阳光油砂

SUNSHINE OILSANDS LTD.

Sunshine Oilsands Ltd.
BA Code A2TF

WEST ELLS SAGD

Scheme No. 11764G
AER In Situ Performance Presentation 2018

Presenters

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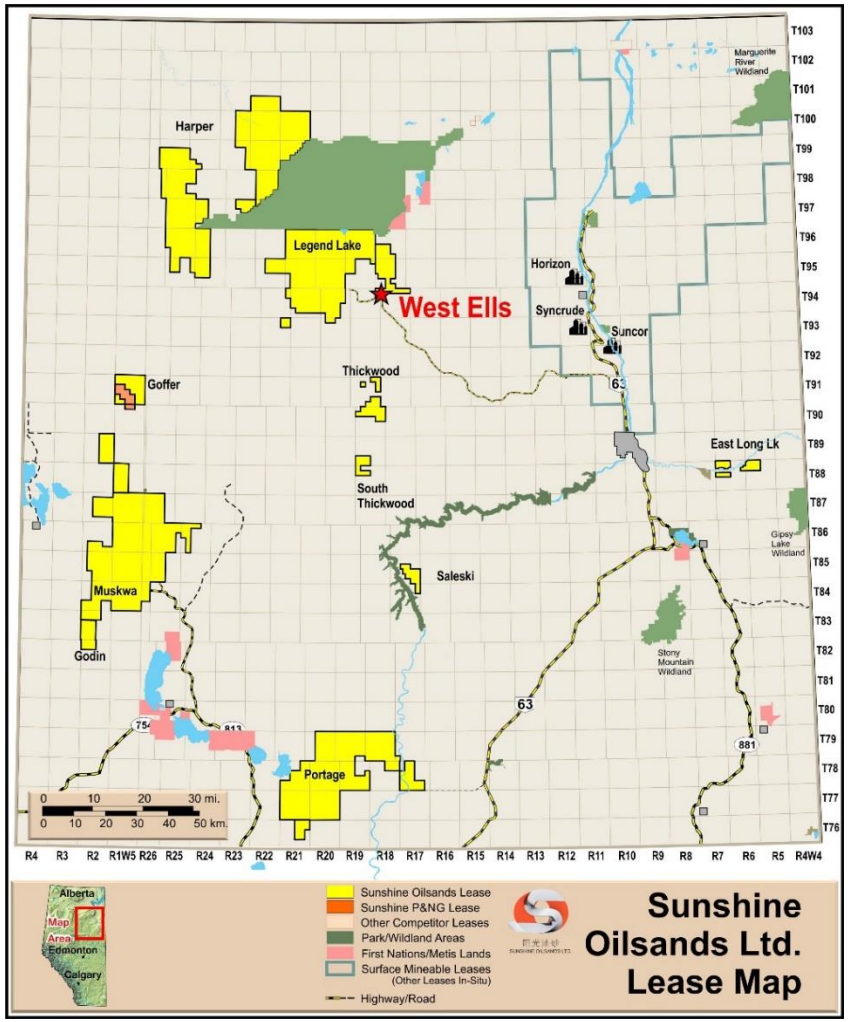
- Tye Bietz – Sr. Regulatory Analyst

Table of Contents

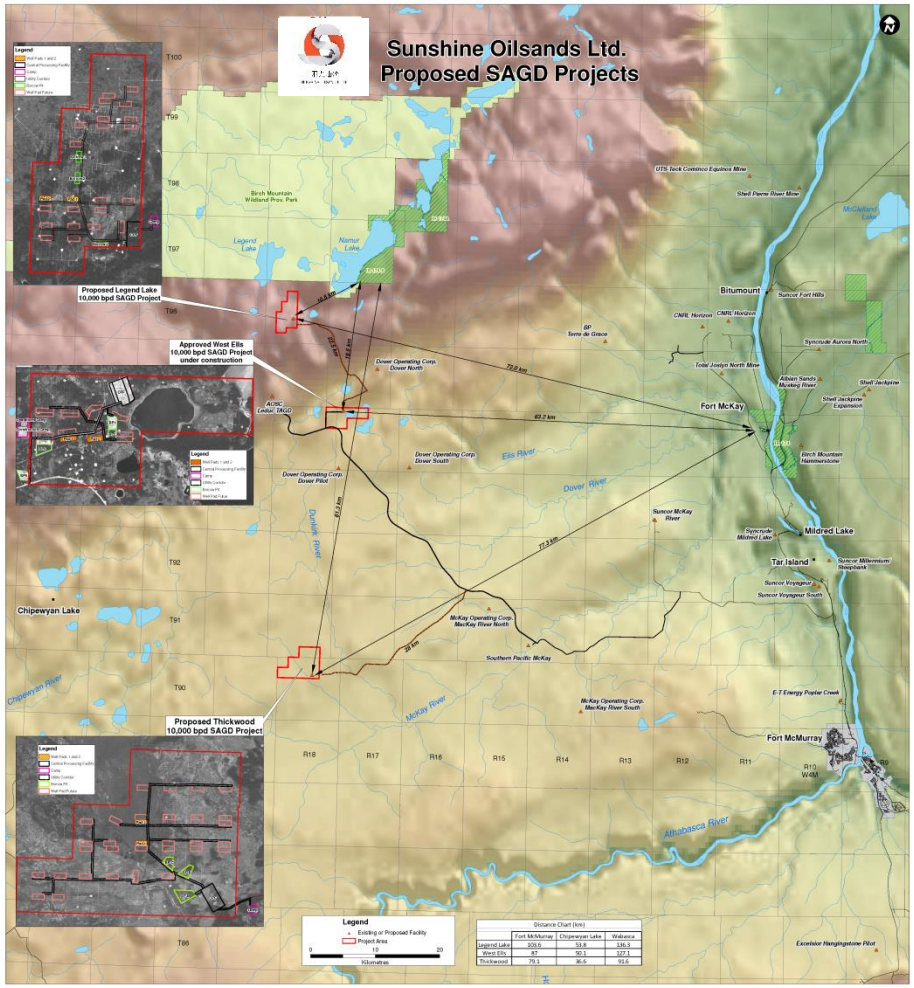
Overview

With almost 1,000,000 acres of oil sands and PNG leases, Sunshine holds current Scheme approvals for two 10,000bbl/d SAGD projects, and a third in the application process.



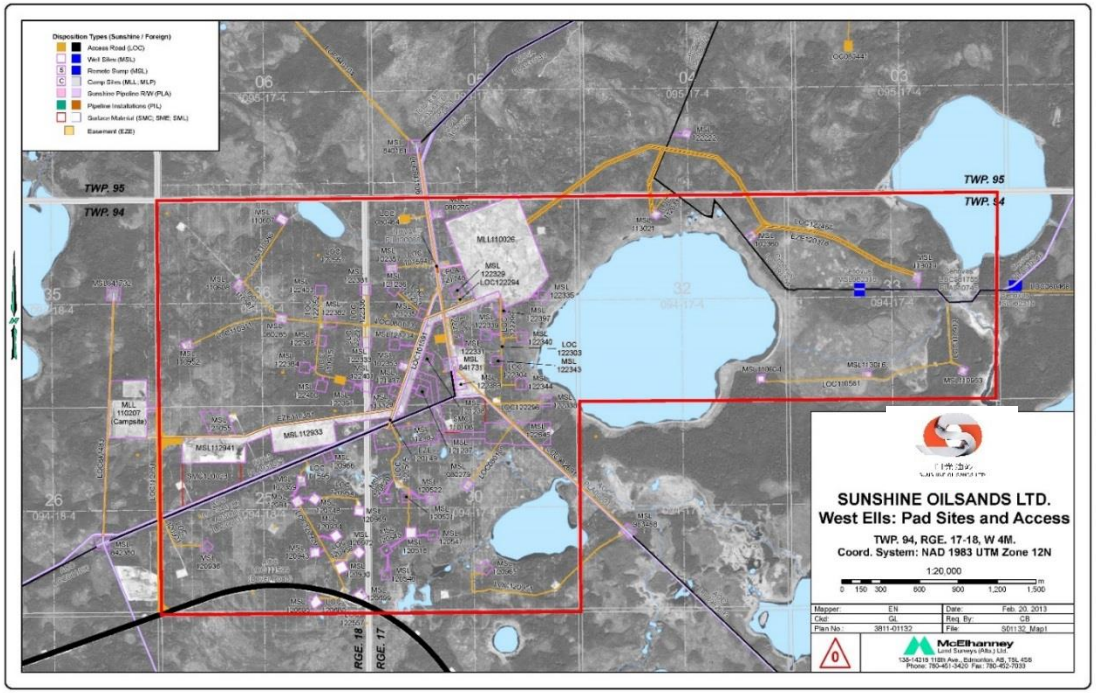
Projects Status

Sunshine's main focus is currently West Ells, but Sunshine holds an approval for its Thickwood 10,000bbl/d SAGD project and is in the application stage for the Legend Lake 10,000bbl/d SAGD project

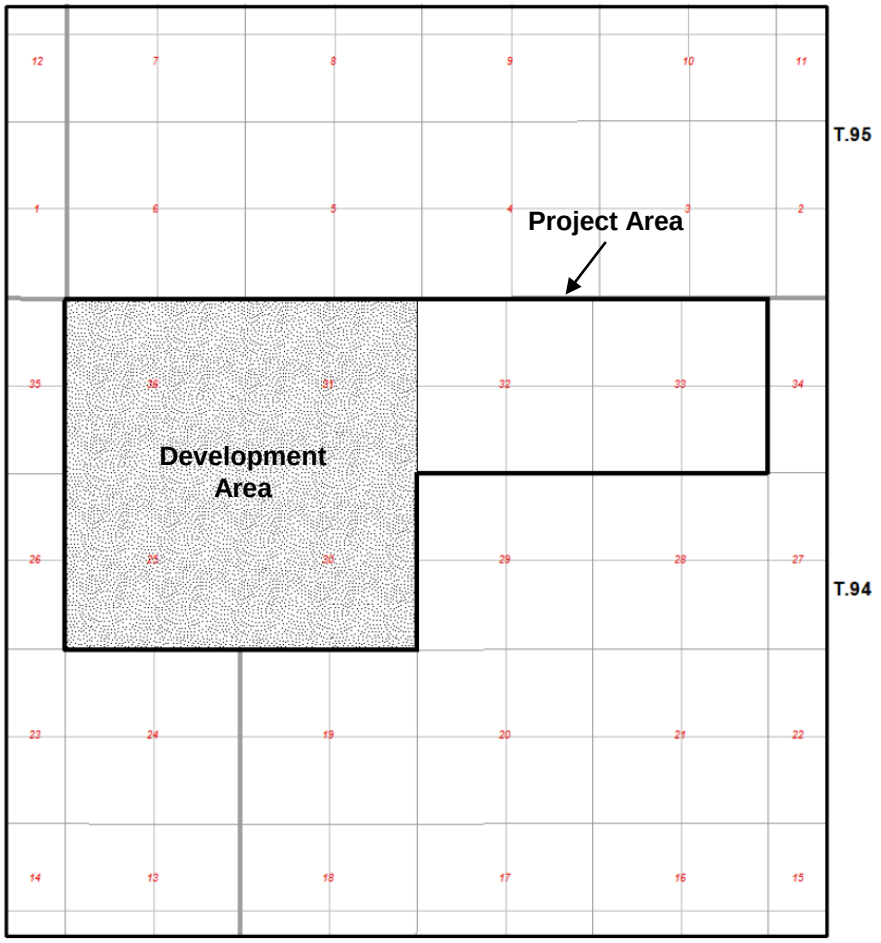


West Ells SAGD

- 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 already 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
- First production December 2015



Development and Project 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

Development timeline – Scheme 11764

- Mar 31, 2010 - West Ells application submitted to the AER (formerly ERCB)
- January 26, 2012 – Commercial Scheme Approval 11764 received
- February to September 2012 – All season road access construction
- October 2, 2012 – Site construction commences at West Ells
- December 2012- March 2013 – Wells drilled for Pad 2 and Pad 3
- 2013 – Civil work completed, general CPF construction of tank farms, buildings, evaporator and, construction of Operations camp
- 2014 - mid-2015 – Work completed on steam and emulsion lines to pads, final construction and QA/QC
- September 22, 2015 – First Steam at West Ells
- December 7, 2015 – First production from West Ells

Scheme Amendments

- Pad alignment – 11764A and 11764B
  - May 30, 2012 – Amendment 1 filed to change well bore trajectory and pad alignment, approval received February 8th, 2012
  - August 21, 2012 – Amendment 2 filed to change well bore trajectory and pad alignment, approval received October 2, 2012

- Infill wells – 11764C
  - April 8, 2013 – Application submitted for infill wells to improve resource recovery, approval received August 9, 2013

- CPF Changes – 11764D
  - May 28, 2013 – Application filed for minor changes to CPF design such as fuel gas consumption and cold water equivalent for steam, approval received August 30, 2013

Scheme Amendments

- NCG Co-injection – 11764E
  - October 24, 2013 – Application for NCG co-injection during Phase 1 filed, approval received June 19, 2014

- NCG Co-injection Full Field – 11764F
  - July 18, 2014 – Application for NCG Co-injection full field filed, approval received March 2, 2015

- Maximum Operating Pressure – 11764G
  - October 29, 2015 – Application filed to increase the MOP, this brought it in line both with Industry standard (80% cap rock fracture pressure), and with previously filed and approved amendments to the Directive 051 Injection approval for both Phase 1 and 2, approval received March 10, 2016

EPEA Approval Amendment

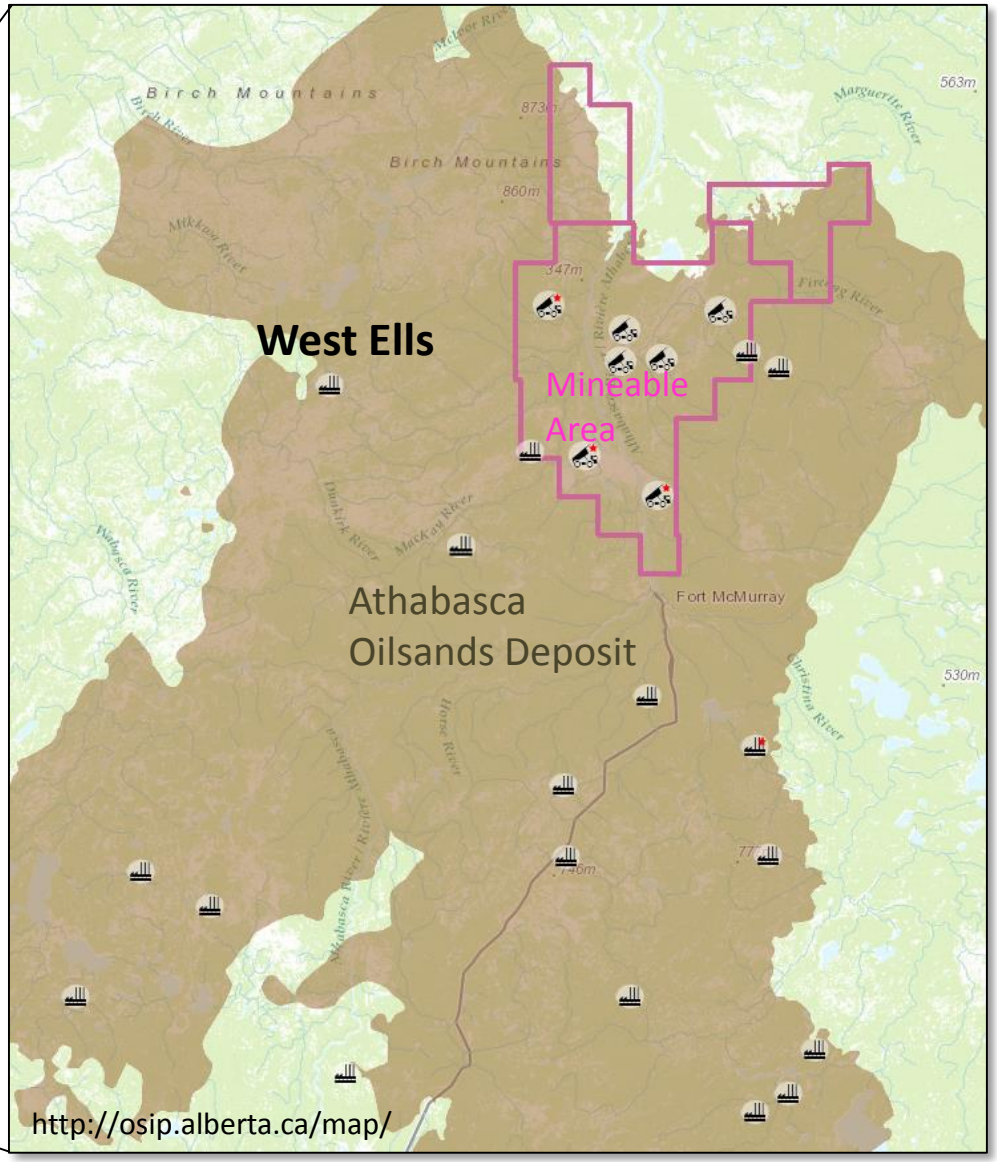
- CPF design changes
  - December 20, 2012 – Amendment application filed for minor design changes to the CPF that would have affected the modeling and emissions limits, approval received July 4, 2013

- Industrial Runoff Pond design correction
  - In response to a supplemental information request Sunshine had indicated that the designed runoff pond included a polyethylene liner. This was misstated as there was never a liner planned for, nor required. Sunshine confirmed that the pond had been built with a compacted clay liner with the appropriate Proctor compaction for a pond of this type
  - February 5, 2015 – Application filed to amend the approval to use the compacted clay liner as originally designed, approval received February 6, 2015

Geoscience

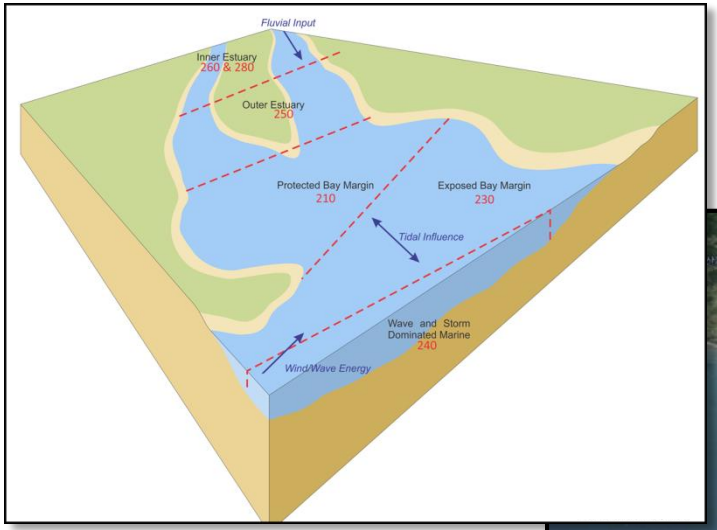
Location within the Athabasca Oilsands Deposit

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

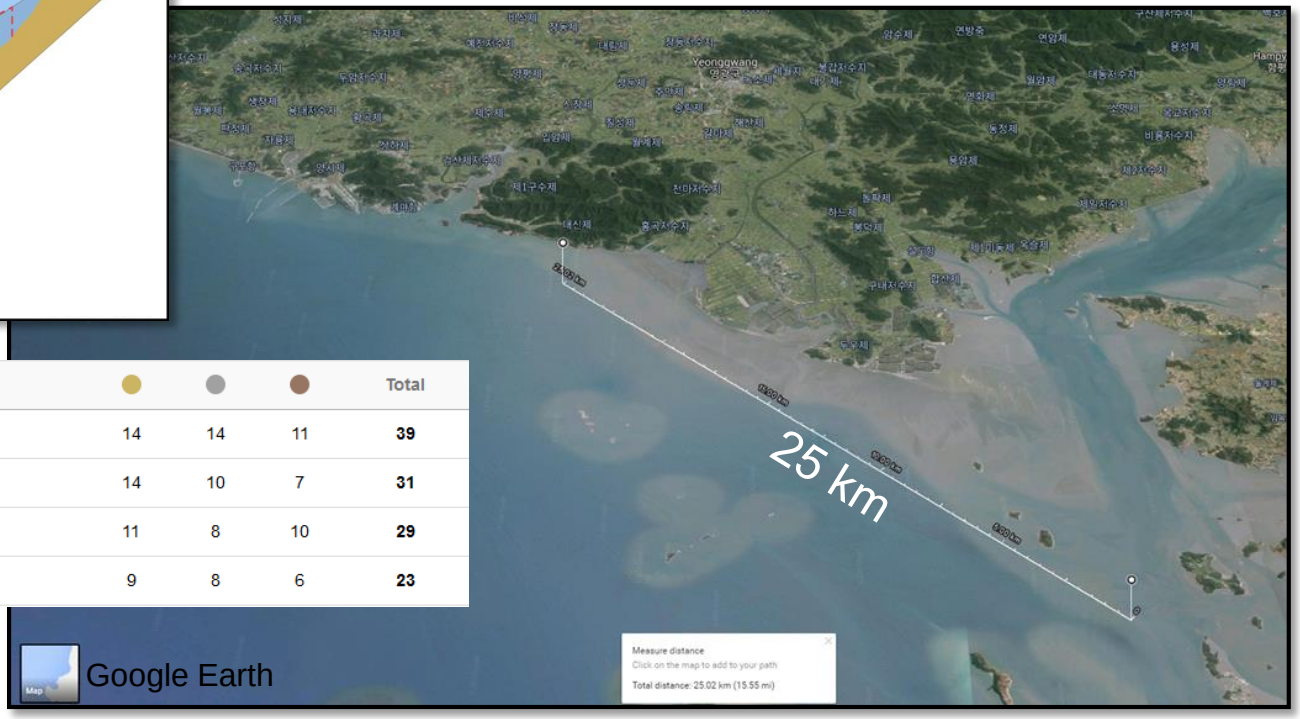


Depositional Setting (Shallow Marine)

West Ells Depositional Model



Modern Analog: Korea

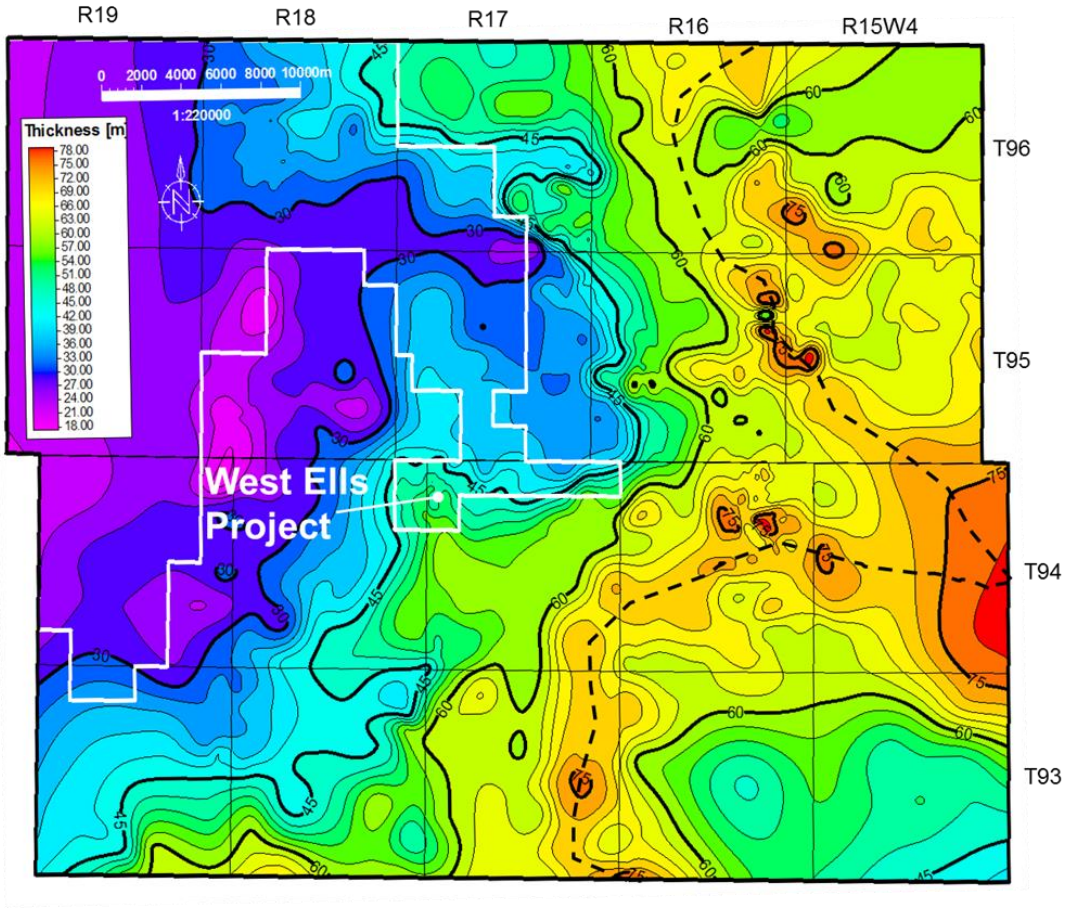


Rank	NOC				Total
1	Norway	14	14	11	39
2	Germany	14	10	7	31
3	Canada	11	8	10	29
4	United States	9	8	6	23

The Wabiskaw sands are laterally extensive and were deposited along the emergent Devonian highs as the Boreal Sea transgressed over the Athabasca Basin.

Isopach Map (Clearwater Marker to Devonian)

"Paleotopographic" map

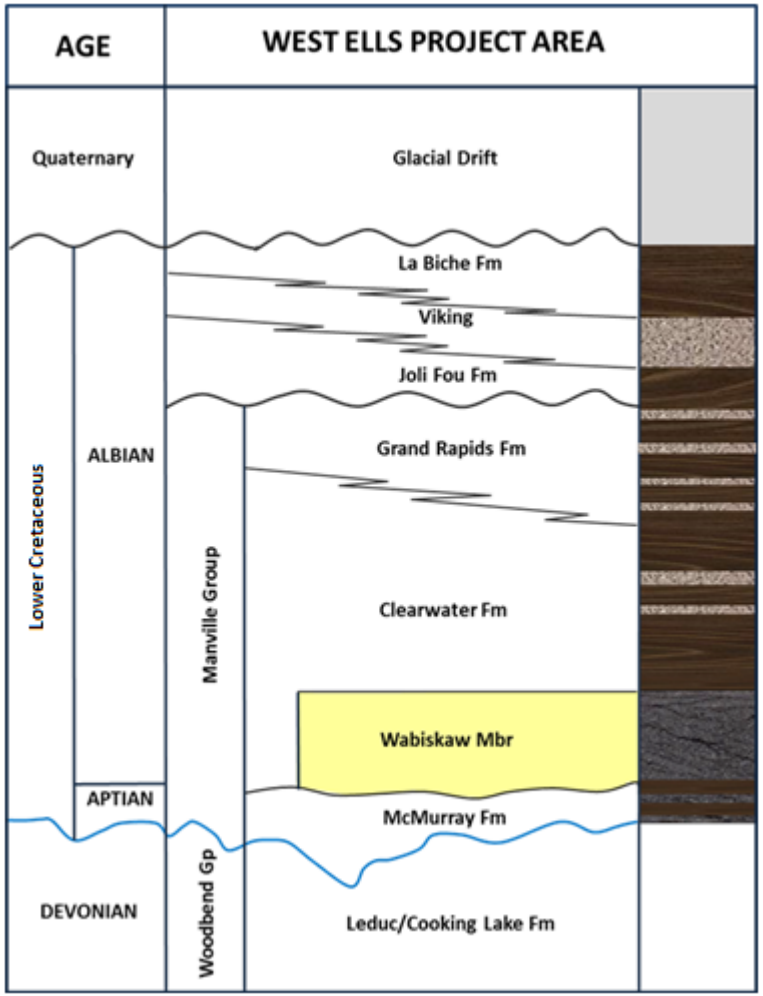


West Ells SAGD Project is located in an embayment in T94 R17 W4M.

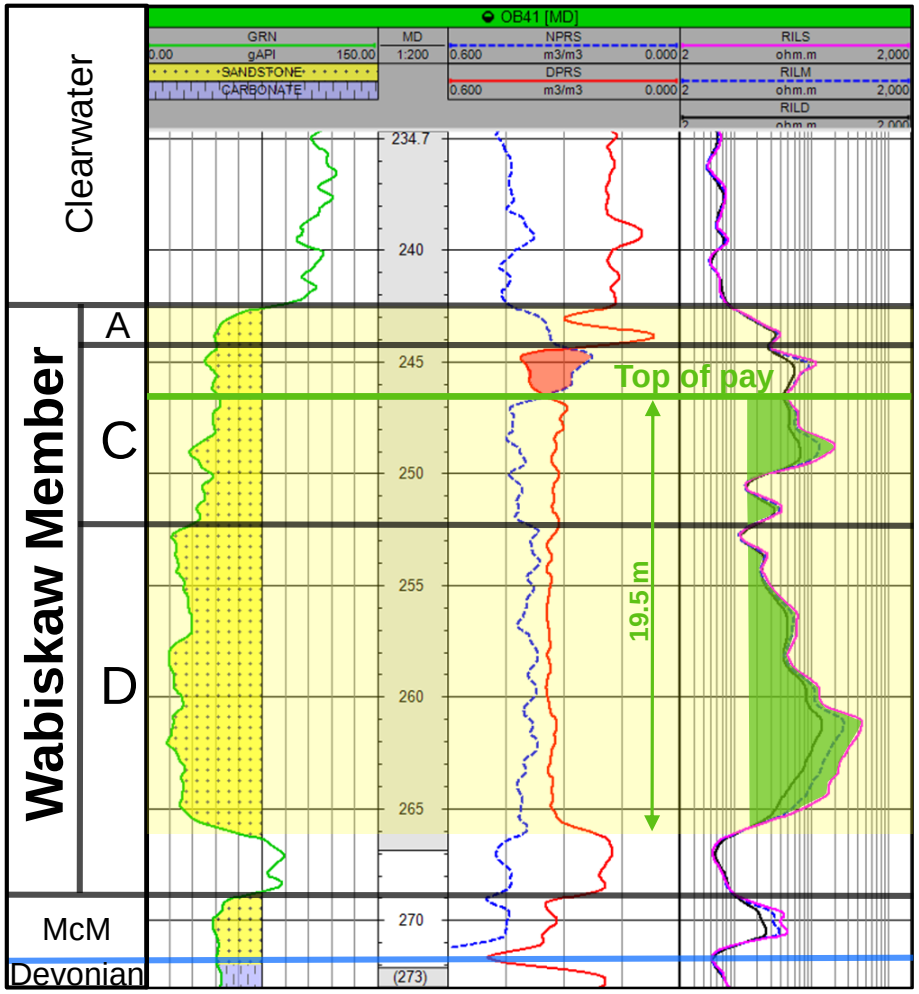
- Reflects paleotopography during the Late Cretaceous.
- Warm colors represent valleys and cooler colors represent highs.
- Major McMurray drainage systems are marked with a dashed line.
- Extensive amalgamated shoreface sands (Wabiskaw A, C, & D) were deposited on the east side of the emergent Devonian strata.

Stratigraphic Chart & Type Well

Stratigraphic chart



Type Well – OB41 (102/06-31-094-17W4)

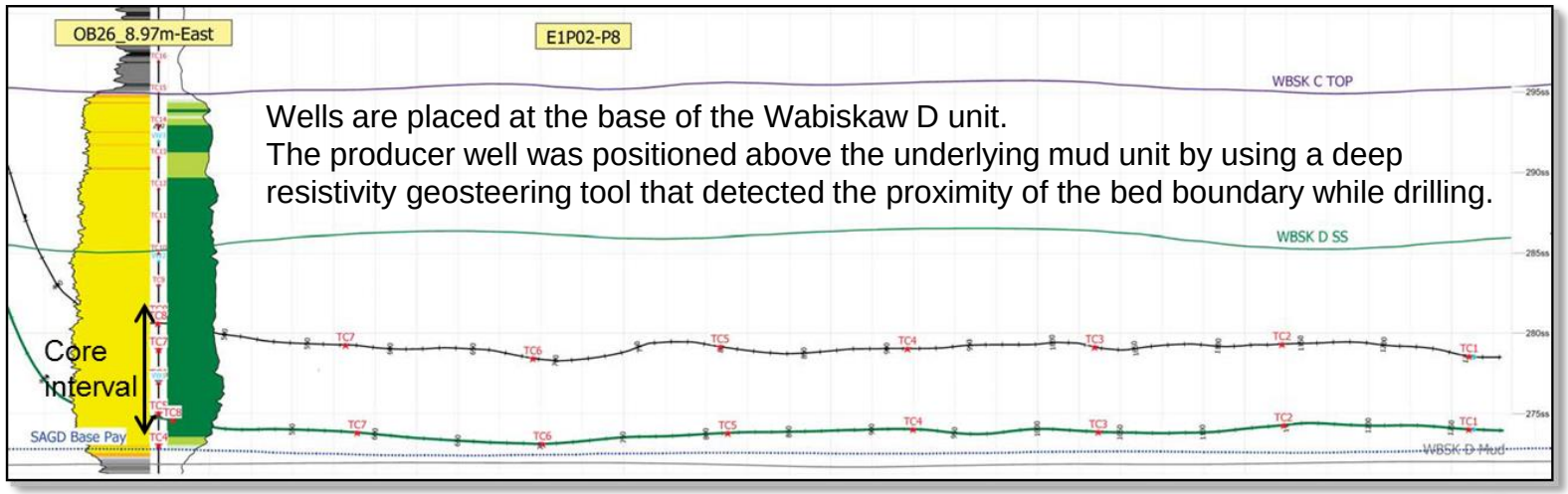


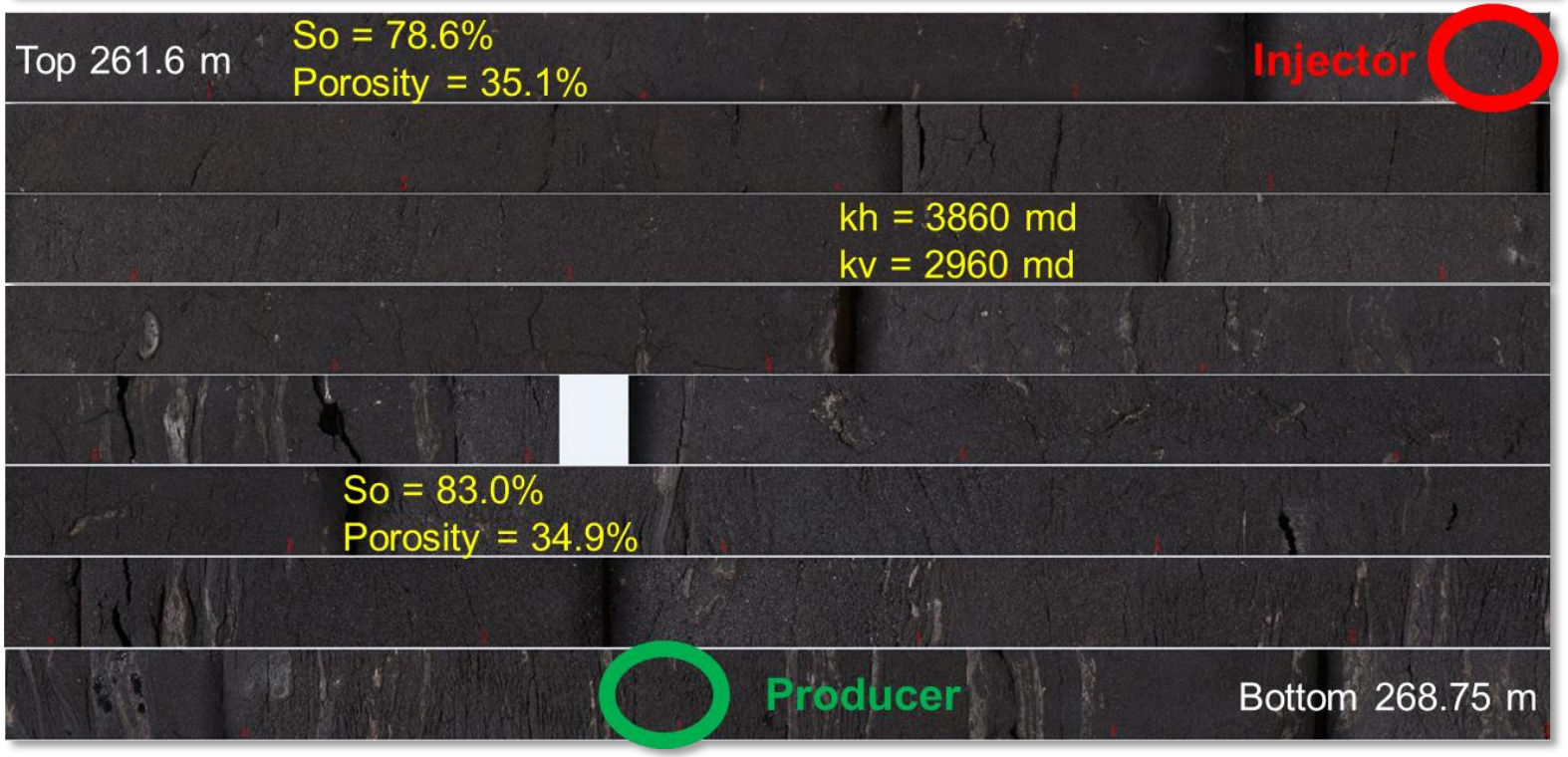
The SAGD wells are located at the base of the Wabiskaw D sand unit.

Average Reservoir Properties for Development Area

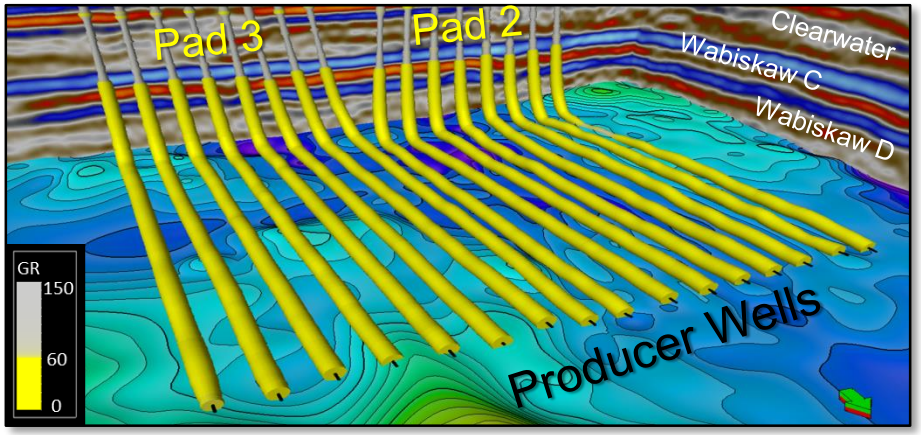
Property	Value
Bitumen saturation (%)	71
Porosity (%)	33
Grain size	Fine to medium
Net pay (m)	15.2
Horizontal perm. (D)	2.4
Vertical perm. (D)	1.7
Reservoir pressure (kpa)	600
Reservoir temperature (^{o}C)	9
Reservoir depth (m TVD)	265
Bitumen viscosity (cp)	> 1 million
Well length (m)	800
Well spacing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

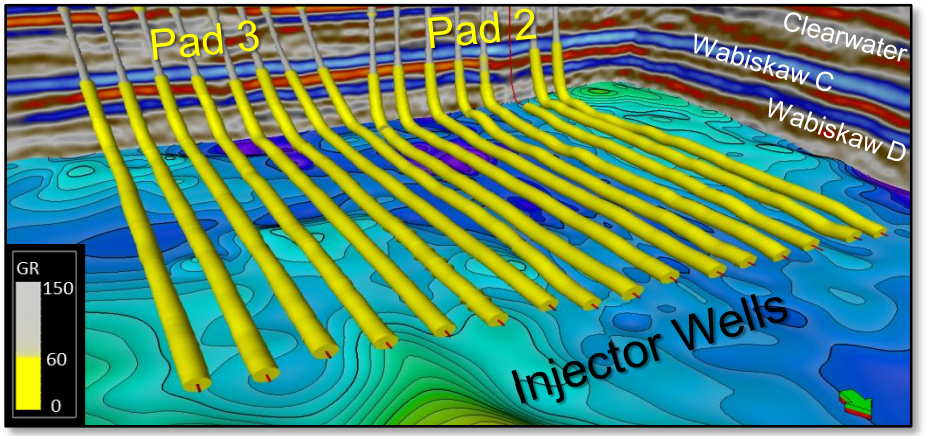
Typical SAGD Well Placement (e.g. Pair 8)





Uniform Gamma Ray Profile on SAGD Wells

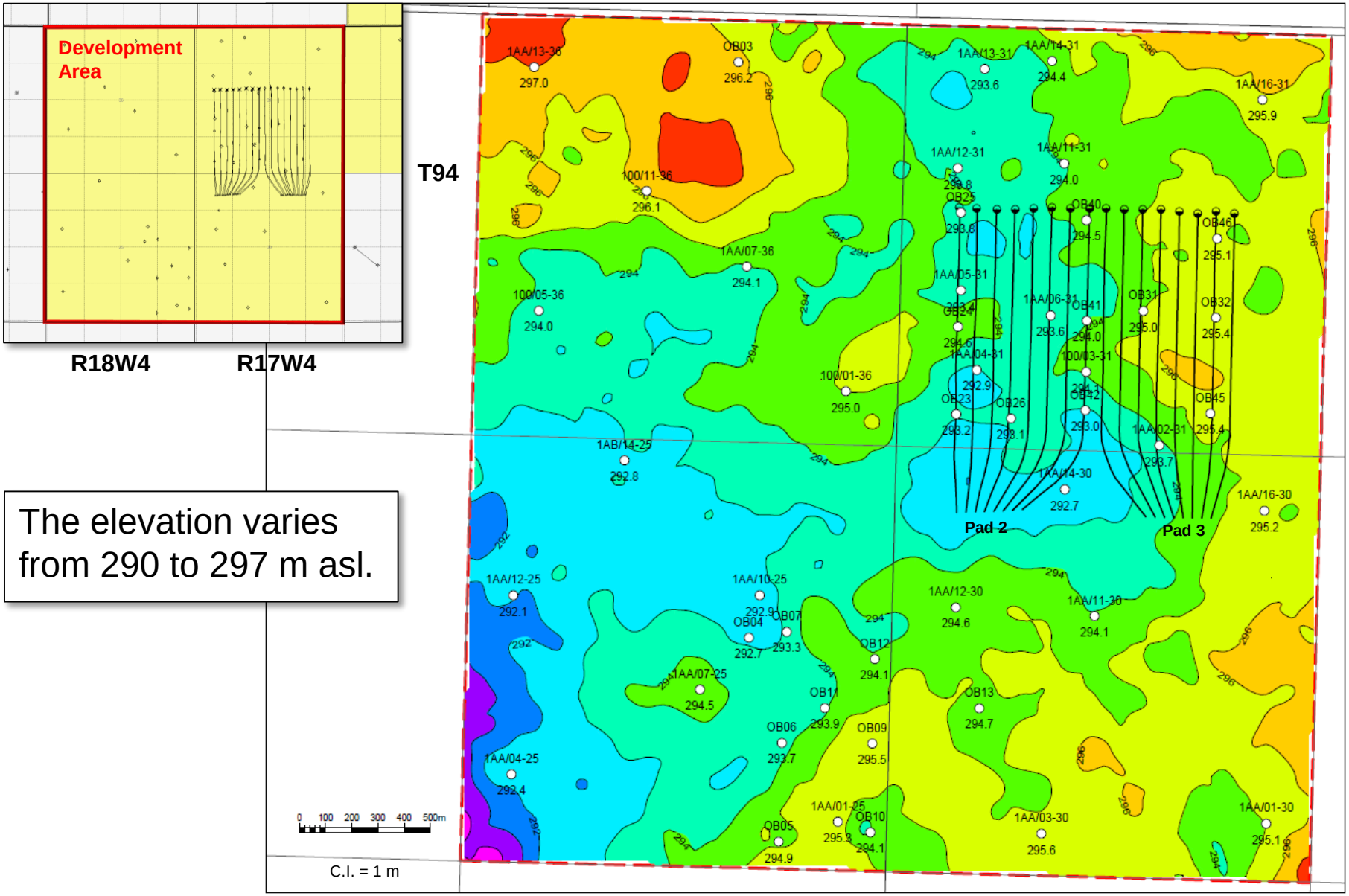




- Uniform gamma ray profile is indicative of a clean sandy shallow marine environment (e.g., shoreface)
- 3D seismic data shows continuity of Wabiskaw reservoir units.

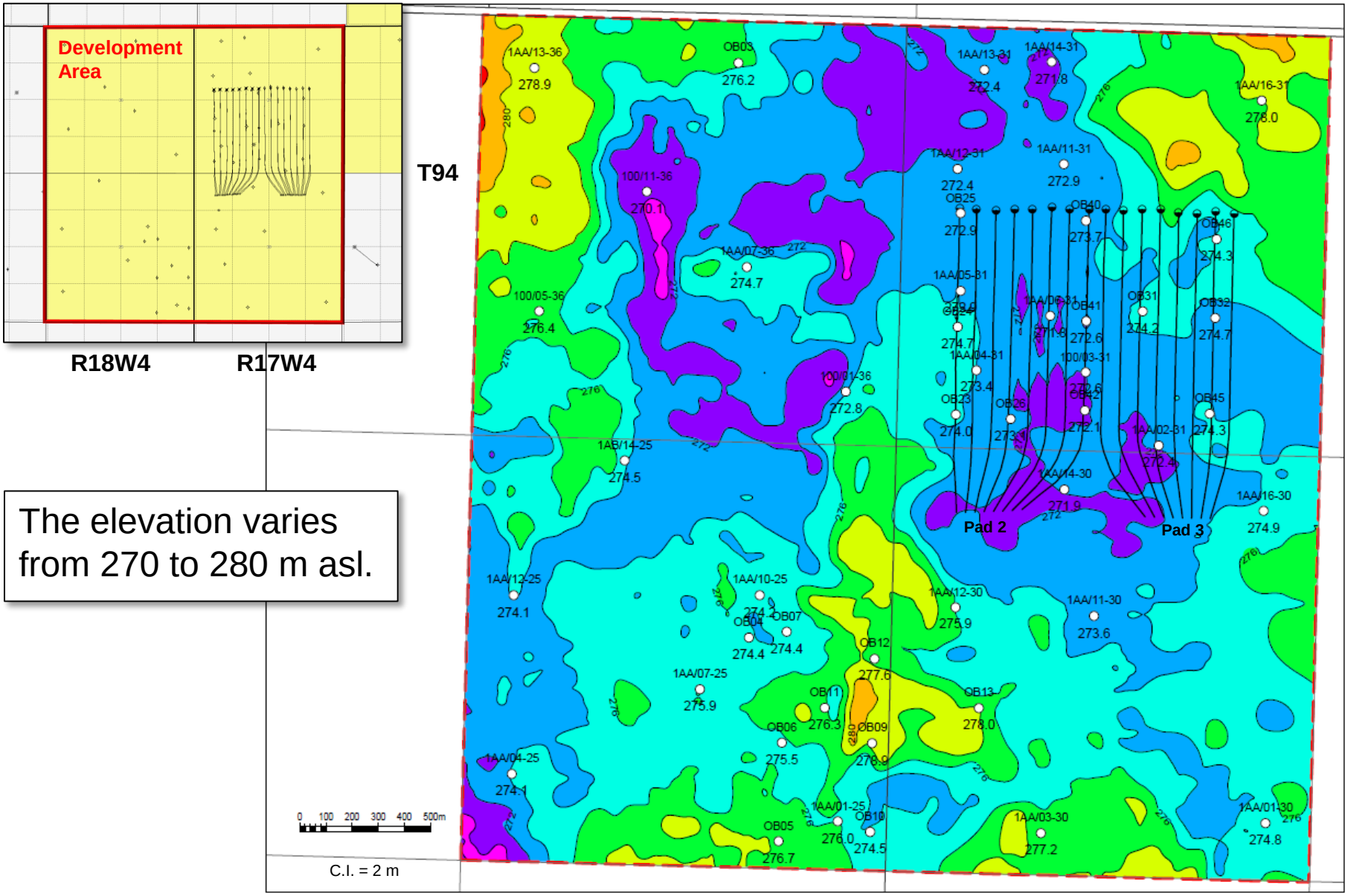
	Percent Effective Producer (GR < 60) (%)	Percent Effective Injector (GR < 60) (%)	Horizontal Well Length (m)	Interwell spacing (m)
Pad 2	99	100	800	70
Pad 3	100	100	800	70

Top of Bitumen Pay Structure Map



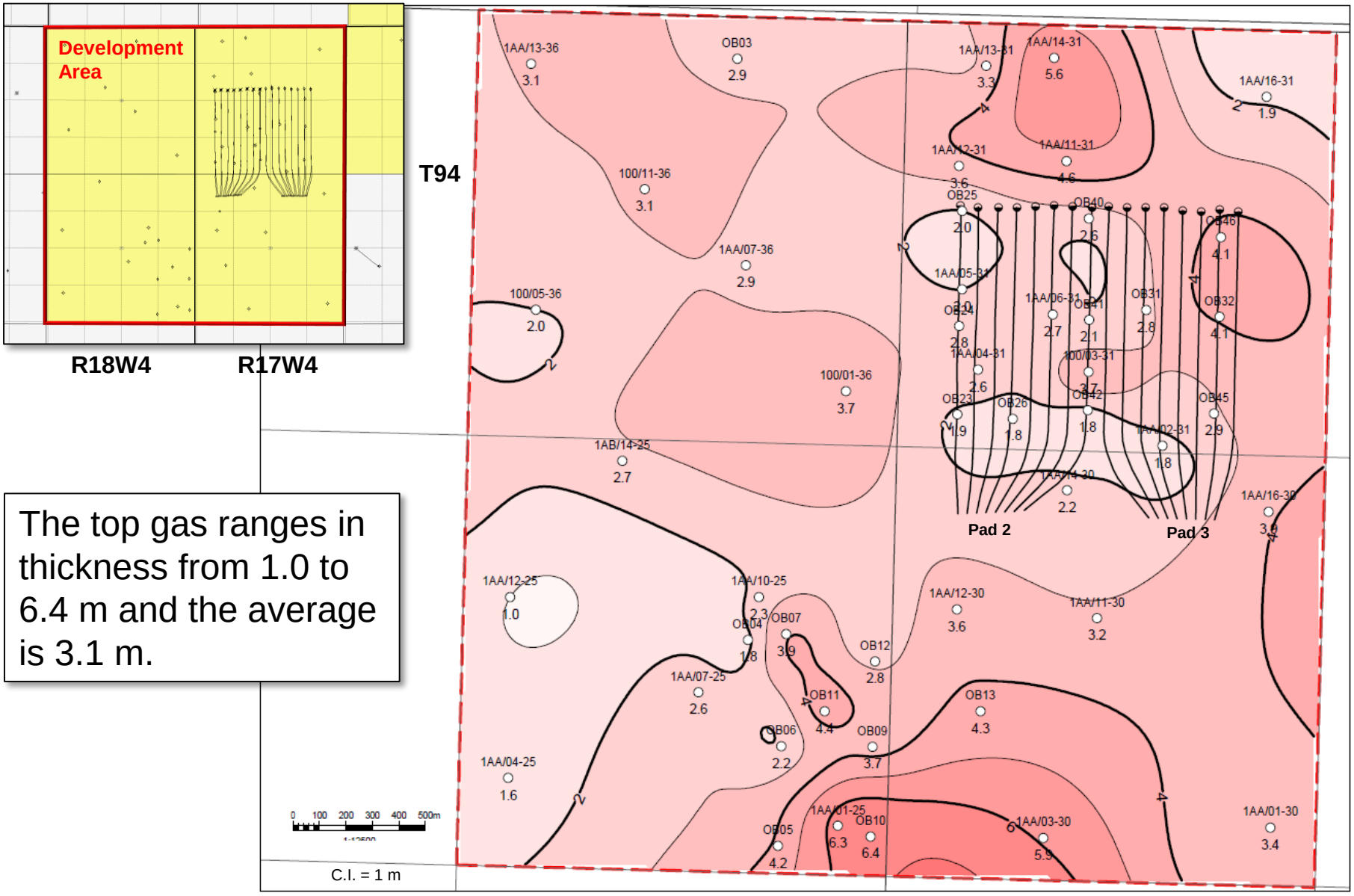
The elevation varies from 290 to 297 m asl.

Base of Bitumen Pay Structure Map



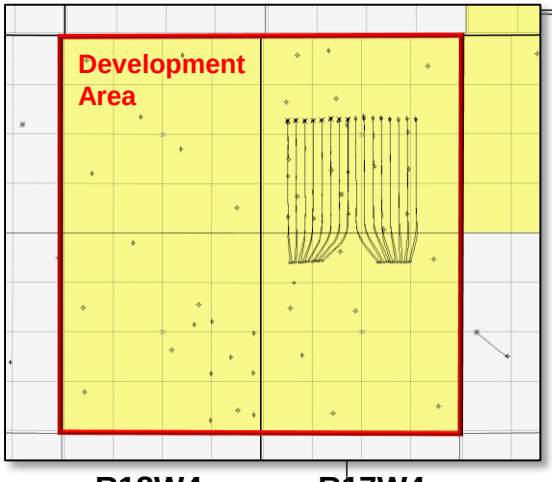
The elevation varies from 270 to 280 m asl.

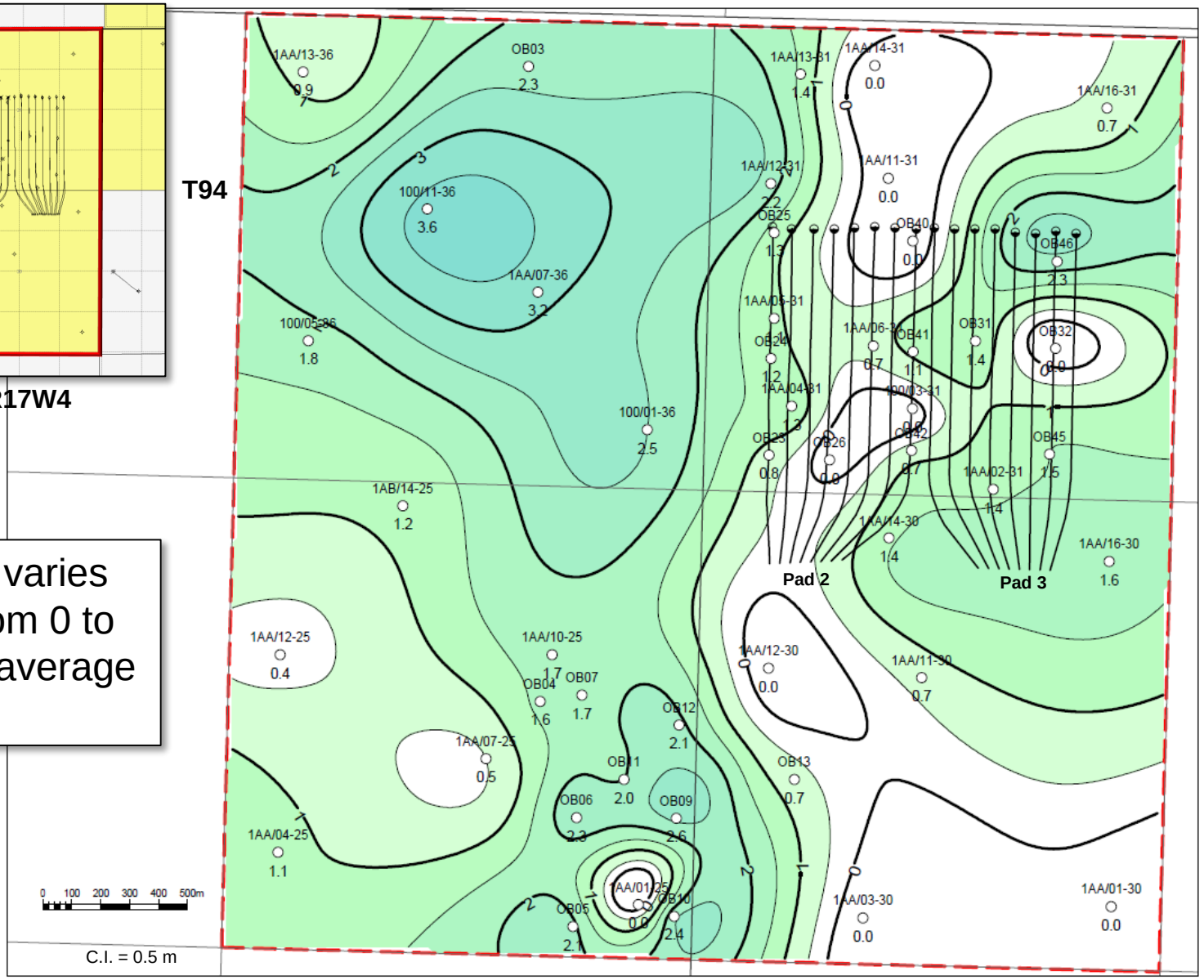
Wabiskaw C Top Gas Isopach Map



The top gas ranges in thickness from 1.0 to 6.4 m and the average is 3.1 m.

Wabiskaw D Lean Zone Isopach Map





The lean zone varies in thickness from 0 to 3.6 m and the average is 1.3 m.

OBIP for Pads 2 & 3 and Development Area

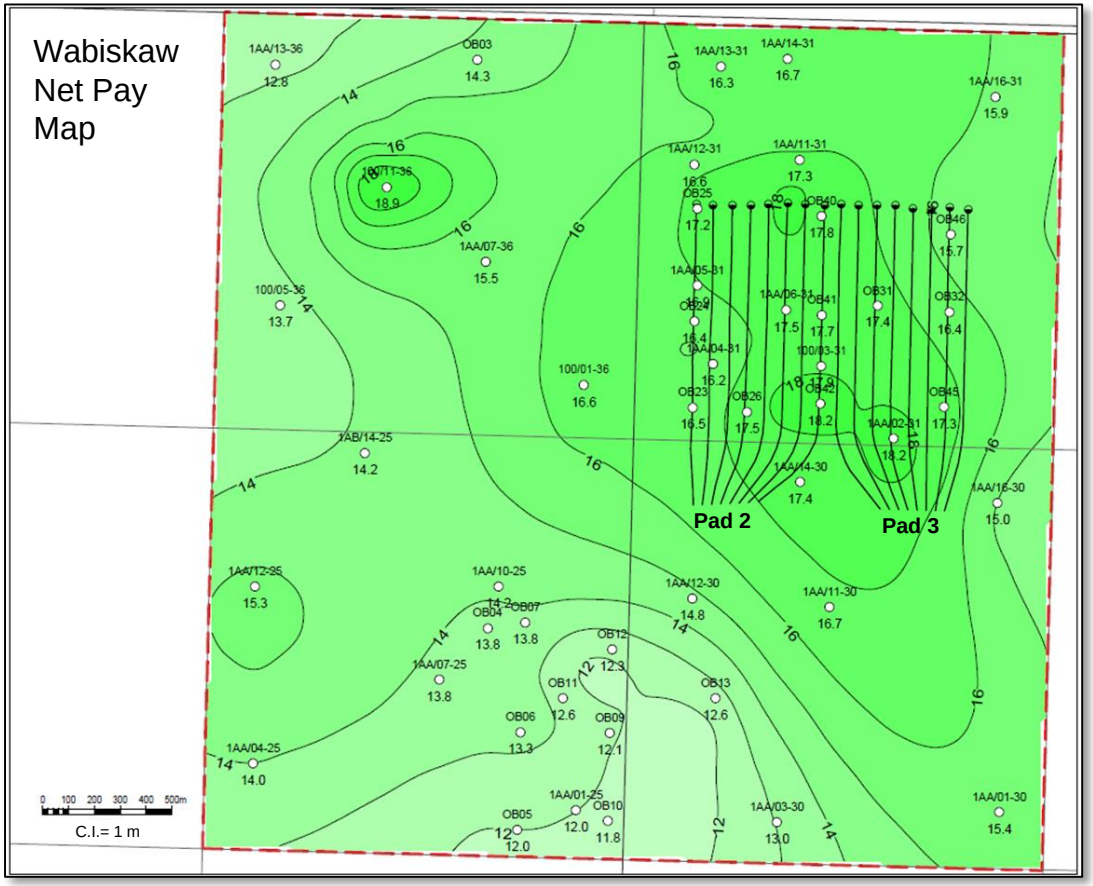
	Number of SAGD Well Pairs	Well Length (m)	Well Spacing (m)	Drainage Area 50m Boundary ($10^3 m^3$)	Average Net Pay above producer (m)	Total OBIP ($10^6 m^3$)	Cumulative Bitumen Produced* (m^3)	Current Recovery Factor (%)	Estimated Recovery Factor (%)
Pad 2	8	800	70	504	16.2	1.87	108,165	5.78	50-60
Pad 3	8	800	70	504	15.4	1.86	0	0	50-60

*Production to December 31, 2017

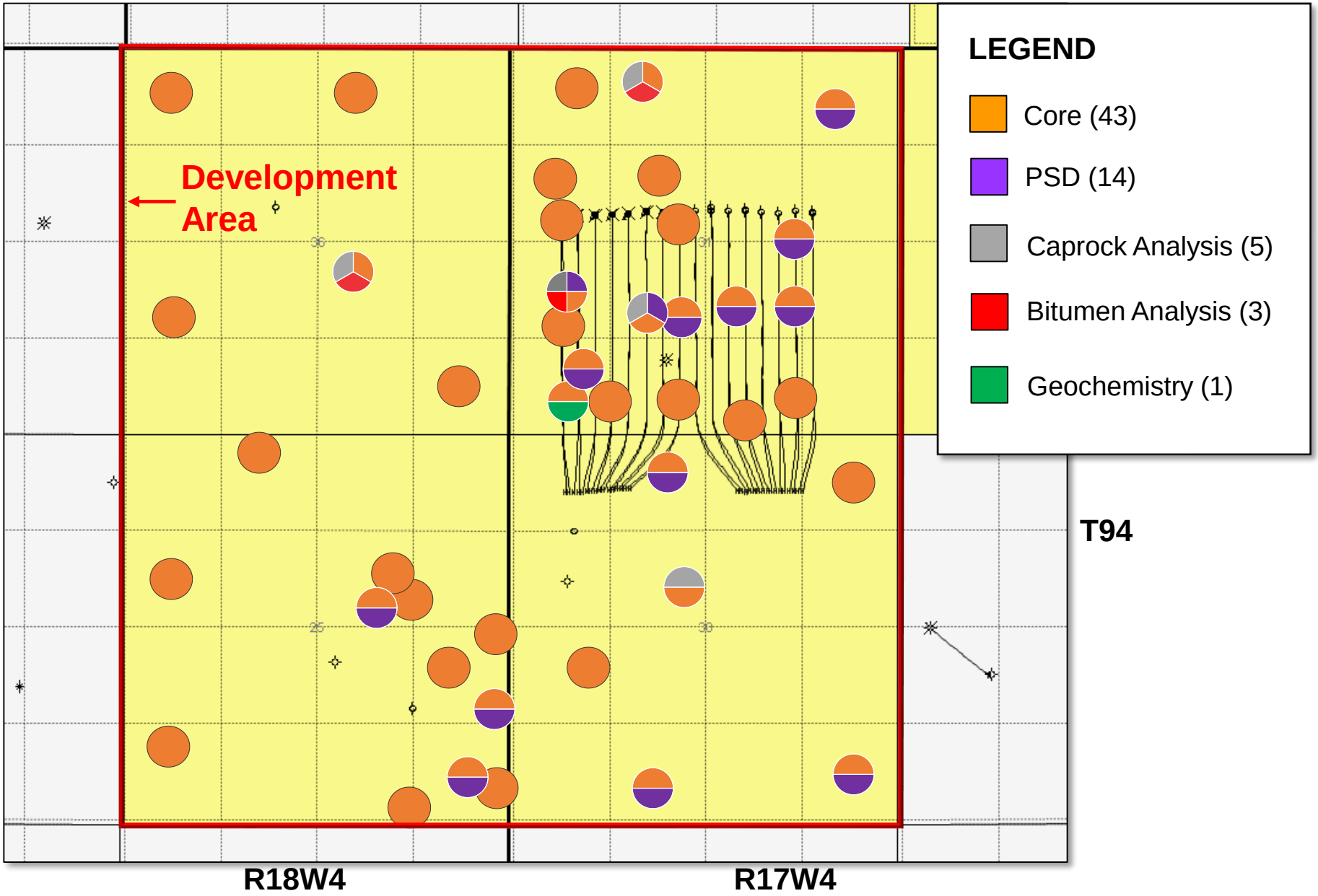
	Area ($10^3 m^3$)	Average Net Pay (m)	Total OBIP ($10^6 m^3$)
Development Area	10,511	15.2	37.2

OBIP = Area x Net Pay x Porosity x Bitumen Saturation / FVF

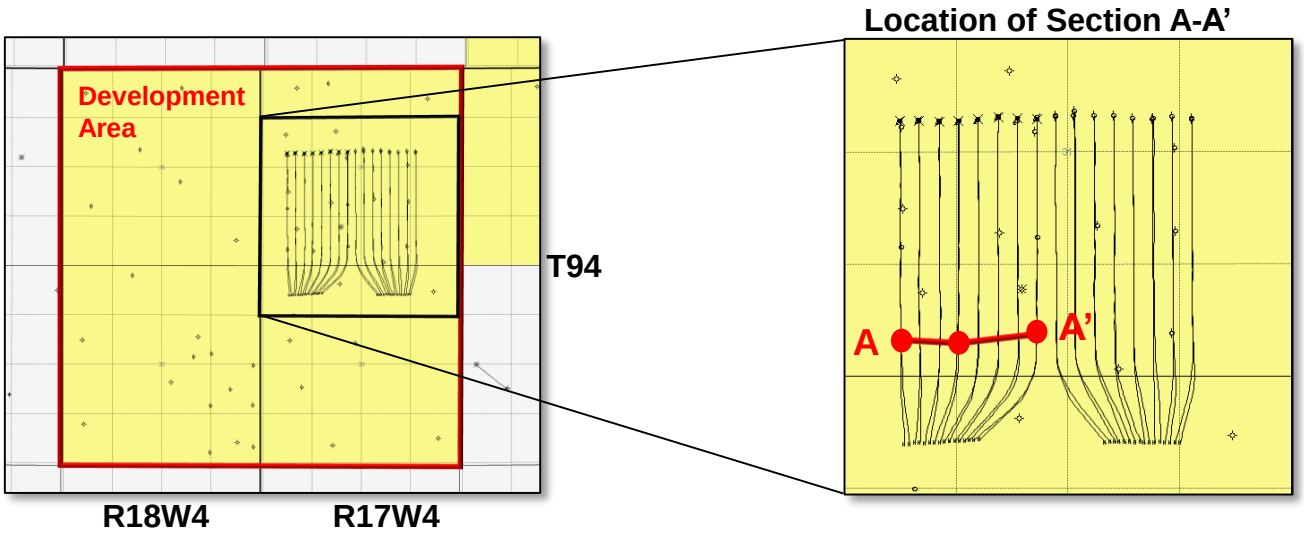
FVF = Formation Volume Factor = 1.005

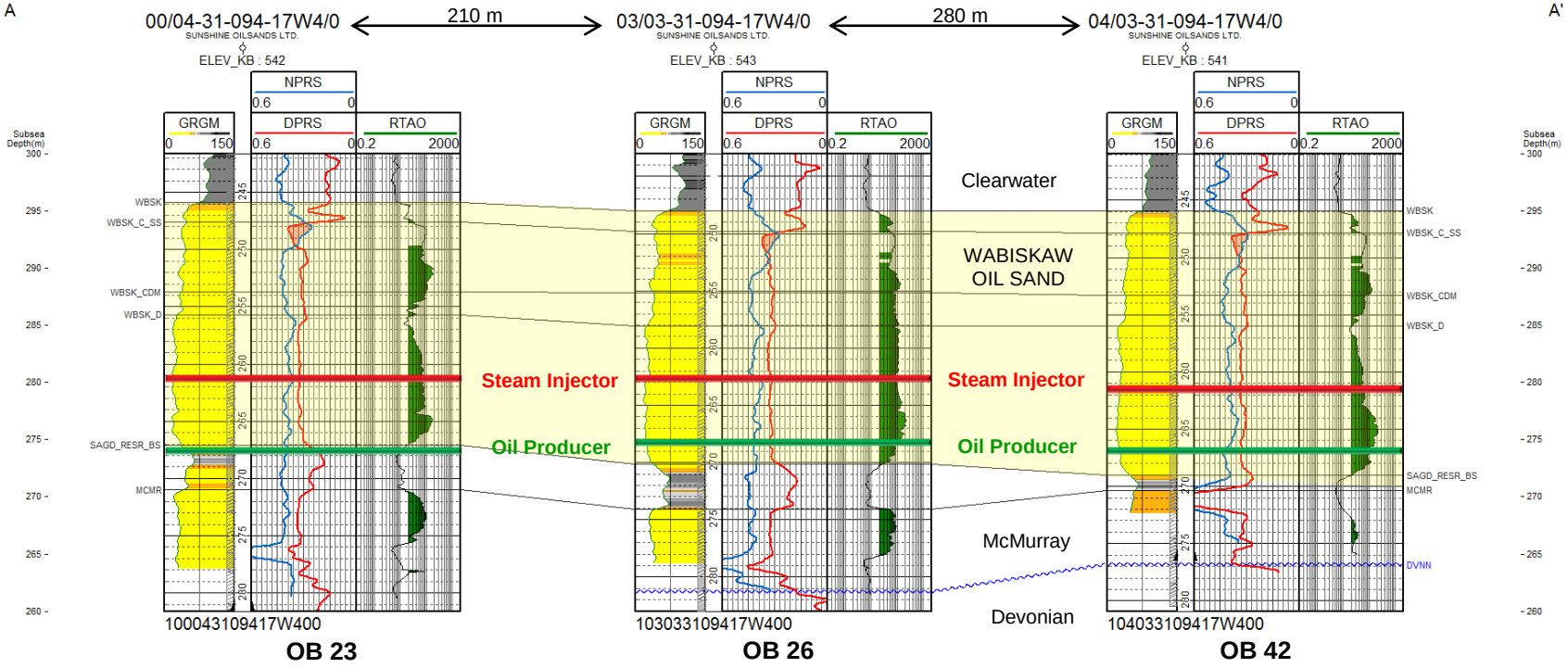


Wells with Core and Special Core Analysis



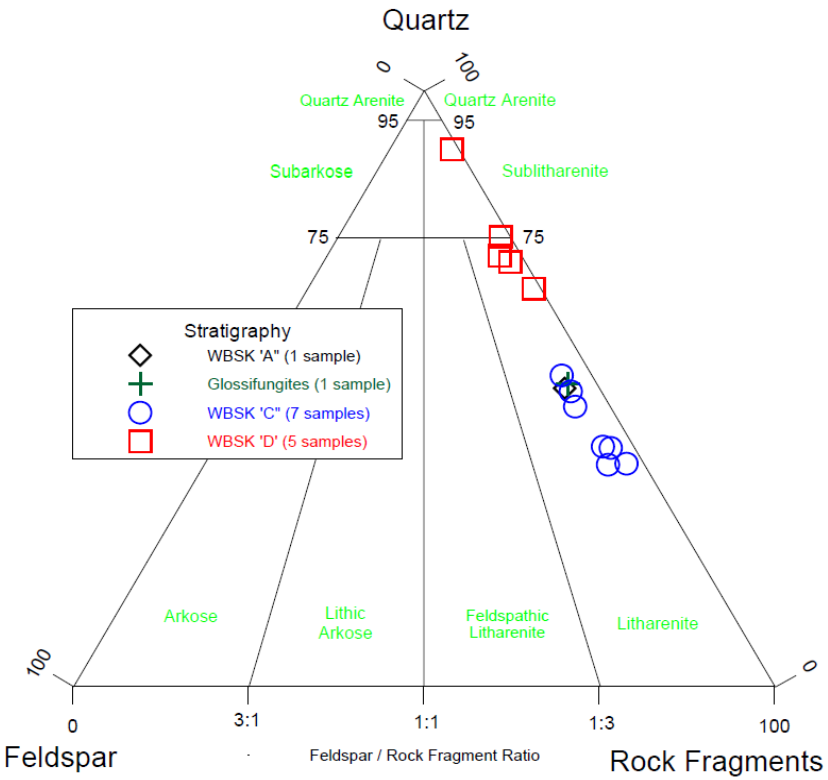
Structural Cross-Section A-A’





Composition

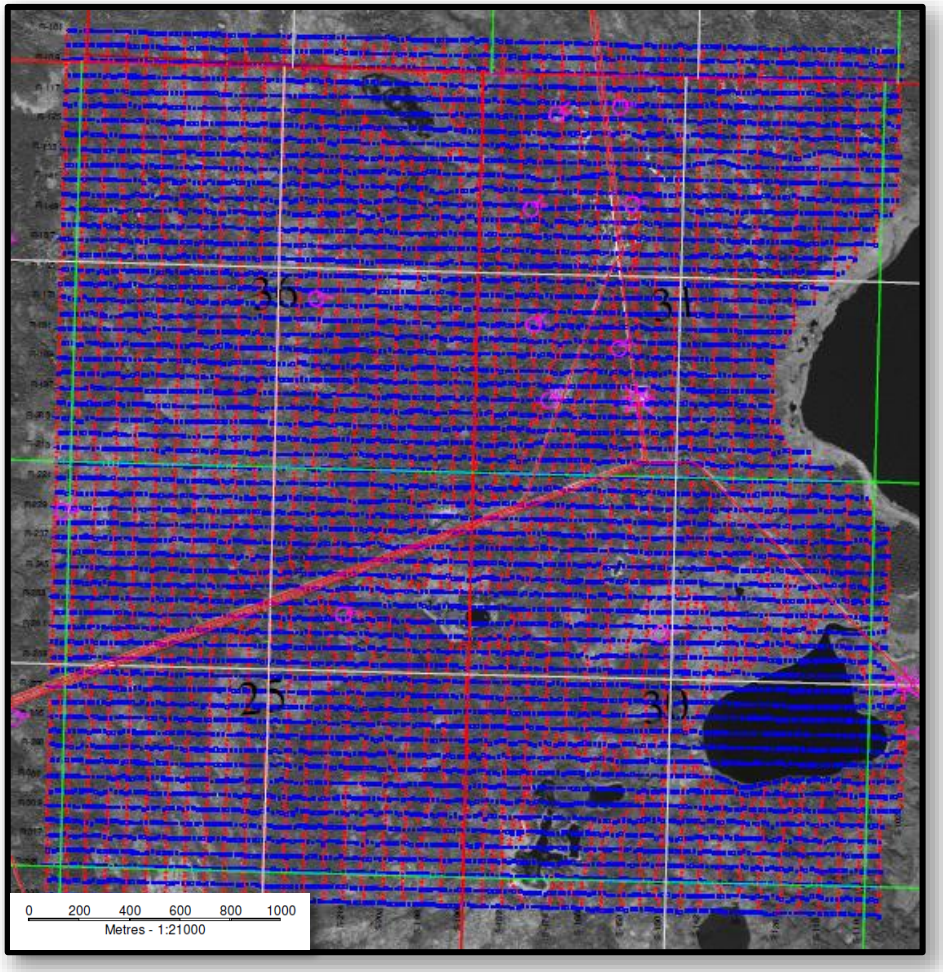
Sunshine Oilsands Ltd.
1AA/09-21-096-18W4 & 1AA/06031-094-17W4
Formation: Wabiskaw (14 samples)
Figure 1: Ternary Composition Plot (Folk, 1968)



- Small differences in clay content and quartz is seen between WBSK C and D
- WBSK C =3% clay, WBSK D = 0.6%-1.3% clay

3D Seismic Survey and Acquisition Parameters

Survey Layout



Acquisition Parameters

Area 10.7 (km^2)			
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		

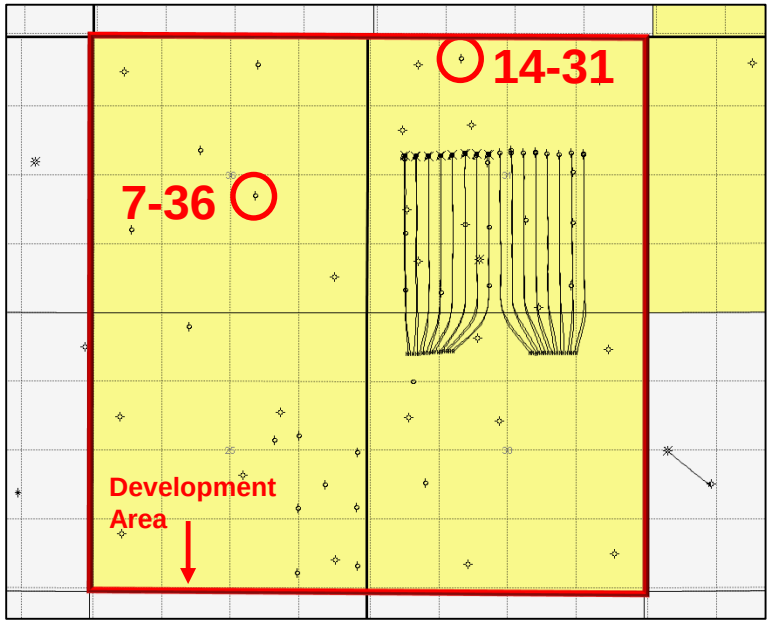
4-D Seismic

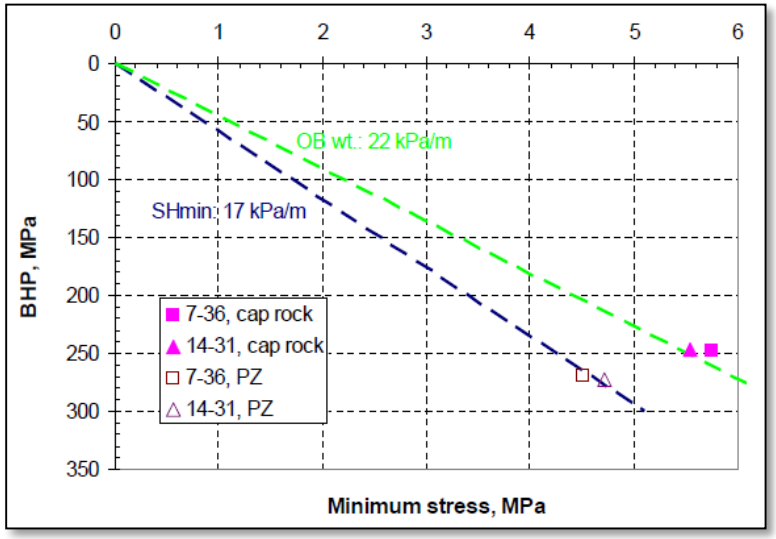
- As measured on the observation wells, the width of the steam chamber is narrow and less than 10 m from the SAGD well pair. Therefore, Sunshine did not plan a 4D seismic acquisition survey in 2017 because it is difficult to image a small steam chamber in the seismic data.

- While there are no plans in 2018 to conduct a 4D seismic survey, Sunshine will consider a 4D seismic survey when it is appropriate and provides an advantage for resource recovery.

Cap Rock Integrity

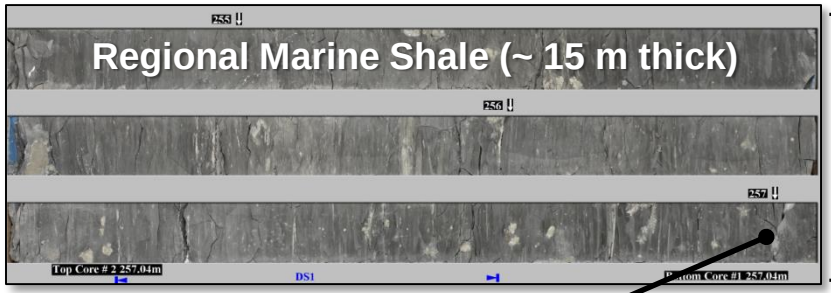
- Mini-frac tests were performed at:
  - 1AA/14-31-094-17W4/0
  - 1AA/07-36-094-18W4/0
- Caprock average minimum stress gradient = ***22*** kPa/m (Wabiskaw Shale Member).
- Oil sand average minimum stress gradient = ***17*** kPa/m (Wabiskaw Sand).
- Sunshine applied for a maximum operating pressure (MOP) of ***4400*** kPag in the Wabiskaw Shale Member based on a 80% safety factor.
- The maximum operating pressure (MOP) of ***4400*** kPag was granted on March 10, 2016.





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

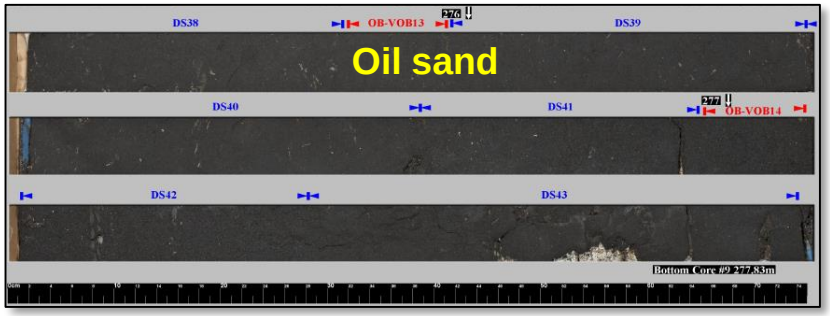
Caprock - Wabiskaw Shale Member



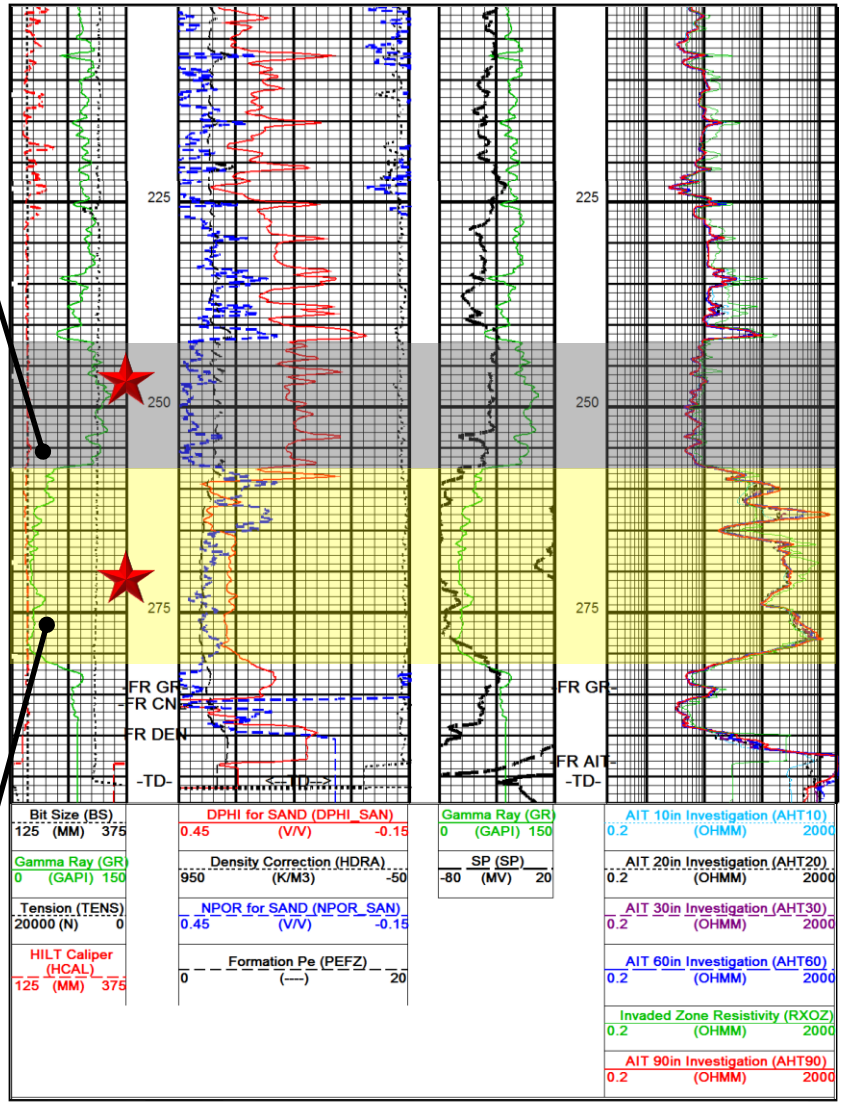
Caprock mini-frac

Oil sand mini-frac

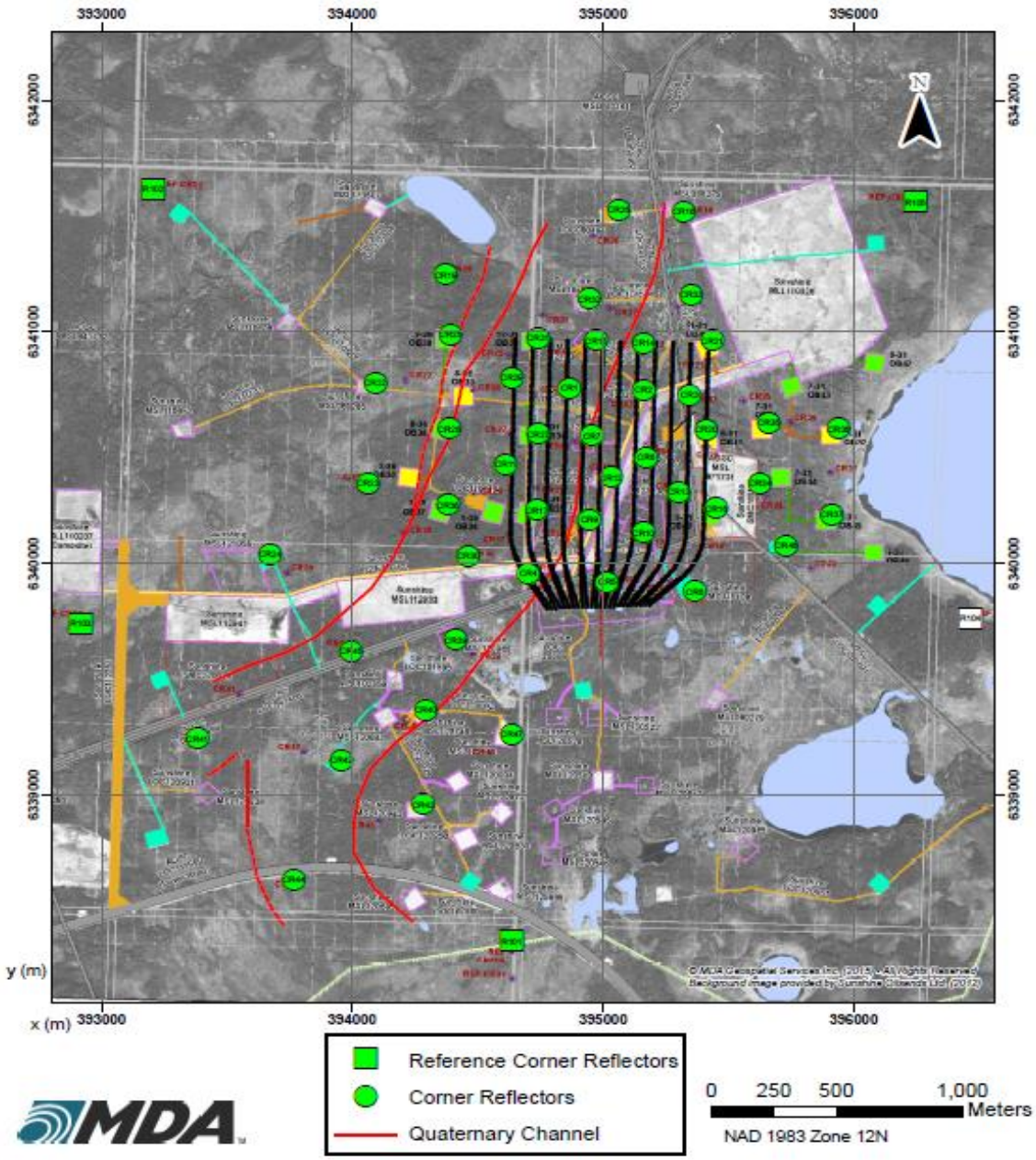
Oil sand - Wabiskaw Sand



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



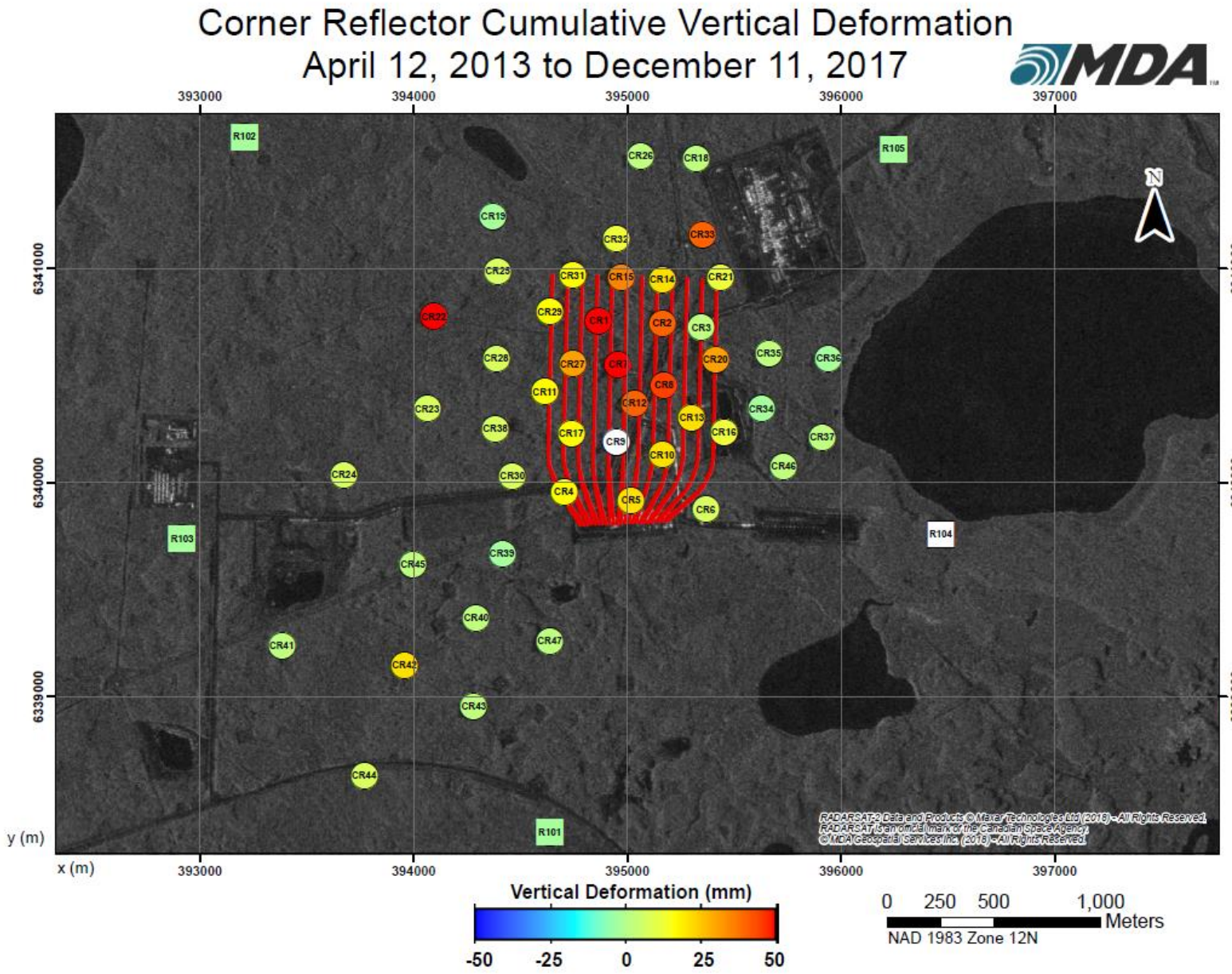
Surface Heave – Corner Reflector Locations



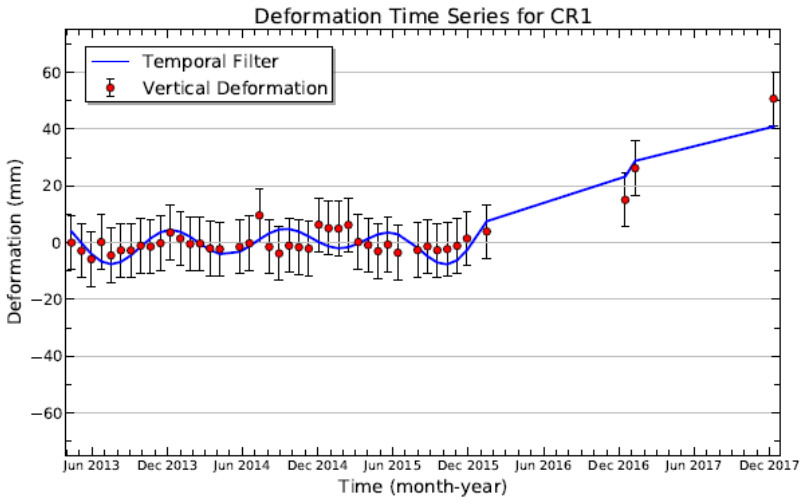
Surface Heave Monitoring

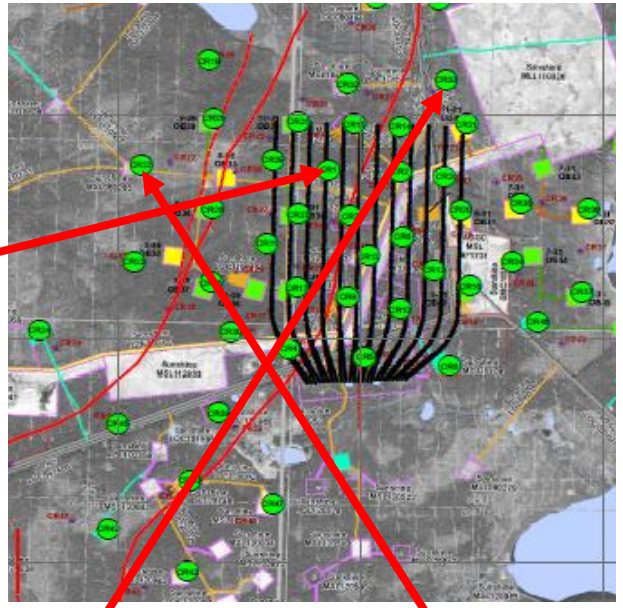
- 52 corner reflector locations
- Baseline information gathered prior to steaming operations
- Since the start up of the wells, 30-55mm of surface expression due to SAGD related activities has been observed at some corner reflector locations.

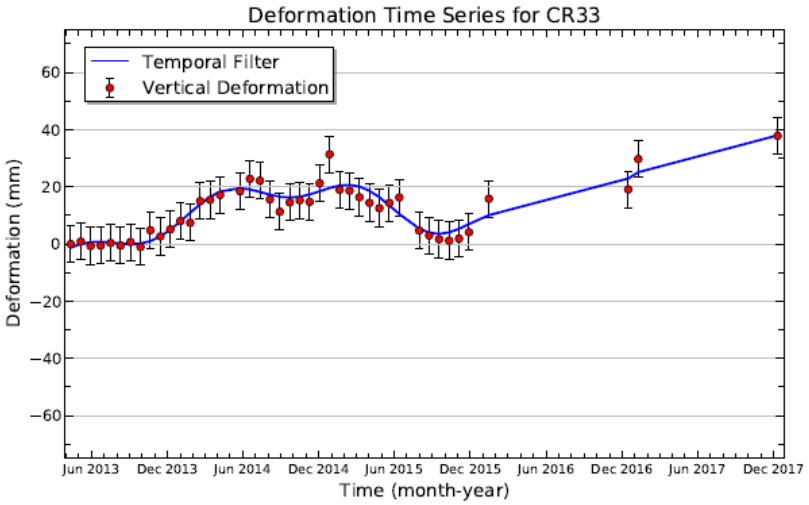
Surface Heave Monitoring – Corner Reflector Deformations

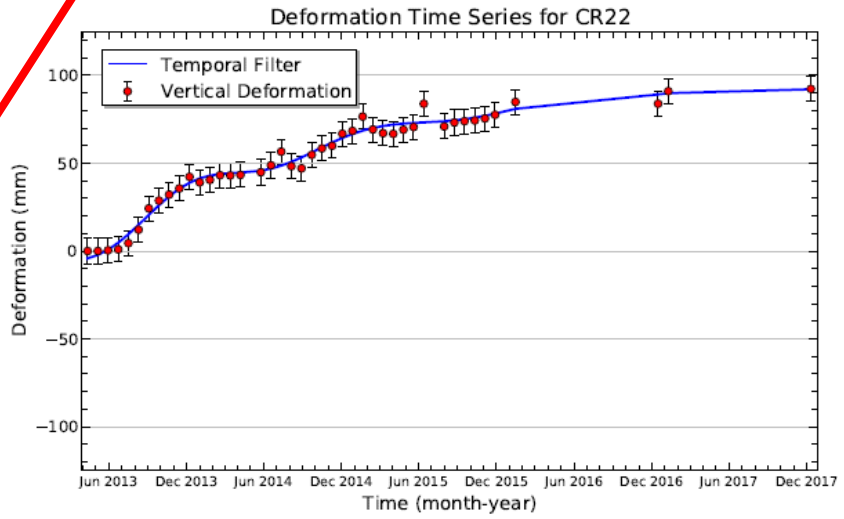


Surface Heave Monitoring – CR Deformation With Time



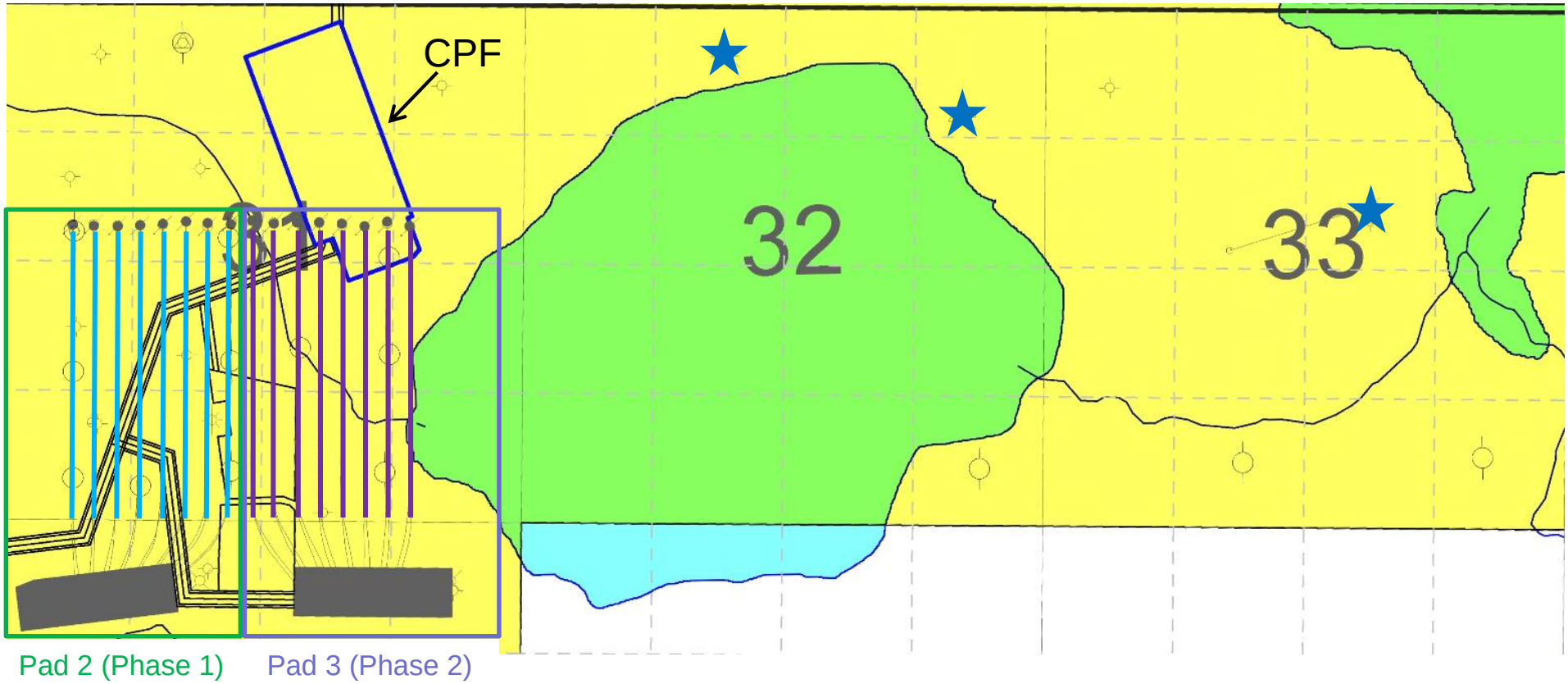






Drilling and Completions

West Ells Pad & Well Locations



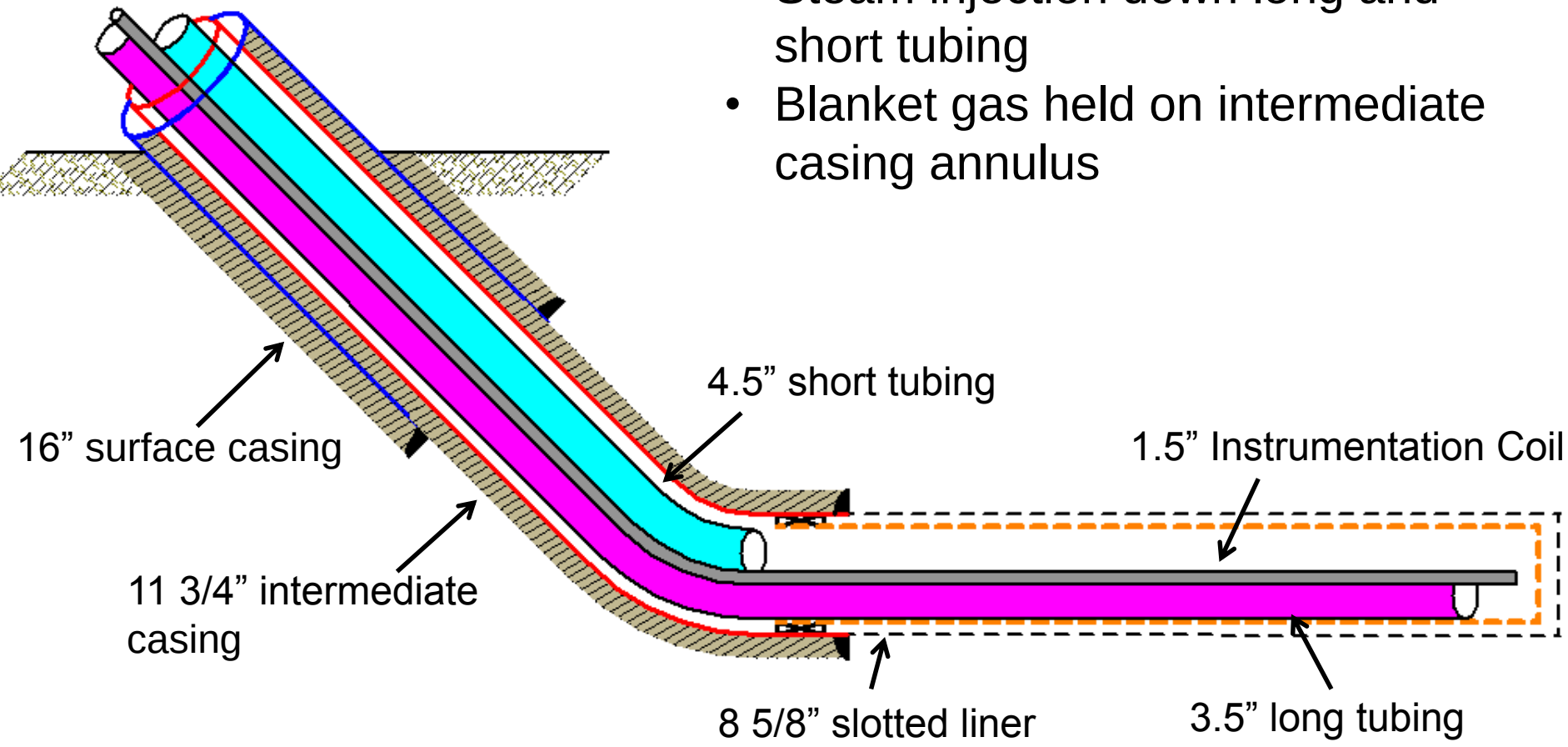
SAGD Well Pair – Drilled & Completed

SAGD Well Pair – Drilled, liners installed, pump and instrumentation install not complete.

Source Water Well – Drilled & Completed

Injector Well Completions

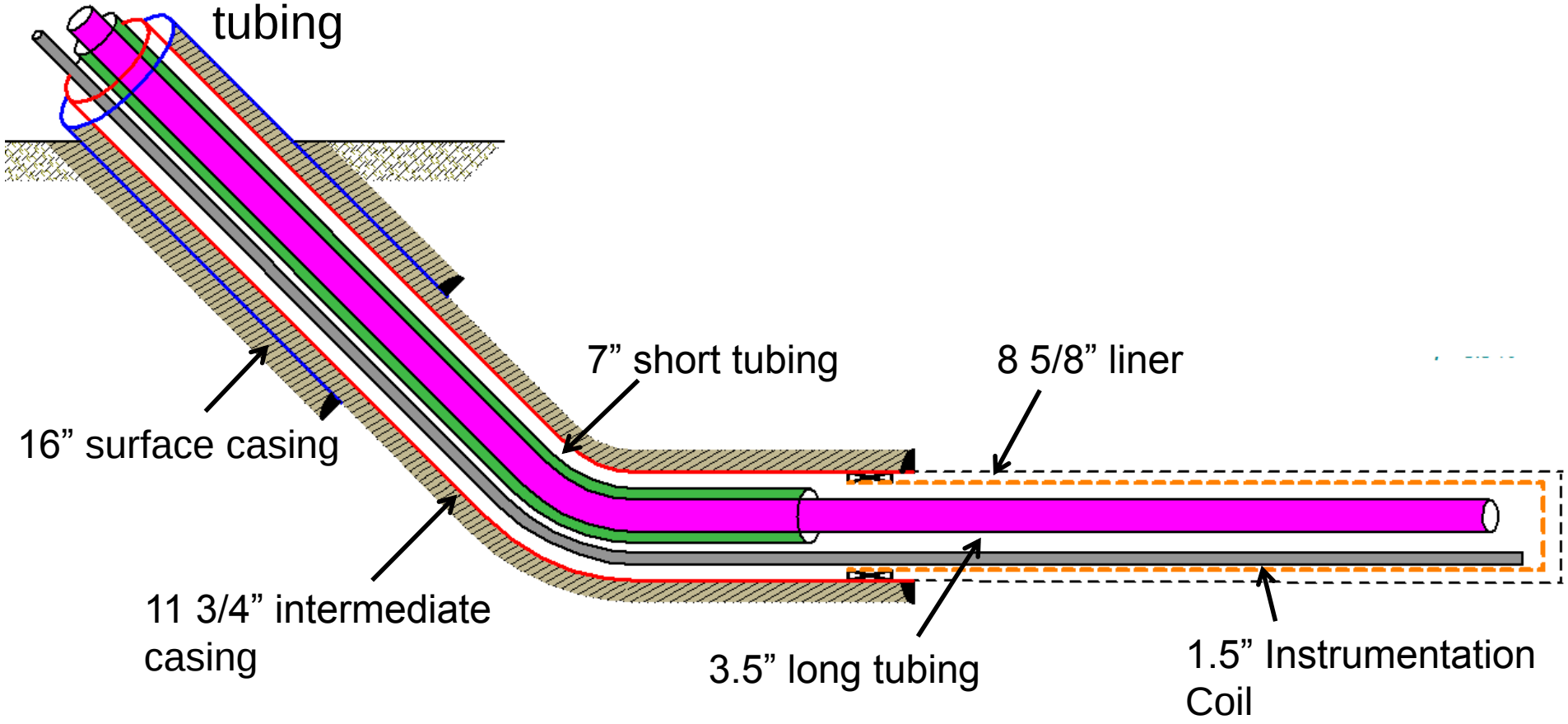
- Steam injection down long and short tubing
- Blanket gas held on intermediate casing annulus



Producer Well Completions – Circulation Phase

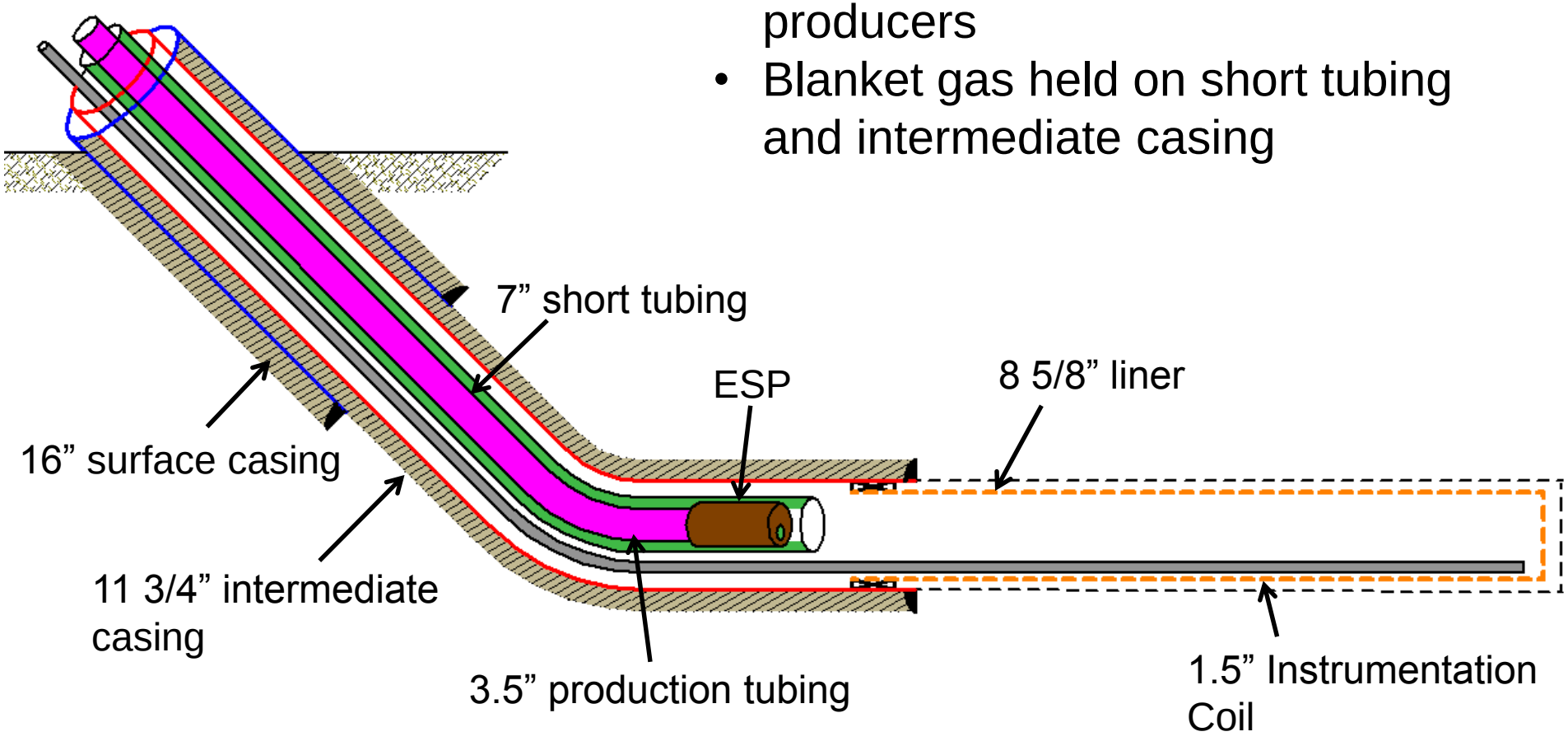
- Steam injection through long tubing
- Circulation returns via intermediate casing
- Blanket gas contained in short tubing

- Slotted liner in three wells
- Facsrite screen in five wells



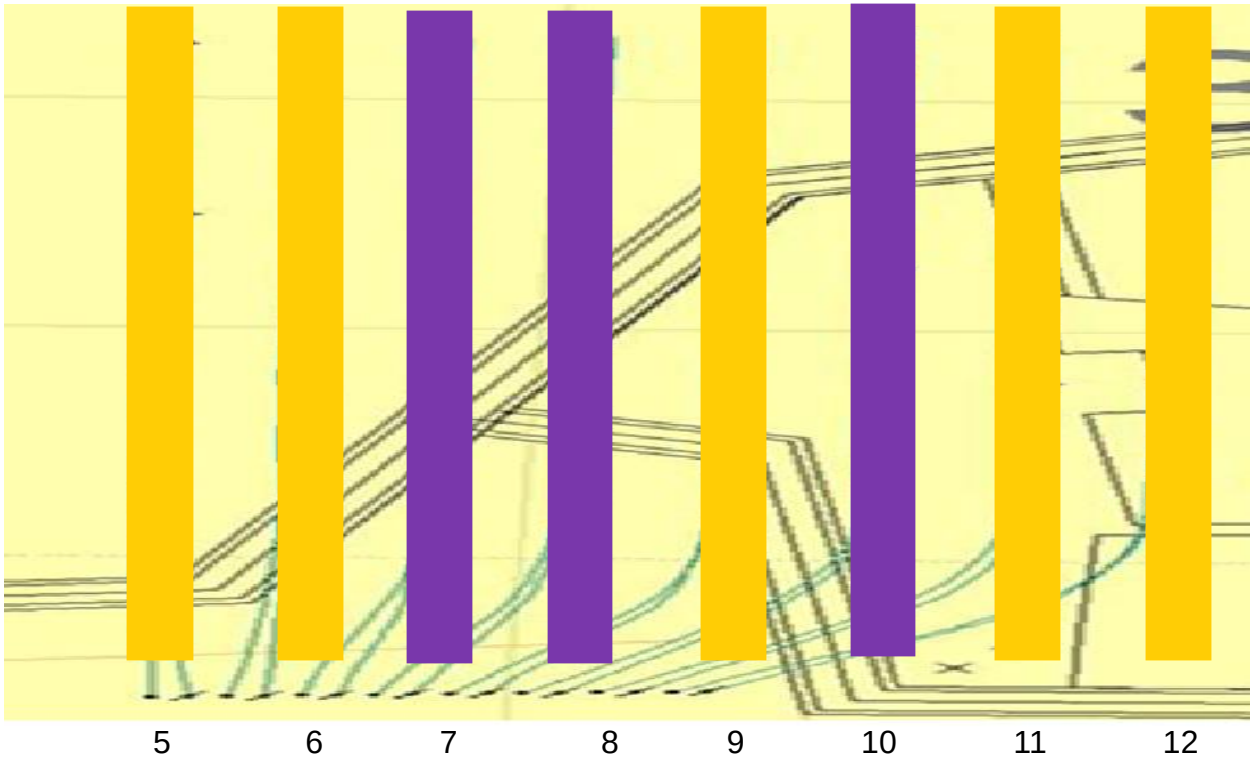
Producer Well Completions – SAGD Phase

- Electric Submersible Pumps (ESPs) installed in all SAGD producers
- Blanket gas held on short tubing and intermediate casing



Producer Well Completions – Liner Type

- Slotted Liner – 0.012” x 0.020” RT
- Facsrite – 250 Micron



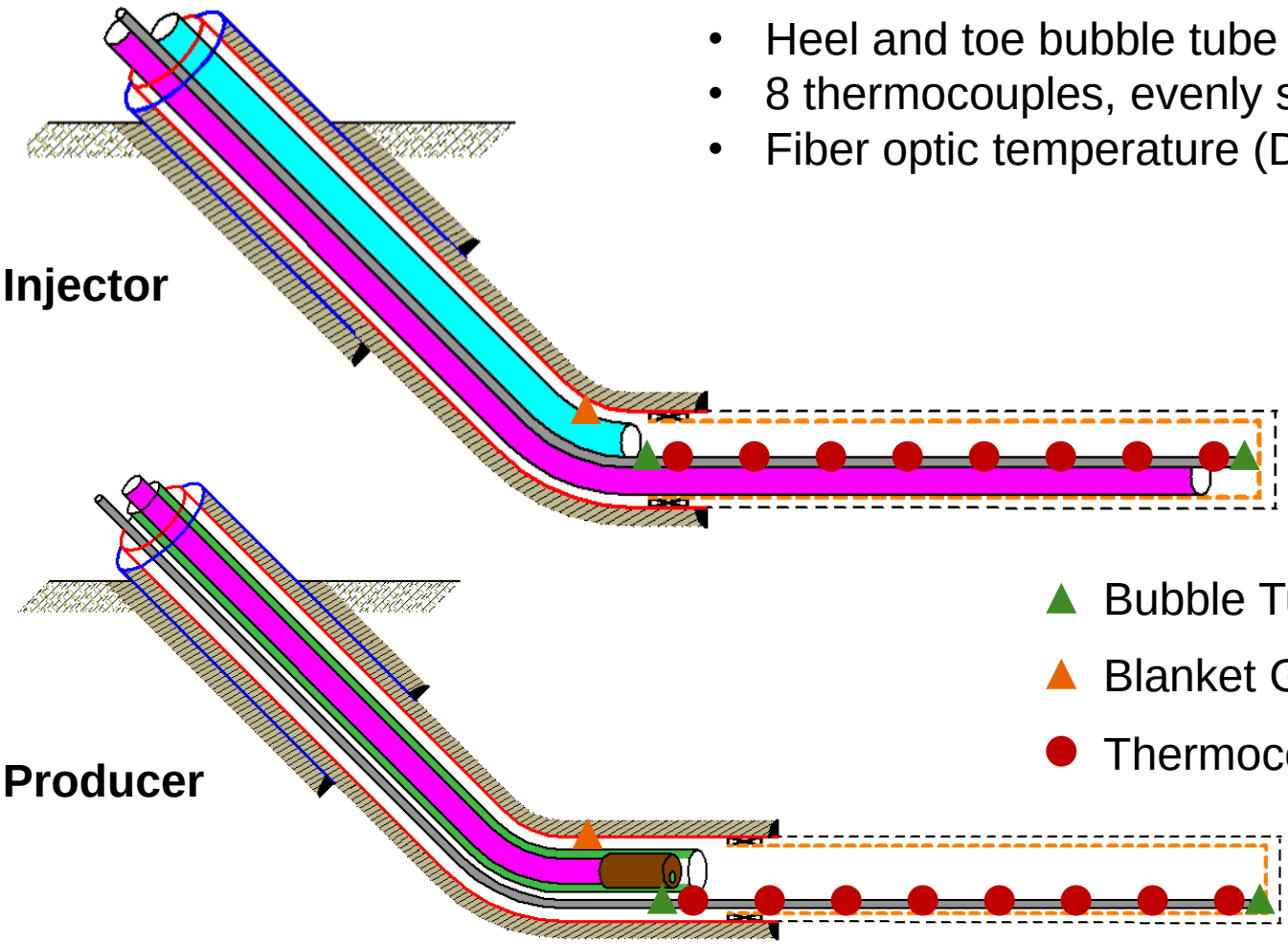
Artificial Lift

- All SAGD production wells were designed to use Electric Submersible Pumping (ESP) systems
- Designed production capacity of the ESPs is 50-720m^3/d for initial stage of operation
- Current emulsion rate varies between 80-550m^3/d
- Designed operational temperature of ESP is at 230 degrees C
- Current operational temperature between 150-200 degrees C

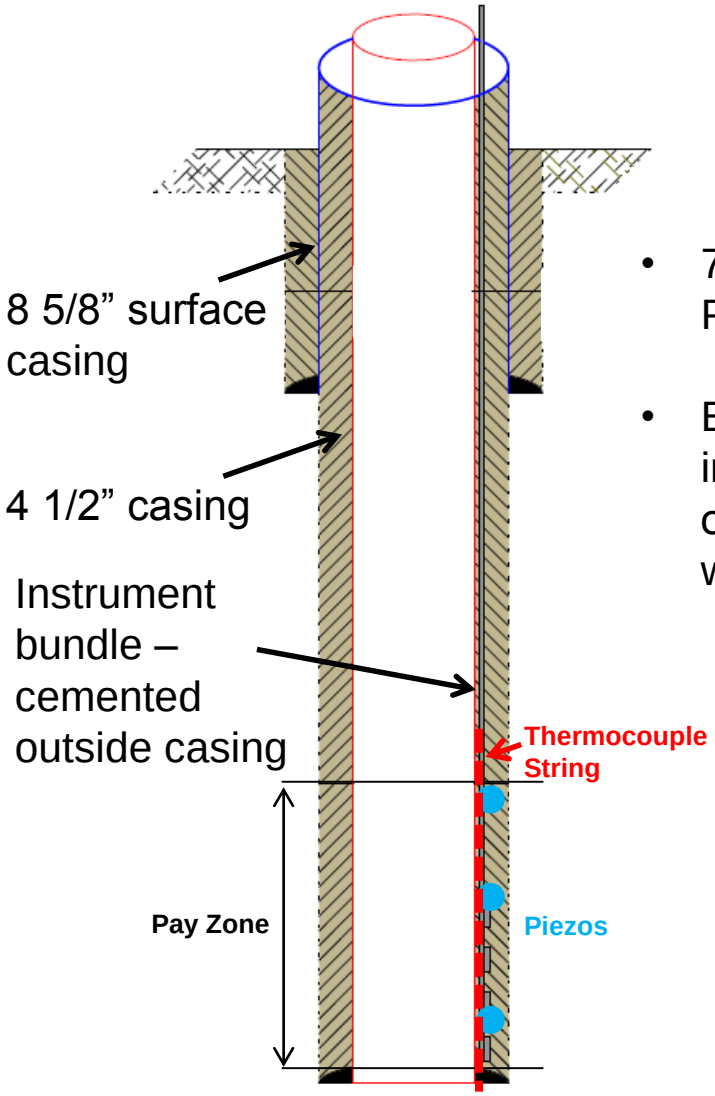
Well Instrumentation

1.5” instrumentation coils include (all wells):

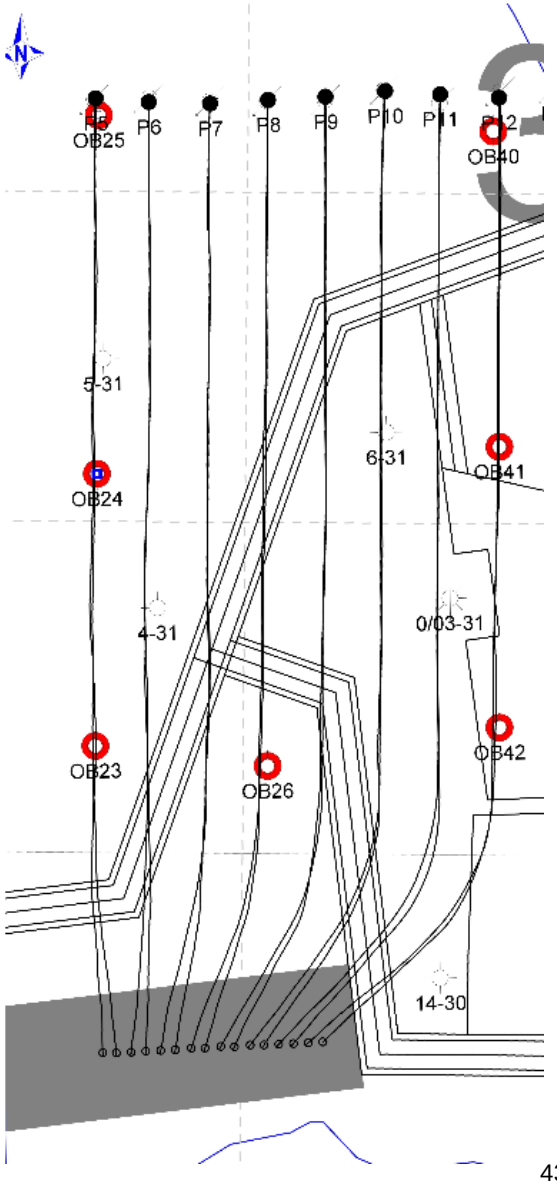
- Heel and toe bubble tube – pressure
- 8 thermocouples, evenly spaced
- Fiber optic temperature (DTS or 40-point FBG)



Observation Wells



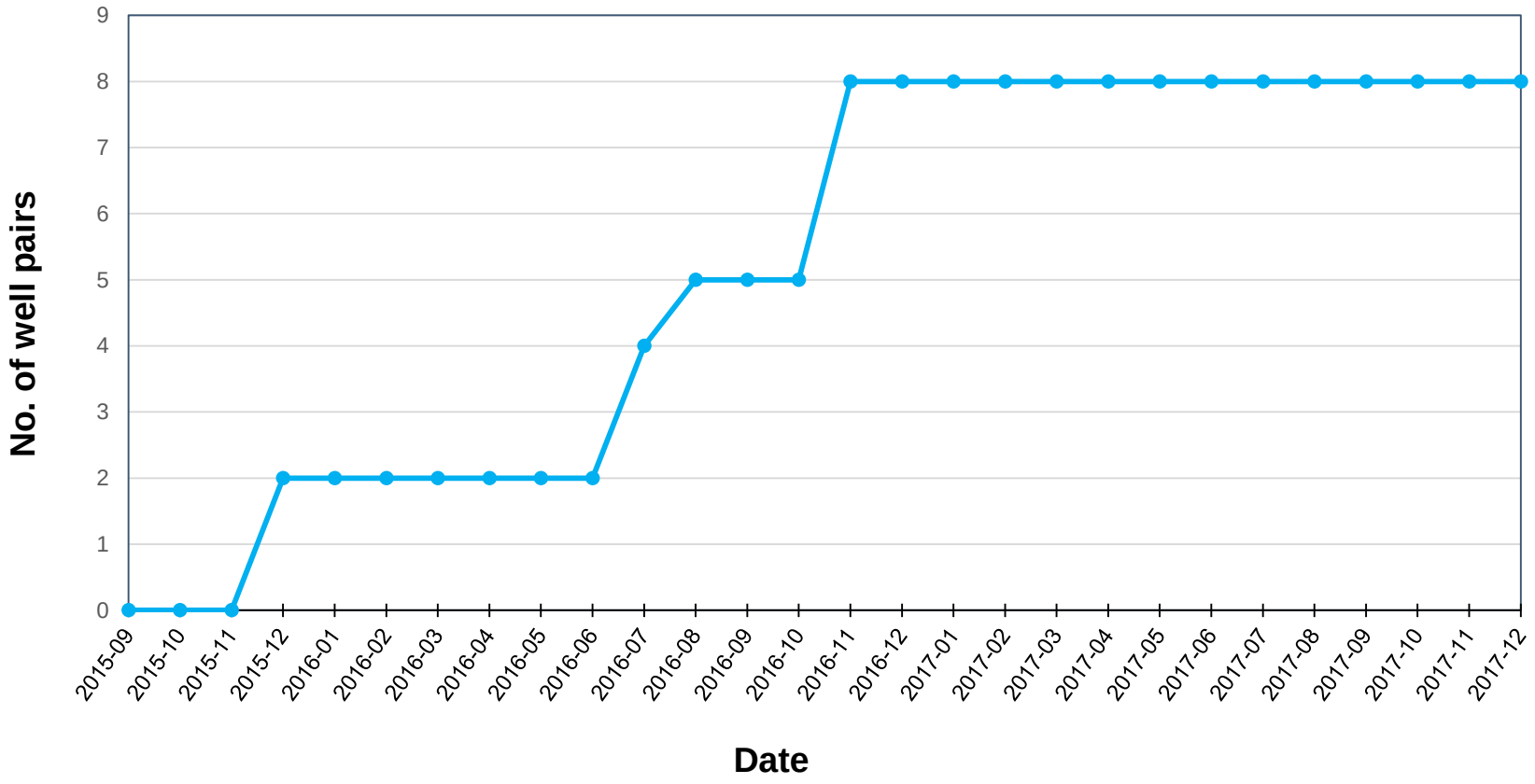
- 7 vertical OB wells drilled on Pad 2 (Phase 1) across zone
- Each well equipped with instrument bundle cemented outside 4 ½” casing, equipped with:
  - 20 thermocouples spaced from above the cap rock to below base of pay
  - 3 piezometers in zones of interest: gas cap, mid-pay, and lower pay



Subsurface and Scheme Performance

Subsurface Performance

- All 8 well pairs are now in production mode

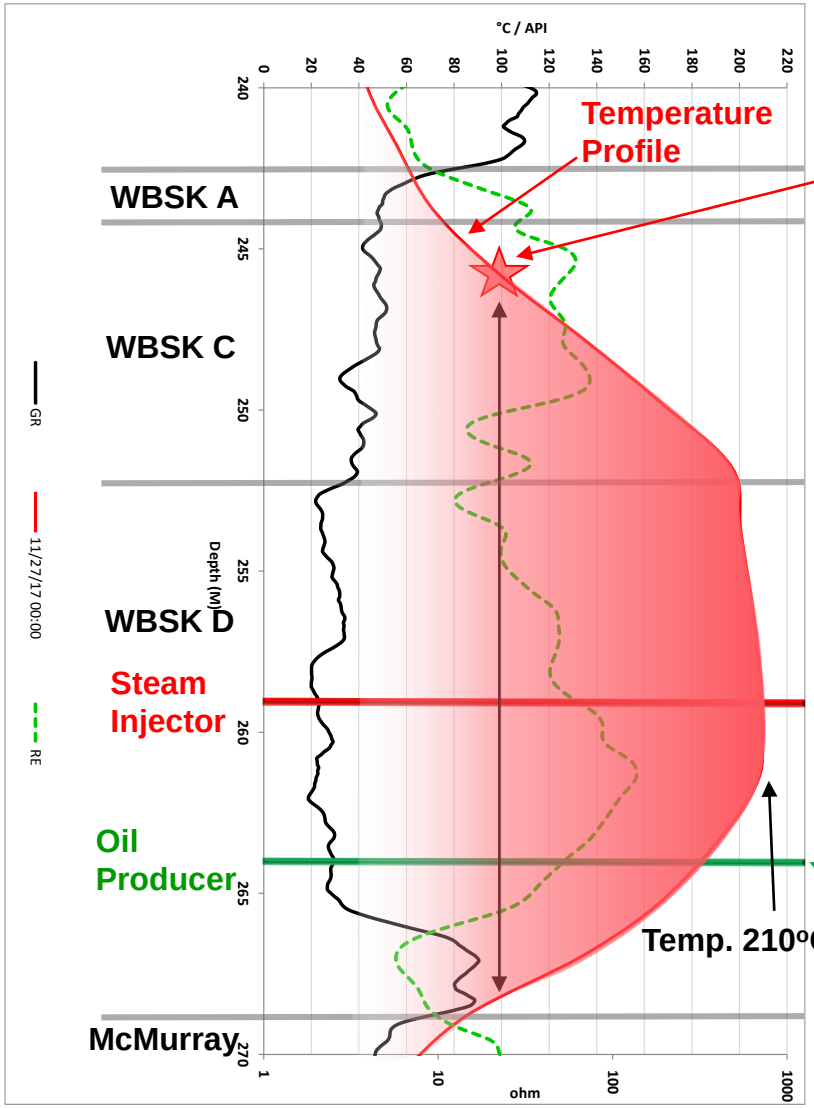


Injection and Production Pressure

- SAGD steam chamber still developing
- The injection pressure varied from 2000 kPa to 2300 kPa
- Producer pressure registered between 1000 kPa and 2000 kPa
- Sunshine's near term operating strategy is to maximize steam rates to achieve and sustain a bottom hole injection pressure of around 2300 kPa
- Sunshine's injection pressure is within approved limit of 4400 kPa

Temperature Response on Type Well (102/06-31-094-17W4)

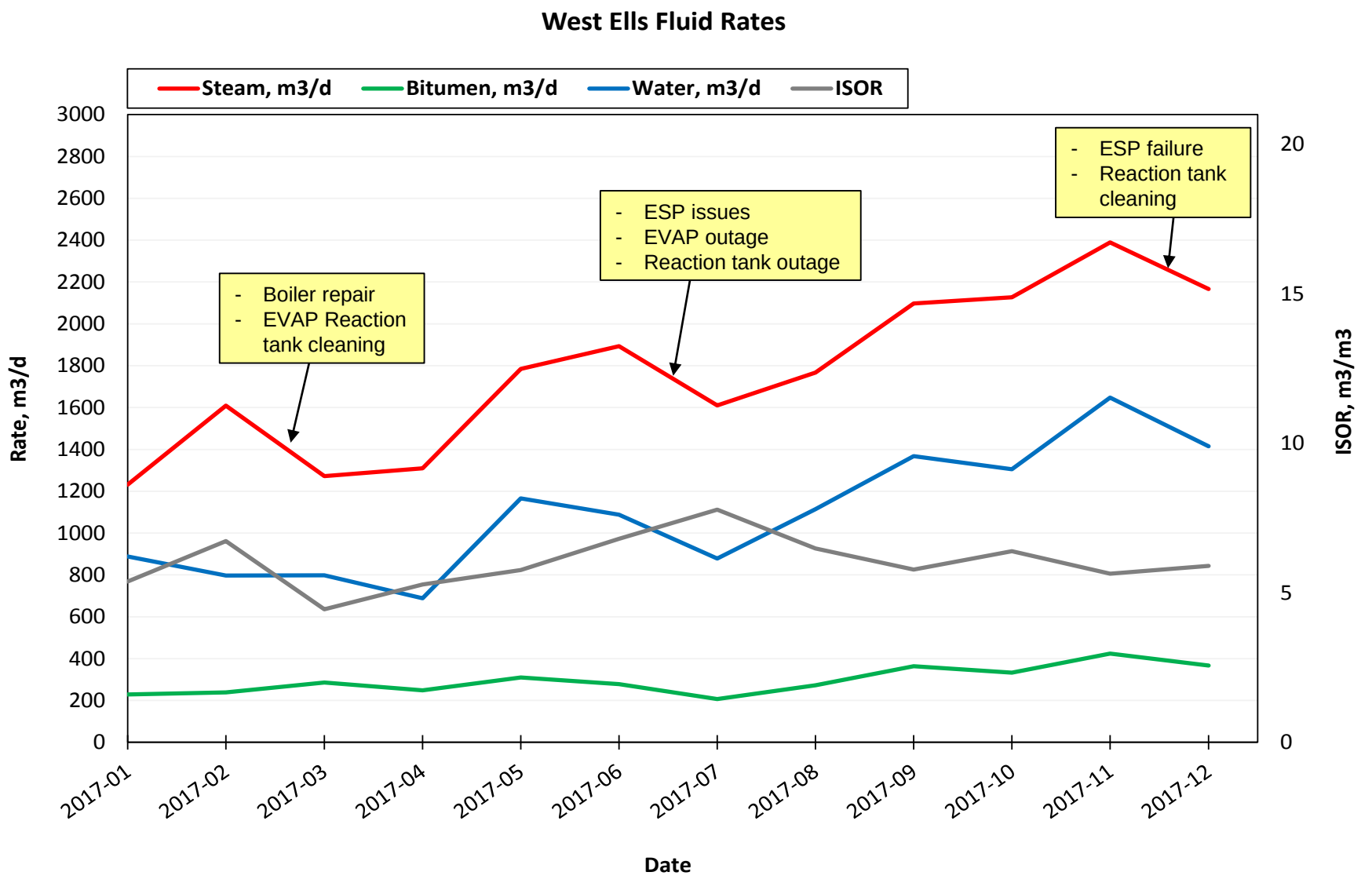
OB41 Temperature Log



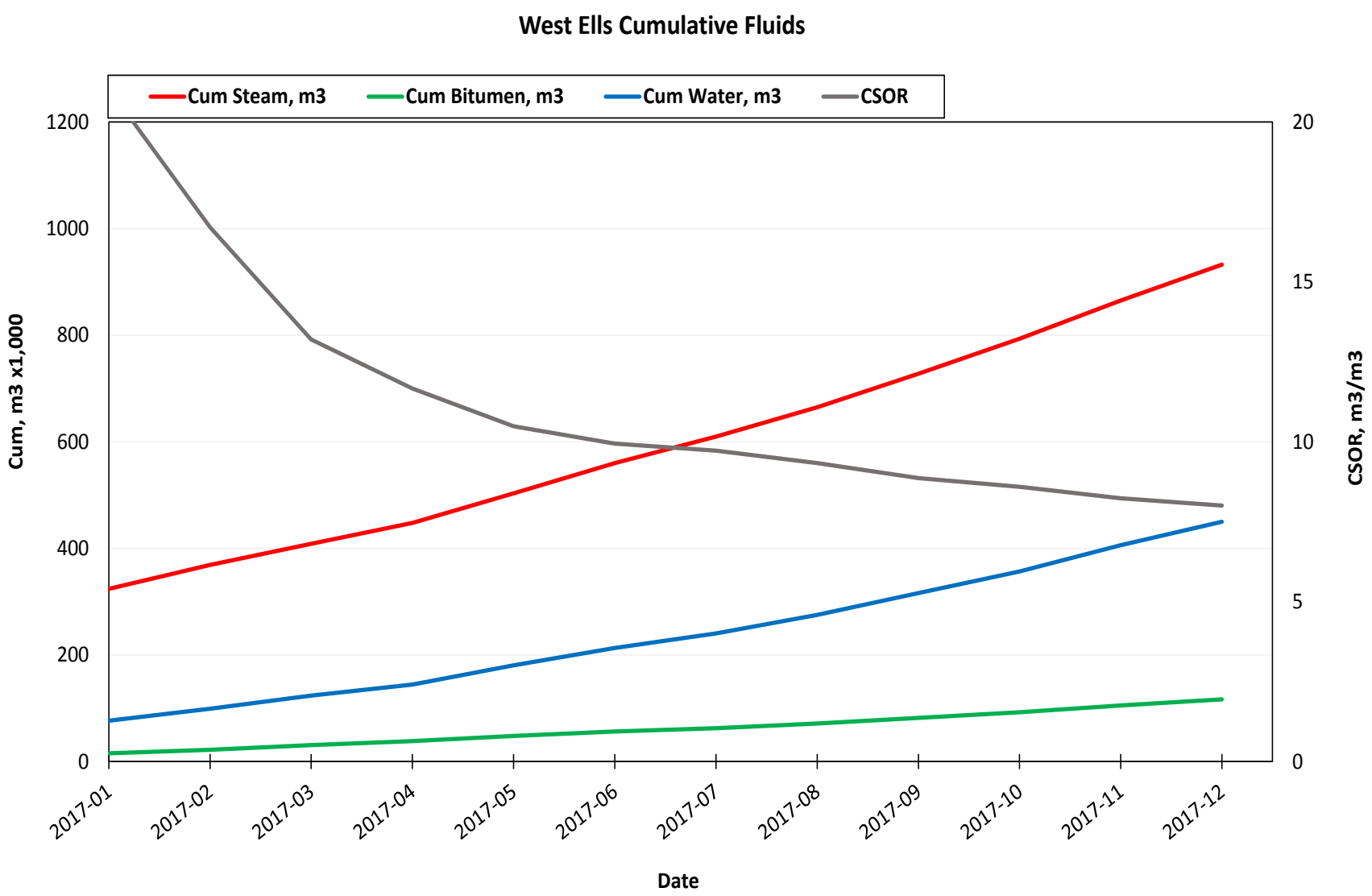
Core

- OB41 is 4.2 m east of Pair 12.
- Oil sand with mm to cm silt/shale laminate (act as a baffle and not a barrier).
- Original reservoir temperature was 9 °C
- Temperature near the injector level is about 210 °C.

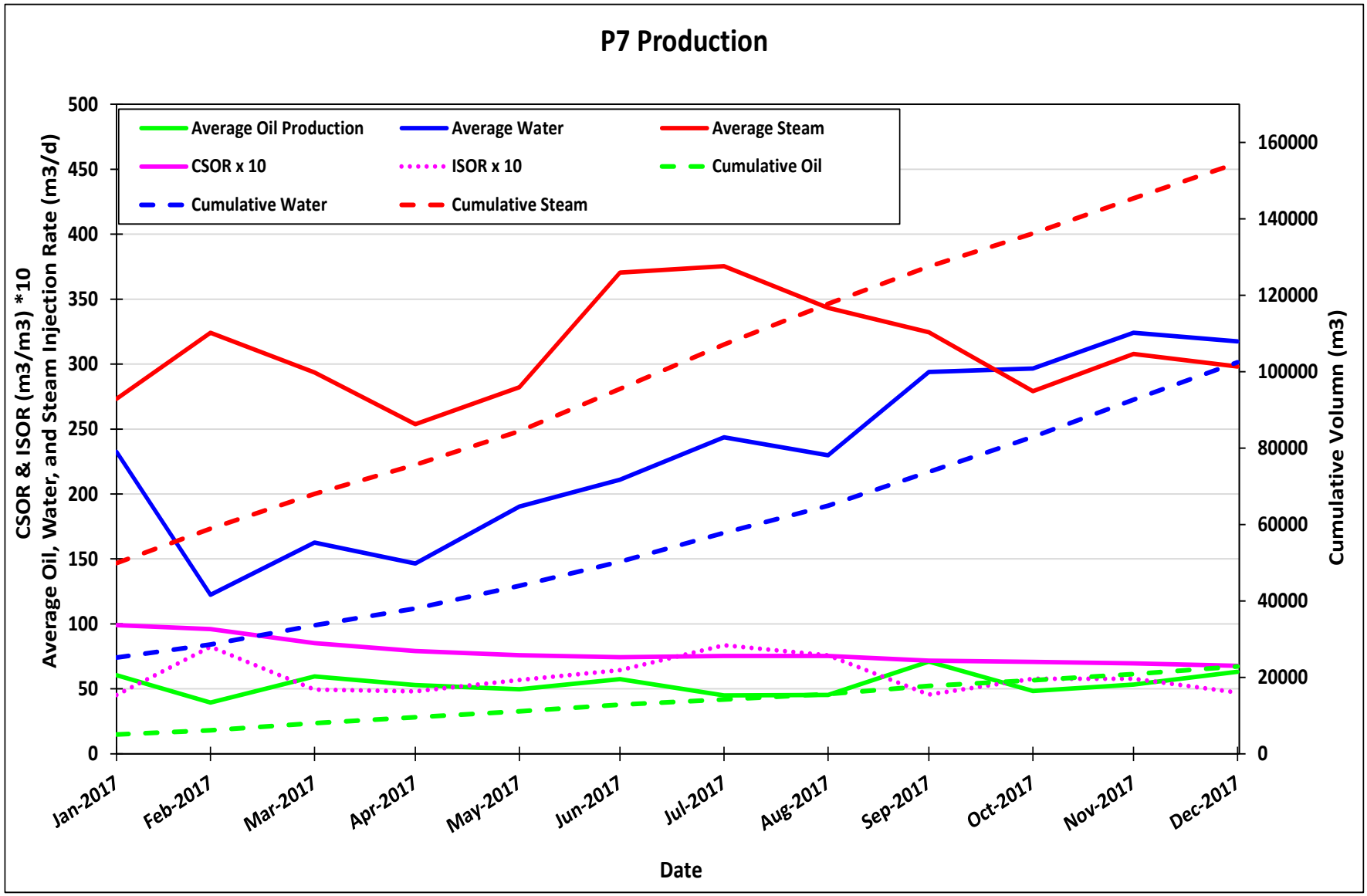
Fluid Rates


West Ells Fluid Rates
Steam, m3/d
Bitumen, m3/d
Water, m3/d
ISOR
Rate, m3/d
ISOR, m3/m3
Date
- Boiler repair
- EVAP Reaction tank cleaning
- ESP issues
- EVAP outage
- Reaction tank outage
- ESP failure
- Reaction tank cleaning
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
0
5
10
15
20
2017-01
2017-02
2017-03
2017-04
2017-05
2017-06
2017-07
2017-08
2017-09
2017-10
2017-11
2017-12

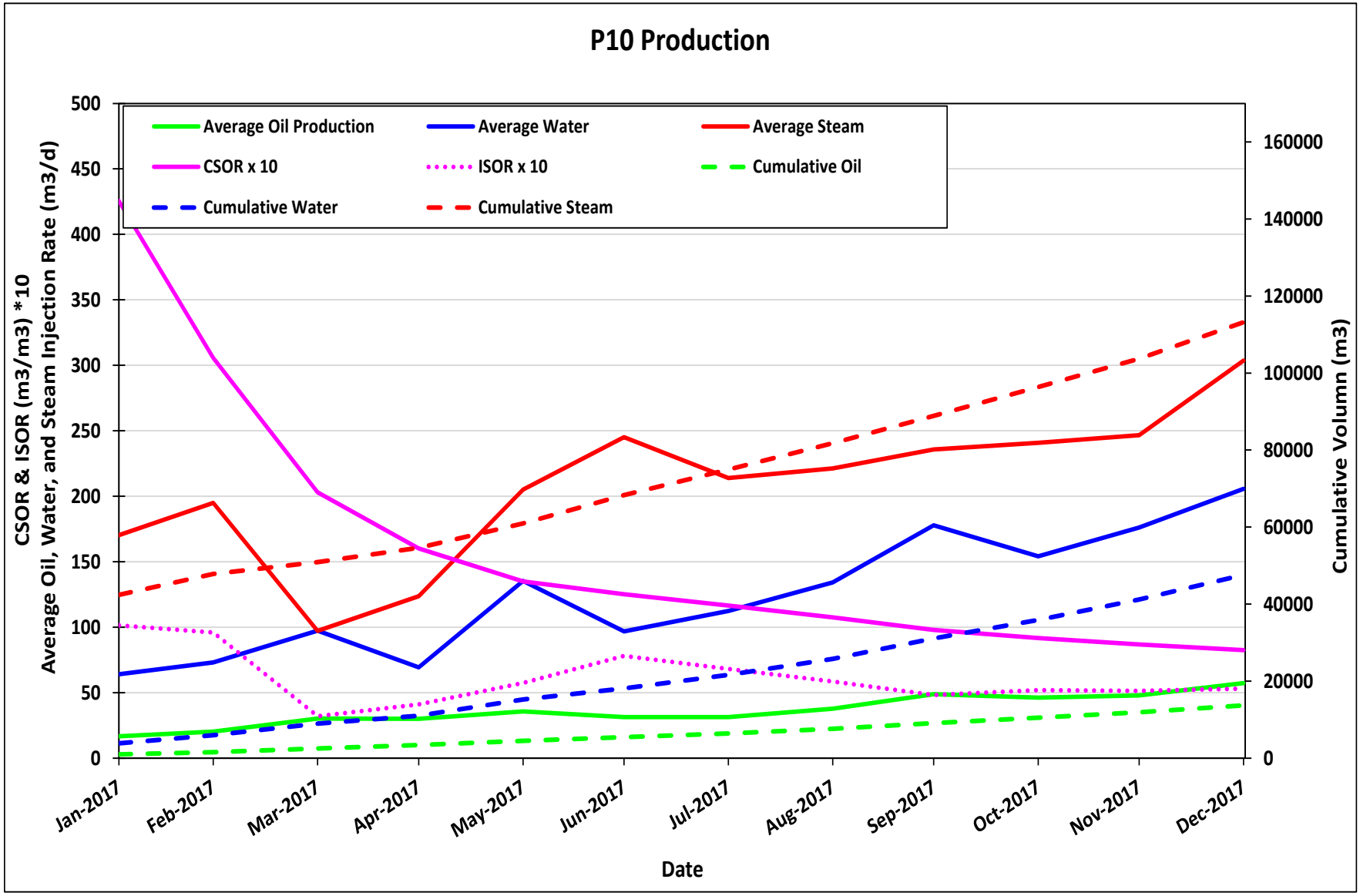
Cumulative Fluid Rate



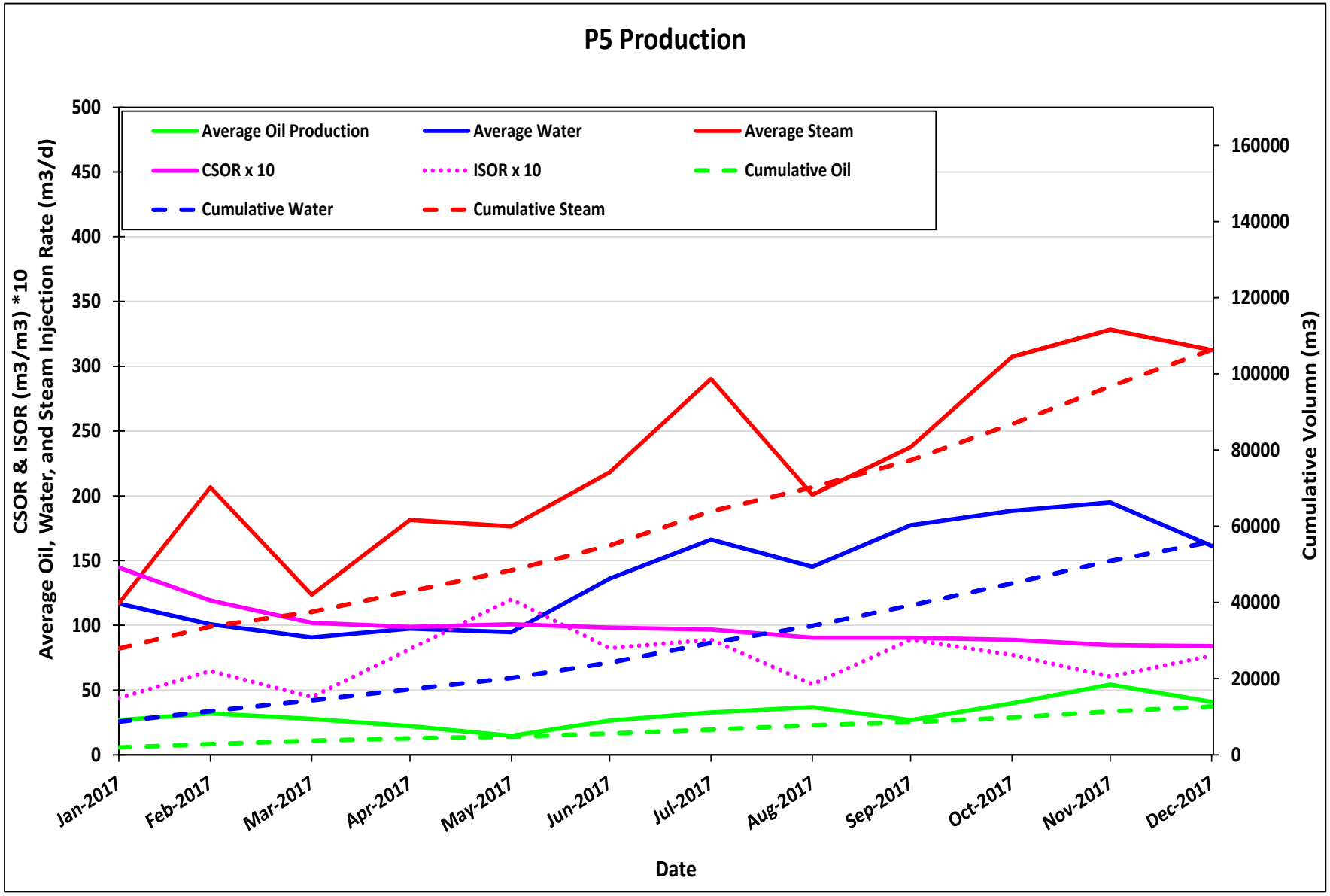
Recovery Patterns Pair 7



Recovery Patterns Pair 10



Recovery Patterns Pair 5



Steam Strategy

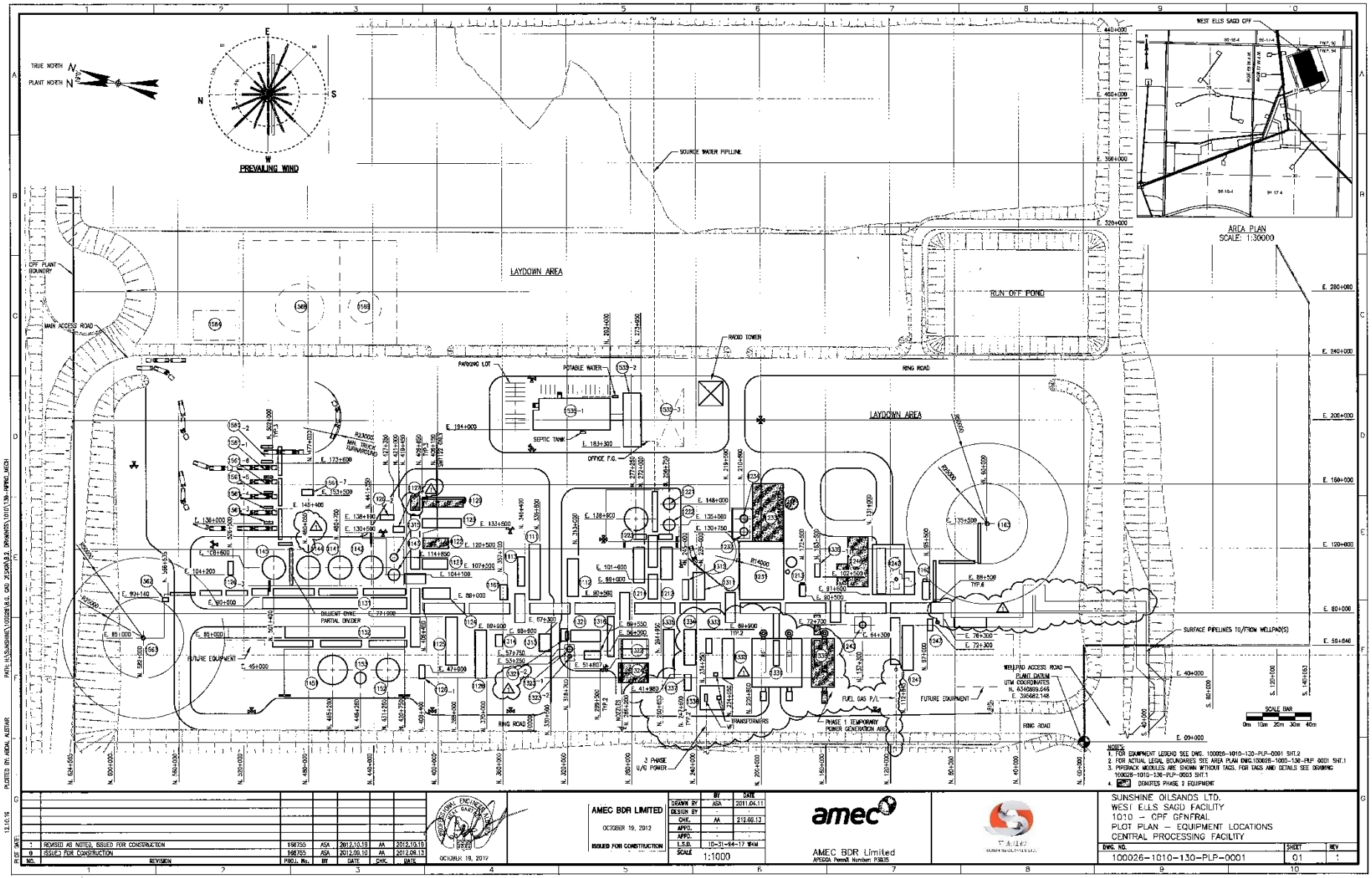
- West Ells is in the early stage of the SAGD process
- Steam will be continually optimized in individual wells based on the steam chamber growth rate, with a target pressure of around 2300 kPa
- Once the steam chamber has reached the top of the reservoir/peak rates, the target pressure will be reviewed again
- Currently, West Ells is planning to use the full steam generation capacity of the CPF

Key Learnings

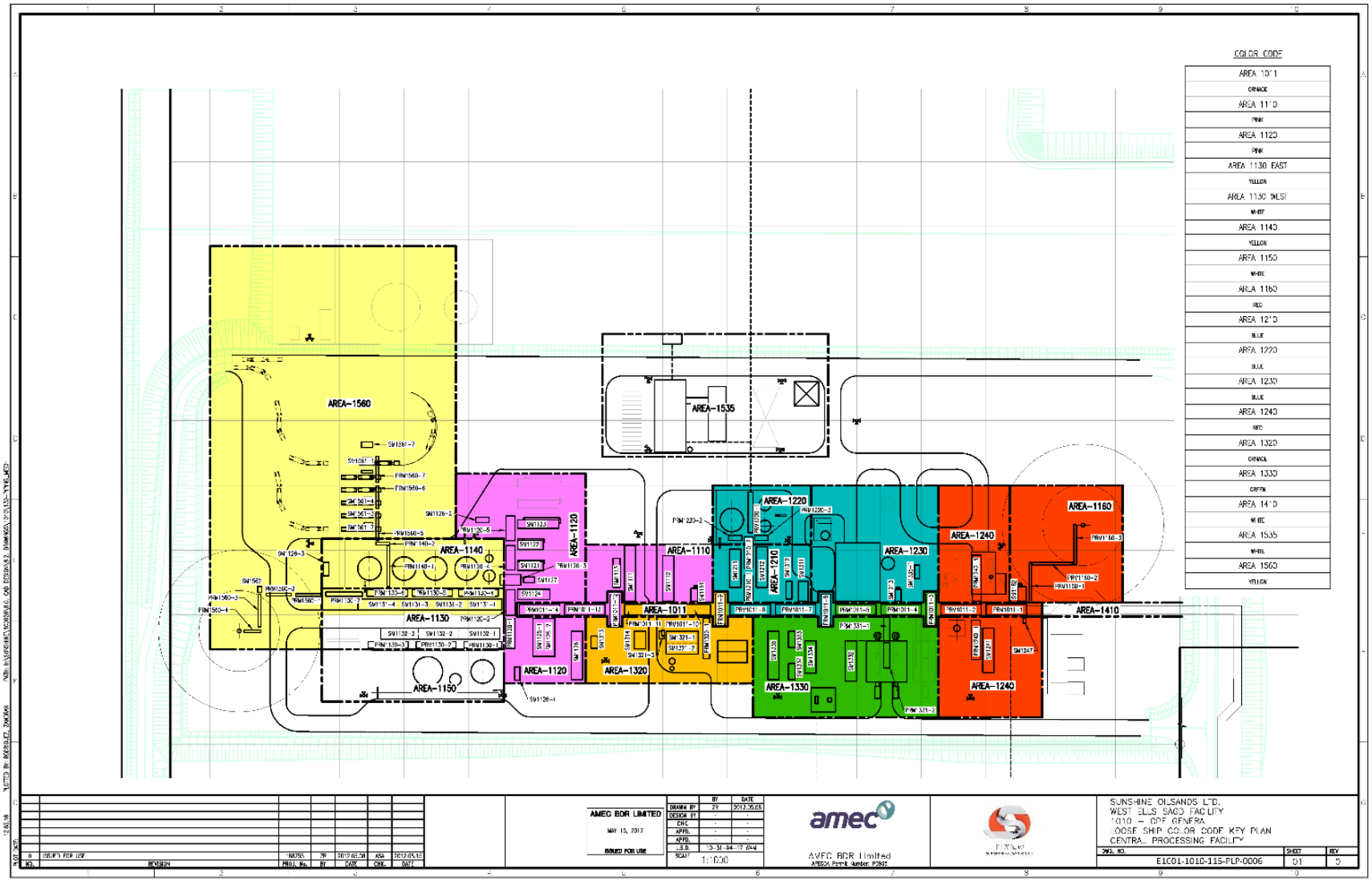
- Continuous steam supply is key to steady growth of the steam chamber
- Down hole instrumentation is very important for optimizing well performance
- Better than predicted performance validates proper wellbore placement and good reservoir pressure containment
- Current ESP design needs to be upgraded to meet anticipated higher flow rates

Facilities

CPF Plot Plan

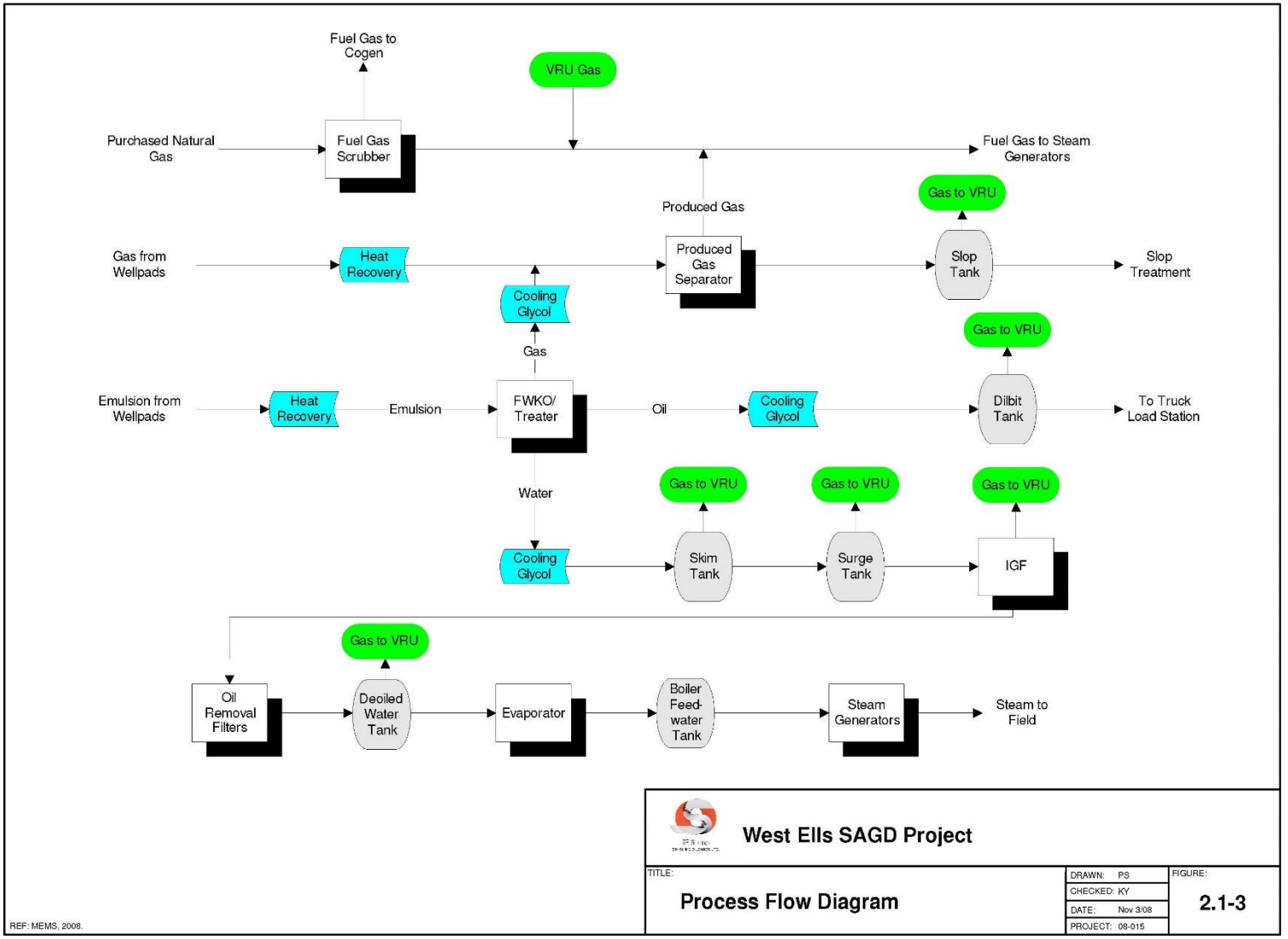


CPF Plot Plan with Areas

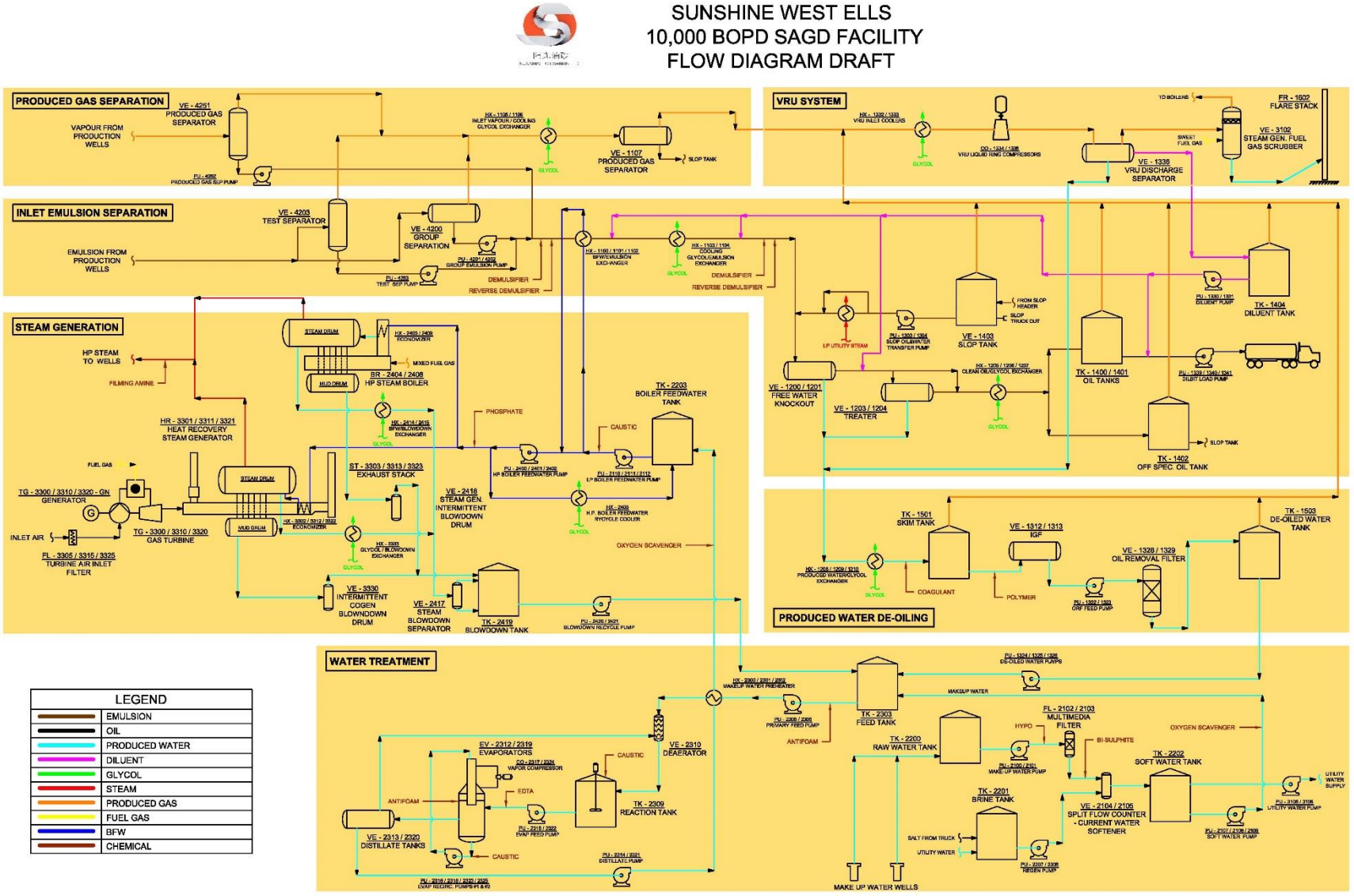


Aerial Photo of CPF

CPF Process Flow Simplified



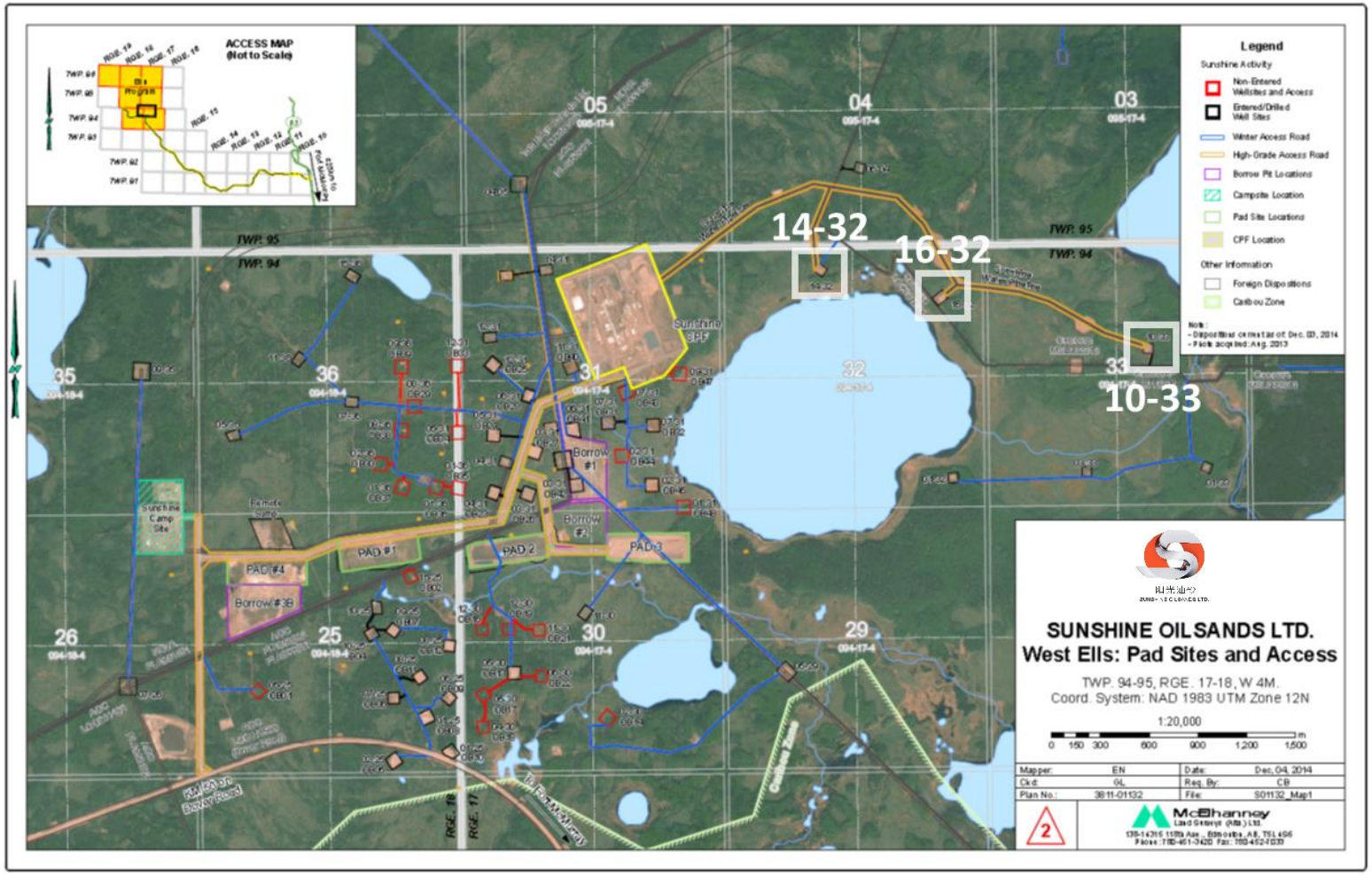
CPF Process flow



Location of Water Source Wells

Three Viking formation non-saline water source wells are located at:

1. 14-32-94-17W4
2. 16-32-94-17W4
3. 10-33-94-17W4



Water Source Summary Table

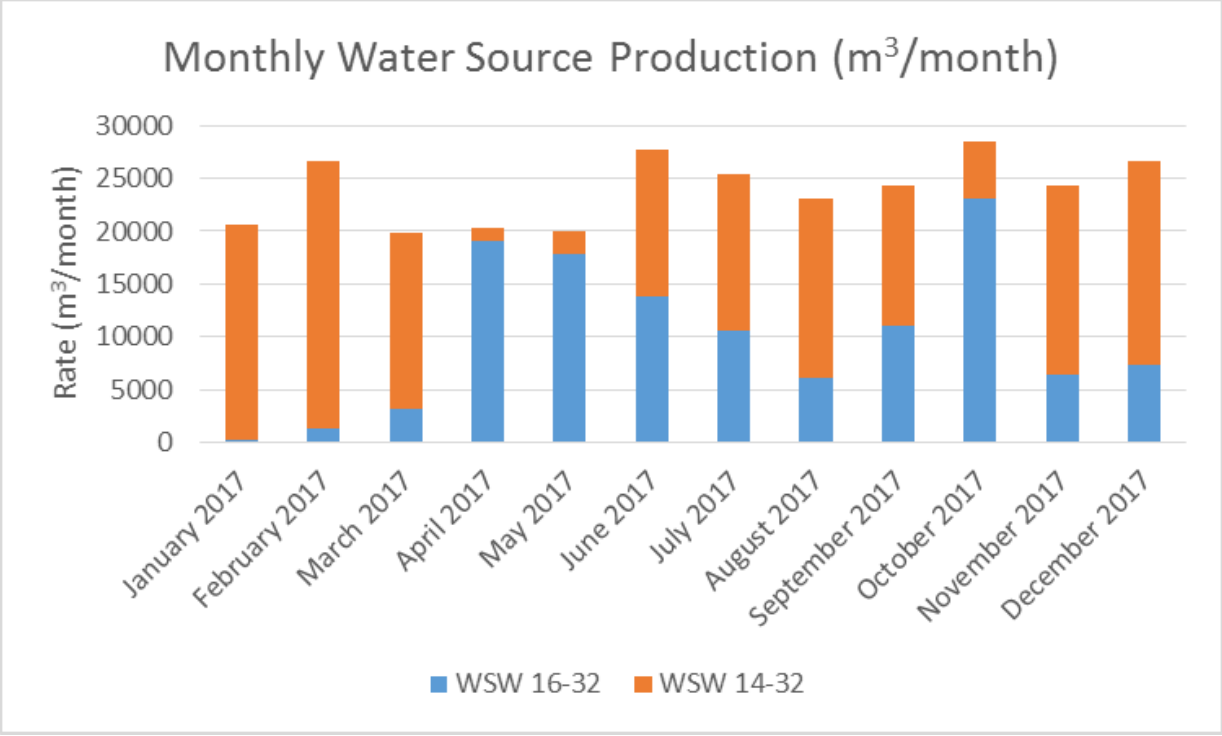
Licence No.	Well Name	Location	Measurement Start Date	Measurement Stop Date	Maximum Approved Rate of Diversion	Maximum Approved Diversion Volume	Cum Volume produced	Percent of Max Diversion Volume Produced
					(m3/day)	(m3)	(m3)	(%)
00316770 (Licence)	WSW 16-32c	16-32-94-17W4	Jan. 1, 2017	Dec. 31, 2017	1400	365,000	120,007.0	32.9%
00316770 (Licence)	WSW 14-32	14-32-94-17W4	November, 2017	December 31, 2017	1500	365,000	37,344.4	10.2%
00385204 (TDL)*	WSW 14-32	14-32-94-17W4	Jan 1, 2017	October 6, 2017	1500	182,500	130,014.1	71.2%

*TDL for this location granted from October 7, 2016 through October 6, 2017

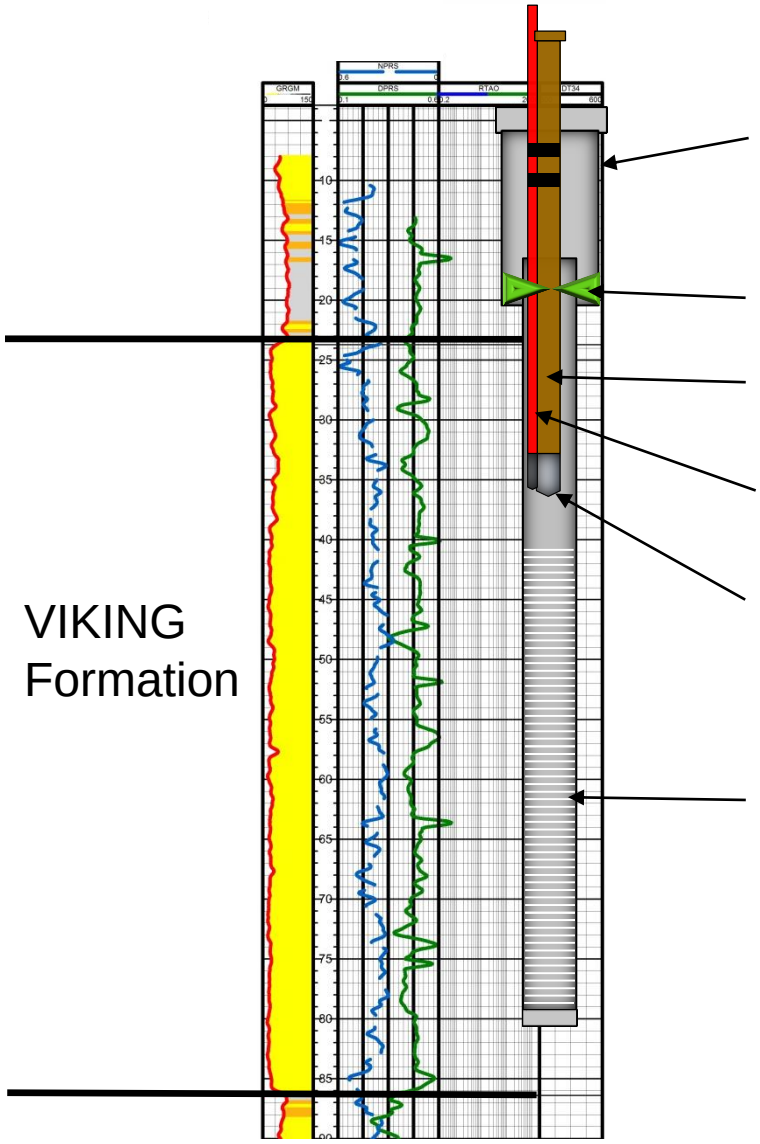
- Did not exceed the maximum daily or maximum approved diversion volume.
- Did not impact the groundwater levels in the overlying Quaternary sediment.
- Both withdrawal locations included under initial Water Act Term Licence after expiry of TDL 00385204

Monthly Water Source Production

Month	WSW-16-32	WSW 14-32	Total
January 2017	231.10	20,404.00	20,635.10
February 2017	1,369.00	25,255.20	26,624.20
March 2017	3,078.90	16,761.60	19,840.50
April 2017	19,071.00	1,270.10	20,341.10
May 2017	17,882.10	2,068.60	19,950.70
June 2017	13,800.80	13,902.20	27,703.00
July 2017	10,609.30	14,755.50	25,364.80
August 2017	6,065.10	16,948.30	23,013.40
September 2017	11,077.40	13,230.10	24,307.50
October 2017	23,088.40	5,418.50	28,506.90
November 2017	6,452.20	17,909.30	24,361.50
December 2017	7,281.70	19,435.10	26,716.80
2017 Total	**120,007.00**	**167,358.50**	**287,365.50**



Water Source Well Typical Completion



Production Casing
219.1 mm OD (8 5/8”) Steel Casing

K-Packer

Tubing String
86 mm (3 3/8” OD) Galvanized Pipe, 76 mm (3”) ID

Polytube with Pressure Transducer
34.9 mm (1 3/8” OD), 25.4 mm (1” ID)

Submersible Turbine Pump
Franklin 350STS8 40HP

Wire-wrapped Telescopic Screen
190.5 mm (7 ½”) OD, 0.012” Screen

Source Water Composition

Parameter	Unit	WSW 14-32	WSW 16-32c	WSW 10-33b	Average
Lab pH	pH	7.78	7.85	7.73	7.79
Lab Ec	μS/cm	1230	892	944	1022
Ca	mg/L	46.5	74.3	89.7	70.2
Mg	mg/L	20.1	20.5	25.5	22.0
Na	mg/L	217	85.8	74.3	125.7
K	mg/L	5.98	4.75	5.24	5.32
Cl	mg/L	4.4	0.96	1.00	2.12
Total Alkalinity	mg/L	527	376	430	444
HCO3	mg/L	643	458	525	542
SO4	mg/L	148	116	86	116.6
Hardness	mg/L	199	270	329	266
TDS	mg/L	759	528	540	609

Methods for Calculation

- Daily oil rate of each well is calculated by multiplying the most current well emulsion rate with the manual oil cut
  - Emulsion rate is the test flow rate from the test separator and oil cut is measured manually by taking a sample of the flow.
  - Due to the slugging nature of the wells and high water flow during initial production, the test separator is not fully commissioned
  - There is only one separator on the well pad and well tests generally last for 8 to 15 hours depending on the fluid rate from the well (includes time to purge the test pipeline and test vessel)
  - To properly conduct a well test, with 8 wells on a pad, only one well can be tested every 4 - 5 days
- With the total production from the pad, individual well volumes are prorated against the overall production volume
- The same philosophy and process is applied to produced water and gas
- Currently, the meters on the test separator are being verified every time by comparing the results with the manual oil cut and water

Water Balance and Meter Calibration

- Water balance at the project has been maintained within +/- 5% and well within reporting and Petrinex limits

- Meter Calibration is now underway for 2018
  - Sunshine is now in the process of ensuring that the annual meter calibrations are completed.
  - Sunshine calibrates on a rolling schedule ensuring all meters are calibrated at least once annually or as required by appropriate Regulations

Water Disposal

- Currently there are no approved disposal facilities or wells associated with the West Ells Project

- Development of a disposal well would be beneficial to the project, unfortunately all receptive formations in the region are hydrocarbon bearing zones and as such inappropriate for disposal

- All waste streams are currently collected on site and trucked off to 3rd party approved oilfield waste facilities

Water Disposal

- Due to there being no disposal wells associated with the West Ells Project, all water is trucked off site to approved waste management facilities in the form of Evaporator Blowdown water

- Directive 81 currently requires a disposal limit of 7.35%
  - ((Fresh In x D_f + Produced In x D_p)/(Fresh In + Produced In)) x 100

- West Ells has had an average disposal rate of 2.43% for 2017
  - ((Total Disposal)/ (Fresh In + Produced In)) x 100

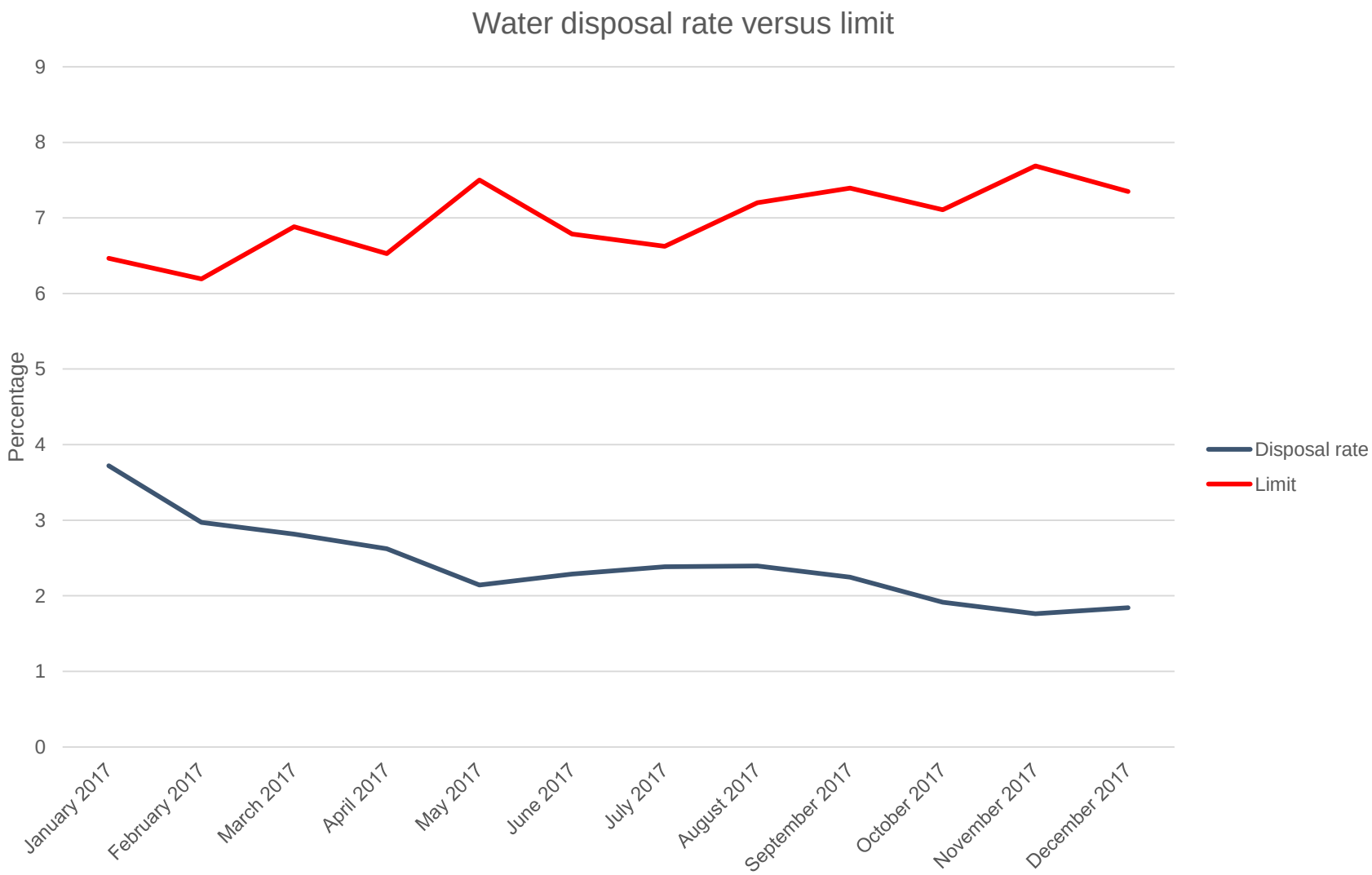
- West Ells was compliant with disposal limits for the entirety of 2017

Water Disposal And Recycle Rates

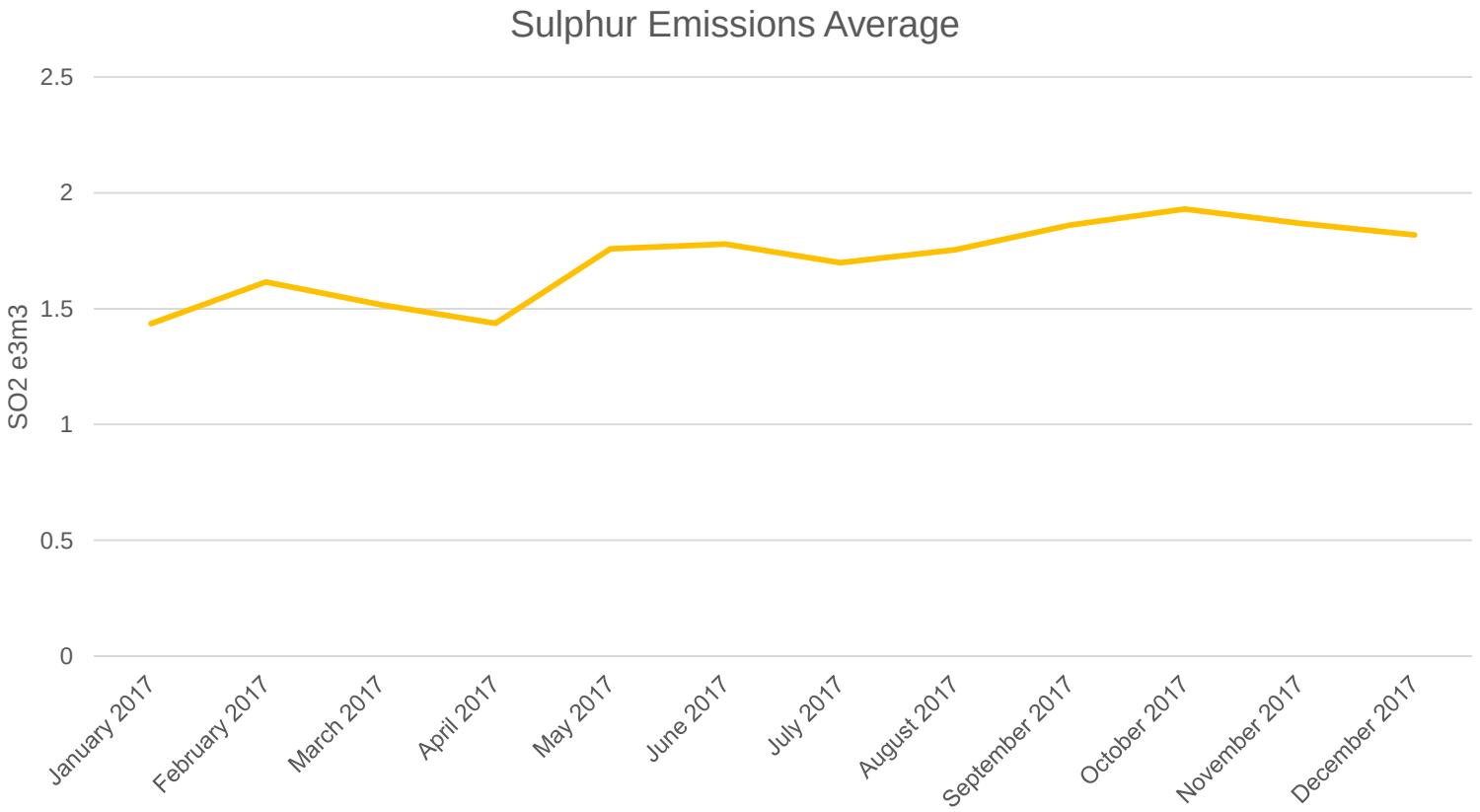
Directive 081 Monthly balances

	January 2017	February 2017	March 2017	April 2017	May 2017	June 2017
Fresh Water In (m3)	20,635.10	26,624.20	19,840.50	20,341.10	19,950.70	27,703.00
Produced Water In (m3)	20,250.40	22,325.00	24,742.00	20,661.50	35,963.60	32,645.30
Disposal Total (m3)	1,520.80	1,455.40	1,256.00	1,075.10	1,198.70	1,380.00
Disposal Factor, Fresh Water	0.03	0.03	0.03	0.03	0.03	0.03
Disposal Factor, Produced Water	0.10	0.10	0.10	0.10	0.10	0.10
Disposal Limit %	6.47	6.19	6.88	6.53	7.50	6.79
Disposal Rate %	3.72	2.97	2.82	2.62	2.14	2.29
	July 2017	August 2017	September 2017	October 2017	November 2017	December 2017
Fresh Water In (m3)	25,364.80	23,013.40	24,307.50	28,506.90	24,361.50	26,716.80
Produced Water In (m3)	27,222.60	34,552.80	41,031.70	40,466.10	49,435.20	43,837.00
Disposal Total (m3)	1,254.00	1,379.00	1,469.10	1,322.20	1,301.10	1,300.90
Disposal Factor, Fresh Water	0.03	0.03	0.03	0.03	0.03	0.03
Disposal Factor, Produced Water	0.10	0.10	0.10	0.10	0.10	0.10
Disposal Limit %	6.62	7.20	7.40	7.11	7.69	7.35
Disposal Rate %	2.38	2.40	2.25	1.92	1.76	1.84

Water Disposal Rate

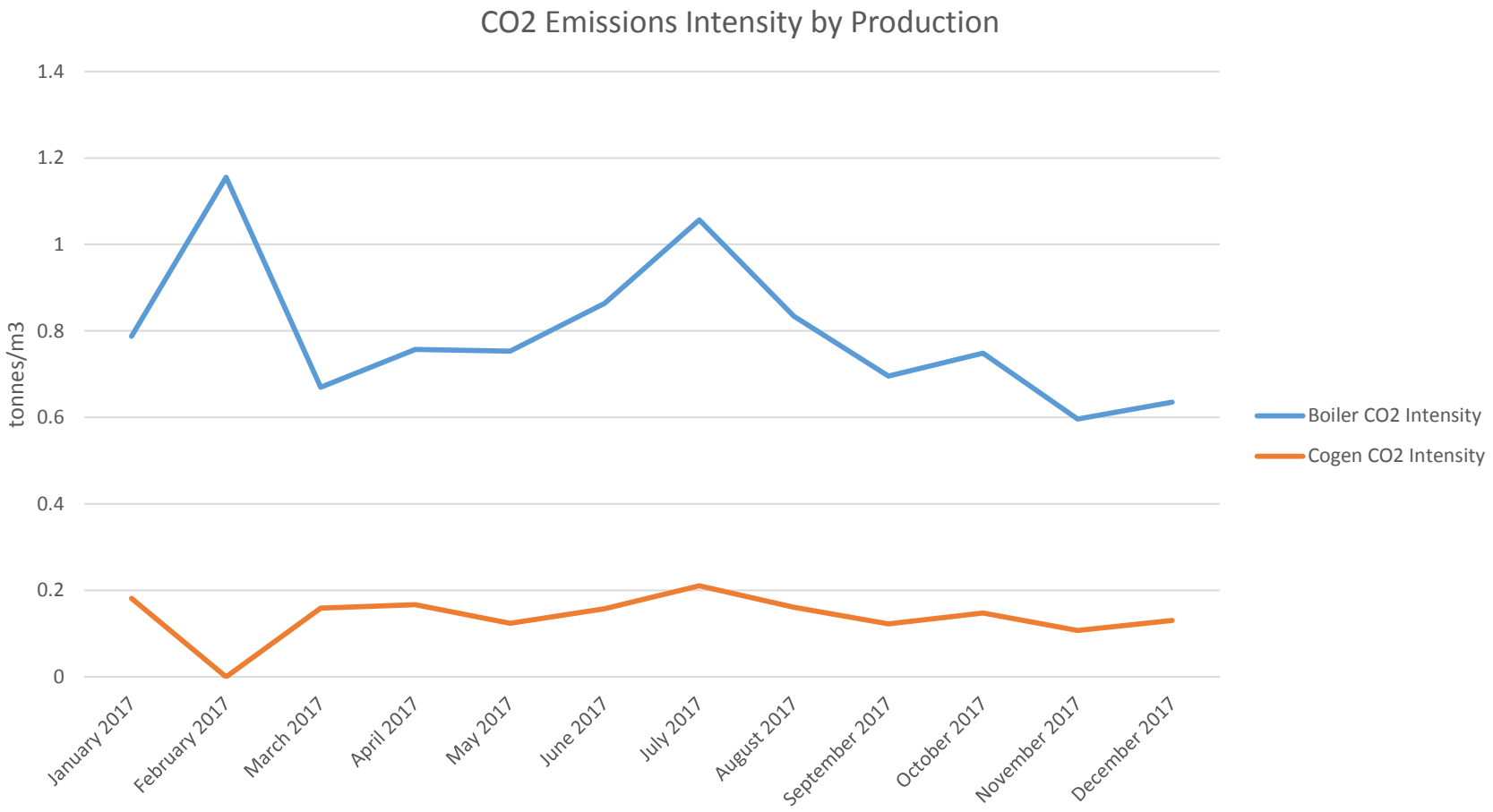


Sulphur Emissions Intensity



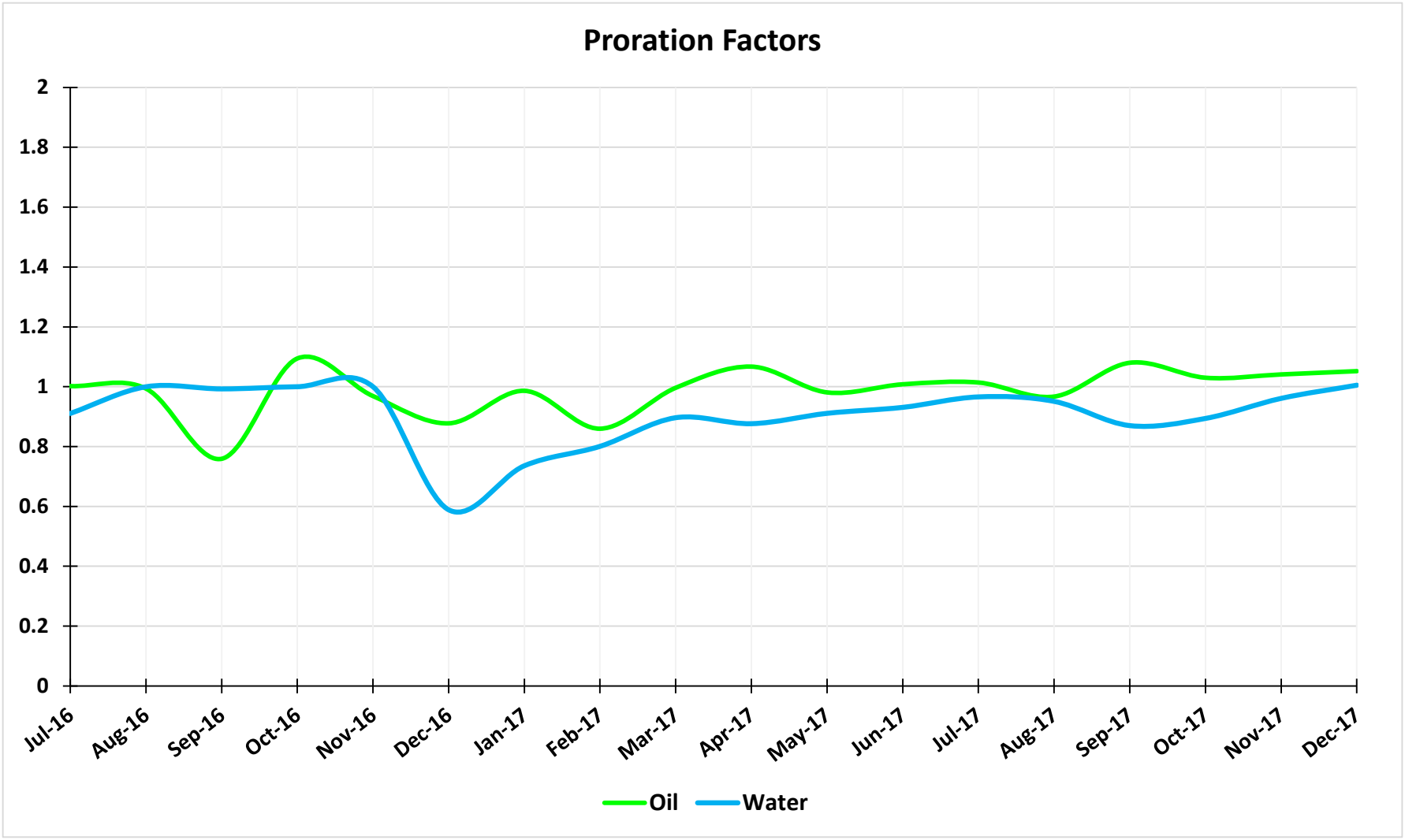
West Ells has a sulphur inlet rate of 0.34 t/d

CO2 Emissions Intensity (tonnes/m³)

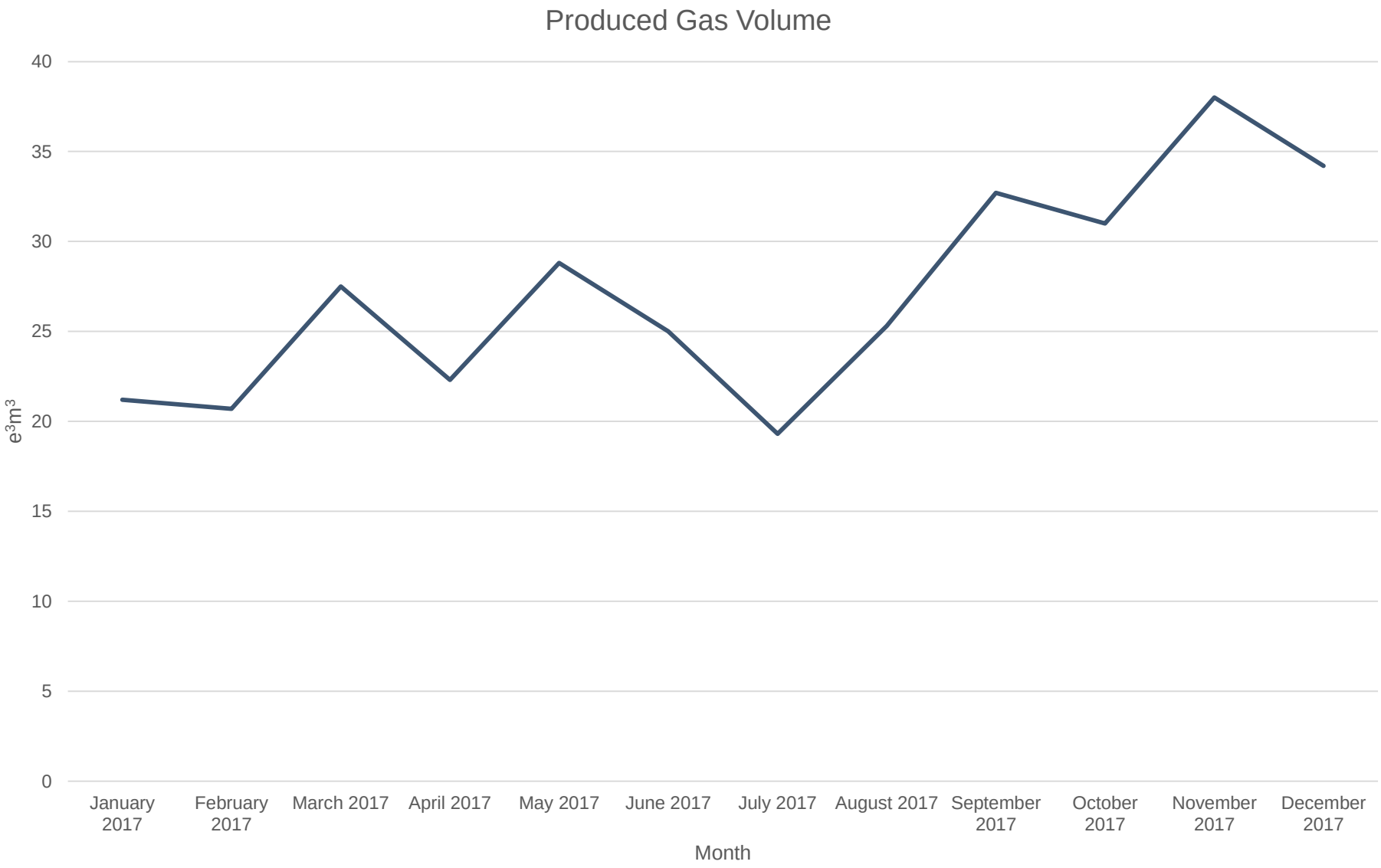


- Emissions intensity average was 0.935 tonnes/m³ 2017

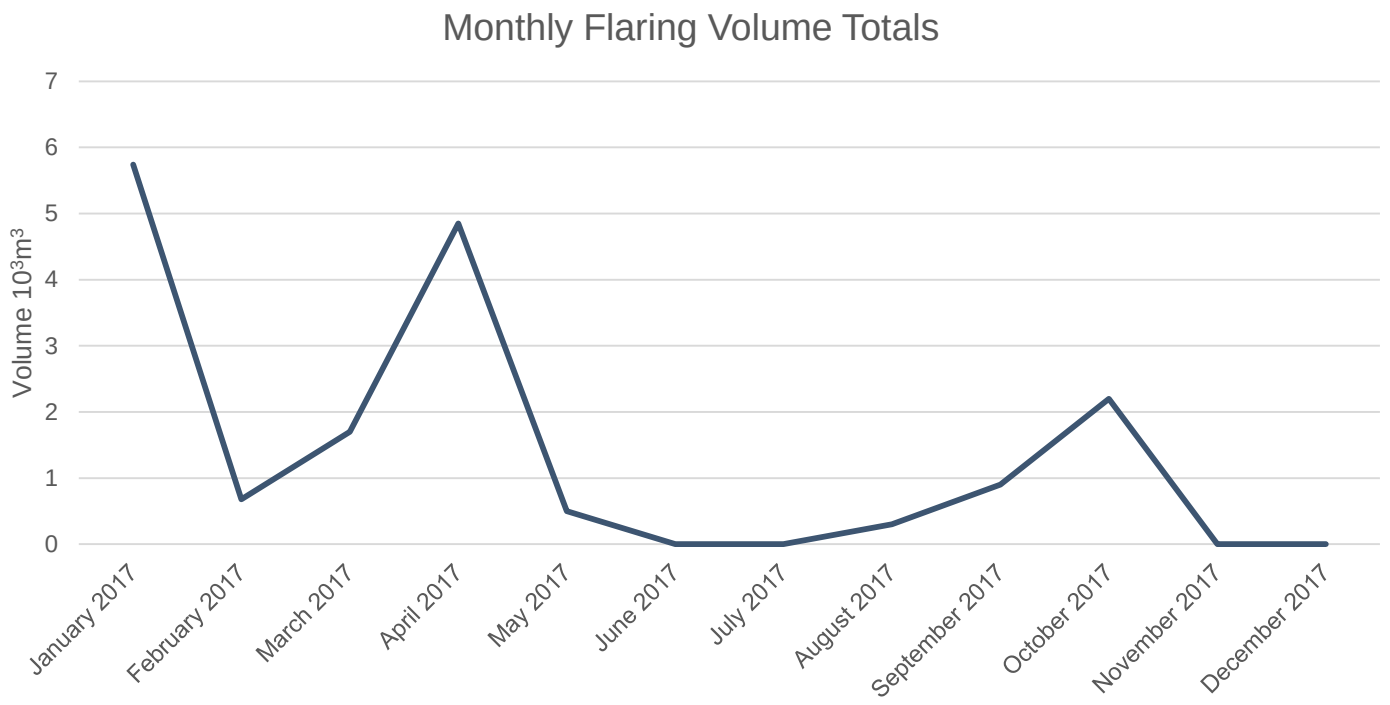
Proration factors



Produced Gas Monthly Average



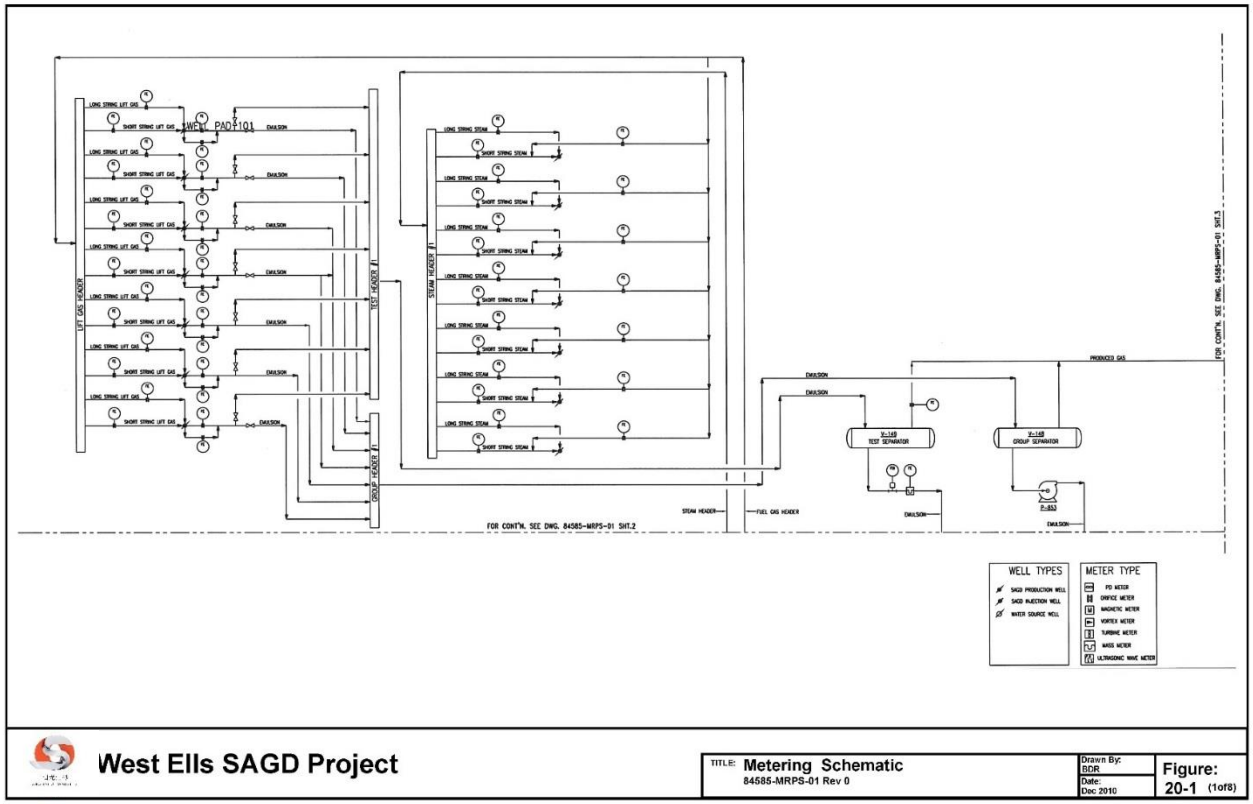
Flaring Volume



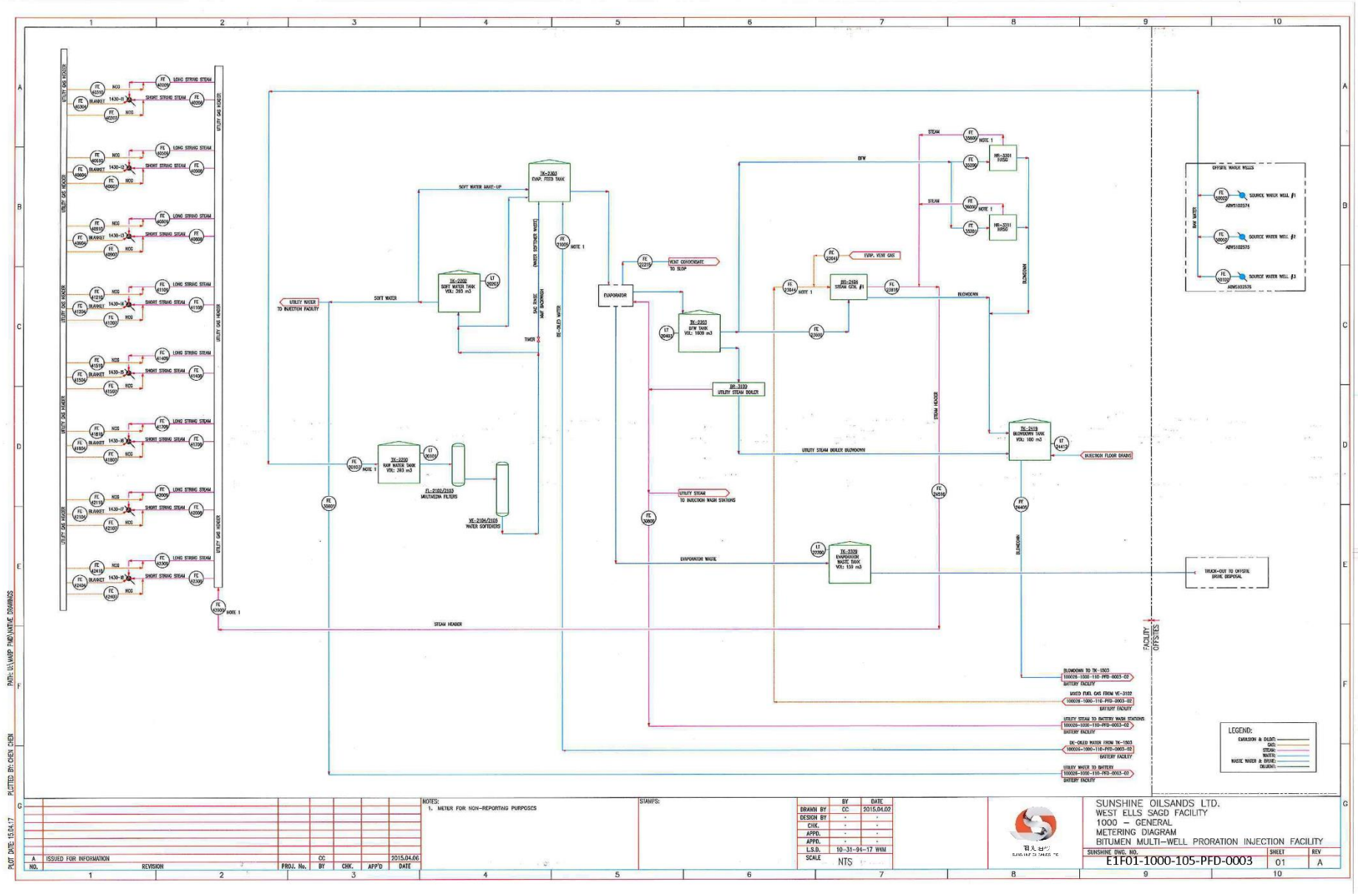
Month	January 2017	February 2017	March 2017	April 2017	May 2017	June 2017
Flaring Volume e³m³	5.74	0.68	1.7	4.85	0.5	0
Month	July 2017	August 2017	September 2017	October 2017	November 2017	December 2017
Flaring Volume e³m³	0	0.3	0.9	2.2	0	0

MARP

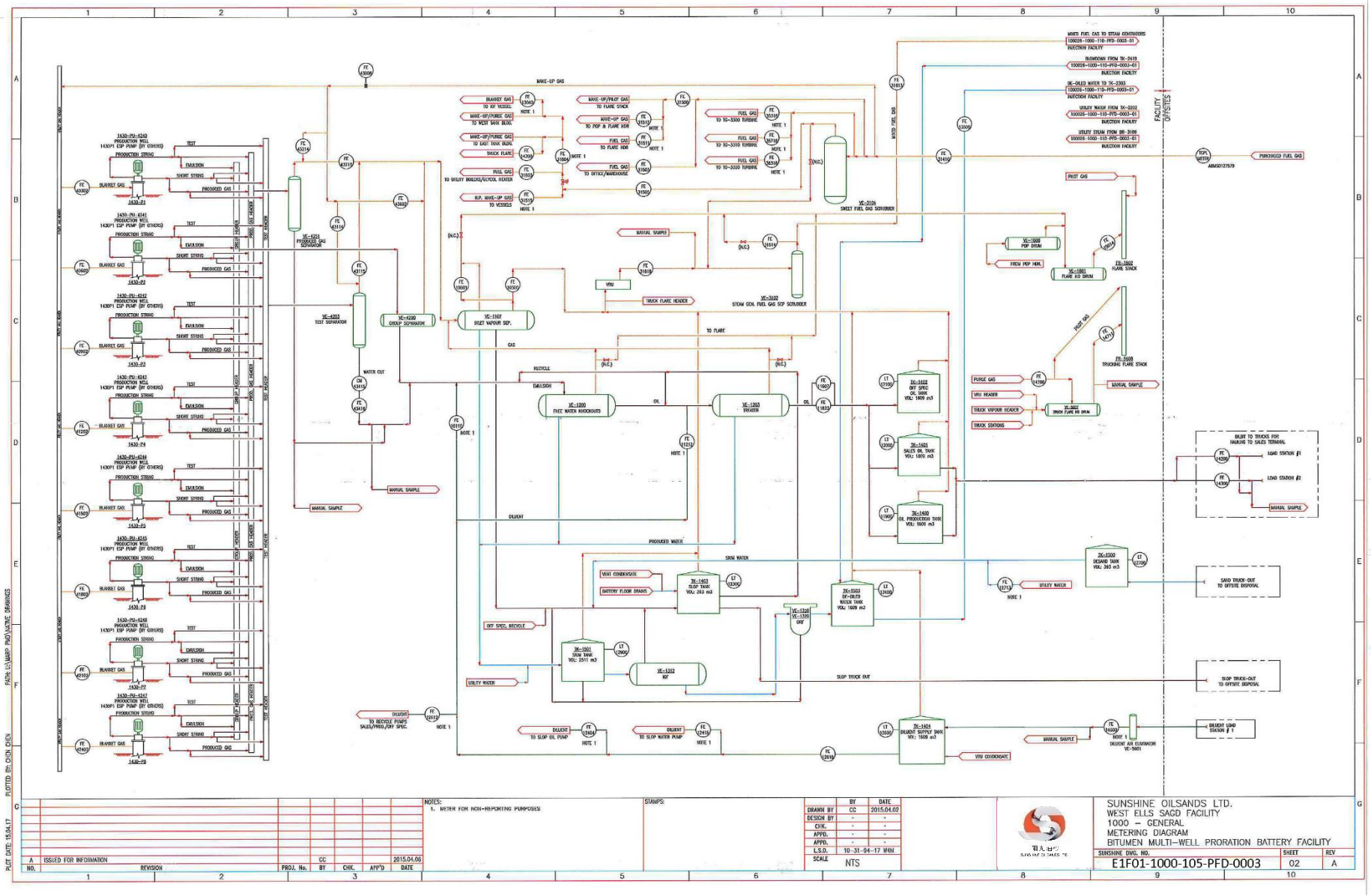
- There have been no changes to the MARP since the 2015 update
  - Reporting codes associated with West Ells
    - ABBT0123666
    - ABIF0123667
    - ABWS0139258. ABWS0139259. ABWS0139260



Metering Schematic



Metering Schematic



Regulatory and Compliance

Compliance

- **Issues**
  - Air monitoring
    - Minor issues with uptime percentage on CEMS unit, all non-compliances reported and any backfilling of data was completed with the approval of the CEMS Coordinator
      - Issues were traced back to a minor maintenance problem and have since been resolved
  - Signage details was indicated to be insufficient in some areas
    - Entire site was reviewed and retrofitted with appropriate signage, no compliance issue remains

- **Ongoing Compliance Management**
  - Issues were discovered with MARP Calibration schedule in 2016, full calibration compliance was achieved in 2017, and will continue forward
  - Faulty equipment discovered in the PRV thief hatch
    - Issue was self-disclosed to the AER, and repairs continue under a remedial plan and direction of Bonnyville Field Center
  - No major spills or releases (>2m^3)

Future Plans

- Regulatory
  - Solvent Surfactant Application
    - Sunshine expects to apply for solvent surfactant approval to improve resource recovery
  - Renewal of Water Act Term Licence for 5 year term.
- Phase 1 (5,000bbl/d)
  - Sunshine plans to continue to fully demonstrate the reservoir productivity before advancing to Phase 2
- Phase 2 (5,000bbl/d)
  - Sunshine continues to plan the development of Phase 2 and will incorporate any and all key learnings from Phase 1 to improve design and efficiency
  - Phase 2 development will begin as funding is secured
- Steam Strategy
  - Continue to maximize steam efficiency
  - Sunshine will continue building the steam chamber and ramping up production towards nameplate capacity
  - Even steam chamber development will be a strong focus in 2018

Compliance Declaration

Sunshine is compliant with all AER Rules and Regulations and meets all approval requirements under the Environmental Protection and Enhancement Act

Contact

Thank you for your time!

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Calgary, AB T2P 0P7
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info@sunshineoilsands.com

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