



**Sunshine Oilsands Ltd.**  
**BA Code A2TF**

阳光油砂  
SUNSHINE OILSANDS LTD.

# **WEST ELLS SAGD**

**Scheme No. 11764G**  
**AER In Situ Performance Presentation**  
**June 30, 2022**



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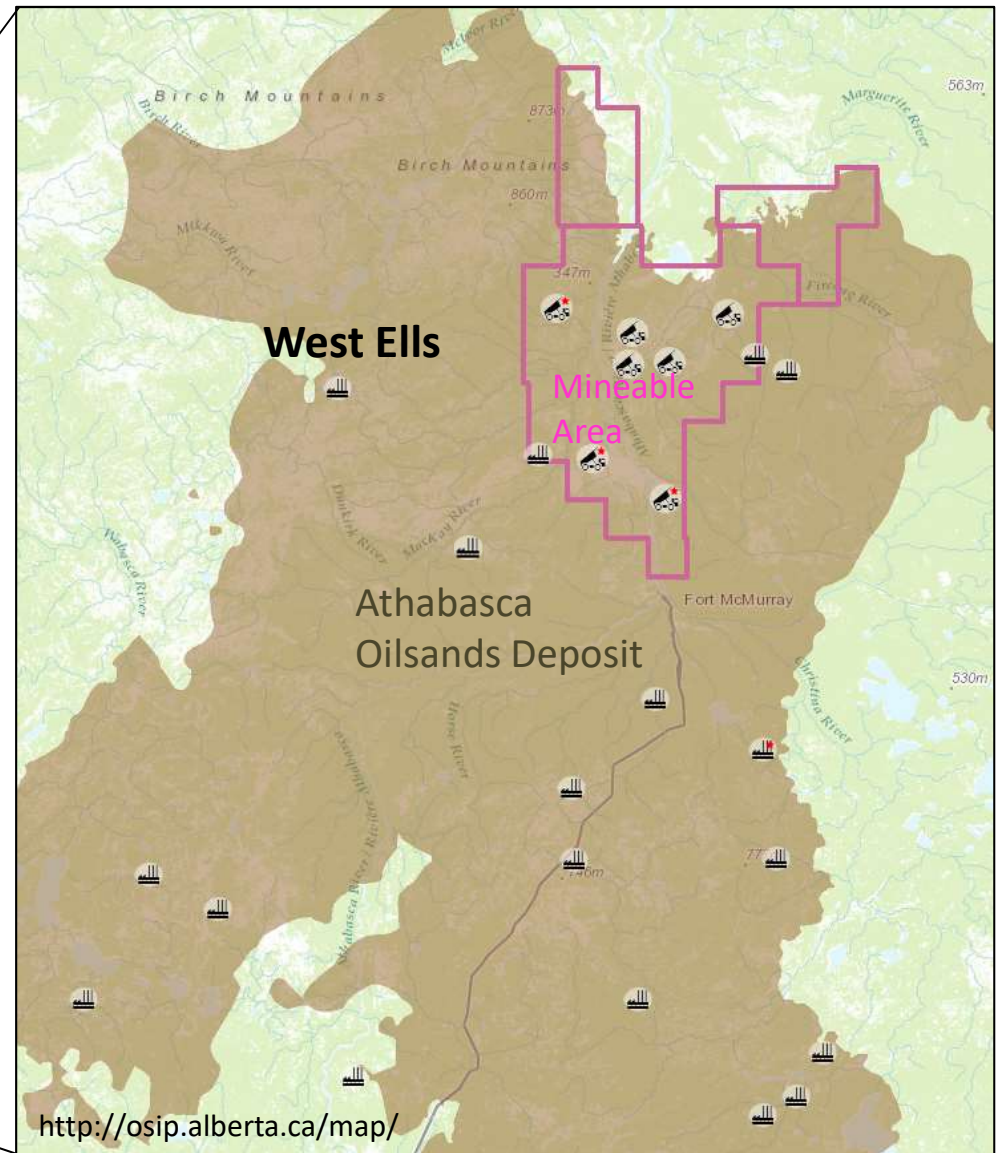
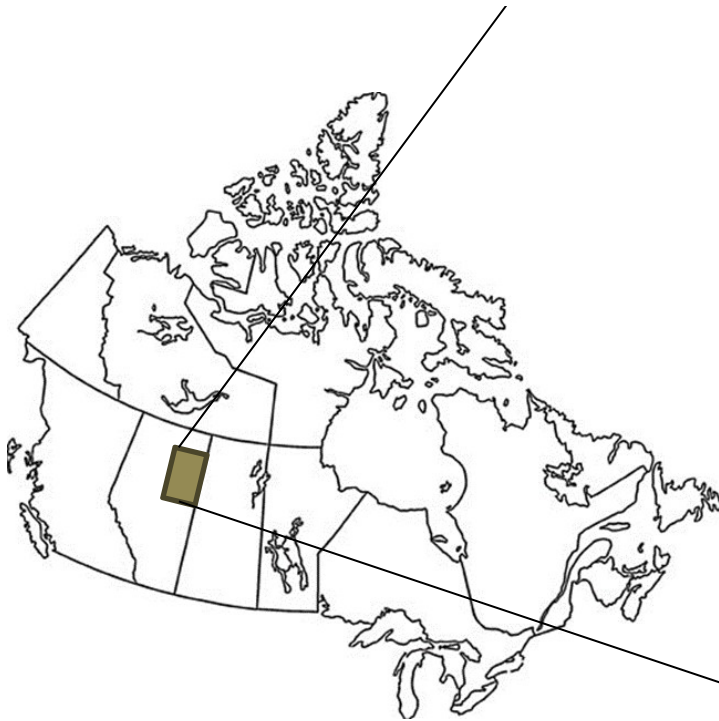
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# Introduction

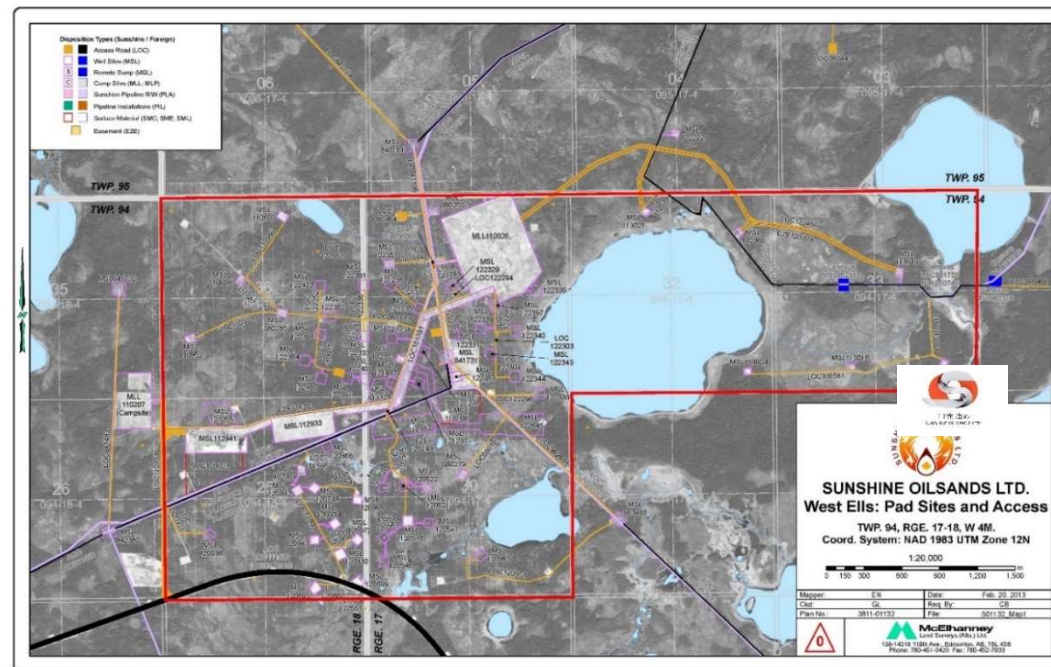
## Location within the Athabasca Oilsands Deposit

**West Ells SAGD Project**  
Located in the NW part of  
the Athabasca Oilsands  
Deposit, Alberta, Canada



## West Ells SAGD

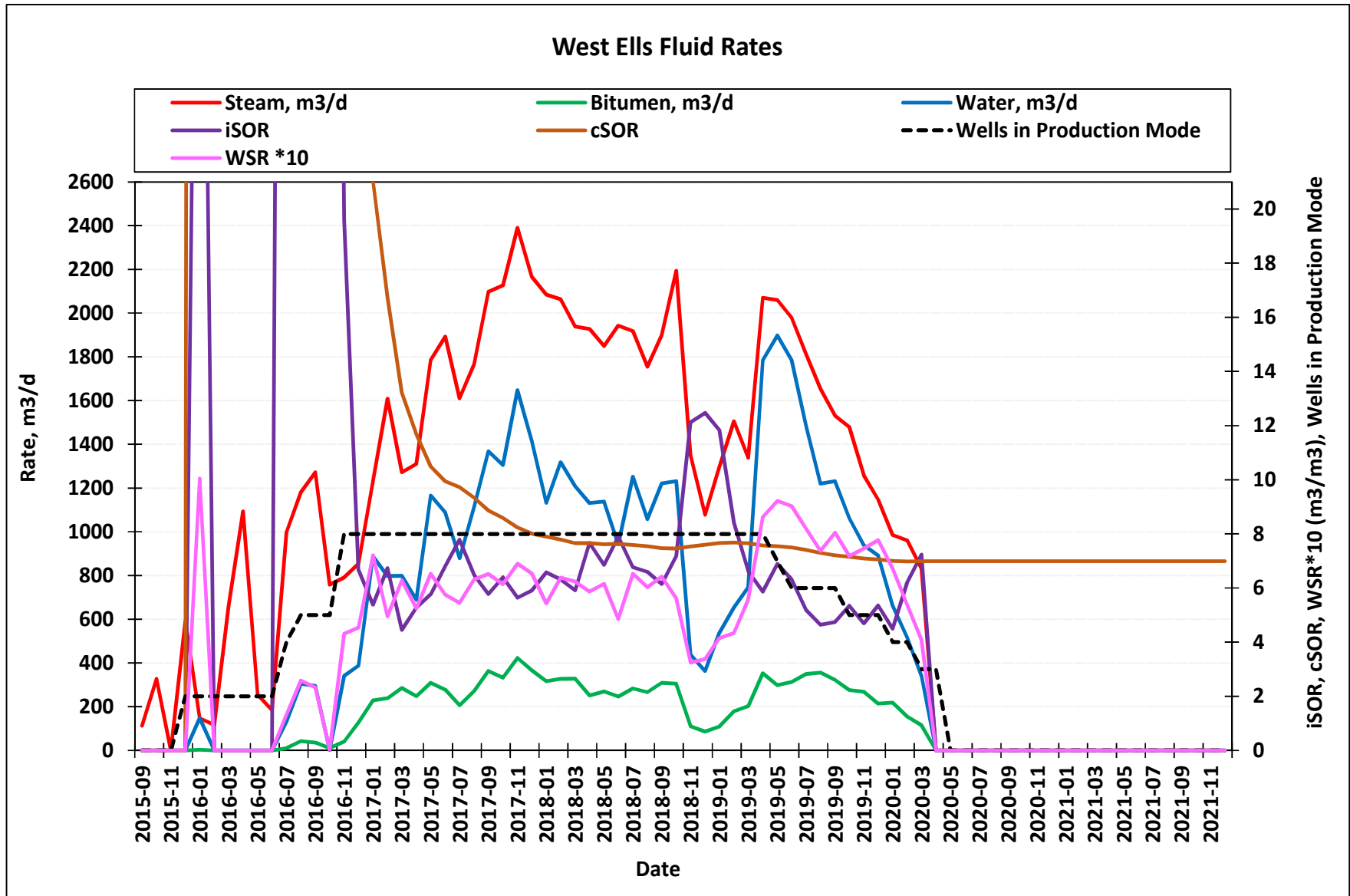
- Covering 9,856 contiguous gross hectares in the Athabasca Oil Sands Region
- Two phases of 5,000bbl/d
  - Phase 1 currently in Operation since September 2015 is supplied by Pad 2
  - Phase 2 will commence in the future and is supplied by Pad 3 which has been drilled
  - MSL 112941 and MSL 112933 were cleared of vegetation with no soil disturbance, anticipated to serve as make-up pads as the project advances



West Ells SAGD 2021 Performance

# Subsurface

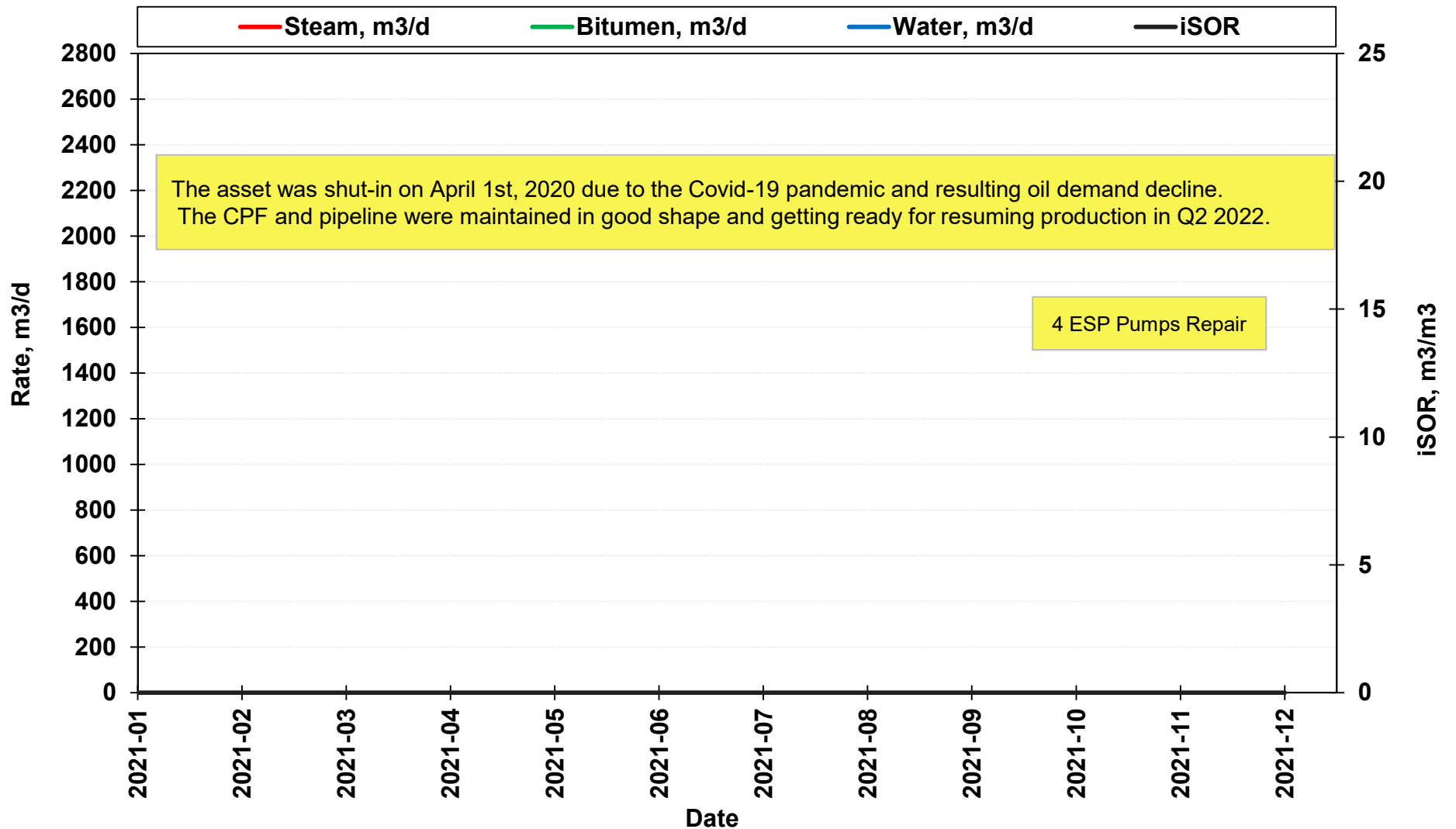
# Production Curves





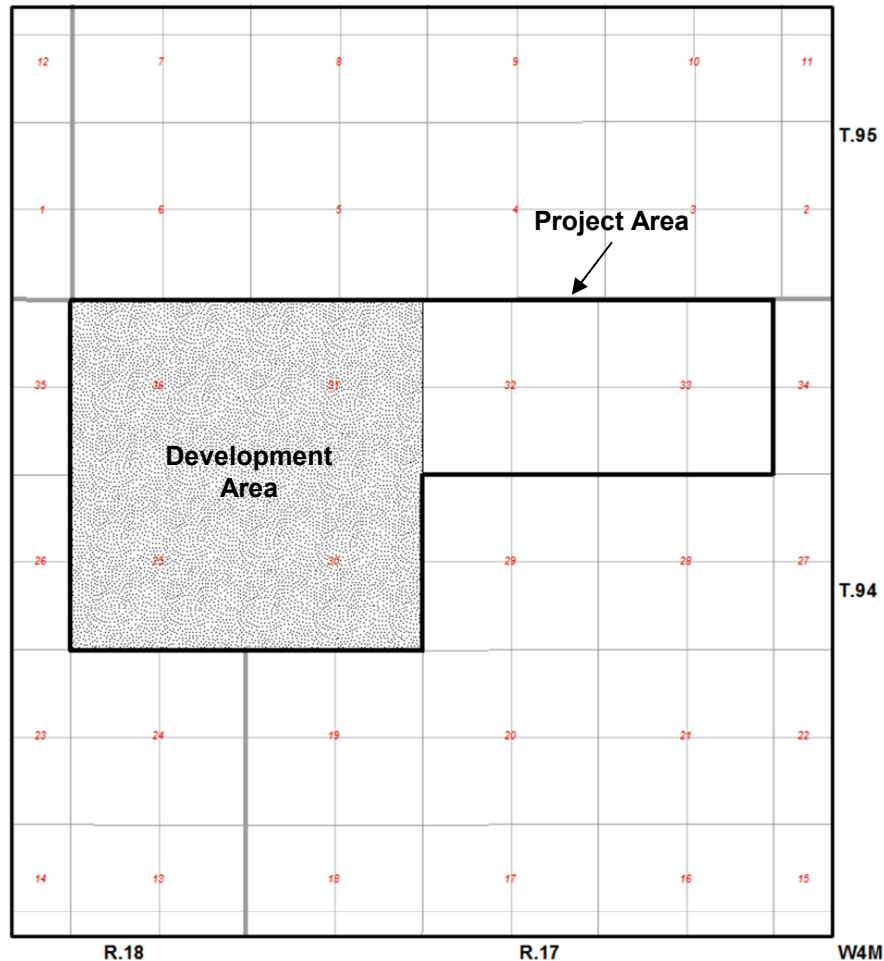
## Annotation of Major Events

West Ells Fluid Rates





# Development and Project Area



ATHABASCA OIL SANDS AREA  
APPENDIX A TO APPROVAL NO. 11764G

The AER does not warrant the accuracy or completeness of the information contained in this map and is not responsible for any errors or omissions in its content and accepts no liability for the use of this information.

Base Data Provided by Spatial Data Warehouse Ltd., 2003

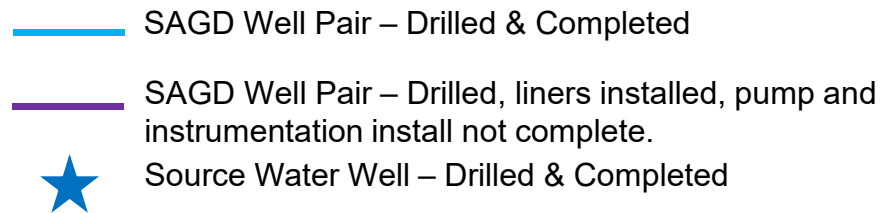
## Legend

-  Project Area
-  Development Area

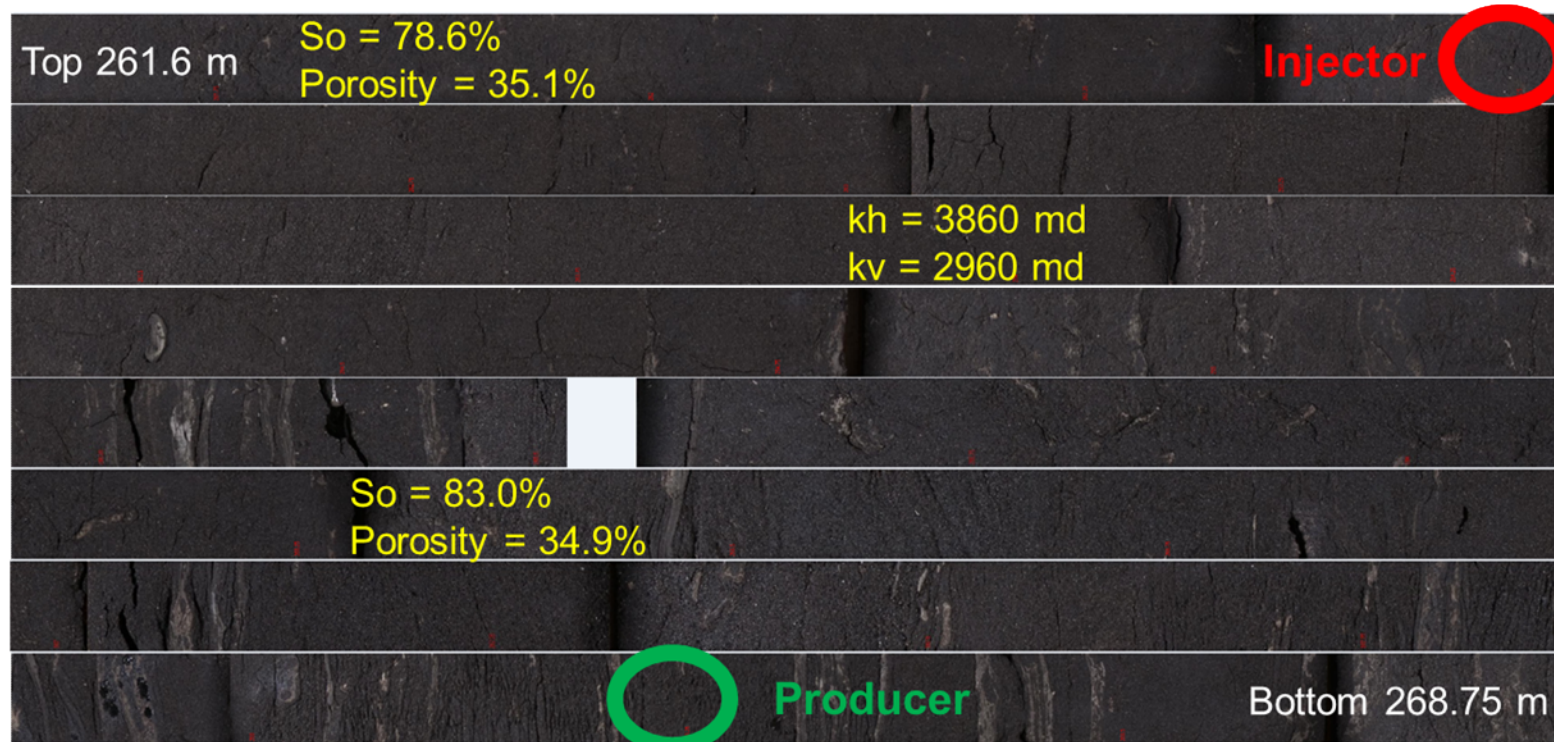
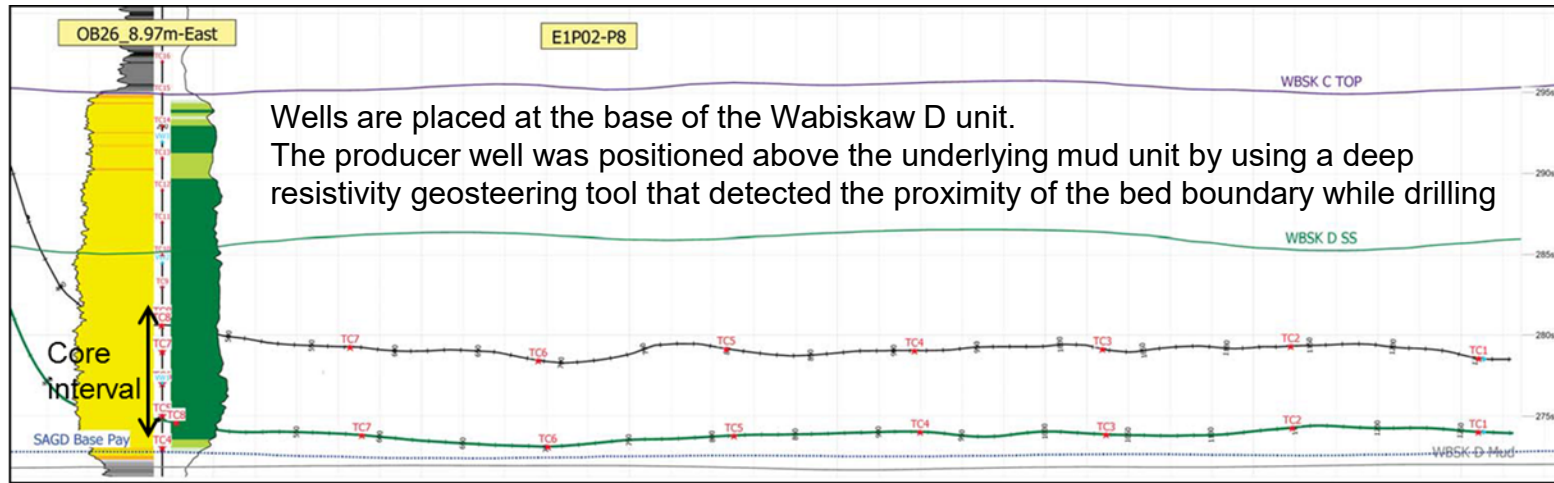
Area	Land Description
Development Area (4 sections)	T94 R17W4; Sec 30, 31 T94 R18W4; Sec 25, 36
Project Area (6 sections)	T94 R17W4; Sec 30, 31, 32, 33 T94 R18W4; Sec 25, 36

First Steam – September 2015

First Production – December 2015



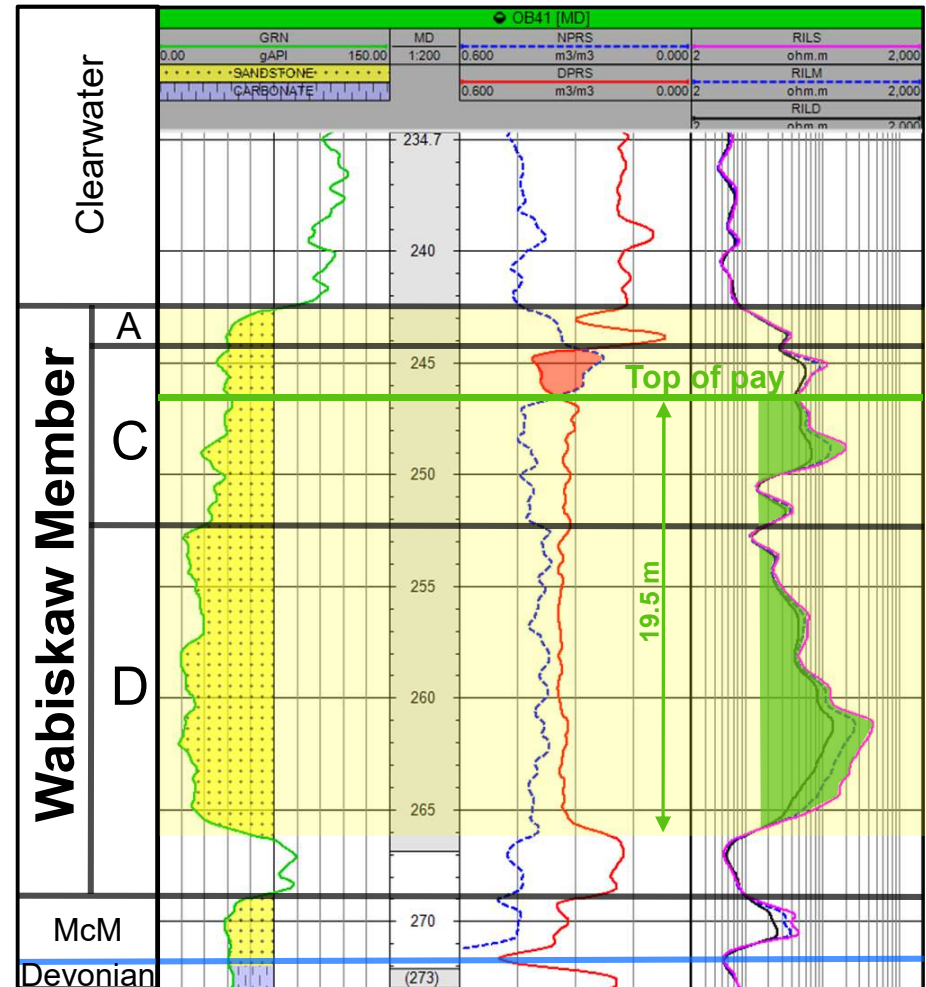
# Typical SAGD Well Placement (e.g. Pair 8)





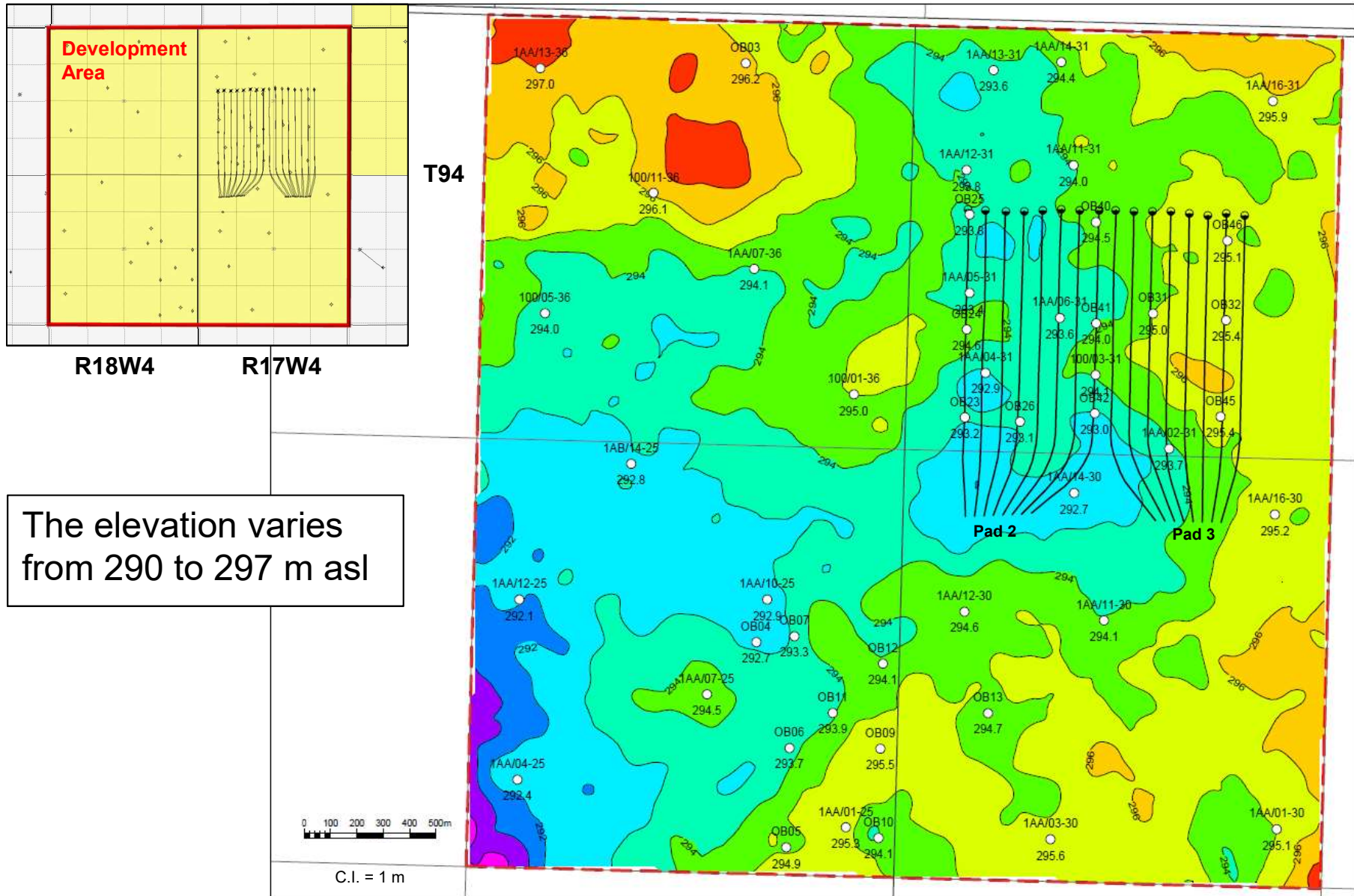


## Type Well – OB41 (102/06-31-094-17W4)

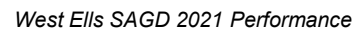


### West Ells SAGD 2021 Performance

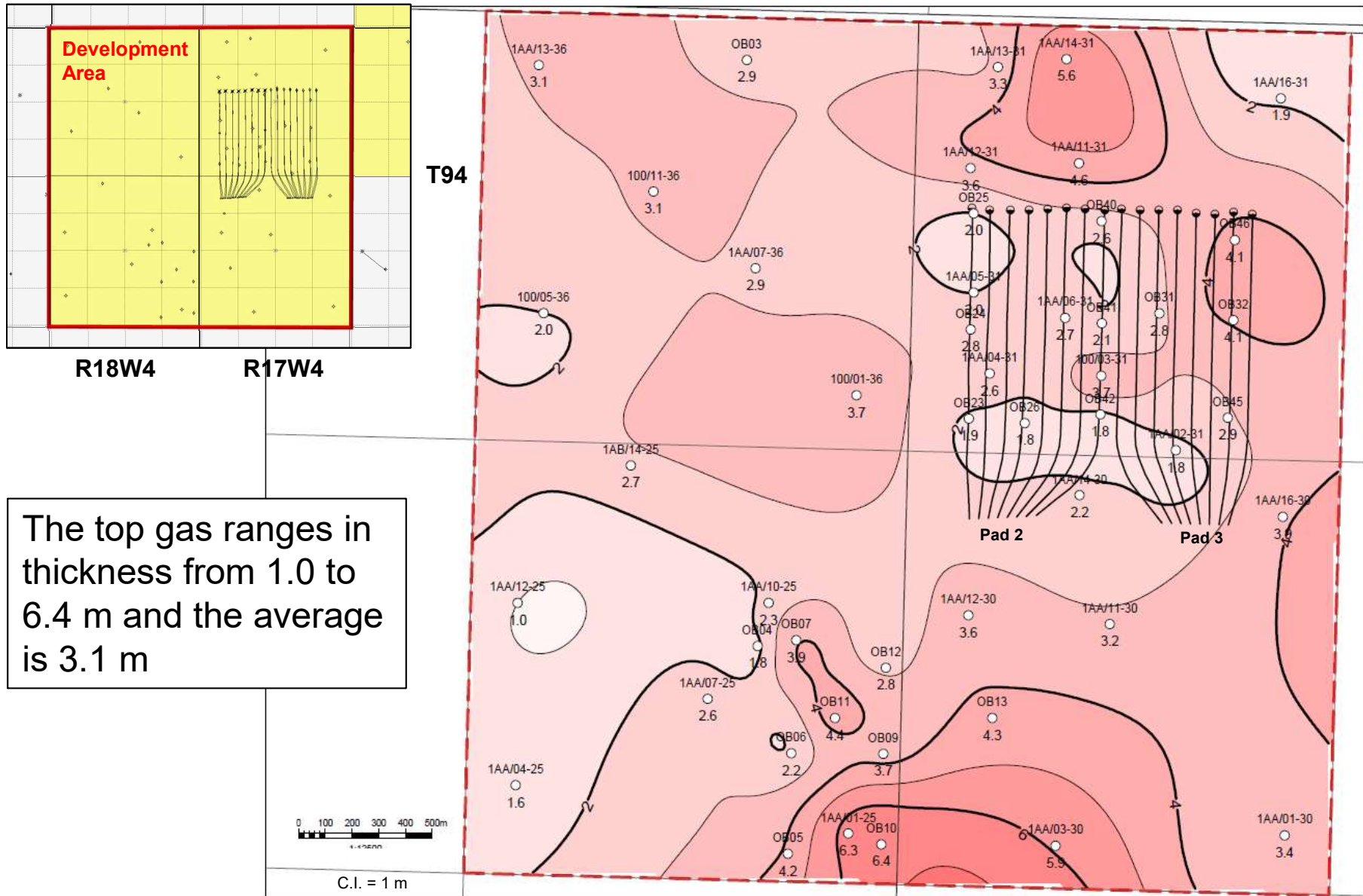
# Top of Bitumen Pay Structure Map







# Wabiskaw C Top Gas Isopach Map





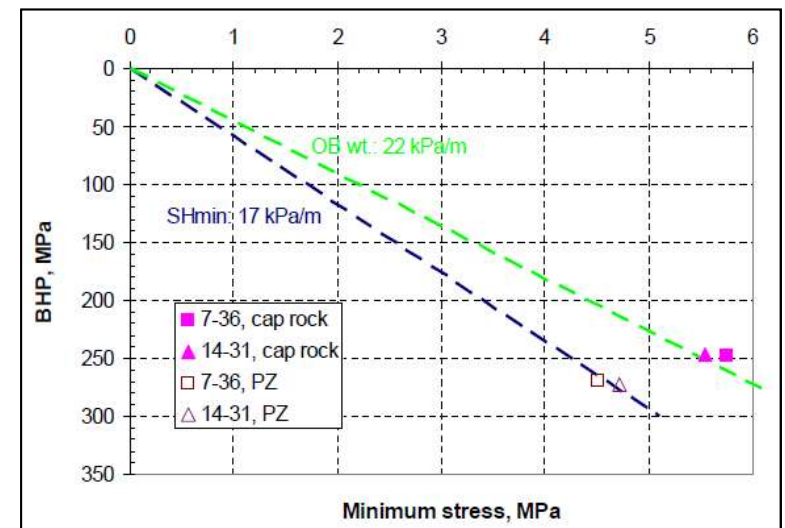
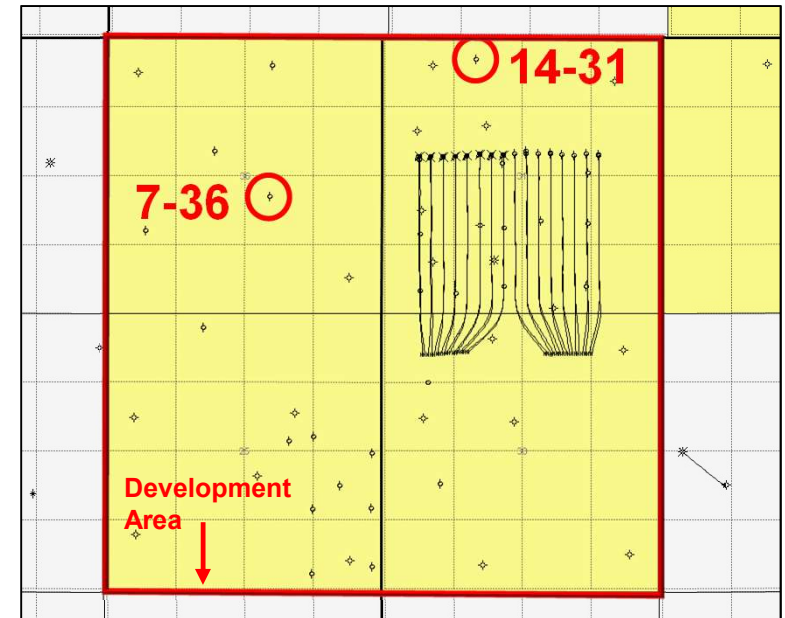




# Geomechanical Anomalies - Cap Rock Integrity

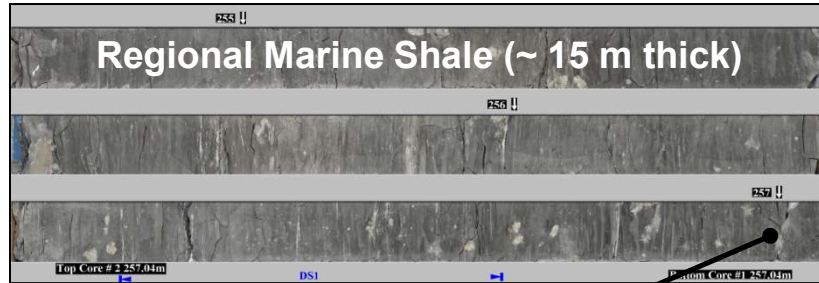
- No geomechanical anomalies reported in 2021 as the injection pressure was below MOP\*. The injection pressure before shut-in was between 1750 and 2100 kPa
- Mini-frac tests were performed at:
  - 1AA/14-31-094-17W4/0
  - 1AA/07-36-094-18W4/0
- Caprock average minimum stress gradient = **22 kPa/m** (Wabiskaw Shale Member)

\* The maximum operating pressure (MOP) of **4400** kPag was granted on March 10, 2016



# Geomechanics - Caprock and Oil Sand from 14-31-94-17W4 Location

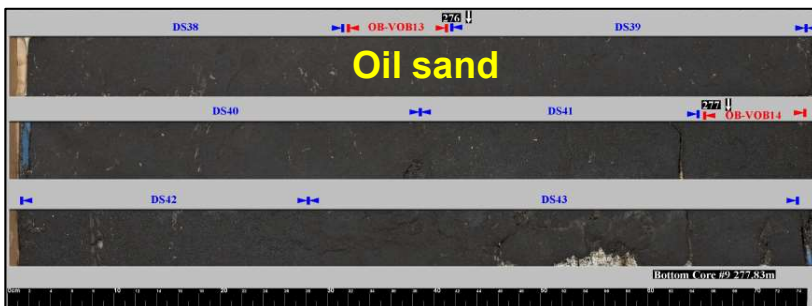
## Caprock - Wabiskaw Shale Member



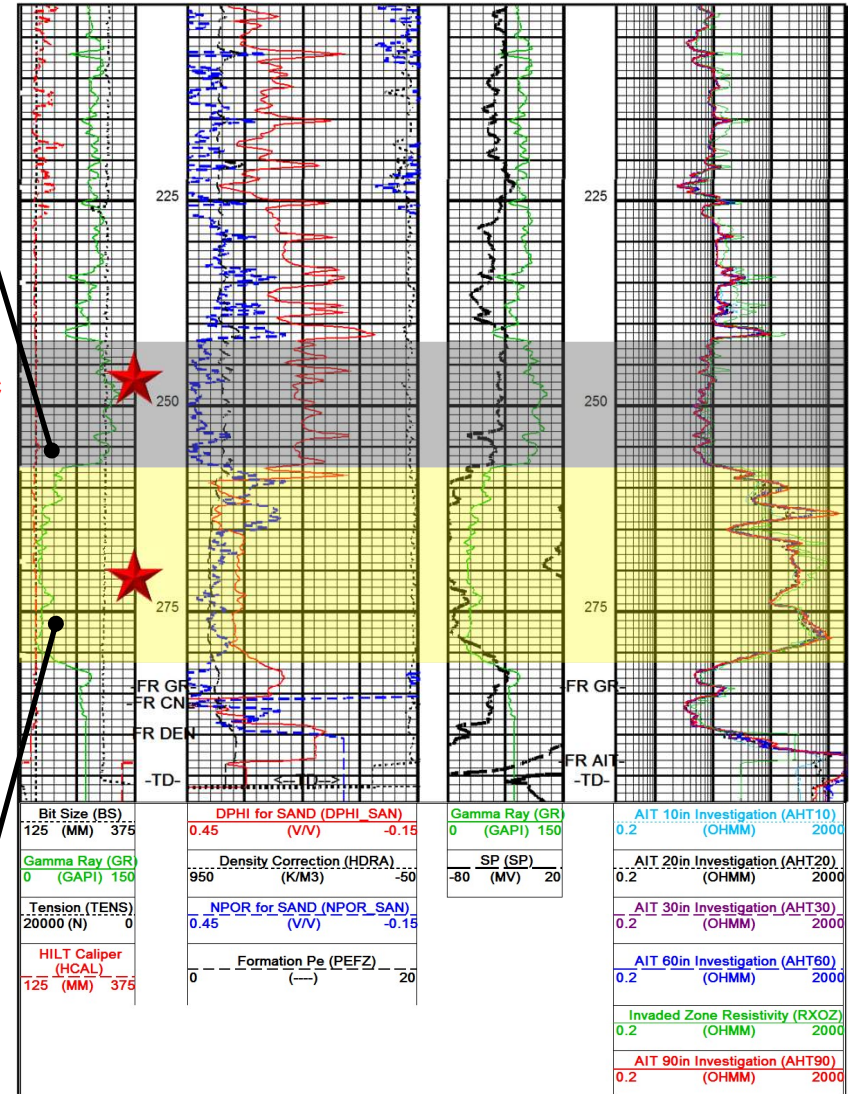
Caprock mini-frac

Oil sand mini-frac

## Oil sand - Wabiskaw Sand



## 1AA/14-31-094-17W4/0 Well Log

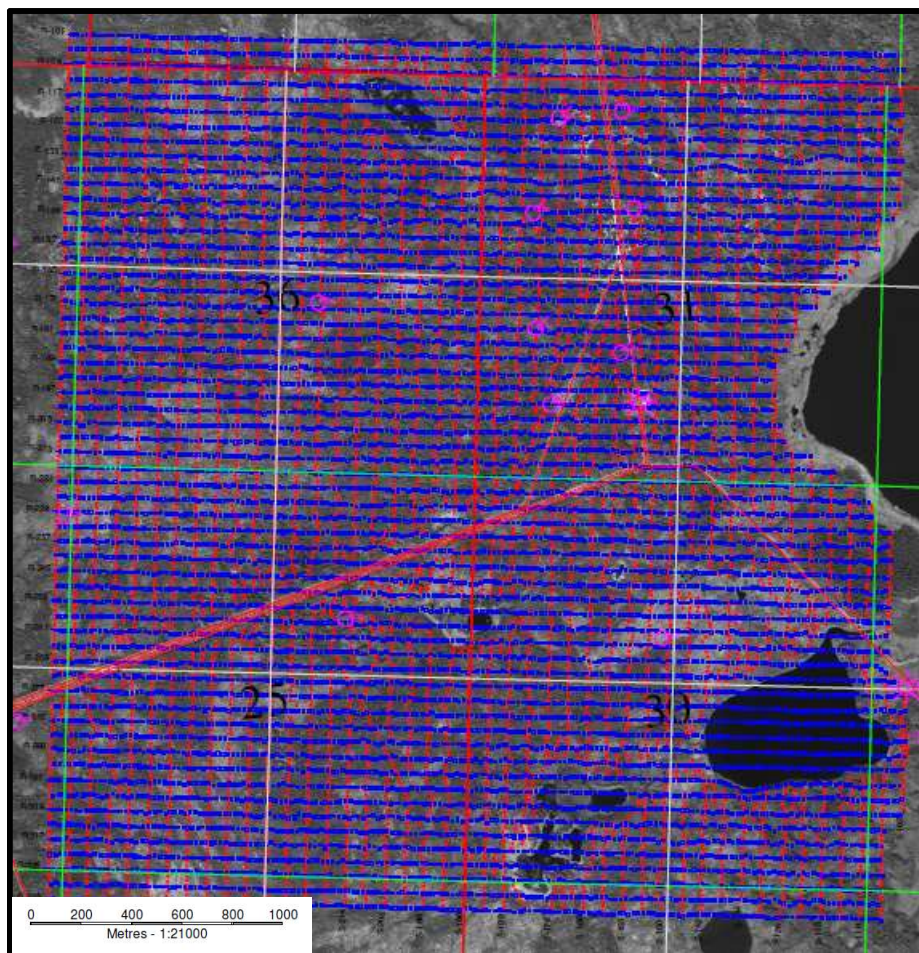




# 3D Seismic Survey and Acquisition Parameters

- No new seismic data acquired in this reporting period

## Survey Layout



## Acquisition Parameters

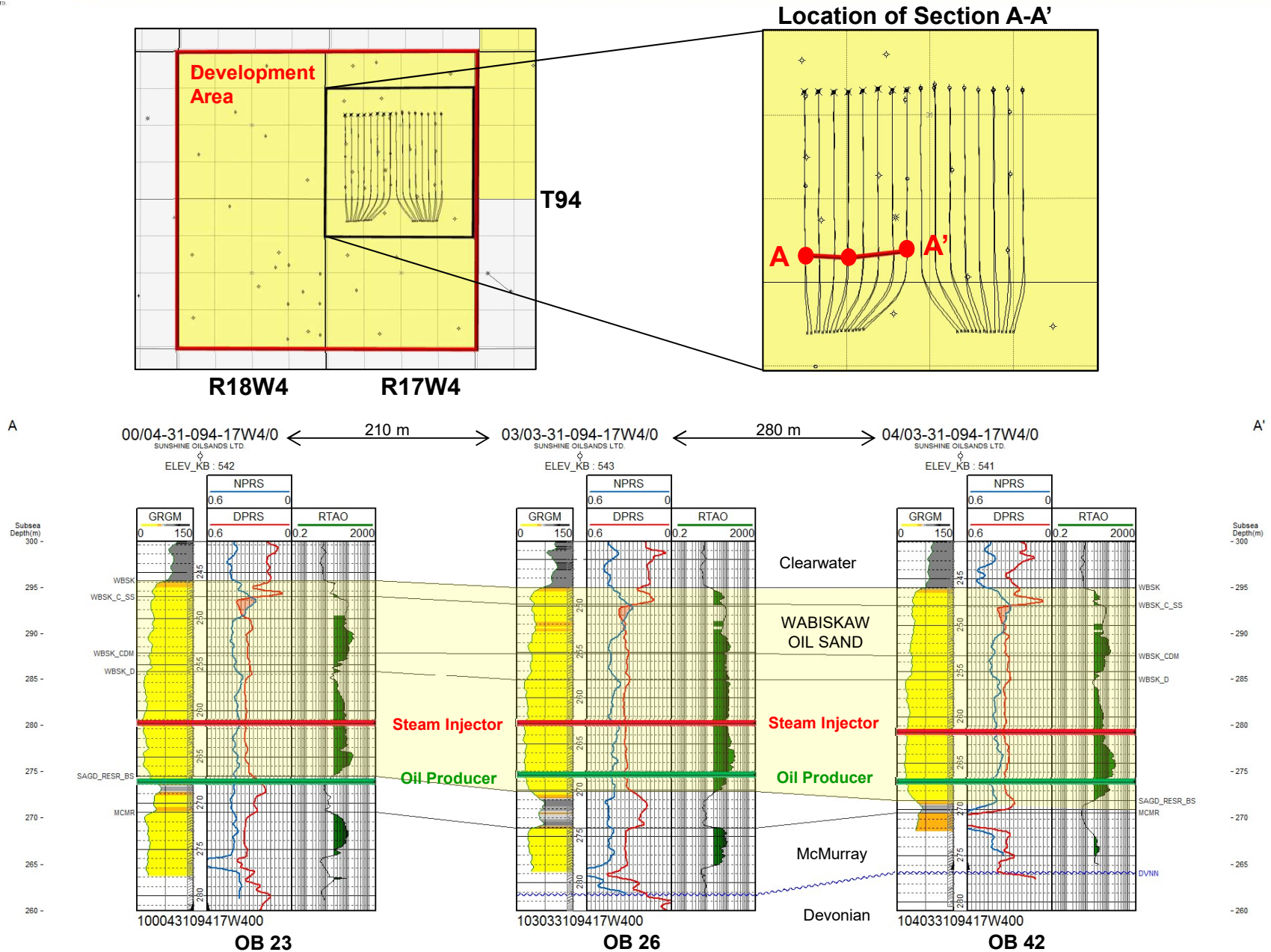
Area 10.7 (km <sup>2</sup> )			
Source Information		Receiver Information	
Source interval (m)	20	Receiver interval (m)	20
Source line interval (m)	80	Receiver line interval (m)	60
Line orientation	N-S	Line orientation	W-E
Total km of line	167.1	Total km of line	194.9
Number of source points	7078	Number of receiver points	9681
Source depth (m)	6		
Source type	Dynamite		



## 4-D Seismic

- As measured on the observation wells, the width of the steam chamber is narrow and less than 10 m from the SAGD well pair. Therefore, Sunshine did not plan a 4D seismic acquisition survey in 2021 because it is difficult to image a small steam chamber in the seismic data
- While there are no plans in 2022 to conduct a 4D seismic survey, Sunshine will consider a 4D seismic survey when it is appropriate and provides an advantage for resource recovery

# Cross-Section A-A' of the Active Development Area



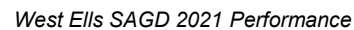
West Ellis SAGD 2021 Performance





\*Production to December 31, 2021

FVF = Formation Volume Factor = 1.005





## Average Reservoir Properties for Development Area

Property	Value
Bitumen saturation (%)	71
Porosity (%)	33
Grain size	Fine to medium
Net pay (m)	15.2
Horizontal perm. (D)	2.4
Vertical perm. (D)	1.7
Reservoir pressure (kpa)	600
Reservoir temperature (°C)	9
Reservoir depth (m TVD)	265
Bitumen viscosity (cp)	> 1 million
Well length (m)	800
Well spacing (m)	70

# Surface





- No major facility modifications during this reporting period





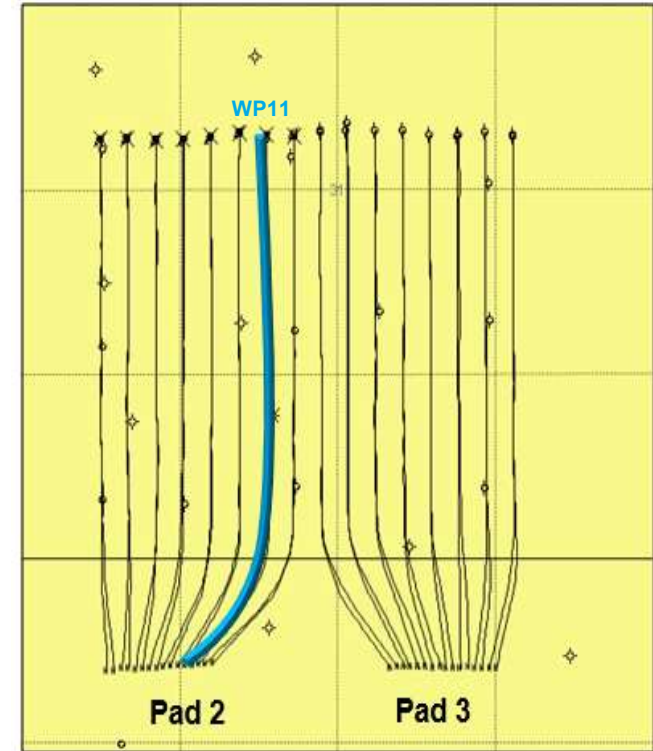
## Bitumen Production & Steam Injection

- Production was suspended on April 1, 2020
- There was zero bitumen produced and zero steam injected in the reporting year

# Historical & Upcoming Activity

## Summary of Suspension Activity

- Well Pair 11
  - Has been suspended since May 1, 2019 and this suspension impacted production from well pairs 10 and 12
  - It was not economic to fix the well in 2021
  - 226,723 m<sup>3</sup> of remaining reserves
- Pad 2 (Temporarily suspended)
  - 4 ESPs were replaced in Q4 2021
  - Production will resume in Q2 2022





# Regulatory and Operational Changes

Date	Approval/Amendment	Activity
April 2021	WA Licence No. 00316770	Renewed
August 2021	EPEA Approval No. 00266890	Renewal application submitted

## Notes

- o EPEA – Environmental Protection and Enhancement Act Approval
- o WA - Water Act



## Regulatory and Operational Changes

In this reporting year there were:

- The suspension of production in April 2020 has materially affected scheme performance, energy or material balances
- No technological innovations or pilots were conducted



## Lessons, Success and Failures

- There were no major failures/incidents reported at the site
- 2021 was another challenging year. Despite the pandemic and difficult market conditions, West Ells continued to reduce operating cost by suspending production. With the pandemic nearing an end and improving market conditions, Sunshine is looking to resume production in Q2 2022
- Operating West Ells with no bitumen production and reduced staff proved to be a challenge. The team successfully maintained West Ells in good condition so production can resume in Q2 2022
- The lack of continuity in knowledge and experience due to reduced staff has impacted the smoothness of operation. Refilling positions with experienced personnel post-pandemic is also a challenge. Sunshine can learn and improve from this experience
- Communication is the key to success. Sunshine's staff work closely together to overcome challenges and adversities



## Compliance History – Approval Contraventions

- The following list summarizes the three reportable releases in this reporting period

Date	CIC #	Description	Remediation
10-Jan	0375056	1.0 m <sup>3</sup> of boiler blowdown water/condensate released due to extreme cold ambient temperatures and frozen piping	The released fluids were recovered and recirculated through the process
21-Feb	0376324	4.0 m <sup>3</sup> of high quality boiler feed water released in Pop Tank Building due to extreme cold ambient temperatures and frozen piping	No remediation required
01-Mar	0376554	Approximately 7.0 m <sup>3</sup> of oily water was released inside the clean oil building due to extreme cold ambient temperatures and frozen piping	The released fluids were recovered and recirculated through the process





## Future Plans

- Sunshine plans to resume production in Q2 2022
- Continue to fully demonstrate the reservoir productivity before advancing to Phase II (10,000 bpd production)



## Contact

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