Husky Oil Operations Limited

Sunrise Thermal Project – Commercial Scheme No. 10419

Annual Performance Presentation

September 19, 2018

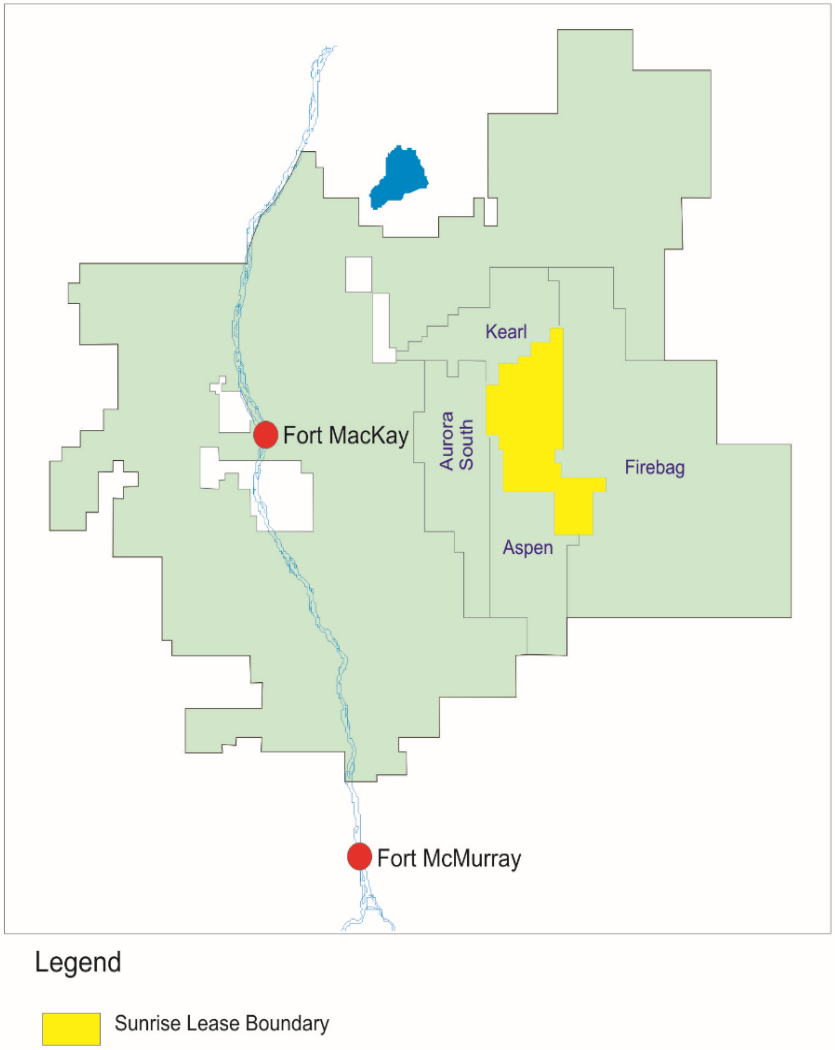
3.1.1. Subsurface Issues

TABLE OF CONTENTS

1. Brief Background

PROJECT OVERVIEW

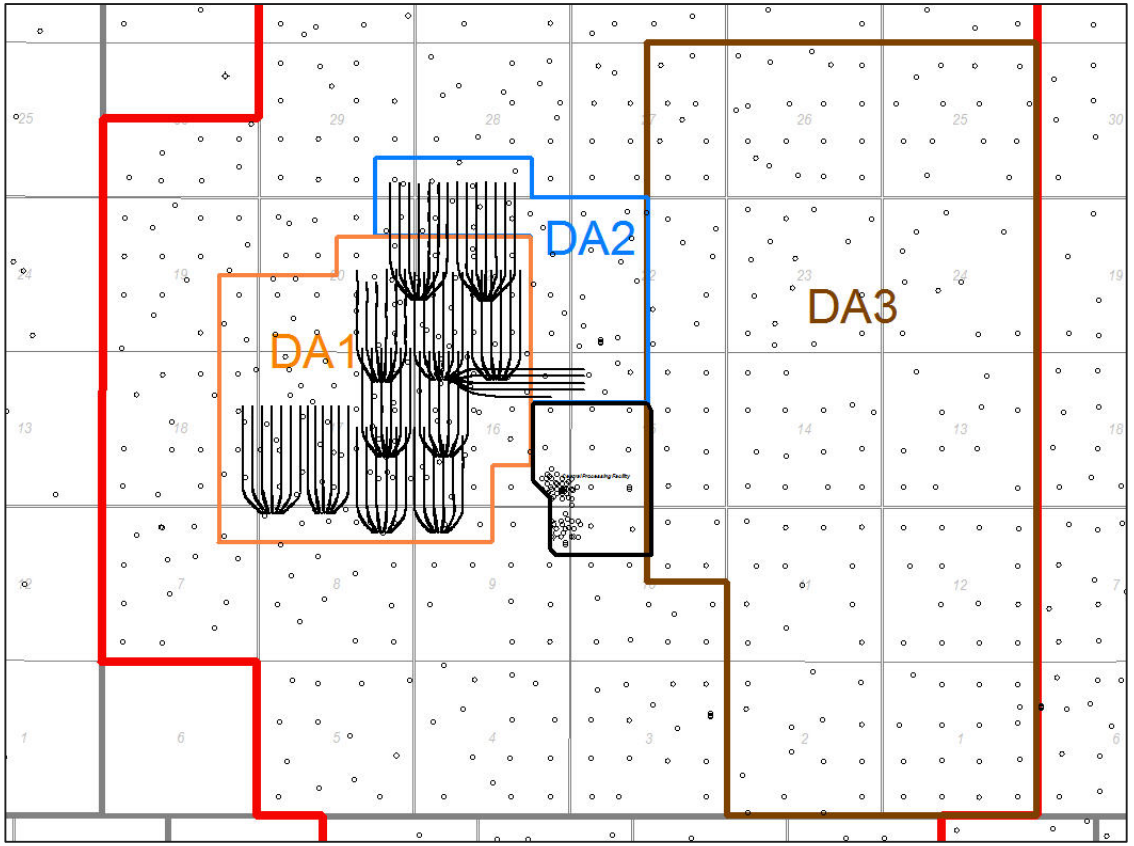
- AER Approval No's. 10419 and 206355-01-00, as amended
- 31,798 m^3 /d (200,000 BOPD) SAGD Project
- Phase 1 – 10,970 m^3/d (69,000 BOPD)
- McMurray Formation
- 7-9º API Bitumen
- 50% Partnership with BP
- First Steam December 12, 2014
- First Production March 8, 2015



1. Brief Background

PROJECT DEVELOPMENT AREA

- Approval Area:
  - 64 ¼ sections over TWP 94, 95 and 96, RGE 6 and 7 W4M
- Project Life Development:
  - Approx. 600 well pairs
  - Approx. 40 year life
- Development Area 1 (DA1):
  - Nine well pads
  - 55 well pairs
- Development Area 2 (DA2):
  - Three well pads
  - 19 well pairs
  - Drill / tied in two well pads (B05-21 (P) and B06-21 (Q))
  - Drilled Pad B10-16 (R)
  - Sustain 10,970 m^3/d (69,000 BOPD)
- Development Area 3 (DA3):
  - 18 well pads
  - 222 well pairs
  - AER Approved January 25, 2016



1. Brief Background

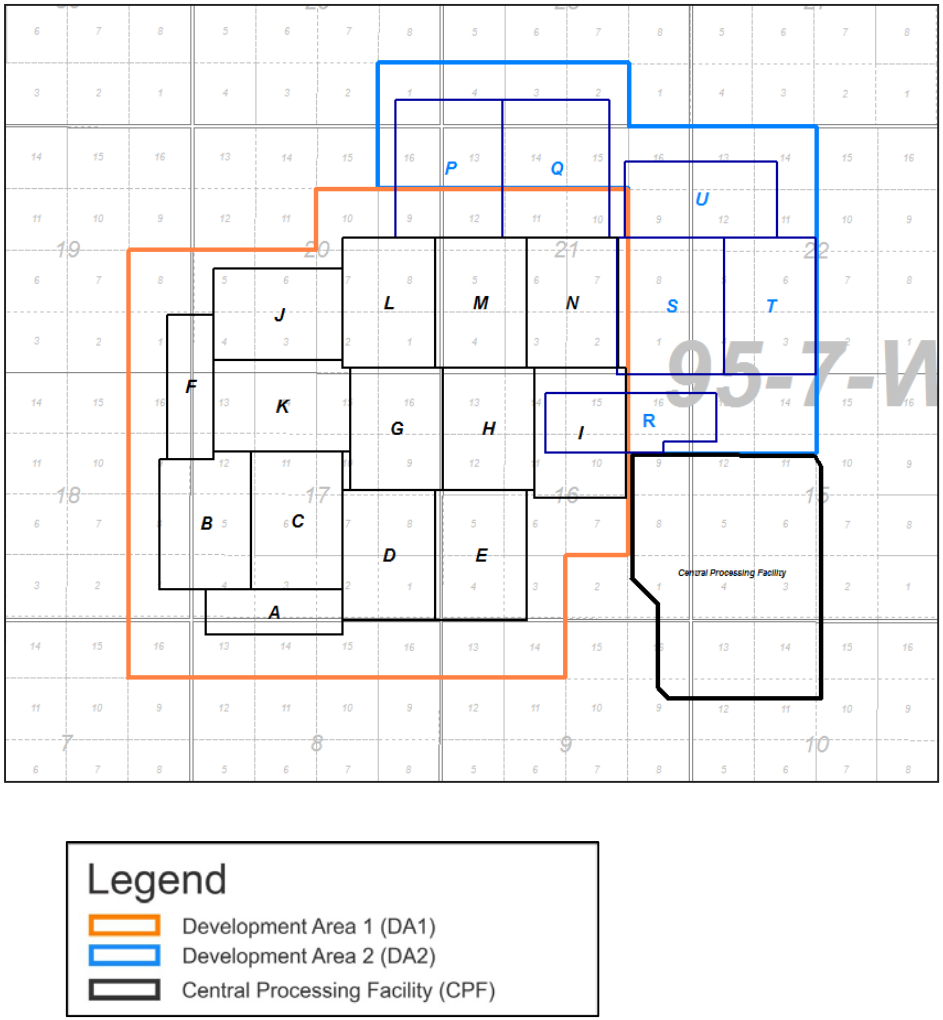
SITE OVERVIEW

- 74 horizontal well pairs drilled:
  - 55 well pairs in DA1 on production
  - 14 well pairs in DA2 on production
  - 5 well pairs in DA2 drilled
- Field Facilities:
  - 11 well pads constructed and tied in
- Infill wells:
  - 12 wells drilled
- Central Plant Facility:
  - Bitumen treating – 10,970 m^3/d (69,000 bbl/day)
  - Water Treatment – 43,860 m^3/d (276,000 bbl/day)
  - Steam Generation – 32,890 m^3 /d (207,000 bbl/day) CWE
  - Utilities
- Water Source & Disposal Wells
- Observation Wells
- Borrow Sources
- Class 1 Landfill
- Metering and Export Pipelines to Fort Saskatchewan via Norealis Terminal and Cheecham

2. Geosciences

AVERAGE RESERVOIR CHARACTERISTICS & OBIP DA1 & DA2

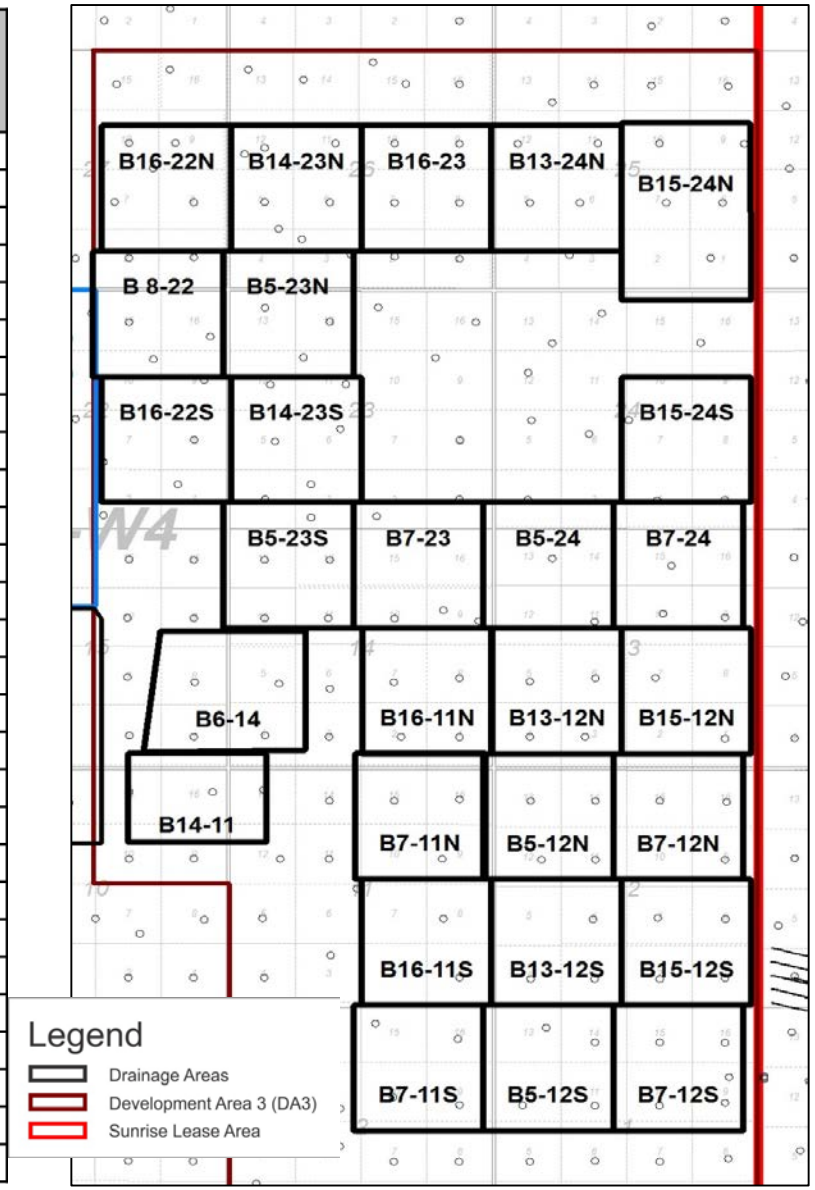
Drainage Pattern	Area (ha)	Porosity (%)	Bitumen Saturation (%)	Developable OBIP (10^3 m^3)
B16-07 (A)	27.00	30	79	1,628
B13-08 (B)	62.10	31	81	3,868
B14-08 (C)	45.90	32	82	4,394
B16-08 (D)	51.00	32	81	3,219
B13-09 (E)	51.00	31	79	2,677
B08-18 (F)	28.51	30	78	1,600
B08-17 (G)	48.00	31	79	3,334
B05-16 (H)	51.00	32	81	3,351
B07-16 (I)	51.00	31	84	3,265
B16-18 (K)	54.00	32	78	4,326
B01-19 (J)	51.00	31	84	3,484
B16-17 (L)	51.00	32	82	3,999
B13-16 (M)	51.00	33	82	4,325
B15-16 (N)	51.00	31	85	4,374
B05-21 (P)	63.00	31	81	5,628
B06-21 (Q)	63.00	31	80	5,160
B10-21 (U)	50.00	30	81	4,004
B16-16 (S)	63.00	31	78	4,185
B14-15 (T)	54.00	30	81	3,700
B10-16 (R)	43.00	32	75	2,969



2. Geosciences

AVERAGE RESERVOIR CHARACTERISTICS & OBIP – DA3

Drainage Pattern	Area (ha)	Porosity (m)	Bitumen Saturation (%)	Developable OBIP (10^3m^3)
B05-12N	68.0	31.7	76.4	4,310
B05-12S	68.0	29.2	79.2	3,460
B07-12N	68.0	31.6	81.3	4,600
B07-12S	68.0	31.8	81.8	5,530
B13-12N	68.0	31.7	79.7	4,860
B13-12S	68.0	31.1	78.5	3,340
B15-12N	68.0	31.3	84.0	3,840
B15-12S	68.0	31.6	83.5	4,700
B06-14	76.6	31.0	84.1	5,480
B07-11N	68.0	30.3	79.0	3,420
B07-11S	68.0	31.2	74.4	3,770
B14-11	51.0	30.7	81.4	2,720
B16-11N	68.0	30.5	79.7	4,050
B16-11S	68.0	31.2	74.4	1,730
B13-24	68.0	30.8	84.4	6,620
B14-23N	68.0	32.2	79.0	5,750
B14-23S	68.0	31.9	81.1	2,950
B15-24N	95.3	31.3	83.6	5.790
B15-24S	68.0	30.4	78.1	2,290
B16-22N	68.0	32.7	78.4	5,160
B16-22S	68.0	32.4	75.9	2,580
B16-23	68.0	31.3	83.0	5,310
B05-23N	68.0	31.0	79.9	5,050
B05-23S	68.0	32.7	75.2	3,740
B05-24	68.0	29.6	80.5	4,100
B07-23	68.0	30.6	79.7	3,430
B07-24	68.0	29.9	79.0	3,330
B08-24	68.0	30.0	84.7	4,120



2. Geosciences

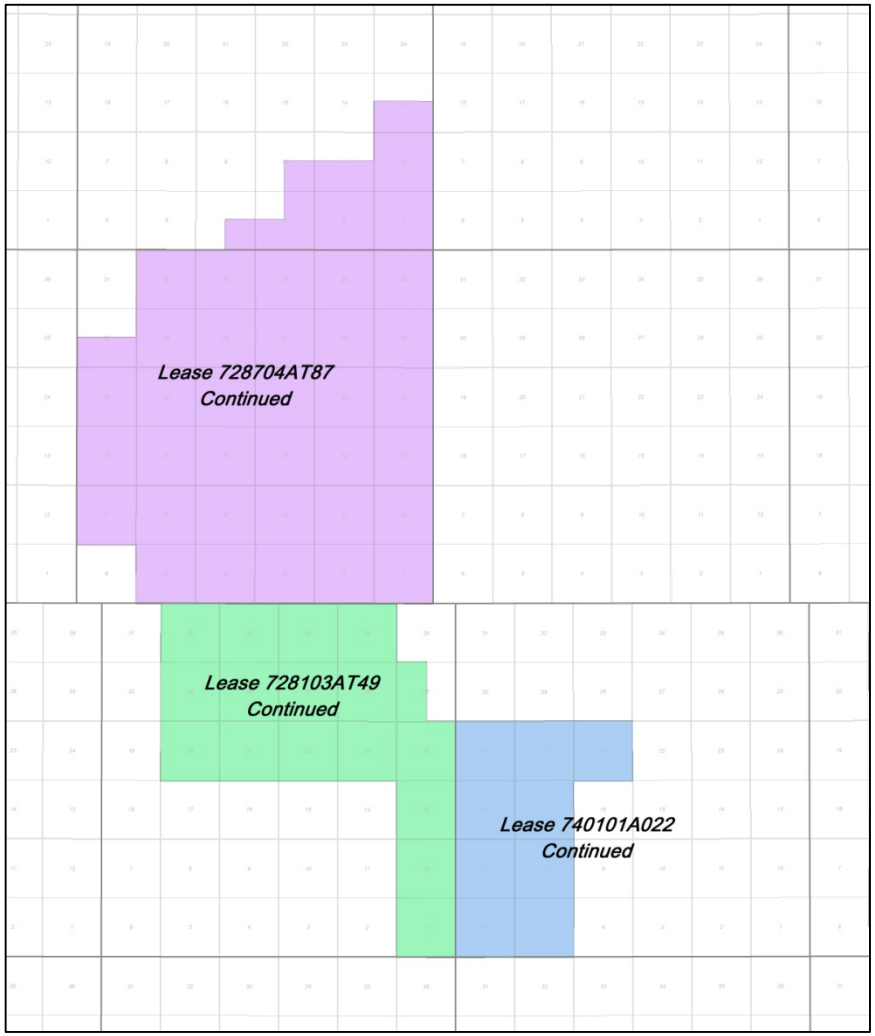
OBIP PROJECT AREA

Methodology

- Volumetric Calculation
  - OBIP = Area (m2) times HPV (m)
  - HPV = net thickness x net bitumen Saturation x effective Porosity
  - Cut off 6% BWO

- Geographix Application

Lease	OBIP 6% BWO cutoff (10^3 m^3)	Gross Thickness (m)	Porosity (%)	Bitumen Saturation (%)
Total	1,410,565	36.0	30.4	77.5



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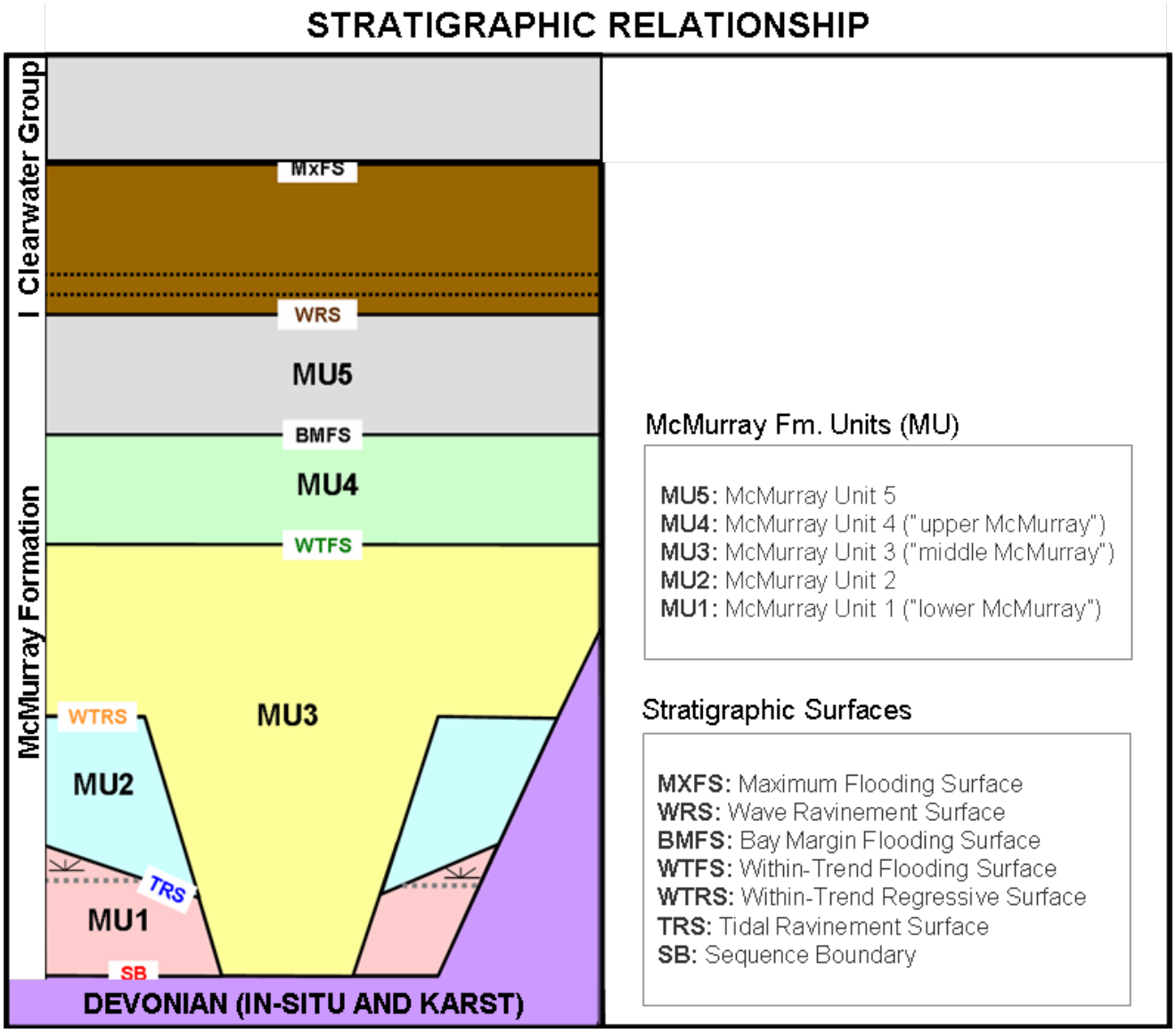
RESERVOIR PROPERTIES

Property	Value
Initial Reservoir Pressure (kPa_g)	450 at 300 masl
Reservoir Temperature (°C)	7
Depth to Reservoir (m)	160 – 200
Average Net Pay (m)	24
Average Horizontal Permeability (mD)	3700
Average Vertical Permeability (mD)	2000

2. Geosciences

SUNRISE STRATIGRAPHIC COLUMN



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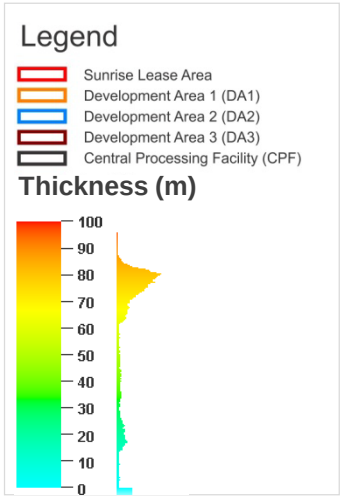
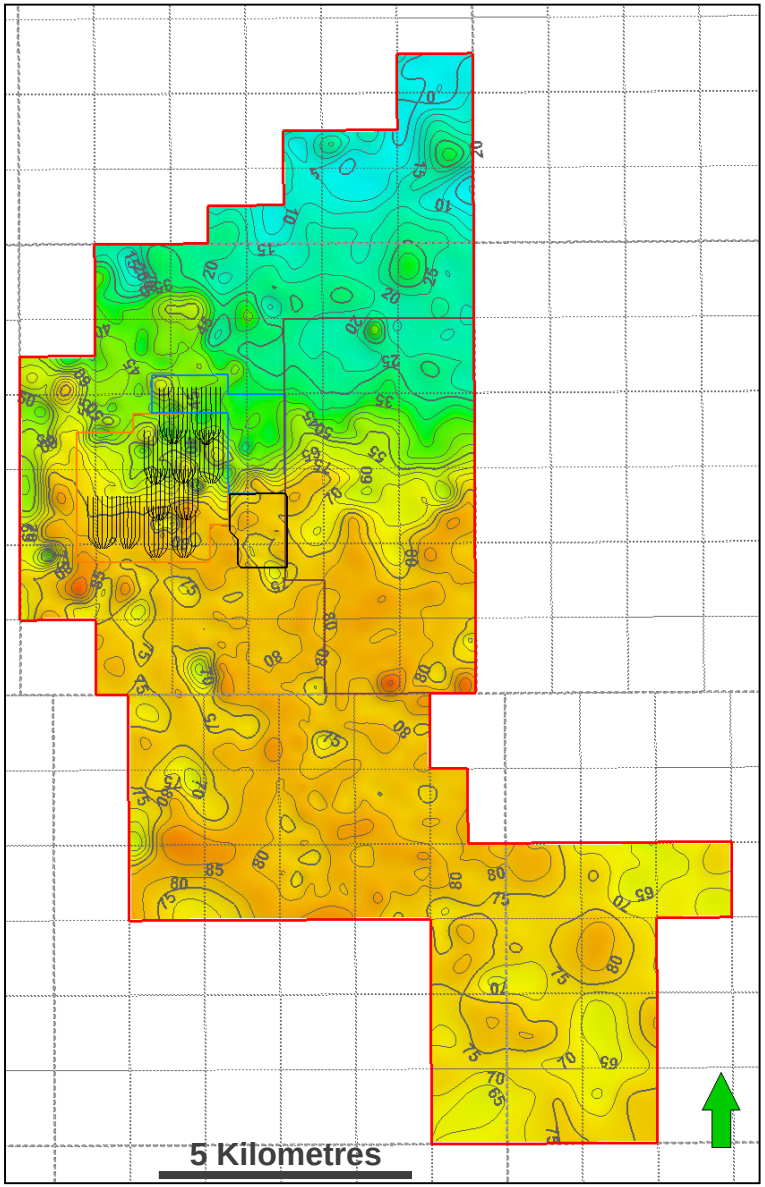
CLEARWATER FORMATION ISOPACH MAP





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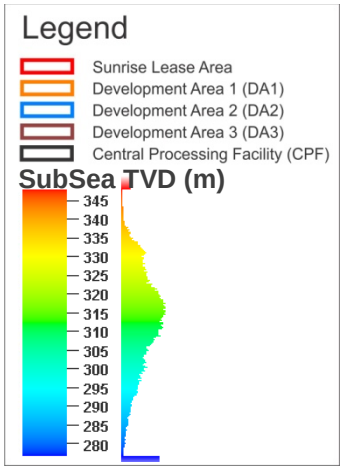
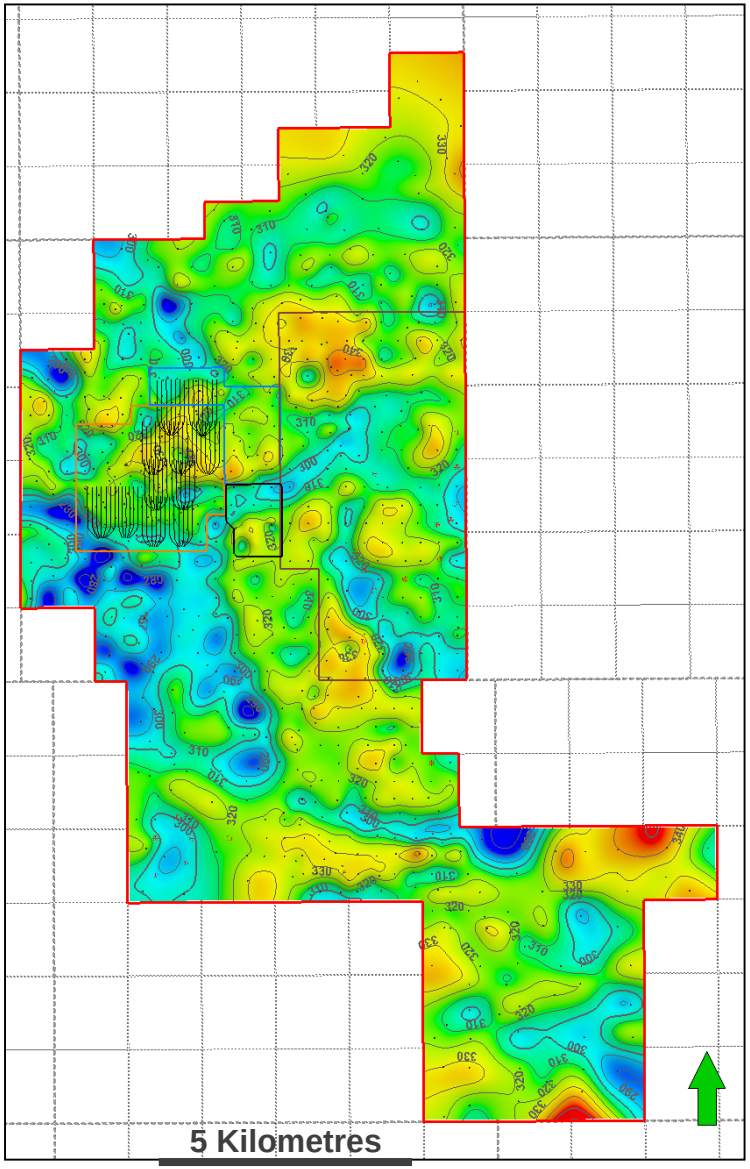
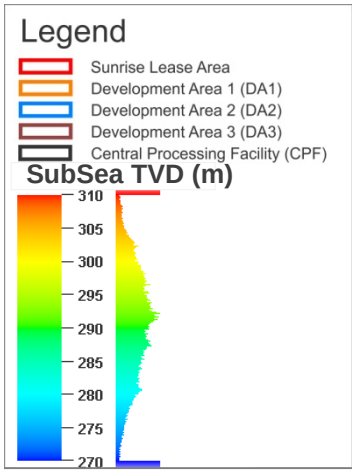
TOP OF PAY STRUCTURE CONTOUR MAP

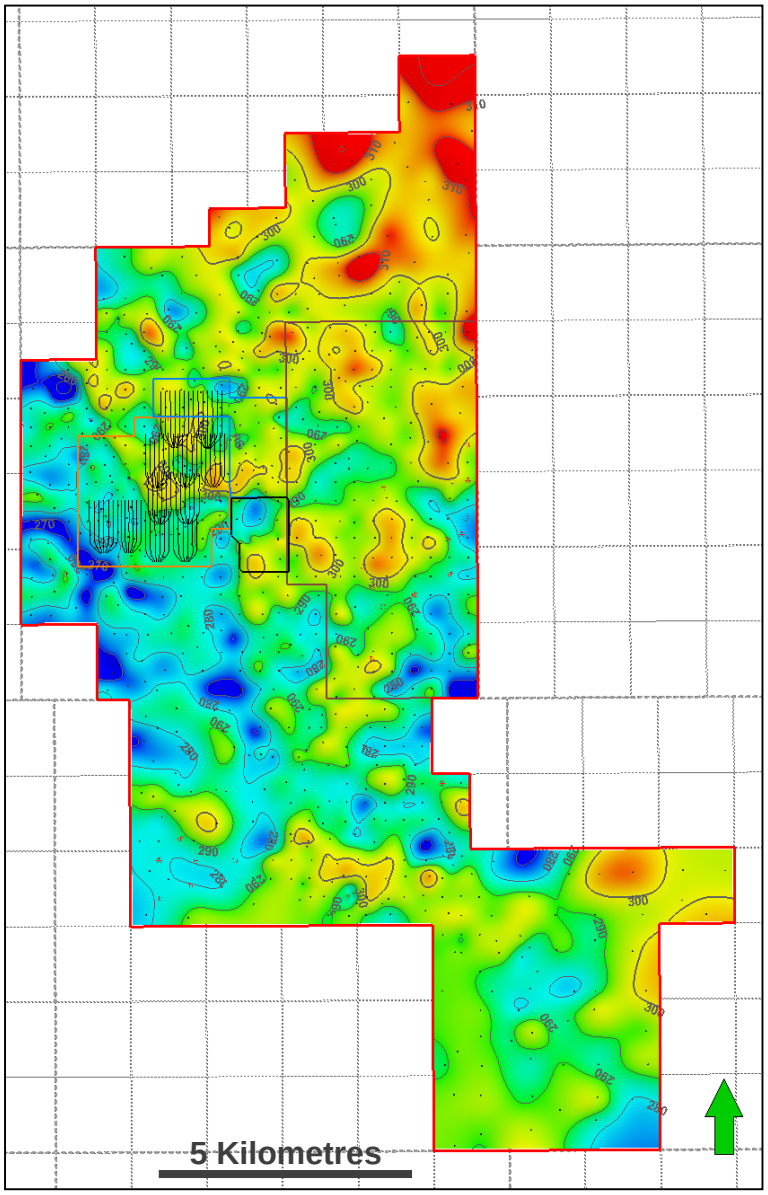




2. Geosciences

BASE OF PAY STRUCTURE CONTOUR MAP





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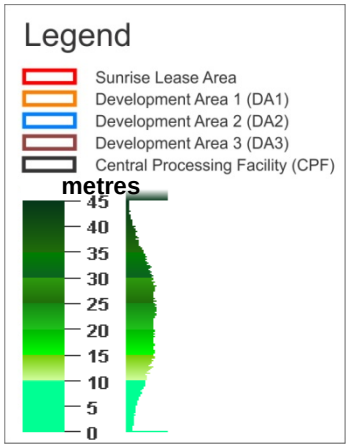
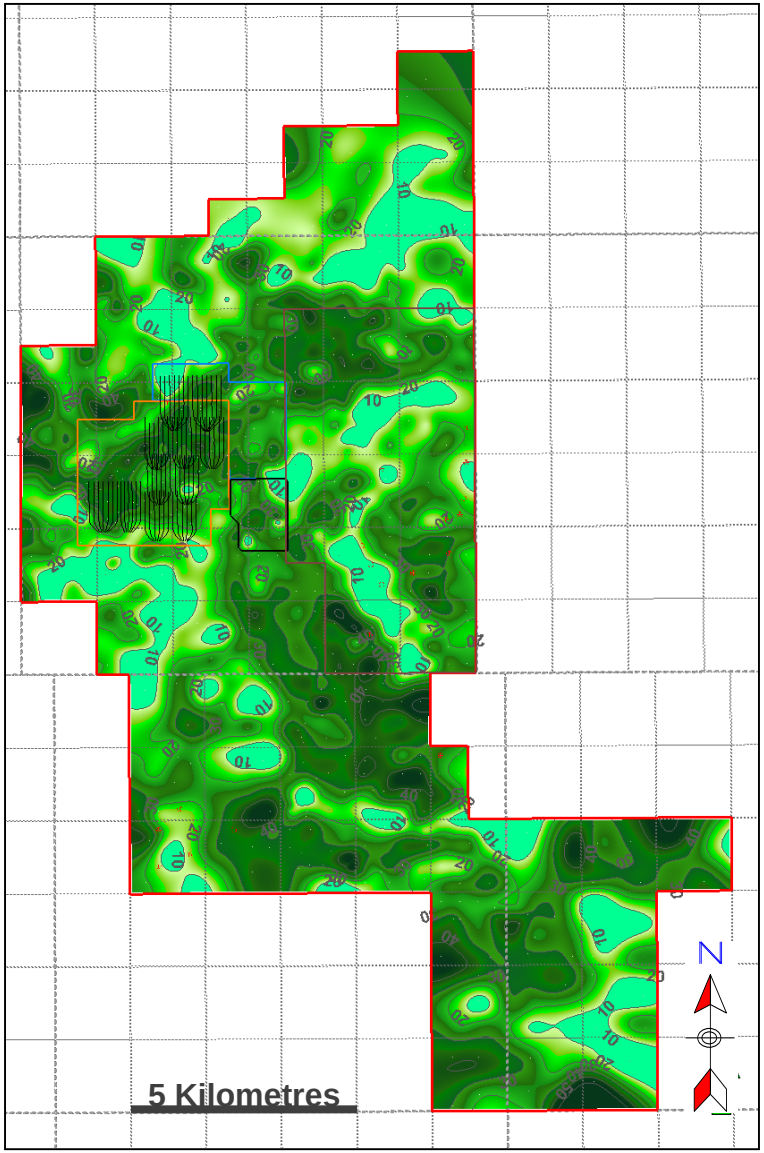
MAIN GROSS CONTINUOUS BITUMEN THICKNESS (M)





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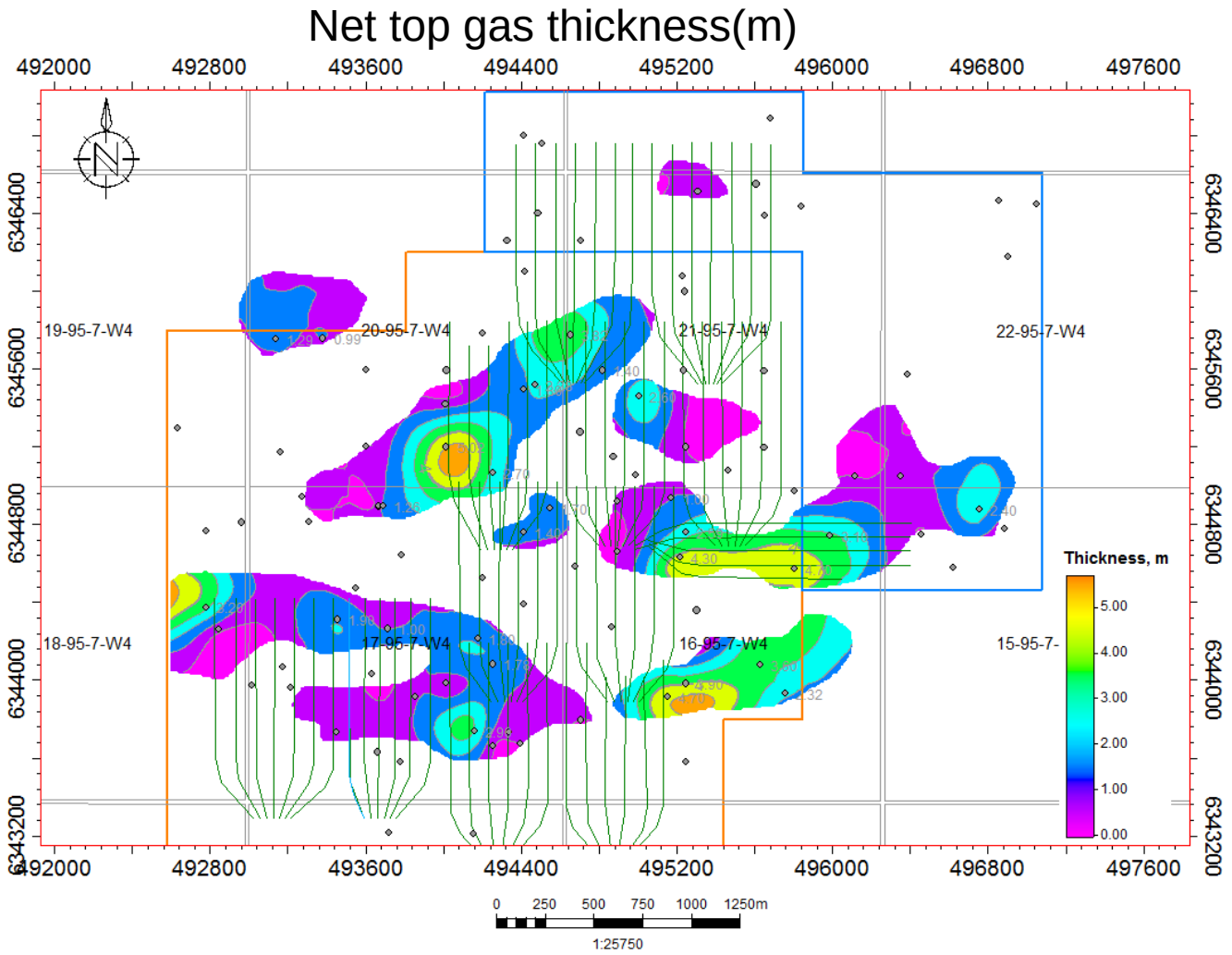
THIEF ZONES – THERE IS NO BOTTOM WATER AND SOME DISCONTINUOUS, DEPLETED TOP GAS IN THE DA1 AND DA2 AREAS



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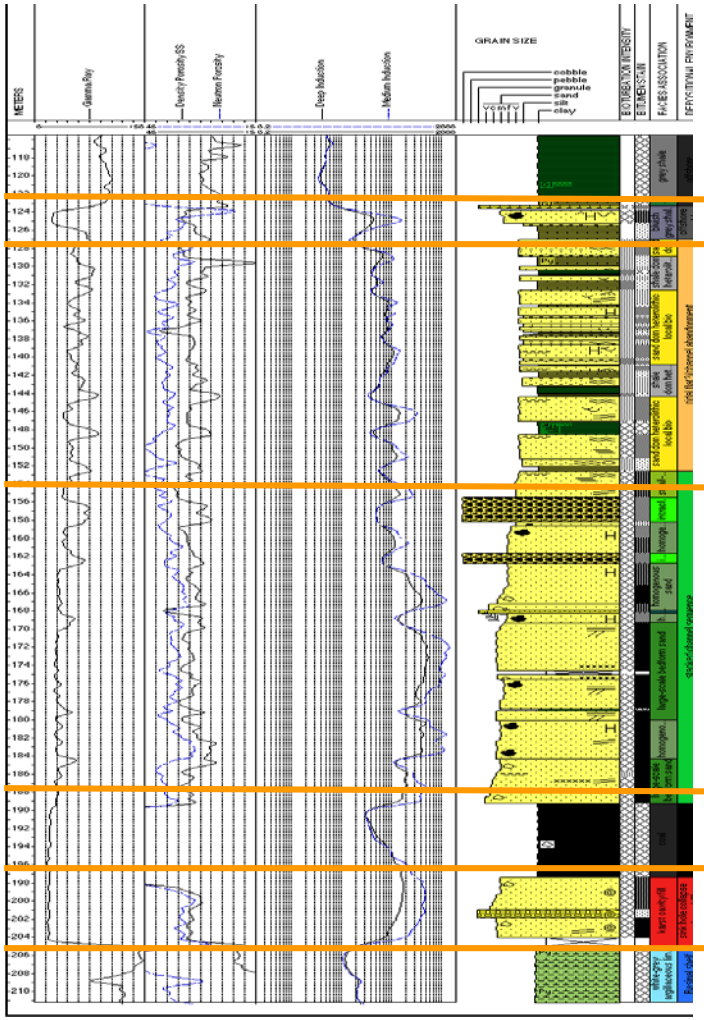
DEPOSITIONAL ENVIRONMENT



Marine Shale — **Clearwater**

Marine Sands and Shales — **McMurray**

Tidal Flats/IHS

Estuarine Channels

Coal/Marsh

Lower Channel

Devonian

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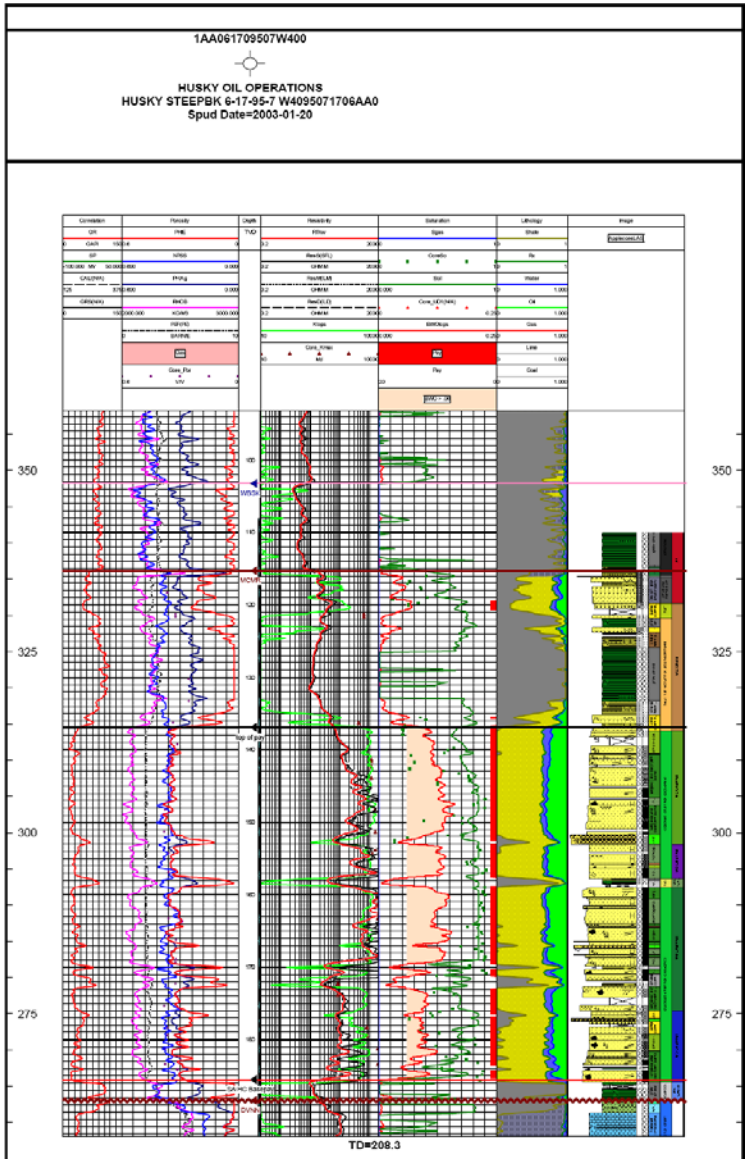
COMPOSITE WELL LOG

- Well 06-17-095-07W4M

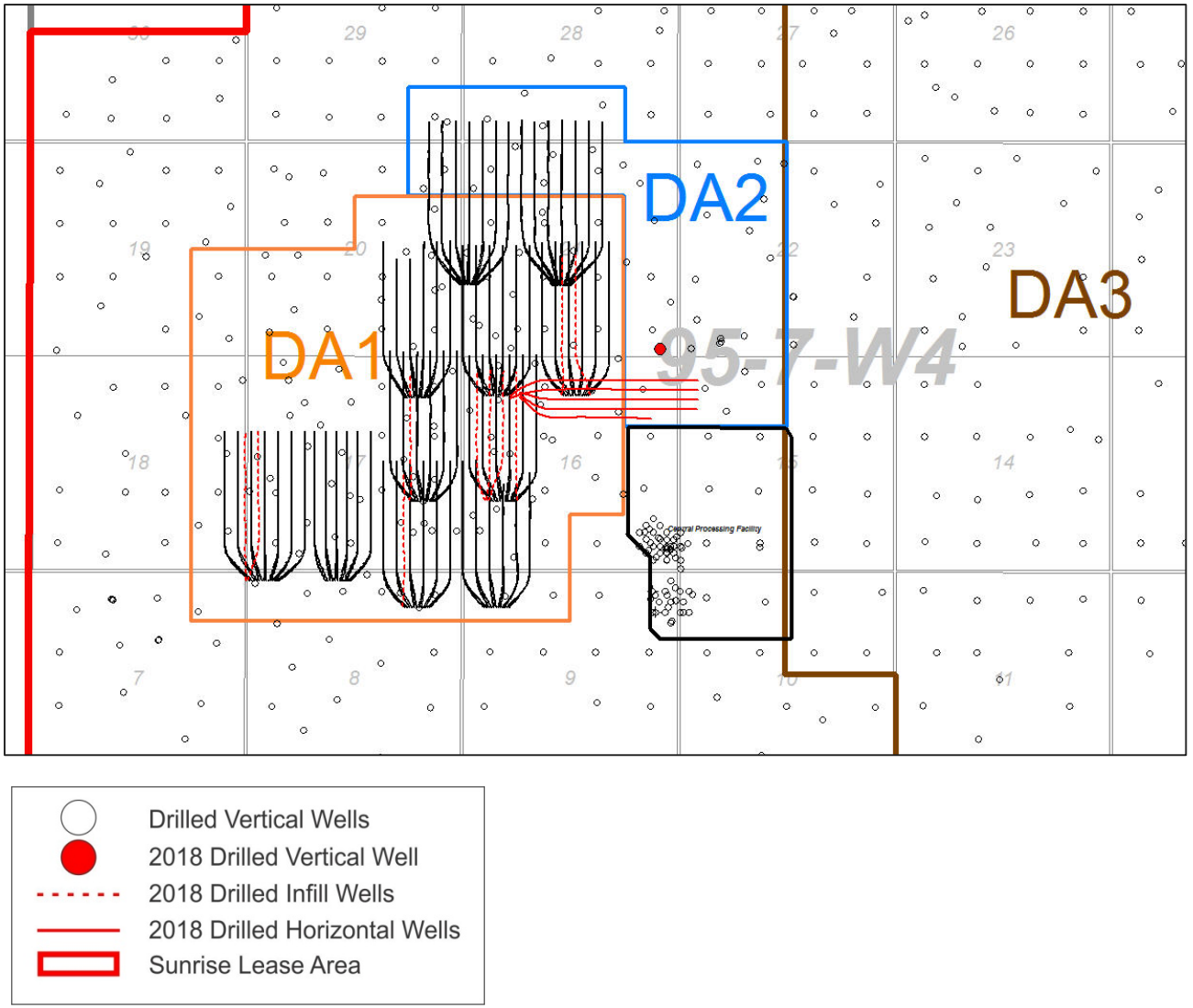


2. Geosciences

VERTICAL AND HORIZONTAL WELLS

2018 Program:

- One vertical well in DA2
- HZ wells:
  - 3 replacement wells (L5F, M3F, C6F)
  - 10 infill wells



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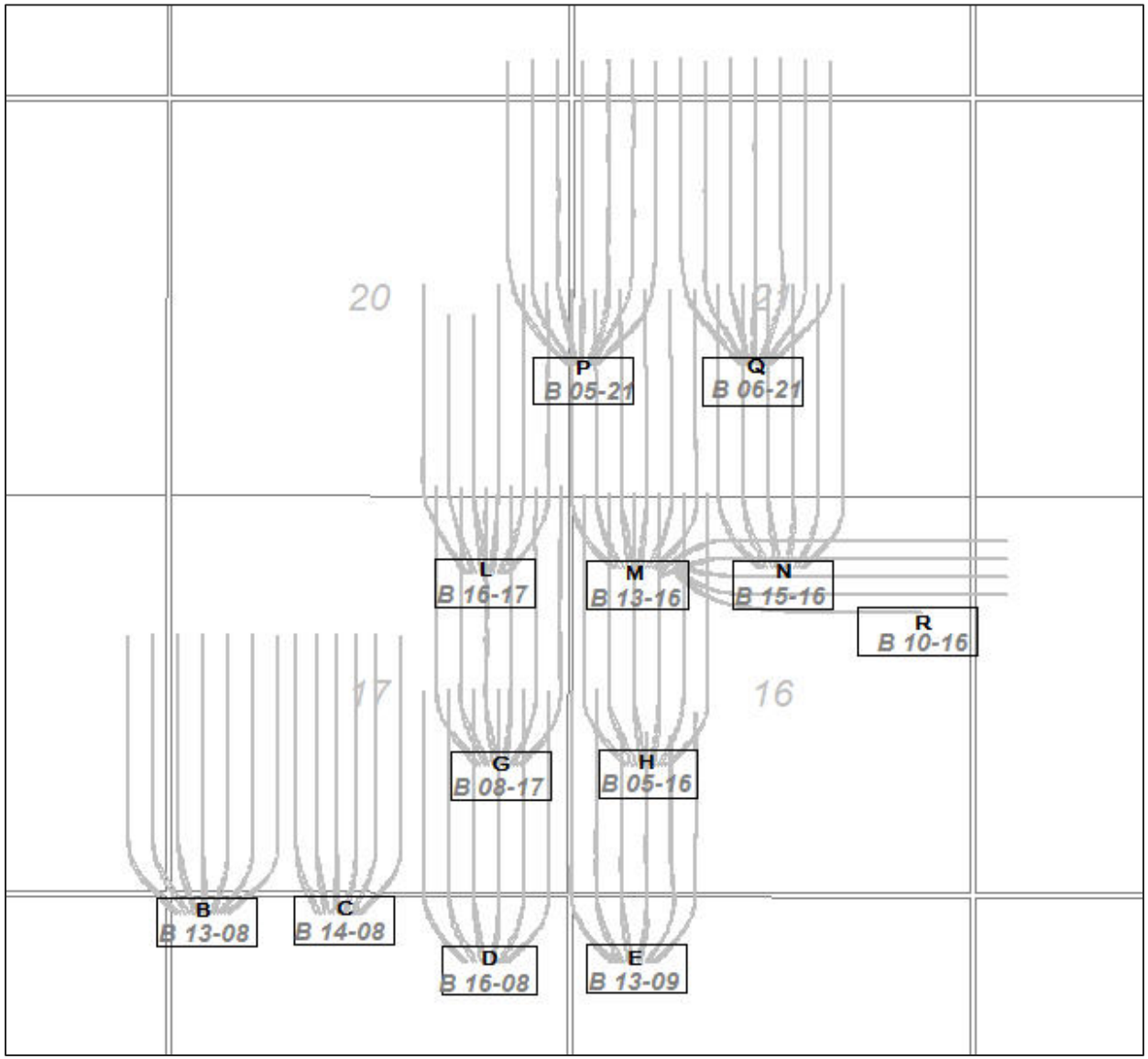
PAD INTER-WELL SPACING SCHEMATIC



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PAD INTER-WELL SPACING

Well Pad	Inter-well Spacing (meters)
B13-08 (B)	100
B14-08 (C)	80-100
B16-08 (D)	100
B13-09 (E)	100
B08-17 (G)	100
B05-16 (H)	100
B16-17 (L)	100
B13-16 (M)	100
B15-16 (N)	100
B-05-21 (P)	100 (P6-7 90)
B06-21 (Q)	100
B16-16 (R)	72

2. Geosciences

PETROGRAPHIC ANALYSIS

- No petrographic analysis was done during the reporting period

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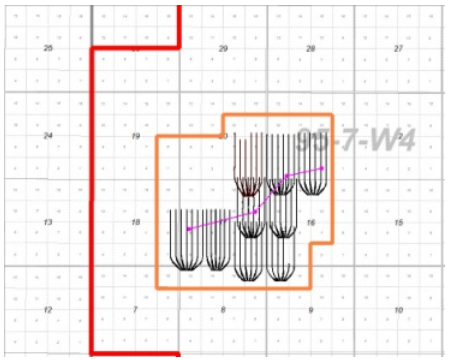
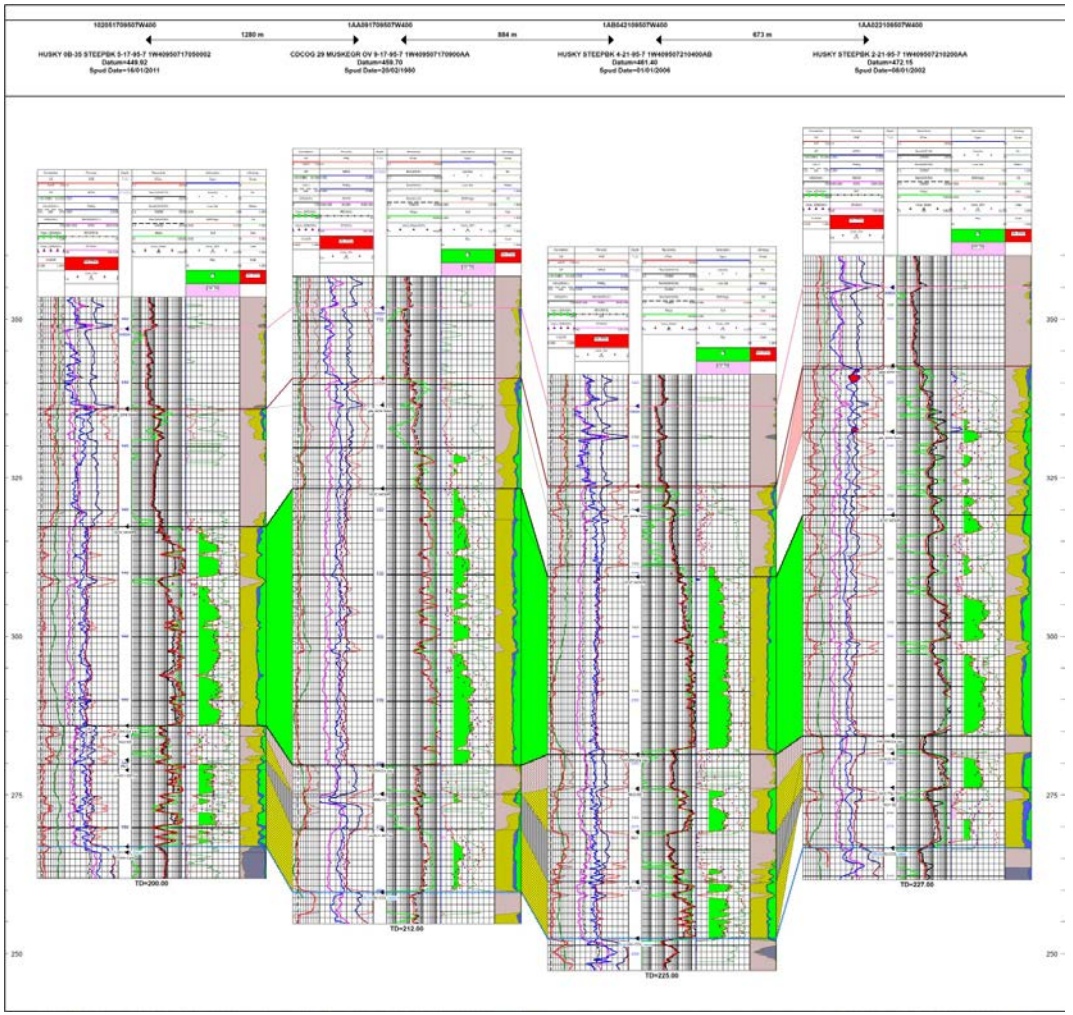
REPRESENTATIVE STRUCTURAL E-W CROSS-SECTION THROUGH DA1





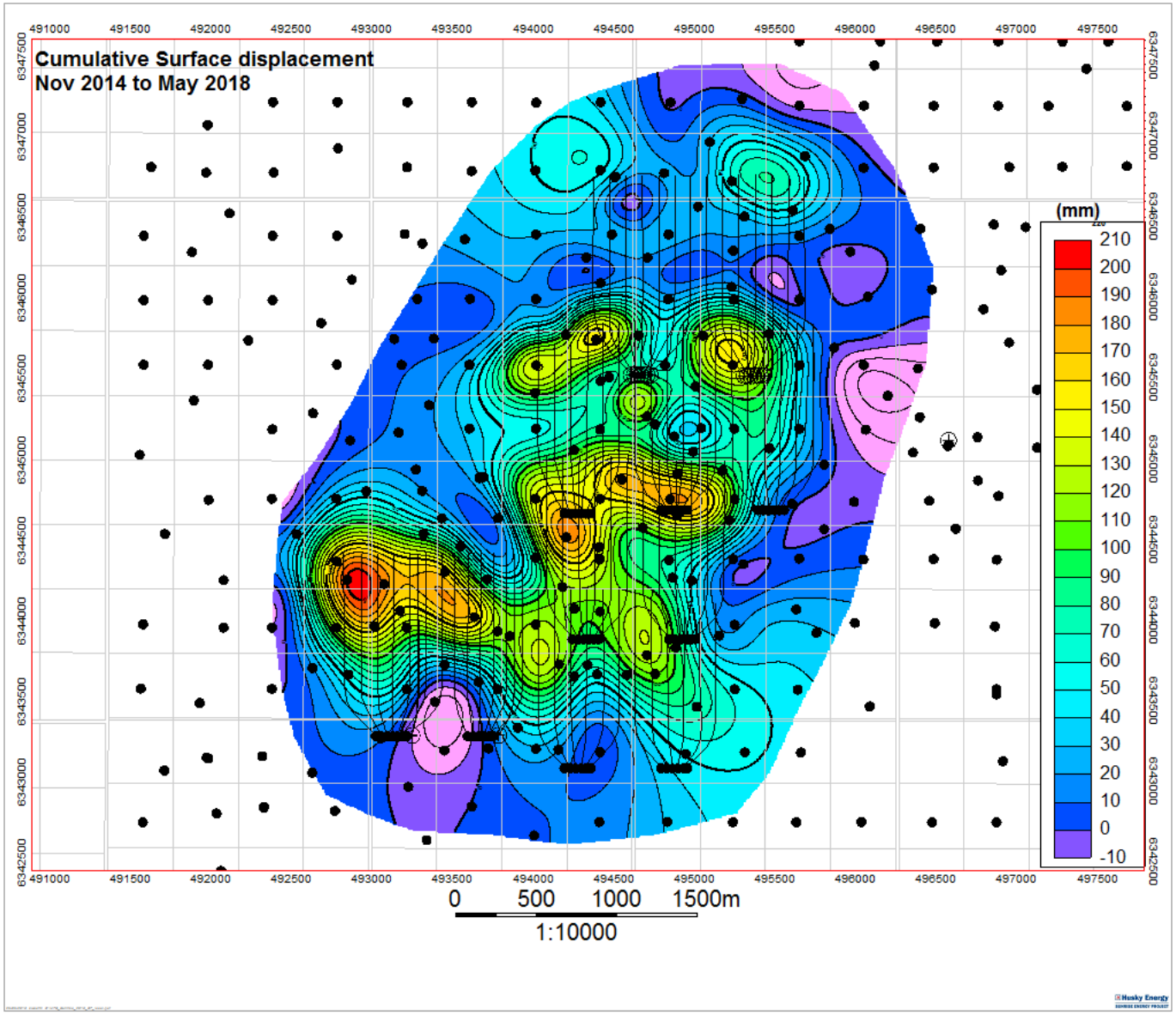
2. Geosciences

GEOMECHANICAL DATA

- No geomechanical data was acquired during the reporting period

2. Geosciences

SURFACE HEAVE



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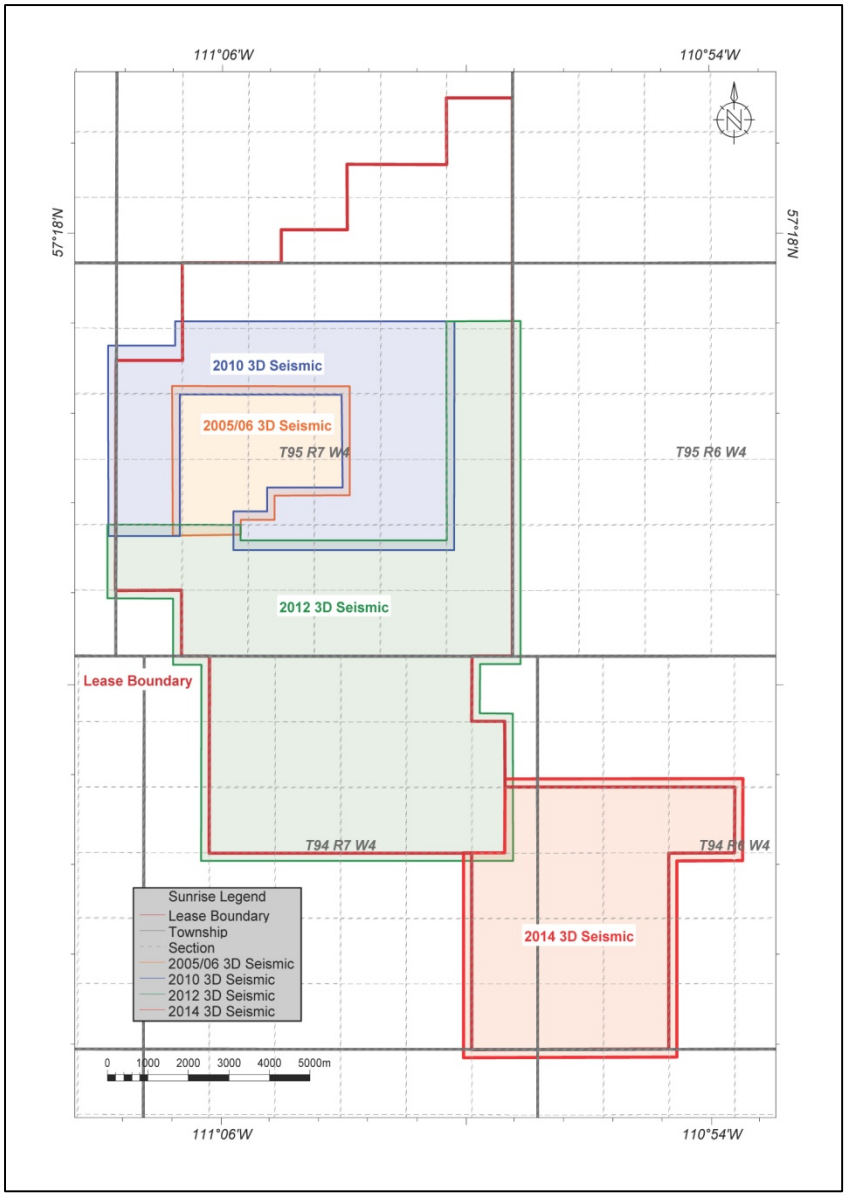
3D SEISMIC COVERAGE



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3D SEISMIC

- No 3D seismic program was conducted for the reporting period

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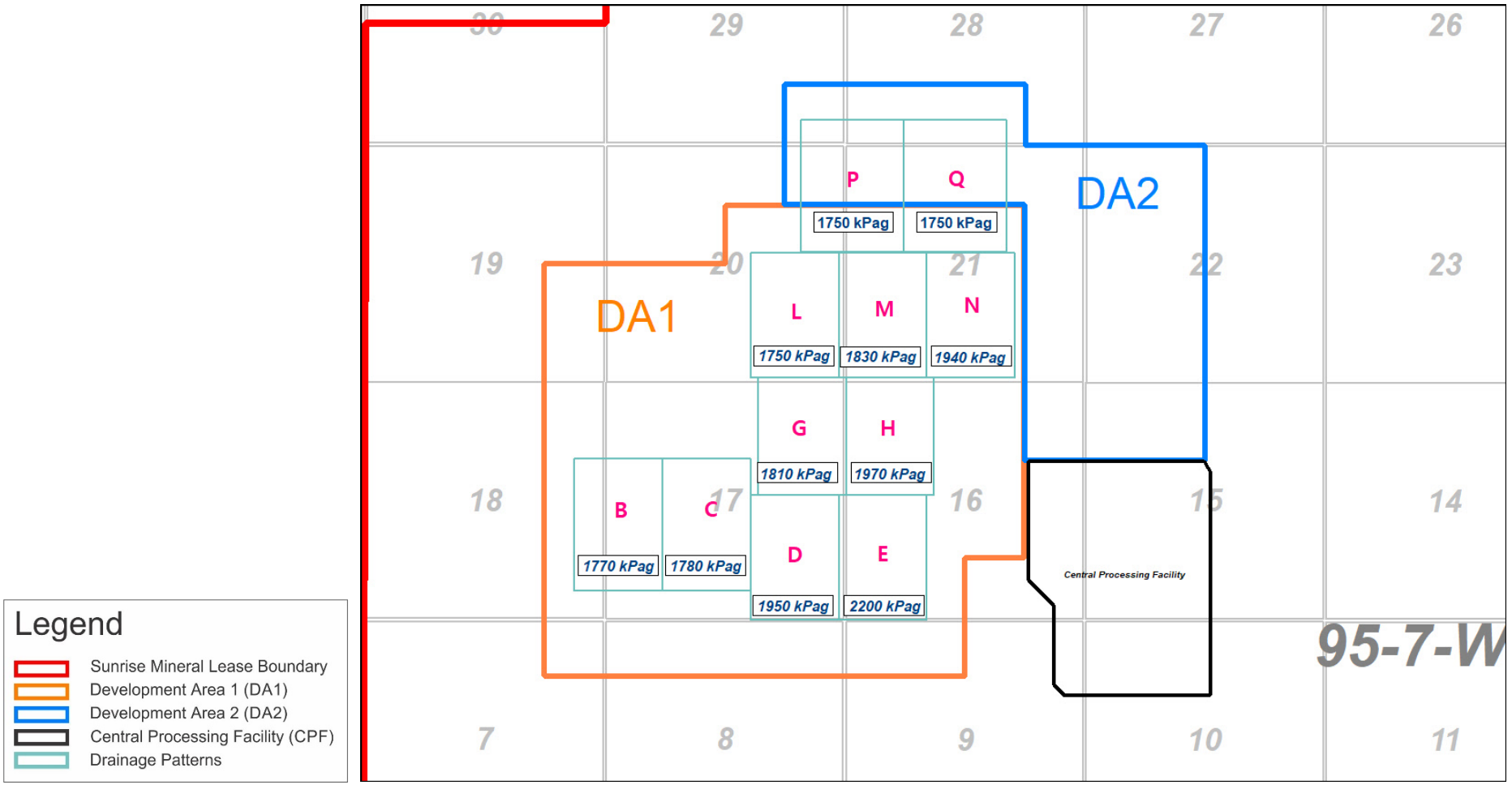
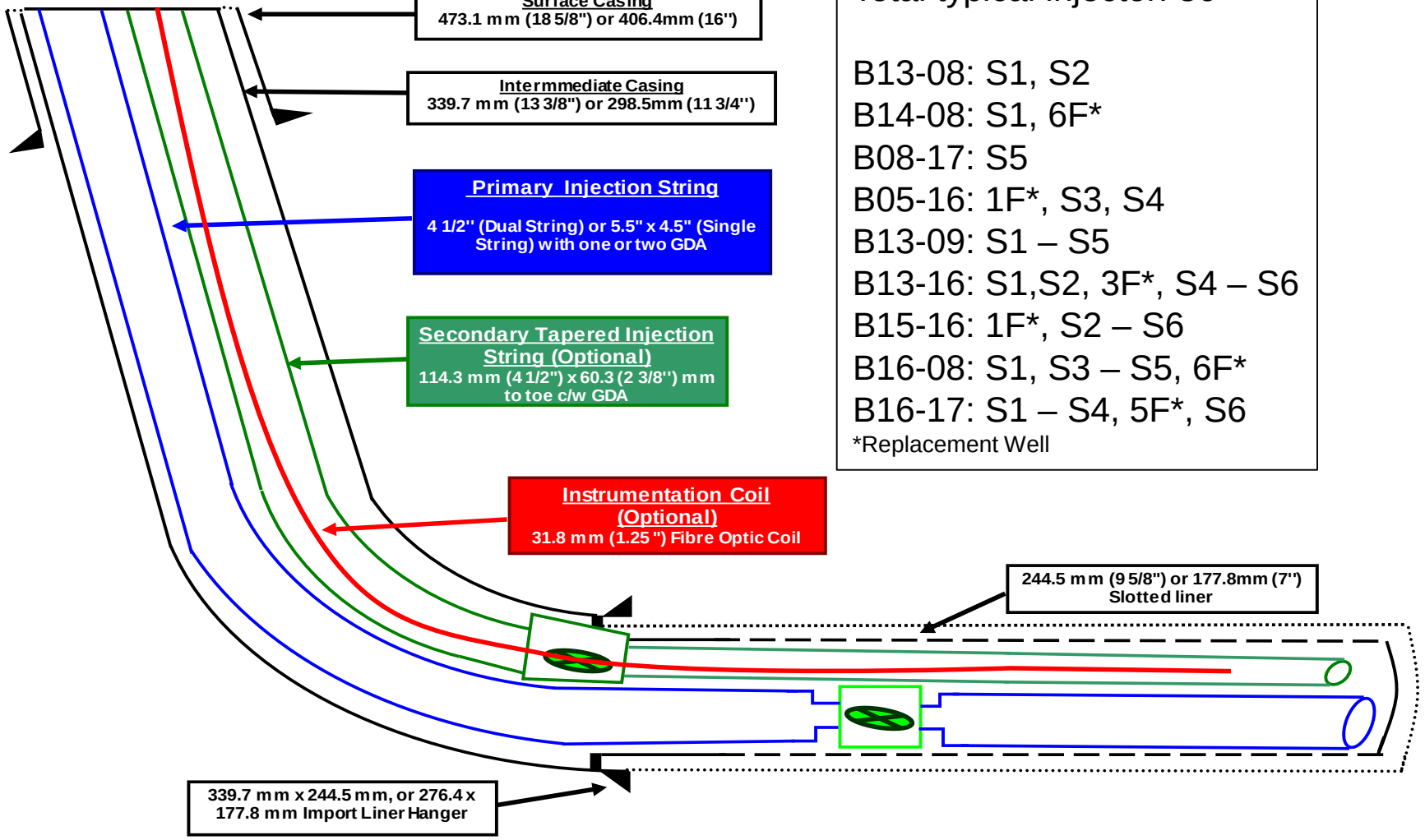
APPROVED MAXIMUM OPERATING PRESSURE ON PRODUCING DRAINAGE AREAS



3. Drilling and Completions

SAGD WELL DESIGN: TYPICAL INJECTOR WELL

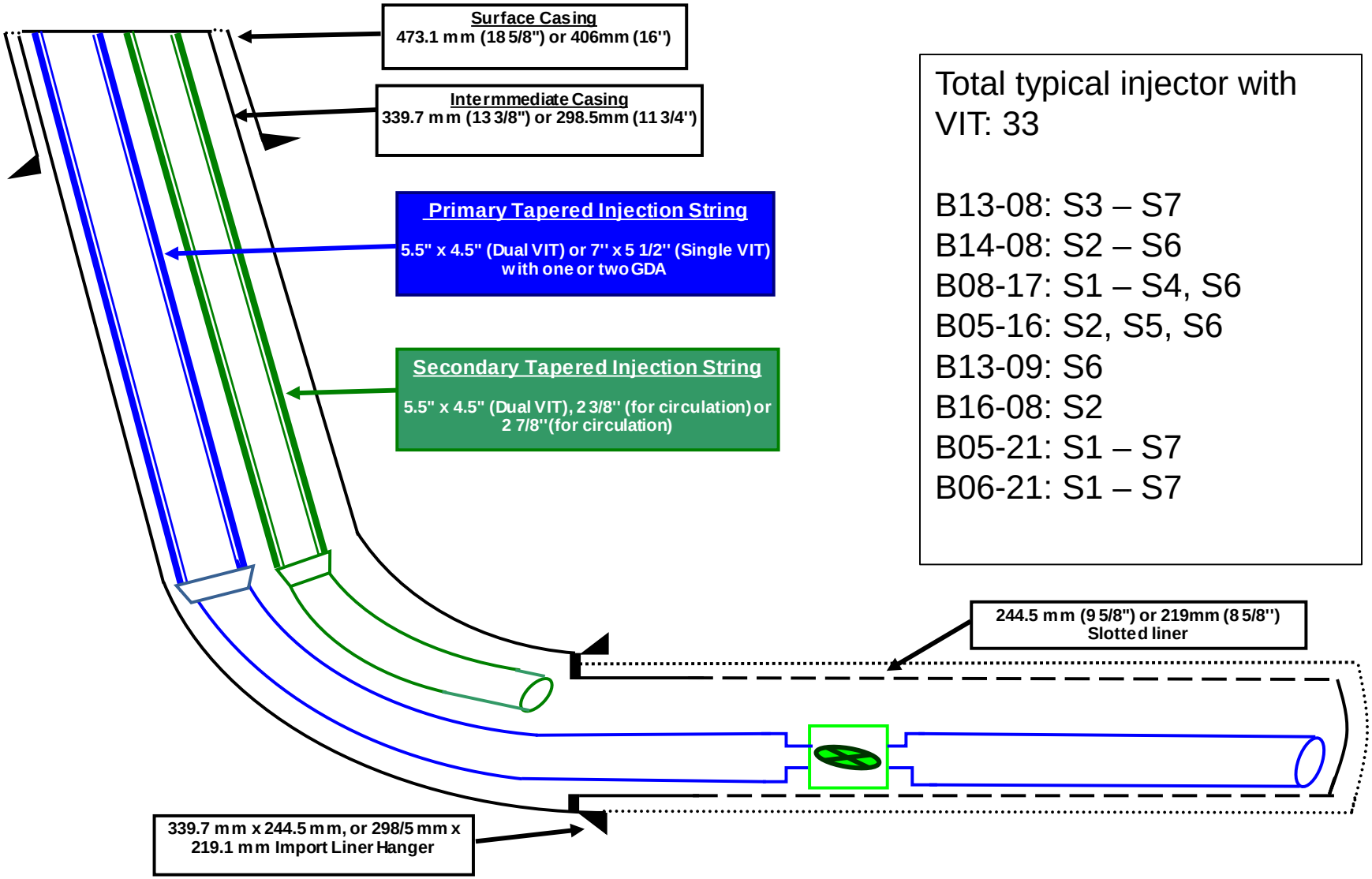


Total typical injector: 36

B13-08: S1, S2
B14-08: S1, 6F*
B08-17: S5
B05-16: 1F*, S3, S4
B13-09: S1 – S5
B13-16: S1,S2, 3F*, S4 – S6
B15-16: 1F*, S2 – S6
B16-08: S1, S3 – S5, 6F*
B16-17: S1 – S4, 5F*, S6
*Replacement Well

3. Drilling and Completions

SAGD WELL DESIGN: TYPICAL INJECTOR WELL WITH VIT

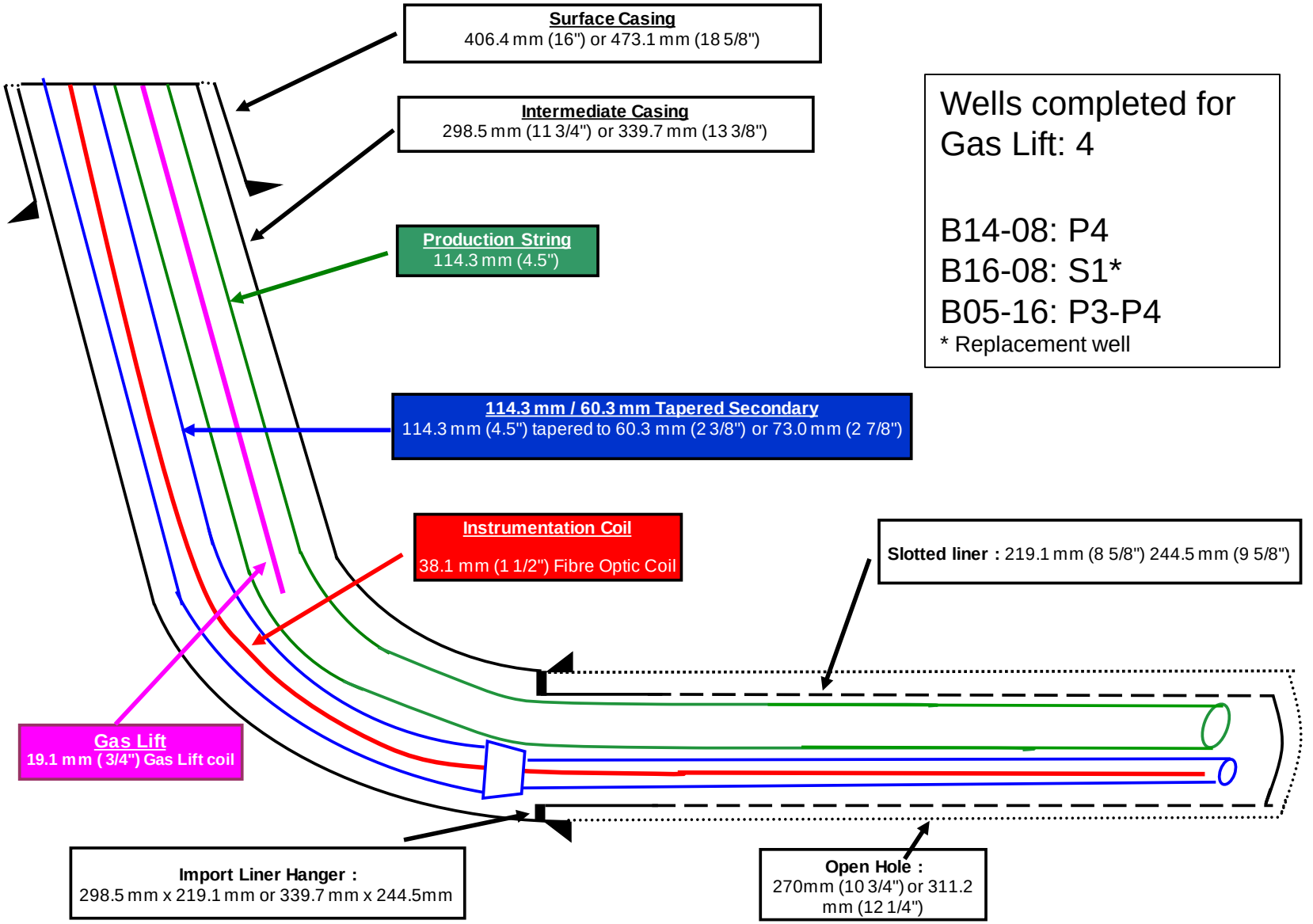


Total typical injector with VIT: 33

B13-08: S3 – S7
B14-08: S2 – S6
B08-17: S1 – S4, S6
B05-16: S2, S5, S6
B13-09: S6
B16-08: S2
B05-21: S1 – S7
B06-21: S1 – S7

3. Drilling and Completions

SAGD WELL DESIGN: TYPICAL PRODUCER WELL – GAS LIFT

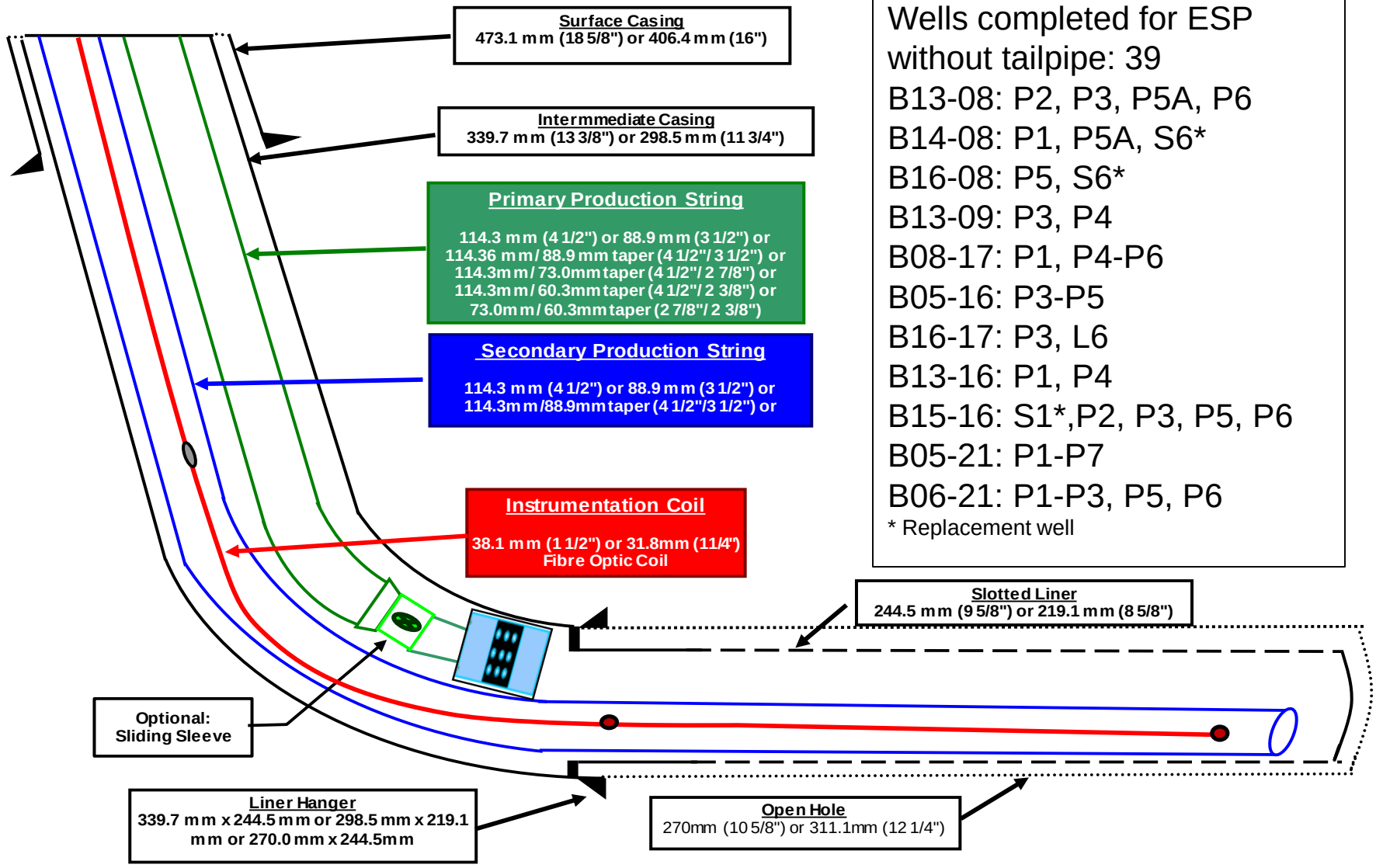


Wells completed for Gas Lift: 4

B14-08: P4
B16-08: S1*
B05-16: P3-P4
* Replacement well

3. Drilling and Completions

SAGD WELL DESIGN: TYPICAL WELL – ESP WITHOUT TAILPIPE



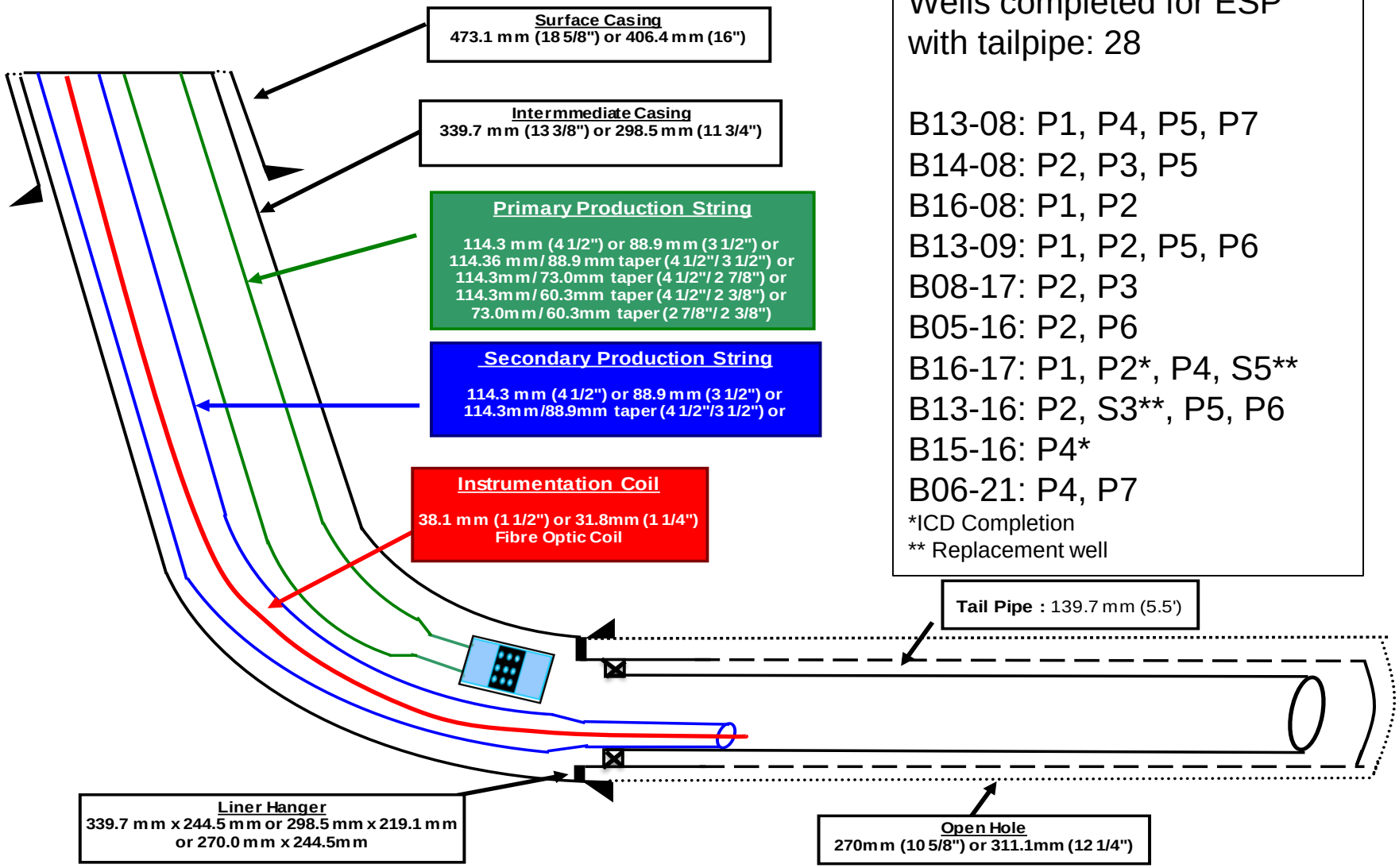
Wells completed for ESP without tailpipe: 39

B13-08: P2, P3, P5A, P6
B14-08: P1, P5A, S6*
B16-08: P5, S6*
B13-09: P3, P4
B08-17: P1, P4-P6
B05-16: P3-P5
B16-17: P3, L6
B13-16: P1, P4
B15-16: S1*,P2, P3, P5, P6
B05-21: P1-P7
B06-21: P1-P3, P5, P6

* Replacement well

3. Drilling and Completions

SAGD WELL DESIGN: TYPICAL PRODUCER WELL – ESP WITH TAIL PIPE



Wells completed for ESP with tailpipe: 28

B13-08: P1, P4, P5, P7
B14-08: P2, P3, P5
B16-08: P1, P2
B13-09: P1, P2, P5, P6
B08-17: P2, P3
B05-16: P2, P6
B16-17: P1, P2*, P4, S5**
B13-16: P2, S3**, P5, P6
B15-16: P4*
B06-21: P4, P7

*ICD Completion
** Replacement well

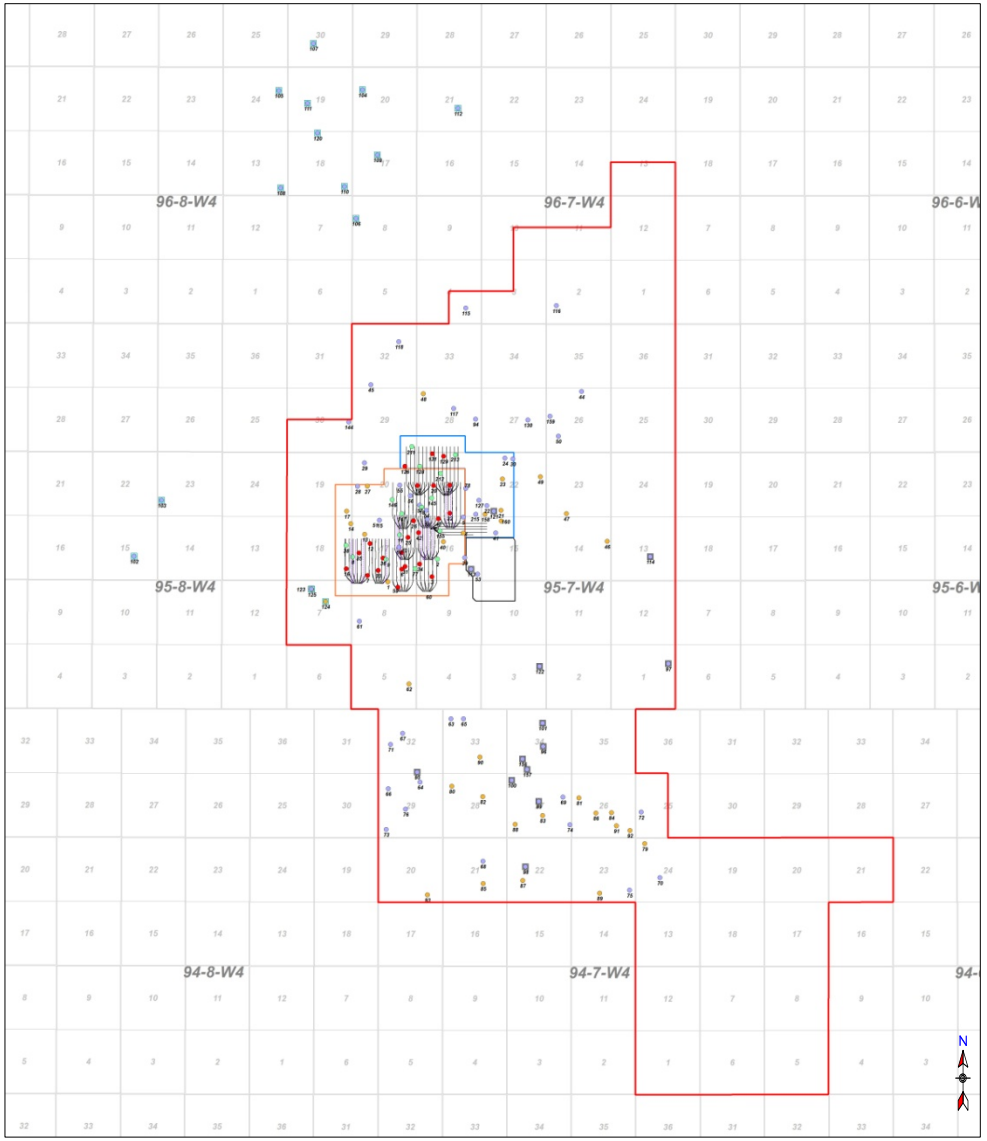
4. Artificial Lift

- All producer wells on SAGD mode are equipped with either gas-lift or electric submersible pumps (ESPs).
- Gas-lift operational parameters:
  - Bottom hole Pressure: 1,000 kPa – 1,600 kPa
  - Bottom hole Temperature: 160 – 200 ºC
  - Surface Temperature: 120 – 200 ºC
  - Gas Injection rate: 1,000 – 10,000 Sm^3/day
- ESP operational parameters:
  - Bottom hole Pressure: 600 kPa – 1,700 kPa
  - Bottom hole Temperature: 150 – 200 ºC
  - Surface Temperature: 120 – 190 ºC
  - Emulsion Production rate: 200 – 1,600 m^3/day

Gas Lift Production (4 wells)	**B14-08: P4** **B05-16: S1** **B16-08: P3 – P4**
ESP Production (66 wells)	**B13-08: P1 – P7** **B14-08: P1 – P3, P5, P5A, S6** **B16-08: P1, P2, P5, S6** **B13-09: P1 – P6** **B08-17: P1 – P6** **B05-16: P2 – P6** **B13-16: P1, P2, S3, P4 – P6** **B15-16: S1, P2 – P6** **B16-17: P1 – P4, S5, P6** **B05-21: P1 – P7** **B06-21: P1 – P7**

5. Instrumentation in Wells

OBSERVATION WELLS MAP



Legend

- Sunrise Lease Area
- Development Area 1 (DA1)
- Development Area 2 (DA2)
- Development Area 3 (DA3)
- Central Processing Facility (CPF)
- Horizontal Infill Wells Drilled
- Horizontal Wells Drilled

Observation Wells

- Temperature Sensor
- Pressure & Temperature
- Pressure Sensor
- Cased No Instrument
- Water Disposal Well
- Water Source Well

5. Instrumentation in Wells

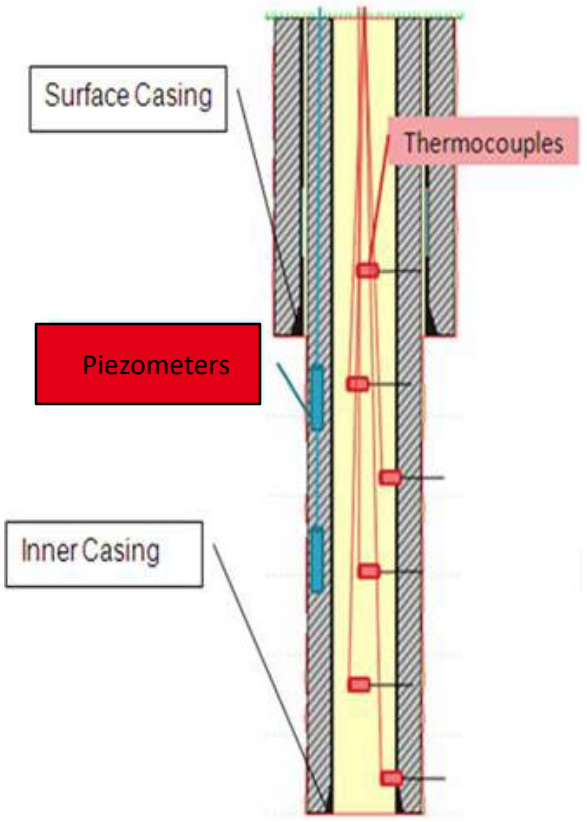
OBSERVATION WELLS LIST

Well ID Number on Map	Well UWI	Old Well Name	New Well Name	License Number	Downhole Instrumentation - Piezometers (P) or Pressure/Temperature Gauge (PG)	Downhole Instrumentation - Thermocouples	Spud Date
1	100/15-08-095-07W4/00	HUSKY STEEPBK 15-8-95-7	HUSKY OB-1 STEEPBK 15-8-95-7	0387616	Cased	Cased	24/01/2008
2	100/06-16-095-07W4/00	HUSKY STEEPBK 6-16-95-7	HUSKY OB-2 STEEPBK 6-16-95-7	0388030	P (5)	T	23/02/2008
3	100/04-16-095-07W4/00	HUSKY STEEPBK 4-16-95-7	HUSKY OB-3 STEEPBK 4-16-95-7	0387999		T	21/01/2008
4	100/16-16-095-07W4/00	HUSKY STEEPBK 10-16-95-7	HUSKY OB-4 STEEPBK 10-16-95-7	0387993	Cased	Cased	11/01/2008
5	100/15-16-095-07W4/00	HUSKY STEEPBK 15-16-95-7	HUSKY OB-5 STEEPBK 15-16-95-7	0387992	P (5)		26/02/2008
6	100/01-17-095-07W4/00	HUSKY STEEPBK 1-17-95-7	HUSKY OB-6 STEEPBK 1-17-95-7	0387662		T	05/01/2008
7	100/04-17-095-07W4/00	HUSKY STEEPBK 4-17-95-7	HUSKY OB-7 STEEPBK 4-17-95-7	0388001		T	16/01/2008
8	100/05-17-095-07W4/00	HUSKY STEEPBK 5-17-95-7	HUSKY OB-8 STEEPBK 5-17-95-7	0387994	P (5)	T	11/02/2008
9	100/07-17-095-07W4/00	HUSKY STEEPBK 7-17-95-7	HUSKY OB-9 STEEPBK 7-17-95-7	0388000	P (5)	T	16/02/2008
10	100/08-17-095-07W4/00	HUSKY STEEPBK 8-17-95-7	HUSKY OB-10 STEEPBK 8-17-95-7	0388099		T	07/01/2008
11	100/10-17-095-07W4/00	HUSKY STEEPBK 10-17-95-7	HUSKY OB-11 STEEPBK 10-17-95-7	0388100	P (4) + B.T. (1)	T	20/02/2008
12	100/11-17-095-07W4/00	HUSKY STEEPBK 11-17-95-7	HUSKY OB-12 STEEPBK 11-17-95-7	0388101		T	12/01/2008
13	100/12-17-095-07W4/00	HUSKY STEEPBK 12-17-95-7	HUSKY OB-13 STEEPBK 12-17-95-7	0388102	Cased	Cased	17/01/2008
14	100/16-18-095-07W4/00	HUSKY STEEPBK 16-18-95-7	HUSKY OB-14 STEEPBK 16-18-95-7	0387991	Cased	Cased	21/01/2008
15	102/14-17-095-07W4/00	HUSKY STEEPBK 14-17-95-7	HUSKY OB-15 STEEPBK 14-17-95-7	0323815	P (5) + B.T. (1)	cemented	27/06/2005
16	100/01-18-095-07W4/00	HUSKY STEEPBK 1-18-95-7	HUSKY OB-16 STEEPBK 1-18-95-7	0387995		T	05/02/2008
17	100/01-19-095-07W4/00	HUSKY STEEPBK 1-19-95-7	HUSKY OB-17 STEEPBK 1-19-95-7	0388007	Cased	Cased	10/03/2008
18	100/04-21-095-07W4/00	HUSKY STEEPBK 4-21-95-7	HUSKY OB-18 STEEPBK 4-21-95-7	0388005	P (3)	T	02/03/2008
19	100/05-21-095-07W4/00	HUSKY STEEPBK 5-21-95-7	HUSKY OB-19 STEEPBK 5-21-95-7 (Abandoned)	0388805		T	12/03/2008
20	100/06-21-095-07W4/00	HUSKY STEEPBK 6-21-95-7	HUSKY OB-20 STEEPBK 6-21-95-7	0388808		T	10/03/2008
21	100/03-22-095-07W4/00	HUSKY STEEPBK 3-22-95-7	HUSKY OB-21 STEEPBK 3-22-95-7	0388104	Cased	Cased	07/02/2008
22	102/04-22-095-07W4/00	HUSKY STEEPBK 4-22-95-7	HUSKY OB-22 STEEPBK 4-22-95-7	0391296	P (8)		04/03/2008
23	100/11-22-095-07W4/00	HUSKY STEEPBK 11-22-95-7	HUSKY OB-23 STEEPBK 11-22-95-7	0388105	Cased	Cased	04/02/2008
24	100/14-22-095-07W4/00	HUSKY STEEPBK 14-22-95-7	HUSKY OB-24 STEEPBK 14-22-95-7	0388106	PG		04/03/2008
25	100/05-17-095-07W4/00	HUSKY OB-25 STEEPBK 5-17-95-7	HUSKY OB-25 STEEPBK 5-17-95-7	0430827		T	10/02/2011
26	100/16-17-095-07W4/00	HUSKY OB-26 STEEPBK 16-17-95-7	HUSKY OB-26 STEEPBK 16-17-95-7	0428000		T	22/01/2011
27	102/05-20-095-07W4/00	HUSKY OB-27 STEEPBK 5-20-95-7	HUSKY OB-27 STEEPBK 5-20-95-7	0428458	Cased	Cased	12/01/2011
28	100/05-20-095-07W4/00	HUSKY OB-28 STEEPBK 5-20-95-7	HUSKY OB-28 STEEPBK 5-20-95-7	0428380	P (5)		06/01/2011
29	100/13-20-095-07W4/00	HUSKY OB-29 STEEPBK 13-20-95-7	HUSKY OB-29 STEEPBK 13-20-95-7	0428193	P (5)		06/01/2011
30	102/14-22-095-07W4/00	HUSKY OB-30 STEEPBK 14-22-95-7	HUSKY OB-30 STEEPBK 14-22-95-7	0430161	PG		17/02/2011
31	102/01-17-095-07W4/00	HUSKY OB-31 STEEPBK 1-17-95-7	HUSKY OB-31 STEEPBK 1-17-95-7	0428815		T	05/02/2011
32	100/02-21-095-07W4/00	HUSKY OB-32 STEEPBK 2-21-95-7	HUSKY OB-32 STEEPBK 2-21-95-7	0428146		T	12/02/2011
33	100/03-17-095-07W4/00	HUSKY OB-33 STEEPBK 3-17-95-7	HUSKY OB-33 STEEPBK 3-17-95-7	0428689		T	20/01/2011
34	100/06-16-095-07W4/00	HUSKY OB 34 STEEPBK 6-16-95-7	HUSKY OB 34 STEEPBK 6-16-95-7	0428818		T	01/02/2011
35	102/05-17-095-07W4/00	HUSKY OB-35 STEEPBK 5-17-95-7	HUSKY OB-35 STEEPBK 5-17-95-7	0428145		T	16/01/2011
36	100/06-17-095-07W4/00	HUSKY OB-36 STEEPBK 6-17-95-7	HUSKY OB-36 STEEPBK 6-17-95-7	0428403		T	08/02/2011
37	100/07-21-095-07W4/00	HUSKY OB-37 STEEPBK 7-21-95-7	HUSKY OB-37 STEEPBK 7-21-95-7	0428399		T	15/02/2011
38	104/09-18-095-07W4/00	HUSKY OB-38 STEEPBK 9-18-95-7	HUSKY OB-38 STEEPBK 9-18-95-7	0428404	P (5)	T	11/01/2011
39	100/07-16-095-07W4/00	HUSKY OB-39 STEEPBK 7-16-95-7	HUSKY OB-39 STEEPBK 7-16-95-7	0439378	P (5)		04/01/2012
40	100/11-16-095-07W4/00	HUSKY OB-40 STEEPBK 11-16-95-7	HUSKY OB-40 STEEPBK 11-16-95-7	0428256	Cased	Cased	06/02/2011
41	100/12-15-095-07W4/00	HUSKY OB-41 STEEPBK 12-15-95-7	HUSKY OB-41 STEEPBK 12-15-95-7	0429570	P (5)		16/01/2011
42	100/12-16-095-07W4/00	HUSKY OB-42 STEEPBK 12-16-95-7	HUSKY OB-42 STEEPBK 12-16-95-7	0428713		T	13/02/2011
43	100/14-16-095-07W4/00	HUSKY OB-43 STEEPBK 14-16-95-7	HUSKY OB-43 STEEPBK 14-16-95-7	0428111		T	01/02/2011
44	100/15-26-095-07W4/00	HUSKY OB-44 STEEPBK 15-26-95-7	HUSKY OB-44 STEEPBK 15-26-95-7	0430112	PG		19/02/2011
45	100/03-32-095-07W4/00	HUSKY OB-45 STEEPBK 3-32-95-7	HUSKY OB-45 STEEPBK 3-32-95-7	0430049	PG		07/03/2011
46	100/09-14-095-07W4/00	HUSKY OB-46 STEEPBK 9-14-95-7	HUSKY OB-46 STEEPBK 9-14-95-7	0430108	Cased	Cased	22/03/2011
47	100/03-23-095-07W4/00	HUSKY OB-47 STEEPBK 3-23-95-7	HUSKY OB-47 STEEPBK 3-23-95-7	0430887	Cased	Cased	15/03/2011
48	100/13-28-095-07W4/00	HUSKY OB-48 STEEPBK 13-28-95-7	HUSKY OB-48 STEEPBK 13-28-95-7	0429927	Cased	Cased	03/03/2011
49	100/09-22-095-07W4/00	HUSKY OB-49 STEEPBK 9-22-95-7	HUSKY OB-49 STEEPBK 9-22-95-7	0430163	Cased	Cased	18/03/2011
50	100/04-26-095-07W4/00	HUSKY OB-50 STEEPK 4-26-95-7	HUSKY OB-50 STEEPK 4-26-95-7	0430160	PG		21/02/2011
51	100/14-17-095-07W4/00	HUSKY MFOB D STEEPBK 14-17-95-7	HUSKY OB-51 MFOB D STEEPBK 14-17-95-7	0343962	P (6)	cemented	07/01/2006
52	116/10-17-095-07W4/00	HUSKY STEEPBK 10-17-95-7	HUSKY OB-52 STEEPBK 10-17-95-7	0323817	P (5) + B.T. (1)	cemented	06/02/2005
53	110/01-16-095-07W4/00	HUSKY C STEEPBK 1-16-95-7	HUSKY OB-53 C STEEPBK 1-16-95-7	0343949	P (4)	cemented	15/12/2005
54	103/04-21-095-07W4/00	HUSKY FY01 STEEPBK 4-21-95-7	HUSKY OB-54 FY01 STEEPBK 4-21-95-7	0417750	P (2)	cemented	16/02/2010
55	100/07-20-095-07W4/00	HUSKY 1AB STEEPBK 7-20-95-7	HUSKY OB-55 1AB STEEPBK 7-20-95-7	0417694	P (2)	cemented	26/01/2010
56	100/08-20-095-07W4/00	HUSKY STEEPBK 8-20-95-7	HUSKY OB-56 STEEPBK 8-20-95-7	0418062	P (2)	cemented	21/02/2010
57	102/04-21-095-07W4/00	HUSKY FY6 STEEPBK 4-21-95-7	HUSKY OB-57 FY6 STEEPBK 4-21-95-7	0417837	P (2)	cemented	02/02/2010
58	100/13-16-095-07W4/00	HUSKY 1Y7 STEEPBK 13-16-95-7	HUSKY OB-58 1Y7 STEEPBK 13-16-95-7	0417754	P (2)	cemented	11/02/2010
59	102/15-08-095-07W4/02	HUSKY OB-59 STEEPK 15-8-95-7	HUSKY OB-59 STEEPK 15-8-95-7	10002686		T	22/03/1964
60	102/04-16-095-07W4/00	HUSKY B 13-9 PS STEEPBK 4-16-95-7	HUSKY OB-60 B 13-9 PS STEEPBK 4-16-95-7	0434668		T	19/02/2011
61	100/05-08-095-07W4/00	HUSKY OB-61 STEEPK 5-8-95-7	HUSKY OB-61 STEEPBK 5-8-95-7	0443331	PG		06/02/2012
62	100/08-05-095-07W4/00	HUSKY OB-62 STEEPK 8-5-95-7	HUSKY OB-62 STEEPBK 8-5-95-7	0440567	Cased	Cased	14/02/2012
63	100/13-33-094-07W4/00	HUSKY OB-63 STEEPK 13-33-94-7	HUSKY OB-63 STEEPBK 13-33-94-7	0452132	P (2)		17/03/2013
64	100/15-29-094-07W4/00	HUSKY OB-64 STEEPK 15-29-94-7	HUSKY OB-64 STEEPBK 15-29-94-7	0452096	P (4)		09/03/2013
65	100/14-33-094-07W4/00	HUSKY OB-65 STEEPK 14-33-94-7	HUSKY OB-65 STEEPBK 14-33-94-7	0452081	P (3)		26/03/2013
66	100/13-29-094-07W4/00	HUSKY OB-66 STEEPK 13-29-94-7	HUSKY OB-66 STEEPBK 13-29-94-7	0451959	P (4)		13/03/2013
67	100/11-32-094-07W4/00	HUSKY OB-67 STEEPK 11-32-94-7	HUSKY OB-67 STEEPBK 11-32-94-7	0451966	P (3)		13/03/2013
68	100/10-21-094-07W4/00	HUSKY OB-68 STEEPK 10-21-94-7	HUSKY OB-68 STEEPBK 10-21-94-7	0451963	P (3)		25/02/2013
69	100/09-27-094-07W4/00	HUSKY OB-69 STEEPK 9-27-94-7	HUSKY OB-69 STEEPBK 9-27-94-7	0452011	P (3)		04/03/2013
70	100/06-24-094-07W4/00	HUSKY OB-70 STEEPK 6-24-94-7	HUSKY OB-70 STEEPBK 6-24-94-7	0453872	P (3)		25/02/2013
71	100/05-32-094-07W4/00	HUSKY OB-71 STEEPK 5-32-94-7	HUSKY OB-71 STEEPBK 5-32-94-7	0452211	P (3)		08/03/2013
72	100/05-25-094-07W4/00	HUSKY OB-72 STEEPK 5-25-94-7	HUSKY OB-72 STEEPBK 5-25-94-7	0452209	P (3)		19/01/2013
73	100/04-29-094-07W4/00	HUSKY OB-73 STEEPK 4-29-94-7	HUSKY OB-73 STEEPBK 4-29-94-7	0453641	P (3)		20/02/2013
74	100/01-27-094-07W4/00	HUSKY OB-74 STEEPK 1-27-94-7	HUSKY OB-74 STEEPBK 1-27-94-7	0451935	P (3)		03/03/2013
75	100/01-23-094-07W4/00	HUSKY OB-75 STEEPK 1-23-94-7	HUSKY OB-75 STEEPBK 1-23-94-7	0451815	P (3)		19/02/2013
76	100/06-29-094-07W4/00	HUSKY OB-76 STEEPK 6-29-94-7	HUSKY OB-76 STEEPBK 6-29-94-7	0451933	P (3)		17/03/2013
77	104/01-17-095-07W4/00	HUSKY OB-77 STEEPK 1-17-95-7	HUSKY OB-77 STEEPBK 1-17-95-7	0452022	P (3)	T	03/01/2013
78	100/08-21-095-07W4/00	HUSKY OB-78 STEEPK 8-21-95-7	HUSKY OB-78 STEEPBK 8-21-95-7	0451944	P (3)		09/01/2013
79	100/13-24-094-07W4/00	HUSKY OB-79 STEEPK 13-24-94-7	HUSKY OB-79 STEEPBK 13-24-94-7	0451938	Cased	Cased	17/02/2013
80	100/13-28-094-07W4/00	HUSKY OB-80 STEEPK 13-28-94-7	HUSKY OB-80 STEEPBK 13-28-94-7	0451945	Cased	Cased	03/03/2013
81	100/12-26-094-07W4/00	HUSKY OB-81 STEEPK 12-26-94-7	HUSKY OB-81 STEEPBK 12-26-94-7	0452023	Cased	Cased	12/02/2013
82	100/16-28-094-07W4/00	HUSKY OB-82 STEEPK 16-28-94-7	HUSKY OB-82 STEEPBK 16-28-94-7	0451537	Cased	Cased	07/03/2013
83	100/07-27-094-07W4/00	HUSKY OB-83 STEEPK 7-27-94-7	HUSKY OB-83 STEEPBK 7-27-94-7	0452215	Cased	Cased	04/01/2013
84	100/07-26-094-07W4/00	HUSKY OB-84 STEEPK 7-26-94-7	HUSKY OB-84 STEEPBK 7-26-94-7	0451970	Cased	Cased	18/01/2013
85	100/07-21-094-07W4/00	HUSKY OB-85 STEEPK 7-21-94-7	HUSKY OB-85 STEEPBK 7-21-94-7	0452021	Cased	Cased	20/02/2013
86	100/06-26-094-07W4/00	HUSKY OB-86 STEEPK 6-26-94-7	HUSKY OB-86 STEEPBK 6-26-94-7	0452084	Cased	Cased	07/02/2013
87	100/05-22-094-07W4/00	HUSKY OB-87 STEEPK 5-22-94-7	HUSKY OB-87 STEEPBK 5-22-94-7	0452024	Cased	Cased	02/03/2013
88	100/04-27-094-07W4/00	HUSKY OB-88 STEEPK 4-27-94-7	HUSKY OB-88 STEEPBK 4-27-94-7	0452083	Cased	Cased	11/01/2013
89	100/03-23-094-07W4/00	HUSKY OB-89 STEEPK 3-23-94-7	HUSKY OB-89 STEEPBK 3-23-94-7	0452029	Cased	Cased	15/02/2013
90	100/07-33-094-07W4/00	HUSKY OB-90 STEEPK 7-33-94-7	HUSKY OB-90 STEEPBK 7-33-94-7	0453639	Cased	Cased	05/03/2013
91	100/02-26-094-07W4/00	HUSKY OB-91 STEEPK 2-26-94-7	HUSKY OB-91 STEEPBK 2-26-94-7	0453807	Cased	Cased	26/02/2013
92	100/01-26-094-07W4/00	HUSKY OB-92 STEEPK 1-26-94-7	HUSKY OB-92 STEEPBK 1-26-94-7	0452210	Cased	Cased	22/02/2013
93	100/01-29-094-07W4/00	HUSKY OB-93 STEEPK 1-29-94-7	HUSKY OB-93 STEEPBK 1-29-94-7	0451942	Cased	Cased	15/02/2013
94	105/09-28-095-07W4/00	HUSKY OB 94 STEEPBK 9-28-95-7	HUSKY OB-94 STEEPBK 9-28-95-7	0451951	PG		04/01/2013
95	100/02-32-094-07W4/00	HUSKY KR-OB 95 STEEPK 2-32-94-7	HUSKY KR-OB 95 STEEPK 2-32-94-7	0452132	P(2)		24/02/2013
96	100/07-34-094-07W4/00	HUSKY KR-OB-96 STEEPK 7-34-94-7	HUSKY KR-OB-96 STEEPK 7-34-94-7	0452291	P(2)		04/02/2013
97	100/09-01-095-07W4/00	HUSKY KR-OB 97 STEEPK 9-1-95-7	HUSKY KR-OB 97 STEEPK 9-1-95-7	0452736	P(2)		12/02/2013
98	100/11-22-094-07W4/00	HUSKY KR-OB 98 STEEPK 11-22-94-7	HUSKY KR-OB 98 STEEPK 11-22-94-7	0452280	P(2)		25/01/2013
99	100/11-27-094-07W4/00	HUSKY KR-OB-99 STEEPK 11-27-94-7	HUSKY KR-OB-99 STEEPK 11-27-94-7	0452278	P(2)		25/01/2013
100	100/13-27-094-07W4/00	HUSKY KR-OB-100 STEEPK 13-27-94-7	HUSKY KR-OB-100 STEEPK 13-27-94-7	0452281	P(2)		18/01/2013
101	100/15-34-094-07W4/00	HUSKY KR-OB-101 STEEPK 15-34-94-7	HUSKY KR-OB-101 STEEPK 15-34-94-7	0452269	P(2)		31/01/2013
102	100/07-15-095-08W4/00	HUSKY OBS SUNRISE 7-15-95-8	HUSKY SRC-OB-102 SUNRISE 7-15-95-8	0373494	P (2)		09/02/2007
103	105/05-23-095-08W4/00	HUSKY OBS SUNRISE 5-23-95-8	HUSKY SRC-OB-103 SUNRISE 5-23-95-8	0373506	P (3)		13/02/2007
104	100/12-20-096-07W4/00	HUSKY OBS SUNRISE 12-20-96-7	HUSKY SRC-OB-104 SUNRISE 12-20-96-7	0389637	P (2)		26/01/2008
105	100/09-24-096-08W4/00	HUSKY (OB) SUNRISE 9-24-96-8	HUSKY SRC-OB-105 SUNRISE 9-24-96-8	0363115	P (2)		18/09/2006
106	100/12-08-096-07W4/00	HUSKY SUNRISE (OB) 12-8-96-7	HUSKY SRC-OB-106 SUNRISE 12-8-96-7	0362523	P (2)		13/09/2006
107	100/06-30-096-07W4/00	HUSKY OBS SUNRISE 6-30-96-7	HUSKY SRC-OB-107 SUNRISE 6-30-96-7	0389630	P (2)		14/02/2008
108	100/01-13-096-08W4/00	HUSKY OBS SUNRISE 1-13-96-8	HUSKY SRC-OB-108 SUNRISE 1-13-96-8	0391346	P (2)		19/02/2008
109	100/11-17-096-07W4/00	HUSKY OBS SUNRISE 11-17-96-7	HUSKY SRC-OB-109 SUNRISE 11-17-96-7	0389636	P (2)		19/01/2008
110	100/01-18-096-07W4/00	HUSKY (OB) SUNRISE 1-18-96-7	HUSKY SRC-OB-110 SUNRISE 1-18-96-7	0362866	P (2)		15/09/2006
111	100/06-19-096-07W4/00	HUSKY SUNRISE (OB) 6-19-96-7	HUSKY SRC-OB-111 SUNRISE 6-19-96-7	0362577	P (2)		13/09/2006
112	100/07-21-096-07W4/00	HUSKY OBS SUNRISE 7-21-96-7	HUSKY SRC-OB-112 SUNRISE 7-21-96-7	0389635	P (2)		03/02/2008
113	111/01-16-095-07W4/00	HUSKY AZ1 STEEPBK 1-16-95-7	HUSKY KR-OB-113 AZ1 STEEPBK 1-16-95-7	0316284	P		22/10/2004
114	100/07-13-096-07W4/00	HUSKY STEEPBK 7-13-96-7	HUSKY KR-OB-114 STEEPBK 7-13-96-7	0360423	P		15/03/2004
115	100/01-04-096-07W4/00	HUSKY PM 1 STEEPBK 1-4-96-7	HUSKY PM-OB-115 STEEPBK 1-4-96-7	0452212	P (3)		14/03/2013
116	100/05-02-096-07W4/00	HUSKY PM 2 STEEPBK 5-2-96-7	HUSKY PM-OB-116 STEEPBK 5-2-96-7	0452226	P (3)		10/03/2013
117	100/16-28-095-07W4/00	HUSKY PM 3 STEEPBK 16-28-95-7	HUSKY PM-OB-117 STEEPBK 16-28-95-7	0453724	P (3)		12/03/2013
118	103/10-32-095-07W4/00	HUSKY PM 4 STEEPBK 10-32-95-7	HUSKY PM-OB-118 STEEPBK 10-32-95-7	0453768	P (3)		18/03/2013
119	100/09-21-093-09W4/00	HUSKY OB-1 SUNRISE 9-21-93-9	HUSKY SWD-OB-119 SUNRISE 9-21-93-9	0442976	Cased	Cased	25/02/2012
120	100/14-18-096-07W4/00	HUSKY (OB) SUNRISE 14-18-96-7	HUSKY SRC-OB-120 SUNRISE 14-18-96-7	0362870	P (2)		17/09/2006
121	103/04-22-095-07W4/00	HUSKY SWD-1 STEEPBK 4-22-95-7	HUSKY SWD-OB-121 STEEPBK 4-22-95-7	0431972	PG		15/03/2011
122	100/09-03-095-07W4/00	HUSKY SWD-2 STEEPBK 9-3-95-7	HUSKY SWD-OB-122 STEEPBK 9-3-95-7	0431974	PG		24/03/2011
123	100/14-07-096-07W4/00	HUSKY 103 STEEPBK 14-7-96-7	HUSKY SRC-OB-123 STEEPBK 14-7-96-7	0304979	PG		14/03/2004
124	100/16-07-095-07W4/00	HUSKY 102 STEEPBK 10-7-95-7	HUSKY SRC-OB-124 STEEPBK 10-7-95-7	0304964	Cased	Cased	09/03/2004
125	102/14-07-096-07W4/00	HUSKY 102 STEEPBK 14-7-95-7	HUSKY SRC-OB-125 STEEPBK 14-7-95-7	0305114	Cased	Cased	15/03/2004
126	100/16-20-095-07W4/00		HUSKY OB-126 STEEPBK 16-20-95-7	0461747		T	11/01/2014
127	102/08-21-095-07W4/00		HUSKY OB-127 STEEPBK 8-21-95-7	0461748	P (6)		18/02/2014
128	100/13-21-095-07W4/00		HUSKY OB-128 STEEPBK 13-21-95-7	0461649	P (6)	T	16/03/2014
129	100/14-21-095-07W4/00		HUSKY OB-129 STEEPBK 14-21-95-7	0461765		T	26/01/2014
130	100/10-27-095-07W4/00		HUSKY OB-130 STEEPBK 10-27-95-7	0462203	PG		07/01/2014
131	102/13-21-095-07W4/00		HUSKY OB-131 STEEPBK 13-21-95-7	0461937		T	28/01/2014
144	100/08-30-095-07W4/00		HUSKY OB-144 STEEPBK 8-30-95-7	0462043	P (4)		03/03/2014
145	102/05-21-095-07W4/00		HUSKY OB-145 STEEPBK 5-21-95-7	0462143	P (6)	T	21/01/2014
146	106/07-29-095-07W4/00		HUSKY OB- 146 STEEPBK 7-29-95-7	0462141	P (6)	T	26/01/2014
147	110/01-25-095-07W4/00		HUSKY OB- 147 STEEPBK 1-25-95-7	0462142	P (5)	T	24/02/2014
155	102/14-16-095-07W4/00		HUSKY OB-155 STEEPBK 14-16-95-7	0462196	P (5)	T	11/02/2014
156	100/04-34-094-07W4/00		HUSKY KR-OB-156 STEEPBK 4-34-94-7	0452294	PG		31/01/2014
157	102/03-34-094-07W4/00		HUSKY KR-OB-157 STEEPBK 3-34-94-7	0462372	PG		05/02/2014
158	104/04-22-095-07W4/00		HUSKY OB-158 STEEPBK 4-22-95-7	0462359	Cased	Cased	03/02/2014
159	100/12-26-095-07W4/00		HUSKY OB-159 STEEPBK 12-26-95-7	0462065	PG		07/01/2014
160	100/14-15-095-07W4/00		HUSKY OB-160 STEEPBK 14-15-95-7	461809	Cased	Cased	08/02/2014
211	107/01-29-095-07W4/00		HUSKY OB-211 STEEPBK 1-29-95-7	481495	P (6)	T	16/02/2017
212	105/11-21-095-07W4/00		HUSKY OB-212 STEEPBK 11-21-95-7	481496	P (6)	T	23/02/2017
213	100/15-21-095-07W4/00		HUSKY OB-213 STEEPBK 15-21-95-7	480952	P (6)	T	23/02/2017
215	100/01-21-095-07W4/00		HUSKY OB-215 STEEPBK 1-21-95-7	487641	P (6)		11/02/2018

5. Instrumentation in Wells

OBSERVATION WELL

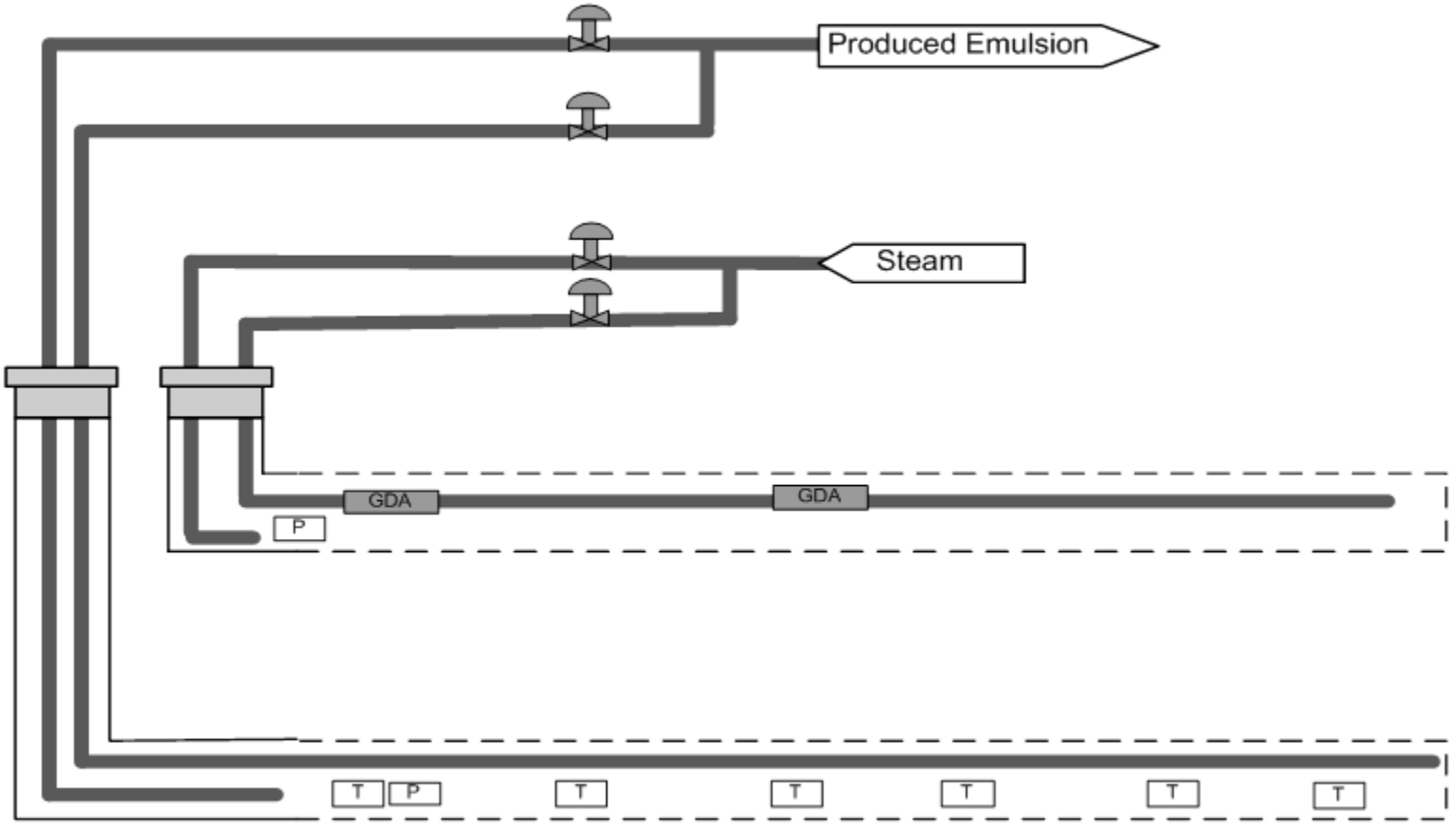
- 84 OBS Wells with Instrumentation:
  - 24 wells with thermocouple only
  - 46 wells with piezometer only
  - 15 wells with piezometer and thermocouples
- 68 OBS Wells connected to SCADA:
  - 23 wells with thermocouple only
  - 30 wells with piezometers only
  - 15 wells with piezometer and thermocouples
- Thermocouples: Up to 24 thermocouples per well, the majority of which are placed across the pay interval
- Piezometers: Up to 8 piezometers per well. Cemented behind casing. Placed within the Clearwater, Wabiskaw, IHS and/or the McMurray Intervals



Typical SAGD Observation Well

5. Instrumentation in Wells

TEMPERATURE AND PRESSURE MEASUREMENT - GAS LIFT

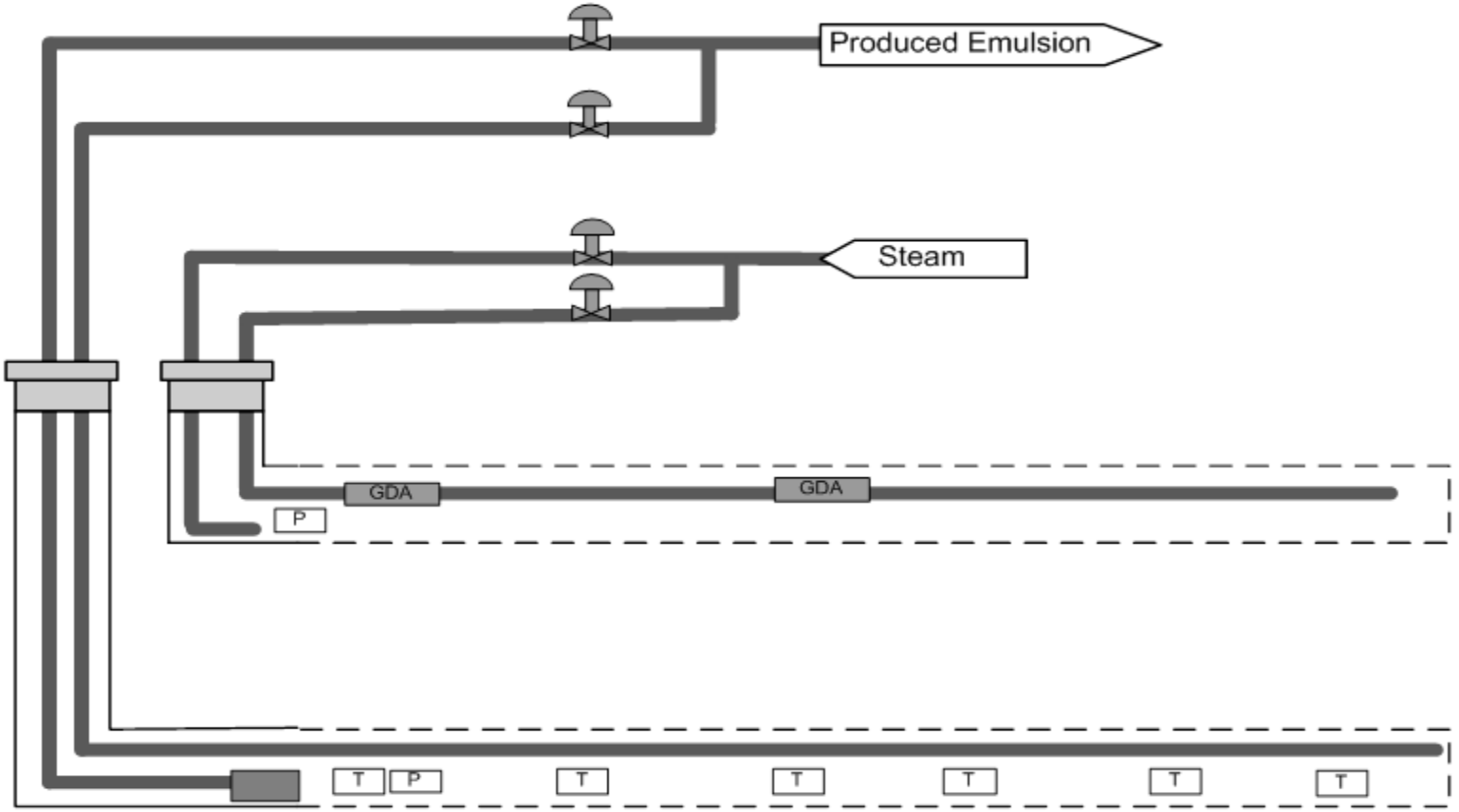


Legend

GDA	Gravity Drainage Accessory
P	Pressure Measurement
T	Temperature Measurement

5. Instrumentation in Wells

TEMPERATURE AND PRESSURE MEASUREMENT – ESP



Legend

GDA	Gravity Drainage Accessory
P	Pressure Measurement
T	Temperature Measurement

6. 4D Seismic

4D SEISMIC DATA

- No 4D seismic programs conducted in the reporting period

7. Scheme Performance

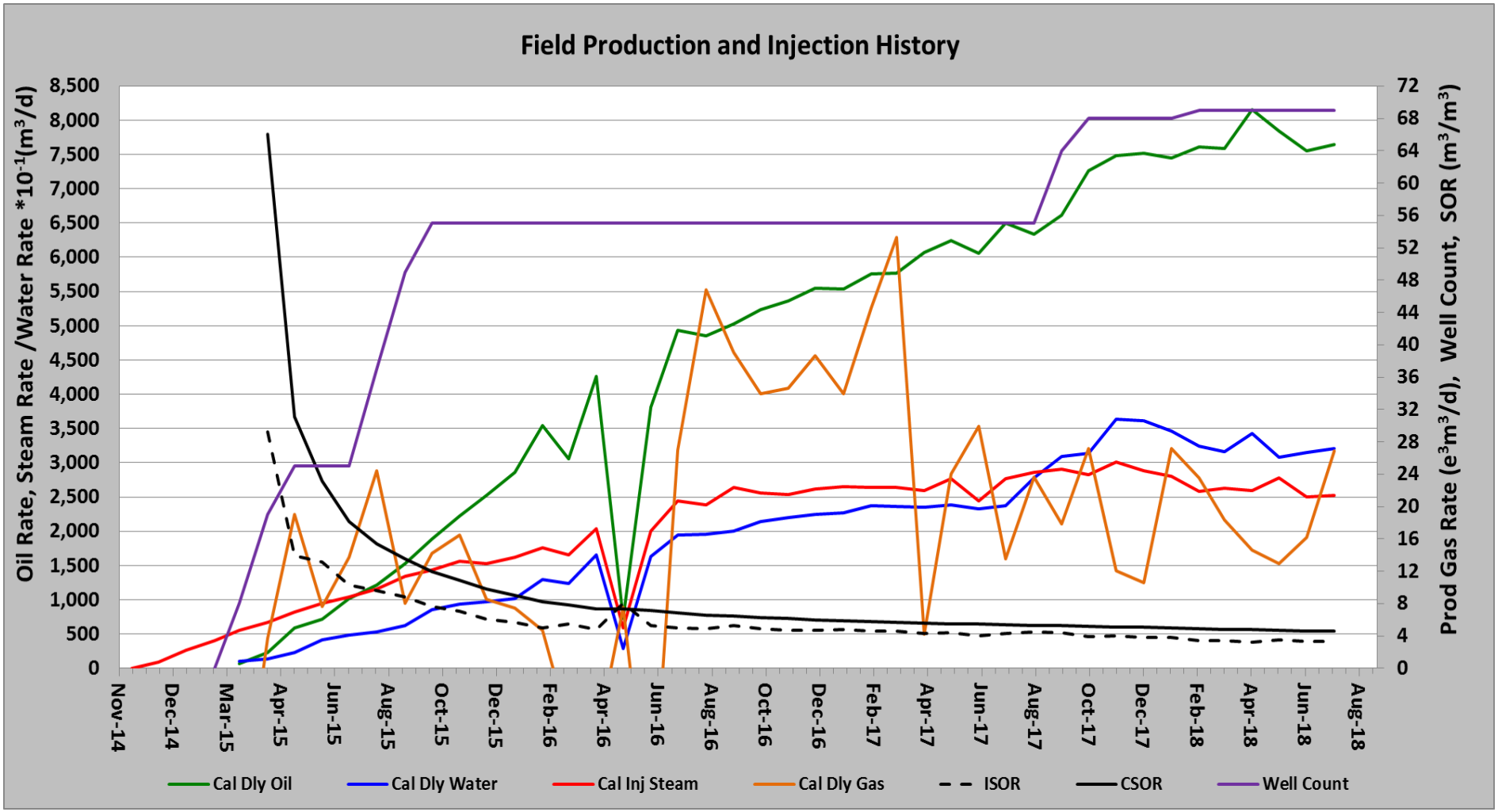
SCHEME PERFORMANCE PREDICTION METHODOLOGY

- Current performance prediction built on:
  - Actual performance
  - Analysis of analogous SAGD projects
  - Updated geological model supplemented with simulation and analytical models

- Simulation and Analytical models will be periodically history matched to actual performance

7. Scheme Performance

FIELD PRODUCTION AND INJECTION HISTORY



7. Scheme Performance

PRODUCTION

- Highest monthly bitumen production rate during the reporting period was 8,153 m^3/d
- The cumulative oil production for the reporting period was 2,708,037 m^3
- Most of producing well pairs are currently in ramp-up phase and will continue to increase production rates as the steam chambers develop. Some well pairs may have reached their peak rates already
- 55 of the initial well pairs were on production during the reporting period. 14 new well pairs (Pads B05-21 (P) and B06-21 (Q)) and 2 infill wells (B5A and C5A) were brought online during this time
- First Steam to well pad B06-21 (Q) was achieved in July 2017
- First Steam to well pad B05-21 (P) was achieved in August 2017
- The average SOR over the reporting period was 3.7 m^3 CWE / m^3
- As of July 31, 2018 the cumulative SOR was 4.6 m^3 CWE / m^3
- The instantaneous and cumulative SOR's are expected to drop as bitumen production ramps up

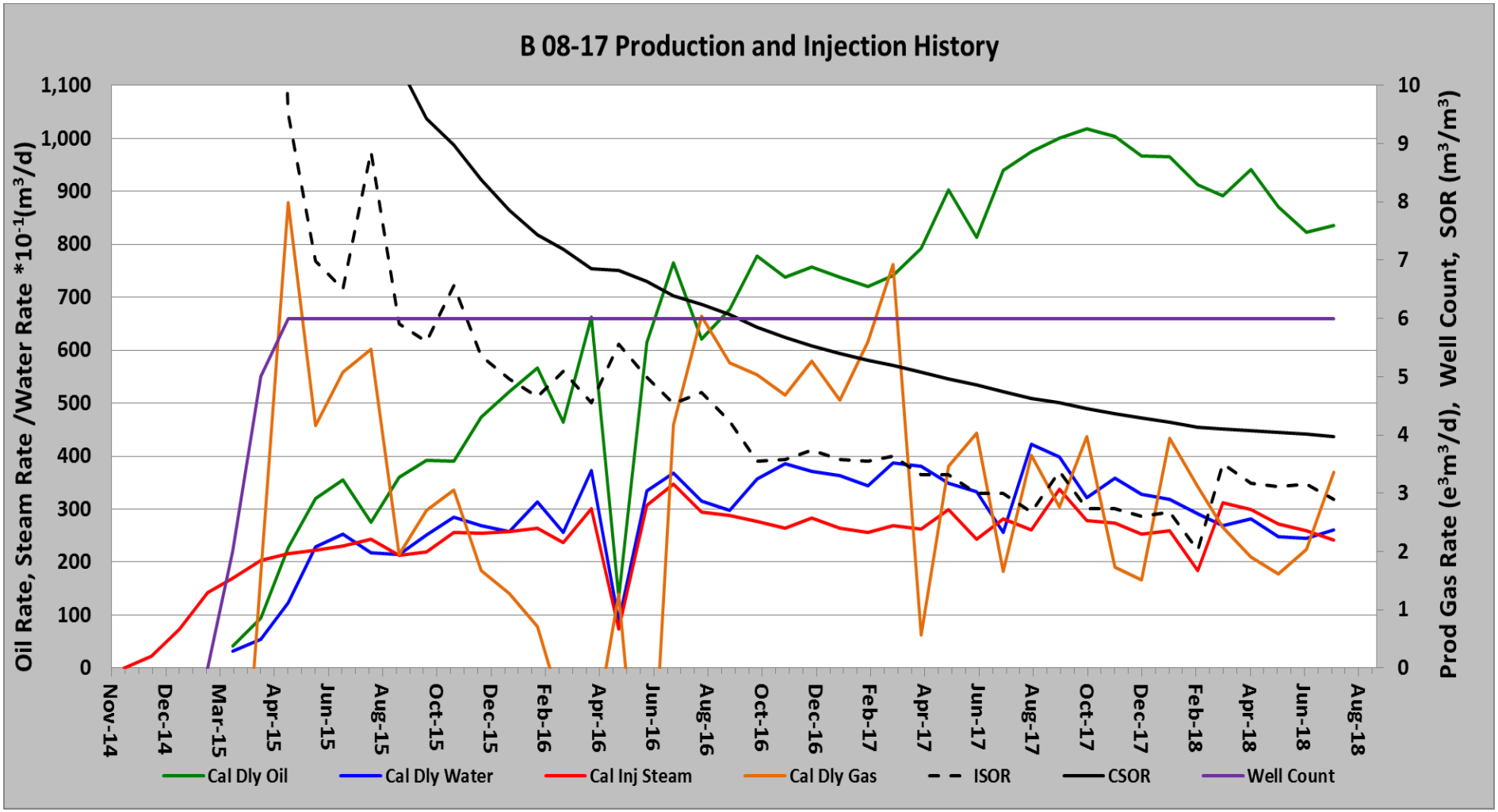
7. Scheme Performance

PRODUCTION VS. APPROVAL CAPACITY VARIANCE

- Ramp-up will continue during the next reporting period

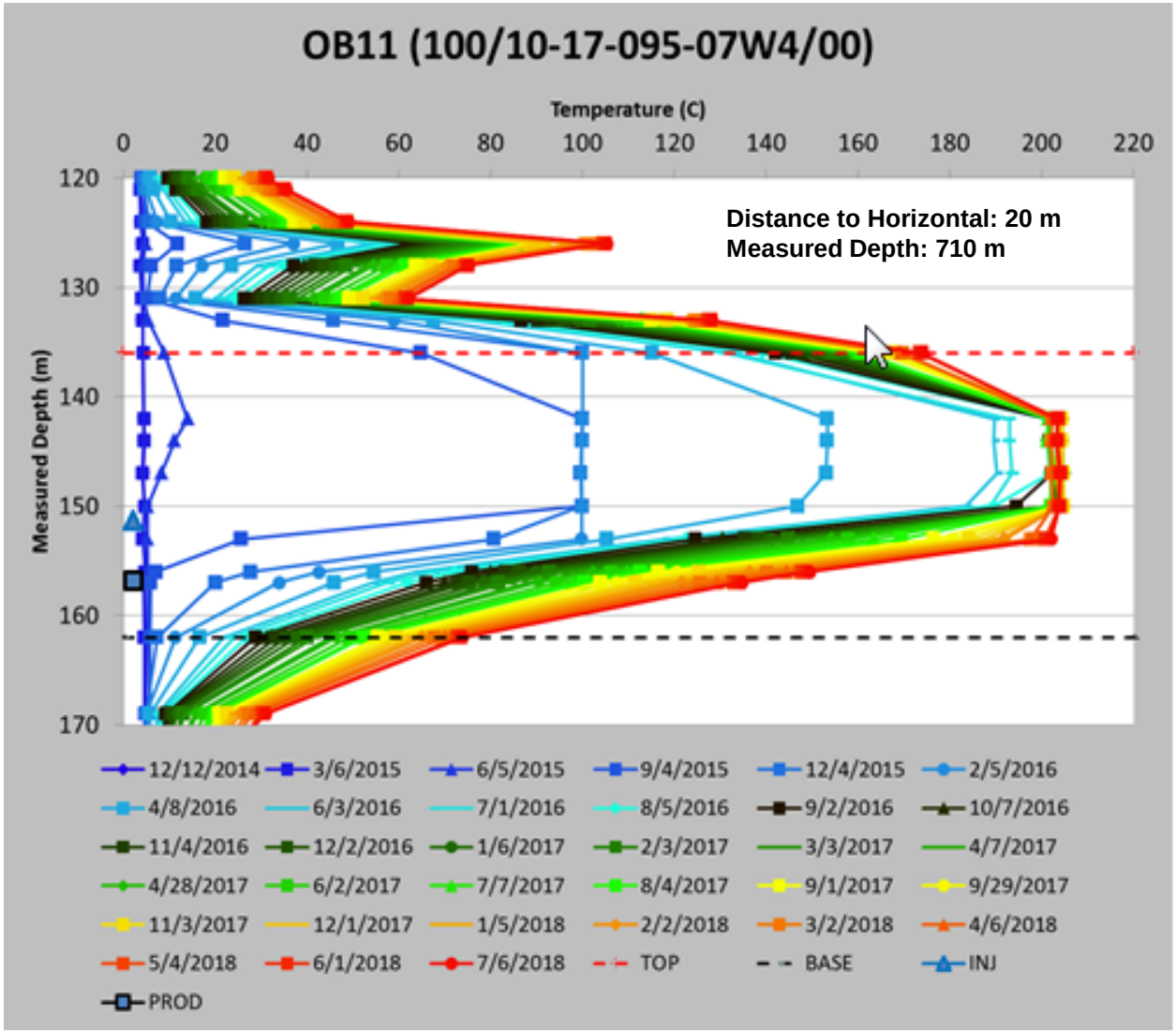
7. Scheme Performance

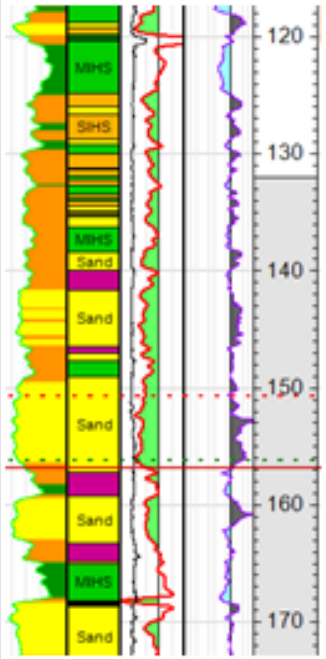
PAD B08-17 (G) PRODUCTION AND INJECTION HISTORY (HIGH RECOVERY PAD)

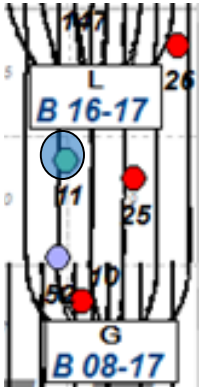


7. Scheme Performance

PAD B08-17 (G) MID OBSERVATION WELL

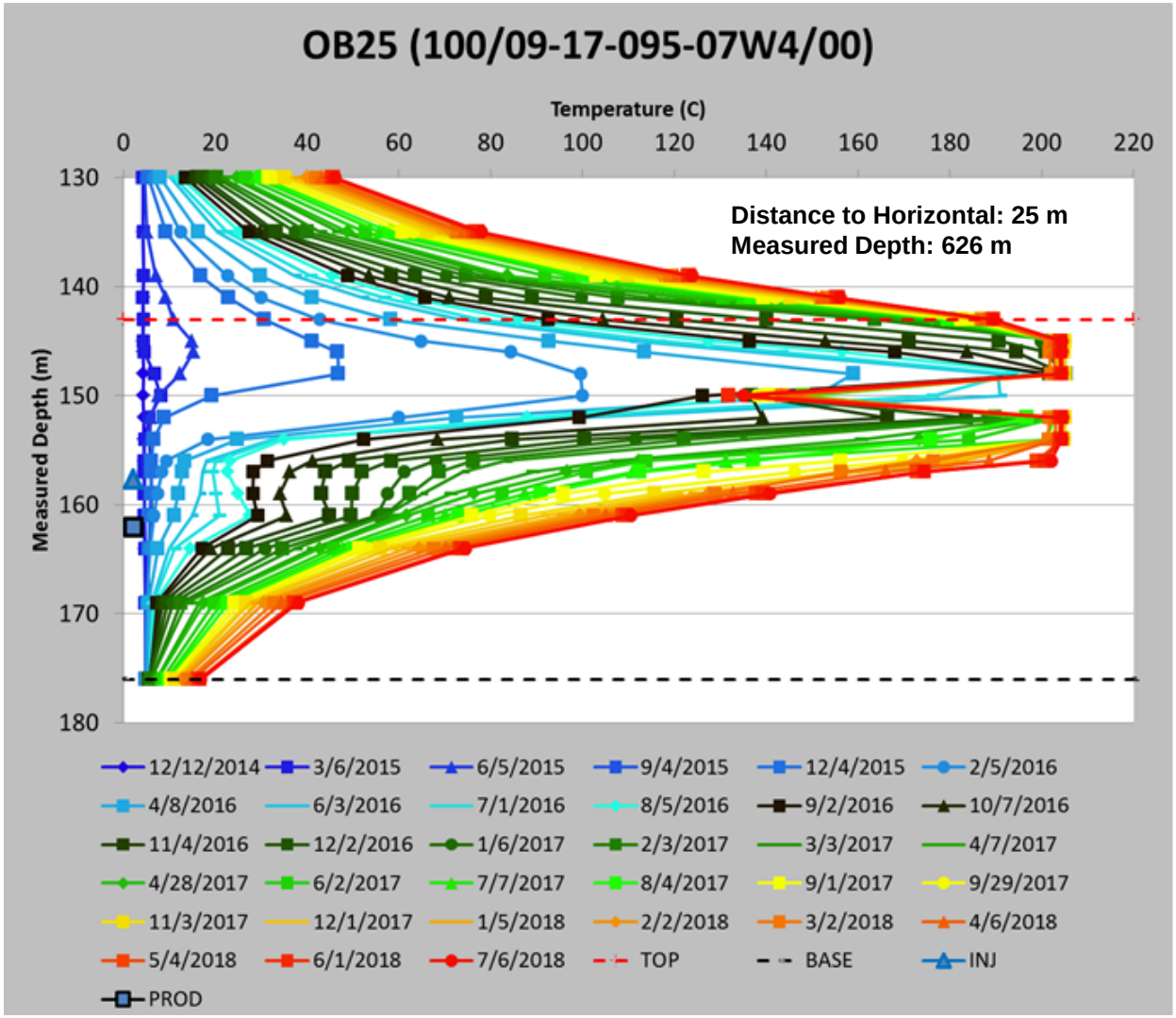


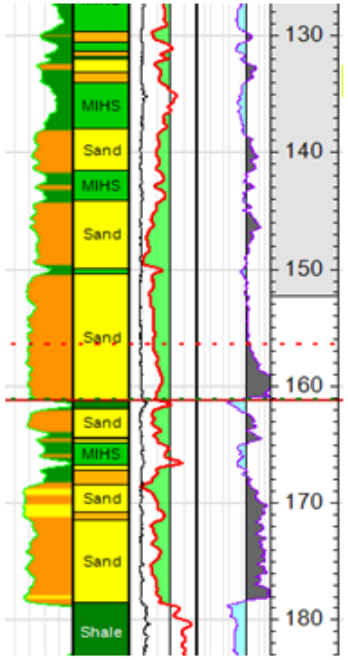


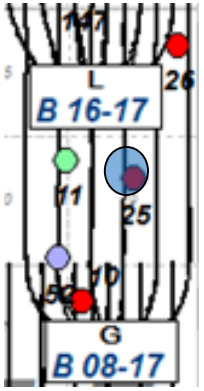


7. Scheme Performance

PAD B08-17 (G) MID OBSERVATION WELL

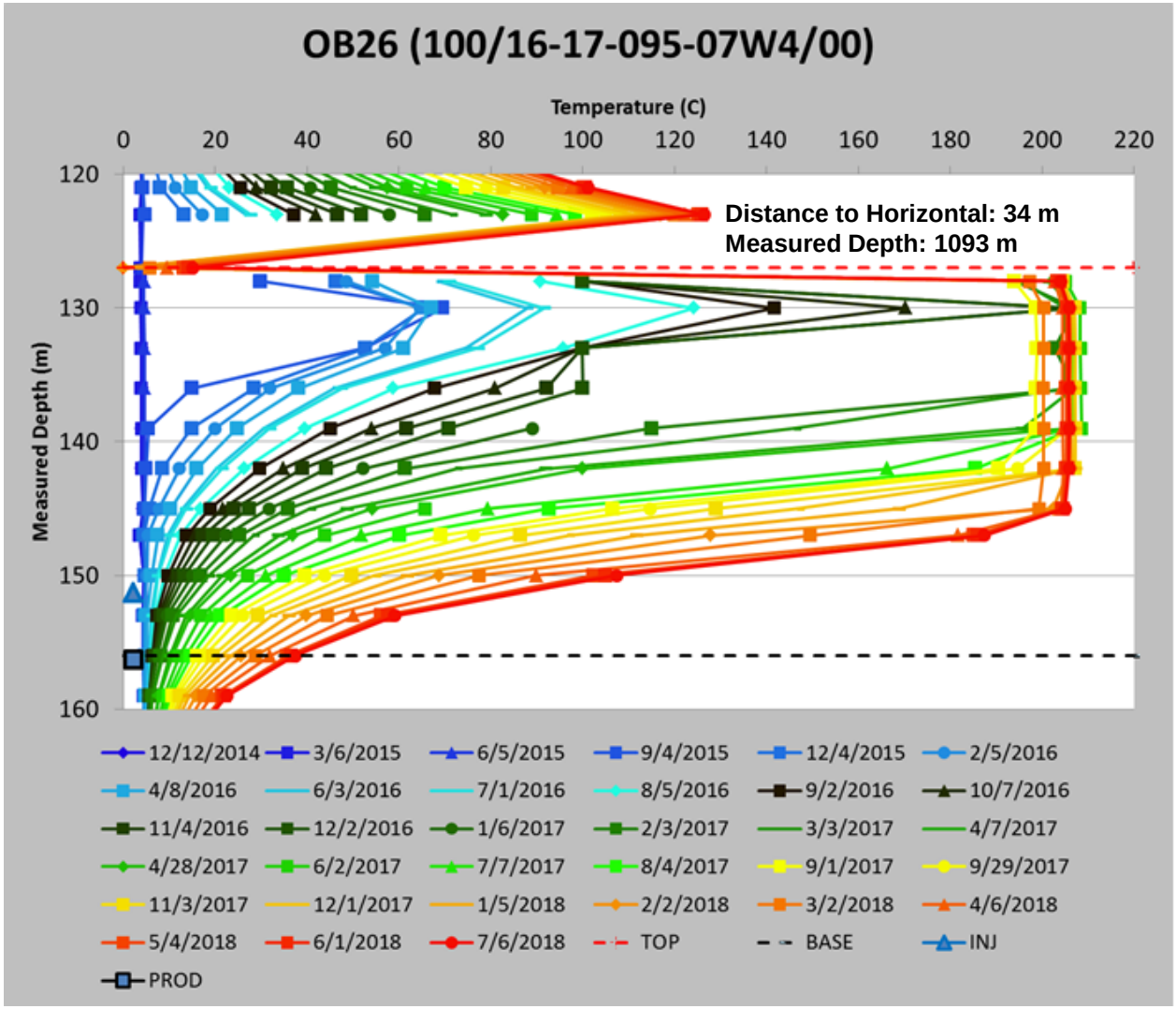


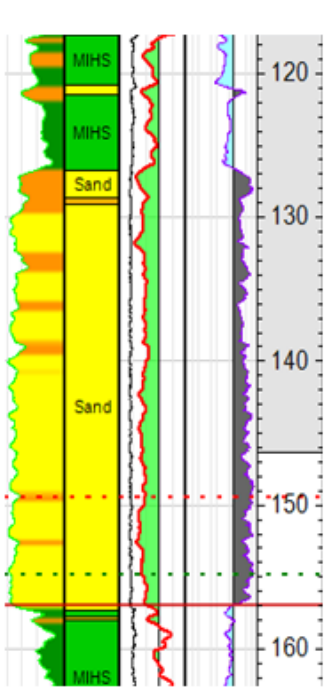


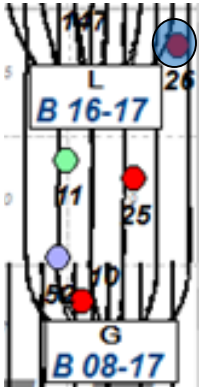


7. Scheme Performance

PAD B08-17 (G) TOE OBSERVATION WELL







- Faulty TC at 127 m

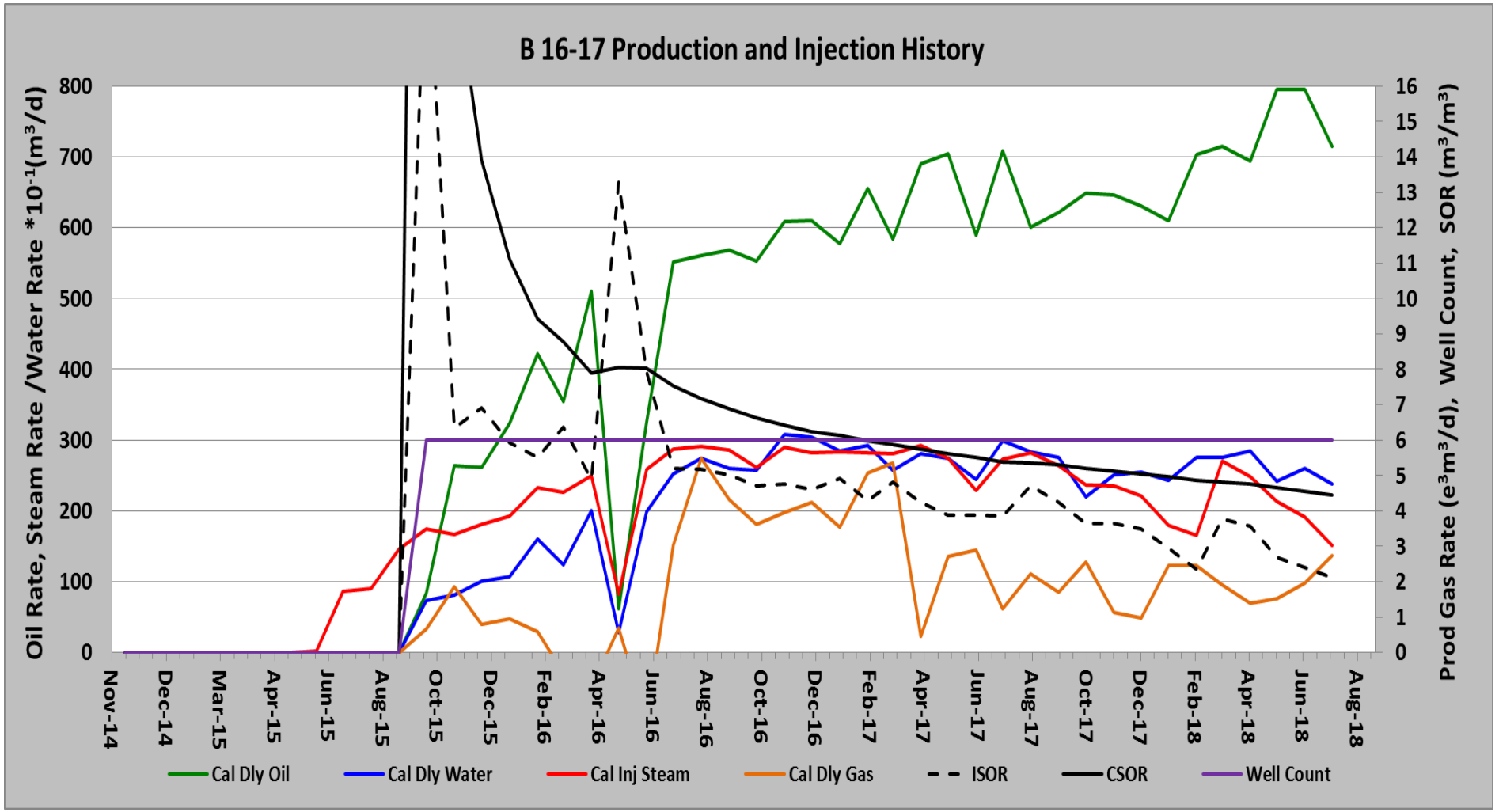
7. Scheme Performance

DISCUSSION OF PAD B08-17 (G) PERFORMANCE

- Overall bitumen and steam rates are as per expectations. Well Pad expected to be close to/at peak bitumen rate
- The recent bitumen rate drop is due to lower operating pressure as a result of steam management
- Injection pressure during the reporting period ranged from 1,630 kPa_g to 1,785 kPa_g
- All 6 producers are currently using ESPs to optimize lift
- All observation wells on well pad B08-17 (G) show vertical and lateral chamber growth
- Pad B08-17 (G) performance indicators as of July 31, 2018:
  - Cum Oil : 823,985 m^3 (RF = 24.7%)
  - Cum Steam Injected: 3,276,103 m^3
  - Cum Water Produced: 3,591,077 m^3
  - CSOR: 4.0 m^3 CWE/m^3

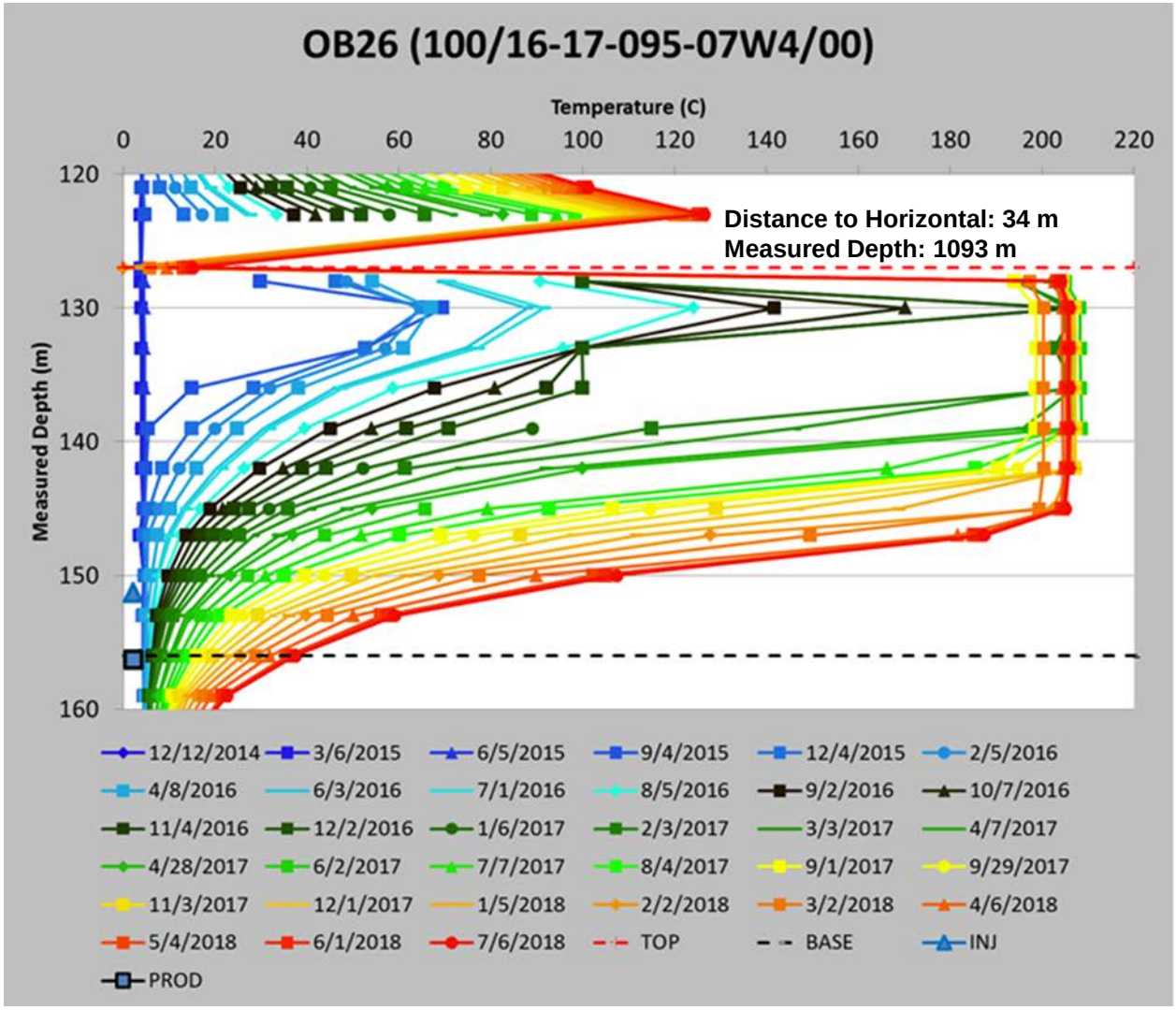
7. Scheme Performance

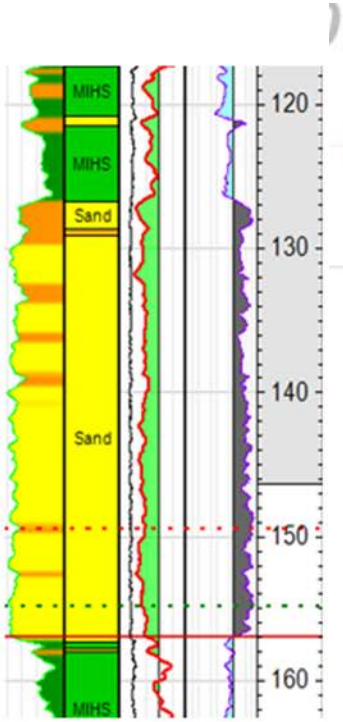
PAD B16-17 (L) PRODUCTION AND INJECTION HISTORY (MID RECOVERY PAD)

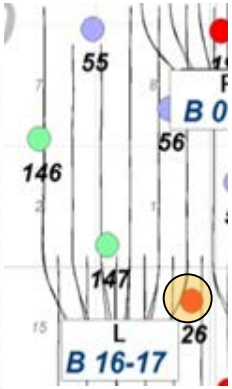


7. Scheme Performance

PAD B16-17 (L) HEEL OBSERVATION WELL



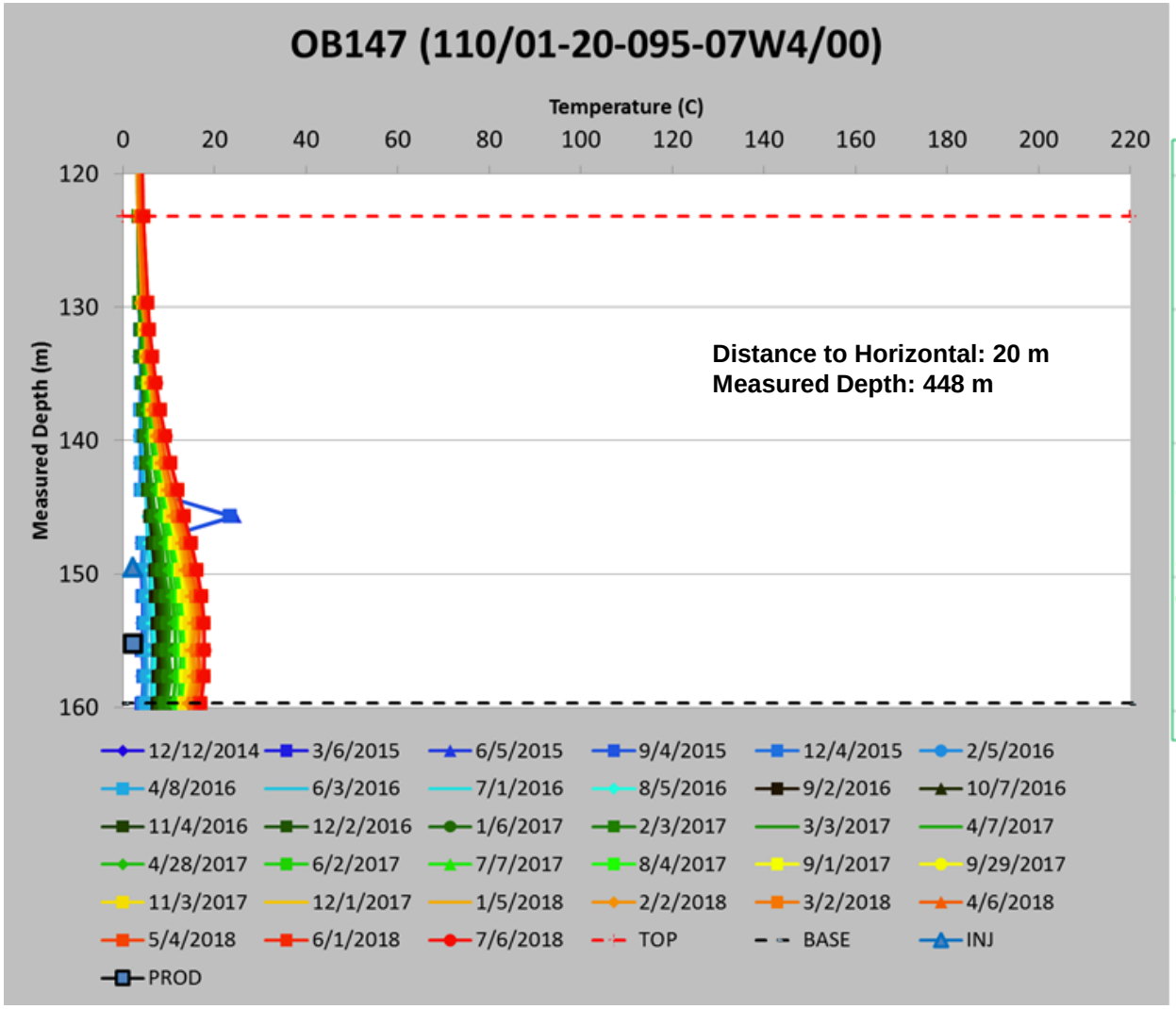


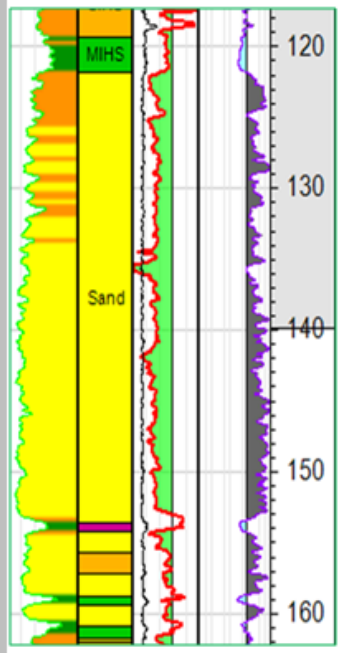


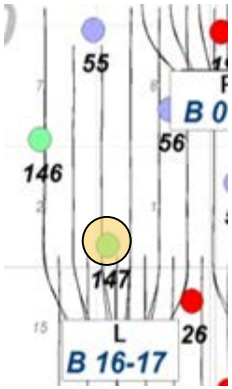
- Faulty TC at 127 m

7. Scheme Performance

PAD B16-17 (L) HEEL OBSERVATION WELL







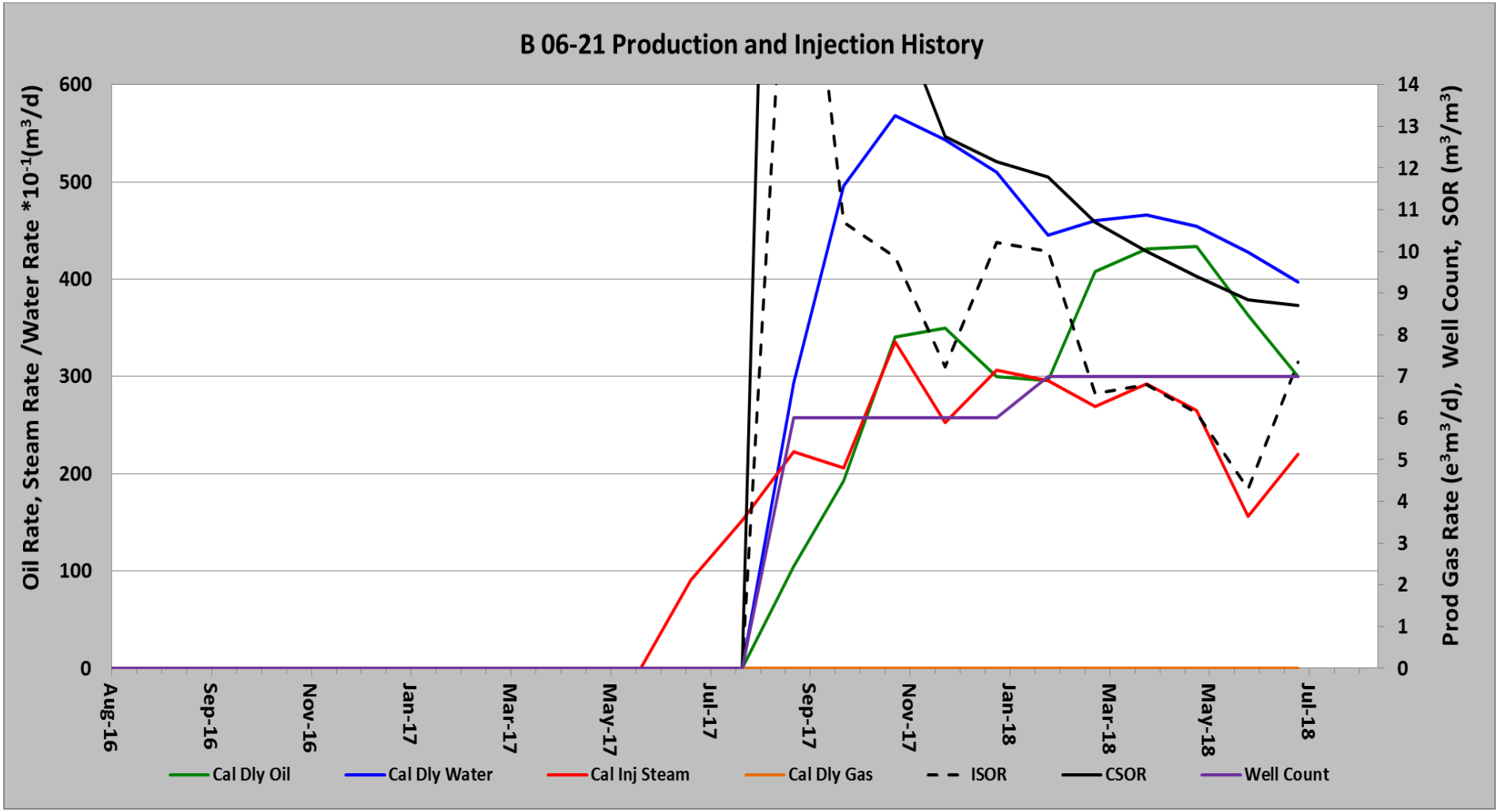
7. Scheme Performance

DISCUSSION OF B16-17 (L) PERFORMANCE

- Currently producing approximately 800 m^3/day of bitumen
- The operating pressure has varied between 1,560 kPa_g and 1,725 kPa_g due to issues related to the drilling and operations of replacement well L5
- In March 2018, L5 producer was side tracked to drill a new injector while the old injector was converted to a producer (Replacement). Initial results show improvement in production
- In July 2018, L2 producer was re-completed with inflow control devices (ICD's). Initial results show improvement in production
- There are four observation wells located on this pad. One of them shows evidence of steam chamber development at the top of pay. Piezometers are reading expected pressures
- Pad B16-17 (L) performance indicators as of July 31, 2018:
  - Cum Oil : 569,888 m^3 (RF = 14.3 %)
  - Cum Steam Injected: 2,541,979 m^3
  - Cum Water Produced: 2,360,828 m^3
  - CSOR: 4.5 m^3 CWE/m^3

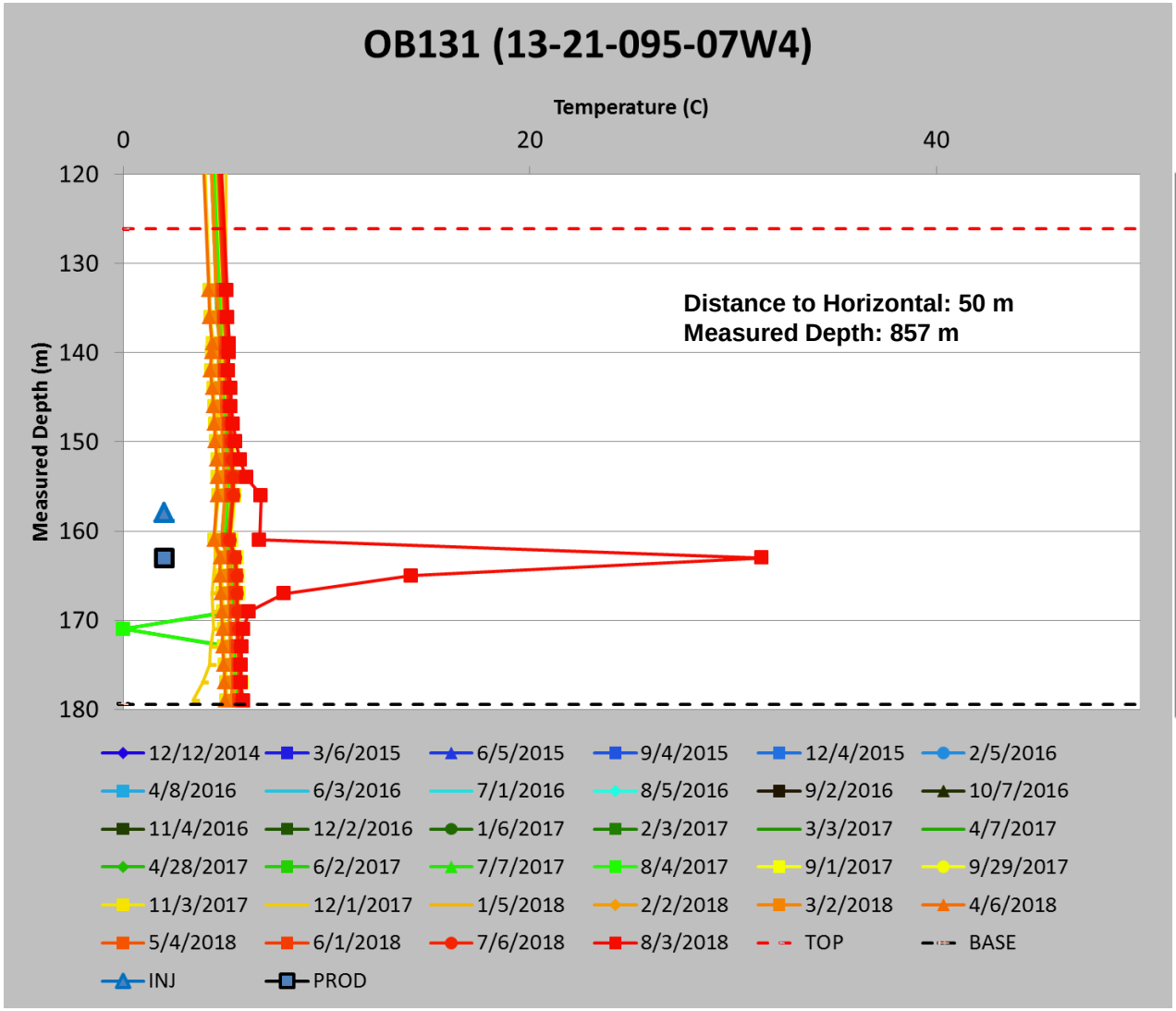
7. Scheme Performance

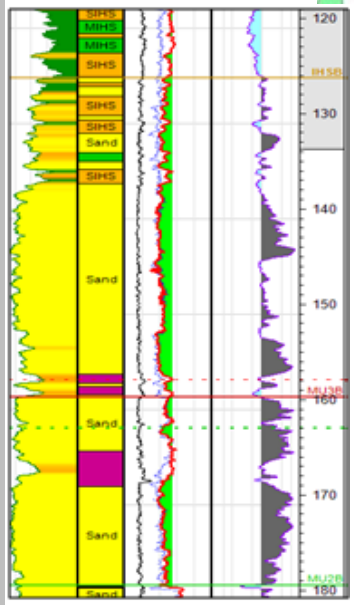
PAD B6-21 (Q) PRODUCTION AND INJECTION HISTORY (LOW RECOVERY PAD)

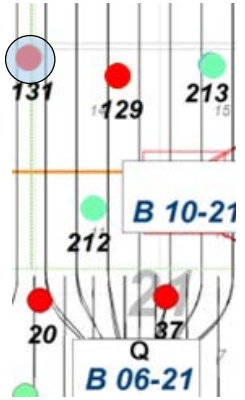


7. Scheme Performance

PAD B06-21 (Q) TOE OBSERVATION WELL

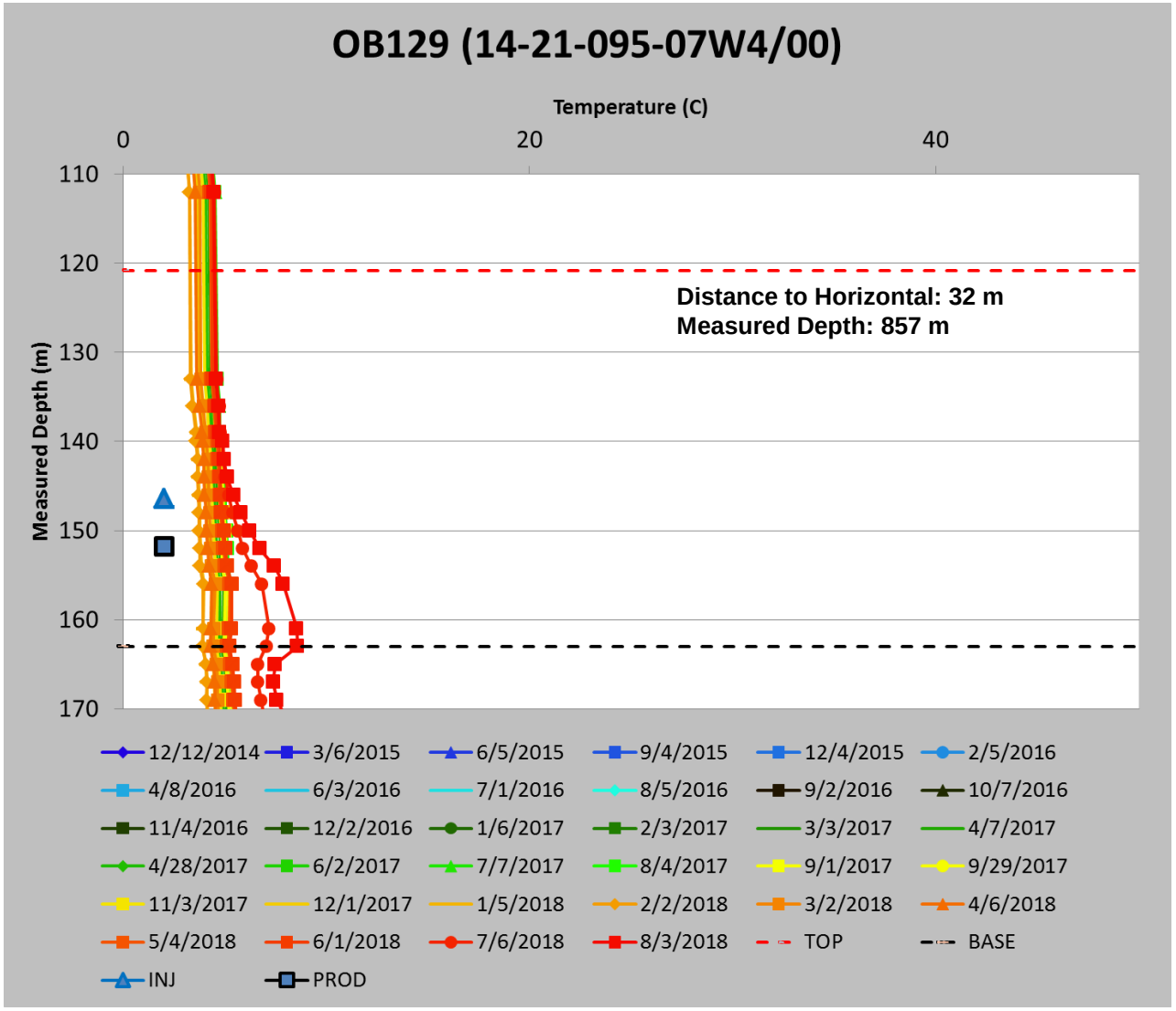


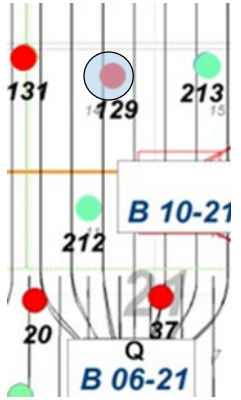


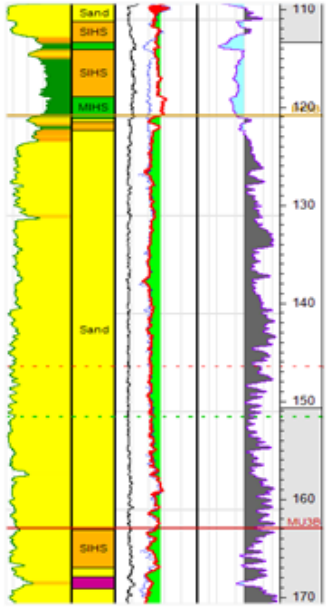


7. Scheme Performance

PAD B06-21 (Q) TOE OBSERVATION WELL

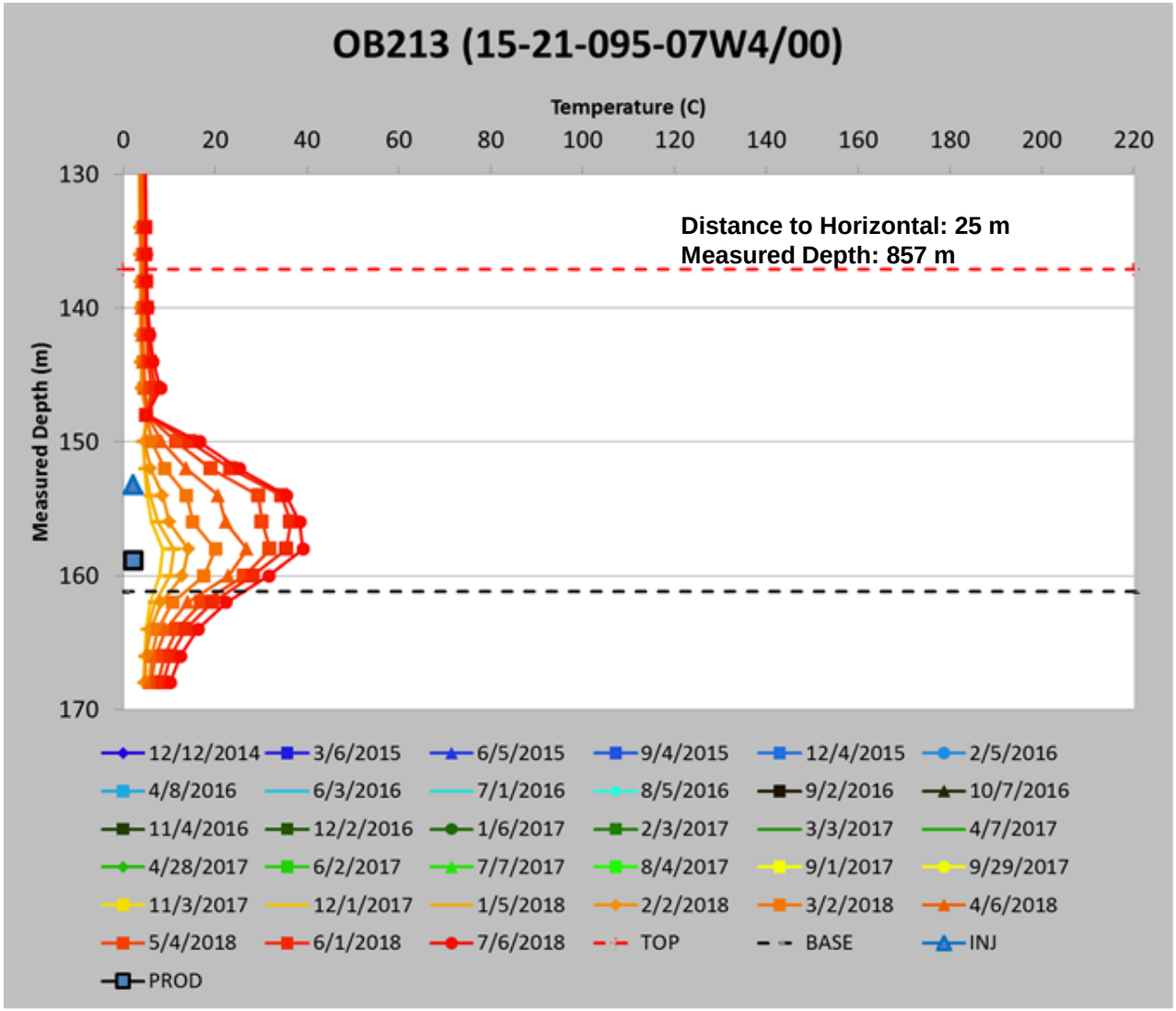


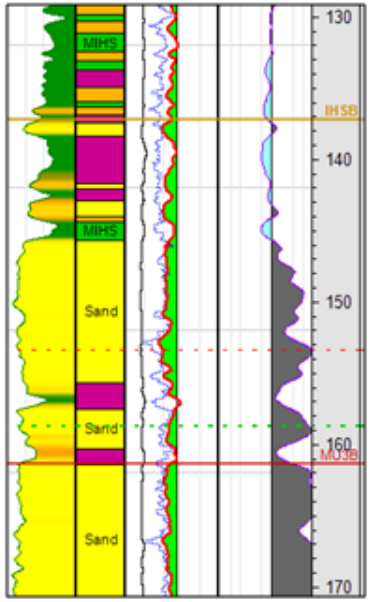




7. Scheme Performance

PAD B06-21 (Q) TOE OBSERVATION WELL





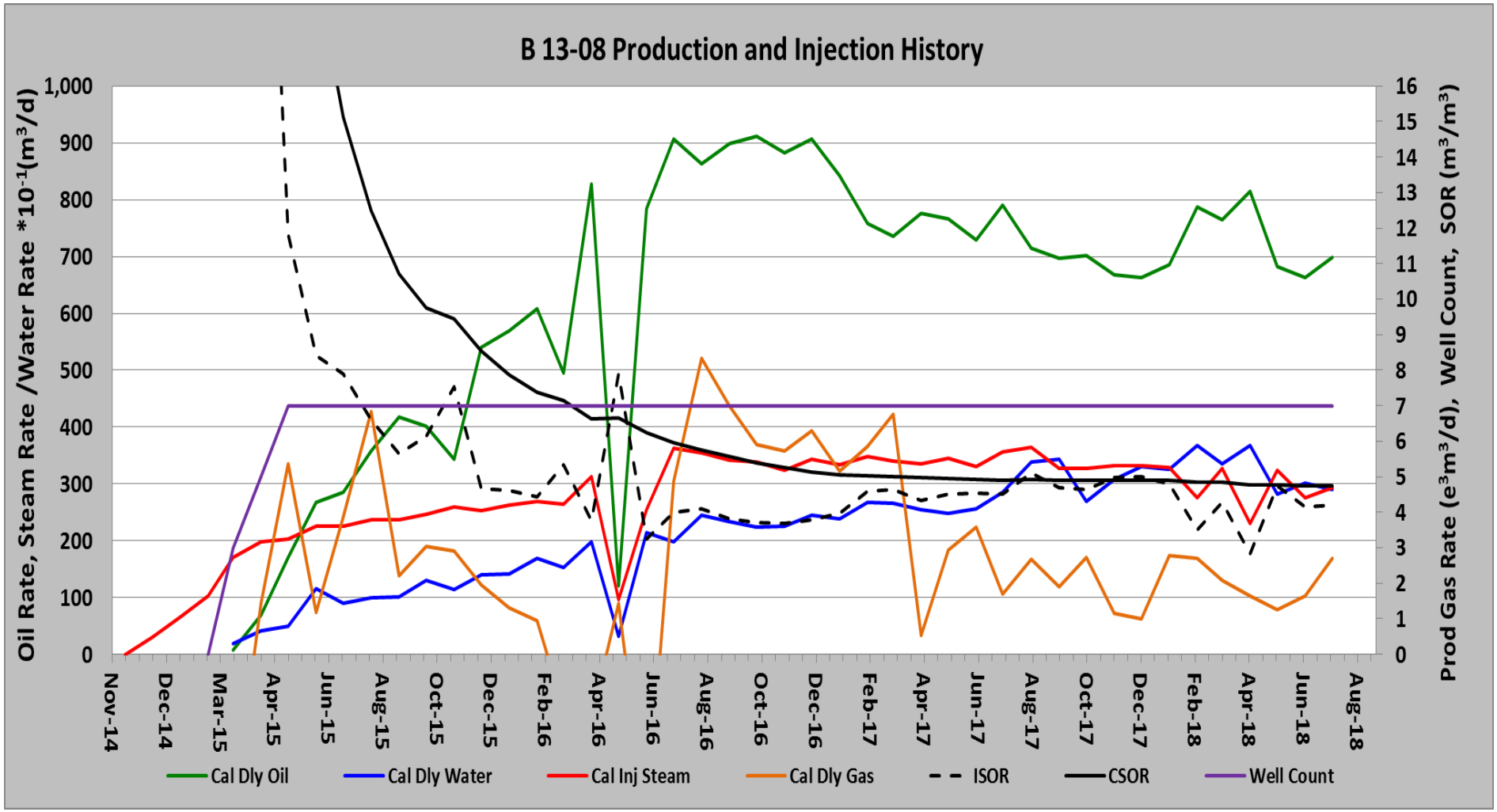
7. Scheme Performance

DISCUSSION OF PAD B06-21 (Q) PERFORMANCE

- All 7 well pairs were converted to SAGD and are producing on ESP during the reporting period
- Initial ramp up was per expectations, showing short start up times and high initial emulsion rates, consistent with high water saturation in some parts of the reservoir. Oil cut is showing gradual improvement in all the well pairs
- Temperatures were observed in build sections of Pad B06-21 (Q) producers as a result of steam chambers from Pad B16-16 (N)
- Operating pressure will be ramped up continuously in a controlled manner
- Well Q1 conversion to SAGD was delayed due to operations related issues
- In June 2018, wells Q4 and Q7 were recompleted with tailpipes to improve conformance
- There are four observation wells located on this pad. One of them shows evidence of steam chamber development at the top of pay. Piezometers are reading expected pressures
- Pad B06-21 (Q) performance indicators as of July 31, 2018:
  - Cum Oil : 106,927 m^3 (RF = 2.1%)
  - Cum Steam Injected: 931,081 m^3
  - Cum Water Produced: 1,538,147 m^3
  - CSOR: 8.7 m^3 CWE / m^3

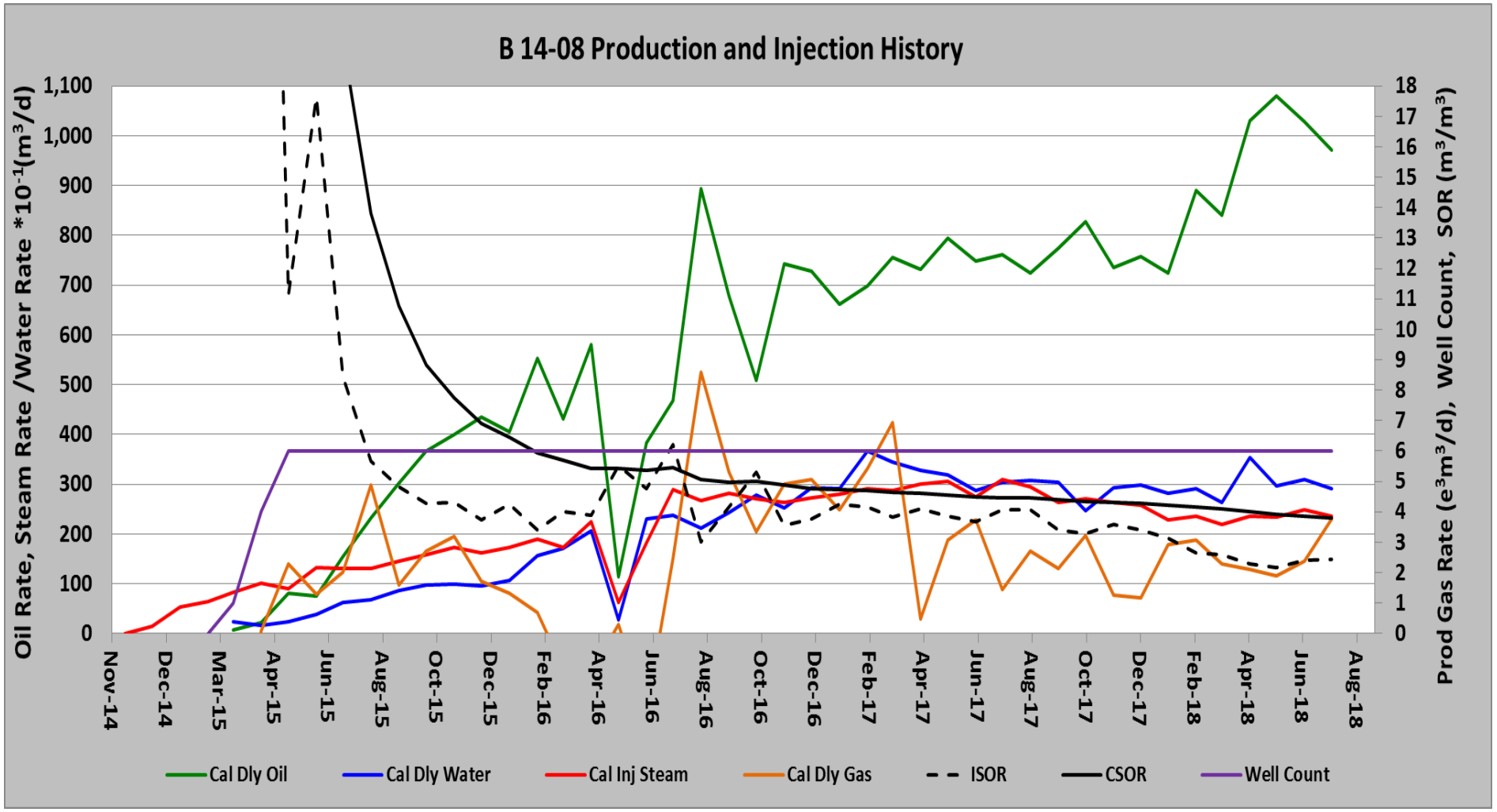
7. Scheme Performance

PAD B13-08 (B) PRODUCTION AND INJECTION HISTORY



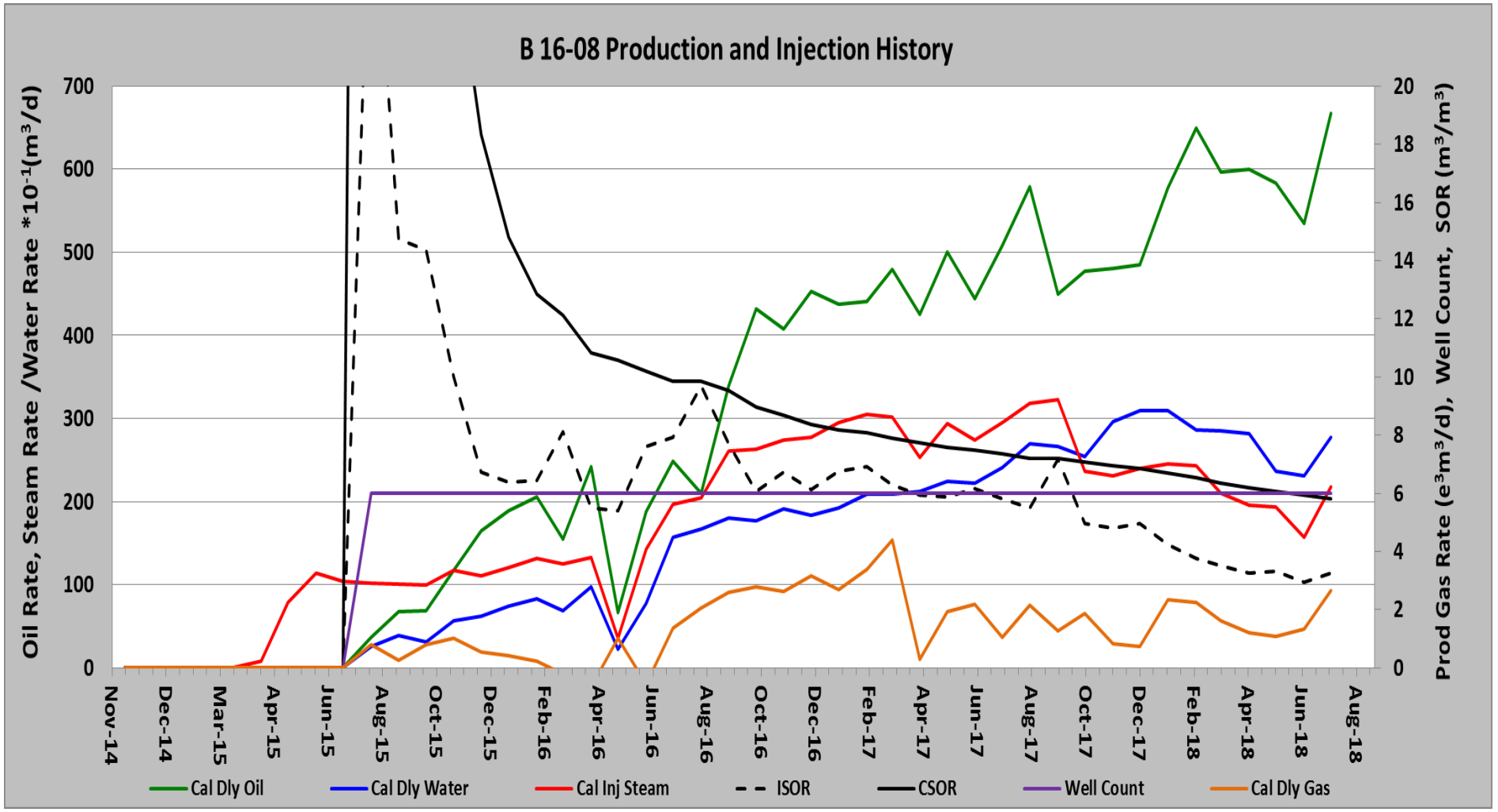
7. Scheme Performance

PAD B14-08 (C) PRODUCTION AND INJECTION HISTORY



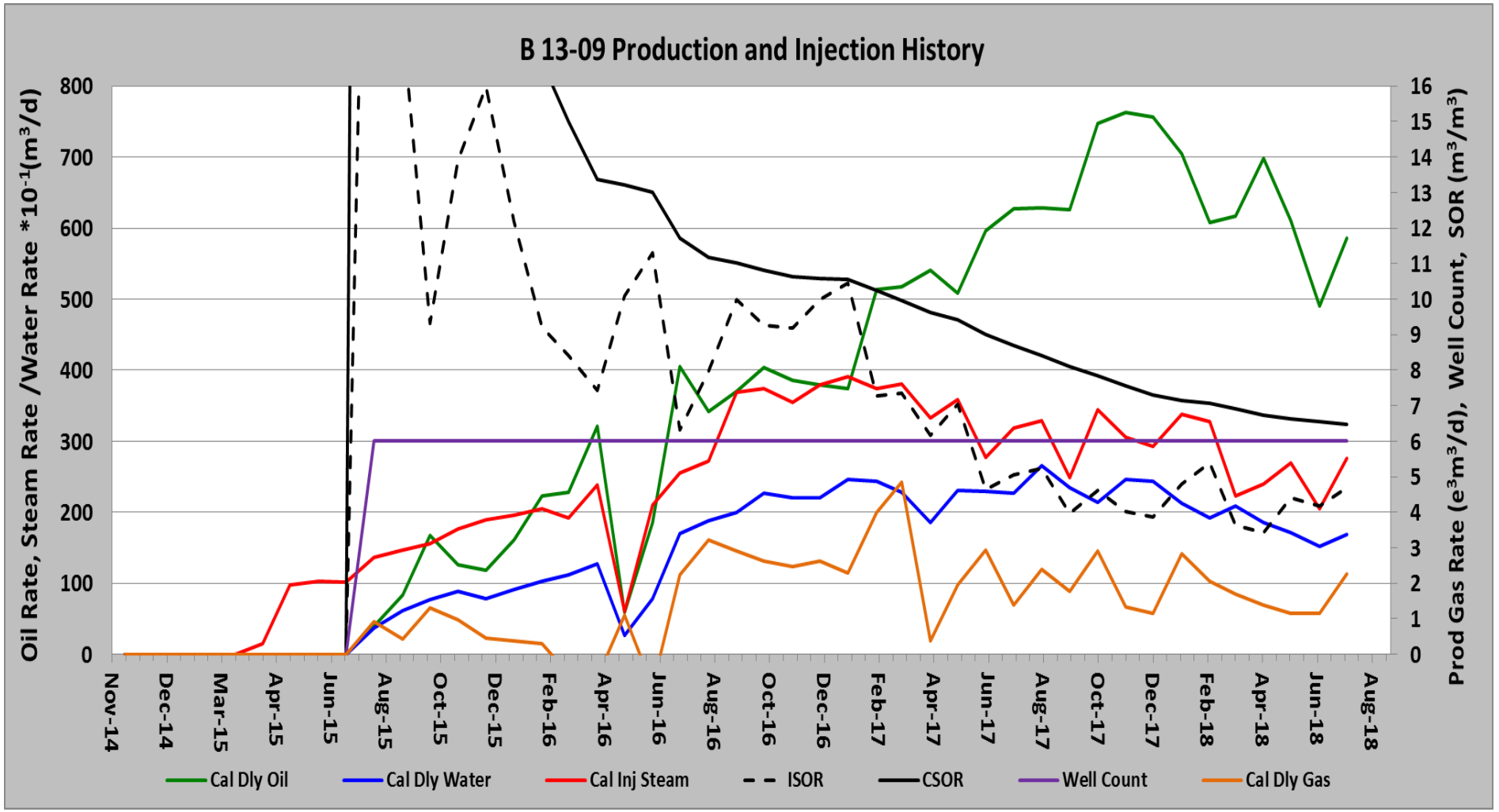
7. Scheme Performance

PAD B16-08 (D) PRODUCTION AND INJECTION HISTORY



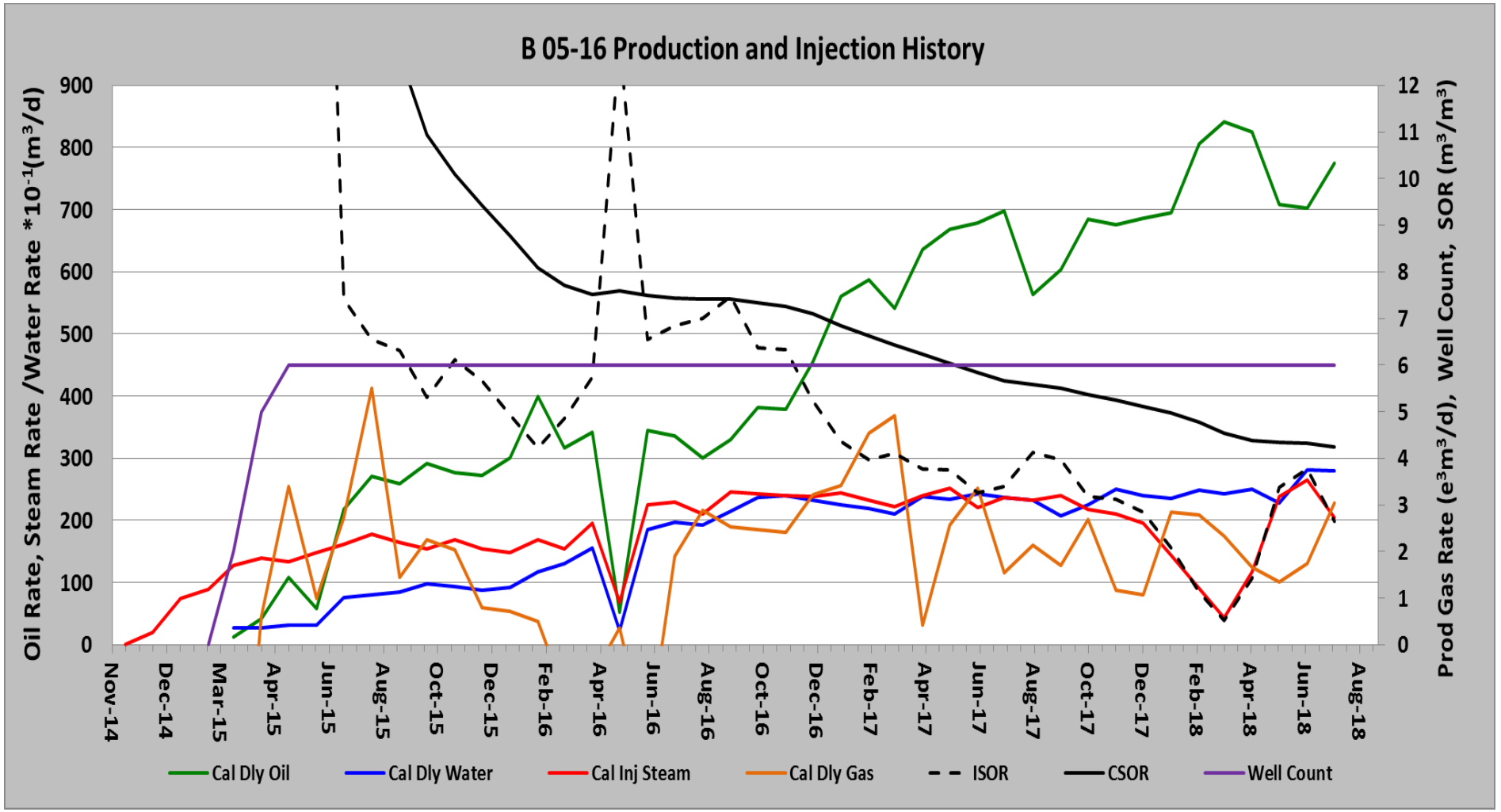
7. Scheme Performance

PAD B13-09 (E) PRODUCTION AND INJECTION HISTORY



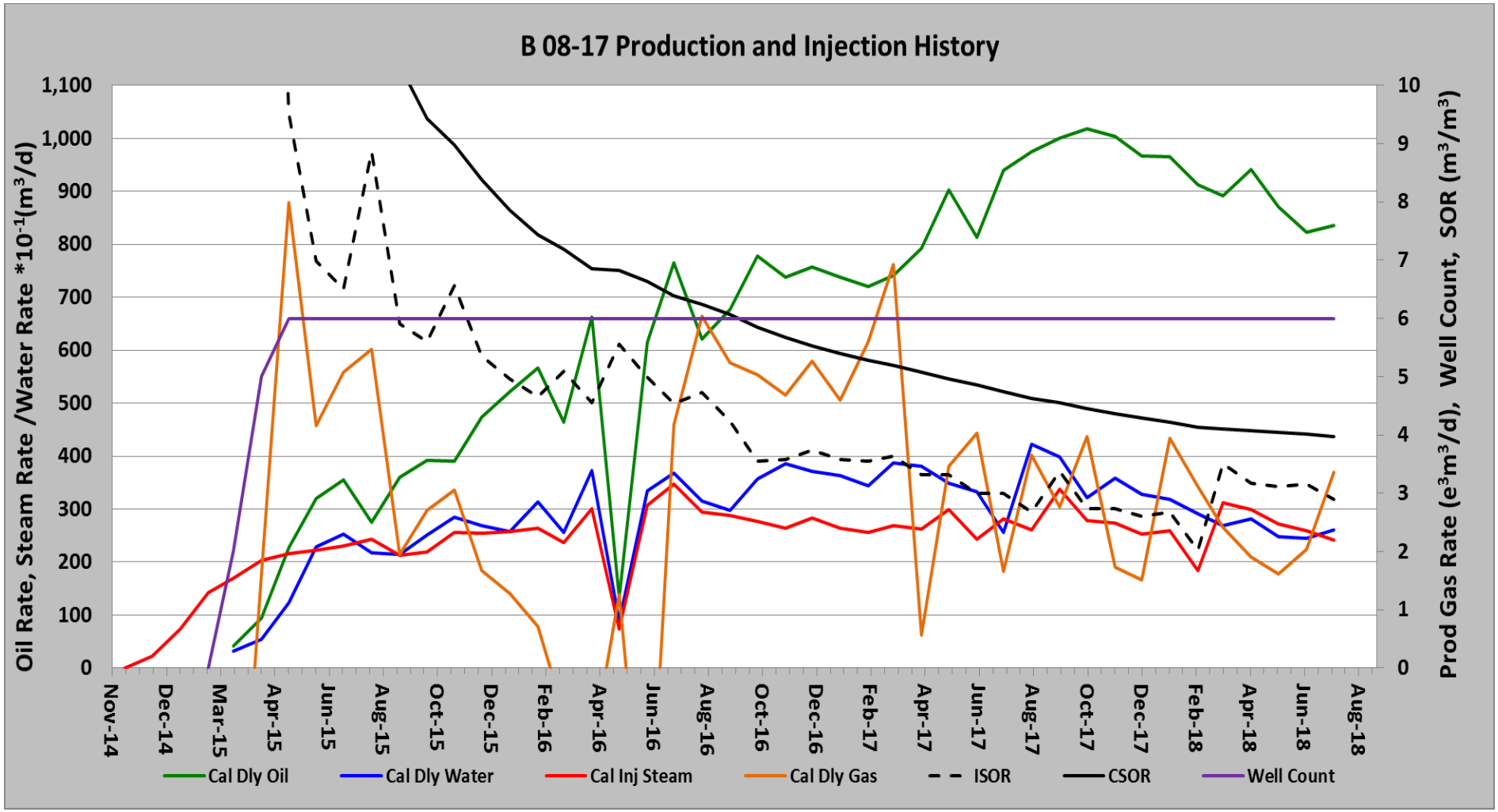
7. Scheme Performance

PAD B05-16 (H) PRODUCTION AND INJECTION HISTORY



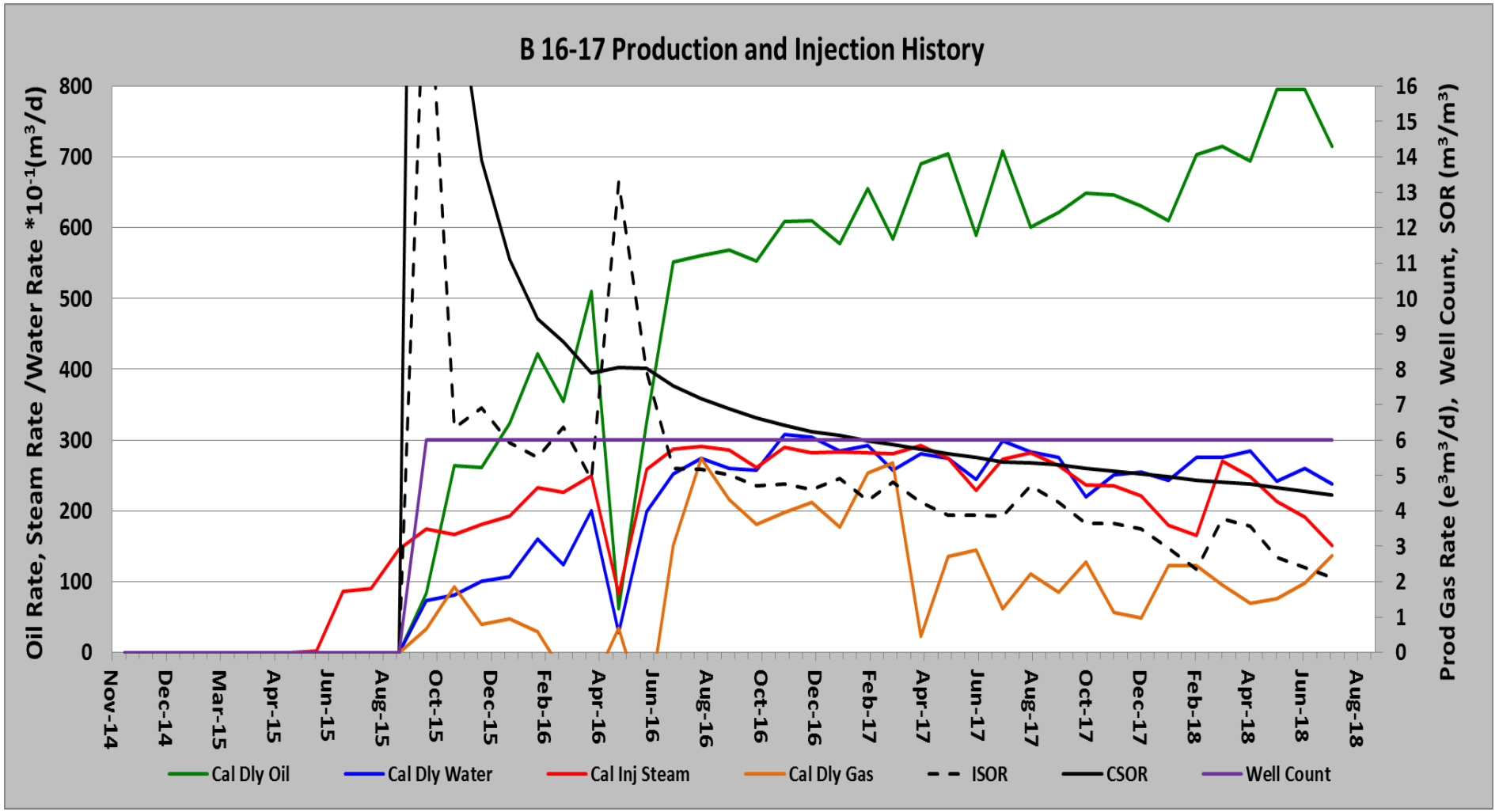
7. Scheme Performance

PAD B08-17 (G) PRODUCTION AND INJECTION HISTORY



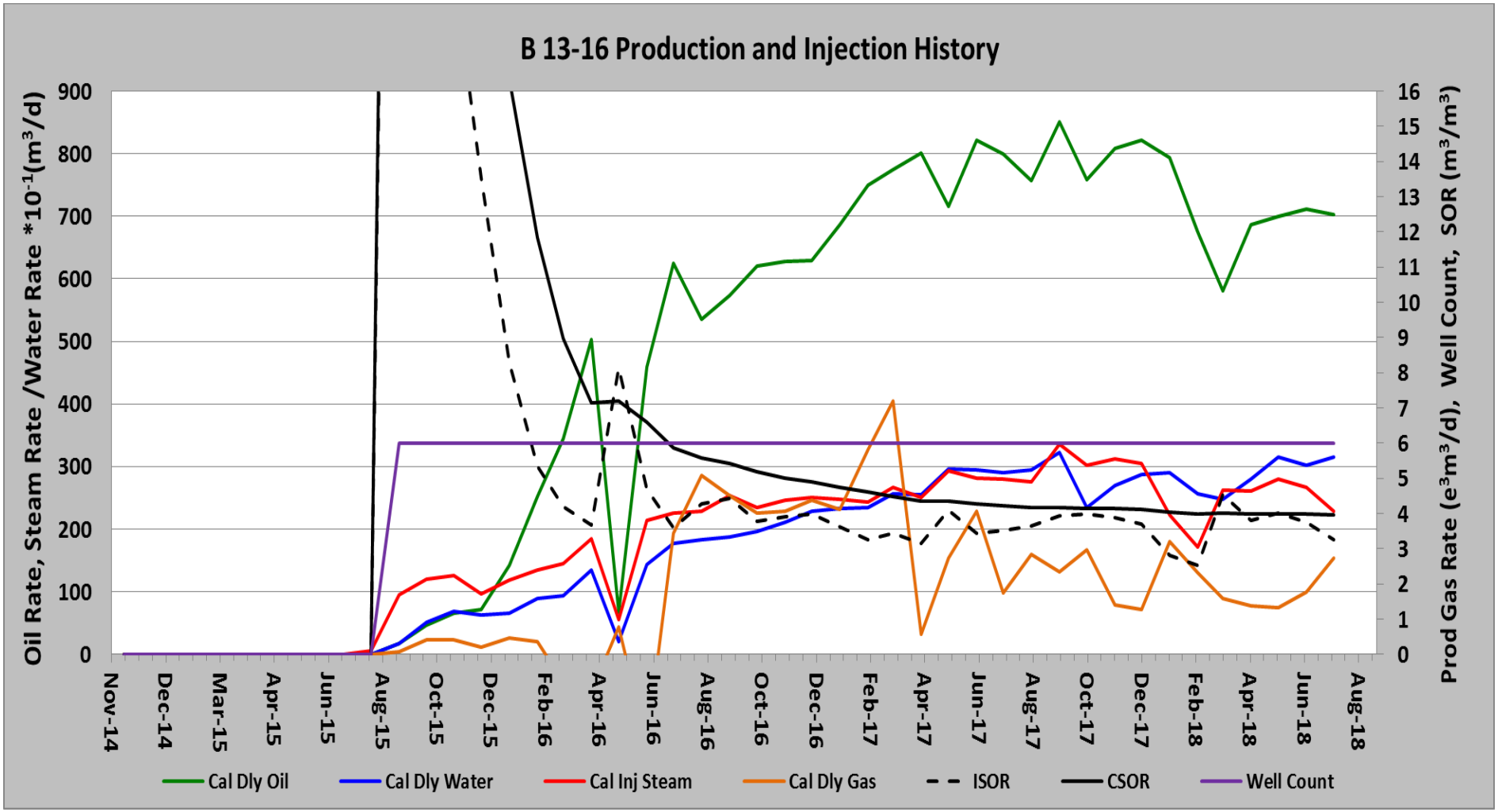
7. Scheme Performance

PAD B16-17 (L) PRODUCTION AND INJECTION HISTORY



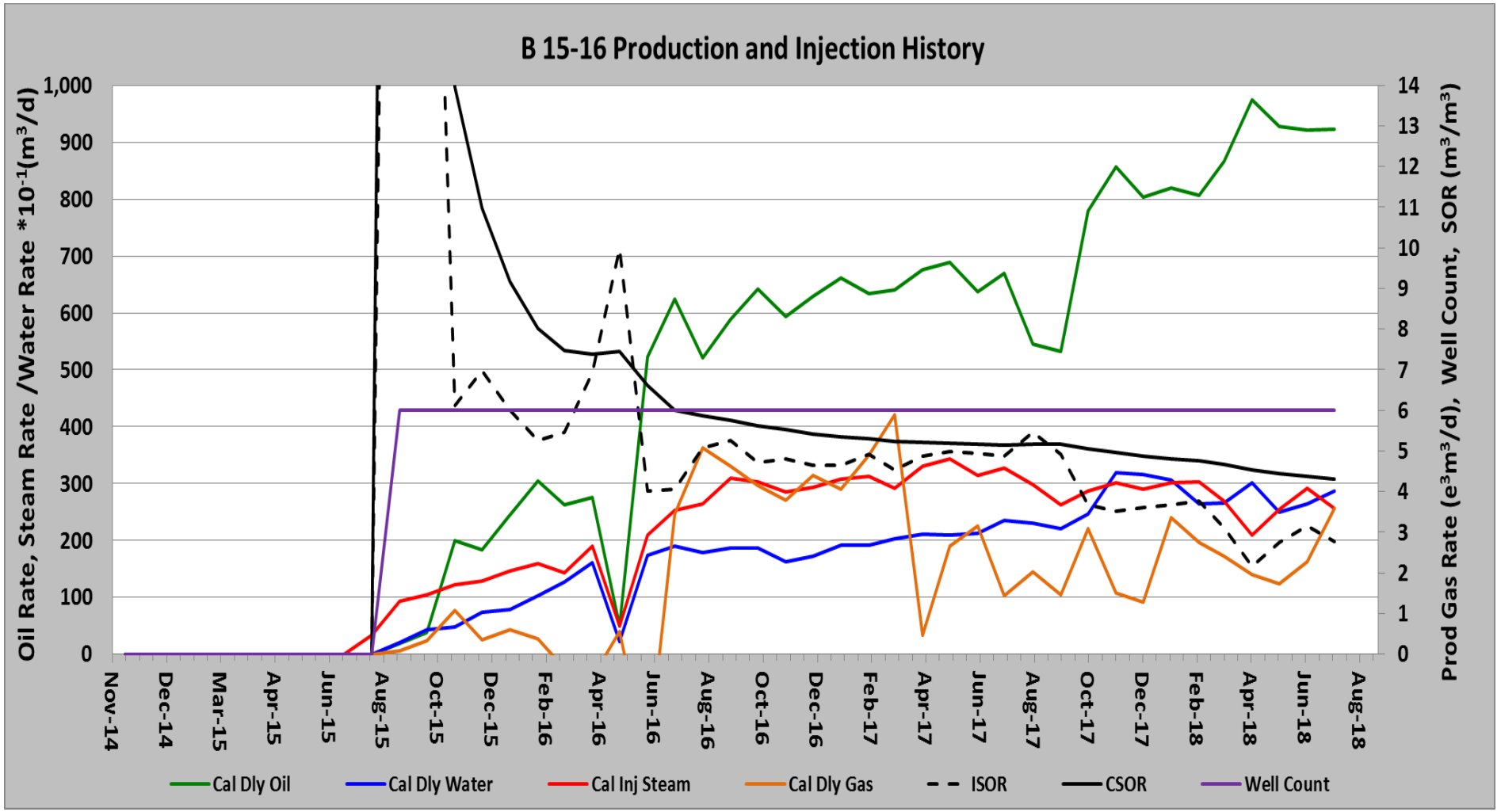
7. Scheme Performance

PAD B13-16 (M) PRODUCTION AND INJECTION HISTORY



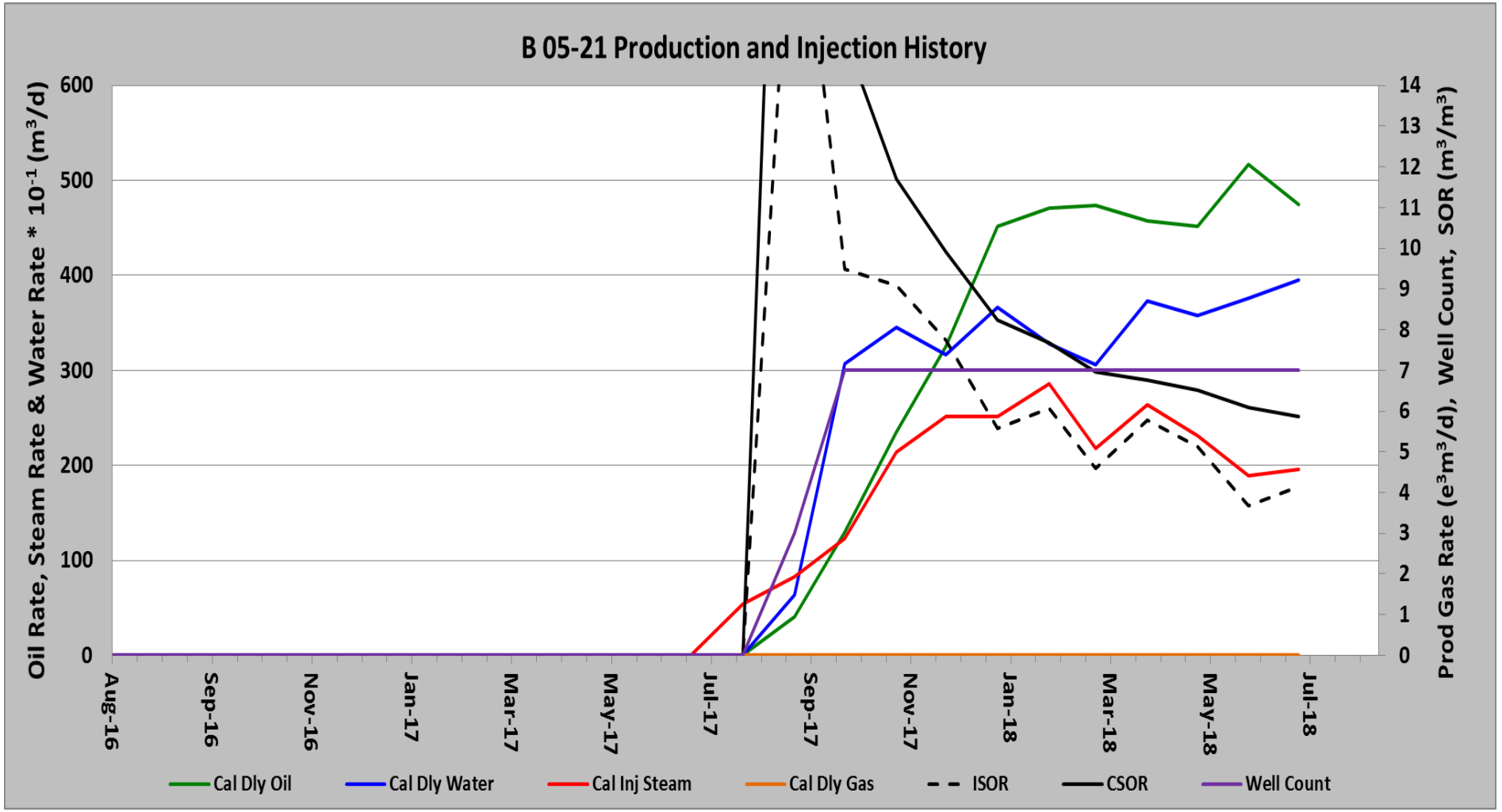
7. Scheme Performance

PAD B15-16 (N) PRODUCTION AND INJECTION HISTORY



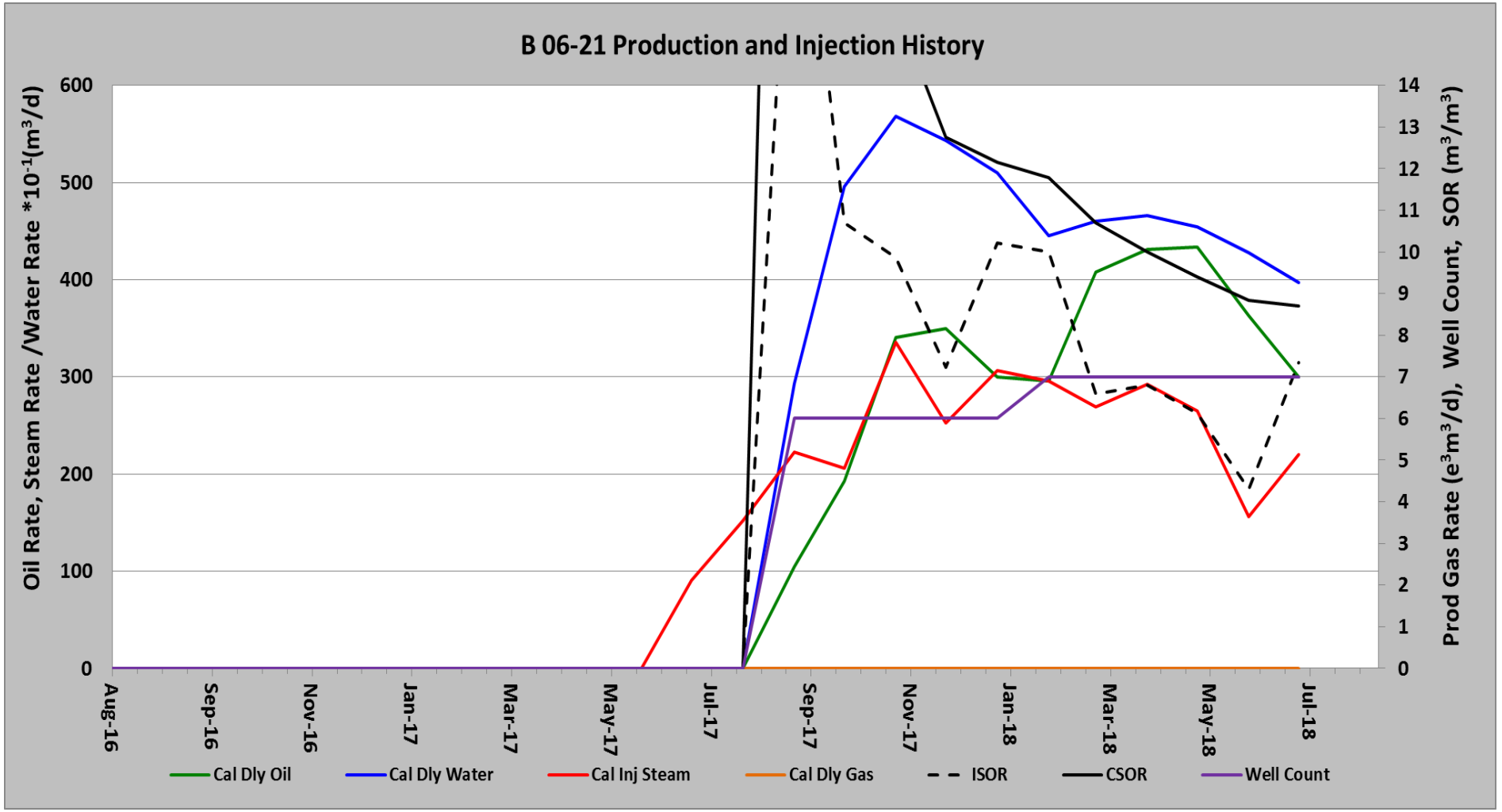
7. Scheme Performance

PAD B5-21 (P) PRODUCTION AND INJECTION HISTORY



7. Scheme Performance

PAD B6-21 (Q) PRODUCTION AND INJECTION HISTORY



7. Scheme Performance

START-UP STRATEGY / KEY LEARNINGS

- Pads B05-21 (P) and B06-21 (Q) start-up process continued during the reporting period. A mixture of bullheading and circulation was used according to steam availability, pressure response, and availability of surface facilities

- Key learnings:
  - Bullheading is the preferred method of start-up
  - For low steam rate wells circulation was required to achieve desirable steam qualities

7. Scheme Performance

OBIP AND RECOVERIES BY PAD

- OBIP for each pad is calculated from the formula:

$$OBIP = L \times W \times H \times (1-S_w) \times \Phi \times 1/B_o$$

Where

L = Length of Drainage Area

W = Width of Drainage Area

H = Net* Thickness from the Top of Pay to the Base of Pay

Φ = Average Net* Porosity in the Pay zone

S_w = Average Net* Water Saturation in the Pay zone

B_o = Oil Volume factor/Shrinkage factor (taken as 1)

*Net properties calculated using a 6% BWO Cut-off

7. Scheme Performance

OBIP AND RECOVERIES BY PAD

Well PAD	Wells	OBIP (10^3 m^3)	Recovery to date July 31, 2018 (10^3 m^3)	Recovery Factor (%)	Estimated Ultimate Recovery (10^3 m^3)	Ultimate RF (%)
B13-08 (B)	8*	3,868	778.2	20.1	1,934	50
B14-08 (C)	7*	4,394	732.8	16.7	2,197	50
B16-08 (D)	6	3,219	410.7	12.8	1,610	50
B13-09 (E)	6	2,677	472.0	17.6	1,339	50
B05-16 (H)	6	3,351	568.0	17.0	1,676	50
B13-16 (M)	6	4,325	601.2	13.9	2,163	50
B15-16 (N)	6	4,374	610.2	14.0	2,187	50
B08-17 (G)	6	3,334	824.0	24.7	1,667	50
B16-17 (L)	6	3,999	570.0	14.3	2,000	50
B06-21 (Q)	7	5,160	106.9	2.1	2,580	50
B05-21 (P)	7	5,628	122.2	2.2	2,814	50
Total	**71**	**44,329**	**5796.2**	**13.1**	**22,165**	**50**

*well pad includes one infill well

7. Scheme Performance

5 YEAR OUTLOOK OF EXPECTED PAD ABANDONMENT

- No pad abandonment is anticipated in the next 5 years

7. Scheme Performance

TEMPERATURE, PRESSURE AND QUALITY OF STEAM

- High pressure steam separator delivers steam at a 100% quality
- Steam quality losses are experienced during transportation to the pads
- Steam quality at the wellhead is estimated to be 95%

7. Scheme Performance

COMPOSITION OF OTHER INJECTED / PRODUCED FLUIDS

- No solvent was injected during this reporting period

7. Scheme Performance

INFLOW CONTROL DEVICES (ICD's)

- 2 wells in Sunrise were recompleted with tubing deployed ICD's: L2 and N4
- In both cases the driver for the recompletion was a hot toe caused by low reservoir roof close to the toe of the well
- Performance improvement was observed in both wells with signs of lower amount of steam production observed
- It was concluded from these cases that ICD's are acting as an effective means of decreasing steam production in the well, allowing the pump to run more effectively

7. Scheme Performance

SUMMARY OF KEY LEARNINGS

- The implementation of replacement wells contributed to achieving a higher production rate per well
- The implementation of ICD’s were proven to control steam breakthrough at the toe of a well where tail pipes were not suitable
- Early results of infill wells are promising

8. Future Plans

FUTURE PLANS

- Infill Well Application (Application No. 1912059) implementation pending AER review and approval
- Pad B15-16 (S) Amendment Application – target submission Q1 2019
- Pad B16-18 (K) Amendment Application – target submission Q1 2019
- Development Area 4 Amendment Application – target submission Q2 2019

3.1.2 Surface Operations

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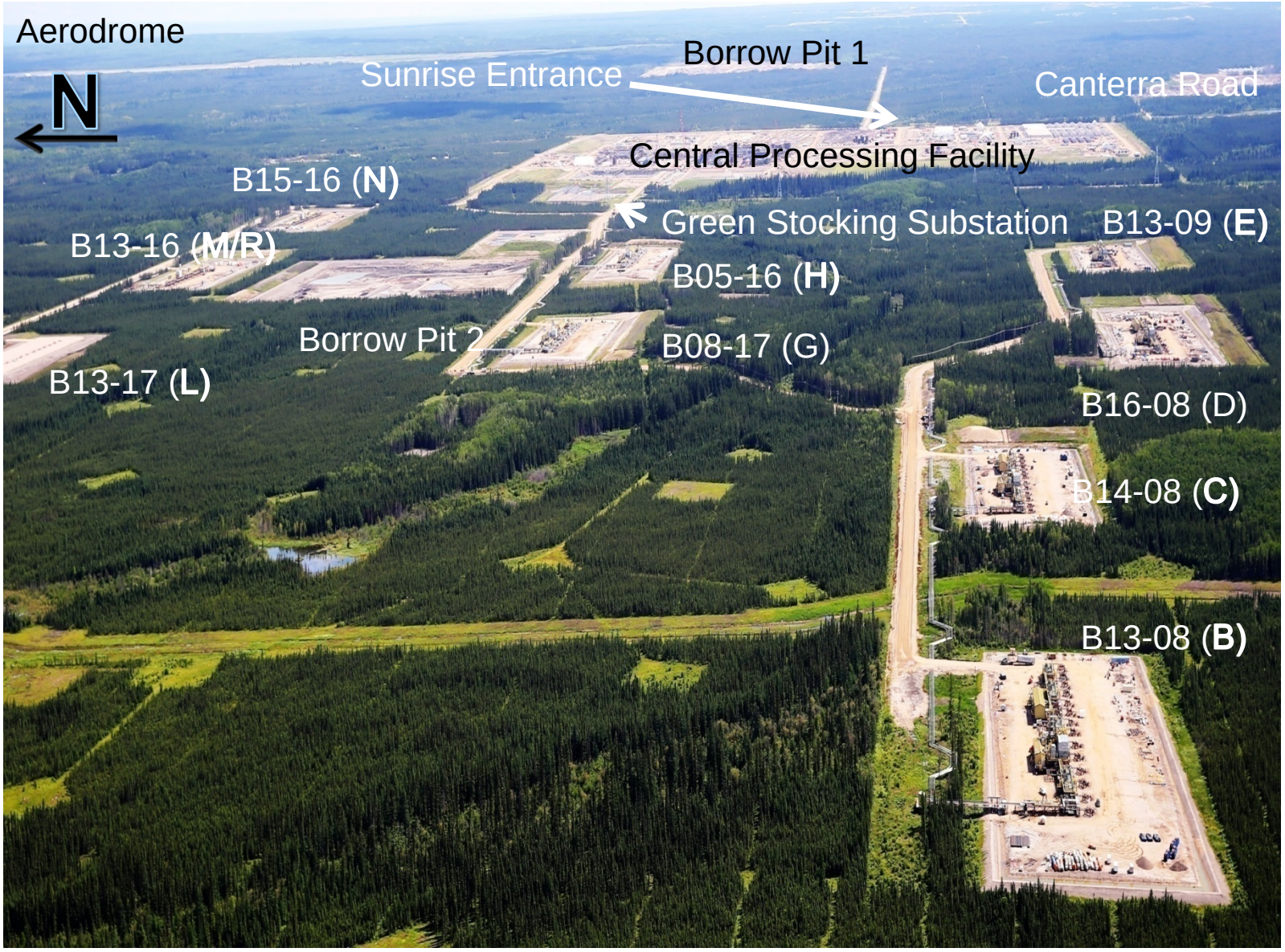
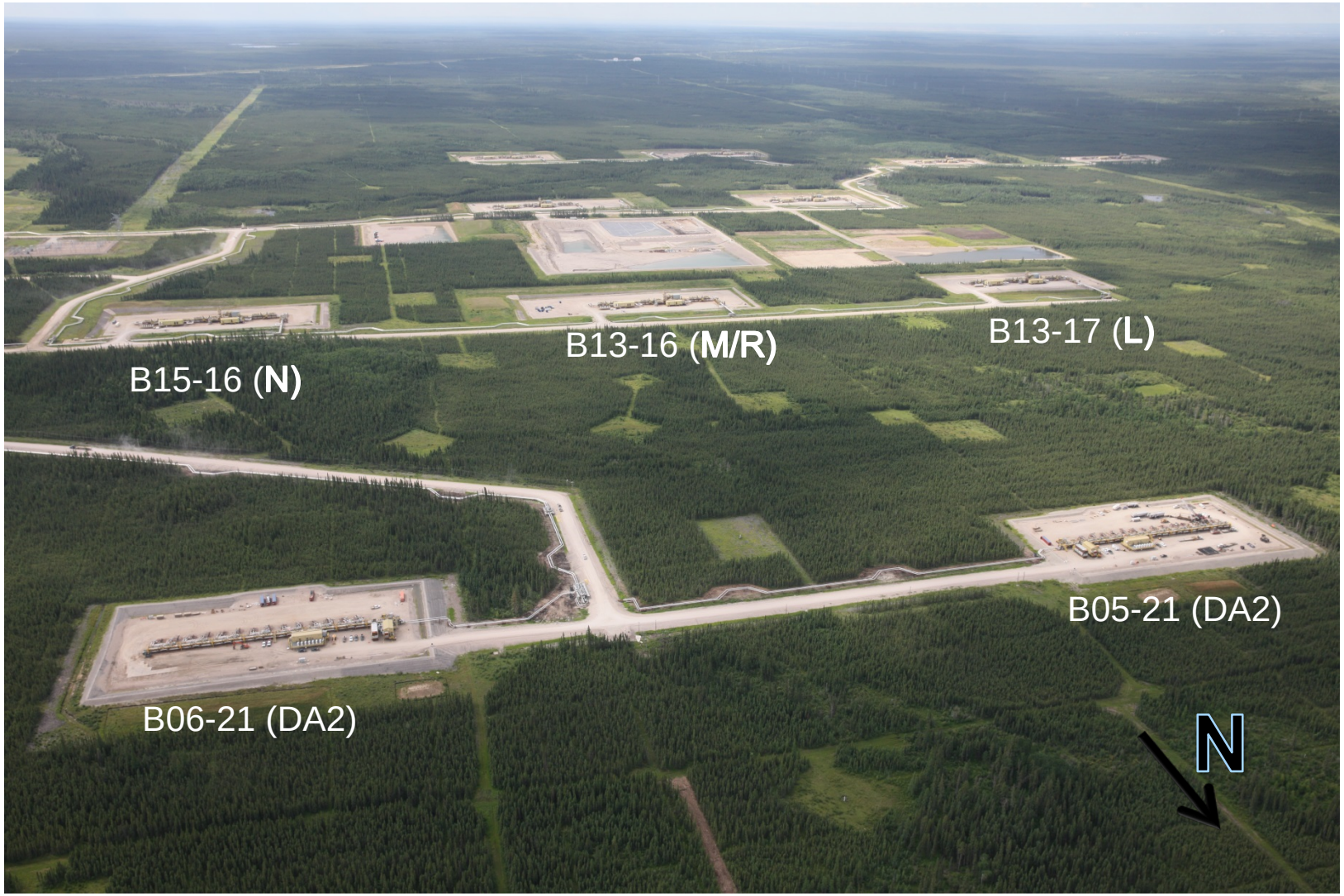
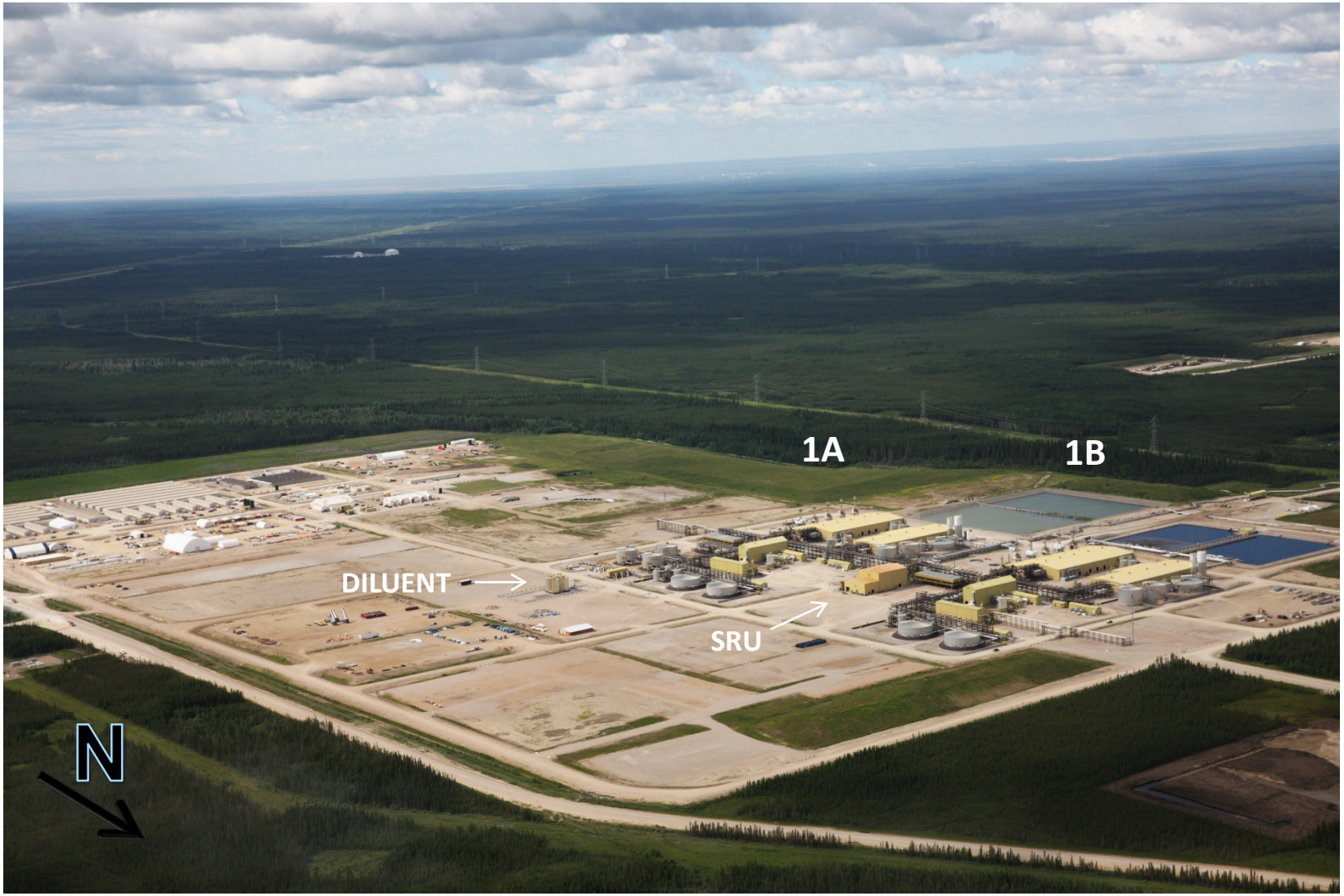
1. Facilities



1. Facilities

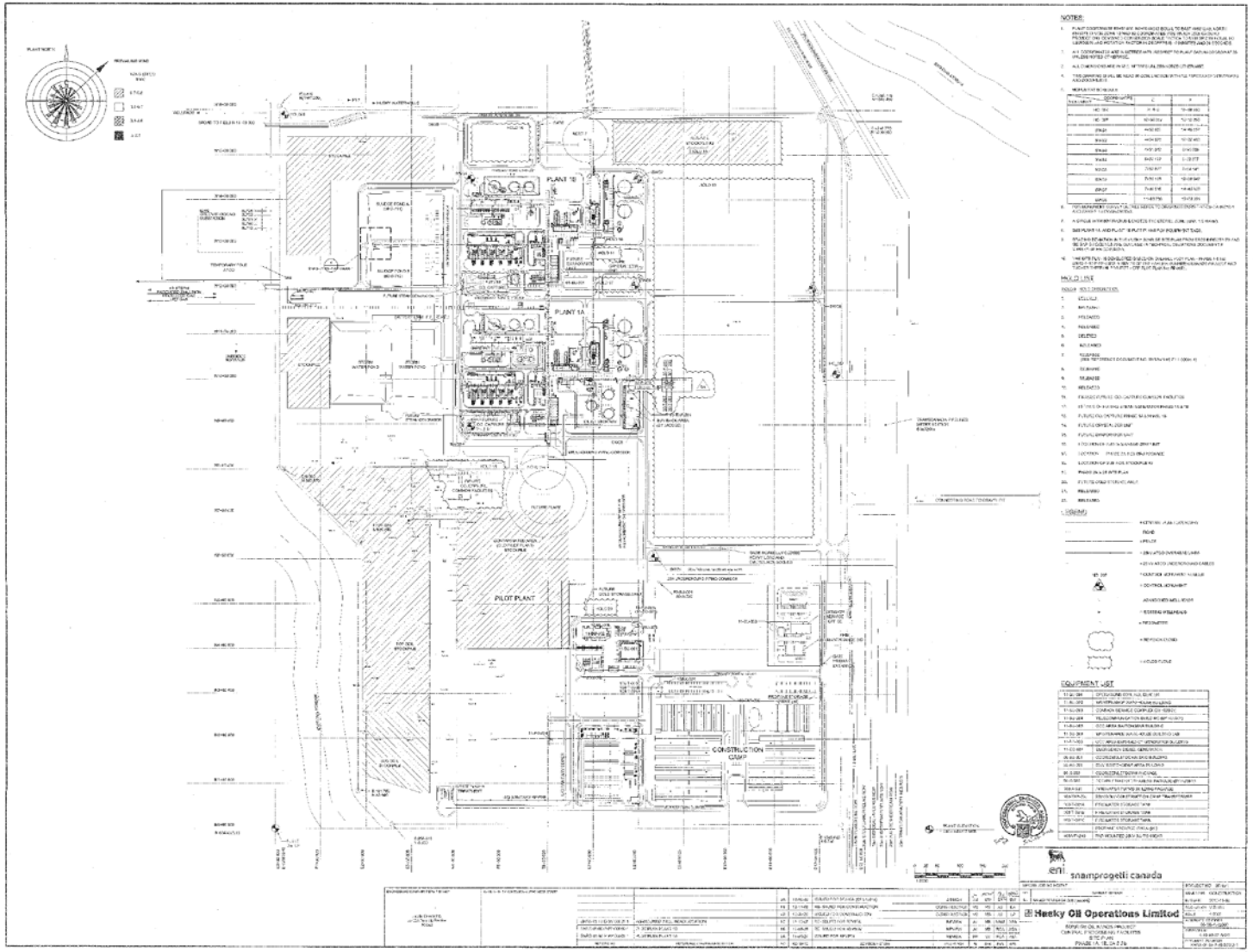


1. Facilities



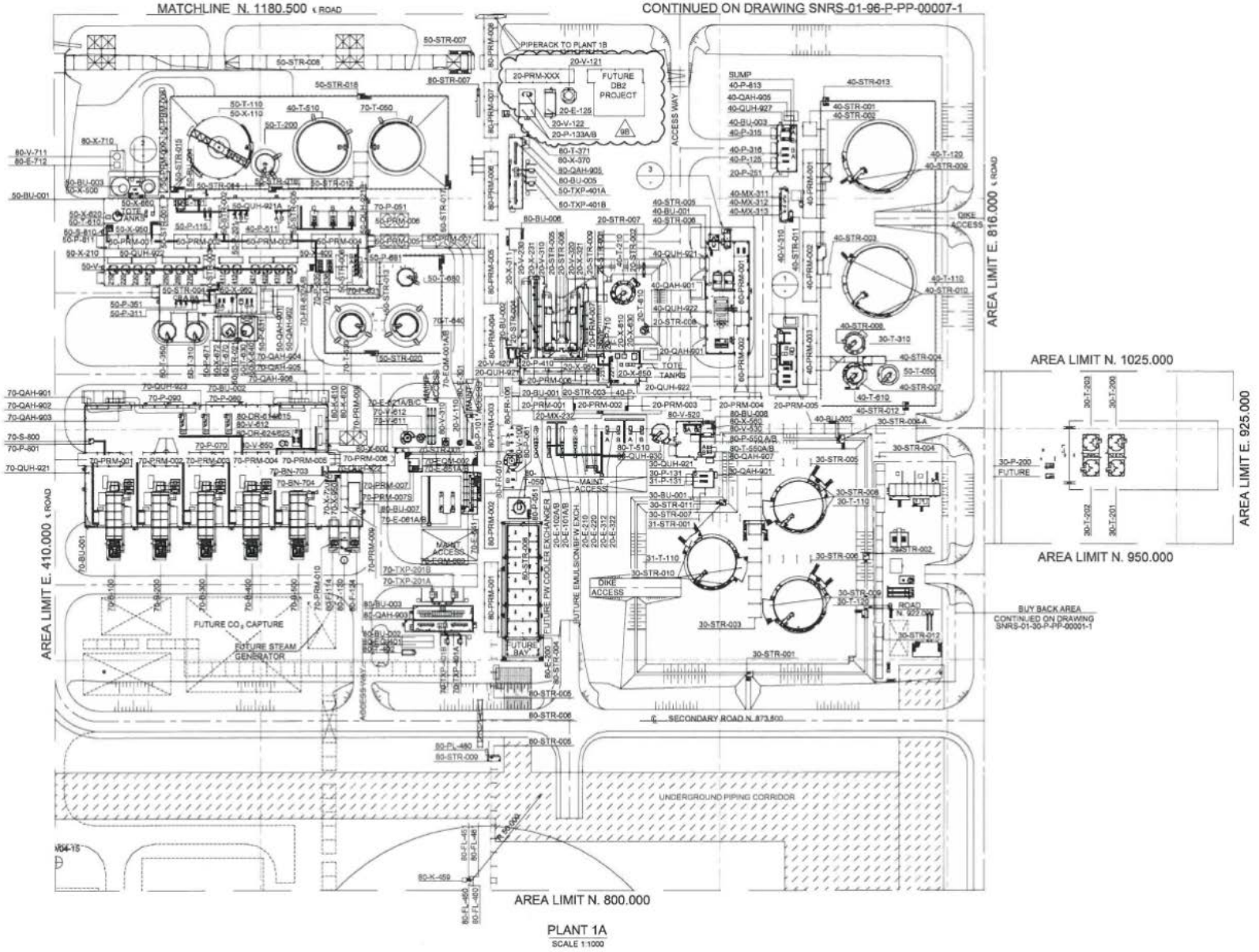
1. Facilities

FACILITY PLOT PLAN



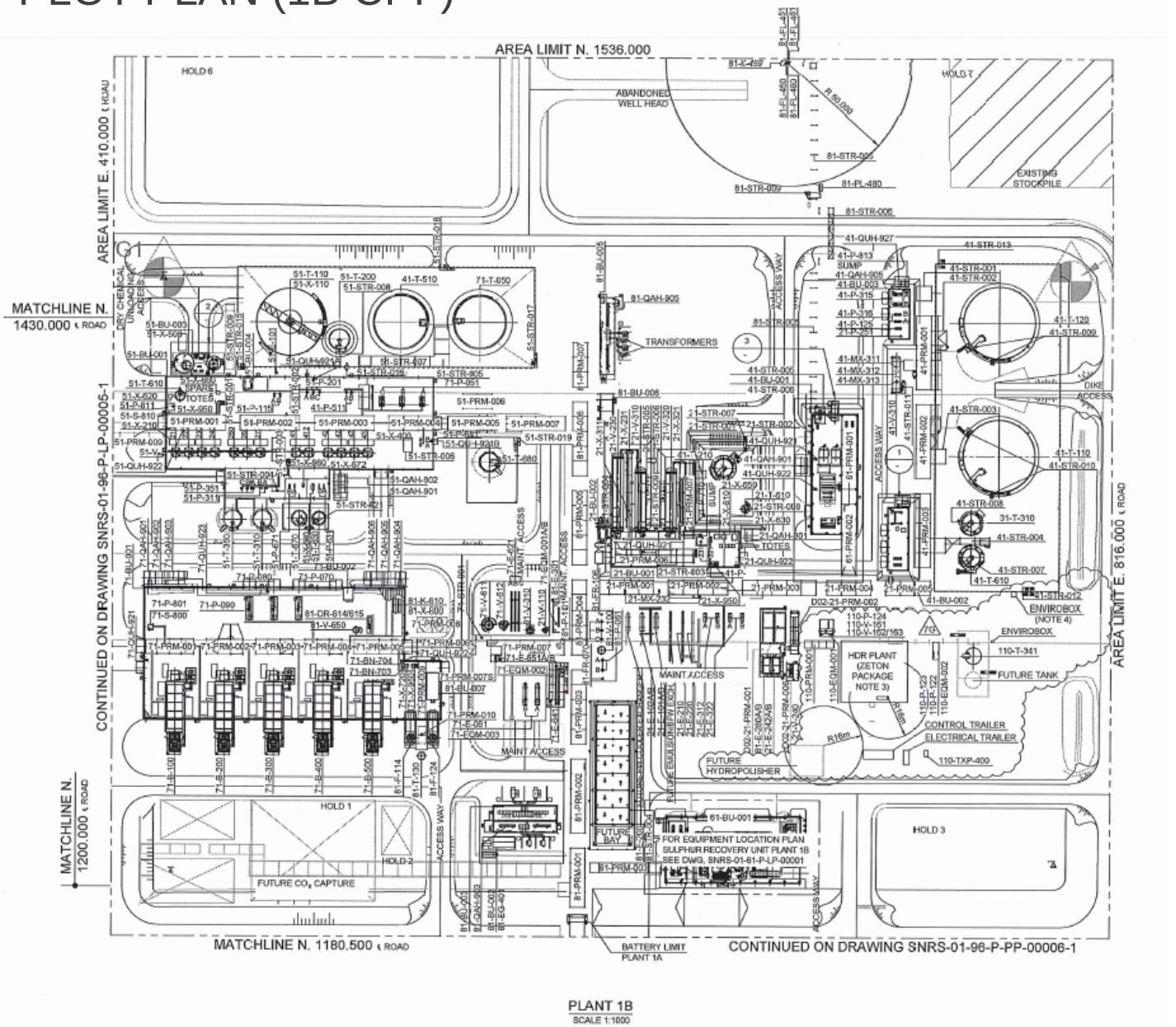
1. Facilities

FACILITY PLOT PLAN (1A CPF)



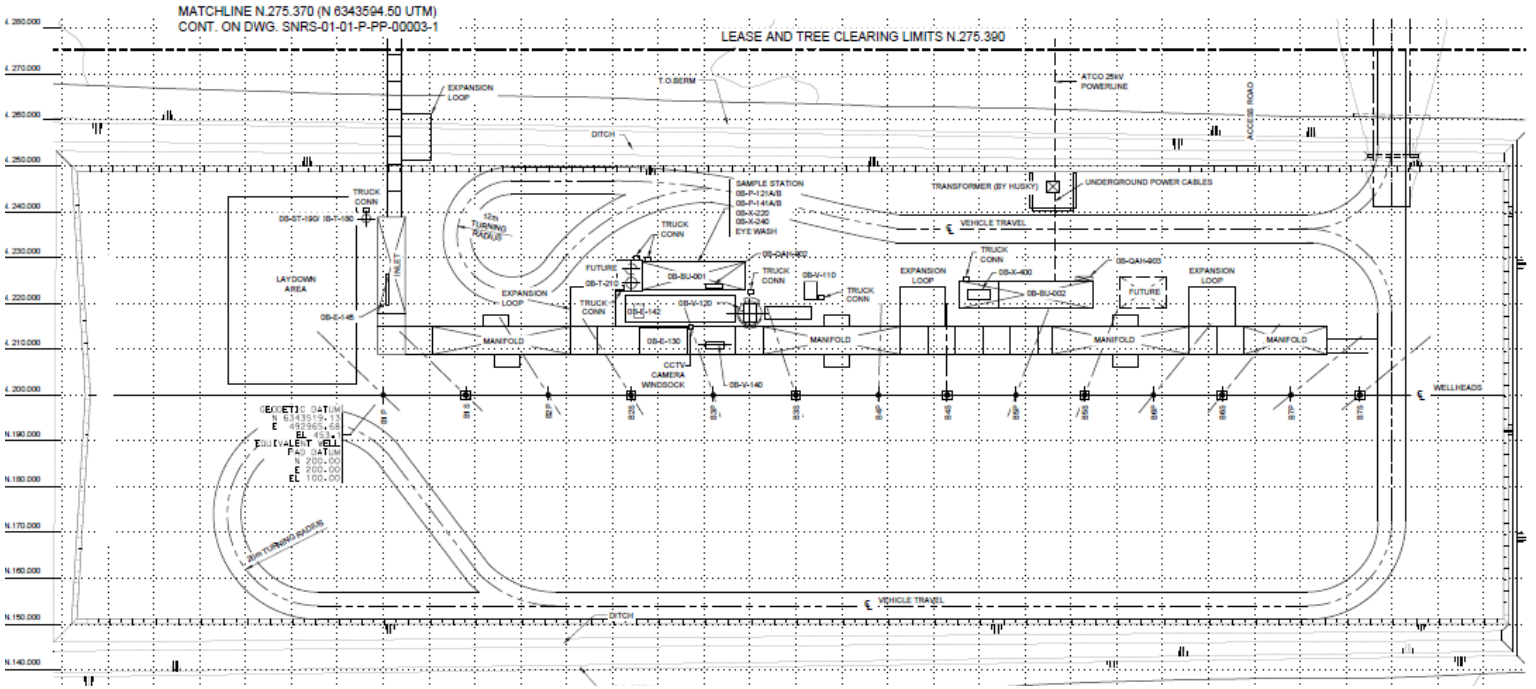
1. Facilities

FACILITY PLOT PLAN (1B CPF)



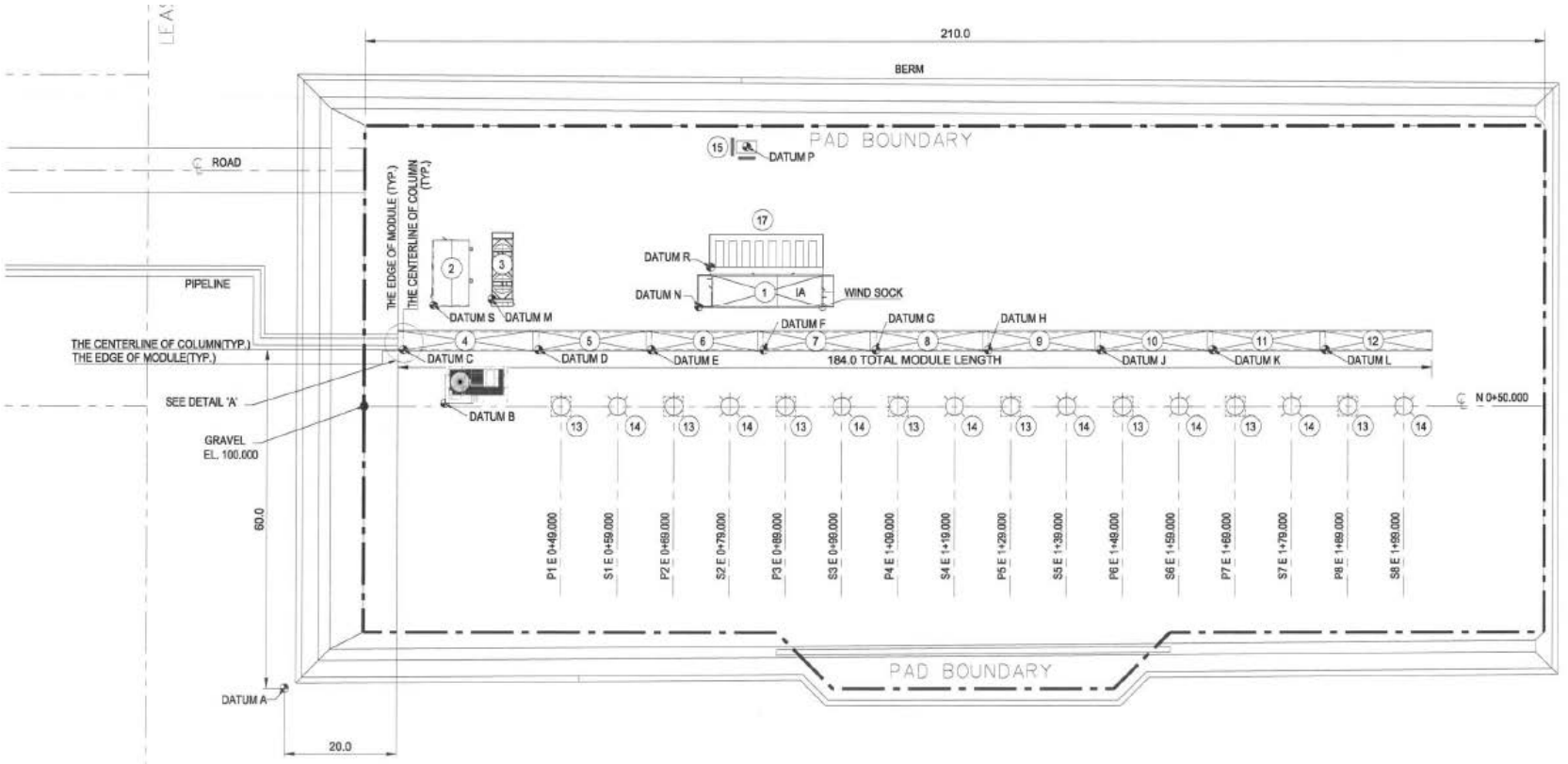
1. Facilities

FIELD FACILITY PLOT PLAN (DA1)



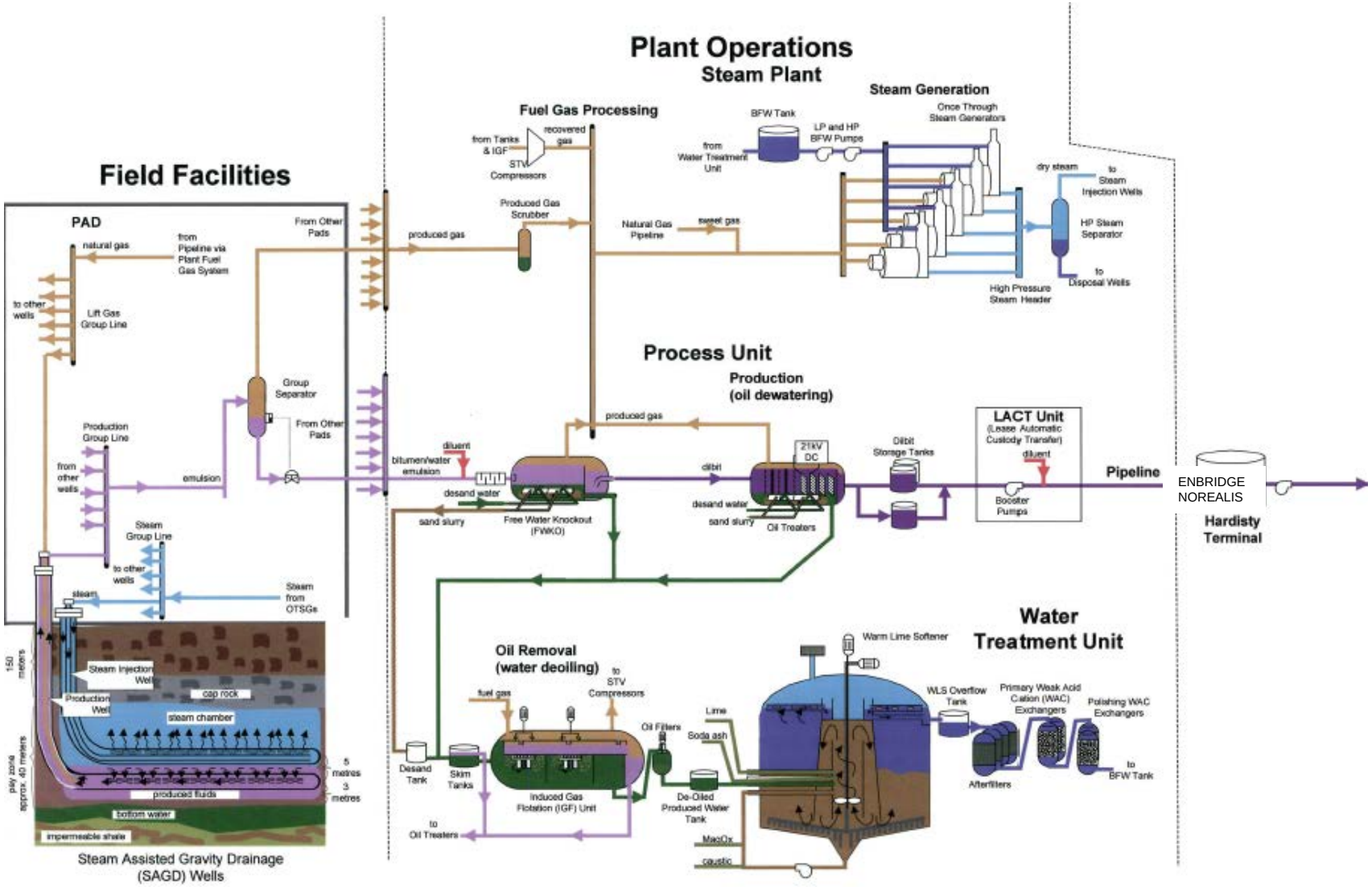
1. Facilities

FIELD FACILITY PLOT PLAN (DA2)



1. Facilities

SIMPLIFIED PLANT SCHEMATIC



1. Facilities

FIELD FACILITIES

Initial Development Area field facilities consist of:

- Steam, emulsion, gas supply, and produced gas pipelines
- Injection and production wells
- All wells will use Electric Submersible Pumps (ESPs)
  - 3 last conversions underway
- Group separator
- Test separator package
- Produced gas condenser
- Produced gas separator
- Emulsion and condensate pumps

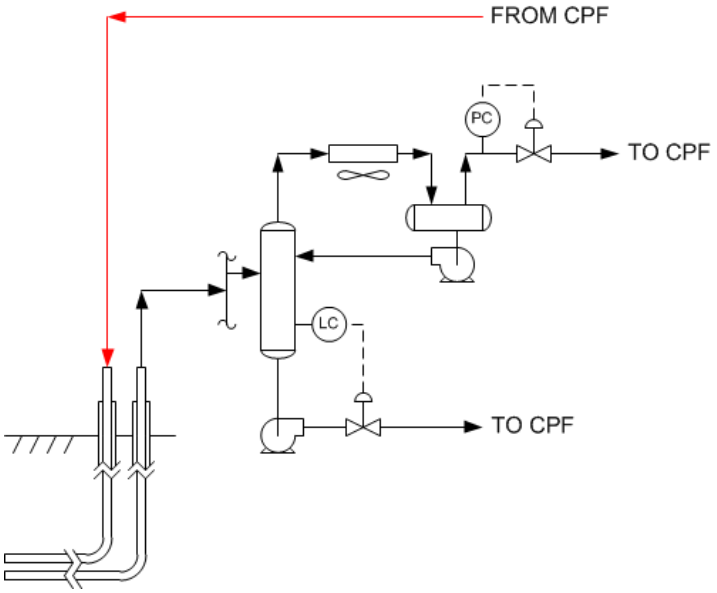
Development Area 2:

- Steam, emulsion, and gas supply pipelines
- Injection and production wells
- Electric submersible pumps (ESPs)
- Multiphase pumps for casing gas re-injection into emulsion line
- Minimal surface equipment

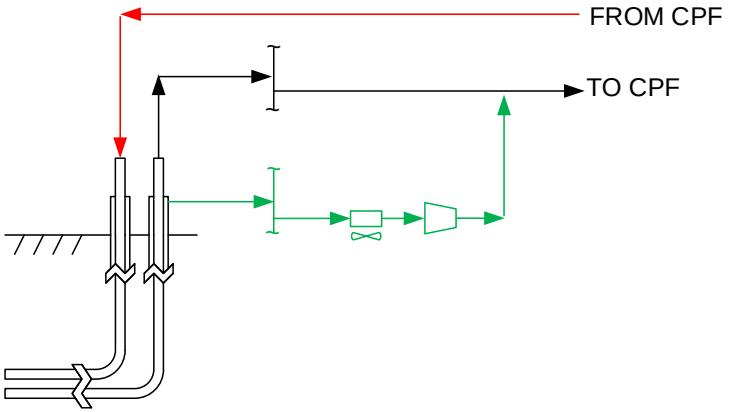
Field facilities performance challenges:

- Calibration issues with water cut analyzers
  - Have recalibrated analyzers
  - Swapped out unit on D Pad
- DA2 sampling for water cut calibration and production estimates
  - Installing new engineered sampling cabinet in Q4 2018
- Casing gas debottlenecks

IDA FIELD FACILITIES



DA2 FIELD FACILITIES



1. Facilities

OIL TREATING

Each Oil Treating train consists of:

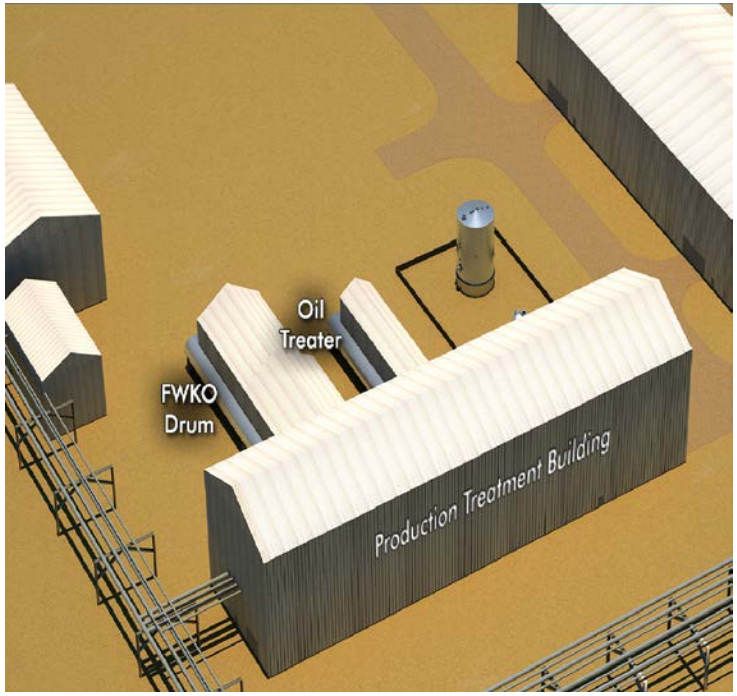
- Emulsion Coolers
- 1 Free Water Knock Out
- 2 Treaters
- Sales Oil Coolers
- Produced Water Coolers

Oil and water upsets have recently been reduced through implementation of several projects:

- FWKO and treater nuclear profilers for interface measurement and control
- Treater cleaning and internal modifications for reduction of chemical use and improvement of BS&W
- Chemical optimization for improved separation and reduced fouling

Oil Treating KPIs are:

- <0.5% BS&W in Oil (average ~0.4%)
- <500 ppm Oil in PW (average <400 ppm)



1. Facilities

PROCESS WATER DE-OILING

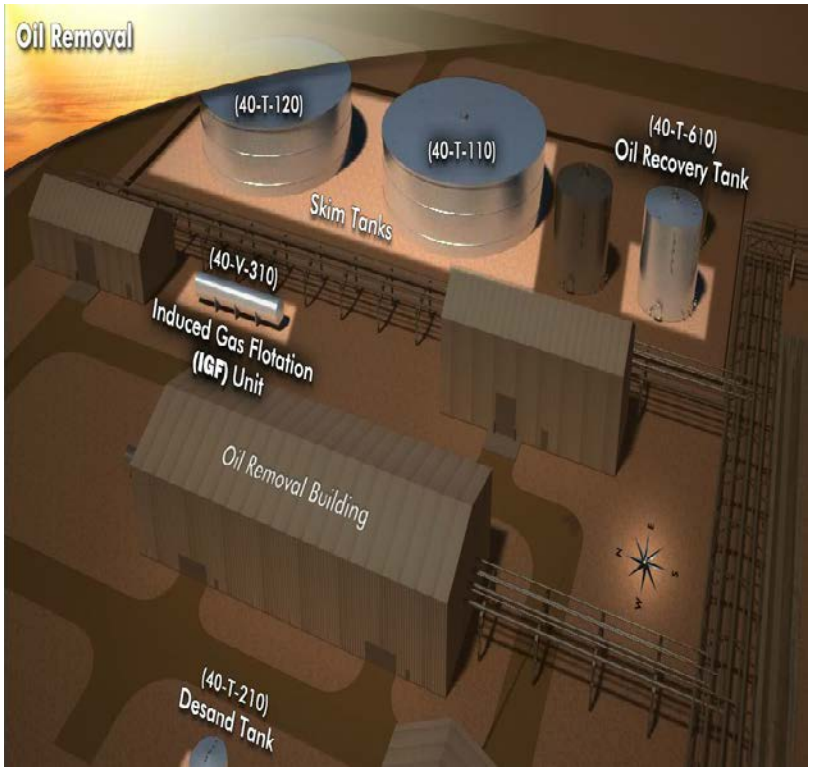
Each De-oiling train consists of:

- 2 Skim Tanks
- 1 Induced Gas Flotation Unit
- 2 Oil Removal Filters
- 1 Oil Recovery Tank
- 1 Desand Tank

The performance of the de-oiling equipment has improved since FWKO produced water quality improvement, cleaning skim tank bottoms, and changing ORF media.

De-Oiling KPIs are:

- FWKO outlet – 500 ppm (average 375 ppm)
- IGF Inlet – 100 ppm (average 124 ppm)
- IGF Outlet – 20 ppm (average 22 ppm)
- ORF Outlet – 3 ppm (average 6 ppm)



1. Facilities

WATER TREATMENT

Each Water Treatment train consists of:

- 1 Warm Lime Softener
- 7 After Filters
- 3 pairs Weak Acid Cation (WAC) Exchangers/Polishers
- Neutralization / Backwash Systems
- Water Treatment Chemical Feed Systems
- Sludge Ponds

Water treatment equipment has been performing well overall.

Completed AF media change-out with improved performance as a result.

Water Treatment KPIs are:

- Total Dissolved Hardness: < 0.5 mg/L (average <0.206 mg/L – below ICP detection limit)
- Silica: < 50 mg/L (average 31 mg/L)
- Turbidity < 2 NTU (average 1.6 NTU)
- Oil in Water < 1.0 (average 0.36)
- Total Iron: < 300 ppb (average 8.7 ppb)
- pH: 9.8 to 10.2 (average 10.05)

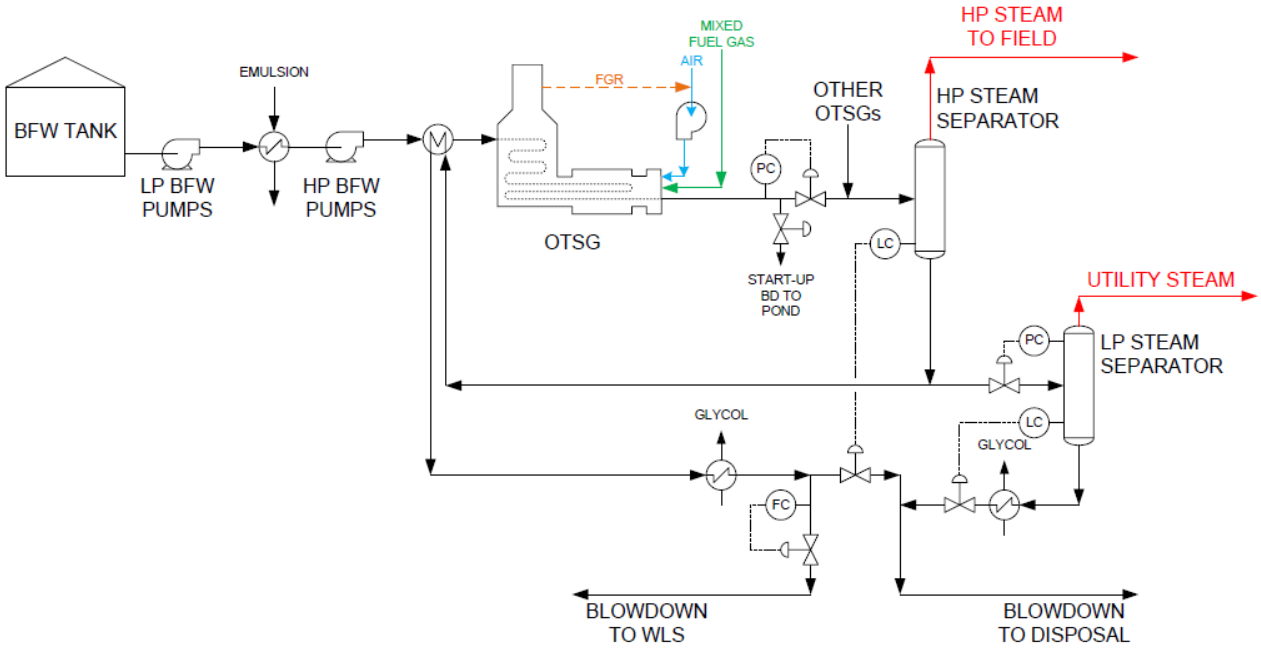
1. Facilities

STEAM GENERATION

Each Steam Generation train consists of:

- 5 Once-Through Steam Generators (OTSGs)
- 3 Low Pressure (LP) and 3 High Pressure (HP) Boiler Feed Water (BFW) Pumps
- LP Steam system
- Blowdown cooling and disposal

Currently working through campaign of burner modifications and re-characterization to increase capacity of each OTSG to 123% of original name plate.

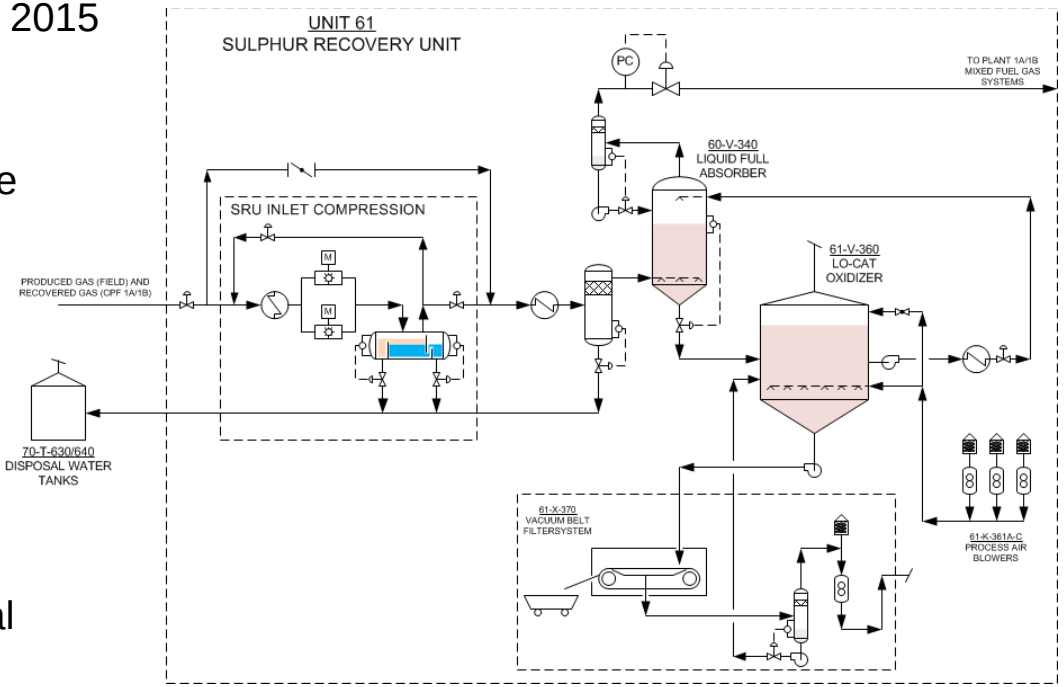


1. Facilities

LO-CAT SULPHUR RECOVERY UNIT (SRU)

- Permanent SRU online as of October 2015

- SRU consists of:
  - Sour Gas Compression Package
  - Cooler & Coalescing Filter
  - Liquid Full Absorber
  - Absorber Knock Out Pot
  - LO-CAT® Oxidizer
  - Solution Cooler/Heater
  - Process Air Blowers
  - Vacuum Belt Package
  - Circulation, Slurry, and Chemical Feed Pumps, Tanks, and Ancillary Equipment



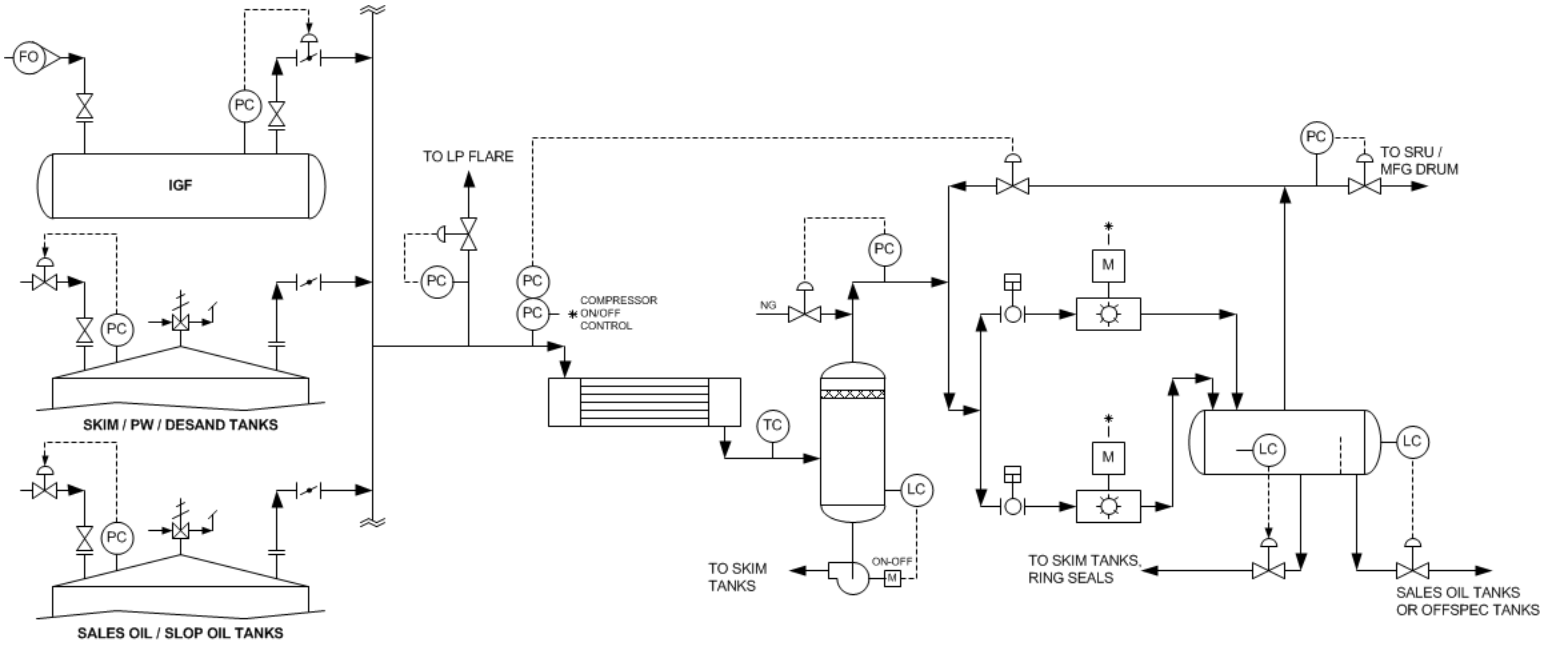
- SRU KPI's are:
  - Sulphur Recovery: minimum 70 % per calendar quarter (currently >90% average)
  - SO_2 Emission Limit < 1.6 t/d (yearly average of 0.52 T/d of SO_2)

1. Facilities

VAPOUR RECOVERY

Each Storage Tank Vapour (STV) recovery system consists of:

- Collection header with high pressure diversion to LP Flare
- 1 Inlet Cooler & Suction Scrubber
- 2 Liquid Ring Compressors
- 1 Discharge Separator
- 2 Casing Water Coolers (liquid ring seal water)
- Condensate Pumps



1. Facilities

FACILITY MODIFICATIONS

- Oil Treater internals modified (Reduced chemical cost and improved vessel performance)
    - Cleaning and general repairs
    - Thicker and bigger opening baffle plates
    - Nuclear profiler wash system
    - Relocated sample points
- Installed larger sales oil coolers (Improved reliability and throughput
- Rag and slop draining (Reduced flashing in tanks)
    - Added control valve to restrict slop/rag run-down rates in progress
- Hydrocarbon Vapour Handling (STV)
    - Upsized the discharge scrubber vapor line in 1B STV system

1. Facilities

FACILITY MODIFICATIONS – OTSG'S

- Completed structural reinforcement for excess vibration issues
- Ongoing campaign to fix valve reliability issues
- Reduced NOx emissions and OTSG re-rate through new burner tips installation

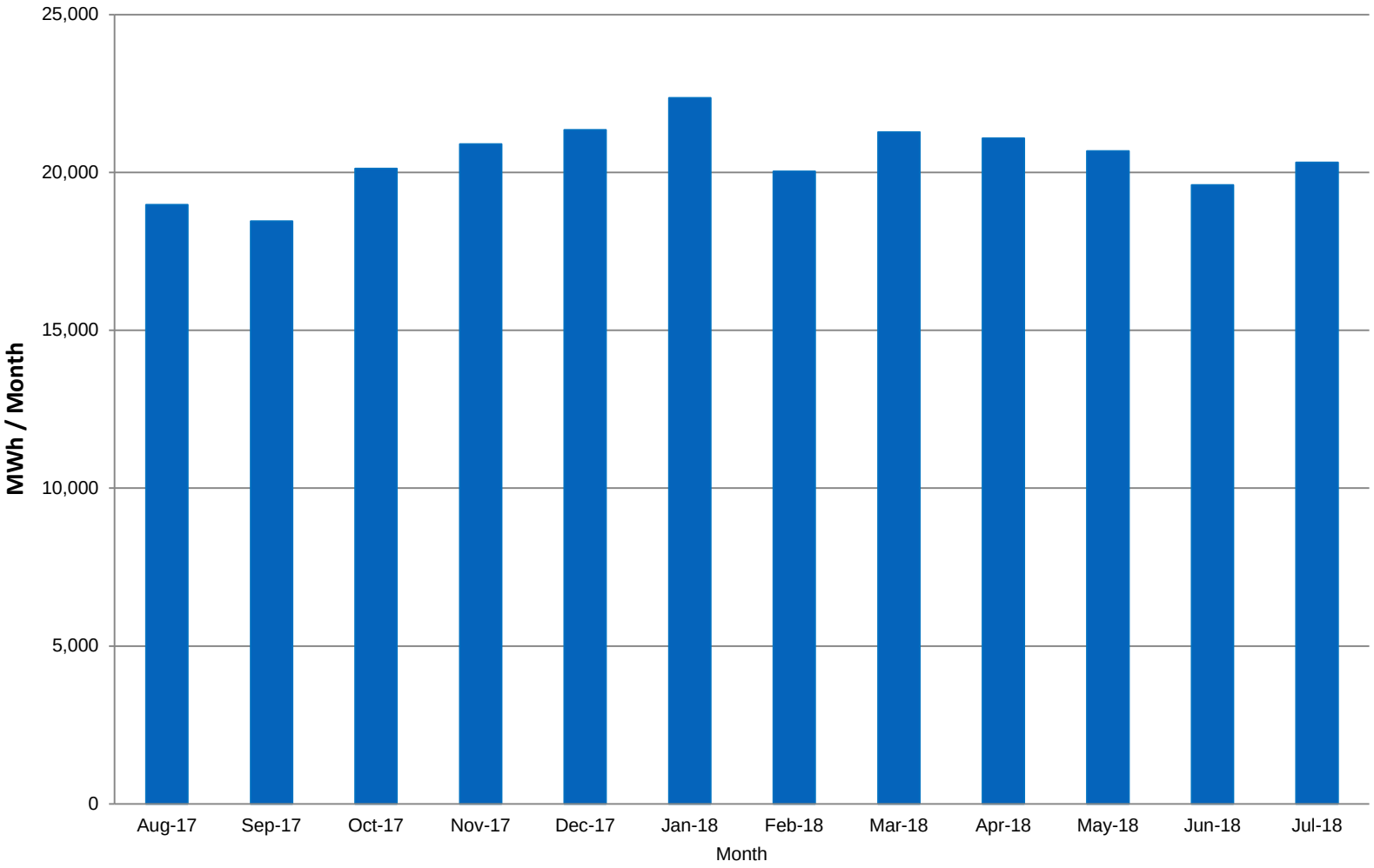
2. Facilities Performance

SRU ISSUES SUMMARY

- October 3, 2016 – Met with AER to present mitigation plan and schedule
- October 21, 2016 – Husky sent letter requesting extension of the June 21, 2016 authorization until March 31, 2018
- October 28, 2016 – AER granted extension request
- Waiver (including turn-around) AER approved May 26, 2017
- Mitigation plan for the SRU oxidizer vent hydrocarbon emissions
  - Produced water / make-up water Quench installed
  - Casing gas bypass / increased Group Separator pressure increase in planning
- CEMS
  - Husky is continuing to sample the oxidizer vent stack for H_2S on a regular basis
  - To date, H_2S has not exceeded the regulatory limit in the vent stream sample

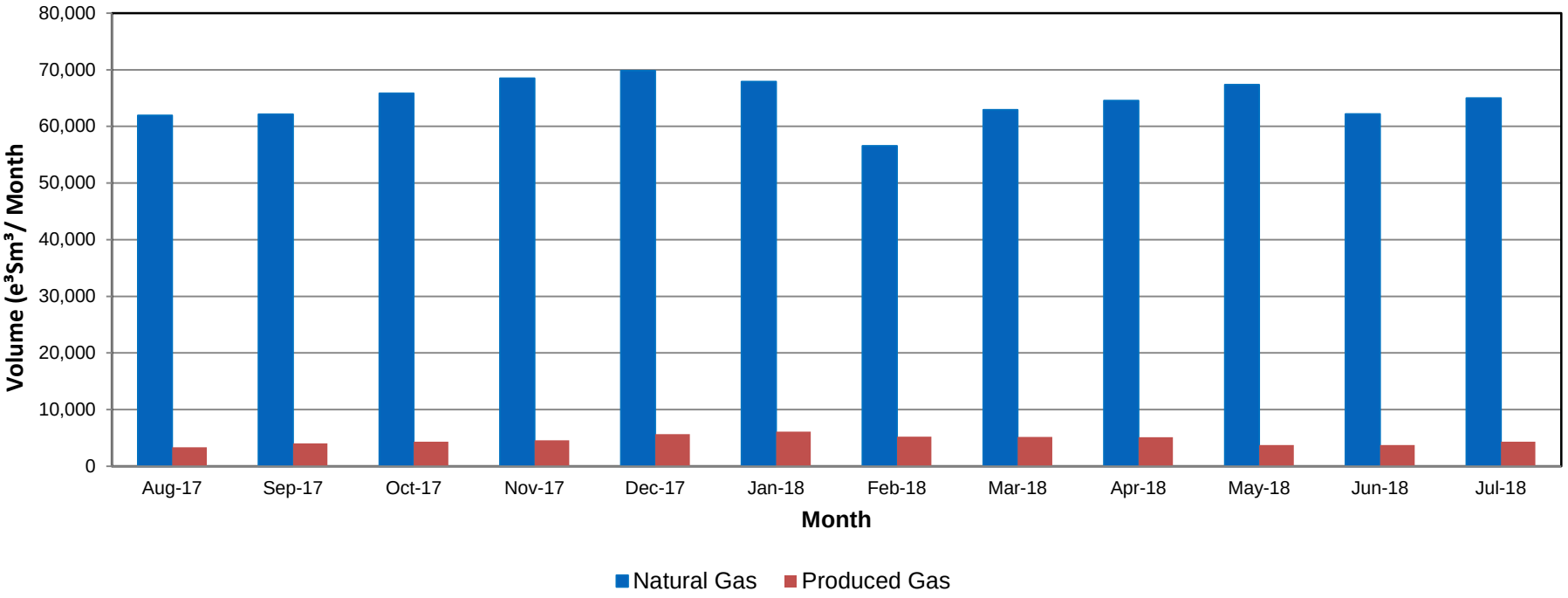
2. Facilities Performance

POWER CONSUMPTION



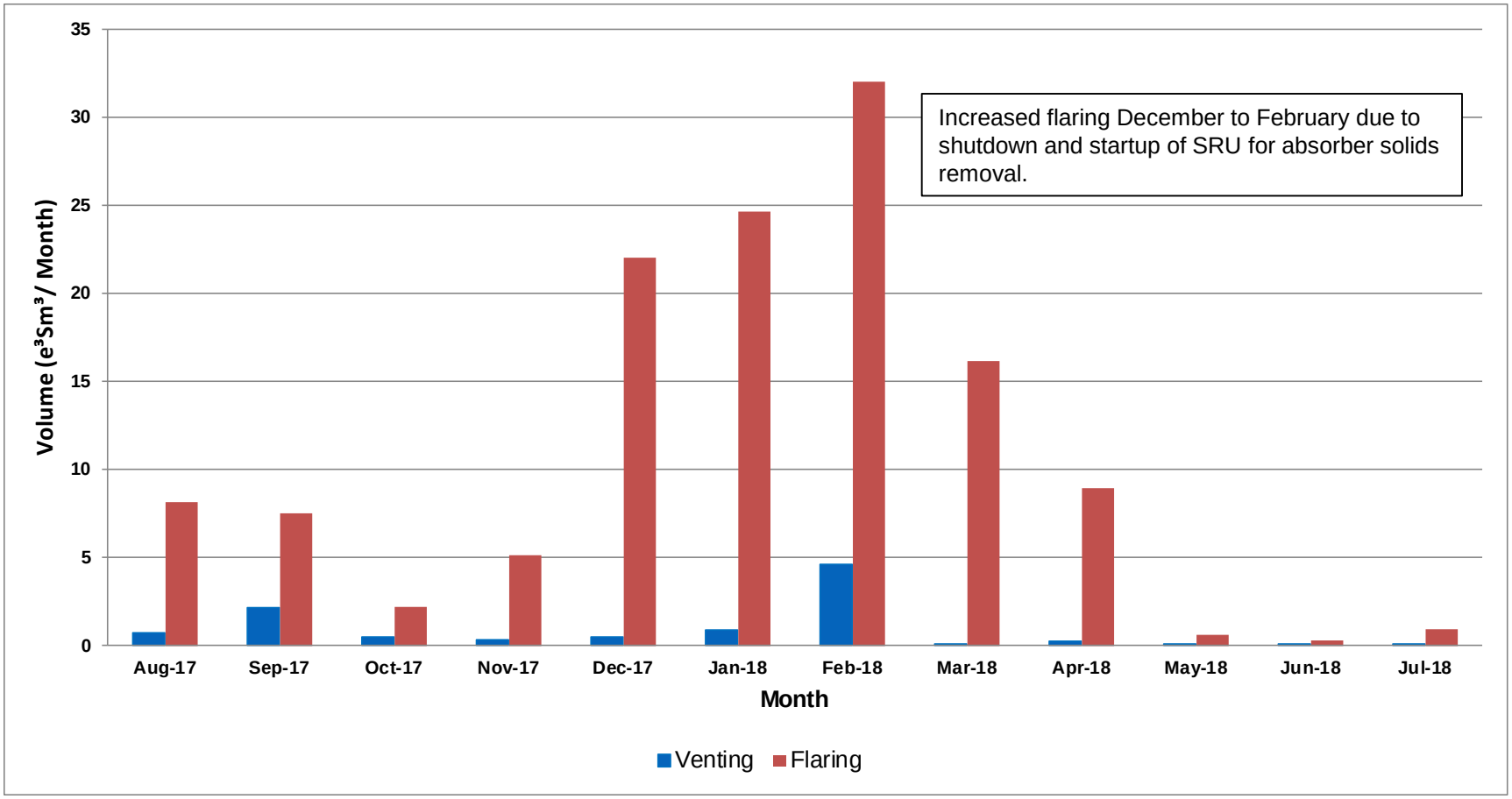
2. Facilities Performance

GAS USAGE



2. Facilities Performance

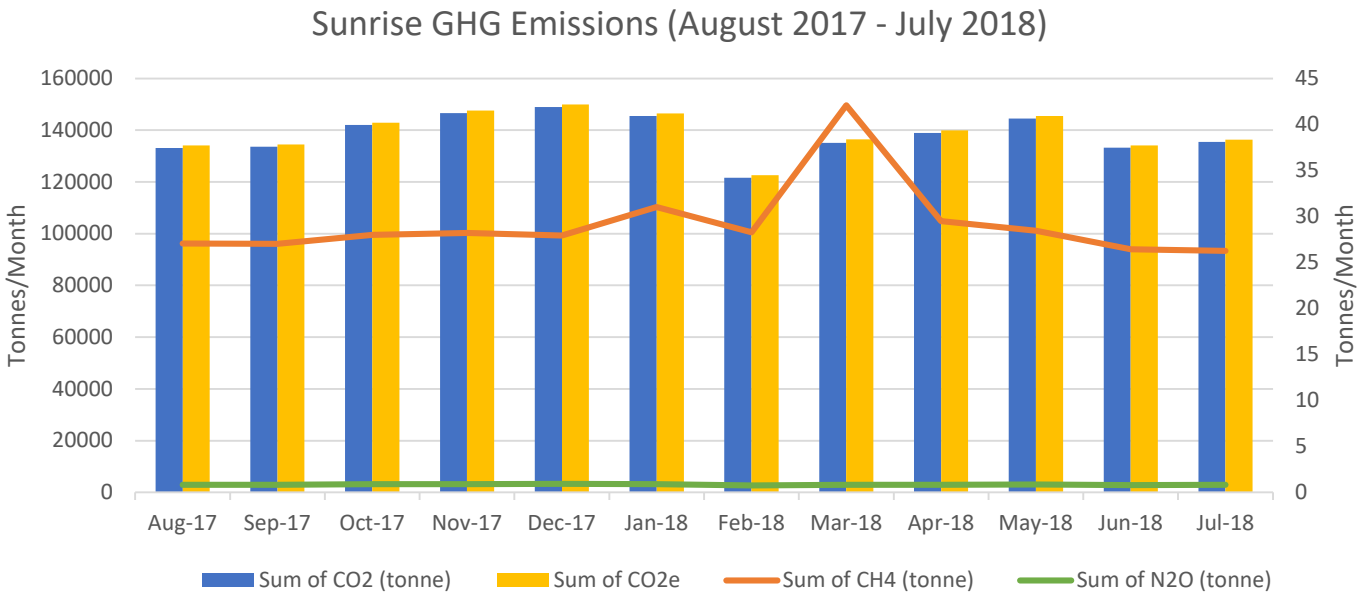
FLARING AND VENTING



2. Facilities Performance

GREEN HOUSE GAS (GHG)

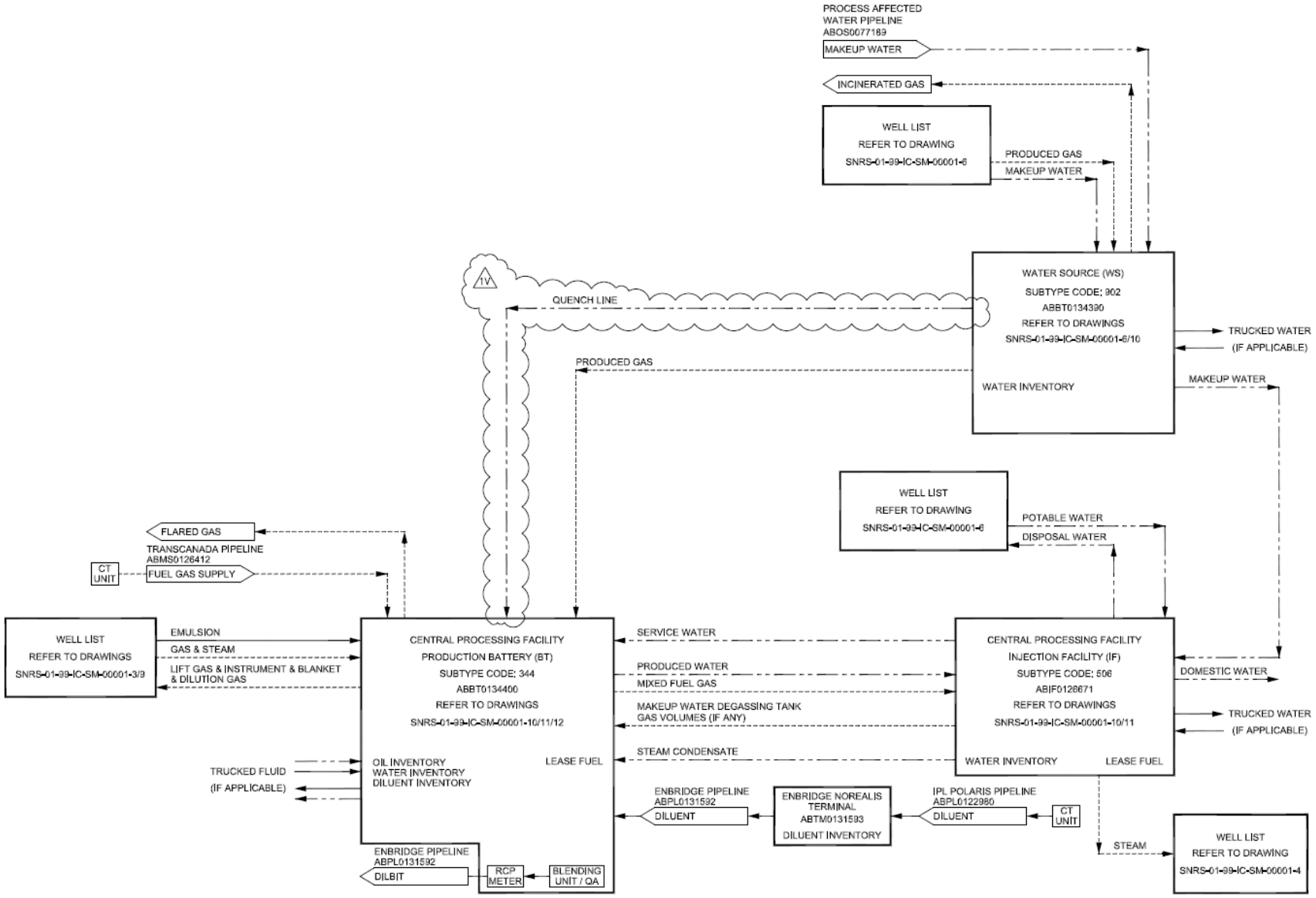
- Emission sources considered include stationary combustion associated with steam generators and glycol heaters, flaring, venting and fugitive emissions, diesel and propane combustion and onsite transportation



Notes: Jan-July 2018 data have not been audited by third party yet. The spike in CH4 emission in the March 2018 is due to increase in SRU vent.

3. Measurement and Reporting

OVERVIEW



3. Measurement and Reporting

WATER SOURCE BATTERY ABBT0134390

- Suncor PAW water receipt average 1,160 m^3/d for past 12 months (August 2017 – July 2018)
- No PAW water used since mid-May due to plant water balance issue
- Kearl MUW well lists:
  - 09-24-096-08W4
  - 01-13-096-08W4
  - 06-30-096-07W4
  - 12-08-096-07W4
  - 11-17-095-07W4
  - 12-20-096-07W4
  - 14-18-096-07W4
  - 06-19-096-07W4
- Transfer water to Oil Battery from Water Source Battery through the permanent quench line starting October 2017
- Water source battery water balance closed at:
  (0% balance in August and September are due to assigning water to the temporary quench line) – see table (right)
- June and July balance issue is due to the water recycle back to the
  produced water tank from HP separator and the internal water transfer between 1A and 1B

Date	Water Balance (%)
Aug-17	0
Sep-17	0
Oct-17	-0.2
Nov-17	-2.0
Dec-17	-0.5
Jan-18	1.3
Feb-18	4.4
Mar-18	5.1
Apr-18	-5.7
May-18	-4.8
Jun-18	-16.7
Jul-18	-10.0

3. Measurement and Reporting

INJECTION FACILITY ABIF0126671

- Primary and secondary Boiler Feed Water (BFW) measurement balances within 5%
- Reported Spent Lime Pond inventory:
  - Sources: OTSG blowdown, SWS, leachate from landfill
  - Users: Water treatment
- Trucked in/out water loads have been accounted
- Injection Facility closing water balance and steam allocation:

Date	Water Balance (%)	Steam Allocation (%)
Aug-17	3.2	0.97
Sep-17	2.5	0.95
Oct-17	1.9	1.01
Nov-17	0.9	0.99
Dec-17	0.03	1.06
Jan-18	9.36	1.06
Feb-18	1.2	0.96
Mar-18	1.4	1.05
Apr-18	1.8	1.04
May-18	1.8	1.04
Jun-18	3.6	1.06
Jul-18	2.5	1.09

3. Measurement and Reporting

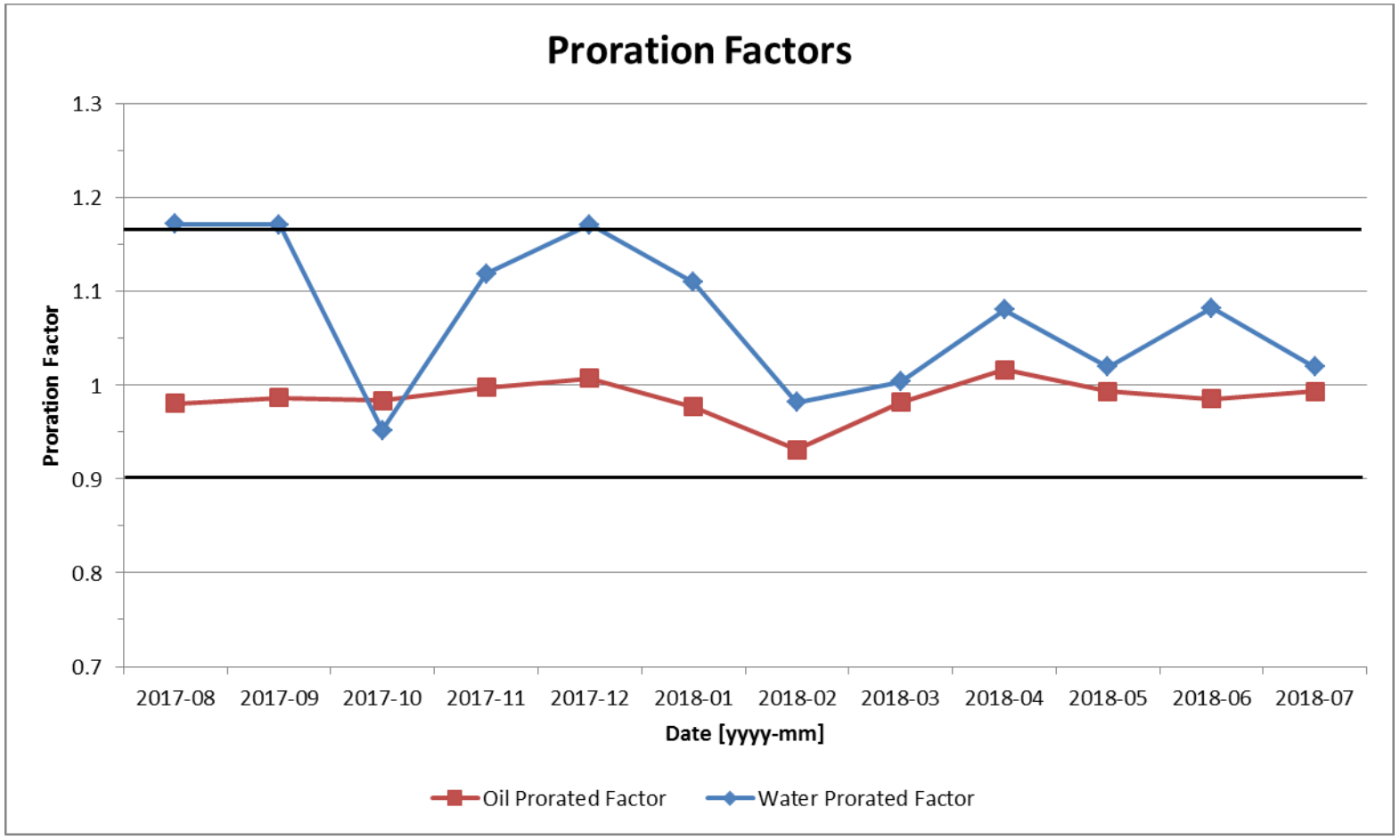
IN SITU OIL SANDS BATTERY ABBT0134400

- Primary and secondary produced water measurement balances within 5%
- Trucked in/out water and oil loads are accounted for the reporting period

Monthly Battery GOR	
Date	GOR e^3m^3/m^3
Aug-17	0.00374
Sep-17	0.00270
Oct-17	0.00374
Nov-17	0.00161
Dec-17	0.00140
Jan-18	0.00365
Feb-18	0.00309
Mar-18	0.00242
Apr-18	0.00180
May-18	0.00165
Jun-18	0.00215
Jul-18	0.00351

3. Measurement and Reporting

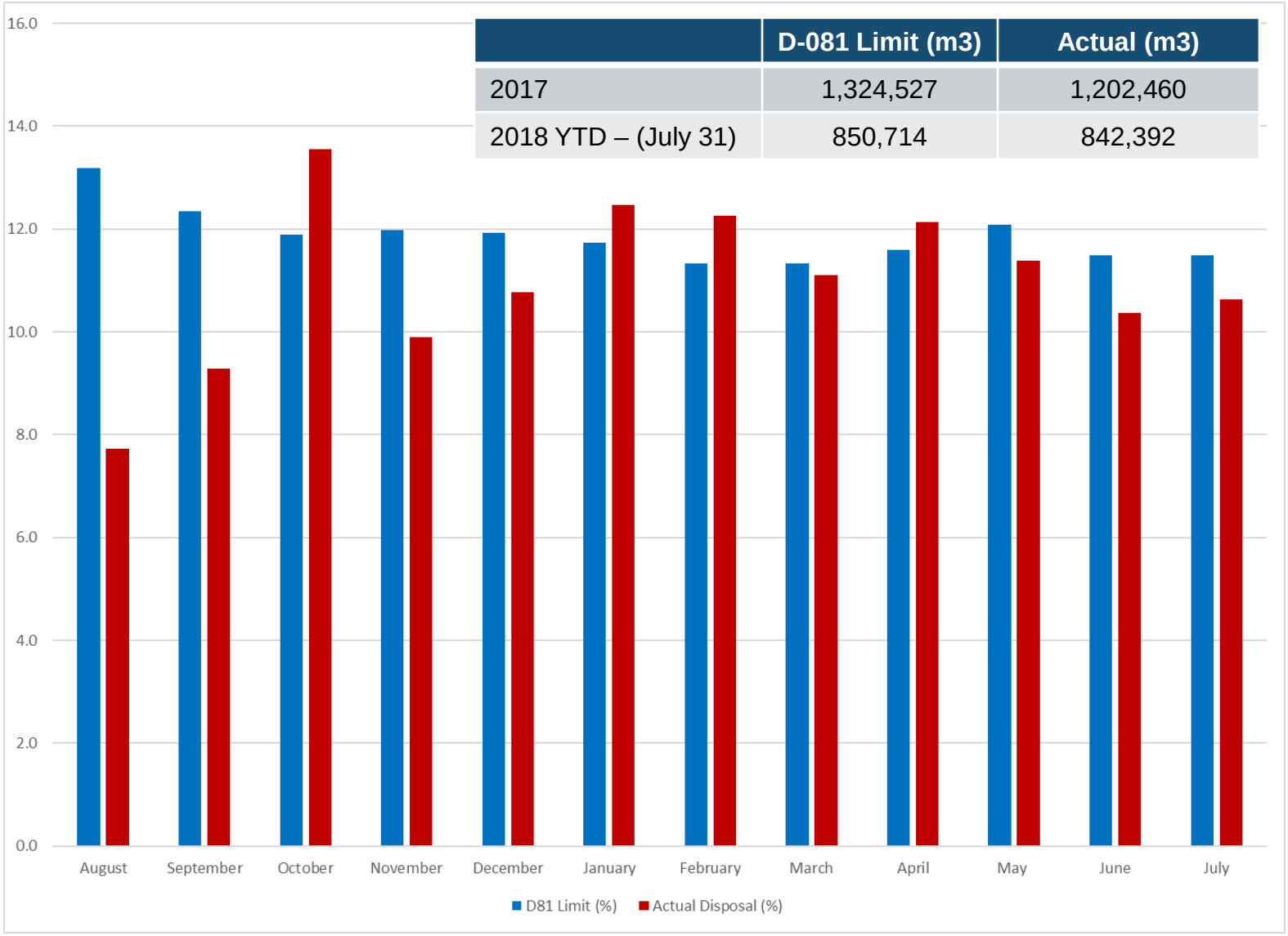
PRORATION FACTORS



3. Measurement and Reporting

WATER DISPOSAL – DIRECTIVE 081

	D-081 Limit (m3)	Actual (m3)
2017	1,324,527	1,202,460
2018 YTD – (July 31)	850,714	842,392

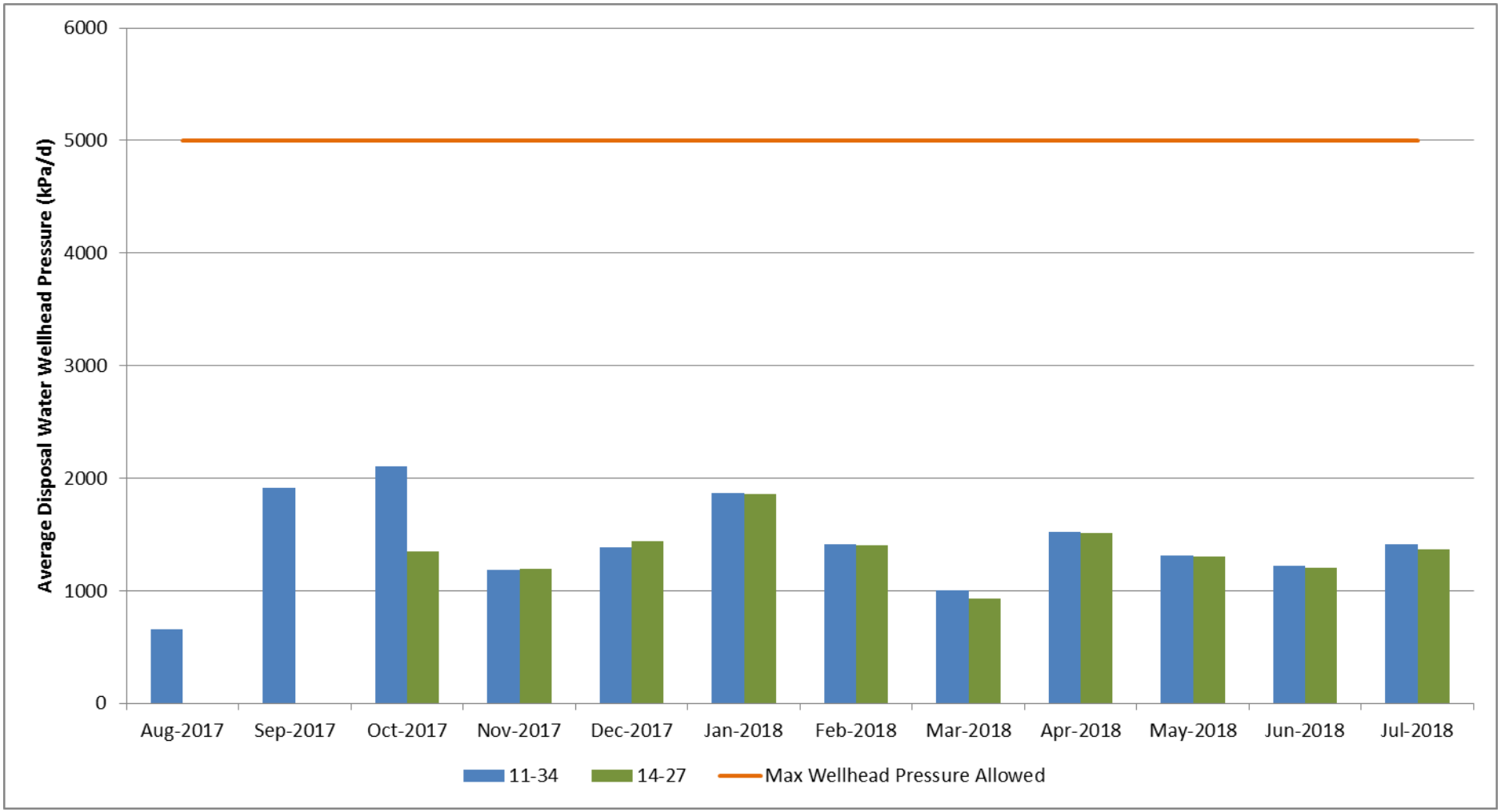


3. Measurement and Reporting

MONTHLY WATER IMBALANCE – DIRECTIVE 081

3. Measurement and Reporting

WATER DISPOSAL – WELL HEAD PRESSURE



3. Measurement and Reporting

FUTURE PLANS

- Ten new Infill wells will start up in Q4 2018
  - Utilizing existing well test facilities, 3 well test tags per new infill

- Husky Diluent Reduction Project start up Q4 2018
  - 1 SCO Tank (110-T-341) Level tag added

- R pad start up Q2 2019
  - Utilizing existing Pad B13-16 (M) well test facilities
  - 3 tags per well for well tests added
  - 1 tag per well for steam injection added

- Two existing disposal wells will be tied-in Q2 2019
  - 1 new flow meter per well, 2 total added

NOTE: MARP will reflect all changes above before internal submission in February, 2019

4. Water Production, Injection and Uses

WATER USAGE

Water Sources:

- Quaternary (non-saline)
  - Water Act License No. 267760
  - 2 wells: 01-23-095-07W4 and 16-22-095-07W4
  - Licensed to divert 202,575 m^3 annually for Industrial (Camp) purposes
    - Up to 18,650 m^3 annually for Industrial uses (general maintenance and processes)
    - Outflow: licensed to divert 202,575 m^3 annually from the *Domestic Waste Water Treatment Plant* for Industrial (injection) purposes
  - Withdrawal from August 1, 2017 – July 31, 2018: 53,255 m^3

- Surface Water Runoff (non-saline)
  - Water Act License No. 331927
  - 14 diversion locations
  - Licensed to divert 250,000 m^3 annually for Commercial purposes
  - Withdrawal from August 1, 2017 to July 31, 2018: 17,785 m^3

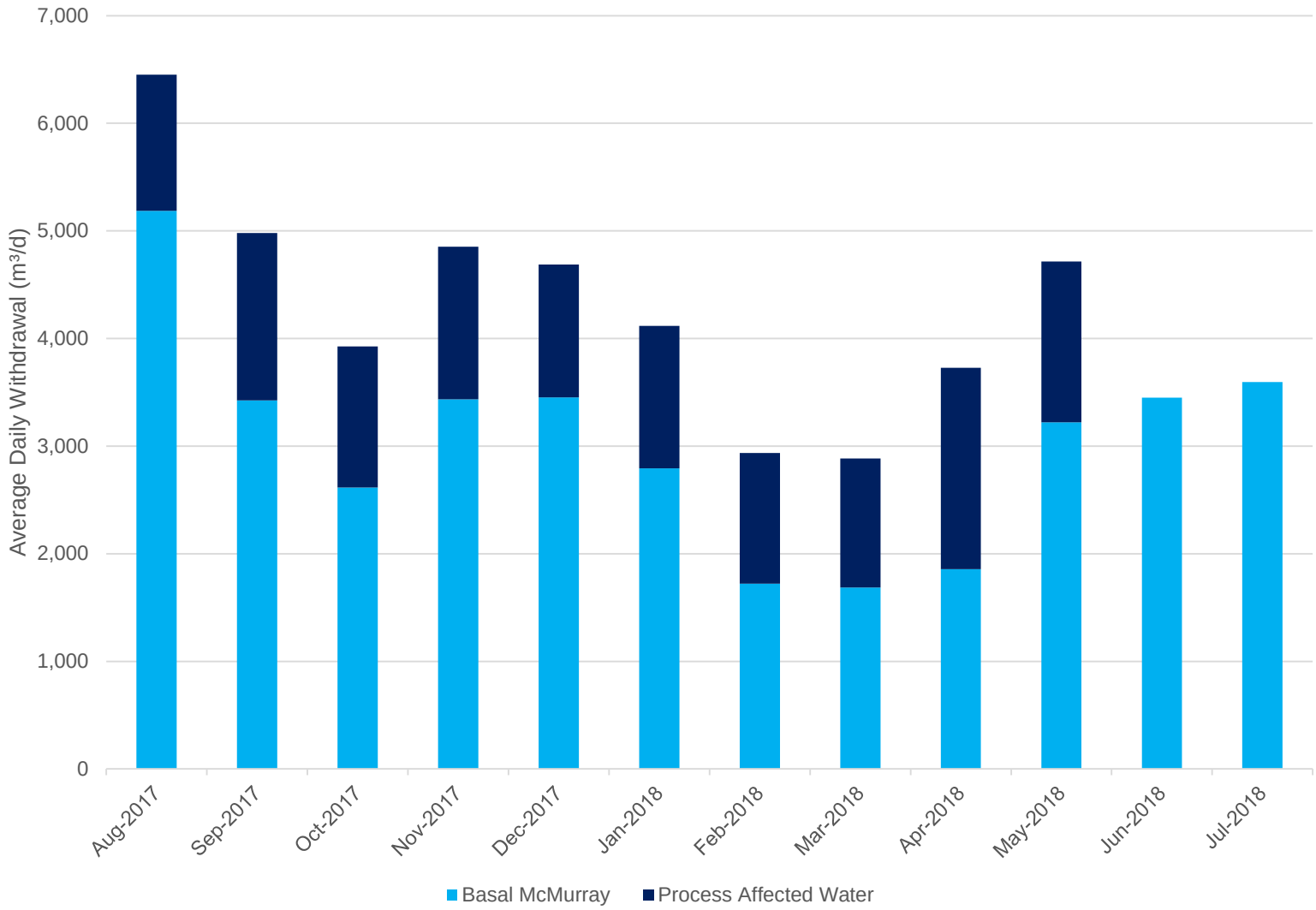
4. Water Production, Injection and Uses

WATER USAGE (CONT'D)

- Process Affected Water - Suncor (PAW)
  - Sourced from Suncor Oil Sands Facility under a Water Supply Agreement
  - No annual withdrawal limit (former License 331569 - cancelled by AER June 19, 2018)
  - Withdrawal from August 1, 2017 to July 31, 2018: 421,865 m^3
- Basal McMurray - Kearl
  - Water Act Approval 241442 converted into Water Act License 409247 - May 22, 2018
  - 8 Wells – 09-24, 01-13-096-08W4 and 06-19, 14-18, 12-20, 12-08, 06-30, 11-17-096-07W4
  - Licensed to divert 2,190,000 m^3 annually for Industrial (Injection) purposes
  - Withdrawal from August 1, 2017 to July 31, 2018: 1,112,364 m^3
- No Brackish water sources are currently available to Sunrise
- Produced Water
  - All produced water sent to water treatment
  - All neutralized waste from water treatment diverted to pond
  - All pond supernatant water recycled to water treatment
  - Portion of steam blowdown recycled to water treatment, remainder disposed via deep well injection

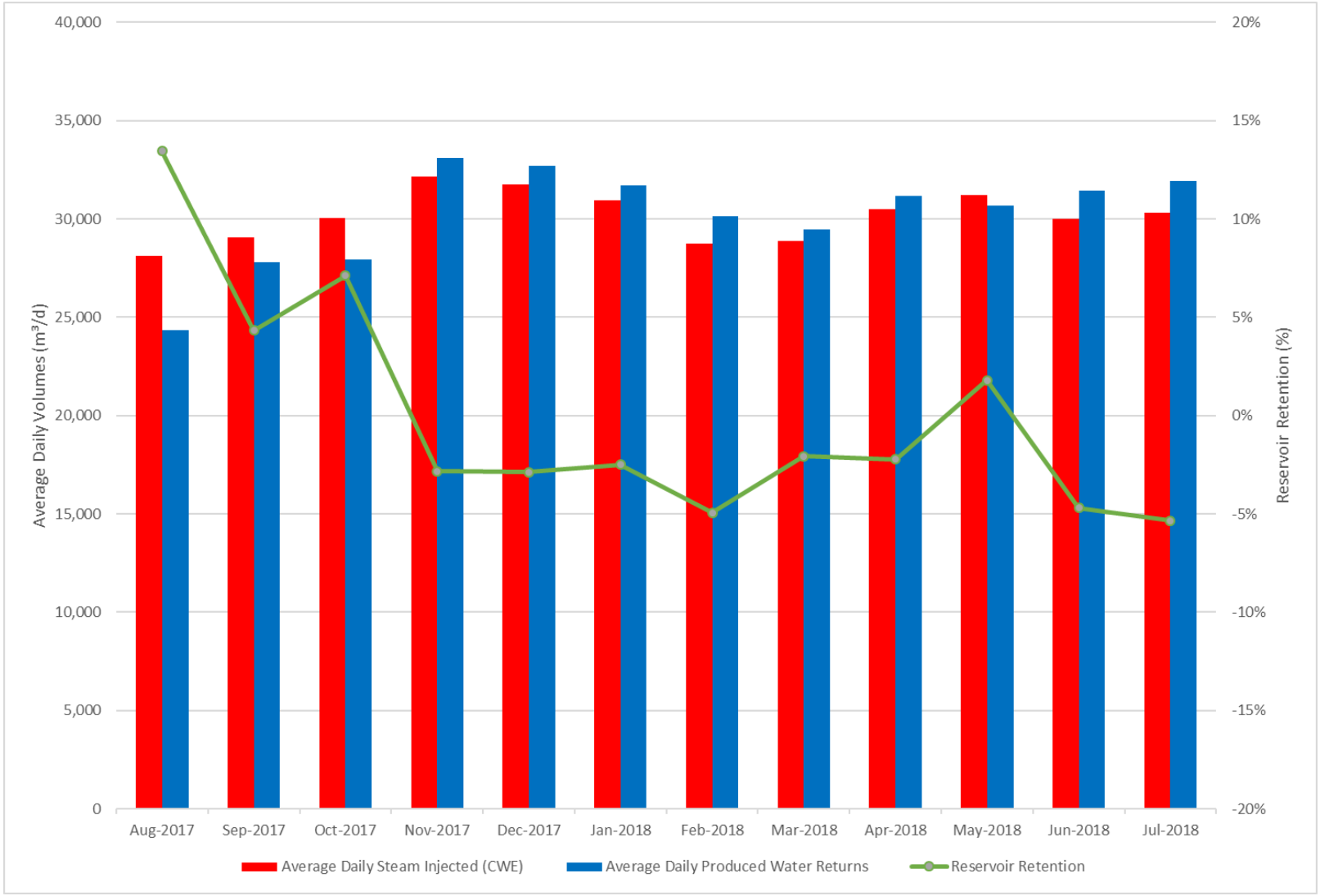
4. Water Production, Injection and Uses

TOTAL MAKE-UP WATER CONSUMPTION



4. Water Production, Injection and Uses

PRODUCED WATER AND STEAM INJECTED



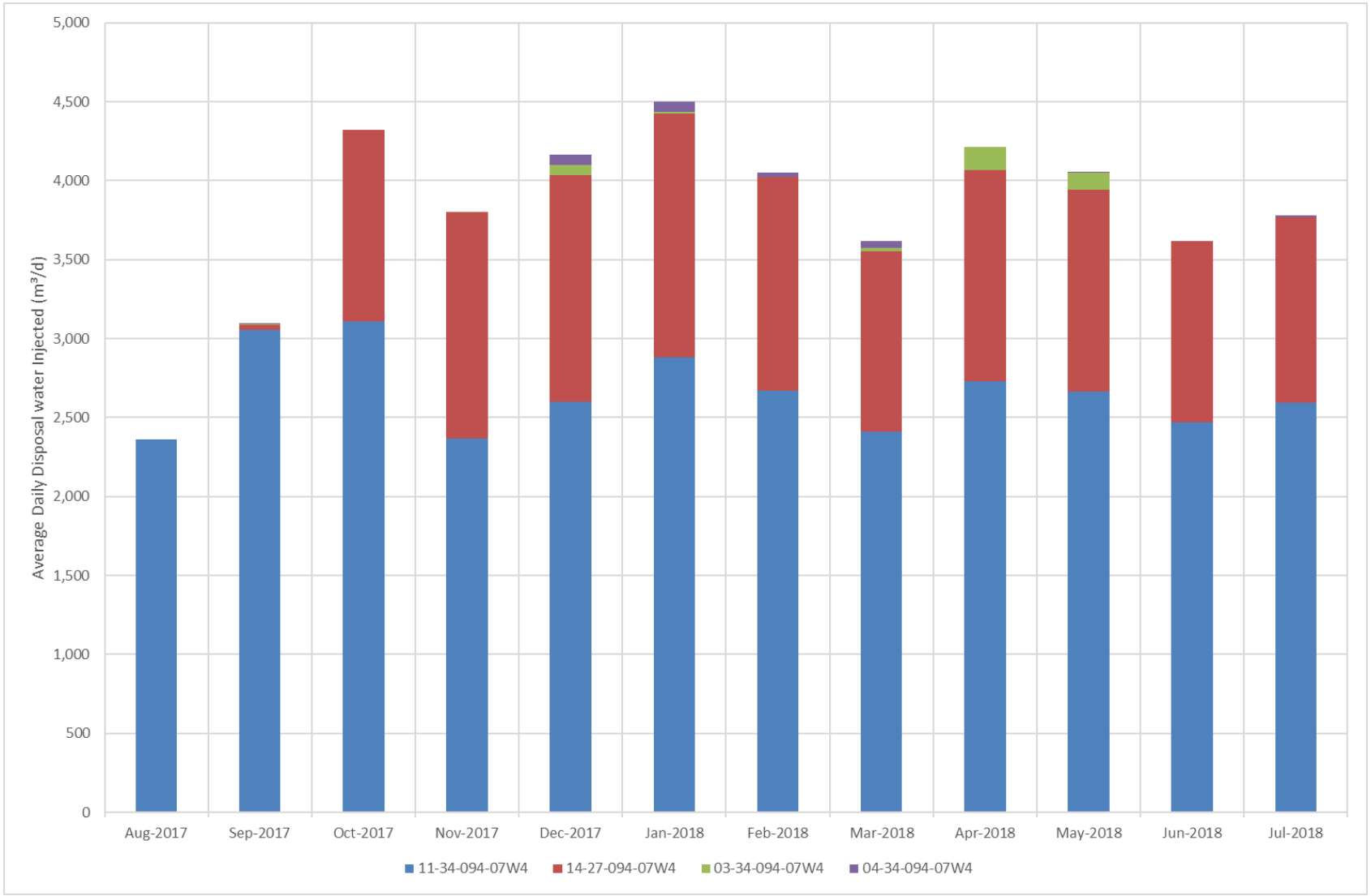
4. Water Production, Injection and Uses

WATER DISPOSAL LIMITS

- Class 1b Disposal Approval 11754C
  - Four disposal wells 14-27, 03-34, 04-34 and 11-34-094-07W4
  - Maximum well head injection pressure: 5,000 kPa_g
  - Fluids disposed for August 1, 2016 to July 31, 2017: 1,385,336 m^3
- Directive 081
  - PAW and Kearl source water well disposal factors = 0.25
  - Produced water disposal factor = 0.10
  - 2017 Disposal Limit (%) = 12.5
  - 2017 Actual Disposal (%) = 10.3
- AER approved Husky's application to remove the daily disposal limit of 4,400m^3/day – February 15, 2018

4. Water Production, Injection and Uses

WATER DISPOSAL



4. Water Production, Injection and Uses

DISPOSAL WELLS

AER Class 1 Approved Disposal Wells (11754C)

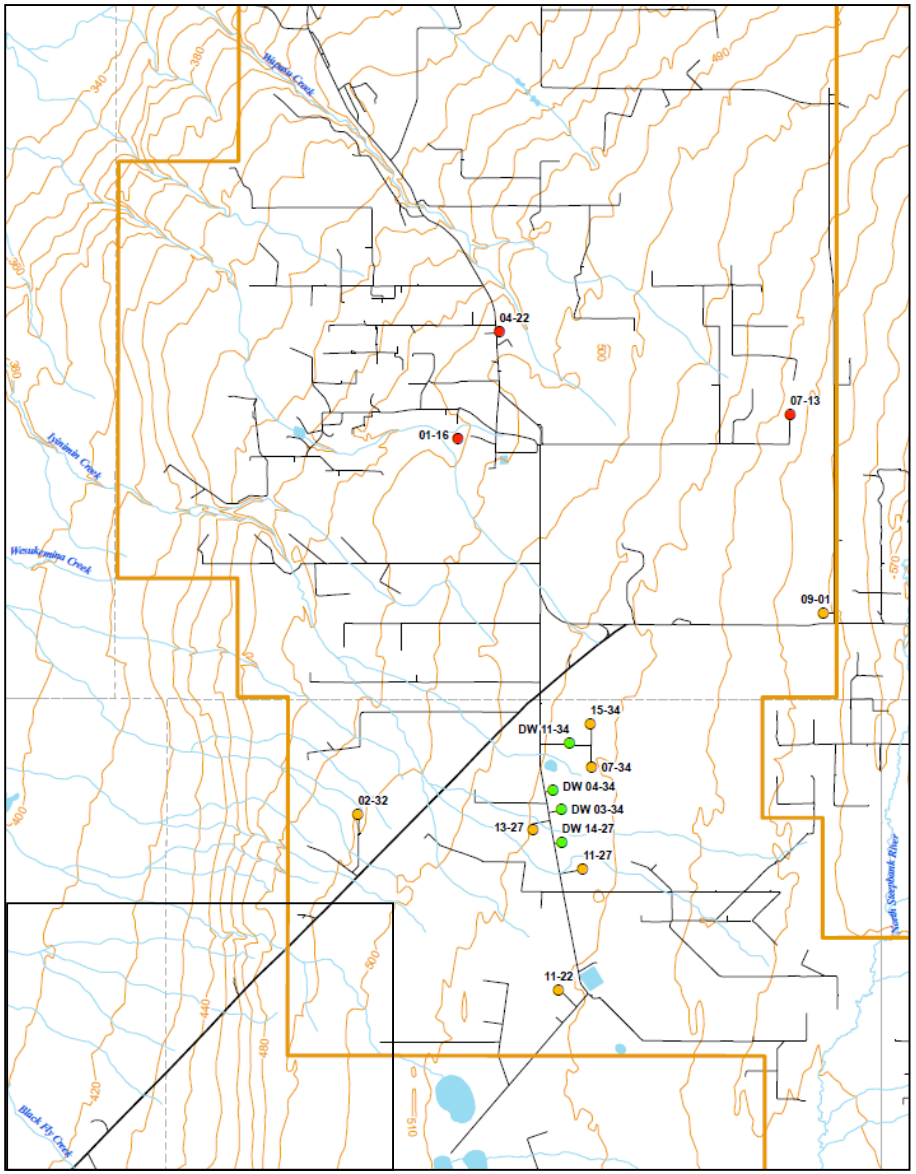
- 100/11-34-094-07W4/00
- 100/14-27-094-07W4/00
- 102/03-34-094-07W4/00
- 100/04-34-094-07W4/00

Pressure Monitoring Wells

- 100/01-16-095-07W4/00
- 100/07-13-095-07W4/00
- 100/04-22-095-07W4/00

Pressure/Chemistry Monitoring Wells

- 100/15-34-094-07W4/00
- 100/07-34-094-07W4/00
- 100/13-27-094-07W4/00
- 100/11-27-094-07W4/00
- 100/02-32-094-07W4/00
- 100/11-22-094-07W4/00
- 100/09-01-095-07W4/00



4. Water Production, Injection and Uses

DISPOSAL SUMMARY

- Class 1b Disposal Approval No. 11754C
- 2017 Annual Report submitted to AER - Approved June 8, 2018
- Fluids disposed August 1, 2016 – July 31, 2017: 1,385,336 m^3
- No exceedances in the Maximum Well Head Injection Pressure of 5,000 kPa_g
- The monitoring wells continue to show pressure responses as a result of disposal
- Interpretation of two local and one intermediate flow system to explain the hydraulic head at the monitoring wells has not changed
- Chemistry results indicate effects of disposal from the Project at wells 100/15-34-094-07W4/00, 100/07-34-094-07W4/00 and 100/11-27-094-07W4/00
- Muted pressure response observed in off-reef monitoring well 100/09-01-095-07W4/00

4. Water Production, Injection and Uses

DATA GAPS

Pressure Data Gaps >30 days: Monitoring Well 100/04-22-095-07W4/00

- Malfunctioned October 18, 2017 – Voluntary Self Disclosure and repair action plan submitted to AER. Authorized received July 13, 2018

4. Landfill Waste Handling

LANDFILL WASTE HANDLING

- Class 2 Oil Field Landfill Onsite Approval No. WM139A
- WM139A amendment approval issued February 2016 to accept sulphur waste from the SRU

Waste Description	Receiving Facility	Total	Unit
Contaminated Debris and Soil (crude/condensate)	Husky Sunrise Landfill	28.5	m3
Contaminated Debris and Soil (produced/salt water)	Husky Sunrise Landfill	247.1	m3
Cement	Husky Sunrise Landfill	56	m3
Construction/Demolition Debris	Husky Sunrise Landfill	954.5	m3
Sulphur Waste	Husky Sunrise Landfill	491	m3
Contaminated Debris and Soil (non-halogenated aromatic)	Husky Sunrise Landfill	22	m3
Filters - Water Treatment	Husky Sunrise Landfill	43	m3
Limestone (pH control)	Husky Sunrise Landfill	300	m3

4. Water Production, Injection and Uses

WASTE VOLUMES

Waste Code	Waste Description	Receiving Facility	Total	Unit
COEMUL	Slop Oil	White Swan Grassland	676	m3
		New Alta Elk Point	1118	m3
		New Alta Fort Mac 881	12362	m3
		New Alta Hughenden	232	m3
		New Alta Red Water	120	m3
	Waste Oil Solids	White Swan Grassland	12	m3
		New Alta Fort Mac 881	326	m3
CAUS	Caustic / Water	New Alta Red Water	225	m3
		White Swan Conklin	111	m3
		White Swan Grassland	625	m3
METHNL	Methanol	White Swan Grassland	13	m3
ACTCRB	Activated Carbon	New Alta Fort Mac 881	18	m3
		White Swan Grassland	19	m3
DRWSGC	Drilling Mud	New Alta Fort Mac 881	128	m3
GLYC Water	Glycol and Water	New Alta Fort Mac 881	19	m3
		New Alta Red Water	17	m3
		White Swan Grassland	9	m3
SWTLIQ	Lo-Cat Solution and Water	New Alta Fort Mac 881	580	m3
		New Alta Hughenden	8	m3
		New Alta Red Water	7	m3
		White Swan Grassland	148	m3
FILPWT	FILPWT Produced / Process Water	White Swan Conklin	20	m3
ACID	Acid solution - Unneutralized	Miller Environmental	1.54	m3
BATT	Batteries - Wet and Dry Cell	General Recycling Industries	1.5	m3
CAUS	Caustic Solutions - Unneutralized, Spent	Miller Environmental	4.6	m3
DOMWST	Contaminated Garbage / Contaminated Domestic Waste	Clean Harbors - Ryley Class 1A	224.02	m3
DOMWST - FT4	4' Fluorescent Tubes	Miller Environmental	2.3	m3

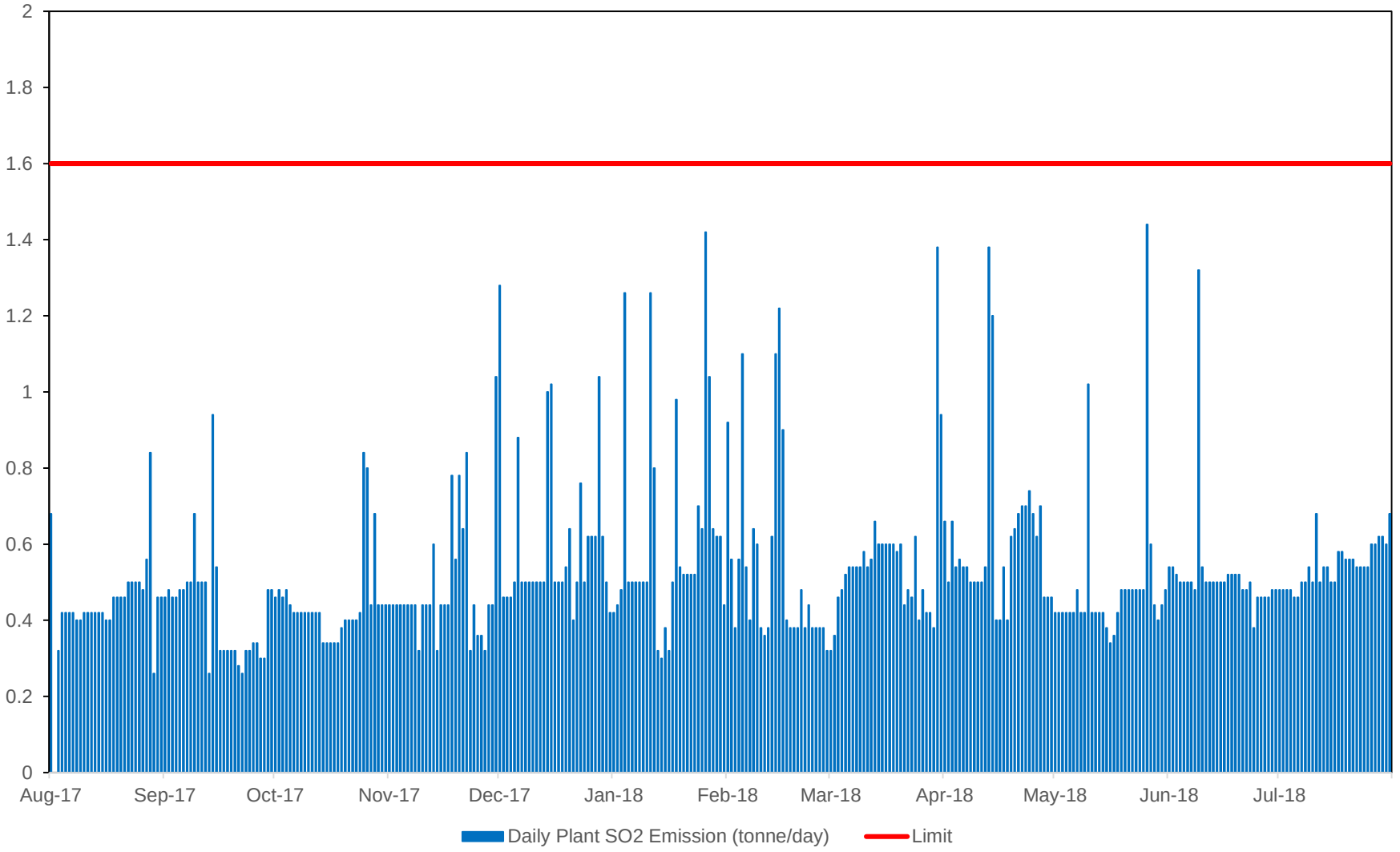
4. Water Production, Injection and Uses

WASTE VOLUMES (CONT'D)

Waste Code	Waste Description	Receiving Facility	Total	Unit
DOMWST - NH	Non-Hazardous Garbage - Domestic Waste	Clean Harbors - Ryley Class 1A	25.3	m3
DOMWST - P	Plastic Waste - Plastic Sheeting, Plastic Liners, Waste Shrink Wrap	Clean Harbors - Ryley Class 1A	36.8	m3
EMTCON	Plastics	Pnewko Trucking Ltd.	9.66	m3
EMTCON-A	Aerosol Cans - Empty	Miller Environmental and General Recycling	1.4	m3
EMTCON - P	Empty Container - Plastic Pails, Jugs, etc.	Pnewko Trucking Ltd.	20.7	m3
EMTCON-PD	Empty Container - Plastic Drums (Non-rbw)	Pnewko Trucking Ltd.	0.82	m3
		Blue Planet Recycling	1.435	m3
EMTCON-PT	Empty Container - Plastic Totes (>= 1 m3)	Pnewko Trucking Ltd.	53	m3
EMTCON-SB	Empty Container - Sample Bottles	Clean Harbors - Ryley Class 1A	0.46	m3
FILLUB	Filters - Lube Oil	General Recycling Industries	0.23	m3
GLYCHM	Glycol Solution - Containing Lead or Other Heavy Metals	Clean Harbors - Devon Deepwell Class 1A	1	m3
INOCHM	Chemicals - Inorganic	Miller Environmental	2.355	m3
NORM	Waste - Miscellaneous	Tervita Corportation - NORM Services (NORMCAN)	4.6	m3
OILABS	Absorbents	MCL - Leduc Regional Landfill	4.6	m3
OILRAG	Rags - Oily	MCL - Leduc Regional Landfill	0.23	m3
ORGCHM	Chemicals - Organic	Miller Environmental	4	m3
PLASTIC	Empty Container - Plastic Pails, Jugs, etc.	Pnewko Trucking Ltd.	4.37	m3
SMETAL	Metal - Scrap	Clean Harbors - Ryley Class 1A	2.76	m3
		General Recycling Industries	19.31	m3
SOILCO	Contaminated Debris and Soil - Crude Oil/ Condensate	Secure Energy - Pembina Landfill (Class 2)	6	m3
		Secure Landfill	10	m3
		MCL - Leduc Regional Landfill - Class II	10	m3
		Clean Harbors - Ryley Class 1A	12	m3
SOILCO-DW	Contaminated Debris and Soil	Clean Harbors - Ryley Class 1A	3.3	m3
SOILSU	Contaminated Debris and Soil - Sulphur	Miller Environmental	7.105	m3
WSTCGS	Waste Compressed or Liquified Gases	Recycle Systems Company Inc.	0.205	m3
WSTMIS-R	Waste Hydraulic Hoses (prior to 14/12/17 Waste Rubber)	Clean Harbors - Ryley Class 1A	2.07	m3

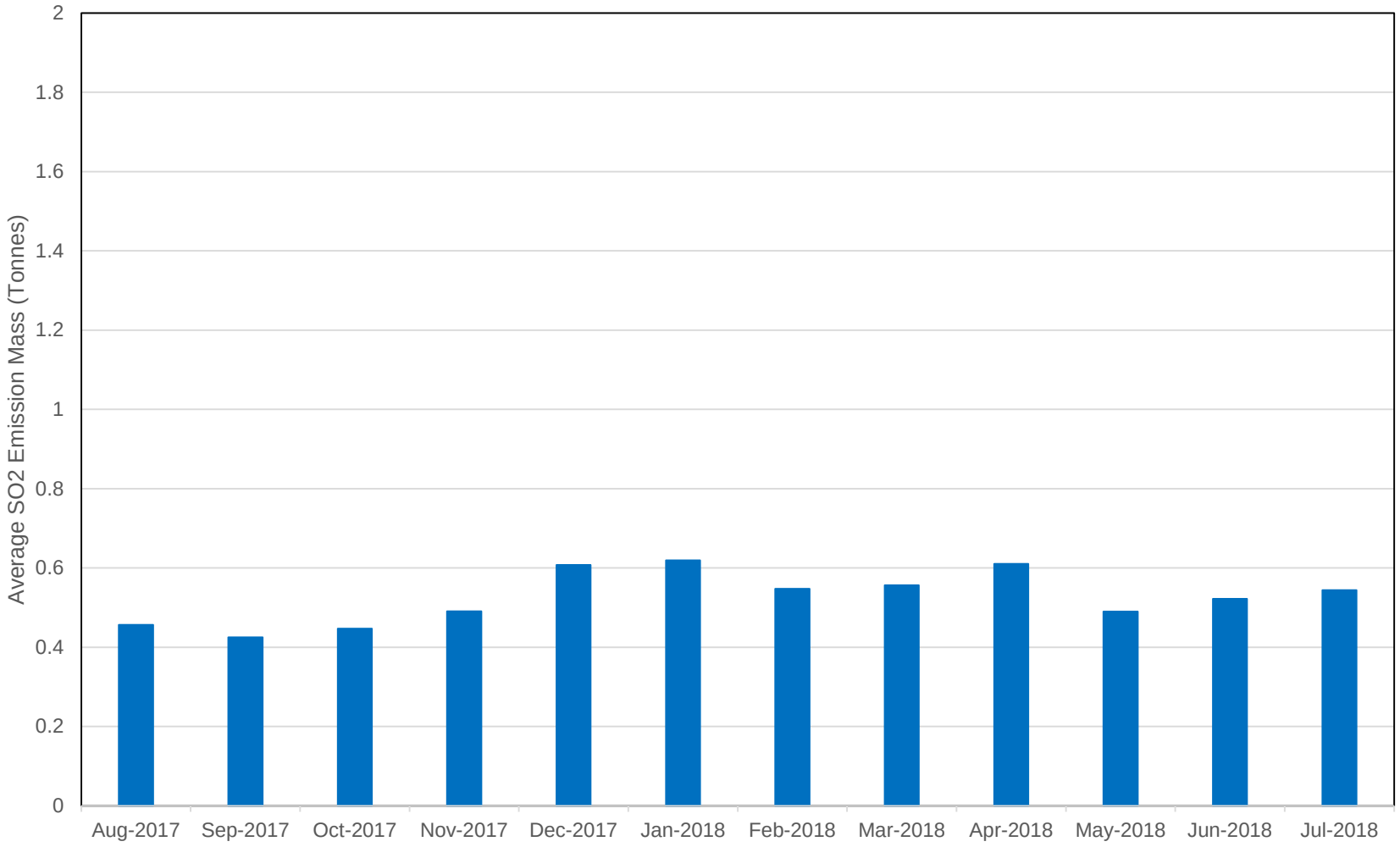
5. Sulphur Production

SO_2 EMISSIONS



5. Sulphur Production

SO_2 EMISSIONS TRENDS



5. Sulphur Production

SULPHUR DIOXIDE (SO_2) SOURCES

- Ten Once-Through Steam Generators (OTSG) - all operational during the reporting period
- Two High Pressure Flare Stacks – both operational during the reporting period
- Two Low Pressure Flare Stacks - both operational during the reporting period

5. Sulphur Production

QUARTERLY SO_2 EMISSIONS

2017 Q3 (Aug – Sep)	26.46 tonnes
2017 Q4 (Oct - Dec)	47.42 tonnes
2018 Q1 (Jan – Mar)	51.78 tonnes
2018 Q2 (Apr – June)	49.18 tonnes
2018 Q3 (July)	17.54 tonnes

5. Sulphur Production

PEAK AND AVERAGE SO_2 EMISSIONS

SO_2 Emissions	
Average Daily	0.52 Tonnes
Maximum Daily	1.44 Tonnes

5. Sulphur Production

AMBIENT AIR MONITORING

- Husky installed Permanent Air Monitoring Station (Wapasu AMS; AMS 17)
- Part of WBEA network of ambient monitoring stations and functions as a dual compliance and enhanced deposition station
- Reporting and monitoring is performed by WBEA
- No process related exceedances recorded during the reporting period
- PM2.5 and O_3 exceedances recorded as result of wildfires in the region
- Current monitored data available the following link
  - http://www.wbea.org/monitoring-stations-and-data/monitoring-stations/wapasu
- Historical monitored data available the following link
  - http://www.wbea.org/monitoring-stations-and-data/historical-monitoring-data

6. Environmental

COMPLIANCE

- EPEA Approval 206355-01-00 (as amended):
  - Husky was in compliance with all regulatory approvals, decisions, regulations and conditions; with the exception of compliance items identified in this presentation

- Alberta Environment and Parks (AEP):
  - No compliance issues during this reporting period

- Federal Environmental and Regulatory Compliance:
  - No compliance issues during this reporting period

6. Environmental

COMPLIANCE (EPEA)

Spent Lime Pond (Release Notification File 294542):

- On March 29th, 2018: Husky Compiled the monitoring data for they year of 2017 in a summary report and submitted it to AER. The maximum allowable Electrical Conductivities, Chloride Concentrations, and the modified ALR volumes were not exceeded for the data collected

6.Environmental

COMPLIANCE (EPEA CONT'D)

Continuous Emissions Monitoring System (CEMS):

- Event (1): Husky installed a CEMS unit on the SRU oxidizer vent stack to monitor H_2S concentrations in the vented gas. The SRU CEMS failed to operate reliably due to the high particulate concentration and high moisture content causing the sample conditioning system to plug

- Corrective Action:
  - November 11, 2015 Husky disclosed the matter to AER (File Ref. No. 305572)
  - A corrective action of manually collecting vent gas samples and analyzing them for H2S concentration on a weekly bases was proposed
  - AER issued a temporary authorization until December 31st, 2018 permitting the proposed action as an alternative to monitor the emissions while Husky works on a permanent solution for the operational issues of CEMS of the SRU oxidizer vent stack

6.Environmental

COMPLIANCE (EPEA CONT'D)

Continuous Emissions Monitoring System (CEMS):

- Event (2): July 29, 2017 parameters used in the analyzer daily checks defaulted back to factory settings causing the analyzer data to be invalid and CEMS availability to be less than 90% for the month of July 2017

- Corrective Action:
  - July 29, 2017 Husky disclosed the matter to AER (File Ref. No. 327715)
  - The current project settings are saved on the server
  - A procedure to upload/reload project settings to the analyzer were developed to be able to respond to any similar future issue timely

6.Environmental

COMPLIANCE (EPEA CONT'D)

Continuous Emissions Monitoring System (CEMS):

- Event (3): On July 2017, after the startup of OTSG 70-B-500, the temperature sensor of the CEMS unit failed causing the software of DAHS to default back to factory settings. The temperature readings recorded was about 50 degrees below the actual values detected by the reference method utilized during the RATA conducted on November 8, 2018

- Corrective Action:
  - On January 10, 2018, upon the request of the AER, Husky disclosed the matter (File Ref. No. 333602)
  - A new temperature sensor was ordered
  - During the CEMS sensor outage, temperature data was recovered from a temperature sensor at a different elevation on the stack. The readings of the stack sensor have shown a correlation exceeding 98% to the data of the new CEMS temperature sensor
  - Husky obtained EPEA/Director approval for using the stack sensor readings for data substitution during out of control periods and CEMS temperature data unavailability

6. Environmental

COMPLIANCE (EPEA CONT'D)

Process Building Floor Trenches and Sumps – Directive 055:

- Event: During Directive 055 monthly inspections, fluids were detected in the VLDP (for interstitial space) of buildings trenches/sumps. Chemical analysis results showed similarity between the chemistry of the detected fluid and process fluids collected in building sumps. An update was sent to AER regarding the reoccurrence of the failure of Building trenches/sumps containment

- Corrective Action:
  - A work scope for investigating containment failure was developed
  - Available containment systems in the market were reviewed
  - Decision support package with different repair options were developed and signed
  - Engineering work package is being developed for the selected options
  - AER was updated in February, March, April and June 2018 about the status of the repair

6. Environmental

RELEASES

Spill Material	Number of Incidents	Total Volume (m^3)	AER Notification	Release area
Process Affected Water	1	0.01	Release report submitted	10 L released from drain station between CPF and Well pads
Hydrocarbon	2	8.03	Release report submitted	8 m3 on CPF at LACT unit 30 L released from Valve station between CPF and Well pads
Tanks Venting	20	7247.70	7-day letter & DDS report submitted	

- Husky tracks all non-reportable spill incidents within the Corporate Incident Management System
- All incidents are reviewed weekly to ensure corrective actions are included and preventative measures are taken

6. Environmental

EPEA APPROVAL AMENDMENTS

Approval Date	Application Number	Application Name
2017-12-15	N/A	Amendment Application - Husky Diluent Reduction (HDR) Pilot Project
2018-01-09	N/A	Amendment Application - Phase 1 OTSG Pilot Project
2018-03-28	N/A	Temporary Authorization - Extension Request, SRU Oxidizer Vent Stack CEMS
2018-06-27	N/A	Temporary Authorization - Extension Request, Phase 1 OTSG Pilot

6. Environmental

BIODIVERSITY

- As a requirement of the regulatory approval, Husky conducts an annual Environmental Monitoring Program with data compilation and report submission to the AER every three years. Next report due 2019
- Monitoring program and findings include:
  - Surface water quality and quantity
    - Discharge data thus far support the conclusion of the EIA that impacts would be below detectable levels
  - Wetlands
    - Water level data analyzed at the source water wells and associated observation wells do not show evidence of a declining water level in the aquifer
    - General decreasing trend in pH levels and increasing sulphate concentrations at two stations (but below guideline) will continue to be monitored; no other indications of trends in water quality results analyzed
    - No impoundment effect has been observed for the two monitored transects based on analyzed data
  - Wildlife
    - No evident trend for habitat use and distribution for wildlife species based on analyzed dataset thus far
    - Canadian Toad or Yellow Rail have not been detected at Project site thus far
    - Tracking and camera surveys indicate the pipeline is crossable for birds and mammals including large ungulates (moose)
    - Rare plant species detected during EIA are persisting in Project area

6. Environmental

WILDLIFE

- Caribou Mitigation and Monitoring Plan
  - Approved by AER January 2015, update submitted Oct 31, 2017, awaiting AER approval
  - Approved, but not developed, Project facilities to be located within the Richardson Caribou Range are limited to a potential road and single well pad
  - Development potentially within the range may occur after 2027
  - Currently undergoing caribou habitat restoration monitoring and wildlife camera data collection in caribou habitat along previous cutlines and seismic lines
- Wildlife Monitoring, Enhancement and Monitoring Program
  - Approved by AEP December 2012; updated proposal approved 2016
  - The following wildlife monitoring program components were implemented in 2017:
    - pipeline monitoring;
    - remote camera monitoring; and
    - amphibian young-of-the-year surveys for Canadian Toad
  - Objectives and targets developed and monitored to address four key wildlife issues identified in the Environmental Impact Assessment (EIA):
    - Habitat Availability
    - Habitat Effectiveness
    - Disruption of Movement Patterns
    - Wildlife Mortality
  - Husky monitors and reviews mitigation strategies to ensure ongoing effectiveness and evaluate areas for improvement

6. Environmental

INDUSTRIAL WASTEWATER

- **Disposal Locations:**
  - Four Disposal wells:
    - 1341091 m^3 of blow-down water was disposed using the primary disposal Wells; 100/14-27-094-07W4M and 100/11-34-094-07W4M
    - 16772 m^3 of Keg River observation well sampling water was disposed utilizing the secondary disposal wells; 102/03-34-094-07W4, 100/04-34-094-07W4
  - Nine Keg River Monitoring Wells utilized to monitor pressures and/or water quality
- **Domestic Wastewater:**
  - Domestic wastewater from construction and operational activities was treated on the CPF by the operation of a domestic wastewater treatment plant (WWTP).
  - Domestic wastewater is treated and released to an unnamed tributary of Wapasu Creek located south of the CPF
- **Industrial Run-off :**
  - Total of **13** discharge locations:
    - **Pads**; B13-08 (B), B14-08 (C), B16-08 (D), B13-09 (E), B08-17 (G), B05-16 (H), B16-17 (L), B13-16 (M), B15-16 (N), 5-21 (Q), 6-21 (P), and 16-16 (S)
    - CPF Total volumes discharged (2017–2018): 786,505.3m^3
    - Note: all discharges were in compliance with EPEA approval

6. Environmental

SOILS

- Soil Monitoring Sampling and Analysis started on May 14, 2018 and was completed on May 31, 2018
- The next Soil Monitoring Program report will be submitted on or before September 30, 2018
- Pad B13-16(R) was constructed:
    - Total area cleared is 1 hectare
    - About 2,200 m3 of topsoil salvaged
    - About 5,780 m3 of subsoil salvage

6. Environmental

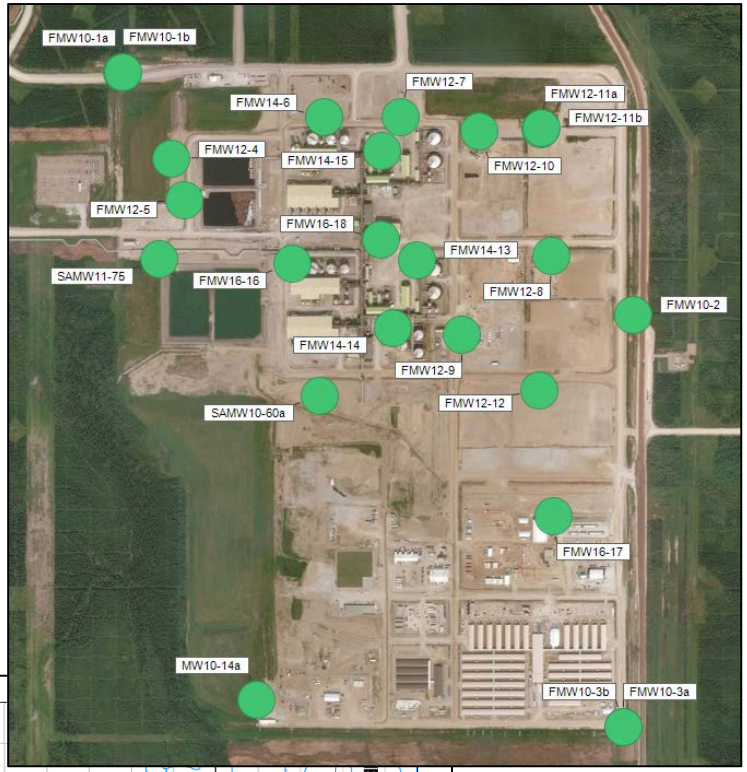
AIR

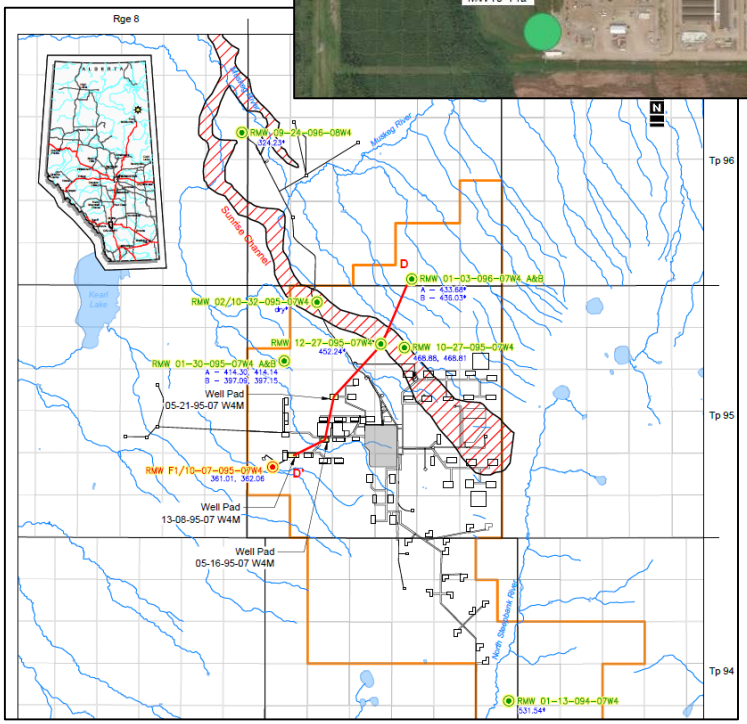
- Site air monitoring includes source and ambient air monitoring systems
- Source Monitoring
  - Three CEMS; two for the OTSGs and one for the SRU (note, CEMS SRU was not in operation during this reporting period)
  - Manual gas sampling of SRU oxidizer vent stack gas to ensure H_2S is below the allowable limit.
  - Engineering calculations aided by gas metering and sampling or inline GC (gas Chromatography)
  - Fugitive emission leak surveys (conducted August 2017)
- Ambient Air Monitoring
  - Permanent Air Monitoring Station
  - Participation in Wood Buffalo Environmental Association (WBEA) network of ambient air monitoring stations (Wapasu Station)
  - Continuous process area monitoring for LEL (Lower Exclusive Limit) and H_2S
  - Due to forest fires, on May 25, 2018 a non-compliance of $PM_{2.5}$ was recorded and duly reported to AER

6. Environmental

GROUNDWATER MONITORING

- 2017 Compliance Groundwater Monitoring Report submitted March 2018
- CPF:
  - 24 wells: 2.4 to 13.7 m depth (base of screen)
- Pad Well:
  - 3 pads: B05-16, B13-08, B05-21
  - 8 wells: 19.5 m to 66.0 m depth (base of screen)
- Regional:
  - 1 McMurray well: 177.5 m depth (base of screen)
  - 9 Quaternary wells: 9.1 m to 61.9 m depth (base of screen)





6. Environmental

INITIATIVES

- Husky participates in and/or funds many regional environmental initiatives and committees pertaining to the Sunrise Project, including the following:
  - Monitoring Avian Productivity and Survivorship (MAPS) in the Boreal Region
  - Participation in Wood Buffalo Environmental Committee (WBEA) and Terrestrial Environmental Effects Monitoring Committee (TEEM)
  - Faster Forests Program (COSIA JIP)
  - CAPP Species Management and Caribou Shadow Committees
  - Petroleum Technology Alliance Canada (PTAC) Ecological Research Planning Committee
  - Industrial Footprint Reduction Options Group (iFROG)
  - Oil Sands Monitoring (formerly JOSM)
  - Monitoring Priority Areas (COSIA)
  - University of Waterloo – Wetland Research (Alberta Innovates)

6. Environmental

RECLAMATION

- Objectives of the Annual Conservation and Reclamation Report (demonstrate and document):
  - Compliance with the development and reclamation approval
  - Site conditions and successful reclamation
  - General project development (surface disturbances) and reclamation activities
  - Problem areas and resolution
- Vegetation Monitoring:
  - Annual weed monitoring and control completed as per Husky's best practices
- Reclamation Activities:
  - No additional reclamation activities occurred within the reporting year
  - Test plots for reclamation at Gravel Pit 1 were started in 2013. A total of approximately 6 ha in Gravel Pit 1 is permanently reclaimed

7. Compliance Statement

NON-COMPLIANCE EVENTS

OSCA (Oil Sands Conservation Act) Commercial Scheme Approval 10419 (as amended):

- Husky was in compliance with all regulatory approvals, decisions, regulations and conditions; with the exception of compliance items identified in this presentation

7. Compliance Statement

SELF DECLARATIONS

- Well 110/12-147-095-07W4/00 B5A (well pad B13-08 (B)) License No. 0485188

Summary:

Experiencing challenges due to initial completion design and the well pressuring up with minimal pressure relief; the reservoir (near wellbore) was tighter than expected

- March 28, 2018: Exceeded approved MOP (1,770 kPag) by 3 kPag (1,773) for 2 minutes
- April 14, 2018: Exceeded approved MOP (1,770 kPag) by 47 (1,817) kPag for 4 minutes
- April 21, 2018: Exceeded approved MOP (1,770 kPag) by 9 kPag (1,779) for 30 minutes
- July 2, 2018: Exceeded approved MOP (1,770 kPag) by 116 kPa (1,886) for 5 minutes
- July 30, 2018: Exceeded approved MOP (1,770 kPag) by 14 kPa (1,784) for 1 minute

Status Update:

- Submitted VSD to AER Bonnyville Field Office on August 2, 2018
- Completion design to be modified to allow for circulation verses bullheading. Work is planned to be completed November 30, 2018
- Received acceptance letter from AER on August 23, 2018

8. Future Plans

FUTURE PLANS

- Commissioning scheduled for Husky Diluent Reduction Project (AER authorizations received December 15, 2017) in November 29, 2018
- SRU Oxidizer Vent Mitigation Waivers – March 28, 2018
- Debottleneck 2 Amendment Application – AER submission early 2019
- Permanent Drilling Waste Processing Facility (WM 200) – construct and operate