Orion Project

2022 Annual Performance Report

STRATHCONA RESOURCES LTD

Advisories

Special Note Regarding Forward-Looking Statements

Certain statements relating to Strathcona Resources Ltd. (the "Company") in this document constitute forward-looking statements or information (collectively referred to herein as "forward-looking statements") within the meaning of applicable securities legislation. Forward-looking statements can be identified by the words "believe", "anticipate", "expect", "plan", "estimate", "target", "continue", "could", "intend", "may", "potential", "predict", "should", "will", "objective", "project", "forecast", "goal", "guidance", "outlook", "effort", "seeks", "schedule", "proposed", "aspiration" or expressions of a similar nature suggesting future outcome or statements regarding an outlook. Disclosure related to expected future commodity pricing, forecast or anticipated production volumes, royalties, production expenses, capital expenditures, income tax expenses and other targets provided throughout this presentation, constitute forward-looking statements. In particular, this document contains forward-looking statements pertaining to, without limitation, the following: plans relating to and expected results of existing and future developments, including, without limitation, those in relation to the Company's assets at Orion; the development and deployment of technology and technological innovations; the financial capacity of the Company to complete its growth projects and responsibly and sustainably grow in the long term; the non-condensable gases ("NCG") co-injection strategies of the Company and the anticipated impacts and benefits thereof; regulatory matters, including the anticipated approval and undertaking of certain projects and facilities; expected regulatory and scheme amendments and the timing and impacts thereof; future development plans of certain assets and projects of the Company, including the timing and location thereof; and future events that may impact the performance of the Company.

In addition, statements relating to "reserves" are deemed to be forward-looking statements as they involve the implied assessment based on certain estimates and assumptions that the reserves described can be profitably produced in the future. There are numerous uncertainties inherent in estimating quantities of proved and proved plus probable crude oil, natural gas and NGLs reserves and in projecting future rates of production and the timing of development expenditures. The total amount or timing of actual future production may vary significantly from reserves and production estimates.

The forward-looking statements are based on current expectations, material factors and assumptions, which speak only as of the earlier of the date such statements were made or as of the date of the report or document in which they are contained. Although the Company believes the expectations, material factors and assumptions reflected in these forward-looking statements are reasonable as of the date hereof, there can be no assurance that these expectations, factors and assumptions will prove to be correct. These forward-looking statements are not guarantees of future performance and are subject to a number of known and unknown risks and uncertainties that could cause actual events or results to differ materially, including, but not limited to: general economic and business conditions; the actions of the Organization of the Petroleum Exporting Countries Plus ("OPEC+") and the impact thereof on the demand, supply and market prices of the Company's products; the availability and cost of resources required by the Company's operations; price volatility of crude oil, natural gas NGLs and other commodities; fluctuations in currency and interest rates; industry capacity; the ability of the Company to implement its business strategy, including exploration and development activities; the impact of competition; the availability and cost of equipment required by the Company; the ability of the Company to complete capital programs; the Company's ability to secure adequate transportation for its products; potential delays or changes in plans with respect to exploration or development projects or capital expenditures; the ability of the Company to attract the necessary labour required to build, maintain, and operate projects; operating hazards and safety issues; the availability and cost of financing; fluctuations in operating results; the Company's ability to meet its targeted production levels; timing and success of integrating the business and operations of acquired companies and assets; production levels; imprecision of reserves estimates and estimates of recoverable quantities of crude oil, natural gas and NGLs not currently classified as proved; actions by governmental authorities (including production curtailments mandated by the Government of Alberta); government regulations and the expenditures required to comply with them, including safety and environmental laws and regulations; the impact of climate change initiatives on capital expenditures and production expenses; changing public opinion in respect of the industry in which the Company operates; asset retirement obligations; the sufficiency of the Company's liquidity to support its growth strategy and to sustain its operations in the short, medium, and long term; the strength of the Company's balance sheet; the flexibility of the Company's capital structure; the adequacy of the Company's provision for taxes; technology and cyber security risks; natural catastrophes; and other circumstances affecting revenues, expenses and operations.

Readers are cautioned that the foregoing list of factors is not exhaustive. Unpredictable or unknown factors not discussed in this document could also have adverse effects on forward-looking statements. All subsequent forward-looking statements, whether written or oral, attributable to the Company or persons acting on its behalf are expressly qualified in their entirety by these cautionary statements. Except as required by applicable law, the Company assumes no obligation to update forward-looking statements in this presentation, whether as a result of new information, future events or other factors, or the foregoing factors affecting this information, should circumstances or the Company's estimates or opinions change.

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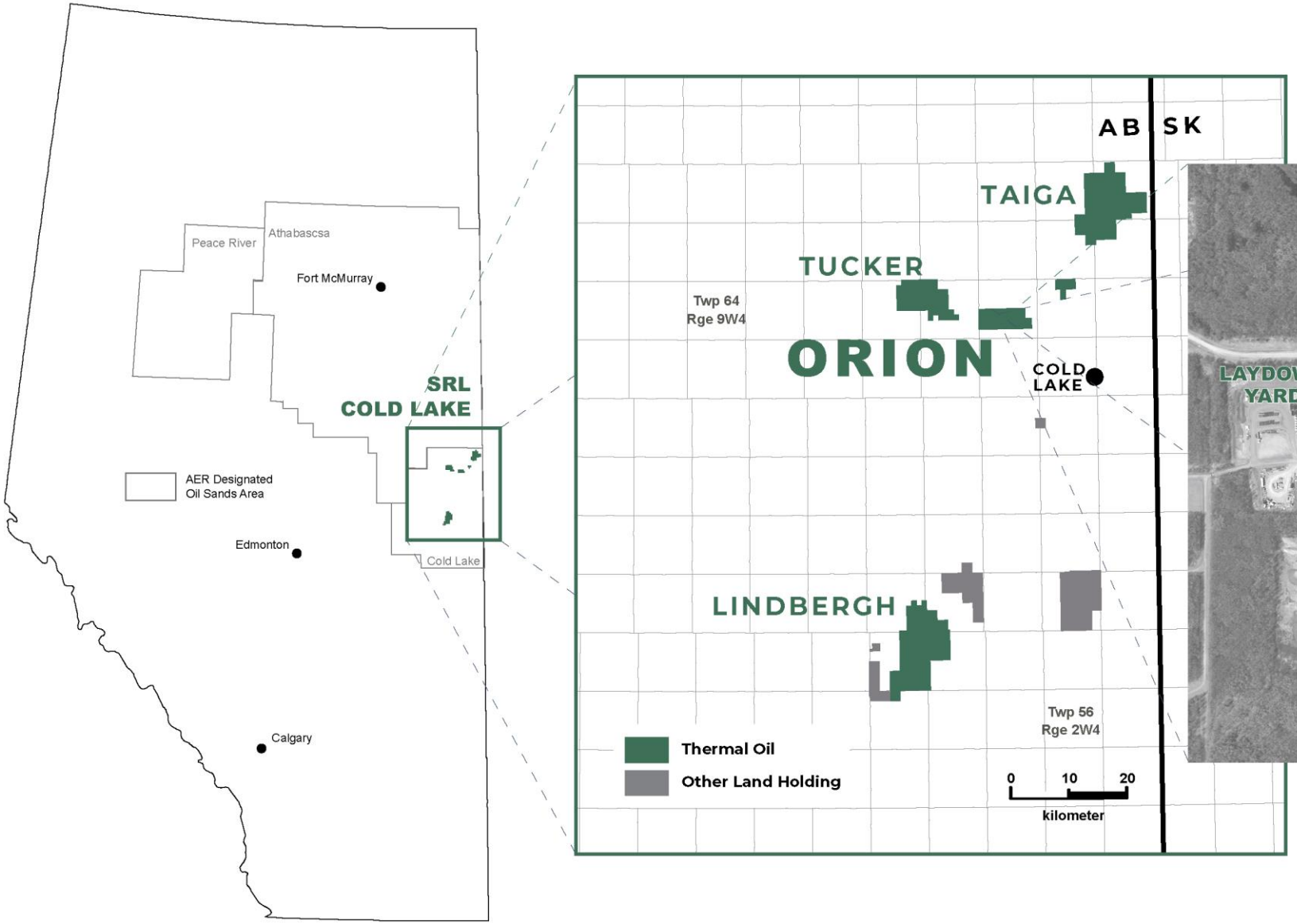
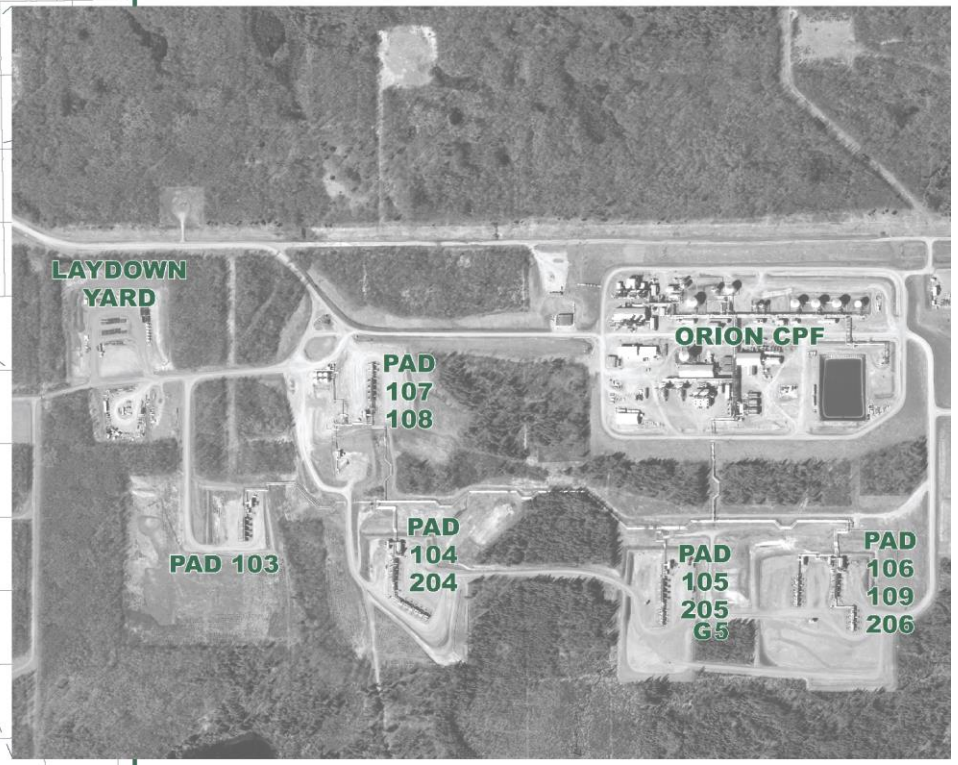
Introduction- Project Location



Aerial view of Orion (2019)

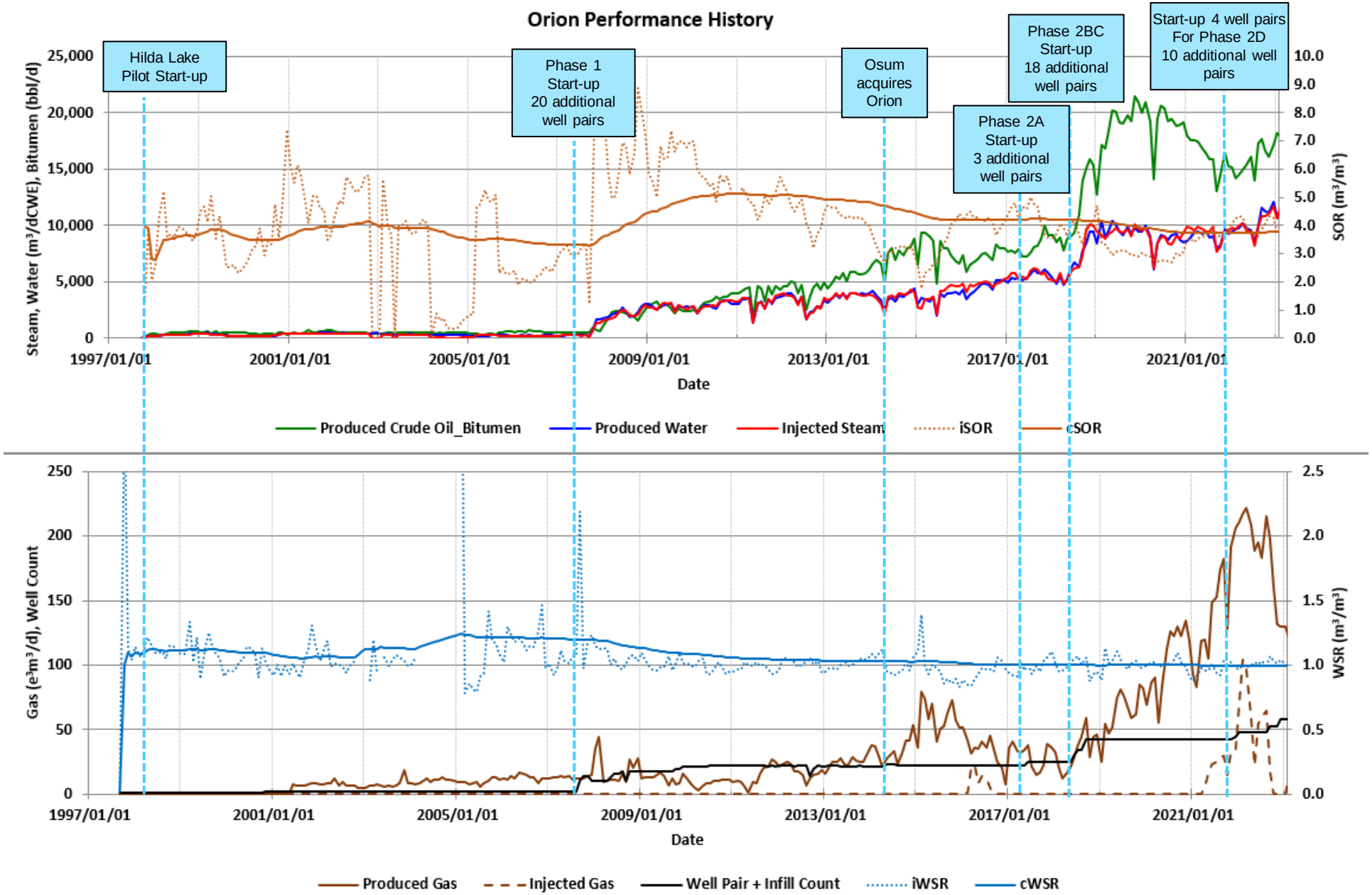


Orion is an in-situ oil sands steam-assisted gravity drainage (SAGD) project consisting of a central processing facility (CPF) and five well pads situated in 13-16-064-03 W4M, approximately 30 km north-west of Cold Lake, Alberta.

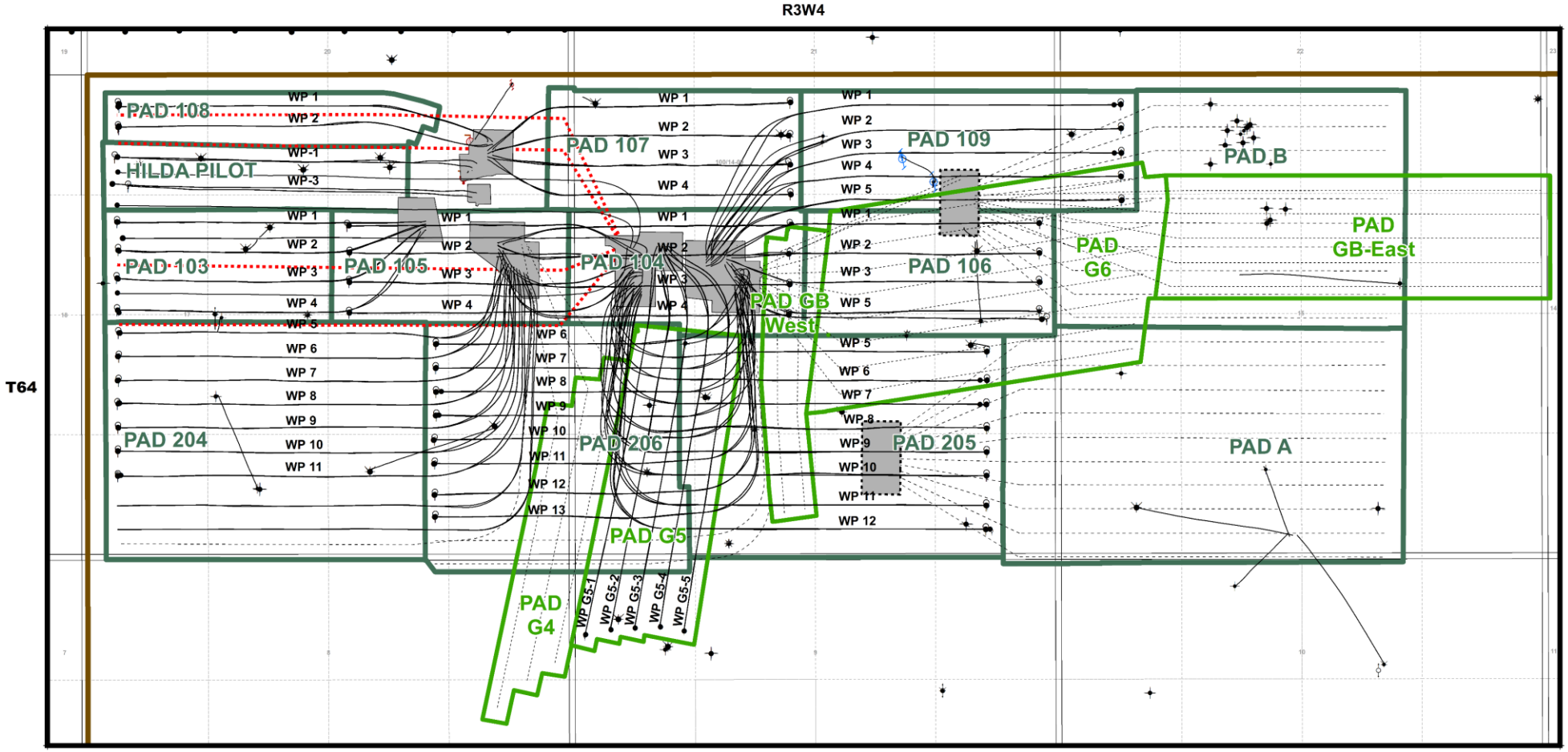
Subsurface

Orion In Situ Oil Sands

Scheme Lifespan Production Plot



Drilled and Approved Drainage Patterns

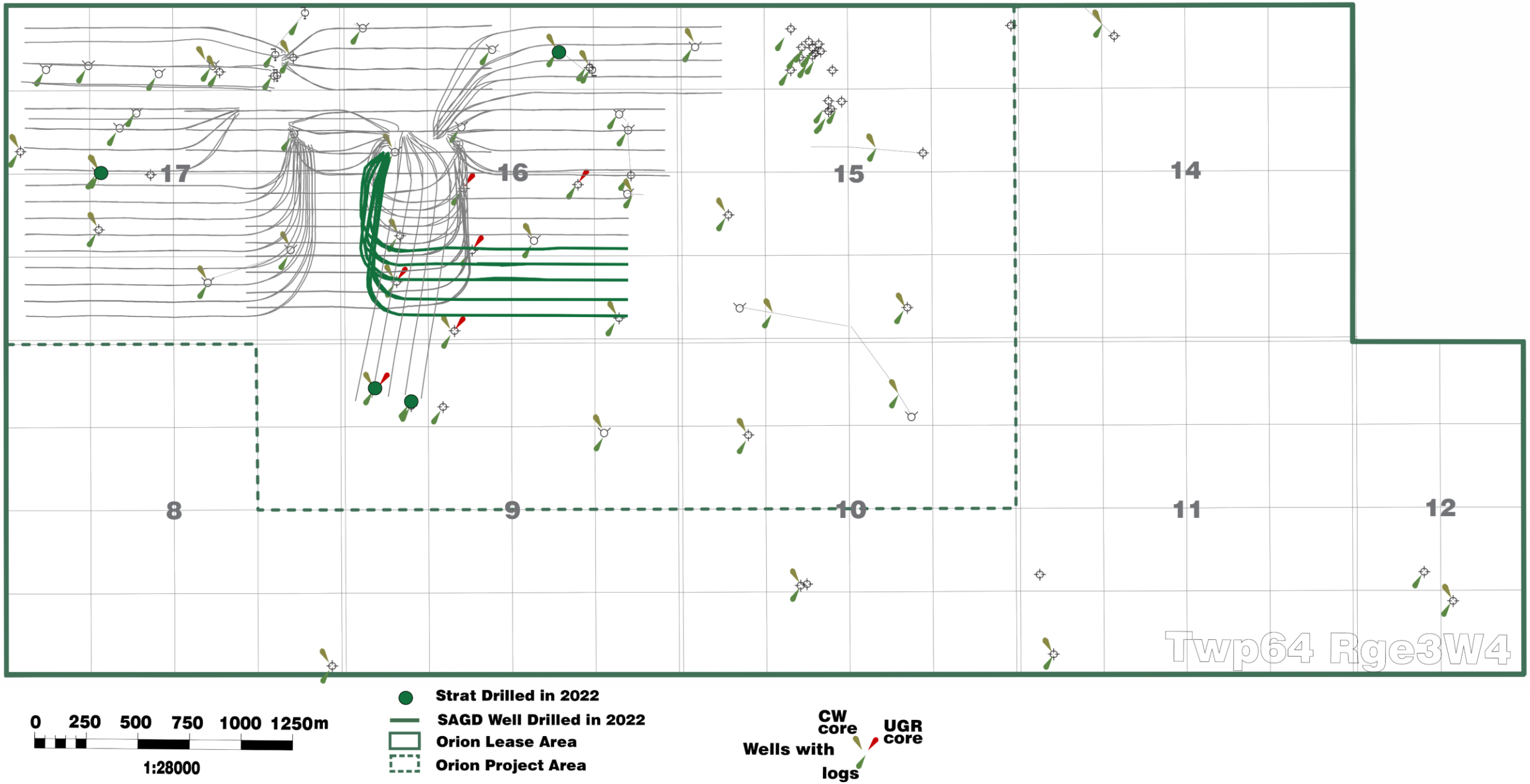


Drilled SAGD Pair
Approved Lower Drainage Well
Approved SAGD Pair
Current Surface Pad
Approved Surface Pad
CW Subsurface Drainage Area
UGR Subsurface Drainage Area
SRL Project Lease Area

Geoscience

Orion In Situ Oil Sands

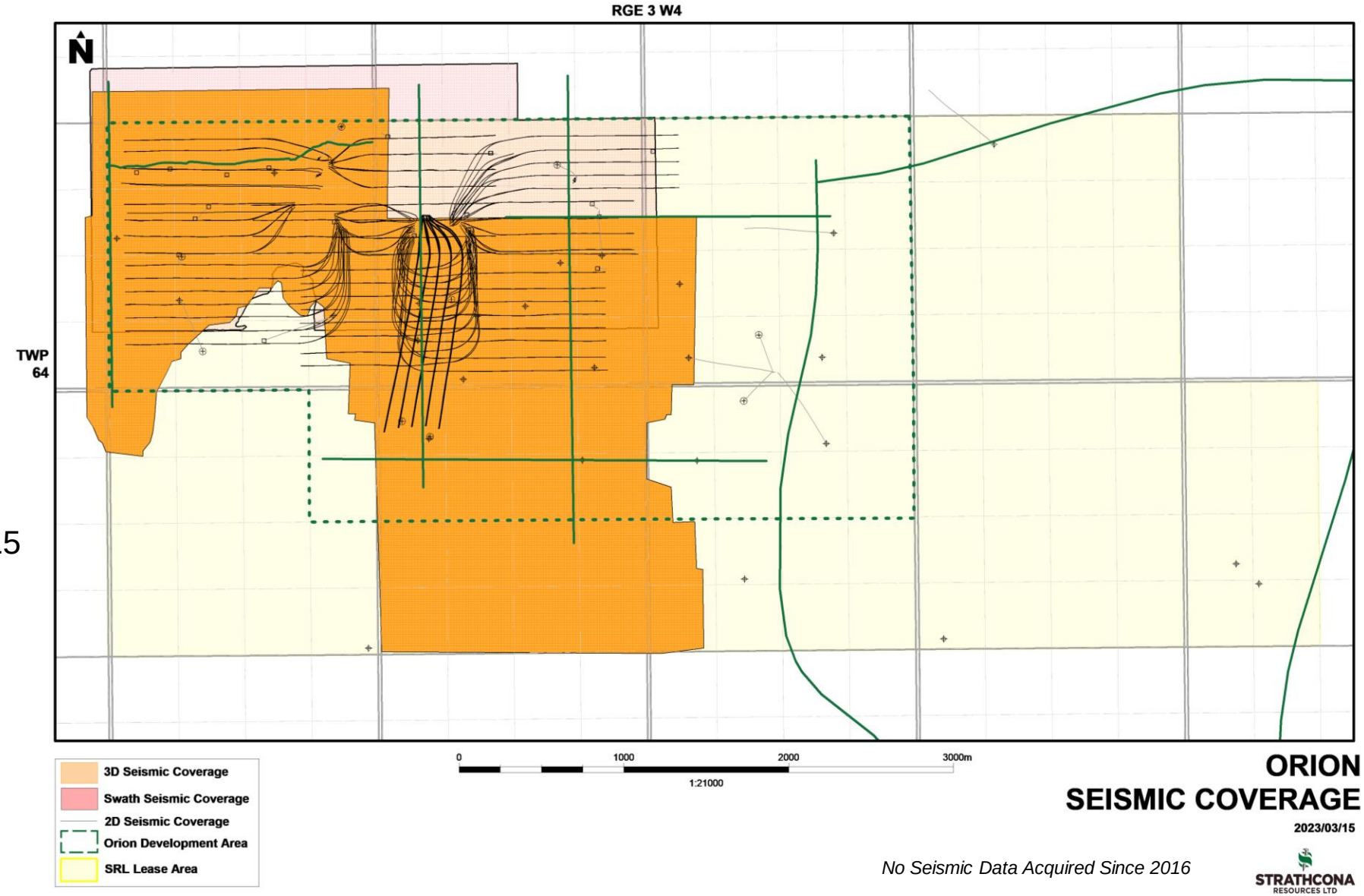
Project Area and Well Data



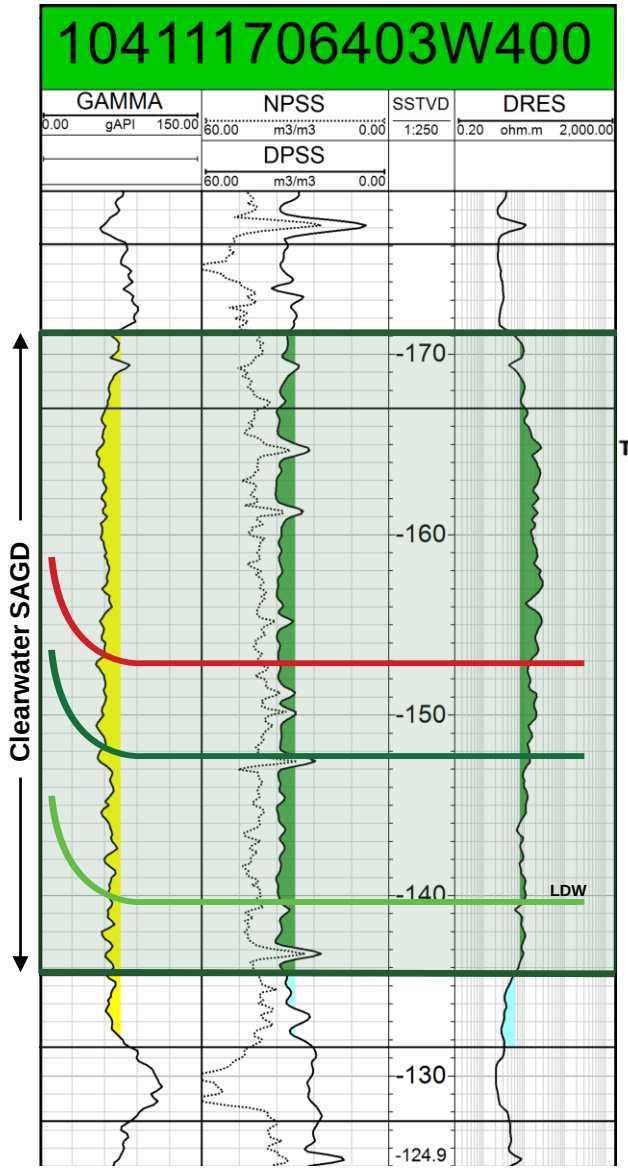
Seismic Data

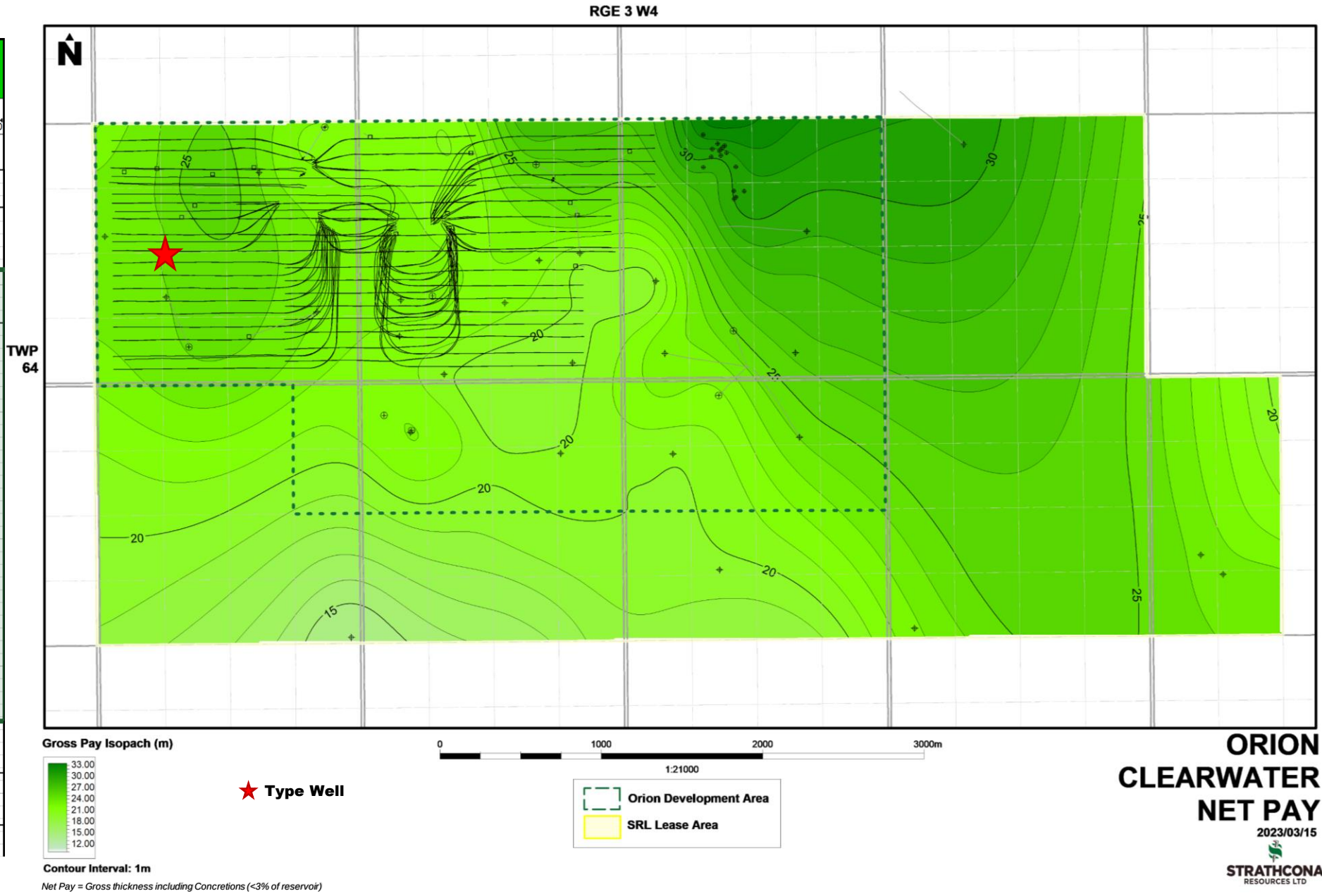
3D, 2D & Swath Datasets:

- Hilda 3D – 2005, 1.8 km^2
- Proprietary 2D – 2005, 3 lines
- Swath – 2007, 1522 records
- Orion 3D – 2009, 6.6 km^2
- Swath – 2009, 1705 records
- Swath – 2011, 1074 records
- Swath – 2014, 1708 records
- Proprietary 2D – 2014, 1 lines
- Orion 3D & Hilda 3D Merged - 2015
- Swath – 2016, 1688 records
- Trade 2D – 2017, 4 lines



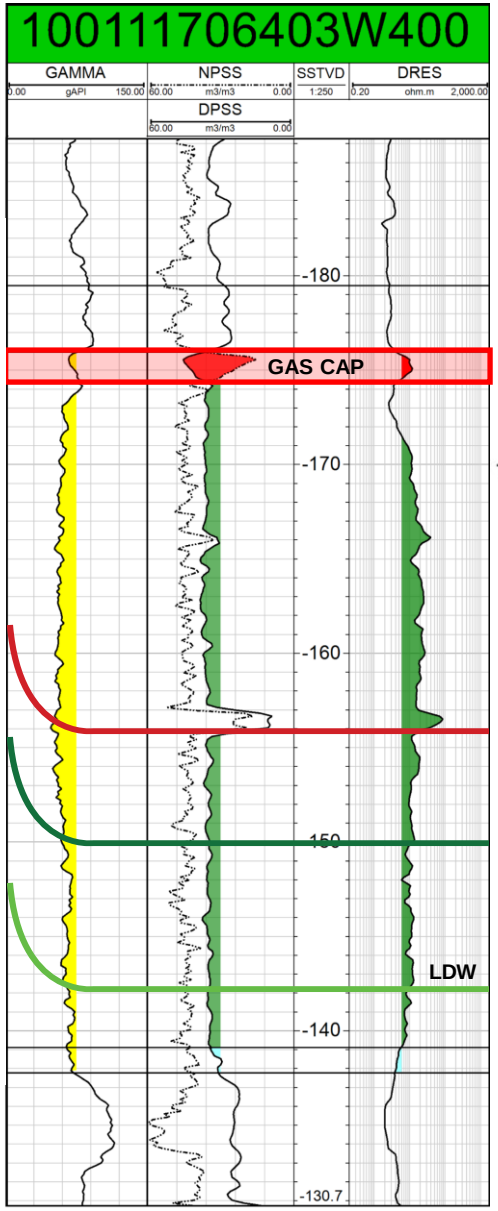
Clearwater SAGD Reservoir Isopach

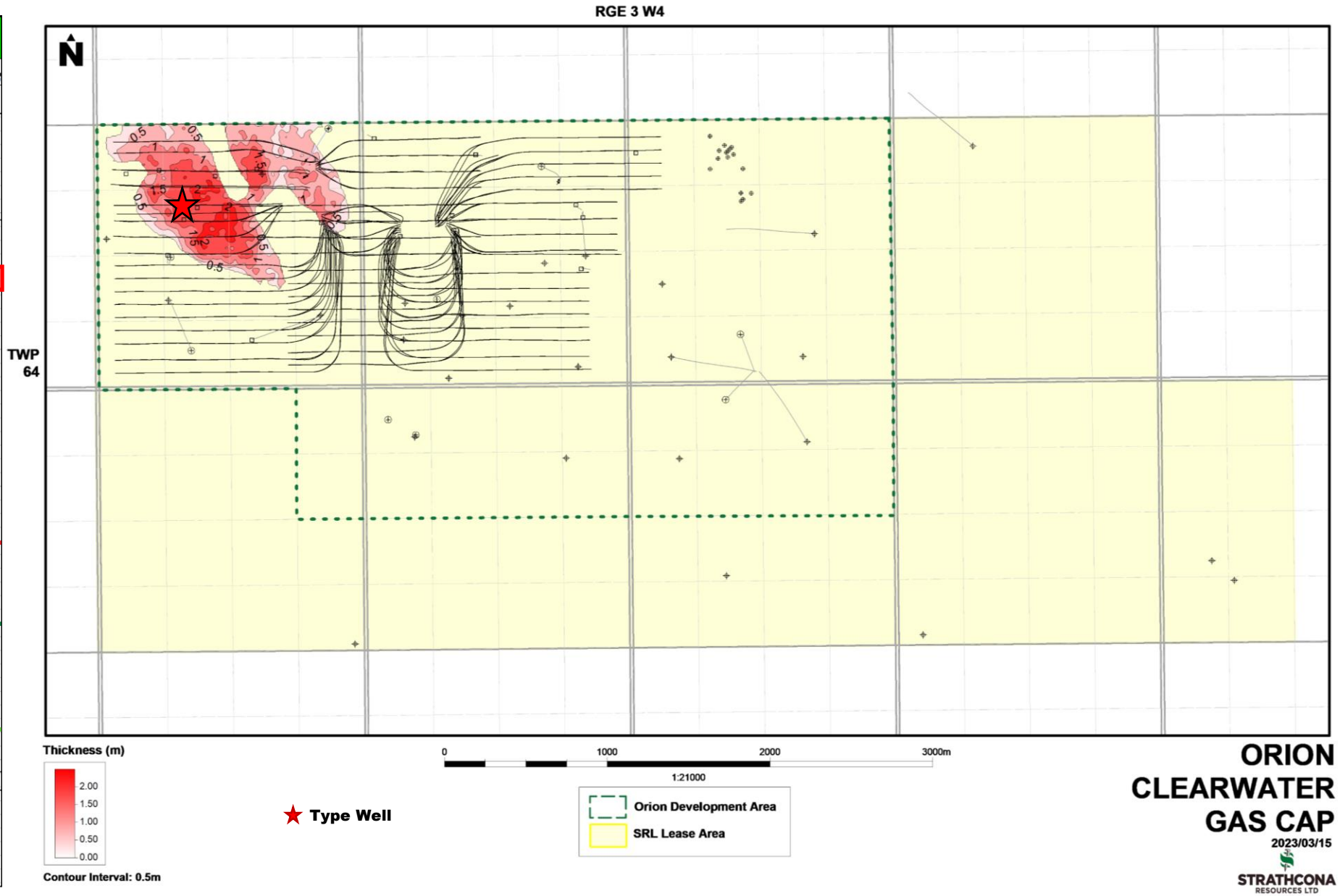




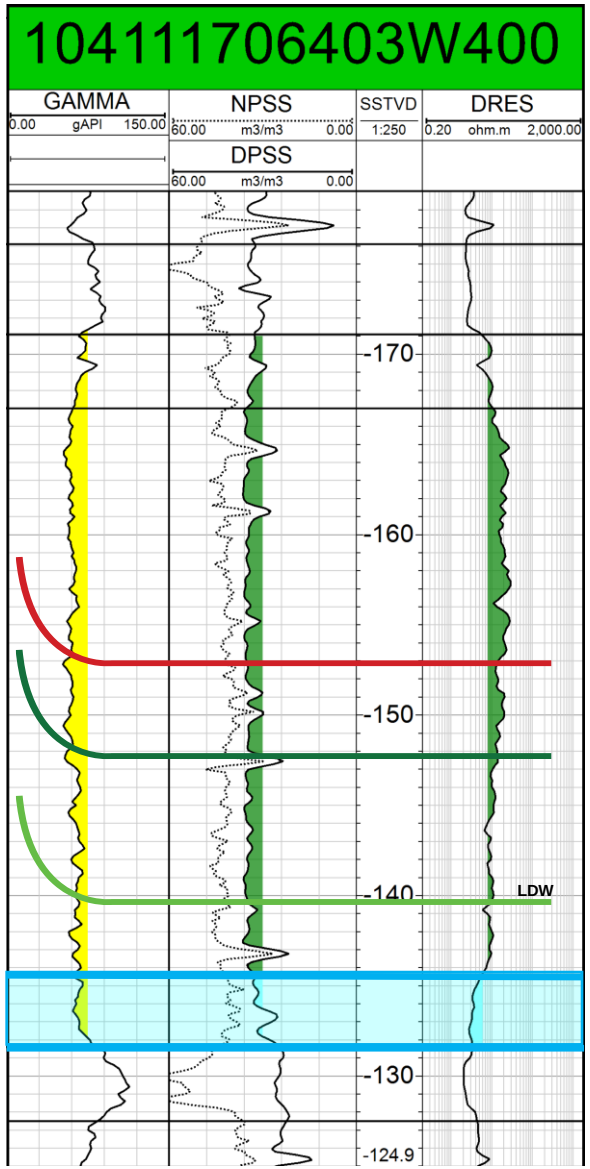
Net Pay = Gross thickness including Concretions (<3% of reservoir)

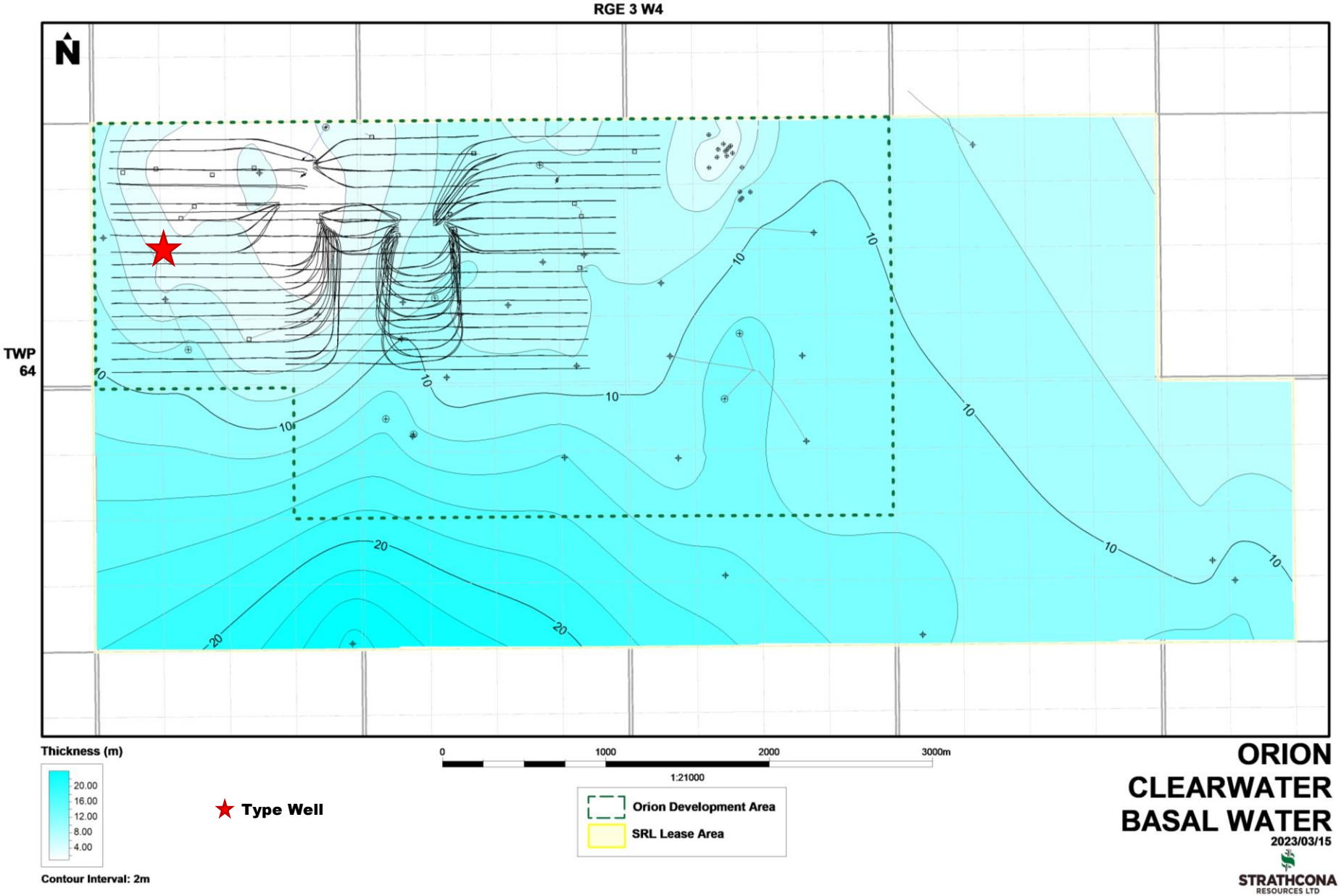
Clearwater Gas Cap Isopach





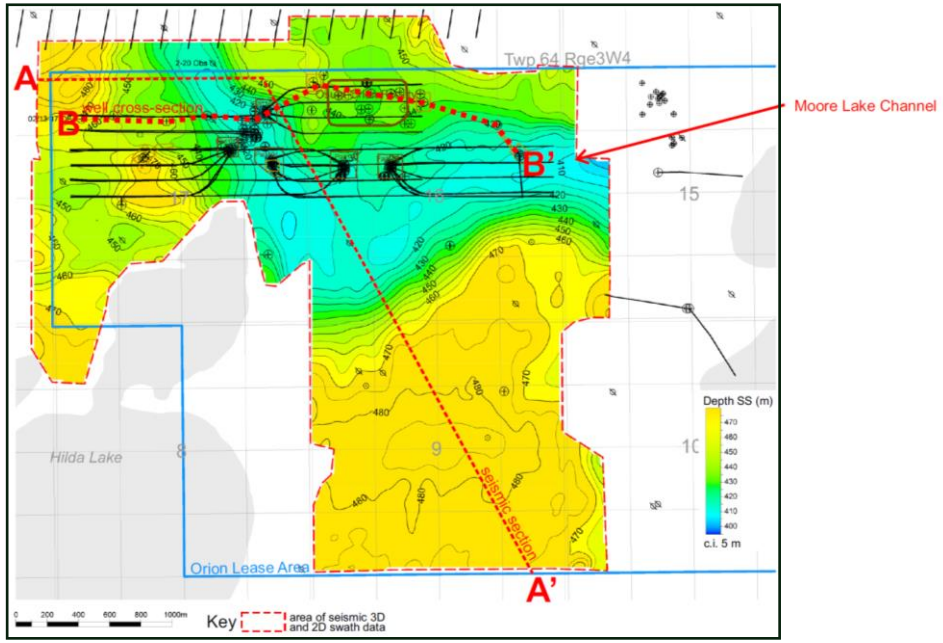
Clearwater Reservoir Basal Water Isopach

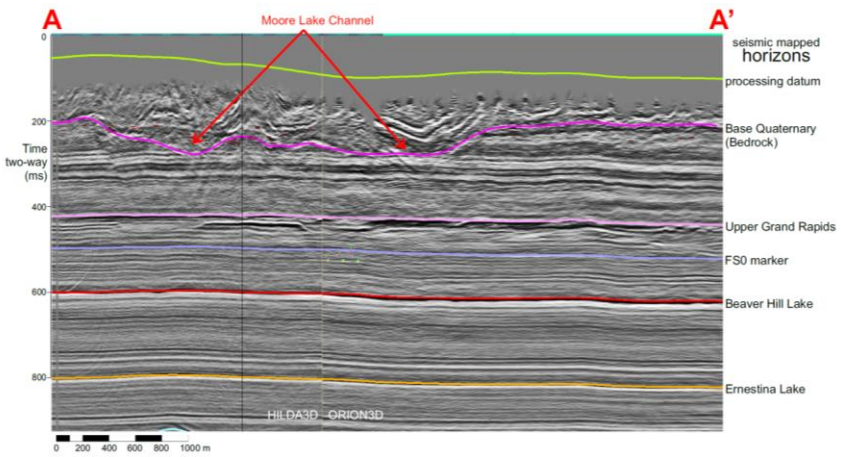


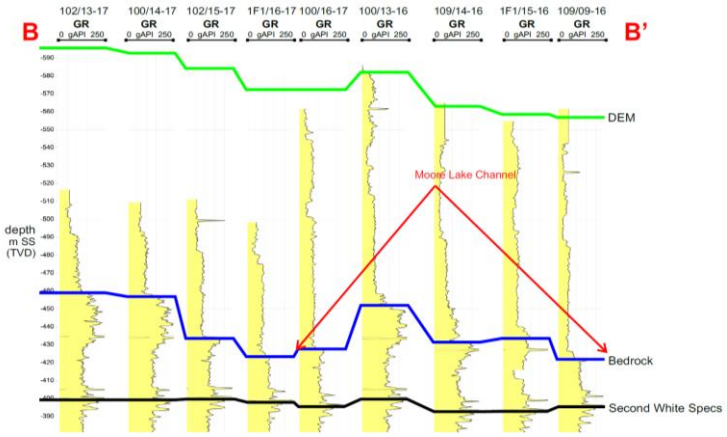


Geomechanical Anomalies

- The interpretation of the 2D & 3D seismic data over the Orion Project indicates a structurally stable area with no distinguishable faults, fractures, or areas of evaporite dissolution that can reduce the integrity of the immediate intervening caprock of the heavy oil reservoirs. No obvious faulting and no Devonian collapse structures caused by dissolution of underlying evaporite have been observed; as the Orion field is situated to the west of the Prairie Evaporite edge and salt dissolution is less prevalent.
- The Clearwater dips to the southwest in the local Orion Project Area. No seismically-resolvable faults offsetting the Clearwater caprock have been identified on seismic.
- No seismically-resolvable faults offsetting the UGR30 caprock have been identified on seismic.
- A localized erosional feature has been mapped in this area by AGS, known as the Moore Lake Channel (MLC). The Moore Lake channel (MLC) is described in the Atlas as being a glacial channel which is not as traceable as the pre-glacial channels. The Base Quaternary (Bedrock) horizon that has been interpreted, follows a significant seismic event that characterizes the strong acoustic impedance contrast between the unconsolidated sediments overlying the bedrock sediments. Using the seismic and well data, a prominent channel form up to 1000 m wide and approximately 40 m depth is identified as the 'Moore Lake Channel'. At ~ 40 m thickness, it is a shallow cutting Quaternary channel that does not incise into either of the caprocks.

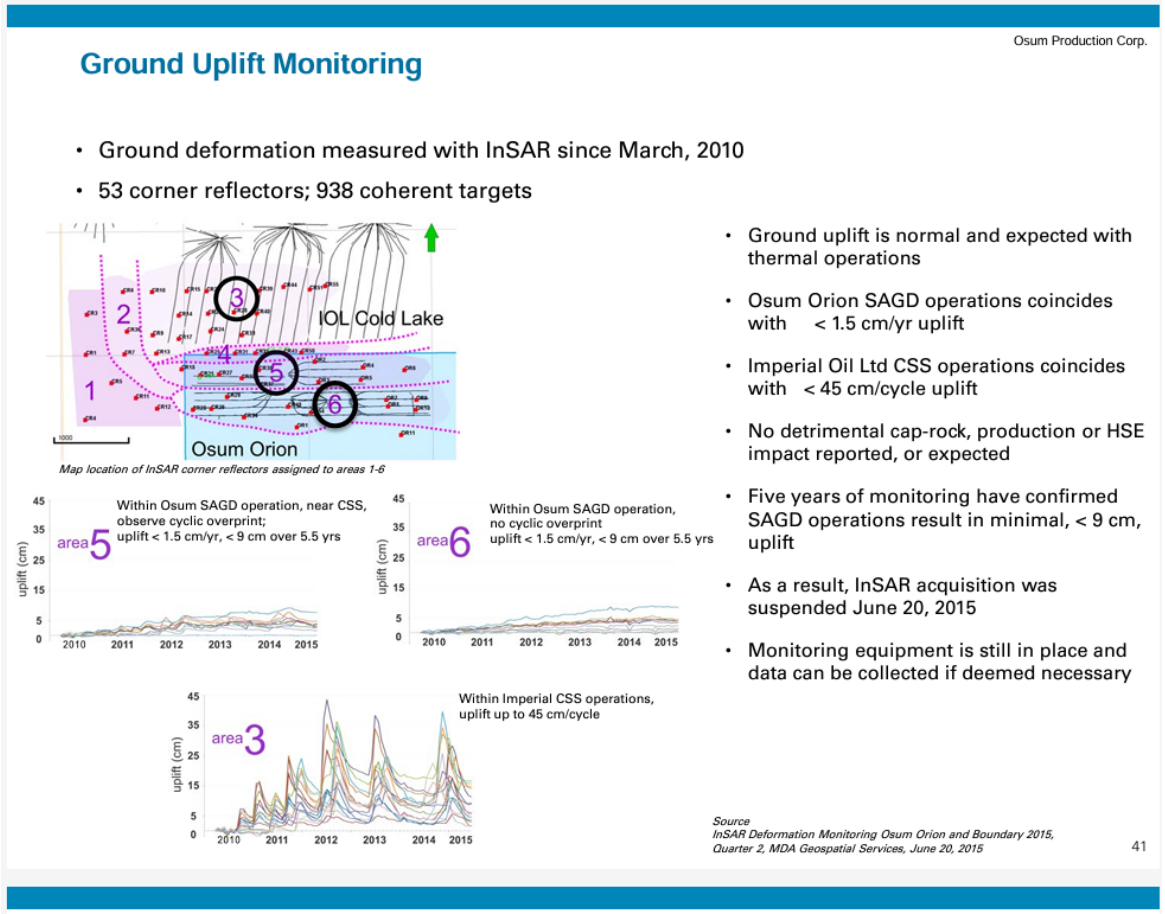






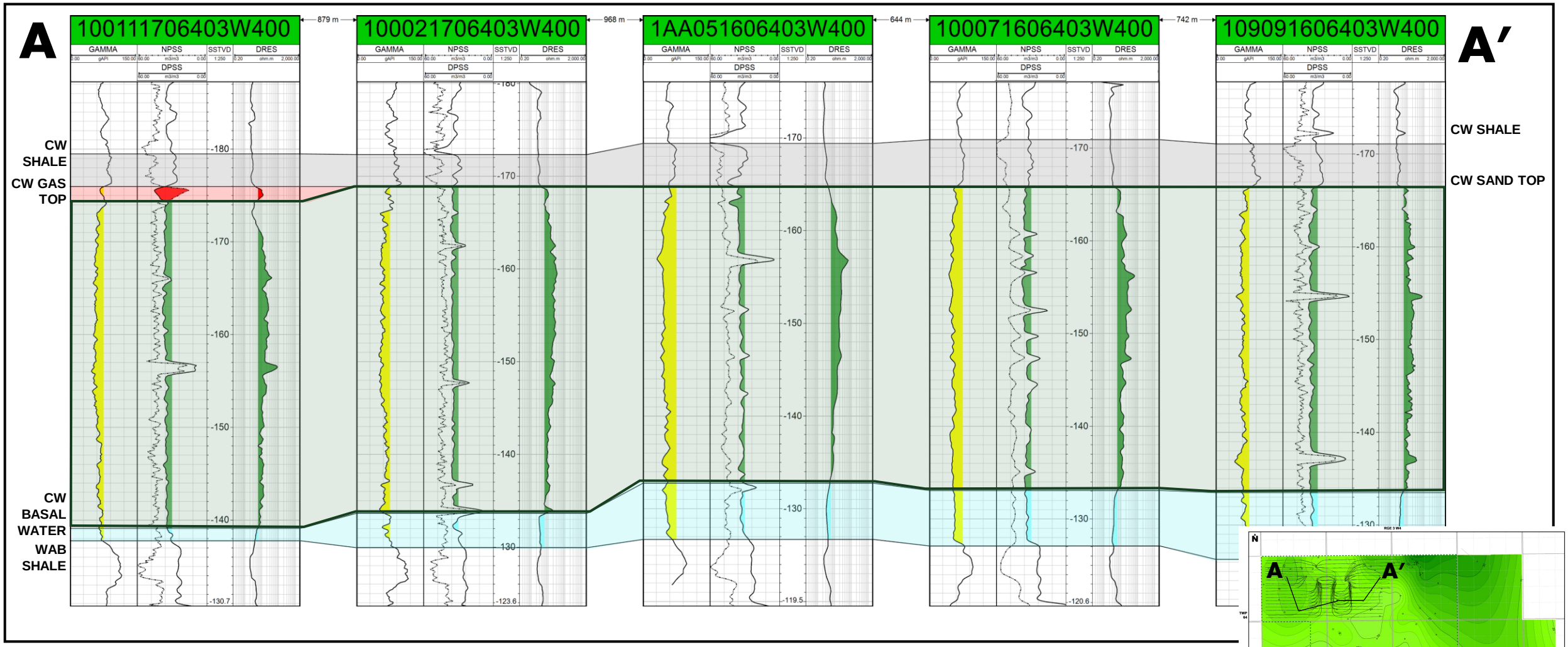
Geomechanical - Surface Heave Update

- Surface heave monitoring is not a condition of Commercial Scheme Approval No. 10103
- Surface heave monitoring was discontinued in June 2015 as monitoring data confirmed the Orion Project impact was minimal
- As noted in the 2016 Directive 054 presentation, the Project could collect additional data if there is a change in operating conditions



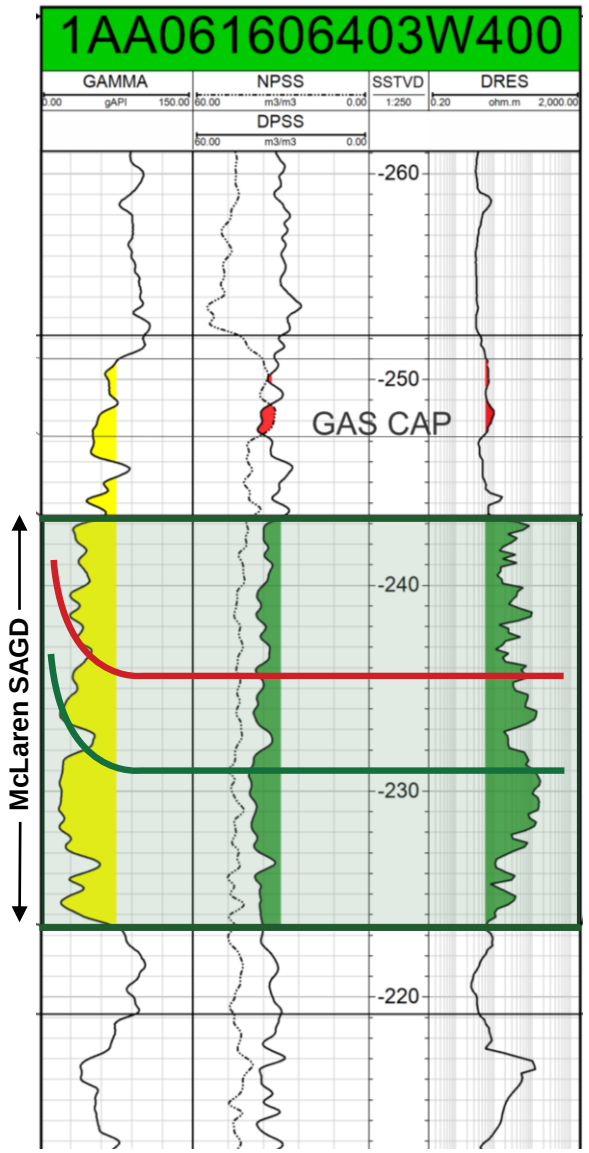
Reference: Osum Production Corp. - 2016 D054 Presentation (Slide 41)

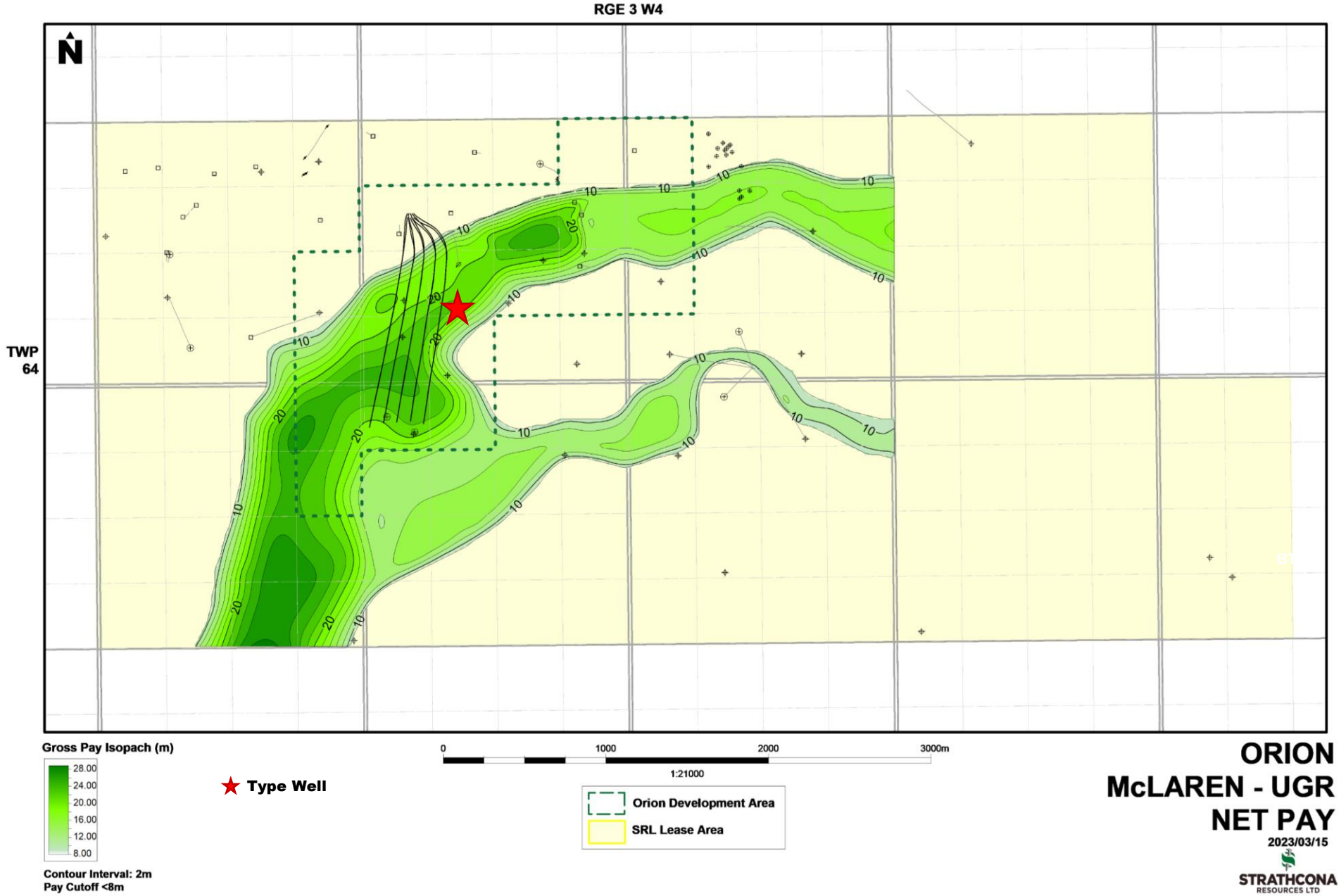
Clearwater Cross-Section



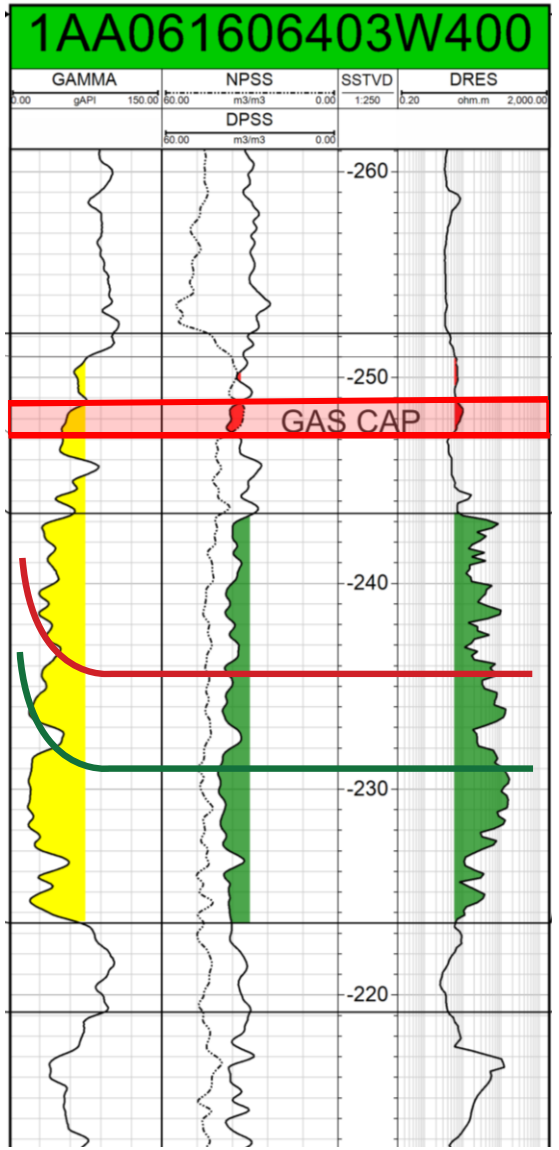
Reservoir Cutoffs:
Density Porosity: 24%
Resistivity: 10 Ohm*m
Gamma Ray: 50% Sand

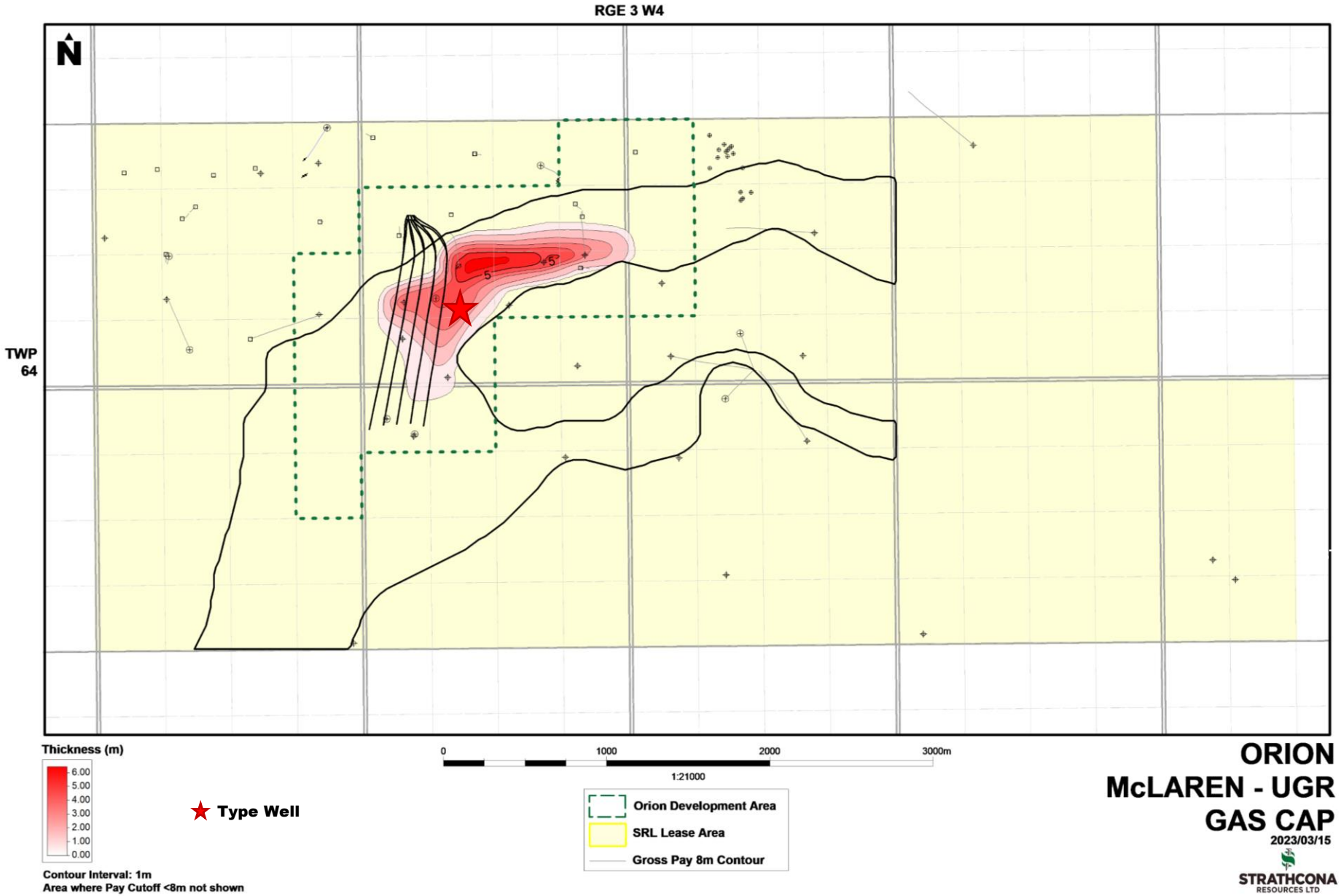
Upper Grand Rapids SAGD Reservoir Isopach



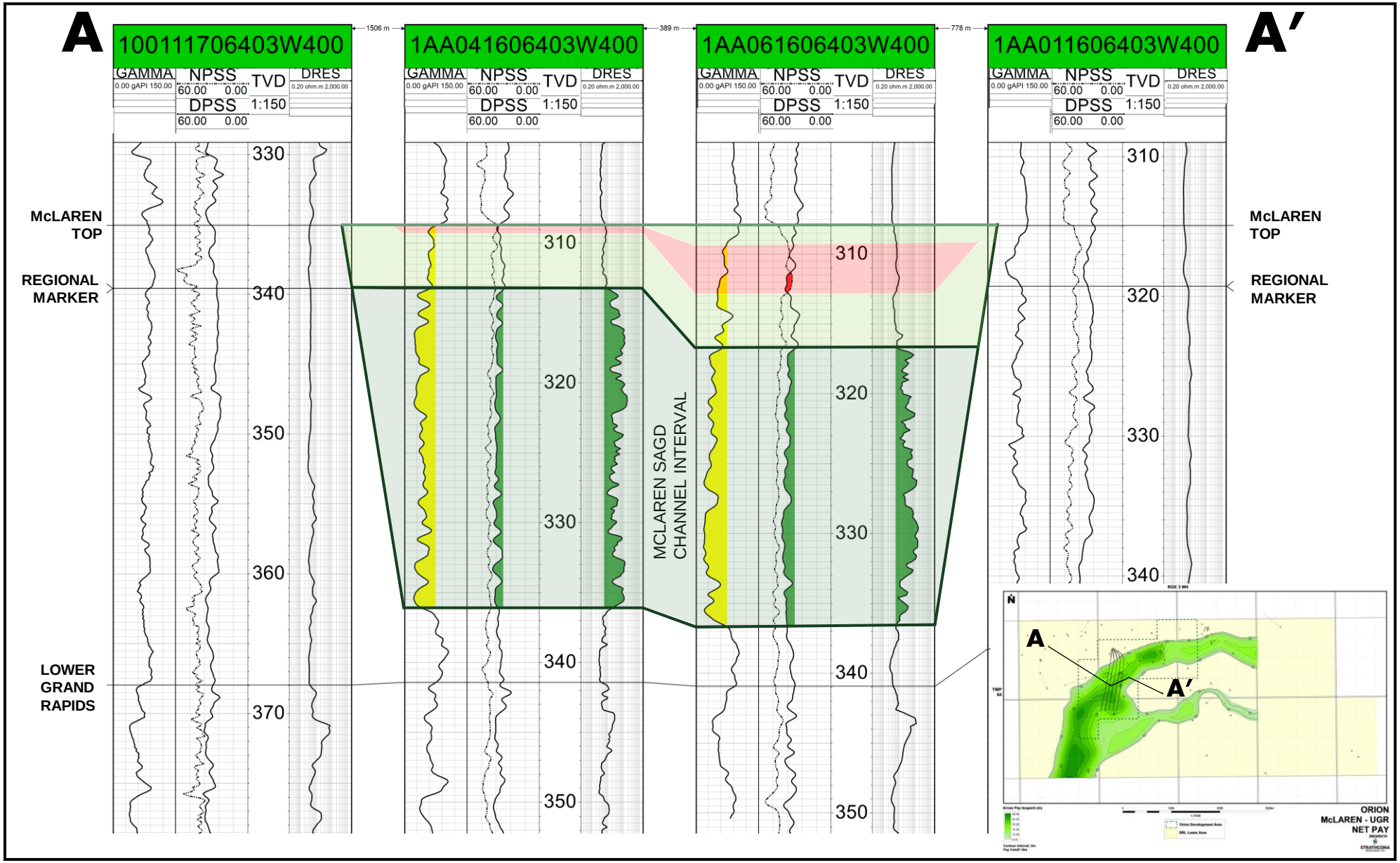


Upper Grand Rapids Gas Cap Isopach





Upper Grand Rapids Structural Cross Section



OBIP Volumes and Reservoir Properties

- Project Area
  - 134MMm^3
- Development Area
  - 59.2MMm^3
- Combined Active Well Patterns
  - 23.48 MMm^3
- Cumulative Recovery
  - 8.05 MMm^3
  - 34%

SAGD Reservoir Properties			
	Units	CLW	UGR
Depth	metres	425	330
Pay Thickness	metres	16-25	8-23
Average Porosity	%	35	36
Average Oil Saturation	%	66	71
Average Bitumen Weight	%	10	12
Horizontal Permeability	Darcies	2 to 6	3 to 10
Kv:Kh		0.02 - 0.2	0.3-0.6
Temperature	°C	15	15
Pressure	MPa	3.2	2.2-2.5
Oil Gravity	°API	10 to 11	11
Viscosity at 16°C	cP	223,000	65,000

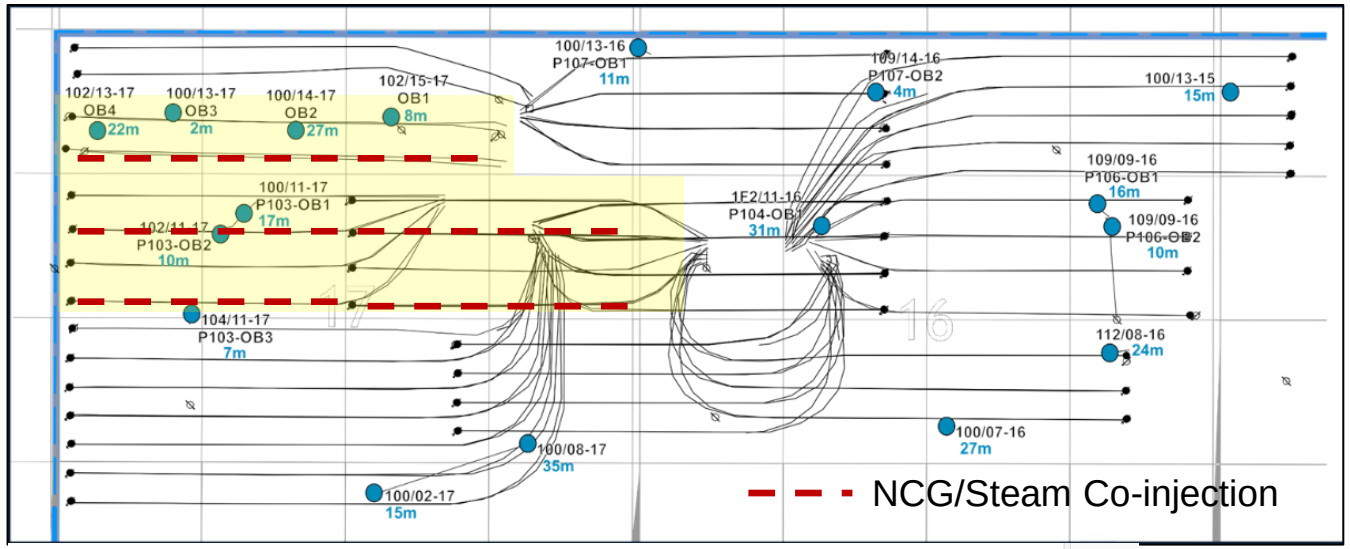
Reservoir Properties and Bitumen in Place

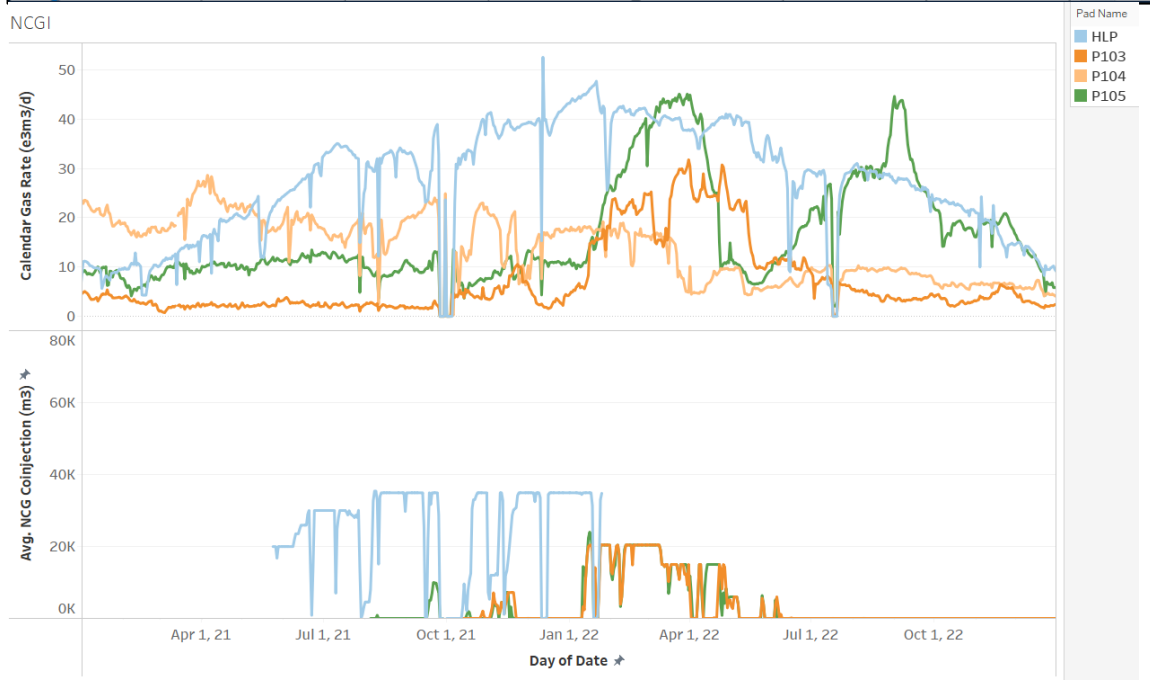
OBIP, PBIP and Recovery to Date [1]												
Pad	Start Date	Operating Well Pairs (#)	Well Length (m) [2]	Well Pair Spacing (m)	Net Pay (m)	Porosity (%)	Perm. (D)	Initial Oil Saturation (%)	Total OBIP (MMm^3)	Total PBIP (MMm^3)	Current Recovery [3] (%)	Estimated Ultimate Recovery (%)
Pilot	Sep 1997	2	900	106	25	32	2 - 6	65	1.09	0.97	76	>70
Pad 103	Oct 2009	4	690	100	24	32	2 - 6	65	1.40	1.26	83	>70
Pad 104	Oct 2007	4	700	100	22	32	2 - 6	65	1.44	1.37	55	50-60
Pad 105[4]	May 2008	4	680	100	24	32	2 - 6	65	1.78	1.47	66	>70
Pad 106	Sep 2007	4	735	100	23	32	2 - 6	65	1.63	1.47	41	50-60
Pad 107	Sep 2007	4	700	100	21	32	2 - 6	65	1.53	1.45	63	50-60
Pad 108	Jun 2017	2	1,000	100	24	32	2 - 6	65	0.93	0.68	33	50-60
Pad 109	Sep 2018	5	1,000	80	26	32	2 - 6	65	2.37	1.38	16	50-60
Pad 204	Jun 2017	7	1,000	80	24	32	2 - 6	65	2.92	2.37	35	50-60
Pad 205	Jul 2018	8	1,000	80	21	32	2 - 6	65	3.43	2.56	9	50-60
Pad 206	Sep 2018	8	800	80	24	32	2 - 6	65	3.11	2.52	14	50-60
Pad G5	Aug 2022	5	1000	80	20	30	3 - 10	76	1.85	1.51	0.5	50-60

(1) As of December 2022
(2) Approximate Well Pair Spacing, m
(3) Recovery as of December 2022, on OBIP basis
(4) Includes Pad 105 LDW2

Non-Condensable Gas (NCG) Co-injection

- Phase 1 of NCG Co-injection: Apr. 2021 to June 2022
- Pads HLP, 103, 105, 104, and 107 in communication
- Co-injection in Pads: HLP, 103 and 105
  - Highlighted in yellow
  - Pad104 in communication with Pad 105
- Timing: Late life / high recovery
- Learnings to date:
  - Successfully maintaining chamber pressure
  - Improved Steam Oil Ratio (SOR)
  - No negative impact on oil production
  - No negative impact to wellbore integrity and aquifers
  - 30-50% retention using C2 as marker
  - 2022 Average NCG/steam concentration: 1.2 mole%
- Go forward plan:
  - Add NCG injection in Pads 107 and 104 for steam re-allocation and reservoir pressure maintenance





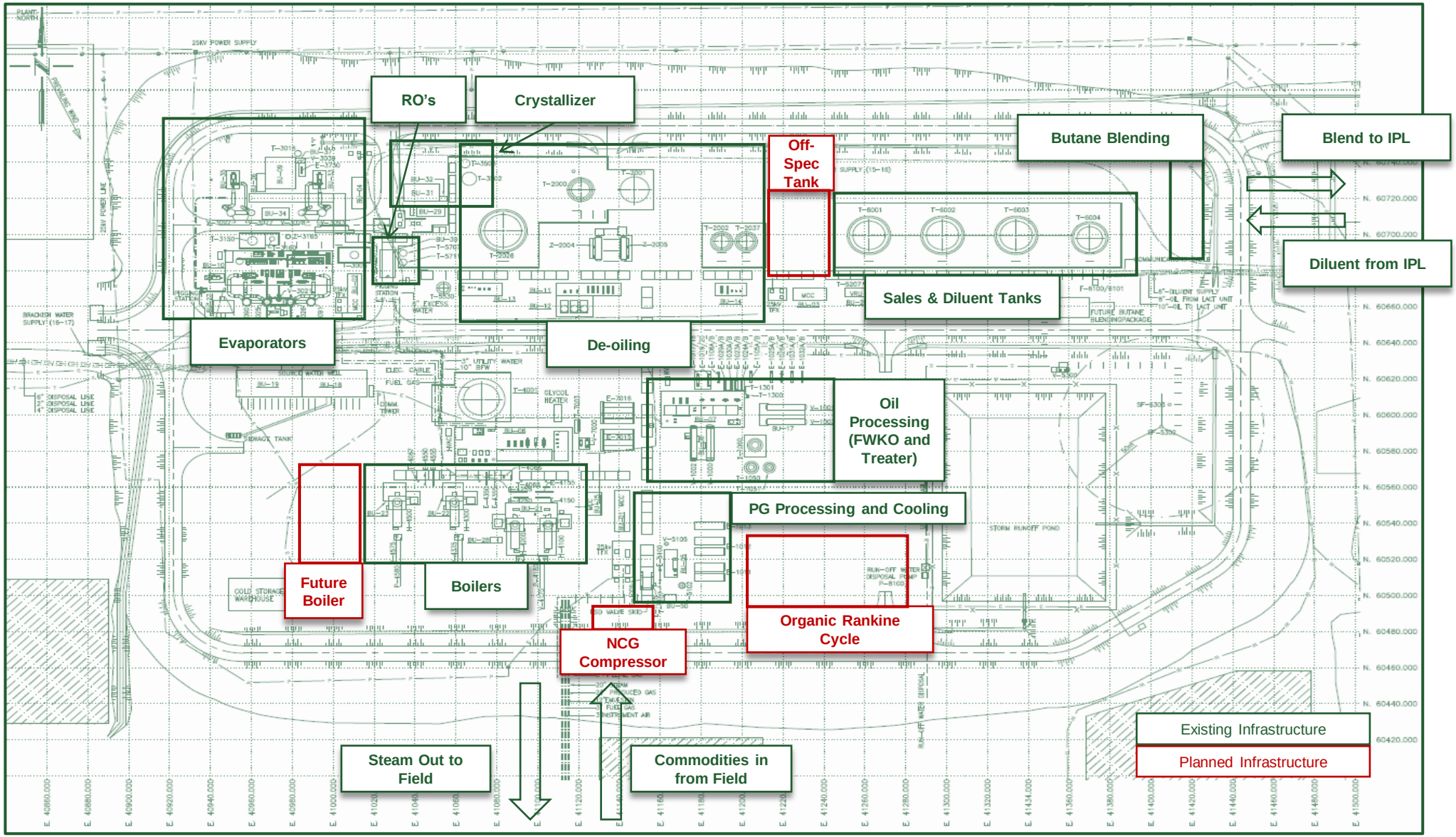
Surface Operations

Orion In Situ Oil Sands

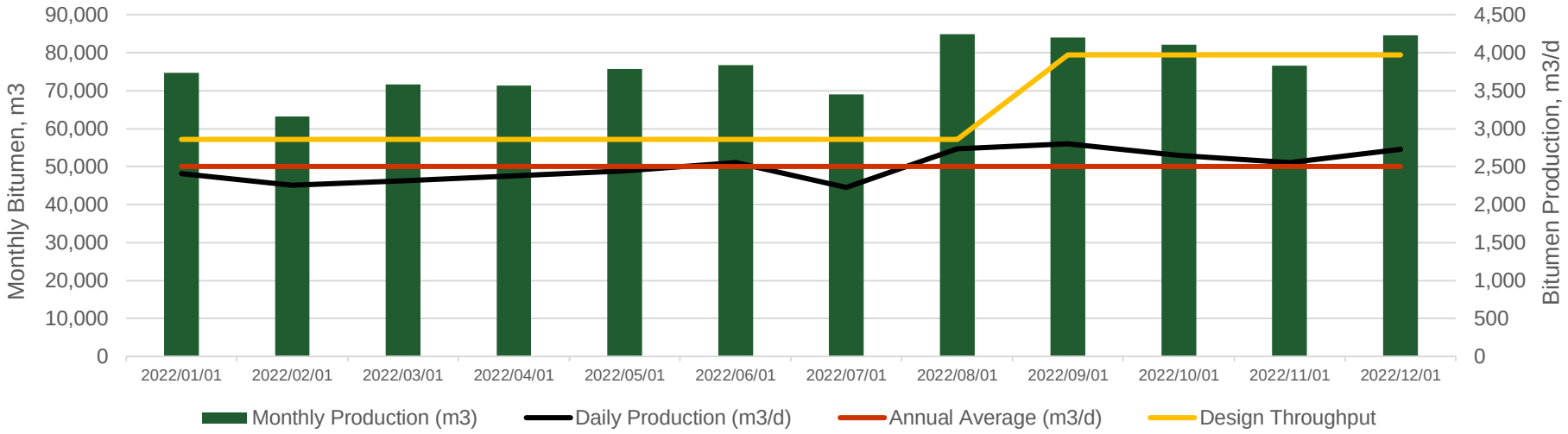
Facility Highlights

- No abandonment/suspension of producing wells was undertaken in 2022
- Modifications as outlined were implemented in 2022; facility highlights are associated with Phase 2D expansion and optimization included:
  - Addition of aerial cooler for produced gas (PG) cooling infrastructure to accommodate increased produced vapour loading on the plant
  - Installation of fifth boiler to increase total steam capacity in plant to support SAGD well pairs
  - Installation of Reverse Osmosis (RO) to provide additional water for fifth boiler
  - Optimization of the evaporator system to unlock additional Boiler Feed Water (BFW) capacity from existing infrastructure to support fifth boiler
  - Tie-in of ten (10) new sustaining SAGD well pairs in the field
  - Optimization of Emulsion Breaker (EB) in the field to support additional SAGD well pairs volumes
  - Installation of field separator and pipelines to support additional SAGD well pairs volumes
  - Installation of inlet heat exchanger in the plant to support additional SAGD well pairs
  - Addition of off-spec tank to support plant operations with increased volumes from additional SAGD well pairs
  - Tie-ins for Organic Rankine Cycle (ORC) installation in 2023-2025

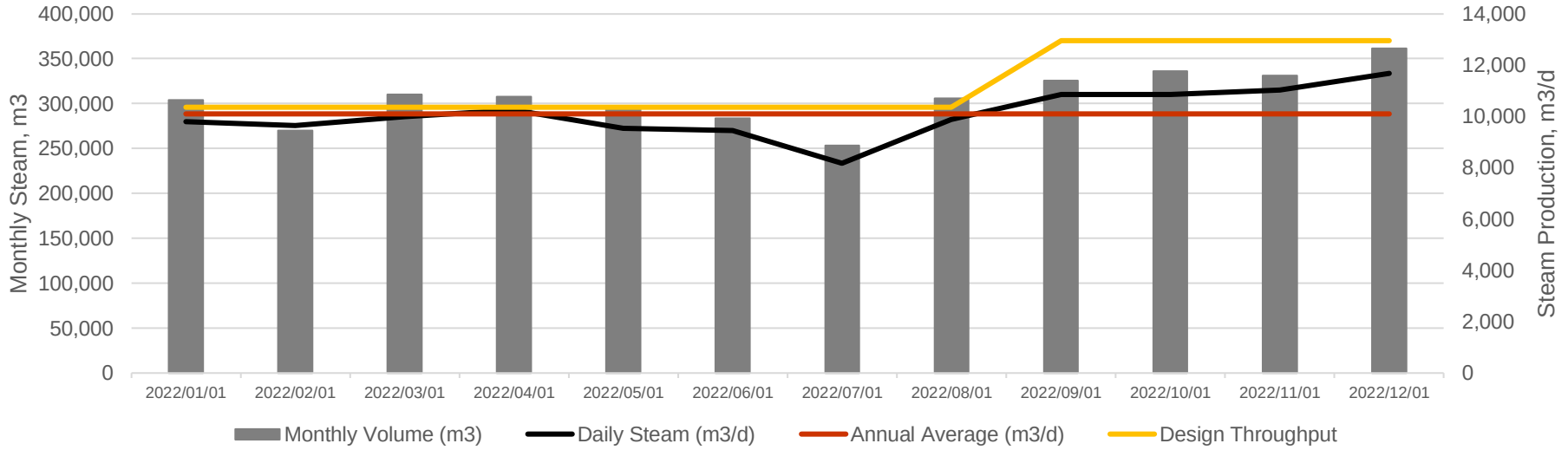
Orion Central Processing Facility Plot Plan



Orion Bitumen and Steam Performance



Annual Steam Production Against Design Throughput



Compliance Summary

Approval Number	Reportable Incidents/Contraventions	Corrective Actions
EPEA 00141258	EDGE 0407178- CEMS 26694 did not meet 90% uptime for October 2022 (88.7%) due to NOx analyzer malfunction requiring off-site repair. EDGE 0407999- 4 hour NOx exceedance due to gas swings to plant caused by frozen group pad LITs EDGE 0408068- 1 hour NOx exceedance	– Vendor to conduct fulsome inspection/maintenance after any future lightning strike to CEMS boiler. – Bleed rings installed on group pad LITs and routine 6 month preventative maintenance scheduled. – Instrument air header to the CEMS dropped pressure while a process change occurs. Pressure transmitter was added to the instrument air header.
Water Act License 00242090	Compliant with all conditions of the approval	
Directive 13	Compliant	– Completed all required suspensions and abandonments
Reportable Incidents	EDGE 0360692 - Evaporator brine release during mechanical cleaning of crystallizer EDGE 0405031 - Polish Rod Failure/Loss of well containment EDGE 0406695 - Steam release due to pinhole on intermediate casing.	– Source point could not be identified. Operations had large containments on hand for the re-start of crystallizer. – Procedural updates and new procedures implemented for well troubleshooting, operator awareness training, engineering controls implemented (anti-ejection clamp). – Advance well integrity program including integrity work while completing injector workovers. Additional logs for any wells which indicate any casing issues during producer workovers.

Approval Amendments

Act	Application Reference No.	Description	Approval Date
OSCA	1939355	Temporary NCG injection increase into P52 (producer) to evaluate NCG retention in the Clearwater Formation	October 4, 2022
OSCA EPEA	1941151 NA	Sulphur Recovery Unit and Sulphur Management Plan	April 20, 2023

Lessons Learned / Technical Updates

- Phase 1 Operations:
  - All producing wells utilize metal-to-metal progressive cavity pumps (PCP)
  - SRL continues to work collaboratively with PCP vendors to improve performance and run time

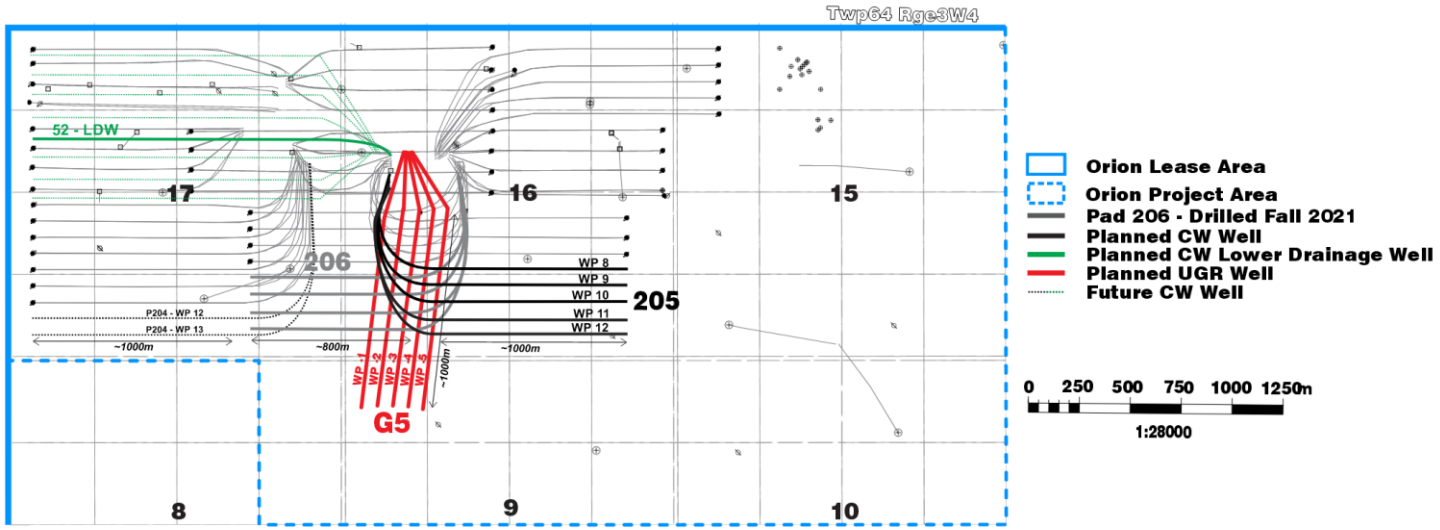
- Phase 2 Operations:
  - Mechanical lift conversions (Electric Submersible Pumps (ESP) and PCP) from gas lift completed 2022. Currently one producer remains on gas lift
  - Four Pad 206 well pairs started circulation early 2022. Two well pairs converted to ESP due to pressure communication with lower pressure Phase 2 wells. Two well pairs remain on steam lift.
  - Five well pairs on Pad G5 started circulation September 2022
  - Five well pairs on Pad 205 started circulation November 2022

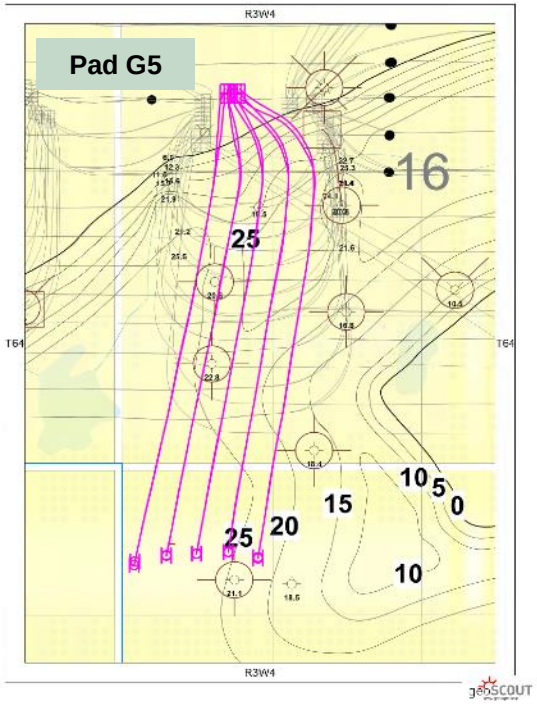
Future Plans

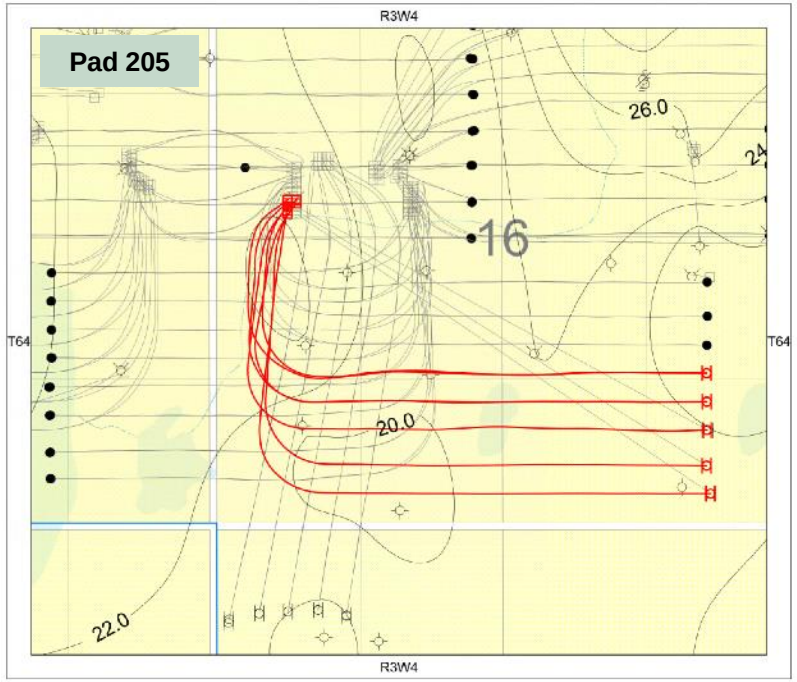
Orion In Situ Oil Sands

Phase 2D Expansion Scope: 2021-2023

- UGR Pad G5; 5 new well pairs, start-up Sept 2022
- Clearwater Pad 205; 5 new well pairs, start-up Dec-2022
- 5th boiler expands steam capacity to ~78,200 bbl/d (12,440 m3/d CWE)
- Evaporator / de-oiled debottleneck to fill ~75% of new boiler capacity
- Brackish supply and reverse osmosis (RO) debottleneck to fill remaining ~ 25% of new boiler capacity
- Pad 109 group separator addition and pipeline twinning for increased production handling
- New off-spec tank for improved operability and increased sales inventory
- Heat integration debottleneck (produced gas (PG), emulsion, produced water (PW))
- PW disposal debottleneck for excess PW



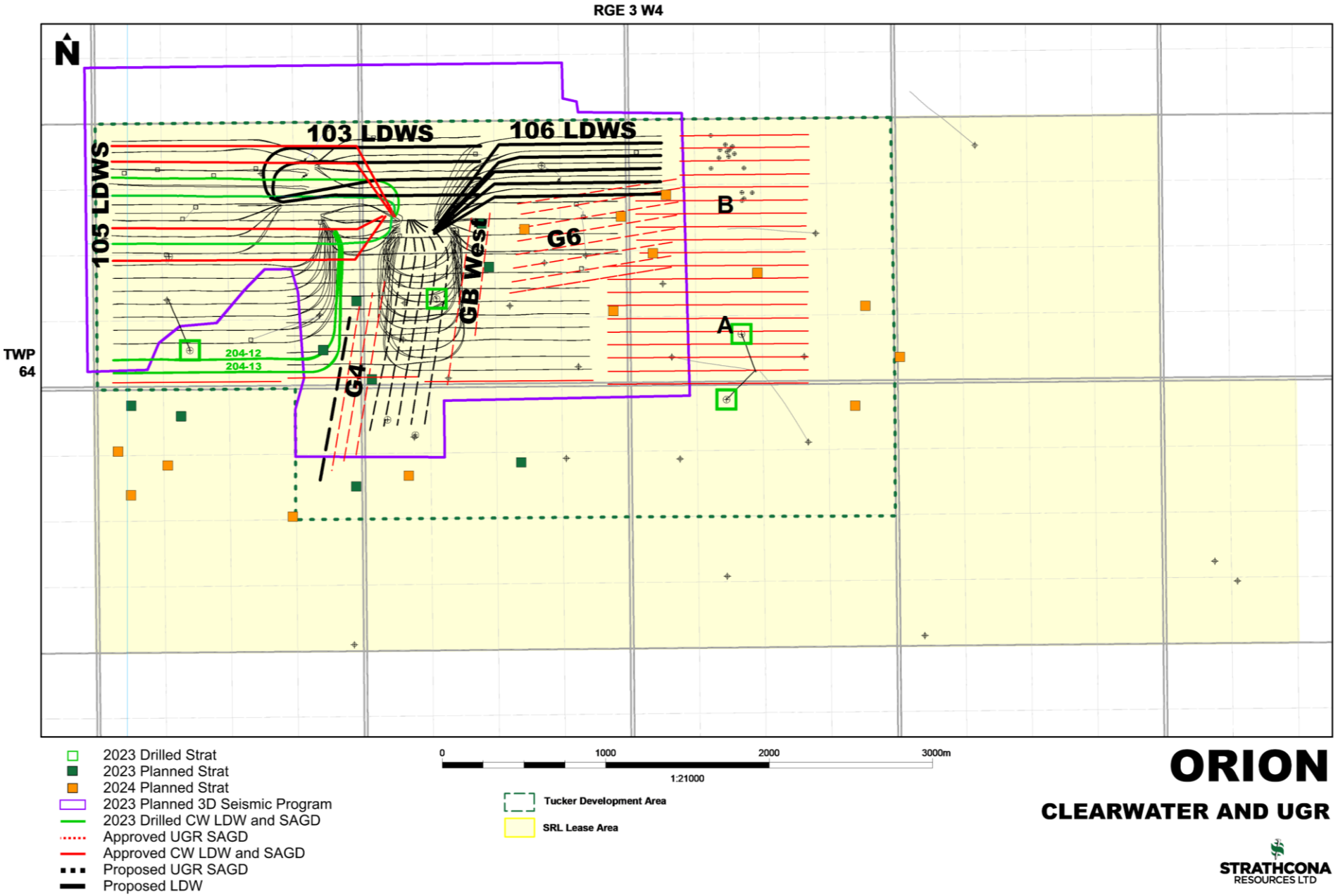




5 Year Development Plan: Summary

- Central Processing Facility (CPF): add remaining components for completion of approved Phase 2D development
- Development Wells (map on slide 29): continue project operations and resource recovery, subject to available CPF capacities, by adding production from a subset combination of (timing and number will depend on performance and declines of currently operating well pairs):
  - Approved 5 remaining Clearwater SAGD well pairs from existing surface pads;
    - Commercial Scheme Approval 10103U
  - Approved 7 remaining Clearwater Lower Drainage Wells (LDWs) from existing surface pads;
    - Commercial Scheme Approval 10103U
  - Approved 20 Clearwater SAGD well pairs from new surface pads A and B;
    - Commercial Scheme Approval 10103V
  - Approved 13 remaining Upper Grand Rapids SAGD well pairs from existing surface pad extensions
    - Commercial Scheme Approval 10103BB
- Plan to acquire ~6.1 km^2 of 4D seismic in 2023
- Proposed eventual transition of mature Phase 1 well pairs to a terminal gas injection phase (no steam injection)
- D23 Applications:
  - Near term amendment: Lower Drainage Wells (LDW) at Pad 103 and 106, subsurface drainage box expansion for Pad G4
  - Scoping: Brownfield Lifecycle for LDW development within approved project area

5 Year Development Plan: Map



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