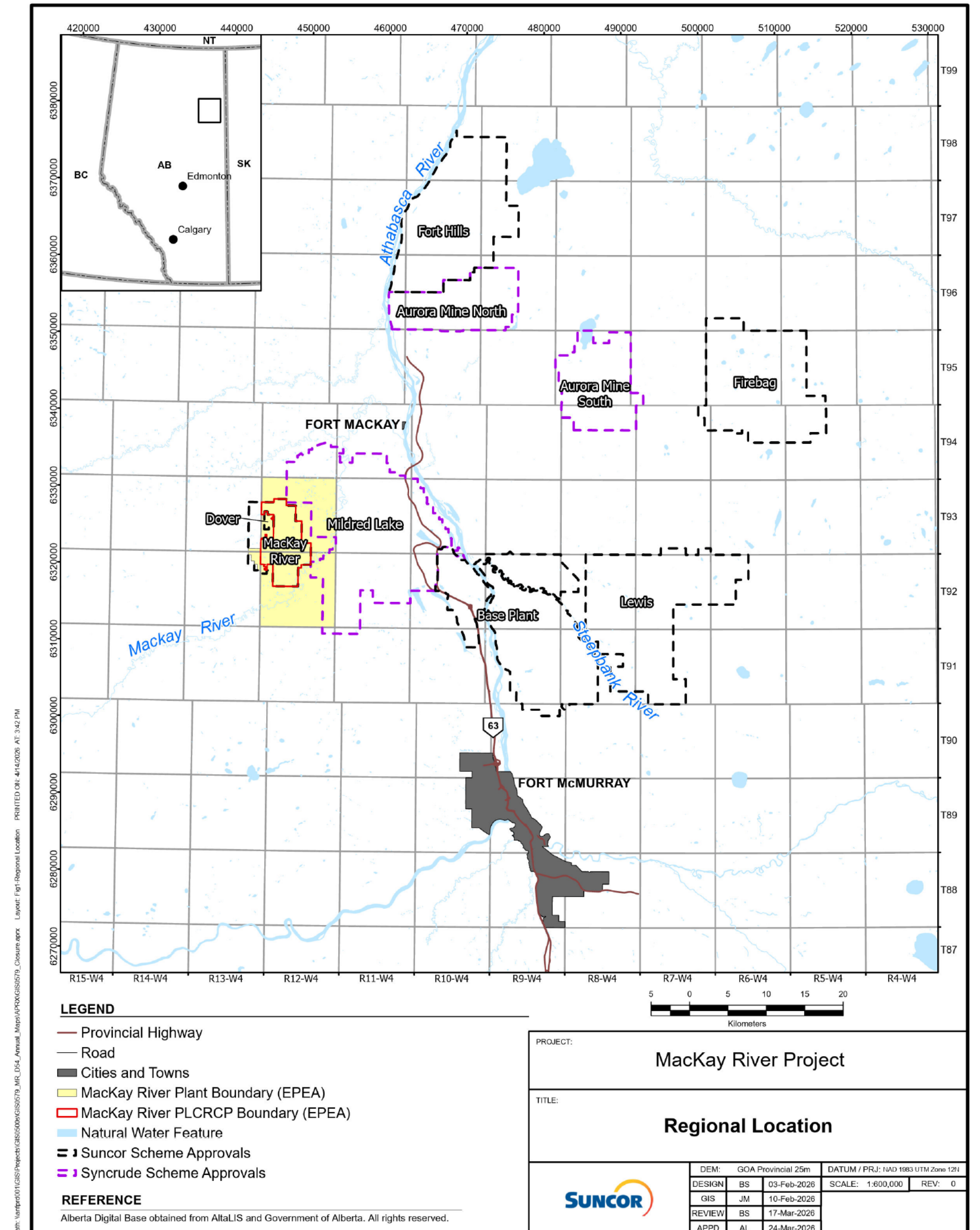


4.1) Introduction

Mackay River Project Overview

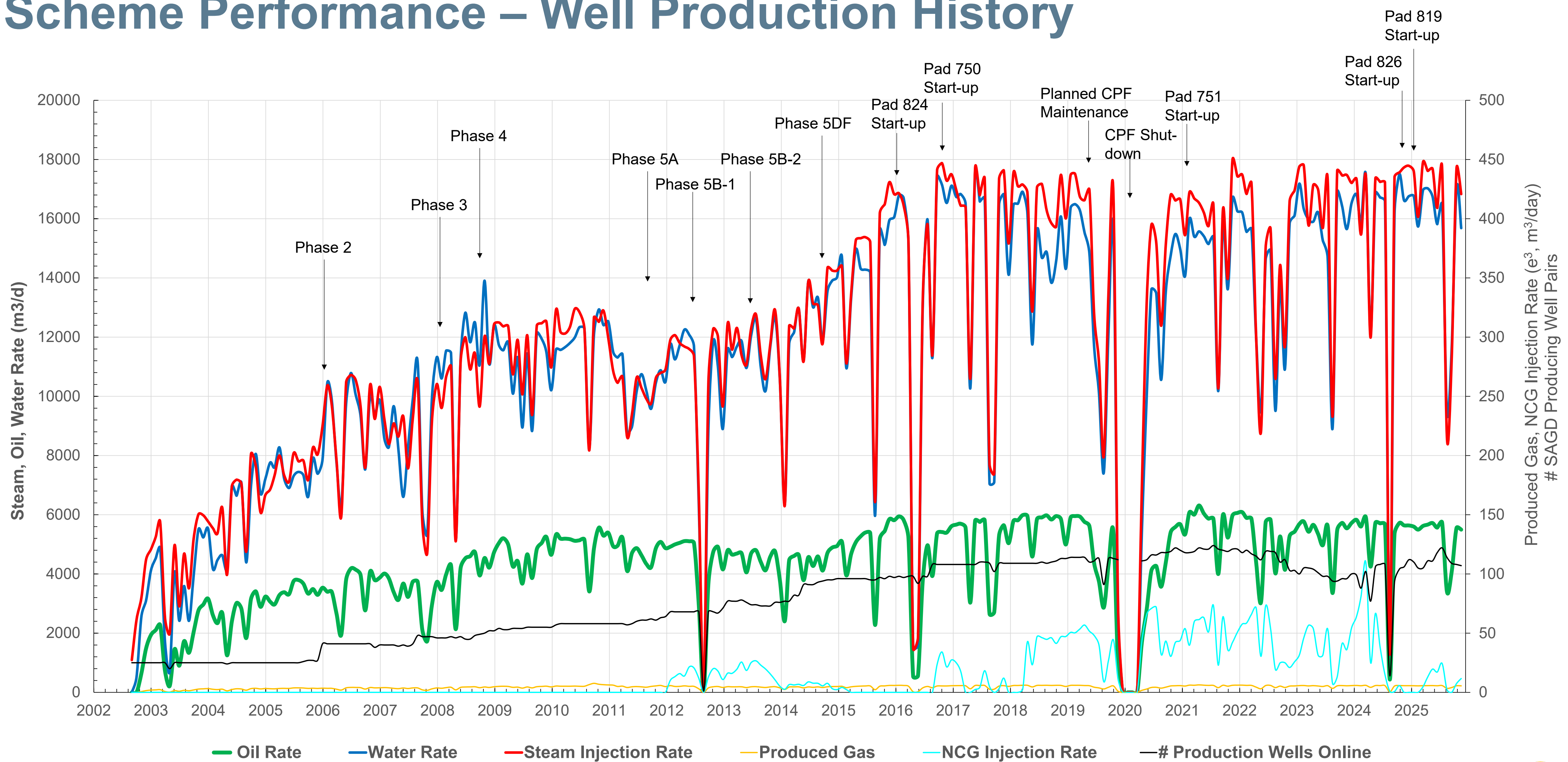
The Mackay River Project is a commercial Steam Assisted Gravity Drainage (SAGD) scheme. It is located 60 km NW of Fort McMurray and has been operating since September 2002.

Average bitumen production for the reporting period was 5,296 m³/d (33,325 bbl/d) with a steam to oil ratio (SOR) of 3.01.

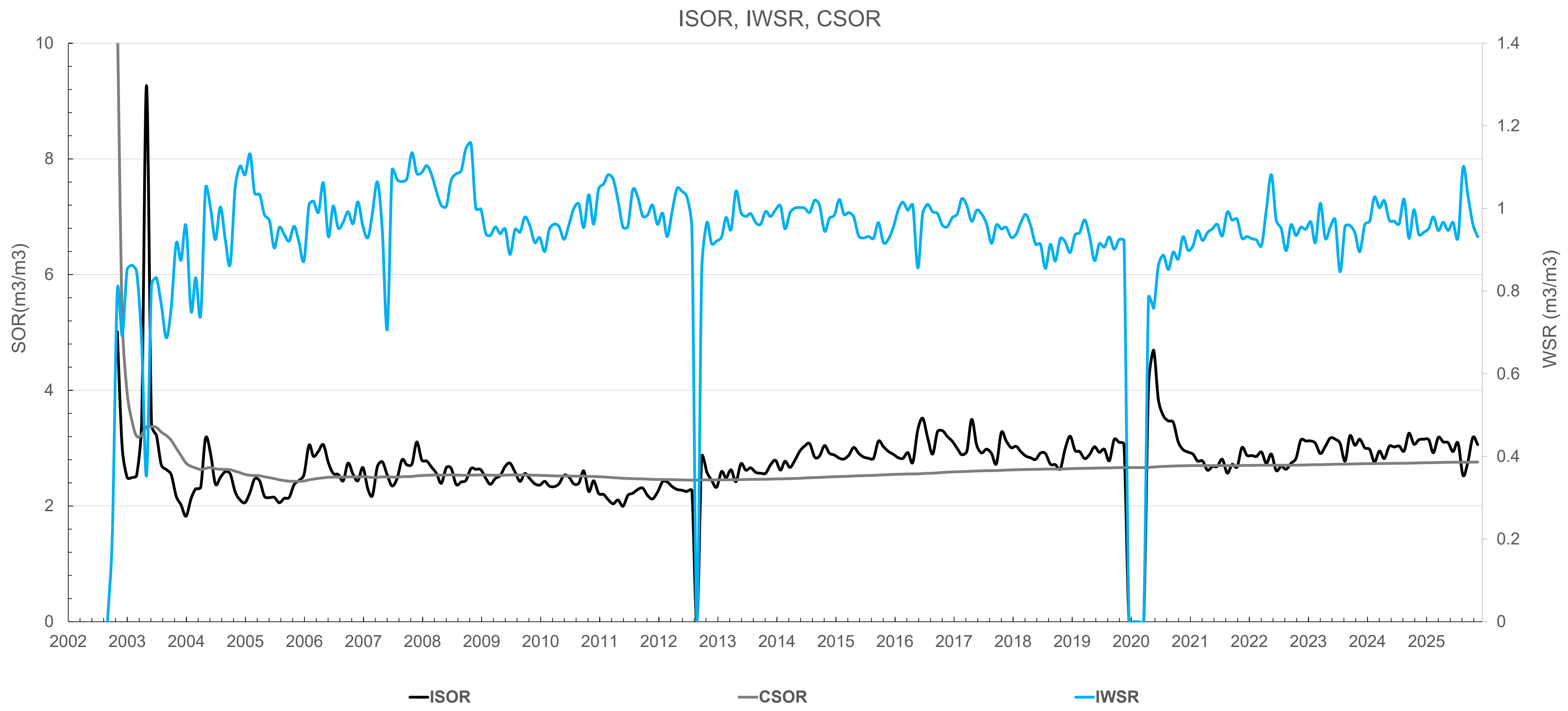


4.2) Subsurface

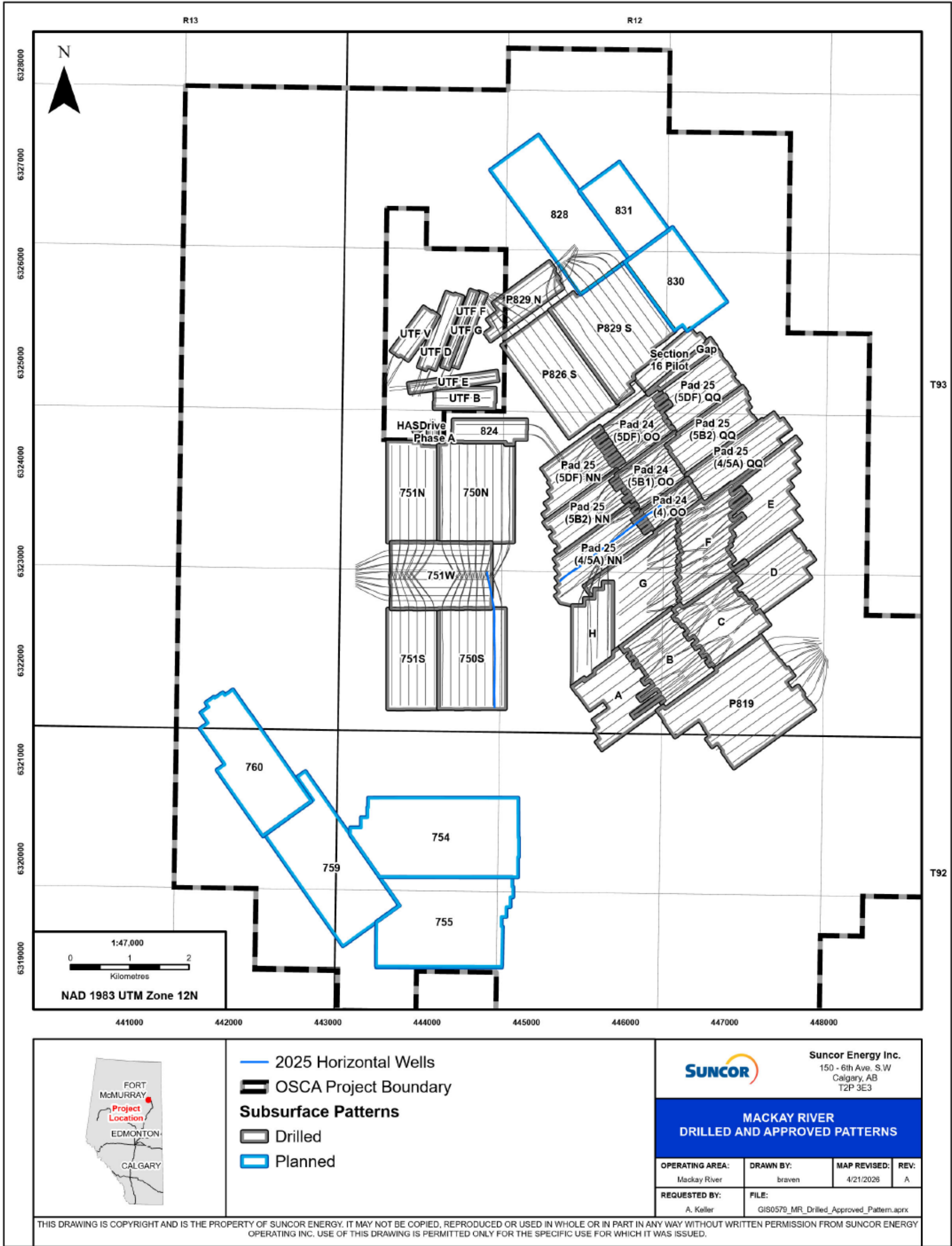
Scheme Performance – Well Production History



Scheme Performance – Well Production History



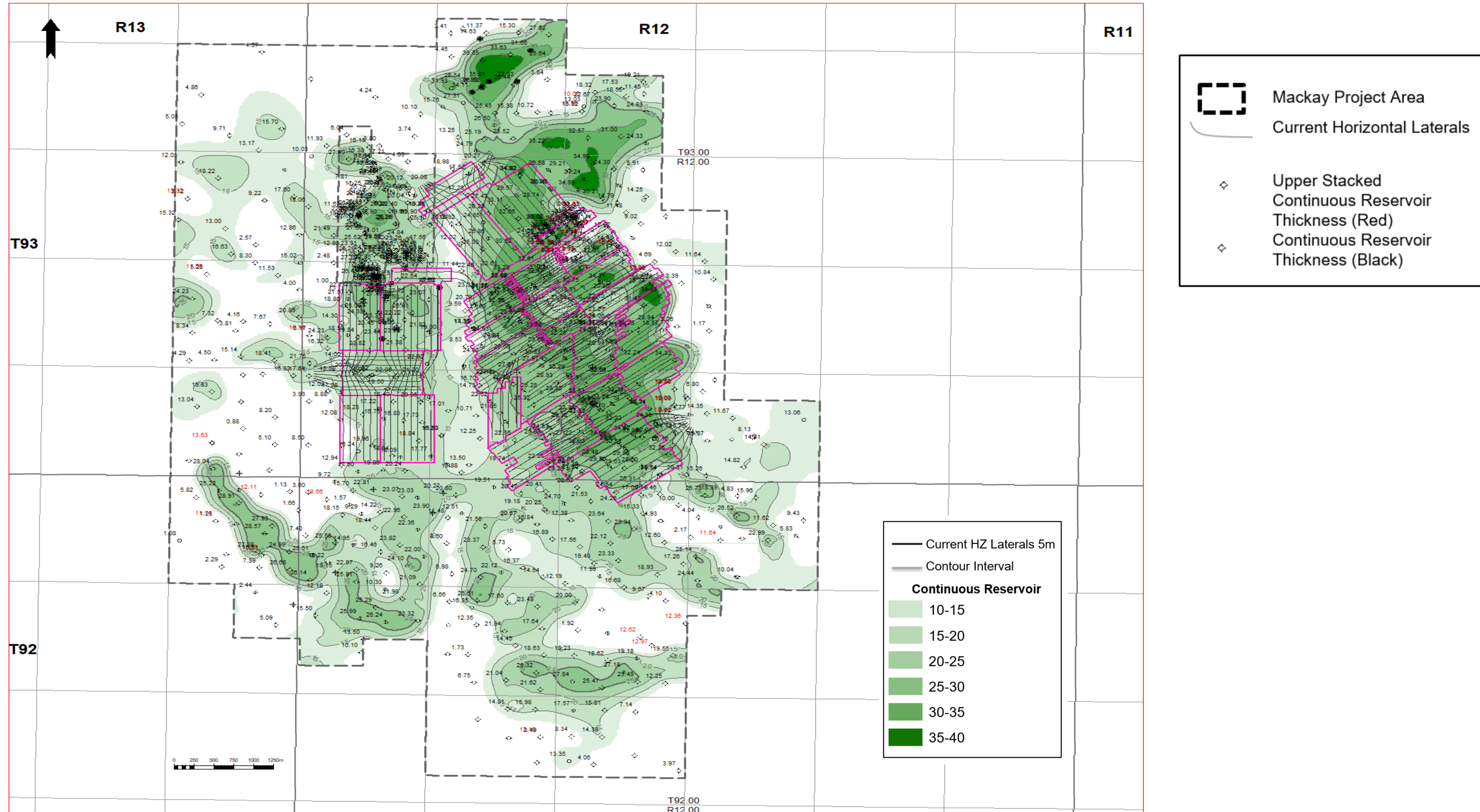
Drilled and Approved Drainage Pattern Areas



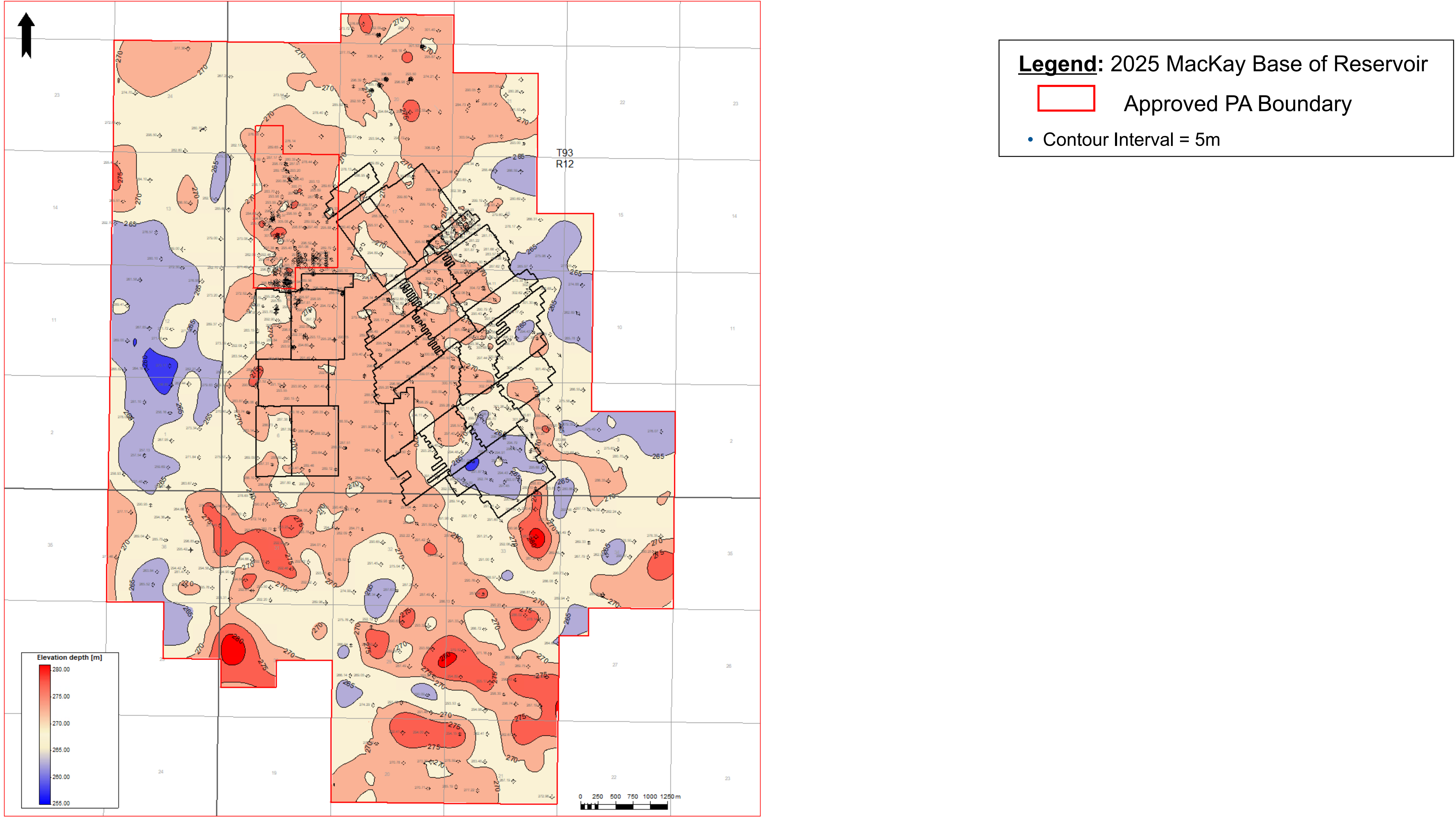
Existing Operations

Pad	Pattern	Phase	# Well of Pairs	First Steam to Pad
20	A	1	7	2002
	C		6	
21	B	1	7	2002
	D		5	
22	E	2	7	2006
	G		7	
23	F	3	7	2007
24	OO	4	3	2008 - 2009
		5B-1	6	2012
		5DF	6	2014
	H	4	4	2009 - 2010
		4	2	2008
25	QQ	5A	2	2011
		5B-2	5	2013
		5DF	6	2014
		4	1	2008
	NN	5A	4	2011
		5B-2	5	2013
		5DF	6	2014
		4	2	2015
		6	8	2016
24	824	6	2	2015
750	750N	7A/D	8	2016
	750S	7A/B/C	8	2016 - 2019
751	751W	8A/B	6	2020
	751N	8C	1	2020
	751S	8B/C	5	2020
	751N	8D	4	2021
	751N/751S	8E	2	2021
826	826	9	6	2024
819	819	10	9	2025

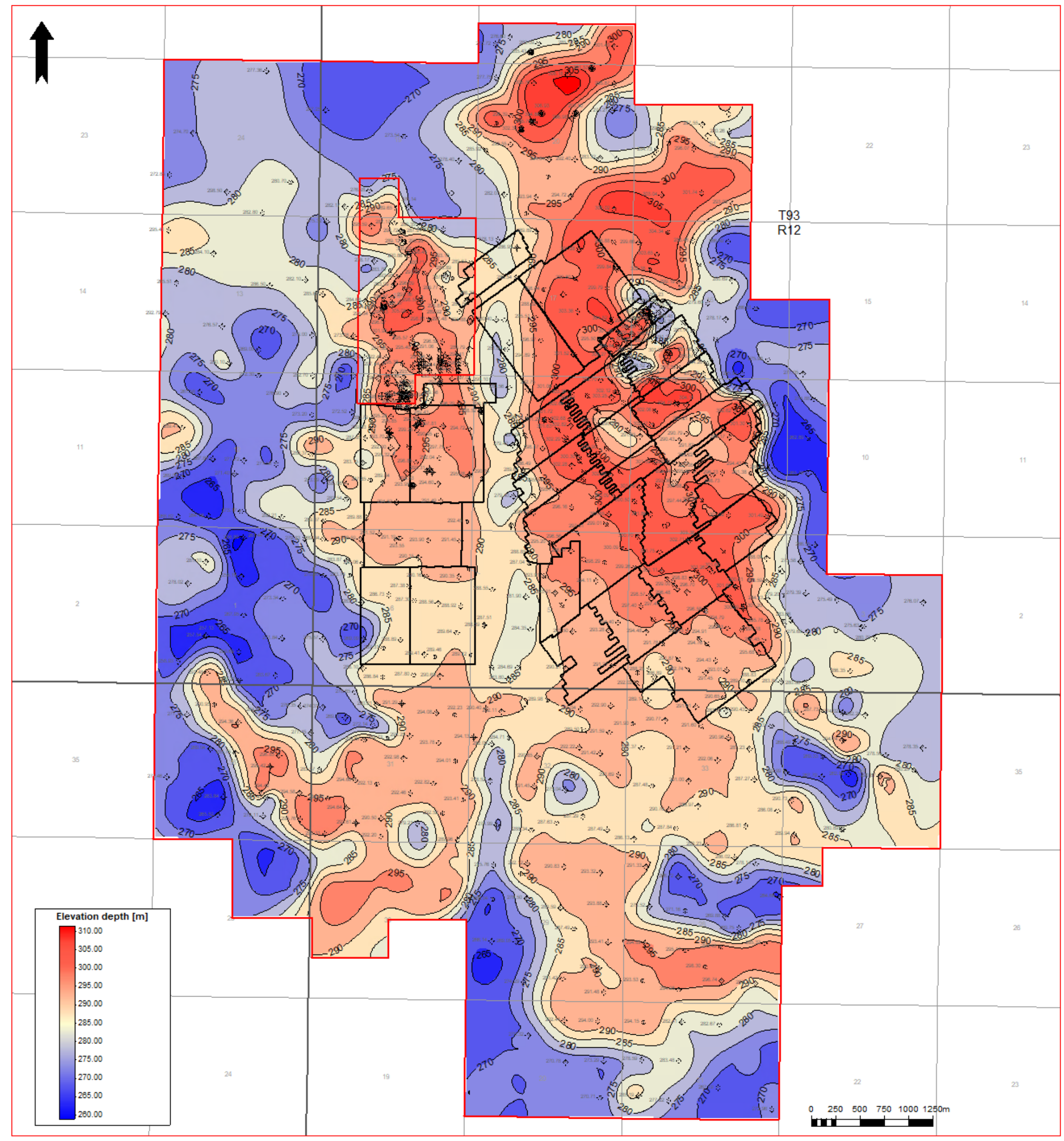
Net Pay Isopach with Resource Cutoff – Continuous Reservoir



Base Continuous Reservoir Structure Map



Top Continuous Reservoir Structure Map

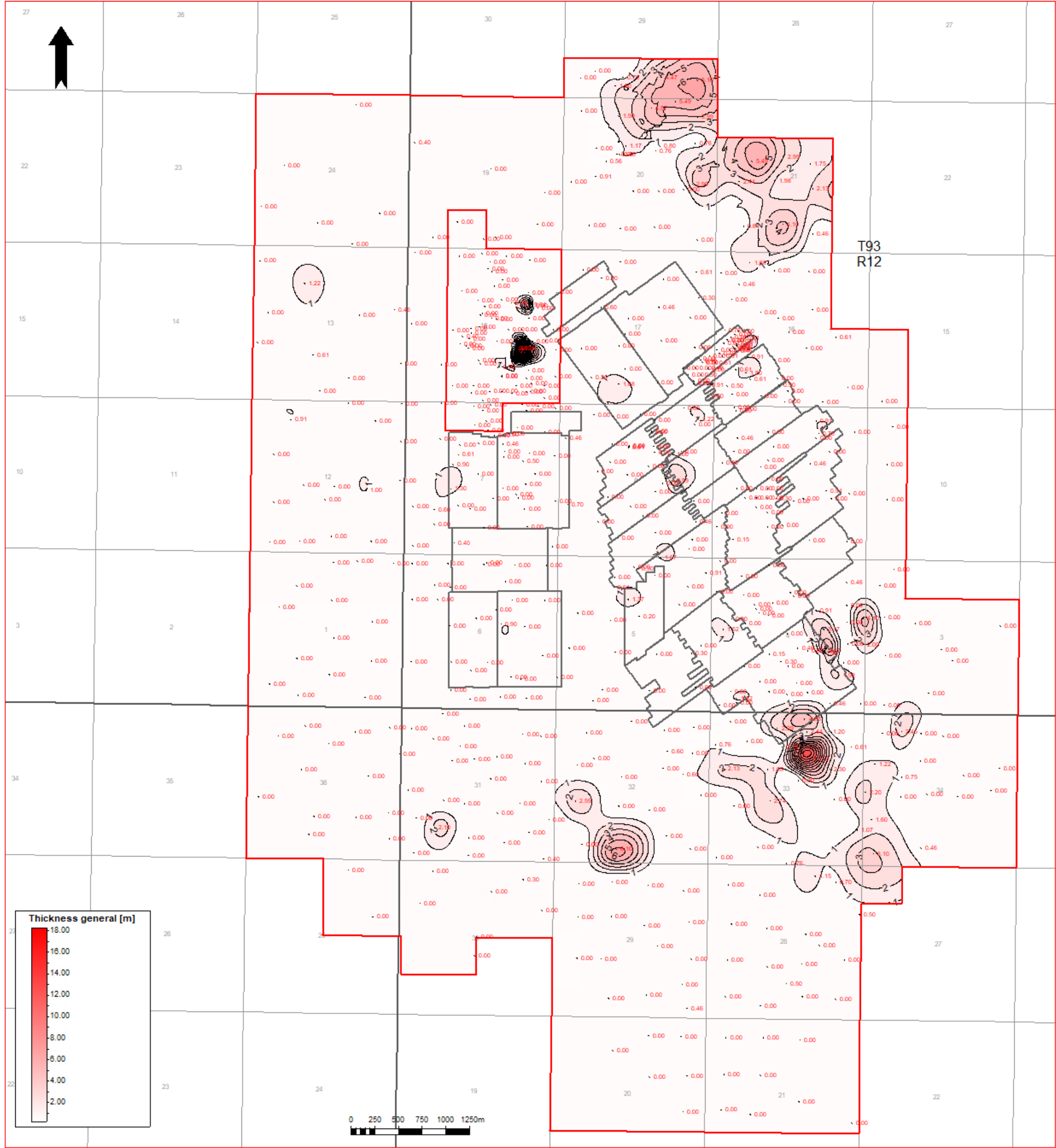


Legend: 2025 MacKay Top of Reservoir

Approved PA Boundary

- Contour Interval = 5m

Reservoir Zone Gas Isopach

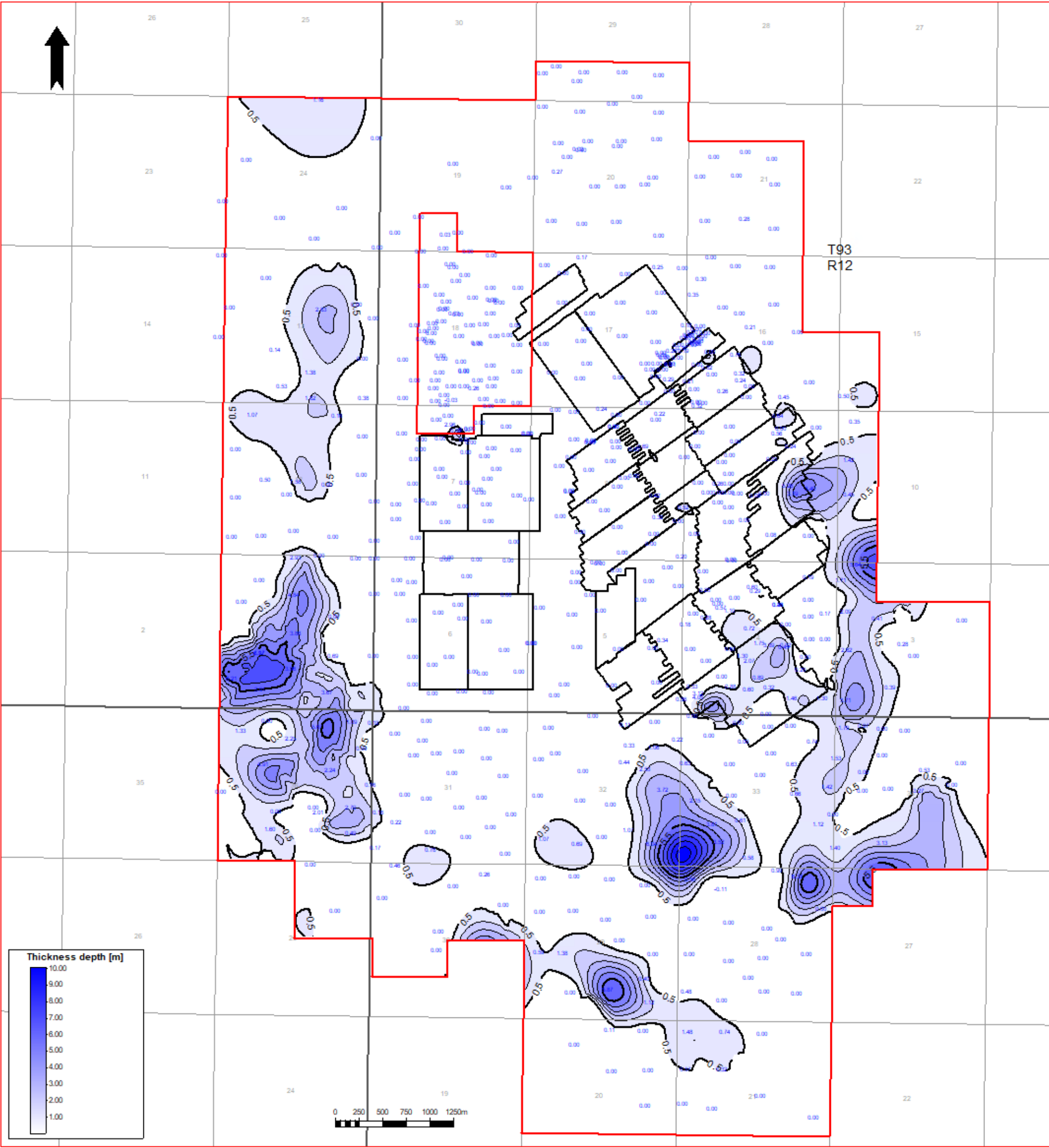


Legend: 2025 Reservoir Cumulative Gas Isopach

- Approved PA Boundary
- Cutoff = $S_g > 0.03$
- Contour Interval = 1m

Gas zones shown are inconsequential to Mackay River but are included for reference.

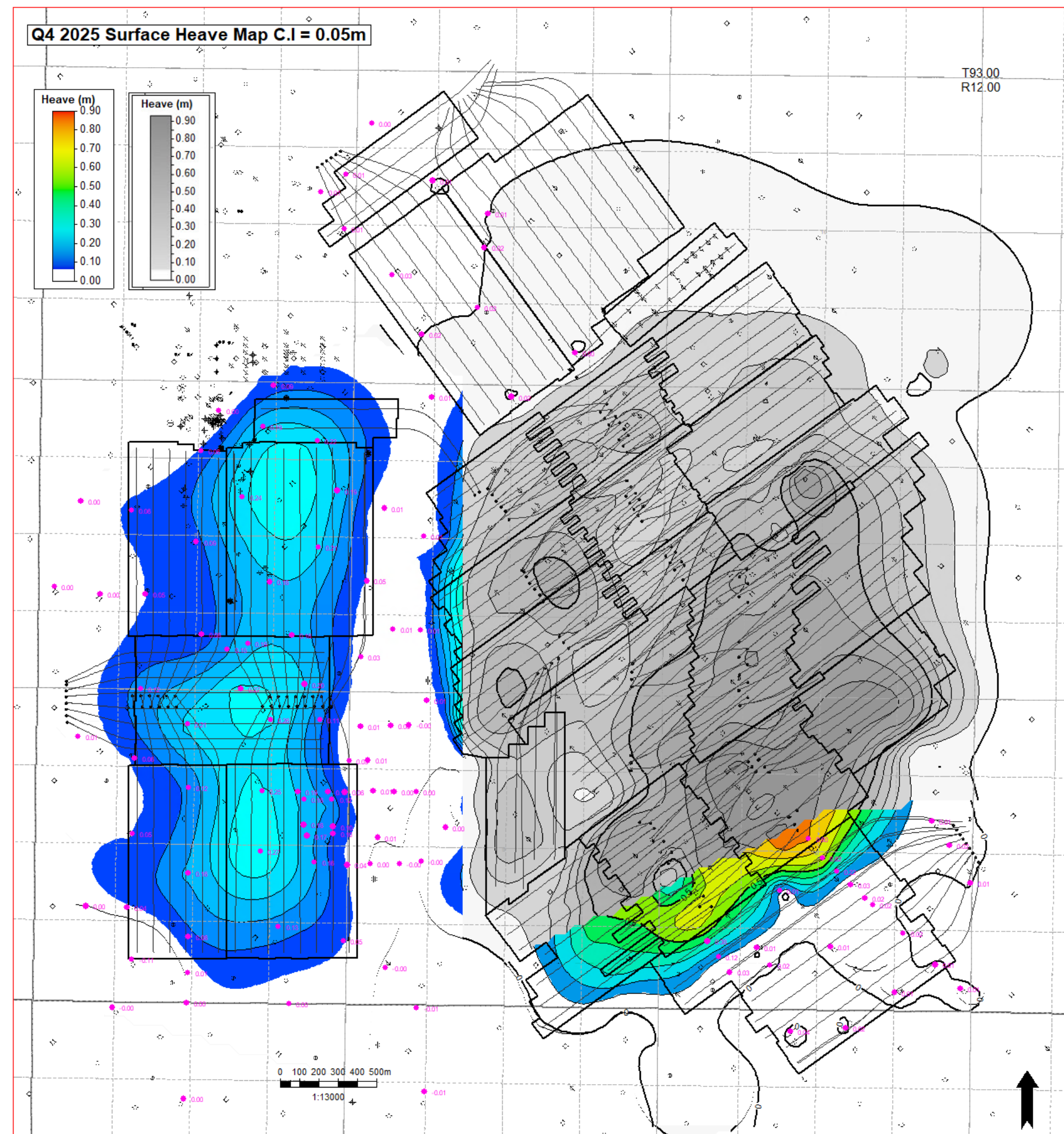
Basal Water Isopach



Legend: 2025 Mackay Bottom Water Isopach

- Approved PA Boundary
- Cutoff = BMFO < 0.02 & GR < 60 API
- Contour Interval = 1m

Geomechanical Anomalies



There are no geomechanical anomalies within the MacKay River development area.

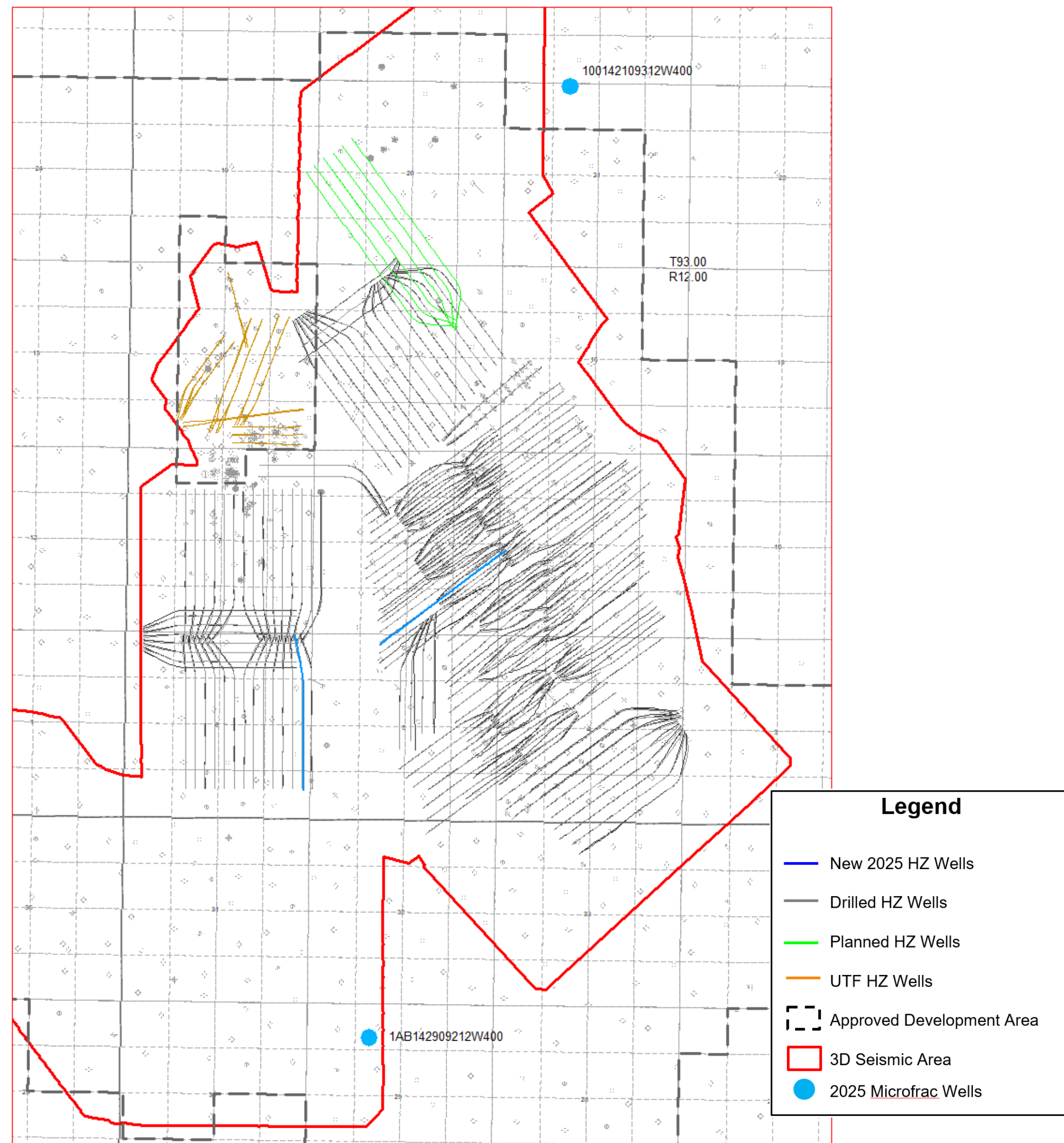
Heave monitoring is performed with manual measurement of installed heave monuments.

This data is used to calibrate geomechanical models as well as to monitor subsurface safety and flag areas that appear anomalous.

2025 heave survey was completed over CPF and Pads 829, 826, 819, 751 and 750.

Maximum heave of ~93 cm is observed over C Pattern / Pad 21.

Caprock Integrity Assurance



Two microfrac tests were conducted in 2025 in the SW and NE of the field.

One new caprock core was collected during the reporting period.

Geomechanical modelling is conducted ahead of development and SAGD operation of new reservoir to guide safe operations.

Fracture Closure Gradients

Two Microfrac wells drilled in 2025:

- Dover 14-21
- Dover 14-29

The MacKay River bottomhole maximum operating pressures (MOPs) remain as currently approved, based on the following methodology:

- Use the conservative fracture gradient of 21 kPa/m X base of the caprock (Wab D) in pattern X 80% (safety factor)
- Use the lowest caprock gradient where applicable (such as proximity to OB23)

Well	Well Alias	Target Formation	Fracture Closure Gradient (kPa/m)
09-06-93-12W4	SST3	Clearwater	24.1
09-06-93-12W4	SST3	Wabiskaw C	24.3
09-06-93-12W4	SST3	McMurray	19.9
05-34-92-12W4	LQ2	Clearwater	21.3
05-34-92-12W4	LQ2	Wabiskaw D	21.2
05-34-92-12W4	LQ2	Wabiskaw C	22.6
05-34-92-12W4	LQ2	McMurray	21.1
16-04-93-12W4	JK-9	Clearwater	22.3
16-04-93-12W4	JK-9	Wabiskaw D	21.1
16-04-93-12W4	JK-9	Wabiskaw C	22.1
11-20-93-12W4	OB23	Clearwater	20.4
11-20-93-12W4	OB23	Wabiskaw D	19.5
11-20-93-12W4	OB23	McMurray	19.0
06-17-93-12W4	Dover 6-17	Clearwater	22.2
06-17-93-12W4	Dover 6-17	Wabiskaw D	22.8
06-17-93-12W4	Dover 6-17	Wabiskaw C	24.2
06-17-93-12W4	Dover 6-17	McMurray	21.5
07-36-92-13W4	Dover 7-36	Clearwater	22.8
07-36-92-13W4	Dover 7-36	Wabiskaw D	23.1
07-36-92-13W4	Dover 7-36	Wabiskaw C	23.7
07-36-92-13W4	Dover 7-36	McMurray	19.8
14-21-93-12W4	Dover 14-21	Clearwater	21.3
14-21-93-12W4	Dover 14-21	Wabiskaw A	21.3
14-21-93-12W4	Dover 14-21	McMurray	21.0
14-29-92-12W4	Dover 14-29	Clearwater	21.4
14-29-92-12W4	Dover 14-29	Wabiskaw D	21.3
14-29-92-12W4	Dover 14-29	McMurray	16.2

Overview of Maximum Bottomhole Operating Pressure Performance*

Suncor complied with the approved equivalent maximum bottomhole pressures

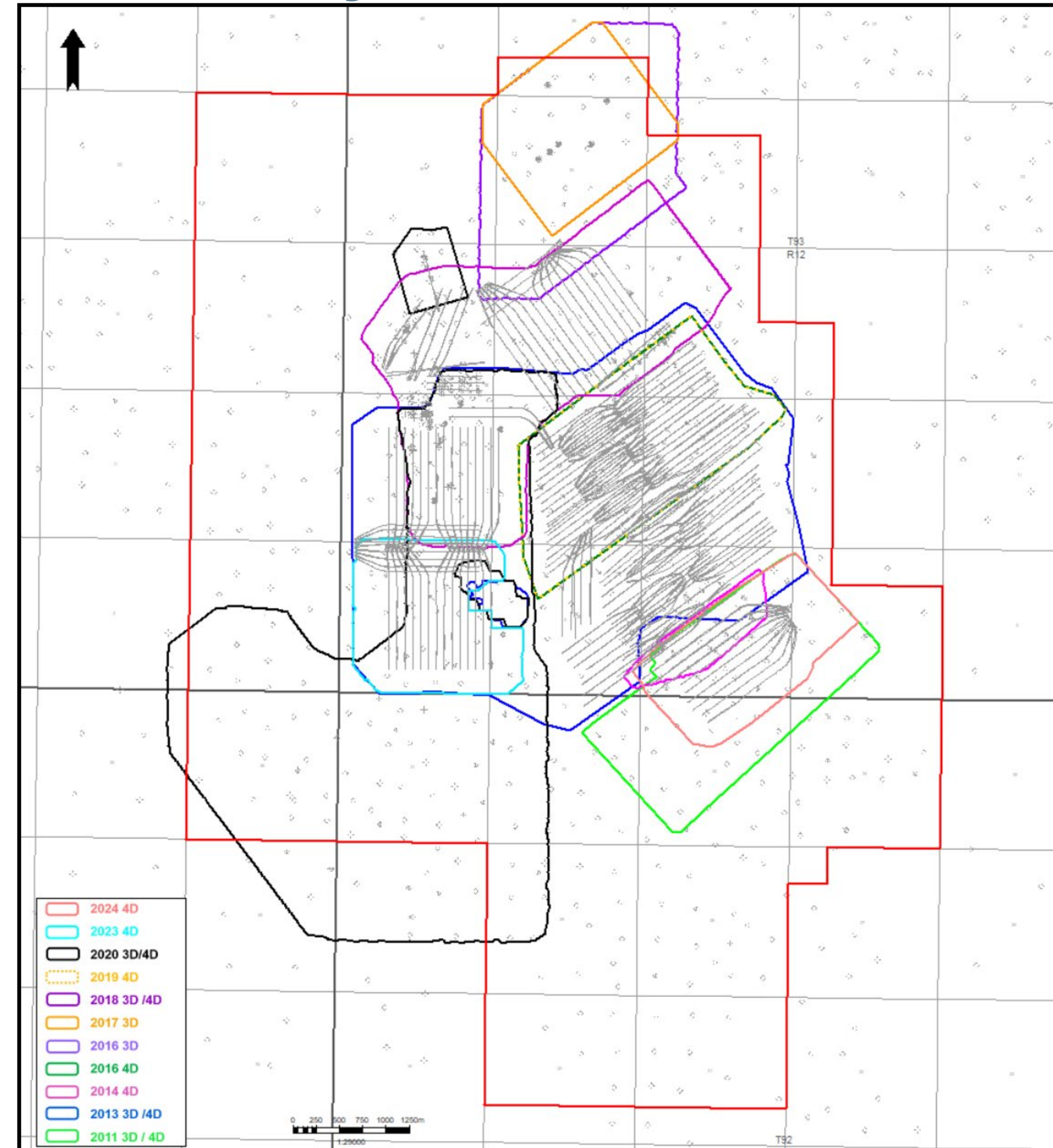
- All pads with MWHIP approval are late-life and operated below the equivalent maximum bottomhole pressure limits
- Low-rate steam test (LRST) is conducted to estimate chamber pressure and ensure compliance with the approved equivalent maximum bottomhole pressures
- Alarm systems are in place to ensure no exceedance to the equivalent maximum bottomhole pressure limits

Pattern	Wells	Maximum Operating Pressure	2025 Average Pressure
		Bottomhole (kPag)	Bottomhole (kPag)
A	A1-7	1690	969
B	B1-7	1600	1008
C	C1-6	1390	976
D	D1-5	1240	978
E	E1-4	1310	945
E	E5-7	1270	926
F	F1-7	1340	955
G	G1-7	1530	954
H	H1-4	1780	1225
NN	NN1-5	1680	1164
NN	NN6-10	1750	1177
NN	NN11-16	1700	1186
OO	OO1-3	1490	1018
OO	OO4-9	1520	1221
OO	OO10-15	1500	1203
QQ	QQ2-5	1210	1047
QQ	QQ6-16	1200	1033
824	WP1-2	2060	1385

*Condition 33 of Approval 8668

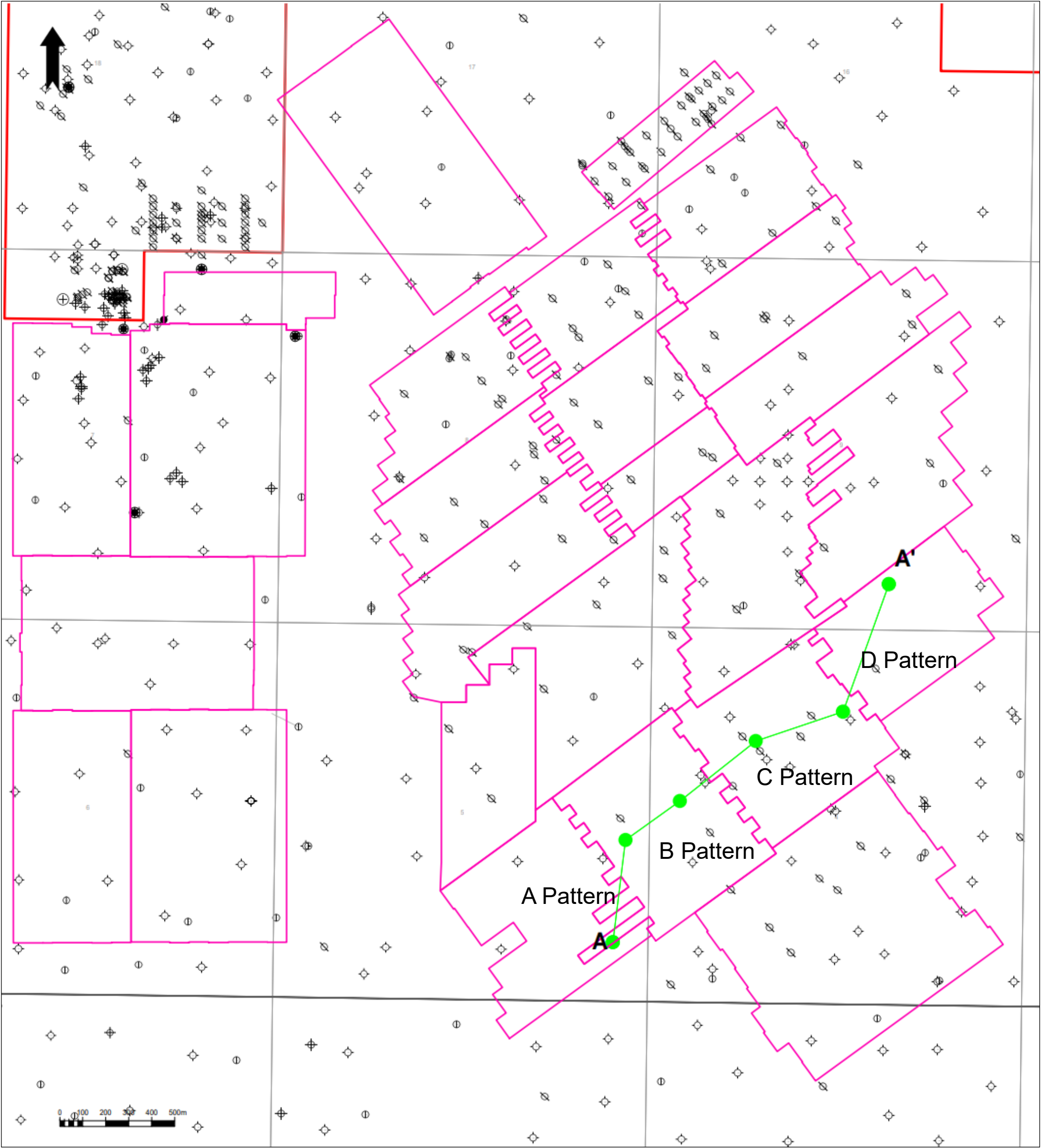
Seismic Acquisition – 3D/4D Seismic Survey Outlines

- No new seismic acquired in 2025

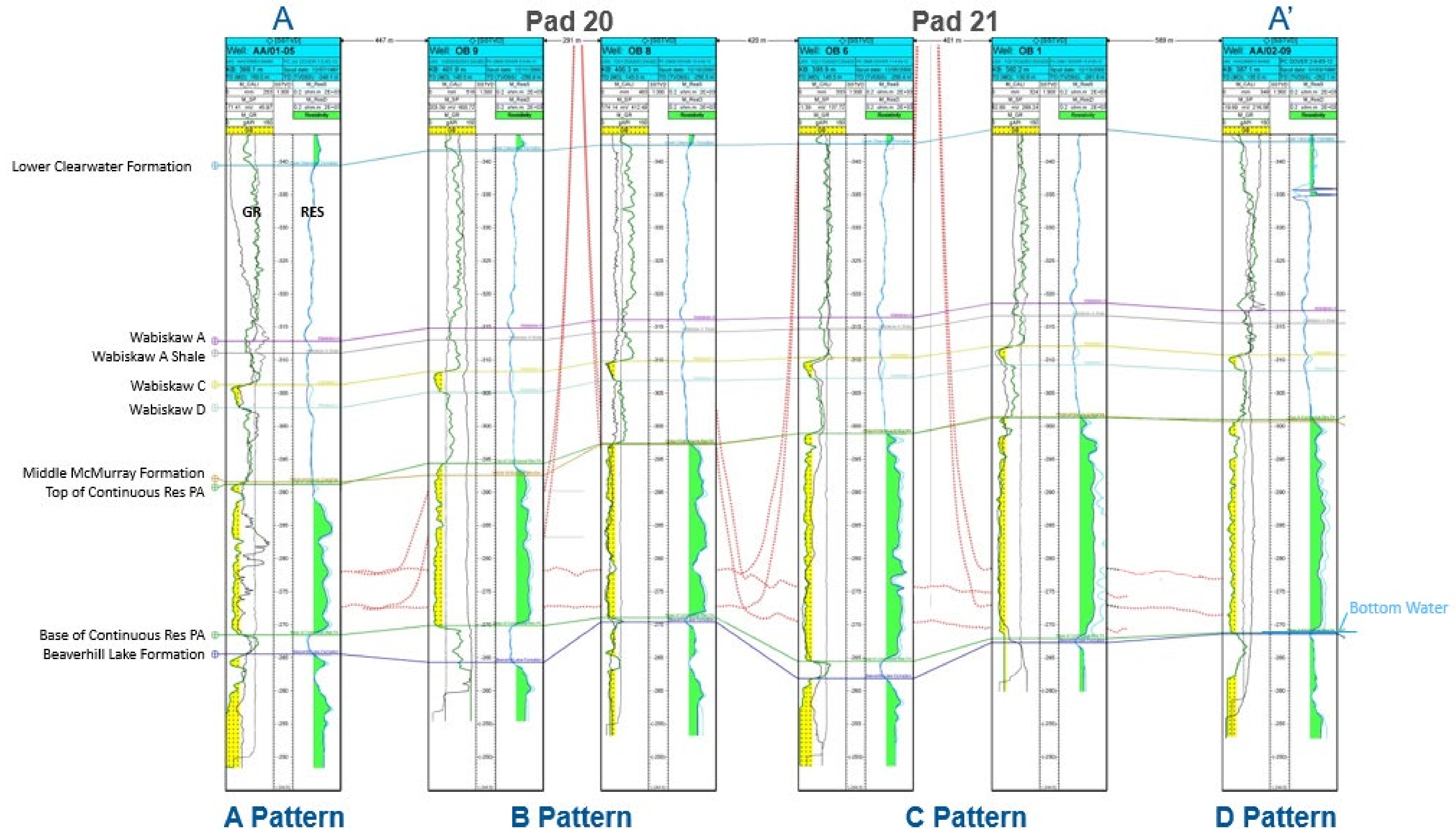


Representative Well Cross-section – Well Location Map

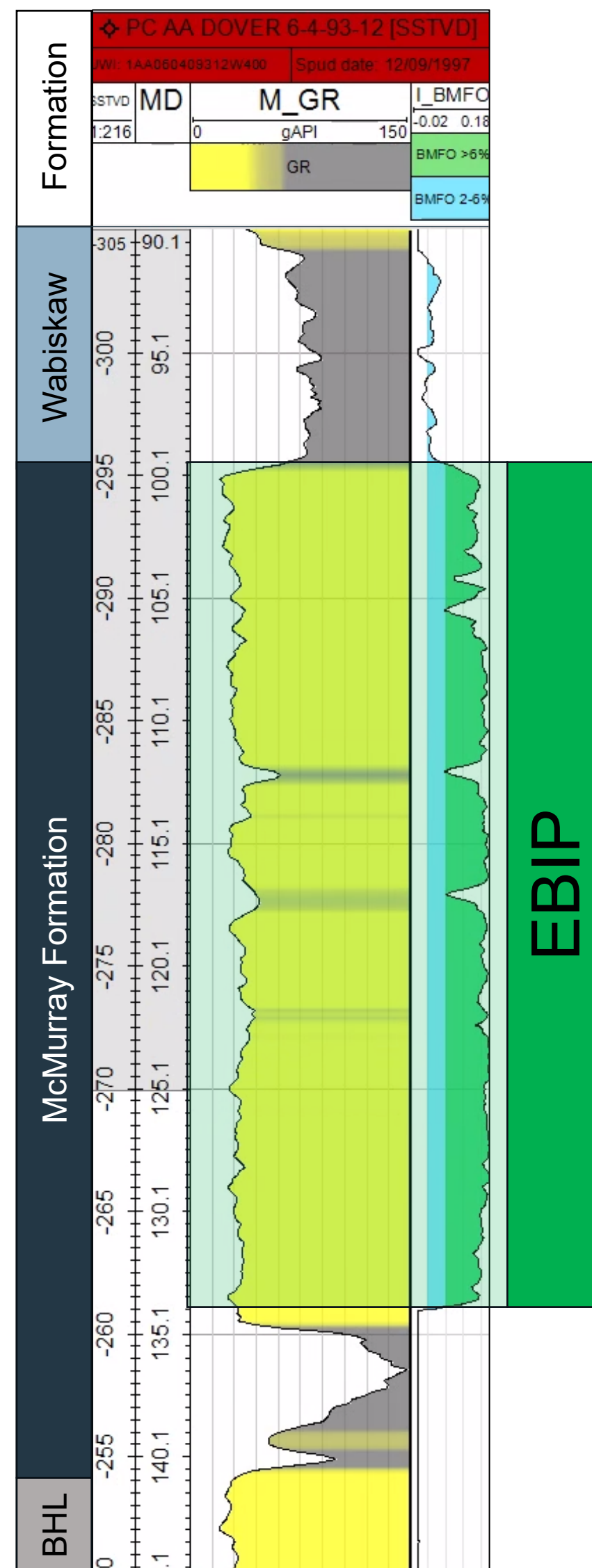
Representative cross-section across Phase 1 (A Pattern, B Pattern, C Pattern, D Pattern) shown in green with selected wells demarked by circles



Representative Well Cross-section – Phase 1



Exploitable Bitumen in Place Methodology



Exploitable Bitumen in Place (EBIP) is defined in each well by the top and base of the Continuous Reservoir. It is selected at the base of a continuous sand unit, either developed or most likely to be developed.

Continuous Reservoir Base: lowest portion of the continuous reservoir sandstone with Bulk Mass Fraction of Oil (BMFO) cut off of 6%, <3m of >50% mud/breccia in the lower portion.

Continuous Reservoir Top: first interval of 2m of non-reservoir facies.

Upper Lean, Middle Lean, and Gas Zones that are in pressure communication with the continuous reservoir are included with no thickness cutoffs.

Observation wells and 4D seismic will take precedence over pre-operations core and log based picks.

EBIP at MacKay/Mackay River is the same as the Original Bitumen in Place (OBIP). EBIP is the preferred term used on site.

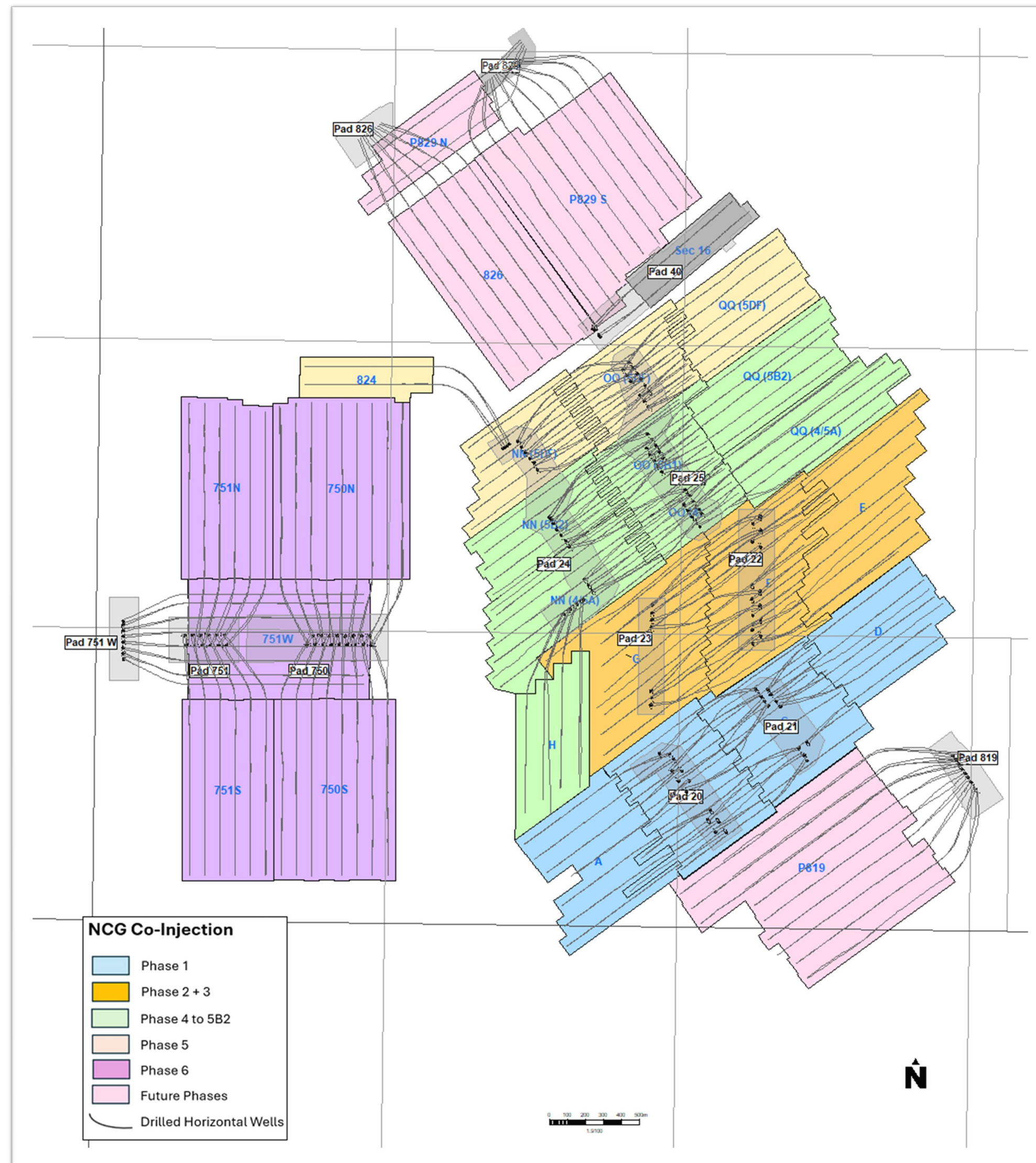
Summary of Pad Performance and Reservoir Properties

4.2.5
4.2.6

Pattern	Hydrocarbon area (m²)	Continuous Reservoir Thickness (m)	Porosity	Average Permeability (mD)	Oil Saturation	EBIP (e³m³)	Recovery to date (e3m3)	Recovery to date (%)	Expected Ultimate Recovery (%)
A	439,461	21.8	0.33	6000	0.74	2,416	1,220	51	51
B	497,213	26.8	0.34	7000	0.82	3,726	3,022	81	89
C	477,680	33.1	0.34	7000	0.83	4,527	3,978	88	88
D	375,189	30.8	0.33	6000	0.82	3,180	2,225	70	76
E	521,806	30.0	0.33	6000	0.79	4,144	2,992	72	91
F	549,471	29.8	0.34	7000	0.83	4,595	3,237	70	87
G	617,093	26.71	0.34	6000	0.78	4,548	2,414	53	65
H	323,074	21.9	0.34	6000	0.78	1,847	1,025	55	72
NN	1,096,596	25.9	0.34	6000	0.78	7,528	4,472	59	86
OO	764,871	27.4	0.34	6000	0.77	5,367	2,193	41	60
QQ	1,076,300	24.5	0.34	6000	0.75	6,667	2,656	40	60
824	166,978	19.0	0.32	6000	0.82	840	345	41	55
750N	764,474	22.9	0.33	6000	0.79	4,535	2,204	49	70
750S	684,498	18.1	0.34	6000	0.73	3,052	1,493	49	71
751W	676,068	20.2	0.34	6000	0.79	3,659	1,171	32	64
751N	507,153	22.3	0.33	5000	0.76	2,873	586	20	61
751S	514,007	15.1	0.34	6000	0.73	1,960	780	40	64
826	692,241	22.3	0.34	6000	0.77	4,082	284	7	74
819	1,011,058	28.1	0.34	7000	0.76	7,426	121	2	61
Combined Active Well Pattern Area	11,755,231	24.6	0.34	n/a	0.78	76,972	36,418	47	72
Development Area	64,966,376	14.9	0.33	n/a	0.73	259,181	36,418	14	n/a
Project Area	64,966,376	14.9	0.33	n/a	0.73	259,181	36,418	14	n/a



Co-injection Overview



Co-injection Strategy

NCG (i.e. methane fuel gas) co-injected with steam has been implemented in five phases across MacKay River since May 2016.

NCG and steam co-injection typically commence on a pad when the estimated ultimate recovery has exceeded 50% through normal SAGD operations.

Geological characteristics, SAGD performances/optimization and surface infrastructure are also considered when evaluating timelines for NCG co-injection.

The main factors considered to determine, execute, and monitor NCG co-injection rates involve:

- Monitor reservoir responses and key performance indicators (KPIs) to adjust NCG target rates
- Field-wide strategy to cut steam from mature pads and replace with NCG
- Maintain the desired chamber pressure for mature pads
- NCG retention within the reservoir, considering the balance between NCG leak off and volume of the NCG produced back
- Gas handling capacity to manage produced gas at the field level

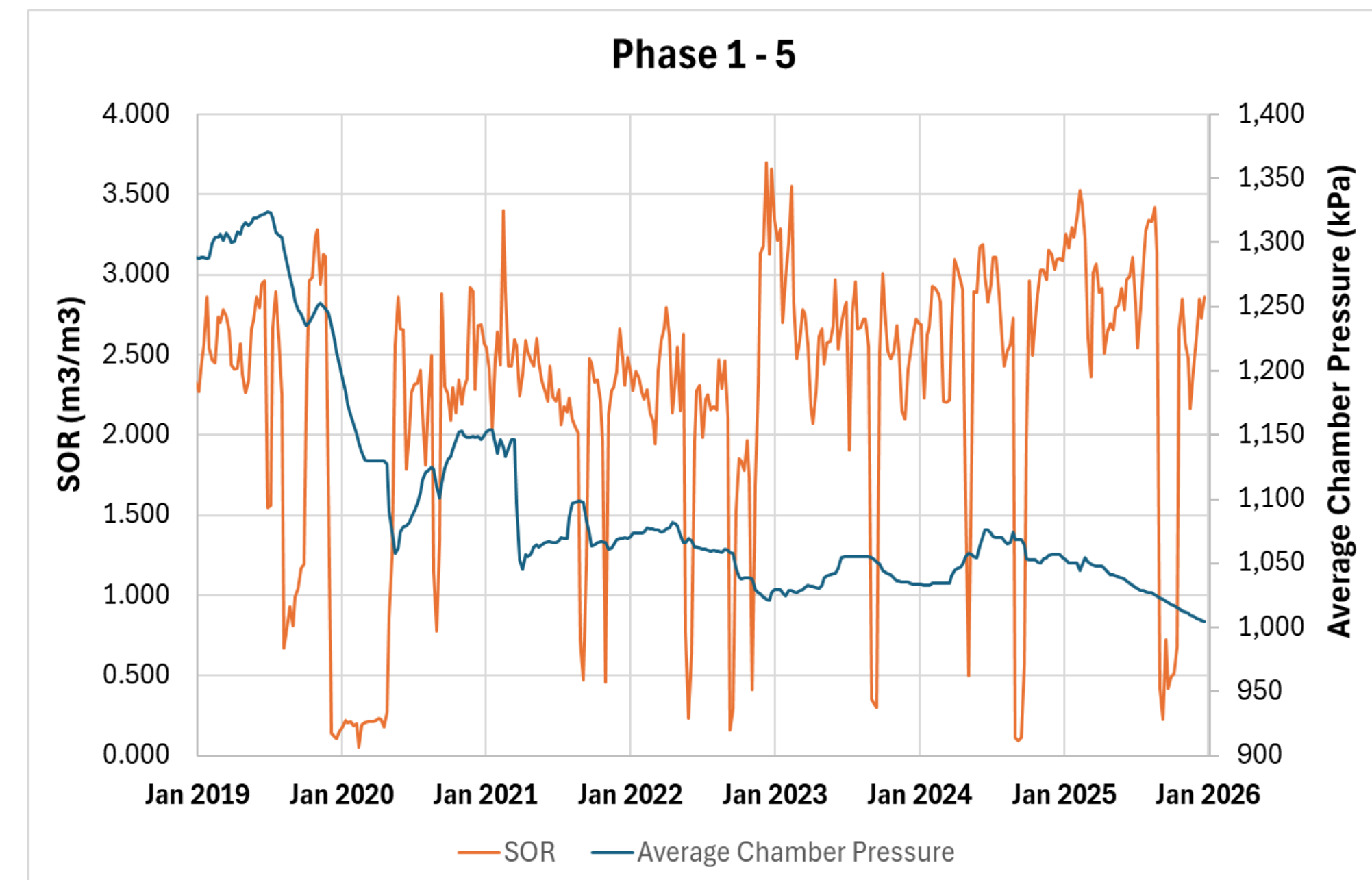
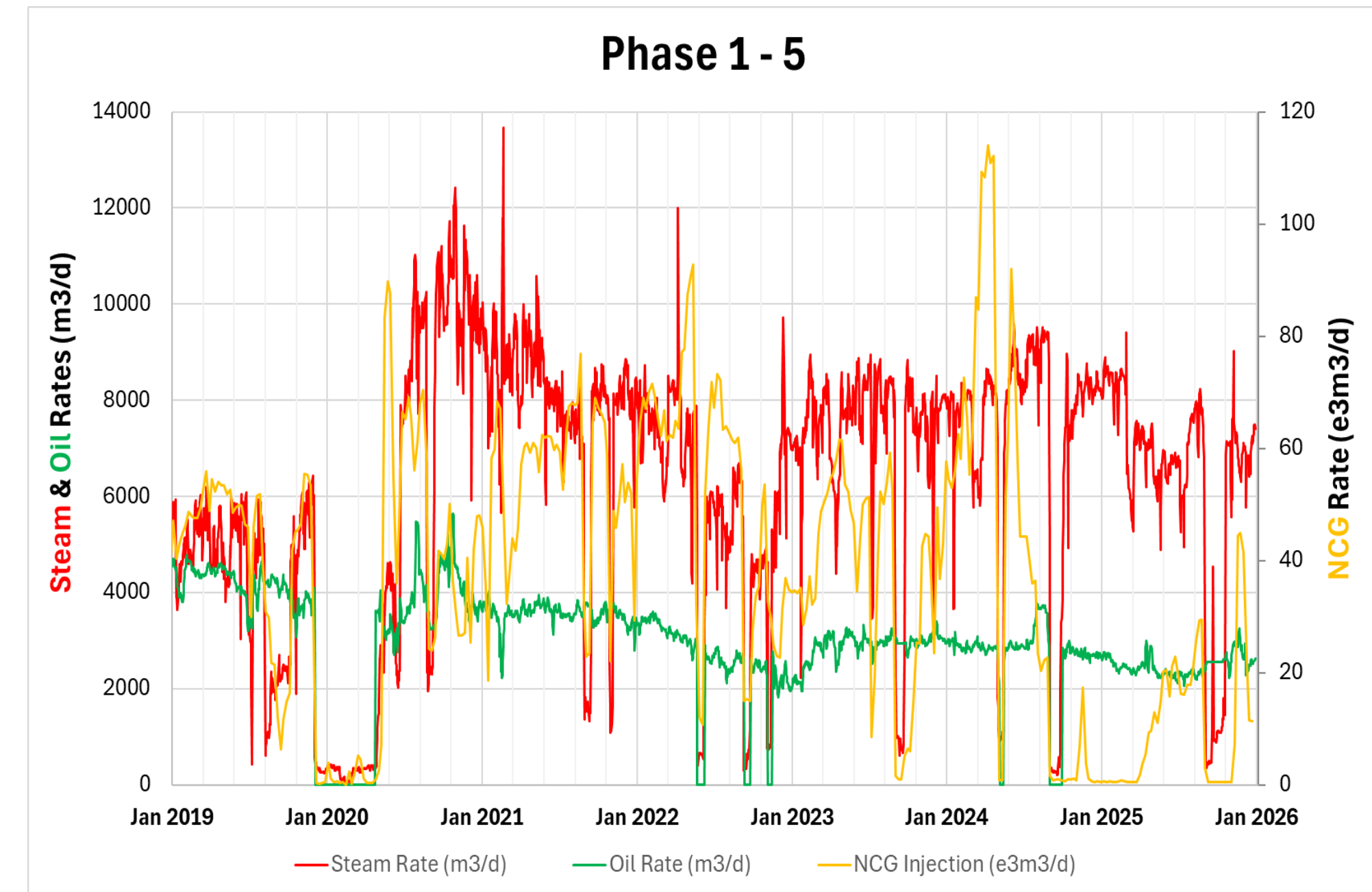
Co-injection Impact

There have been no observations of negative impacts on oil rate after NCG co-injection

Continuous reduction of steam injection rate

- Steam re-allocated to newer pads (750/751/826/819)
- SOR successfully managed with steam cut + NCG

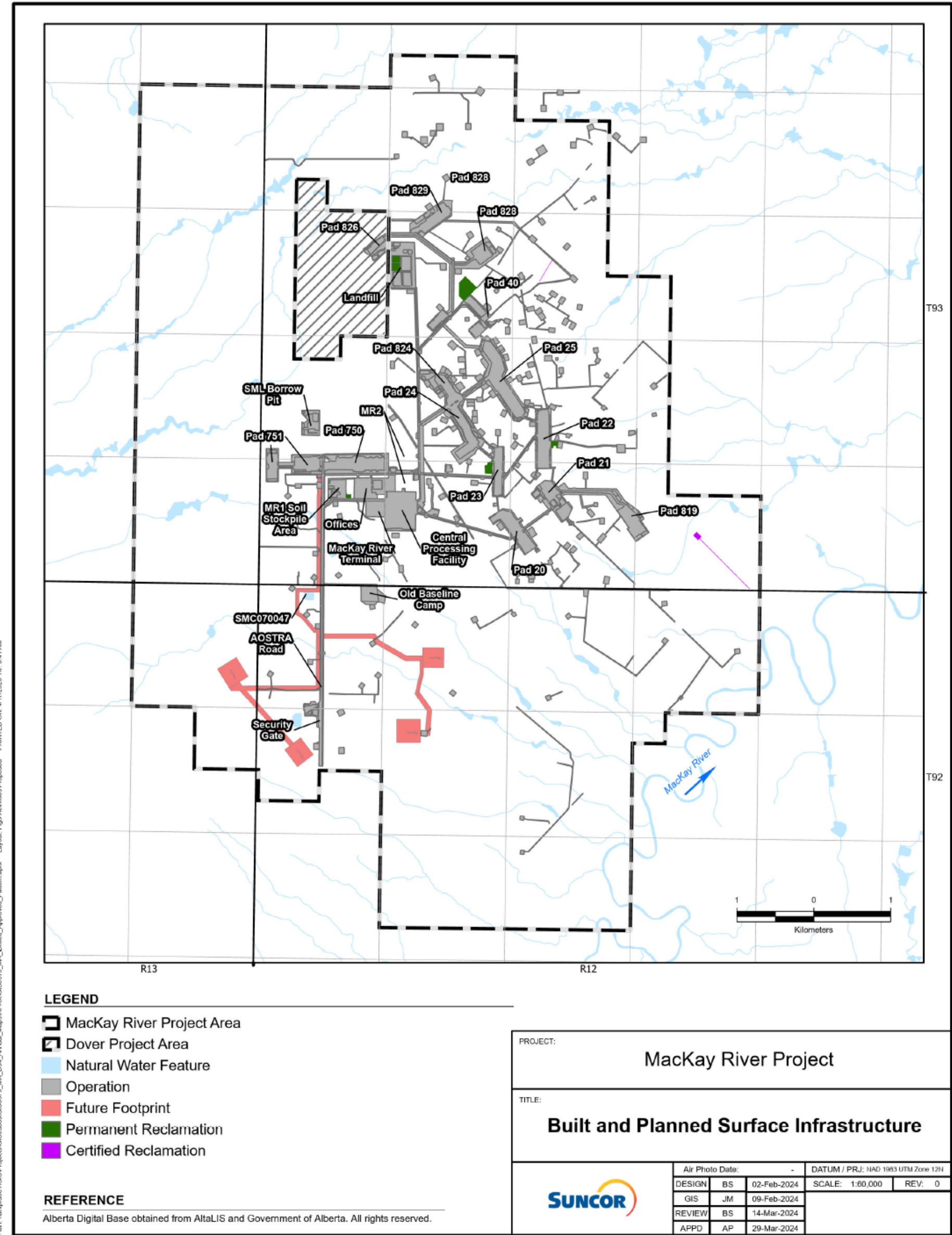
No significant temperature reductions have been observed within existing steam chambers from observation well temperature/pressure data



4.3) Surface

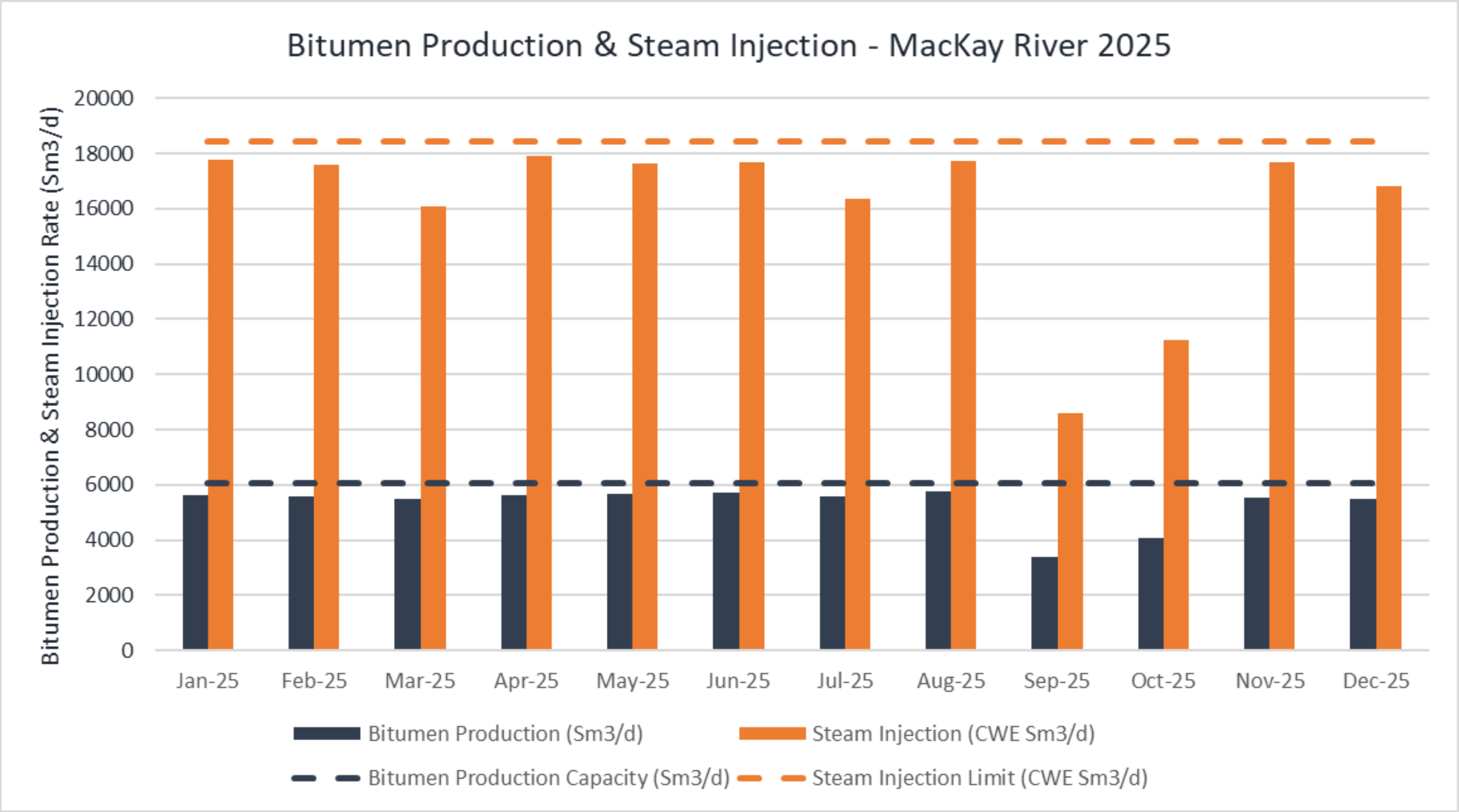
Overview of Built and Planned Surface Infrastructure

There have been no modifications to the Central Processing Facility (CPF) during the reporting period that required an AER application approval.



Bitumen and Steam Annual Rates

Mackay River averaged 5,282 m³/d (33.2 kbpd) of bitumen production and 16,086 m³/d (101.2 kbpd) of steam injection for the reporting period.



4.4) Historical and Upcoming Activity

Well Suspension and Abandonment Activity

License	Well Type	Well Name	UWI	Spud Date	Activity*	Activity date	Justification	Recovery Factor % (Producer only)
0248694	Injector	PC B7I DOVER 4-4-93-12	1W0/04-04-093-12W4/00	2001-09-19	Suspension	2025-11-01	Casing failure reported. Late life pad.	N/A
0248755	Injector	PC C4I DOVER 15-4-93-12	103/15-04-093-12W4/00	2001-03-29	Suspension	2025-11-29	Late life pad. Producer already suspended.	N/A
0319885	Producer	PC G1P DOVER 10-5-93-12	105/10-05-093-12W4/00	2005-03-03	Suspension	2025-04-05	Late life pad. High water production.	50%
0319886	Producer	PC G2P DOVER 10-5-93-12	106/10-05-093-12W4/00	2005-04-14	Suspension	2025-04-05	Late life pad. High water production.	52%
0319876	Injector	PC G6I DOVER 15-5-93-12	104/15-05-093-12W4/02	2007-07-12	Suspension	2025-11-25	Late life pad. Producer already suspended.	N/A
0409729	Injector	PC QQ(I)-12 DOVER 3-16-93-12	112/03-16-093-12W4/00	2009-08-28	Suspension	2025-04-06	Area is geologically challenging for steam chamber development and production.	N/A
0409730	Injector	PC QQ(I)-13 DOVER 3-16-93-12	113/03-16-093-12W4/00	2009-08-30	Suspension	2025-04-07		N/A
0443231	Injector	SUNCOR QQ(I)-14 DOVER 6-16-93-12	102/06-16-093-12W4/00	2012-09-14	Suspension	2025-04-08		N/A
0444556	Injector	SUNCOR QQ(I)-15 DOVER 6-16-93-12	104/06-16-093-12W4/00	2012-09-17	Suspension	2025-04-08		N/A
0444557	Injector	SUNCOR QQ(I)-16 DOVER 6-16-93-12	105/06-16-093-12W4/00	2012-09-04	Suspension	2025-04-09		N/A
0409709	Producer	PC QQ(P)-12 DOVER 3-16-93-12	106/03-16-093-12W4/00	2009-08-08	Suspension	2025-04-07		21%
0409710	Producer	PC QQ(P)-13 DOVER 3-16-93-12	107/03-16-093-12W4/00	2009-08-10	Suspension	2025-04-07		
0443232	Producer	SUNCOR QQ(P)-14 DOVER 6-16-93-12	103/06-16-093-12W4/00	2012-08-29	Suspension	2025-04-08		
0444558	Producer	SUNCOR QQ(P)-15 DOVER 6-16-93-12	106/06-16-093-12W4/00	2012-08-19	Suspension	2025-04-09		
0444559	Producer	SUNCOR QQ(P)-16 DOVER 6-16-93-12	107/06-16-093-12W4/00	2012-08-23	Suspension	2025-04-09		

*Activity = suspension, abandonment, blow-down, ramp-down



Regulatory/Operational Changes – Regulatory Applications

Application #	Description	Registration Date	Approval Date	Application Type
1955683	Update to NCG Co-injection Strategy	01-Nov-2024	13-Mar-25	Directive 23 Category 2
1955701	EPEA and OSCA Boundary Amendment	04-Nov-2024	10-Oct-25	Directive 23 Category 3
1956444	Pad 828 Extend Well Lengths and Drainage Pattern	10-Jan-25	19-Jun-25	Directive 23 Category 2
1956446	Pad 819 Brownfield NCG Co-injection	10-Jan-25	27-Jan-25	Directive 51 Class III/V
1957781	Modify Disposal Approval for DW1 Rate Increase	08-May-25	29-May-25	Directive 65
1957573	Landfill Phase III Closure	16-Apr-25	05-Jun-25	Directive 58
1958355	Pads 754, 755, 759 and 760 Development	14-Jul-25	01-Dec-25	Directive 23 Category 2
017-00048408	New Waste Storage Area Amendment	14-Nov-25	2-Mar-26	EPEA

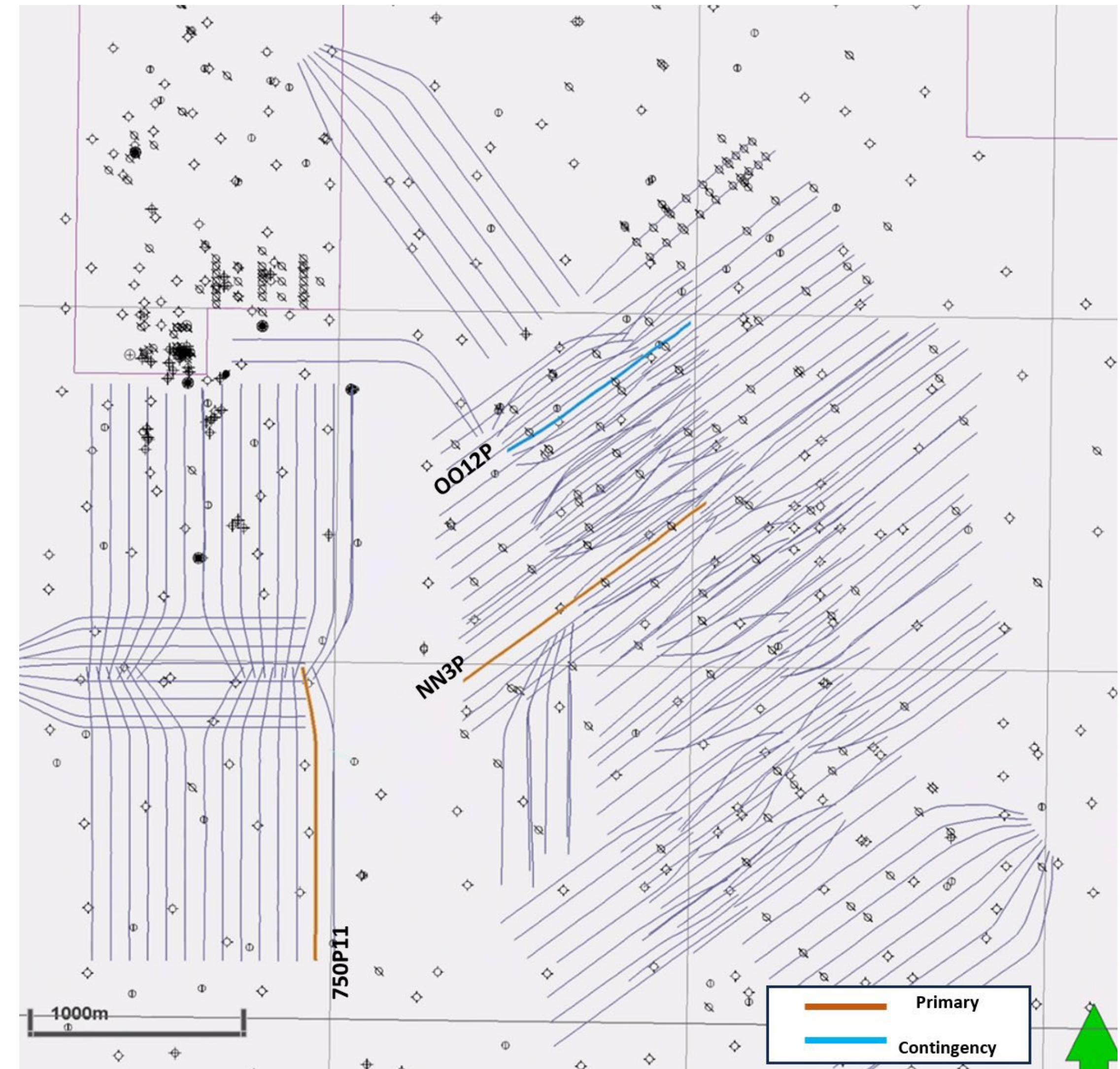
Regulatory/Operational Changes – Summary of Events

The following horizontal wells were drilled during the reporting period:

- Sidetracks (2 wells) - NN3PB, 750P11B
- Pad 829 (12 producers + 11 injectors) drilling fully completed Q1 2025

The following wells were started up (first steam) during the reporting period:

- Pad 819 well pairs 2-8, 819P9 producer
- NN3PB, 750P11B (sidetracks)



Regulatory/Operational Changes – Key Learnings

- Annual sidetrack drilling has continued to be effective in improving oil recovery.
- 82,079 m³ of water was disposed into the DW1 disposal well during cogen maintenance which occurred Sept-Oct 2025 enabling increased oil production during the maintenance period.
- Deployment of wire wrapped screens and Electric Submersible Pumps on new SAGD pads has enabled fast production ramp-up of new pads.
- No other major lessons, successes, or failures were identified during the reporting period.

Regulatory/Operational Changes – Technology Update

- The HOLLER trial, as noted in condition 27 of the Commercial Scheme Approval 8668LLL, did not proceed and there are currently no plans to proceed with the project. Suncor does not have any updates to provide.
- Biosqueeze was used to remediate two surface casing vent flows in 2025 on 819S09N and NN7I. Results were encouraging with 819S09N vent flow completely shut-off and NN7I vent flow reduced ~100 fold.

Compliance History

Reference No.	Date	Event Type	Event details	Actions taken
Entry#177	05/14/2025	VSD	The MOP duration at Producer well 6 at Pad 819 exceeded the 48-hour limit as per condition 28(2) of the Commercial Approval 8668.	Steam pressure was reduced to correct the condition, and administrative controls have been implemented to prevent recurrence.
Inspec 552993	5/25/2025	Contravention/Approval Violation	Noncompliance with the Standard for Landfill in Alberta, Section 5.3 and 5.4, issued by AER during Landfill inspection.	A contingency plan and respective actions were developed to monitor the increasing chloride concentration in the well LD-MW242-05R.
442407	07/15/2025	Contravention/Approval Violation	Noncompliance with Water Licence 188229-04-00, Section 4.1, due to datalogger failure.	A defective datalogger was retrieved from the water source well and replaced with a new unit. The defective datalogger was sent to the manufacturer for troubleshooting and data retrieval; however, the data could not be recovered due to the battery being nearly depleted.
446997	10/27/2025	Contravention/Approval Violation	Noncompliance with the Water Licence 188229-04-00, Section 4.1, due to datalogger failure - Reoccurrence - WSW2.	Defective datalogger was retrieved from the water source well and replaced with a new unit of a different brand. The defective datalogger was sent to the manufacturer for troubleshooting and attempted data retrieval.
436853	01/16/2025	Reportable Spill	Loss of Primary Containment – HCl . A minor hydrochloric acid (HCl) leak was observed at the flange connected to instrument 03-LIT-380, located inside the tank berm of 03-T309A. The release remained fully contained within the bermed area.	Tank was isolated and a full level transmitter upgrade was completed, replacing the existing instrument with a radar level transmitter. Additional repairs also completed on the HCl tank and the secondary containment to ensure system integrity and prevent recurrence.
437305	01/30/2025	Reportable Spill	Minor Steam leak from Pad 23 F5I wing valve bonnet- uncontrolled steam leak.	Operations monitored the event and managed the steam flowing down the well. Completions team engaged to kill the well and replace the wing valve bonnet with an AV-style valve.
438288	03/03/2025	Reportable Spill	Minor Steam Leak from 751S11 LT Wing Valve Bonnet Flange - uncontrolled steam leak.	Operations monitored the event and managed the steam flowing down the well. Completions team engaged to kill the well and replace the wing valve bonnet with an AV-style valve.
445863	03/20/2025	Reportable Spill	Treated water leak from the seal of the 03-AG-304A - Plant 300 agitator - Inside the plant.	The leak was monitored and directed into the engineered drain system. The seal was replaced during the planned shutdown in September 2025.
441589	06/08/2025	Reportable Spill	HCl release from a flange failure of a temporary tank system - all contained within the secondary containment berm.	The area was flagged, and the release was contained within the secondary containment berm. Specialized trucks were dispatched to neutralize and remove fluids from the secondary containment.
441870	06/14/2025	Reportable Spill	Small HCl Spill form a camlock fitting - inside the containment.	A small release was contained within the drip tray, and the camlock fitting was replaced.
441943	06/17/2025	Reportable Spill	HCl Spill from a valve failure of the temporary HCl tanker.	The area was flagged off, and emergency services were dispatched to assist with HCl containment. Soda ash was used for neutralization, and cleanup activities were completed.
443132	07/17/2025	Reportable Spill	01-PSV-181 lifted and condensate water was released to grade due to process upset.	System pressure was reduced to the PSV setpoint. Operations briefly isolated the PSV, after which it returned to service. Vacuum trucks were dispatched to clean up condensate water that had accumulated on the ground.
444785	08/30/2025	Reportable Spill	Tank 02-T-202 overflow produced water inside the Tank Farm due to level transmitter issue.	Operations immediately lowered tank levels to stop further overflow. Vacuum trucks were dispatched for cleanup and to calibrate the level transmitter.
445896	08/30/2025	Reportable Spill	Seal leak on Slop tank 02-AG-220 -agitator tank - Tank farm.	Vacuum trucks were dispatched for cleanup, and a drip tray was placed beneath the leak until repairs were completed. Repairs were finalized on November 19, 2025.
445419	09/15/2025	Reportable Spill	Small steam leak from at the Deran tank truck out connection flange. Licensed Pipeline (55106 -004).	A drip tray was placed beneath the flange. Hot torquing was attempted and the valve was ultimately replaced on September 22, 2025.
445587	09/19/2025	Reportable Spill	A small steam leak observed in the in the 3/4" fitting at valve flange connection at 751S01 Wellhead - uncontrolled release.	Completions was engaged to stop and repair the leak. A torque wrench was applied, and no further repair was necessary.
445588	09/19/2025	Reportable Spill	A small steam leak at 3/4" fitting located at top of the injector at 751S02 wing valve.	Completions was engaged to stop and repair the leak. The bolts were verified and torqued and no further repair was necessary.

Compliance History (Cont'd)

Reference No.	Date	Event type	Event details	Actions taken
445589	09/19/2025	Reportable Spill	A small steam leak on short string tubing of the 751S15 ST Wing Valve.	Completions engaged to stop and repair the leak. The hat string ring gasket was confirmed to be sealed.
445846	09/26/2025	Reportable Spill	Release of water and steam was observed near to 21B7I.	The well was killed, a permanent bridge plug was installed, and pressure testing was completed.
447687	11/15/2025	Reportable Spill	HCl Release from an open valve in the regen skid Plt 300 - inside the plant.	The valve was closed immediately. All released HCl was captured within the engineered trenches and sump inside the plant, neutralized, and disposed of appropriately.
447735	11/15/2025	Reportable Spill	01-V-101B, high temperature separator release - bitumen on the ground.	Cleanup activities were completed on November 22.

Future Plans – Activities and Applications

Activity	Location	Required Future Applications	Application Submission Date
First steam	Pad 829	Directive 51 Class III/IV	Q1 2026
Pad start-up MOP amendment	Pad 829	Directive 23 Category 2	Q2 2026
Wellpad name change and condition 20 amendment	General	Directive 23 Category 2	Q1 2026
Amalgamation of Dover Project Area into MacKay River	General	Directive 23 Category 3	Q3 2026
EPEA boundary amendment	General	EPEA	Q4 2026

Water disposal during the annual cogen maintenance period (Fall 2026) will enable increased emulsion/oil production during the outage period.

No other activities are expected to occur in 2026 that could significantly alter performance or energy/material balance of the scheme.

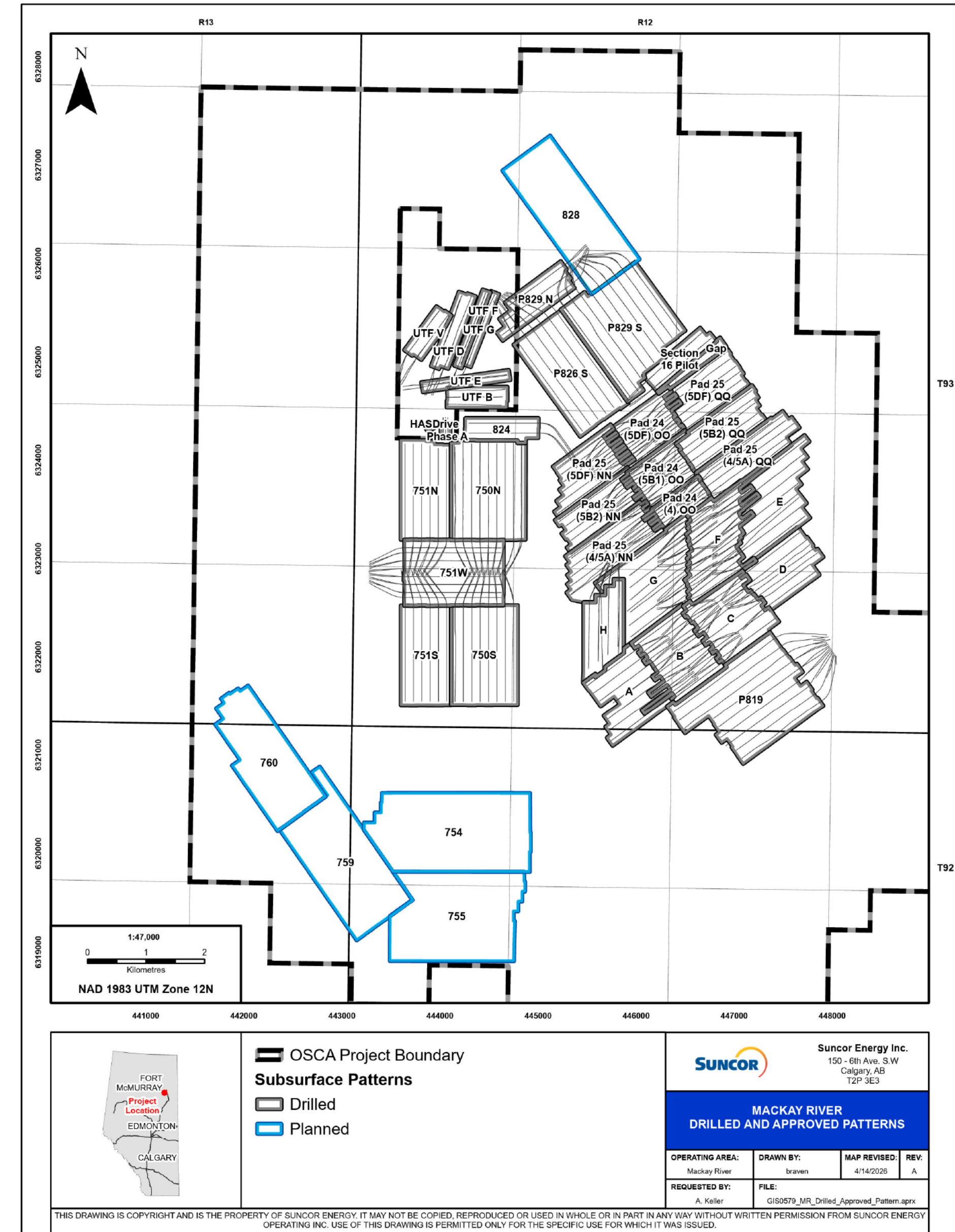
Future Plans – 5 Year Outlook

The following horizontal drilling activities are expected to commence within the next five years:

- Sidetracks – 4 wells: 2026
- Pad 828 – 6 well pairs: 2026
- Pad 760 – 6 well pairs: 2028
- Pad 759 – 7 well pairs: 2029

The following first steam dates are planned to occur within the next five years:

- Pad 819 WP1 and 819 S9 – Q1 2026
- Pad 829 – Q2 2026
- Pad 828 – Q4 2028
- Pad 760 – Q1 2030
- Pad 759 – Q4 2031



Updates required under Approval 8668

Condition 32

Suncor confirms that drainage patterns 754, 755, 759, and 760 have not commenced steam injection. As a result, surface heave monitoring is not yet required and no heave update is available at this time.

Thank You

