Husky Oil Operations Limited

Sunrise Thermal Project

Commercial Scheme No.10419

Annual Performance Presentation

Alberta Energy Regulator

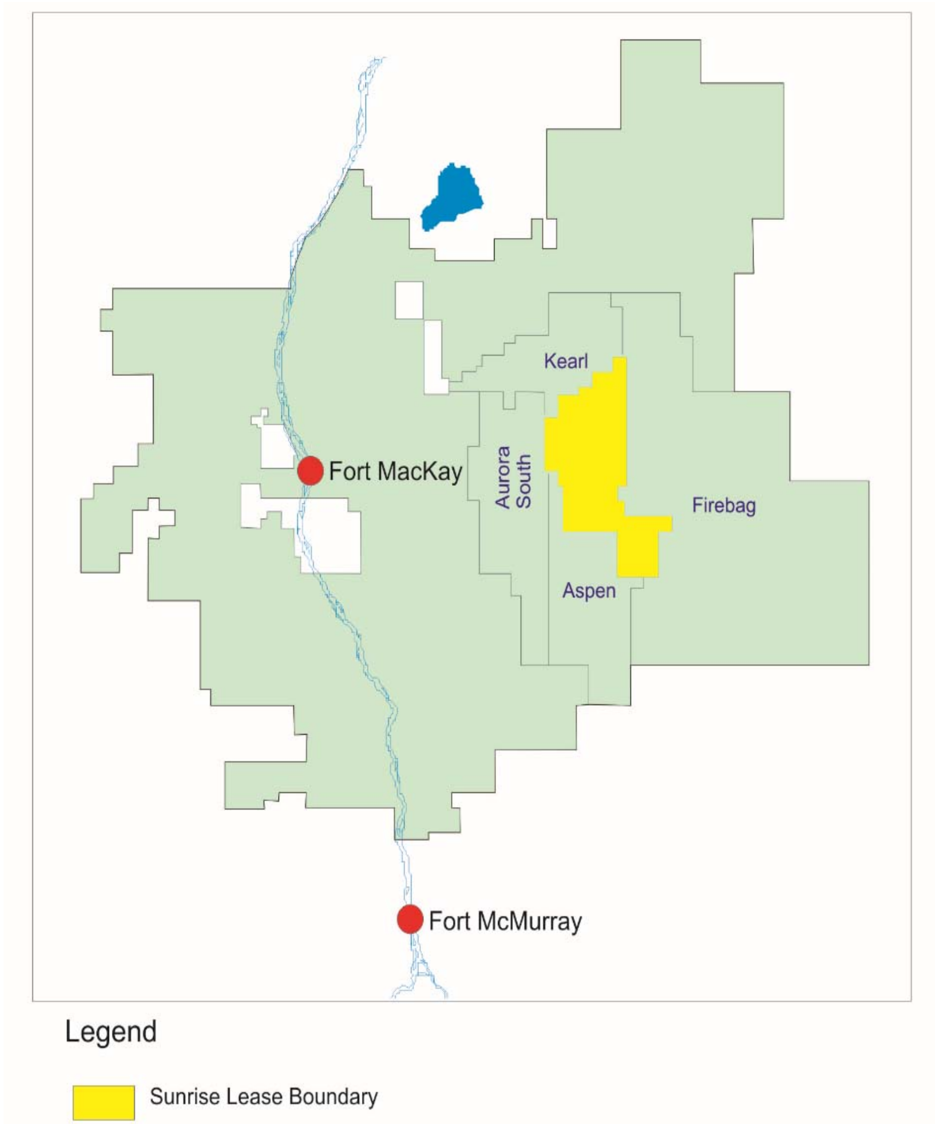
October 19, 2016

3.1.1. Subsurface Issues – Table of Contents

1. Brief Background

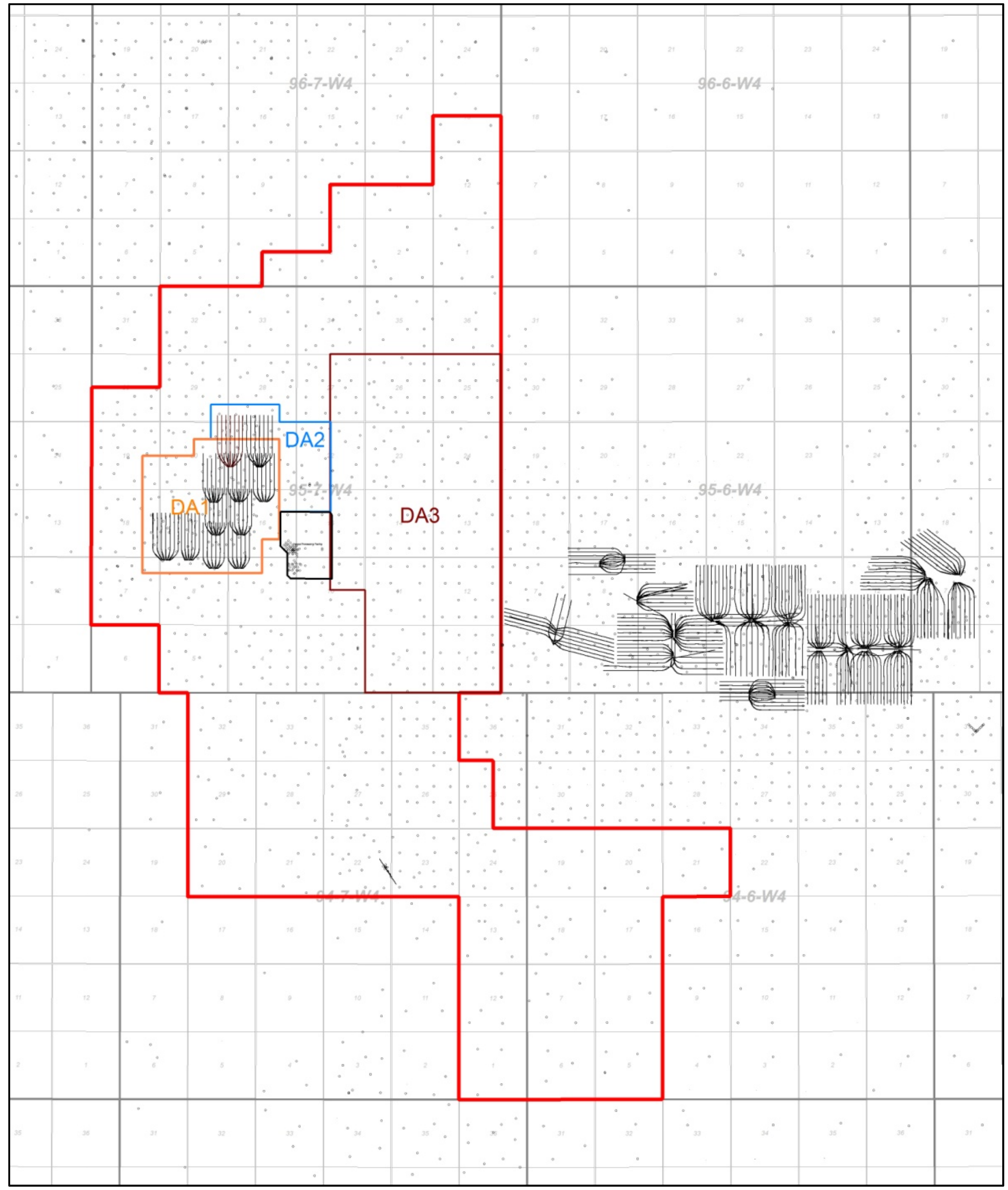
Project Overview

- AER Approval No's. 10419 and 206355-01-00, as amended
- 31,798 m^3/d (200,000 BOPD) SAGD Project
- Phase 1 9,540 m^3/d (60,000 BOPD)
- McMurray Formation
- 7-9º API Bitumen
- 50% Partnership with BP
- First Steam December 12, 2014
- First Production March 8, 2015



Project Development Area

- Approval Area:
  - 64 ¼ sections over TWP 94, 95 and 96, RGE 6 and 7 W4M
- Development Area 1 (DA1):
  - Nine Well Pads
  - 55 Well Pairs
- Project Life Development:
  - Approx. 600 well pairs
  - Approx. 40 year life
- Development Area 2 (DA2):
  - Six Well Pads
  - 37 Well Pairs
  - Currently drilled two pads (B05-21 and B06-21)
  - Sustain 9,540 m^3/d (60,000 bbls/d)
- Development Area 3 (DA3):
  - 18 Well Pads
  - 222 Well Pairs
  - AER Approved Jan 25, 2016



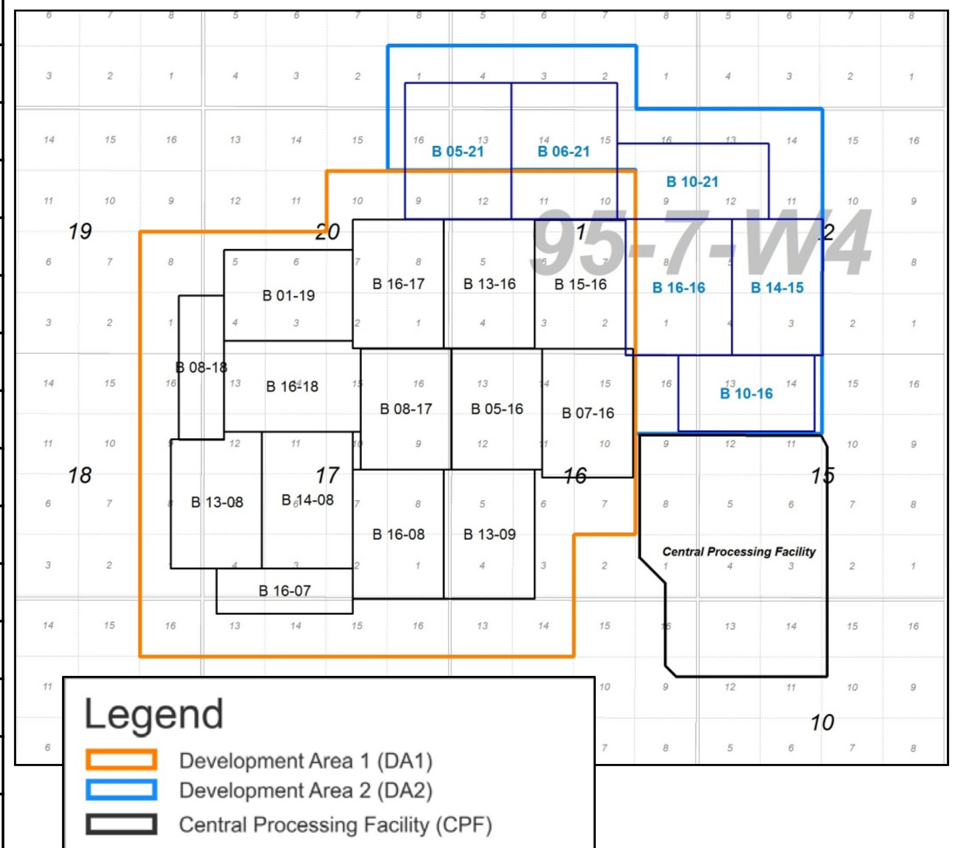
Site Overview

- 69 horizontal well pairs drilled:
  - 55 well pairs in DA1 on production
  - 14 well pairs in DA2 drilled
- Field Facilities:
  - 9 well pads constructed and tied in
  - 3 well pads constructed, to be equipped and tied in
- Central Plant Facility:
  - Emulsion treating – 9,540 m^3/d (60,000 bbl/day)
  - Water Treatment – 38,140 m^3/d (240,000 bbl/day)
  - Steam Generation – 28,600 m^3 /d (180,000 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

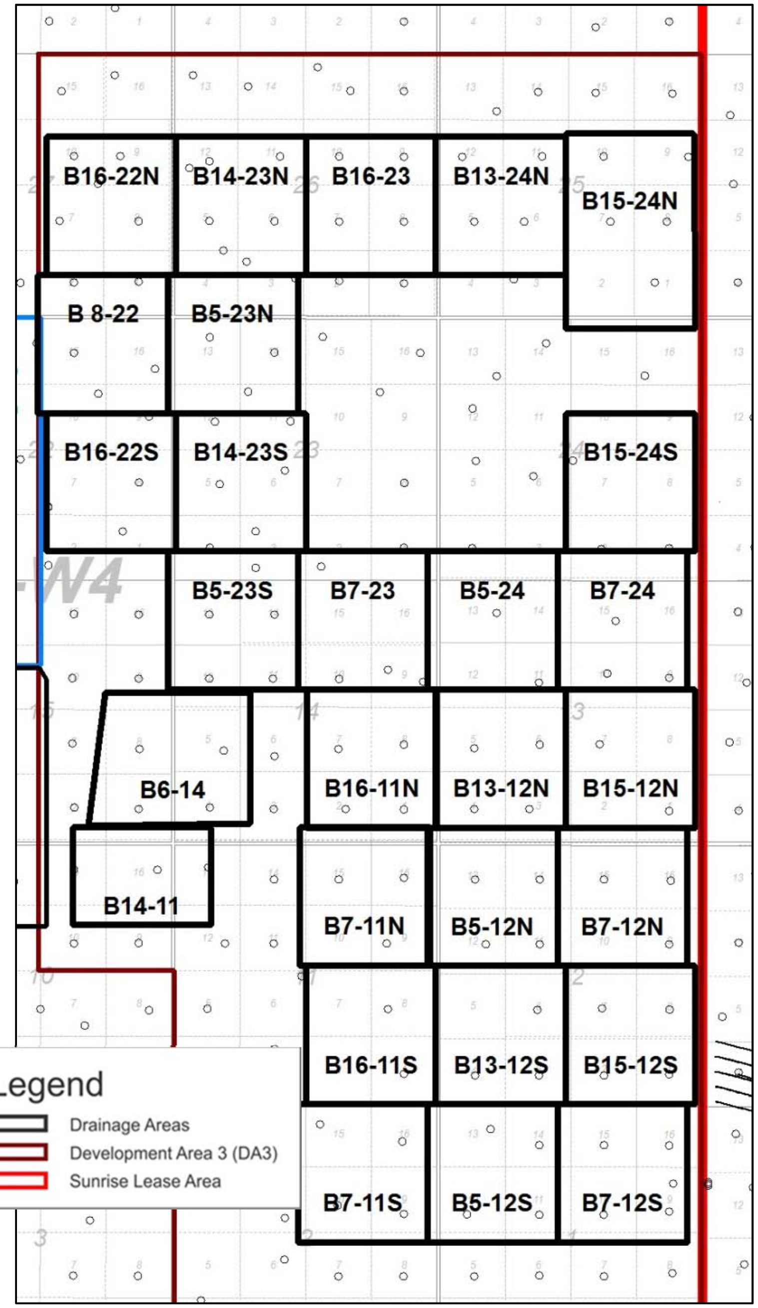
Average Reservoir Characteristics & OBIP-DA1&DA2

Drainage Pattern	Area (ha)	Porosity (%)	Bitumen Saturation (%)	Developable OBIP (10^3 m^3)
B16-07	27.00	30	79	1,628
B13-08	62.10	31	81	3,868
B14-08	45.90	32	82	4,394
B16-08	51.00	32	81	3,219
B13-09	51.00	31	79	2,677
B08-18	28.51	30	78	1,600
B08-17	48.00	31	79	3,334
B05-16	51.00	32	81	3,351
B07-16	51.00	31	84	3,265
B16-18	54.00	32	78	4,326
B01-19	51.00	31	84	3,484
B16-17	51.00	32	82	3,999
B13-16	51.00	33	82	4,325
B15-16	51.00	31	85	4,374
B05-21	63.00	31	81	5,628
B06-21	63.00	31	80	5,160
B10-21	50.00	30	81	4,004
B16-16	63.00	31	78	4,185
B14-15	54.00	30	81	3,700
B10-16	45.00	31	81	2,733



Average Reservoir Characteristics & OBIP - DA3

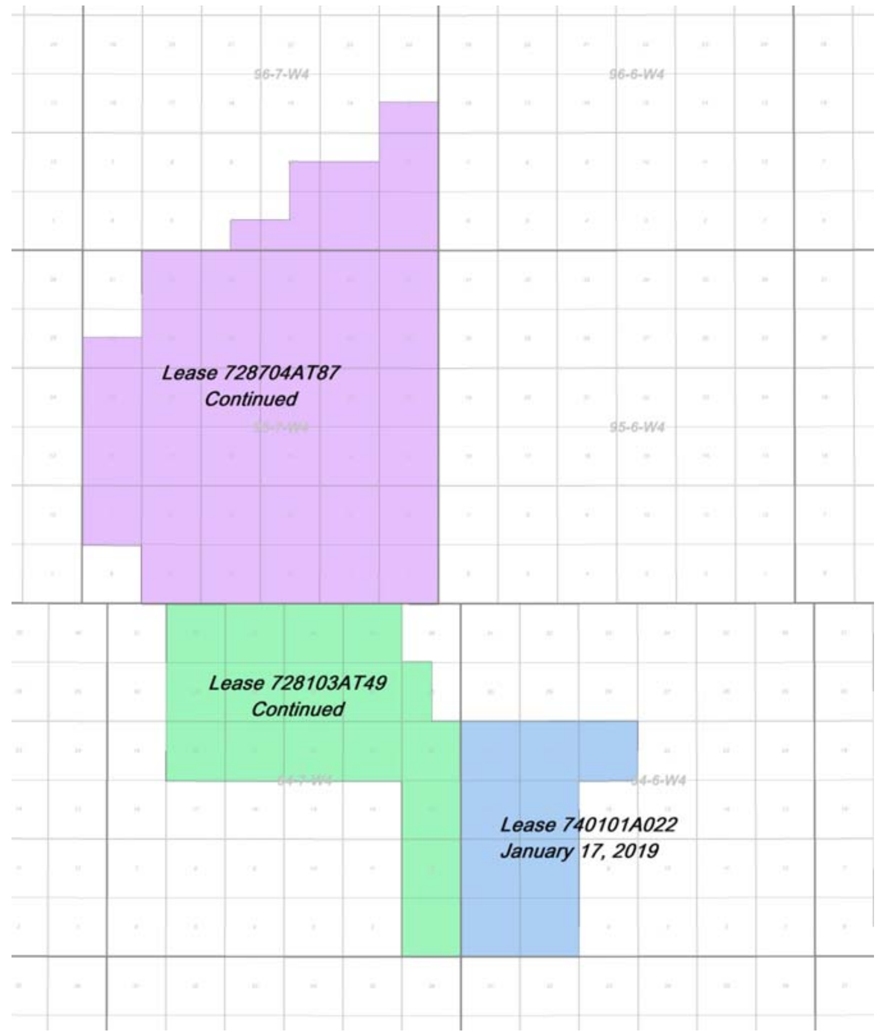
Drainage Pattern	Area (ha)	Porosity (m)	Bitumen Saturation (%)	Developable OBIP (10^3m^3)
B05-12N	68.0	31.7	76.4	4,310
B05-12S	68.0	29.2	79.2	3,460
B07-12N	68.0	31.6	81.3	4,600
B07-12S	68.0	31.8	81.8	5,530
B13-12N	68.0	31.7	79.7	4,860
B13-12S	68.0	31.1	78.5	3,340
B15-12N	68.0	31.3	84.0	3,840
B15-12S	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



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

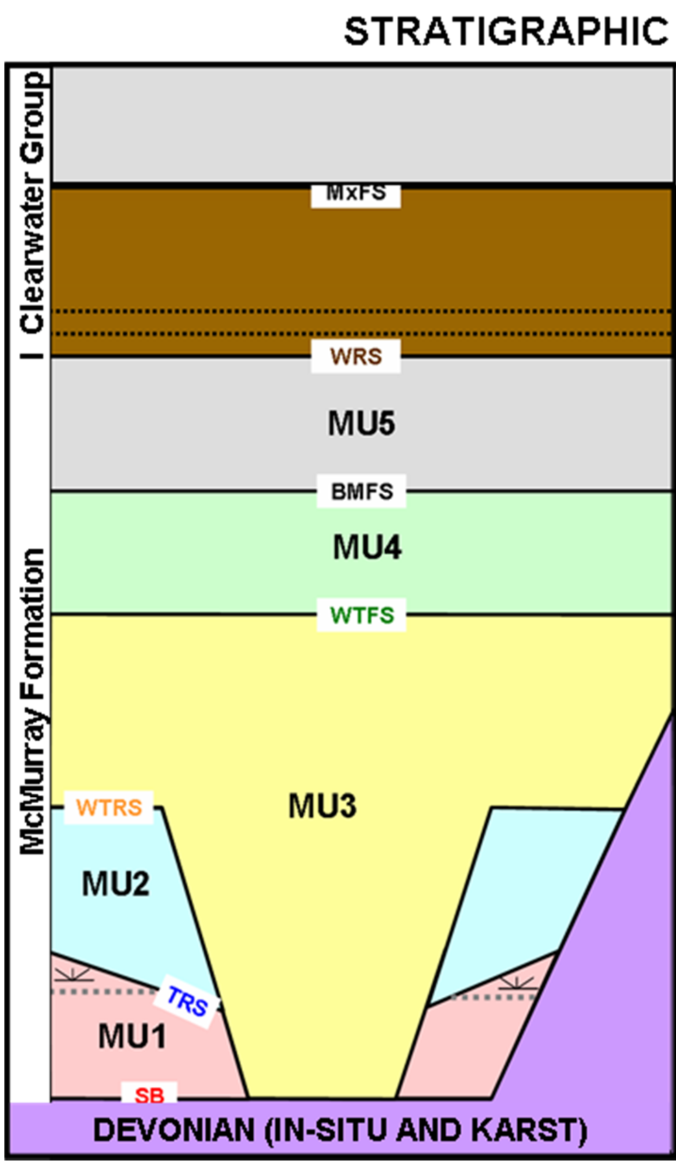
Lease No:	OBIP 6% BWO cutoff 10^3 m^3	Gross Thickness (m)	Porosity (%)	Bitumen Saturation (%)
Total	1,410,565	36.0	30.4	77.5



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

Sunrise Stratigraphic Column



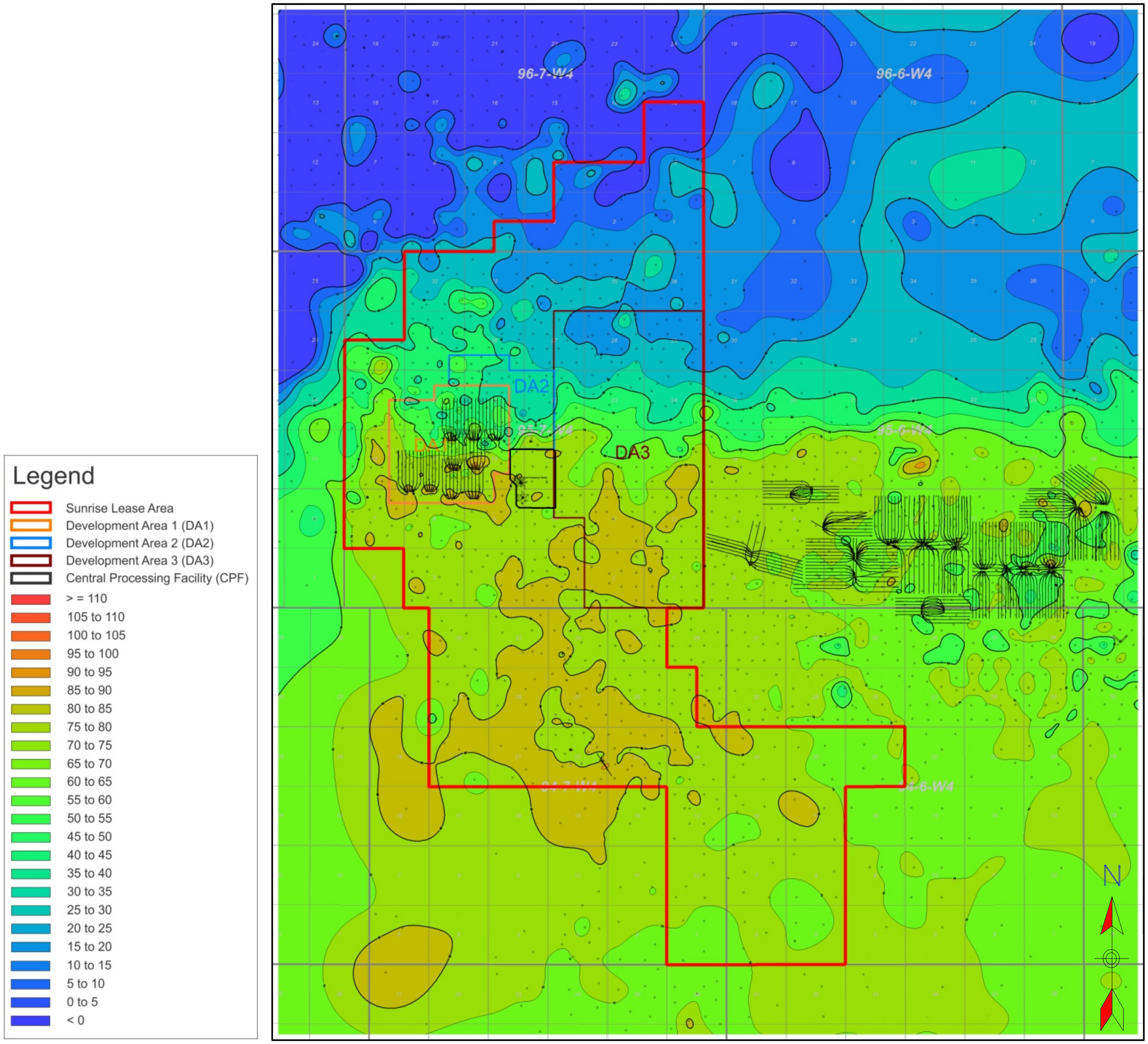
McMurray Fm. Units (MU)

- **MU5**: McMurray Unit 5
- **MU4**: McMurray Unit 4 ("upper McMurray")
- **MU3**: McMurray Unit 3 ("middle McMurray")
- **MU2**: McMurray Unit 2
- **MU1**: McMurray Unit 1 ("lower McMurray")

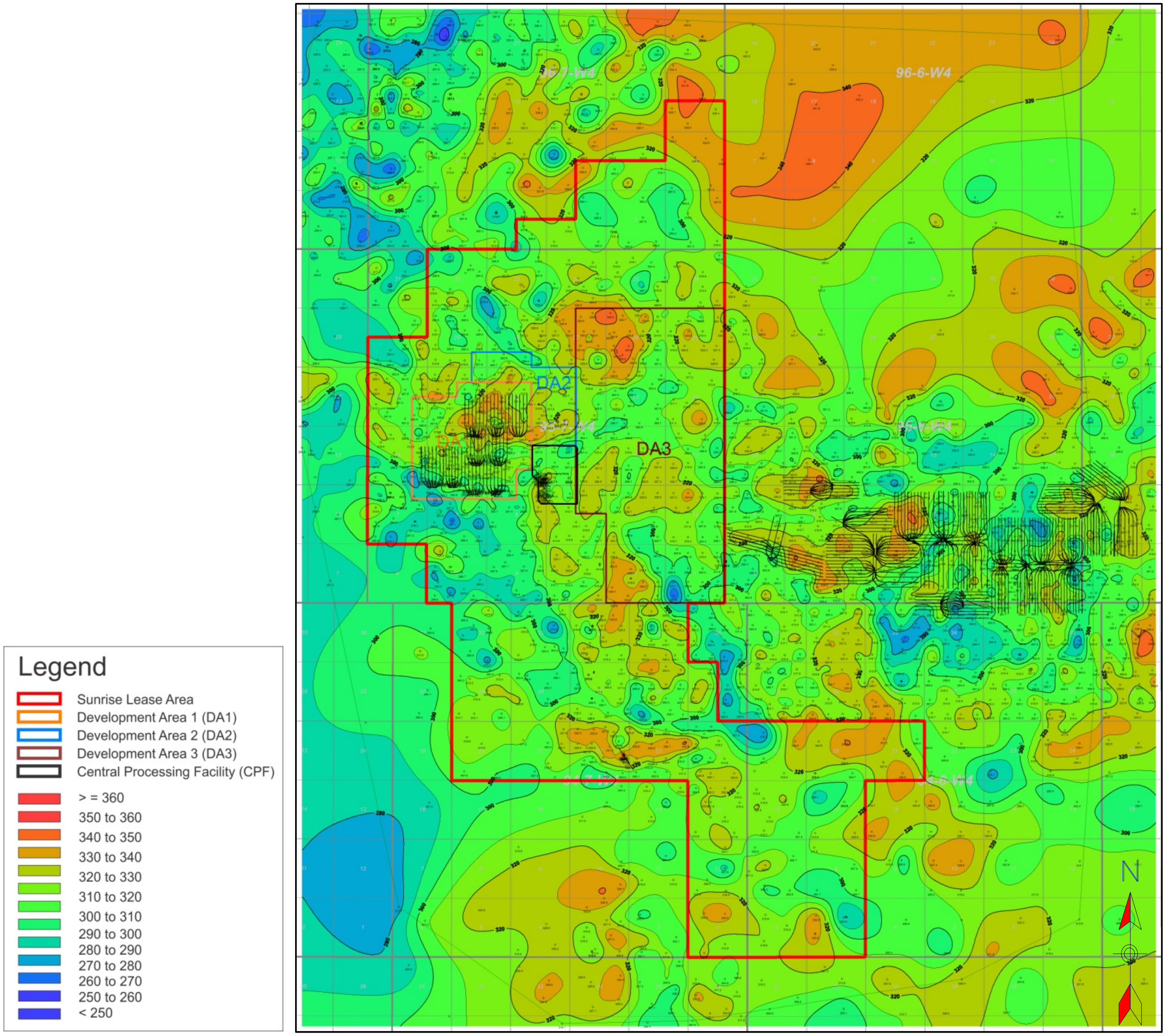
Stratigraphic Surfaces

- **MXFS**: Maximum Flooding Surface
- **WRS**: Wave Ravinement Surface
- **BMFS**: Bay Margin Flooding Surface
- **WTFS**: Within-Trend Flooding Surface
- **WTRS**: Within-Trend Regressive Surface
- **TRS**: Tidal Ravinement Surface
- **SB**: Sequence Boundary

Clearwater Formation Isopach Map



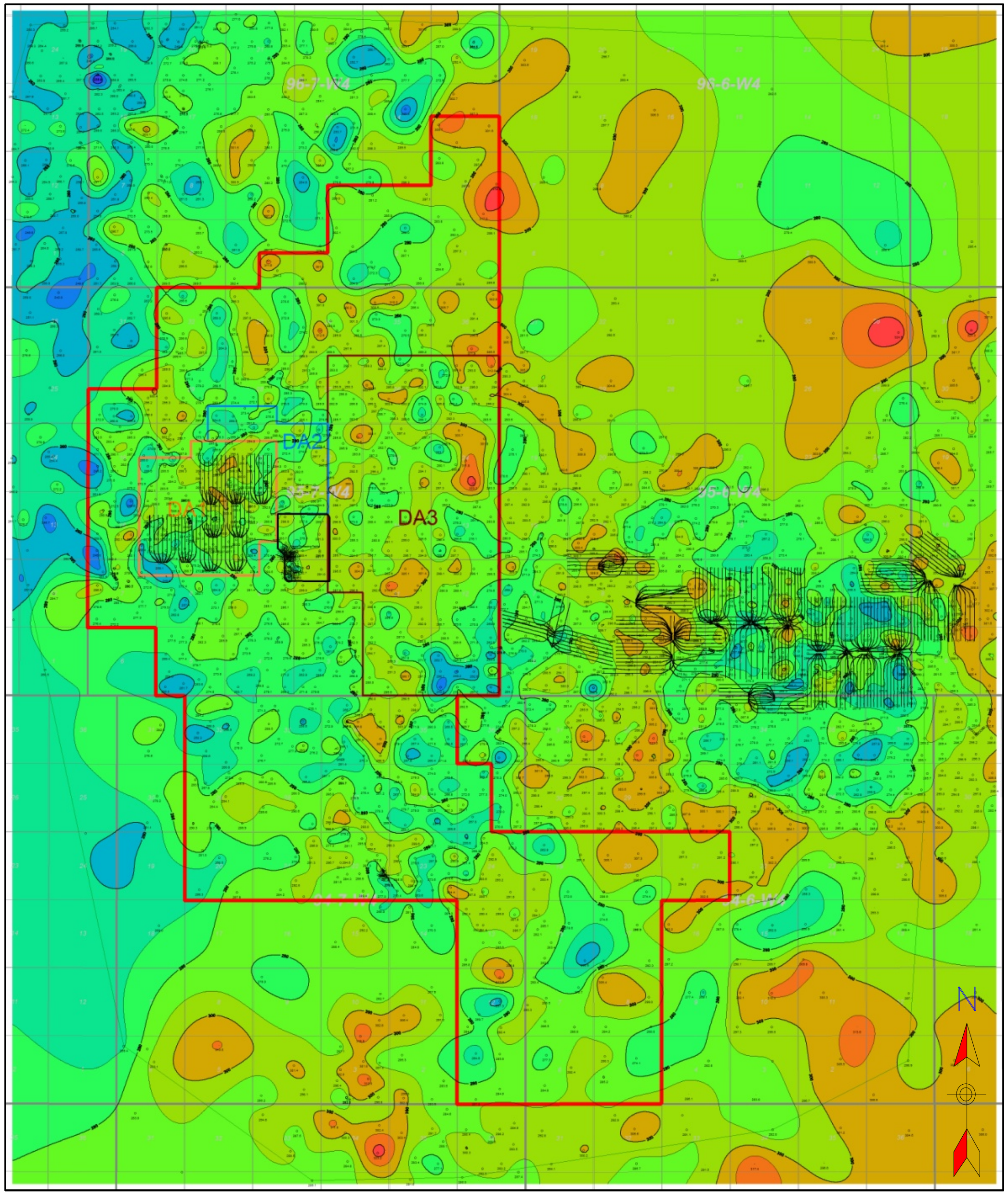
Structure Contour Map Top of Pay



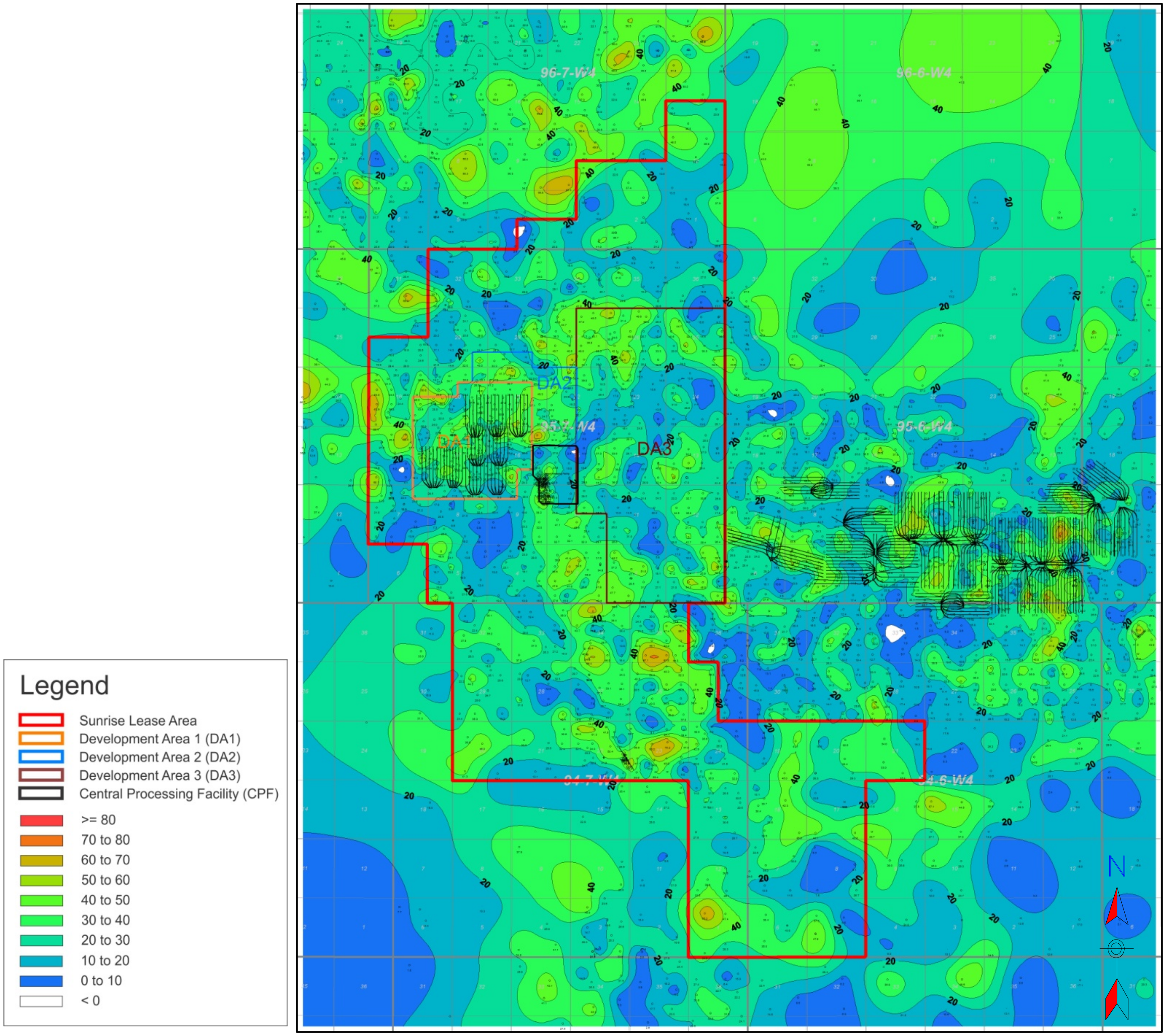
Structure Contour Map Base of Pay

Legend

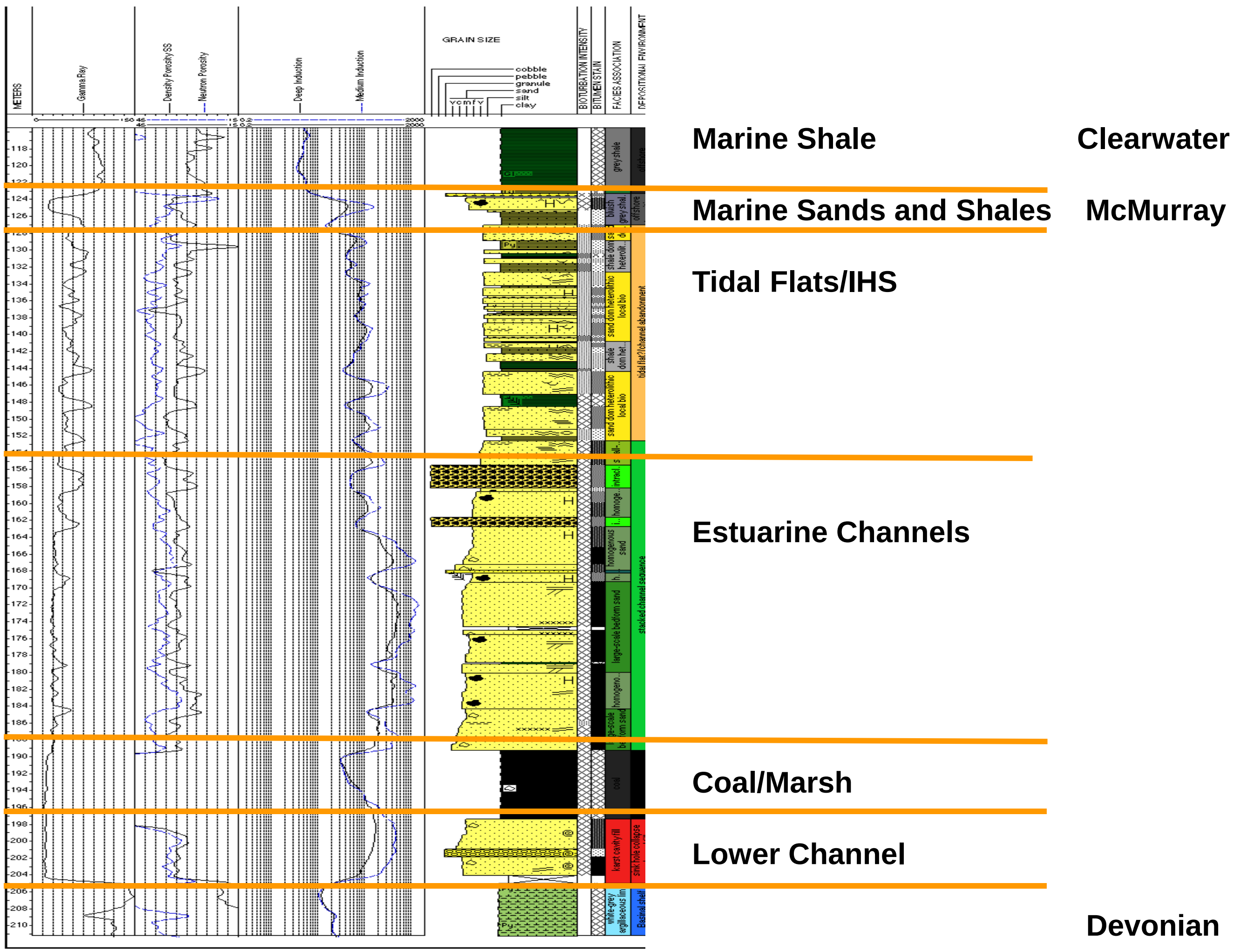
- Sunrise Lease Area
- Development Area 1 (DA1)
- Development Area 2 (DA2)
- Development Area 3 (DA3)
- Central Processing Facility (CPF)
- > = 330
- 320 to 330
- 310 to 320
- 300 to 310
- 290 to 300
- 280 to 290
- 270 to 280
- 260 to 270
- 250 to 260
- 240 to 250
- 230 to 240
- < 230



Isopach Map of the Main Pay Zone

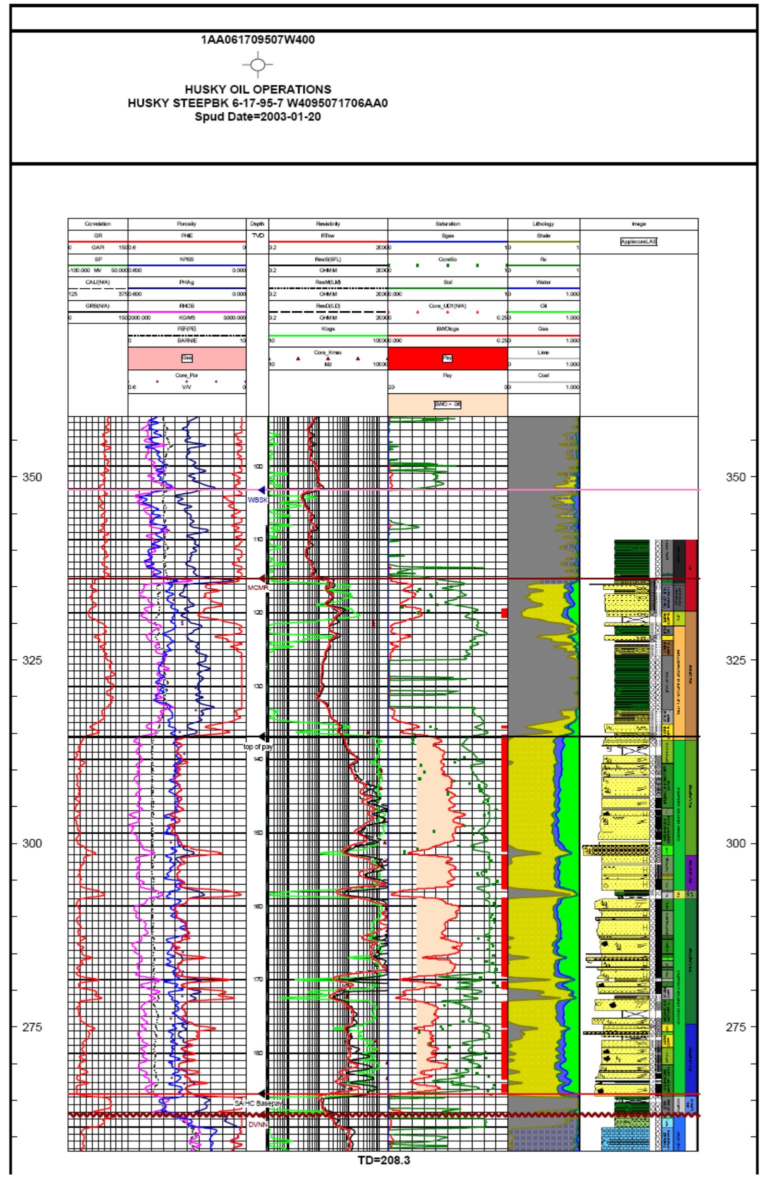


Depositional Environment



Composite Well Log

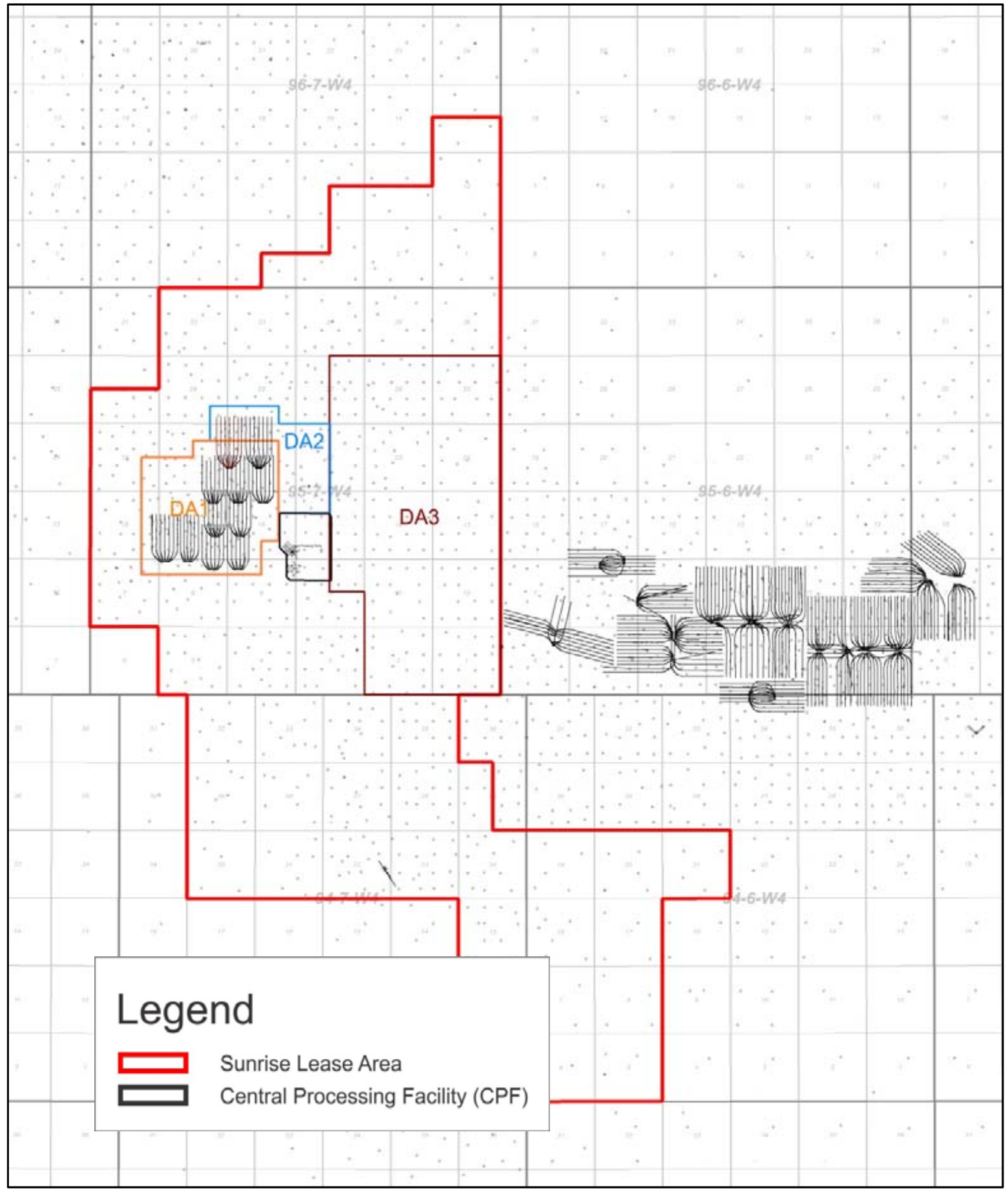
- Well 06-17-095-07W4M



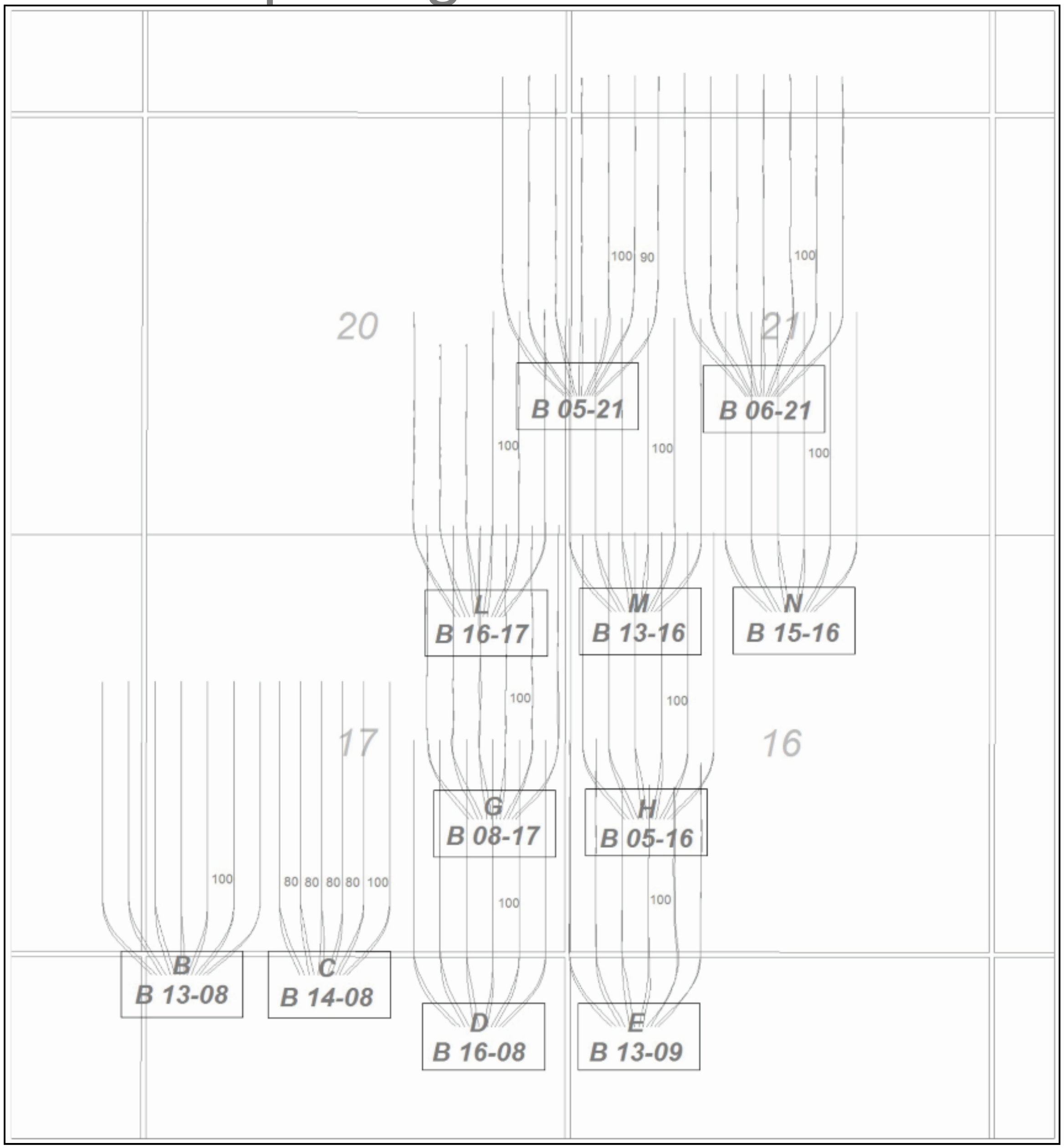
Vertical and Horizontal Wells

2015 Program:
- No vertical well program
- 14 horizontal well pairs (DA2)

2016 Program:
- No vertical wells
- No horizontal wells



Pad Interwell Spacing Schematic



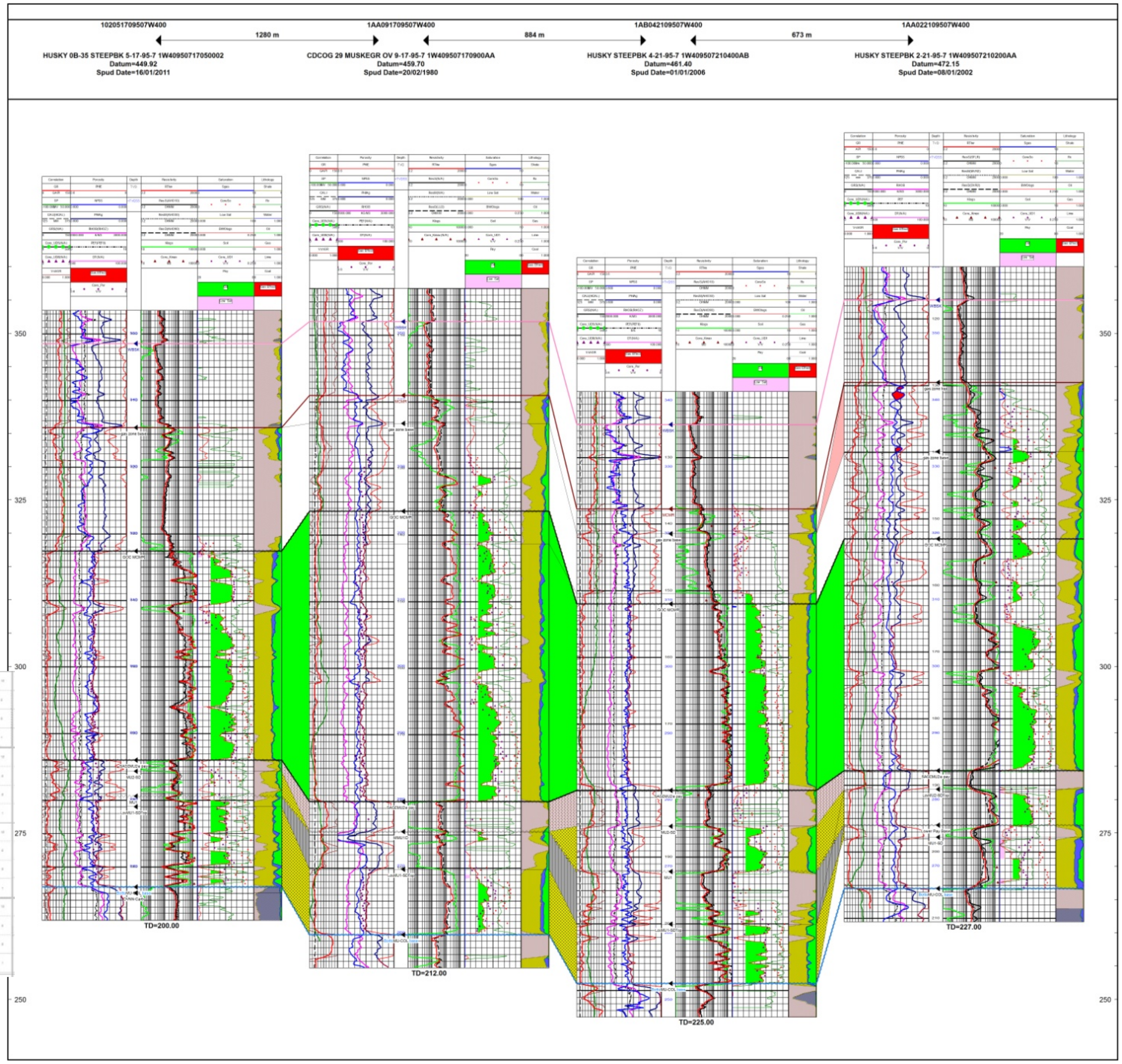
Pad Inter-well Spacing

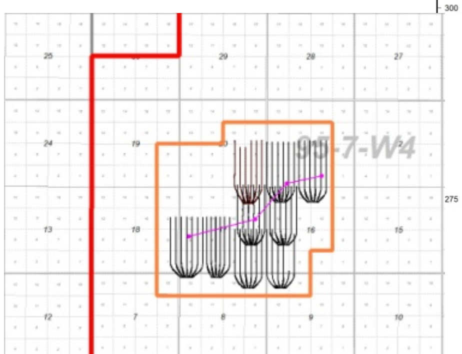
Well Pad	Inter-well Spacing (meters)
B13-08	100
B14-08	80
B16-08	100
B13-09	100
B08-17	100
B05-16	100
B16-17	100
B13-16	100
B15-16	100
B05-21	100 (P6-7 90)
B06-21	100

Petrographic Analysis

- No petrographic analysis was done during the reporting period

Representative Structural E-W Cross-section through the Approval DA1

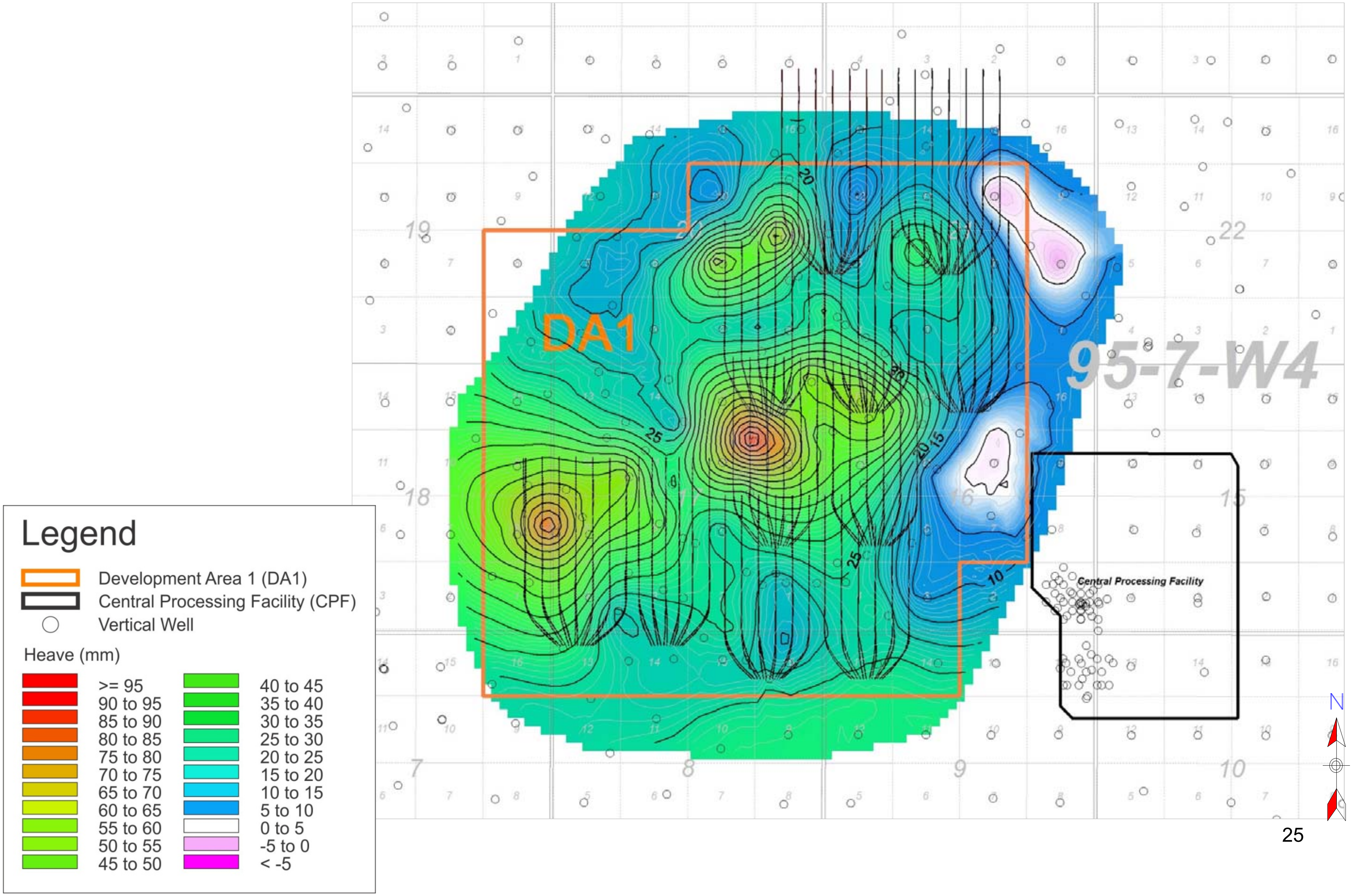




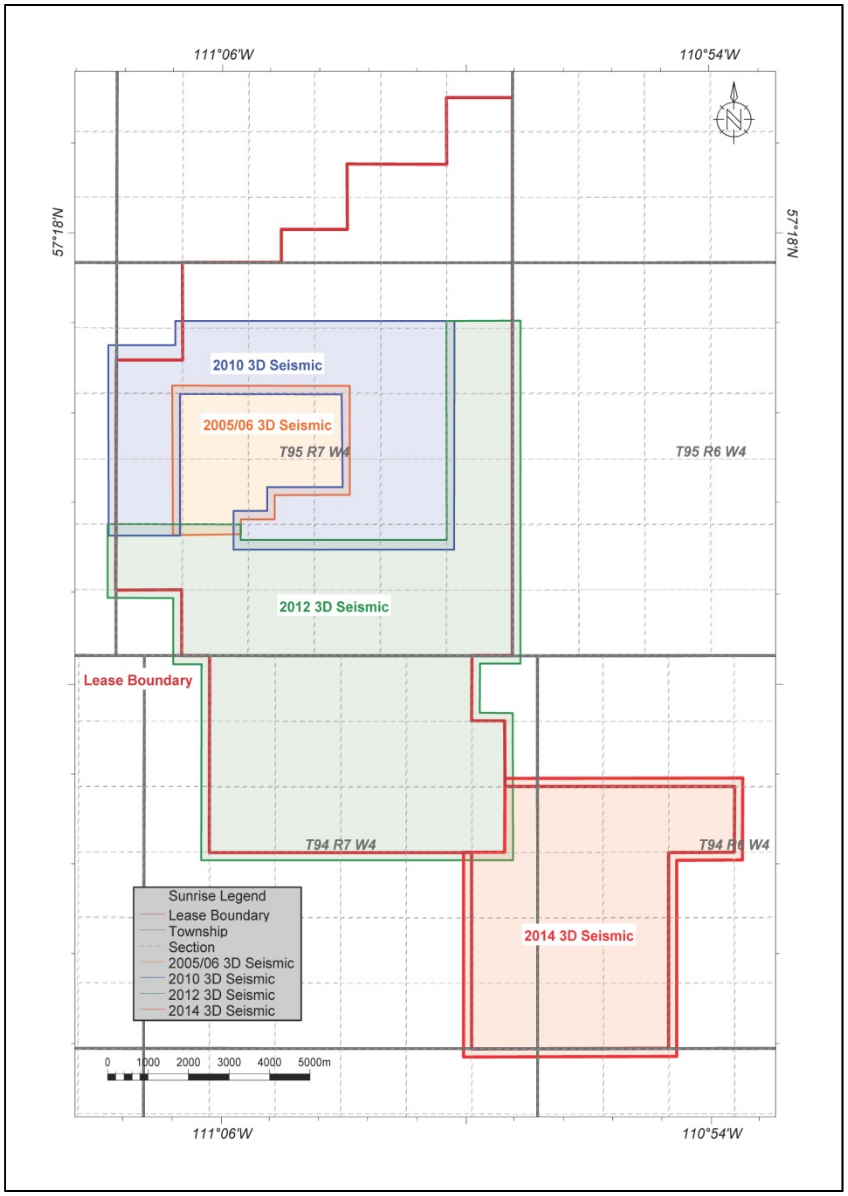
Geomechanical Data

- No geomechanical data was acquired during the reporting period

Surface Heave to June 9, 2016



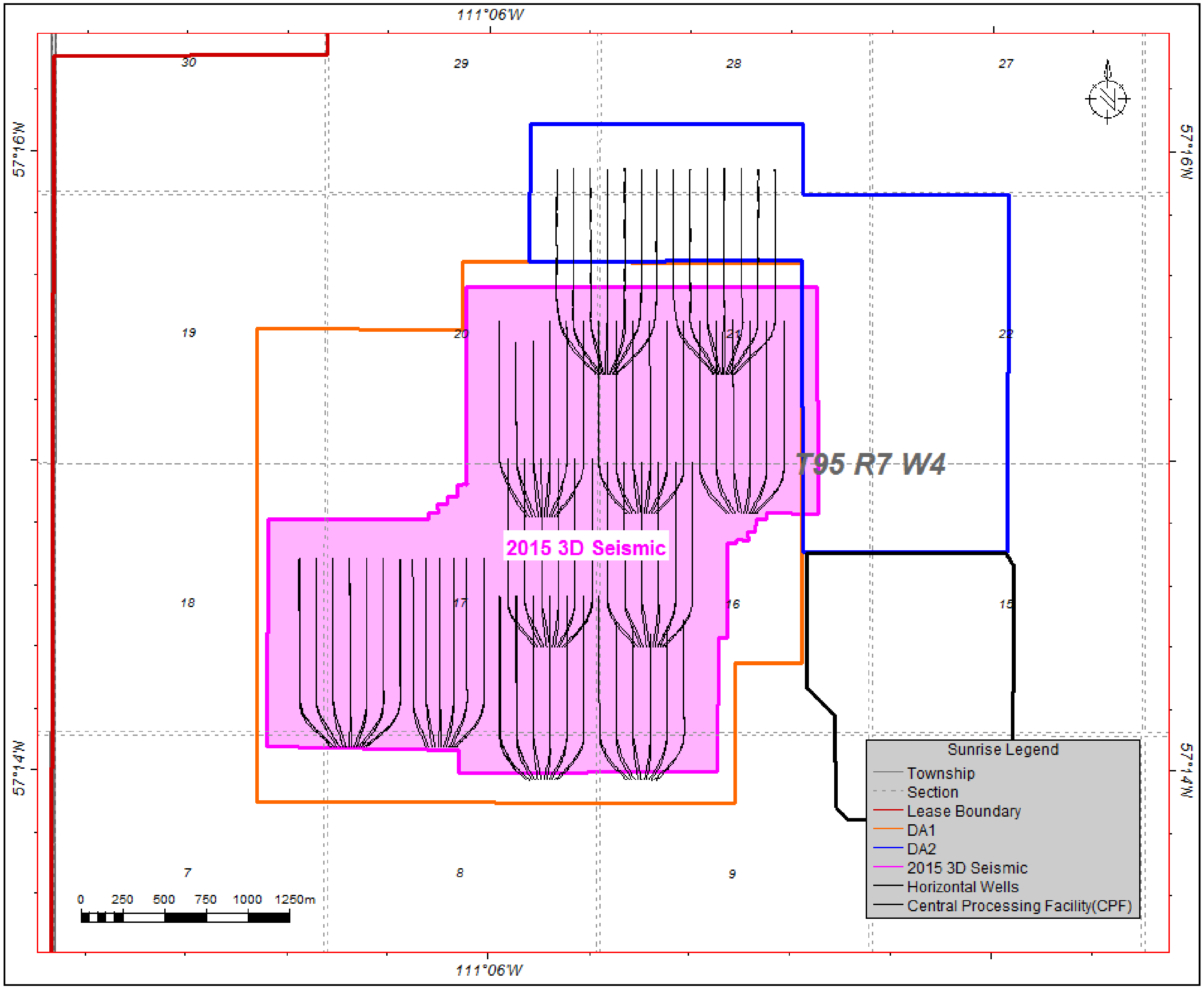
3D Seismic Coverage



3D Seismic

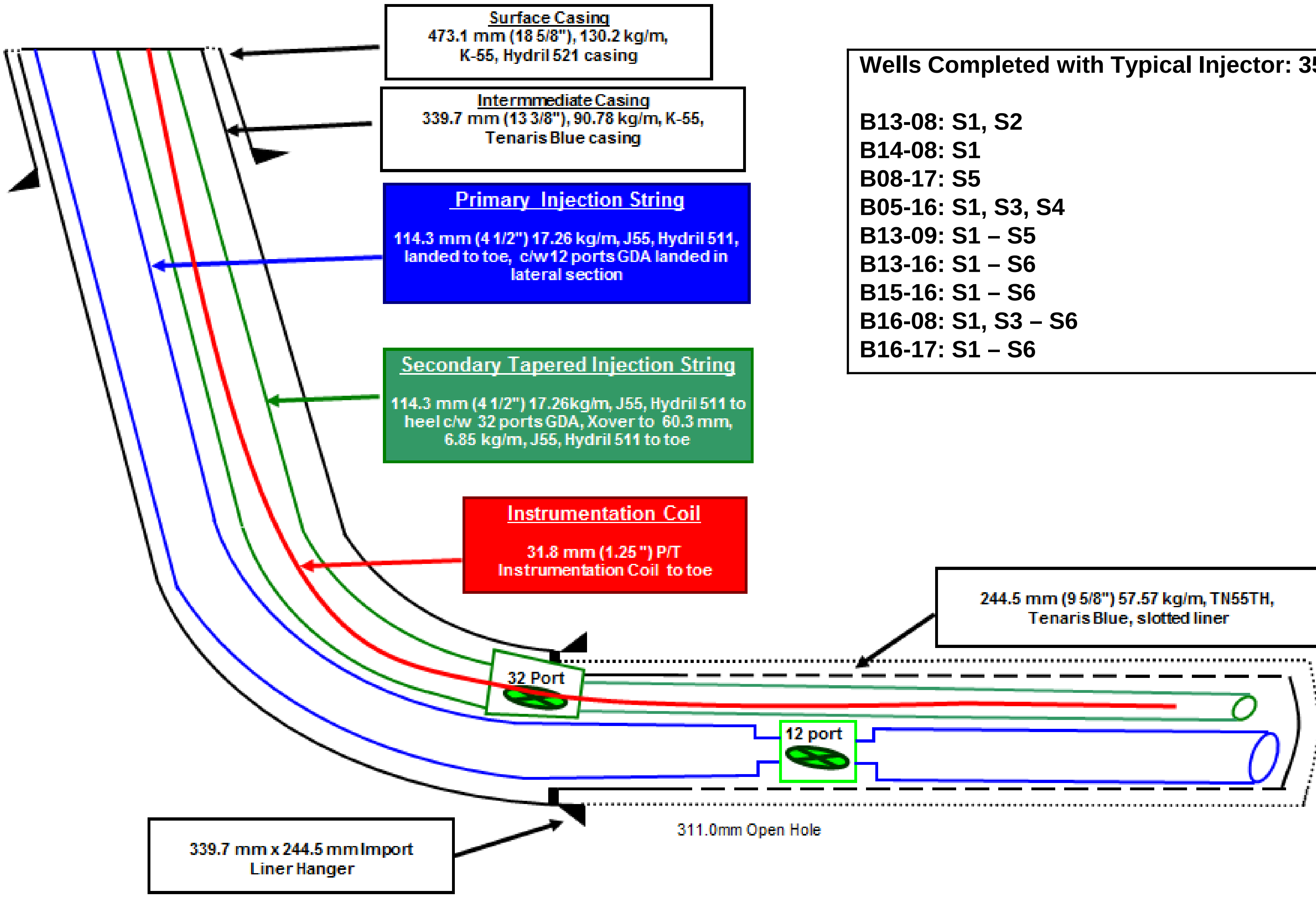
2016 Program:

- Processing of the 2015 baseline seismic data



3. Drilling and Completions

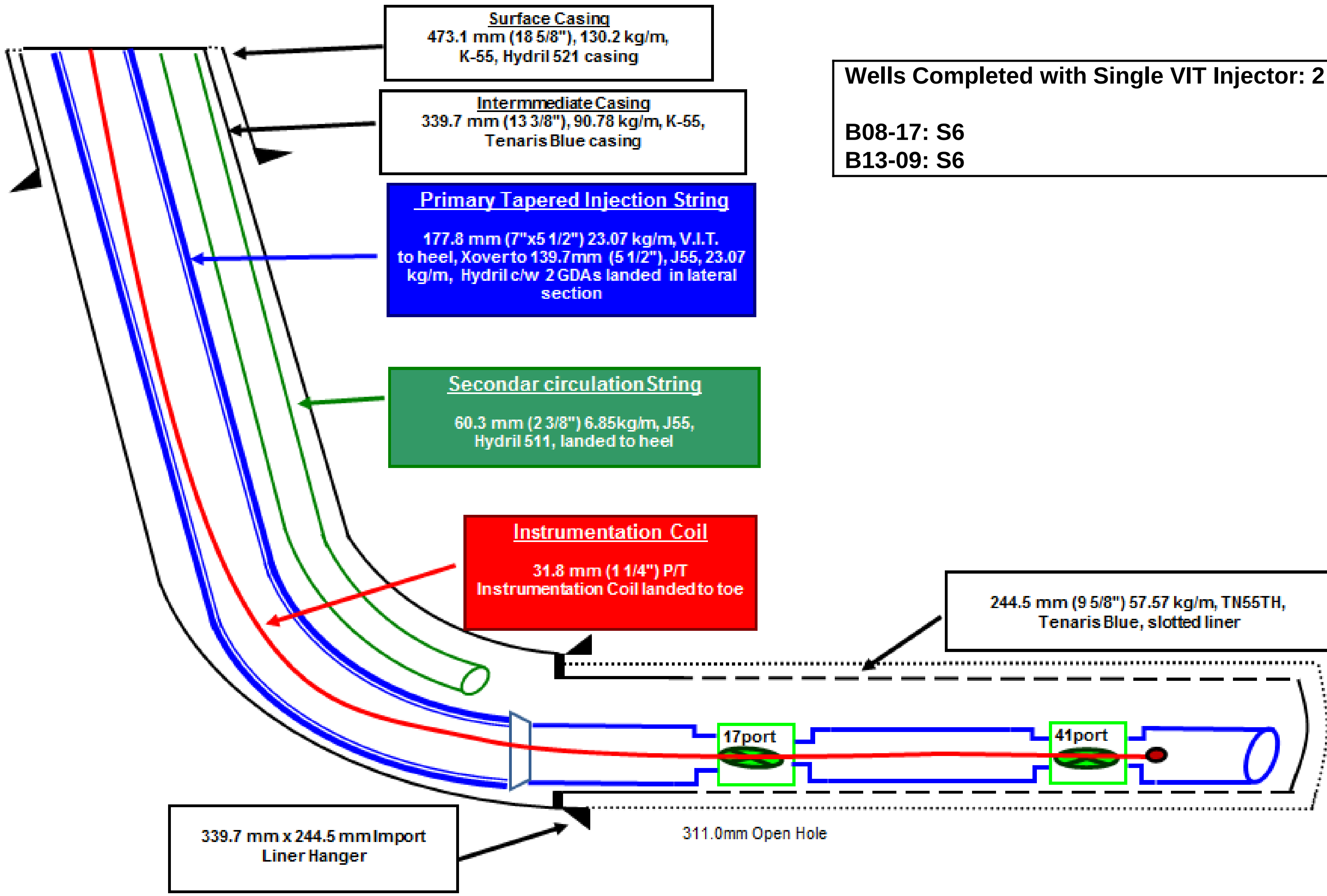
SAGD Well Design: Typical Injector Well (DA1)



Wells Completed with Typical Injector: 35

B13-08: S1, S2
B14-08: S1
B08-17: S5
B05-16: S1, S3, S4
B13-09: S1 – S5
B13-16: S1 – S6
B15-16: S1 – S6
B16-08: S1, S3 – S6
B16-17: S1 – S6

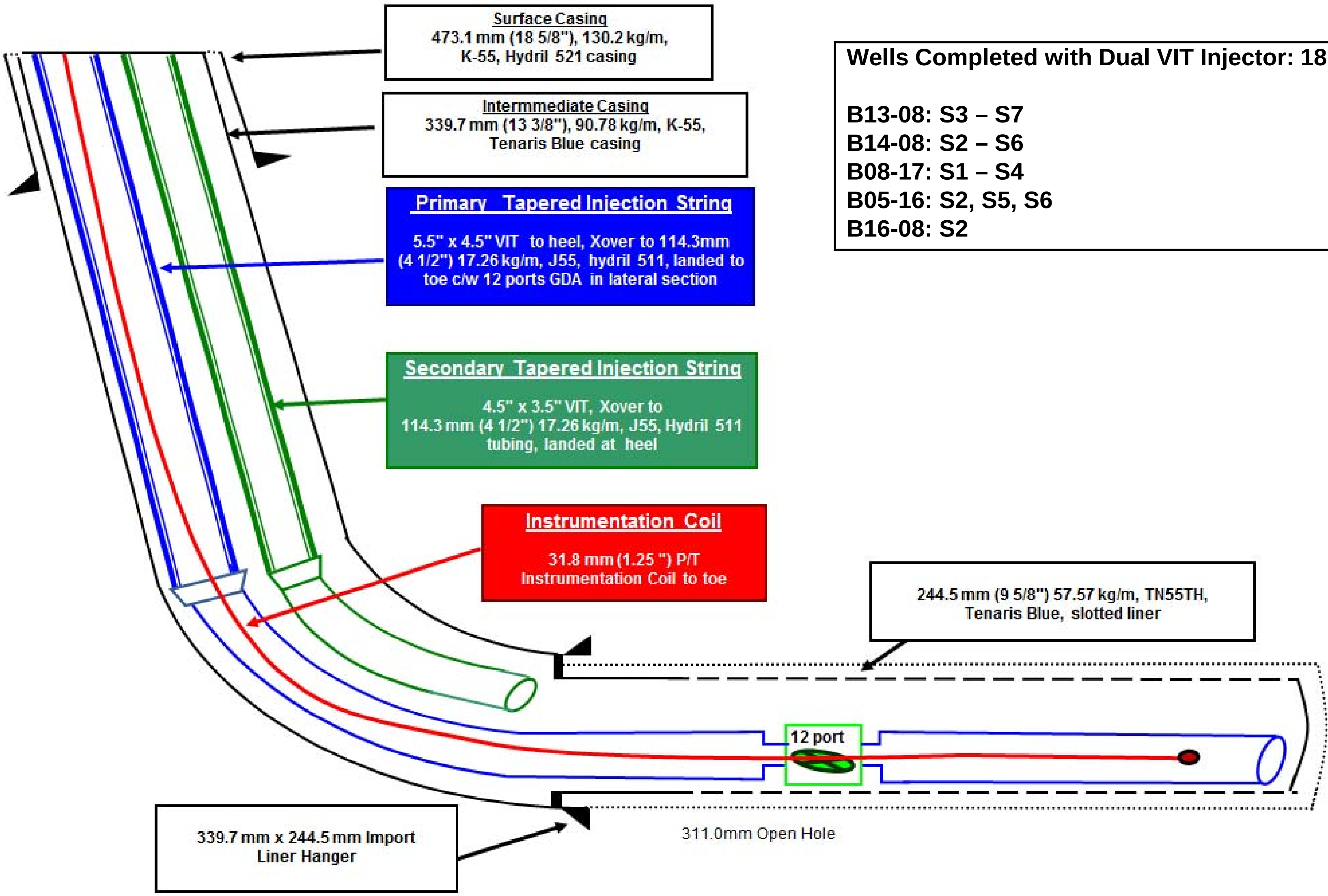
SAGD Well Design: Typical Injector Well - VIT (DA1)



Wells Completed with Single VIT Injector: 2

B08-17: S6
B13-09: S6

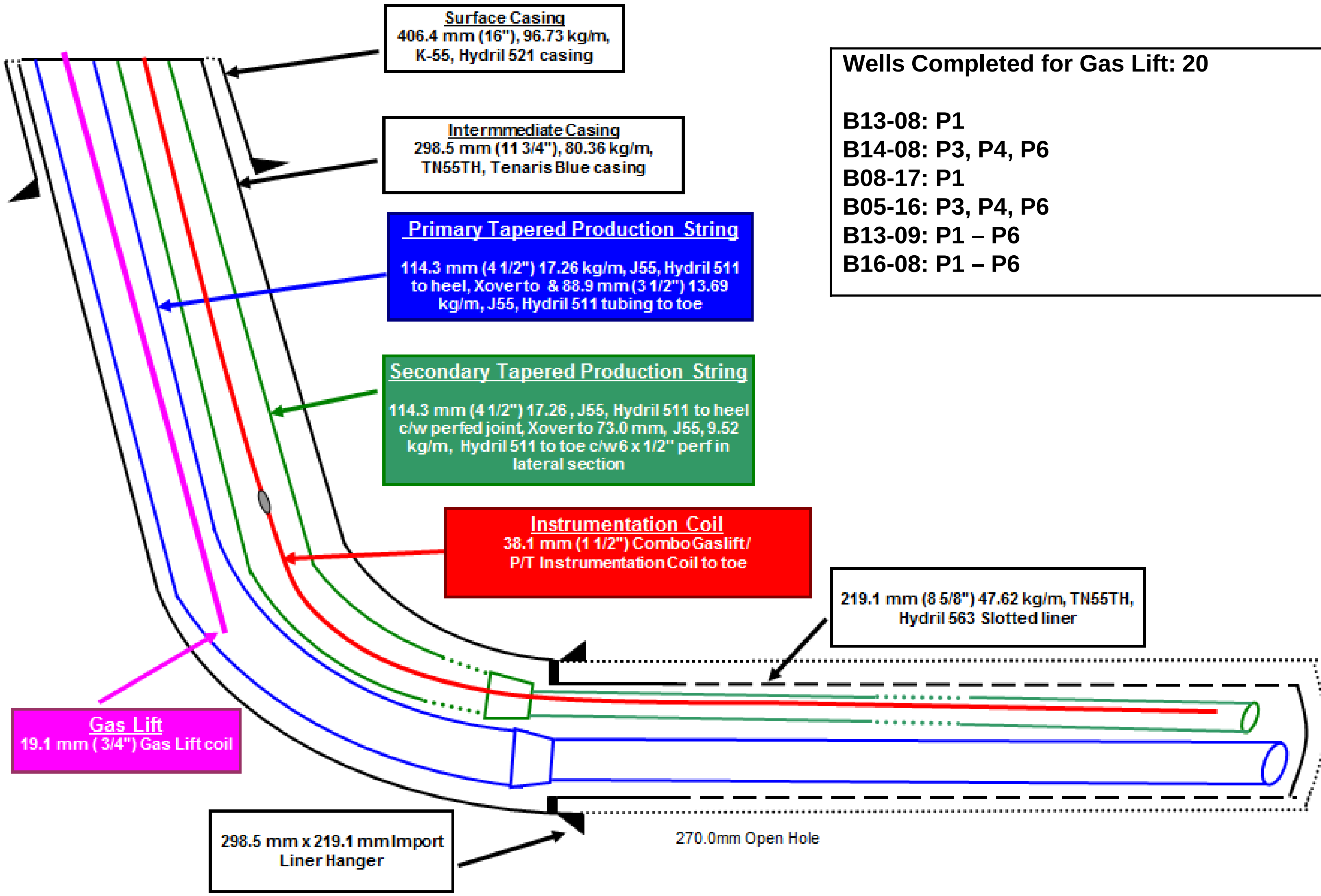
SAGD Well Design: Typical Injector Well – Dual VIT (DA1)



Wells Completed with Dual VIT Injector: 18

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

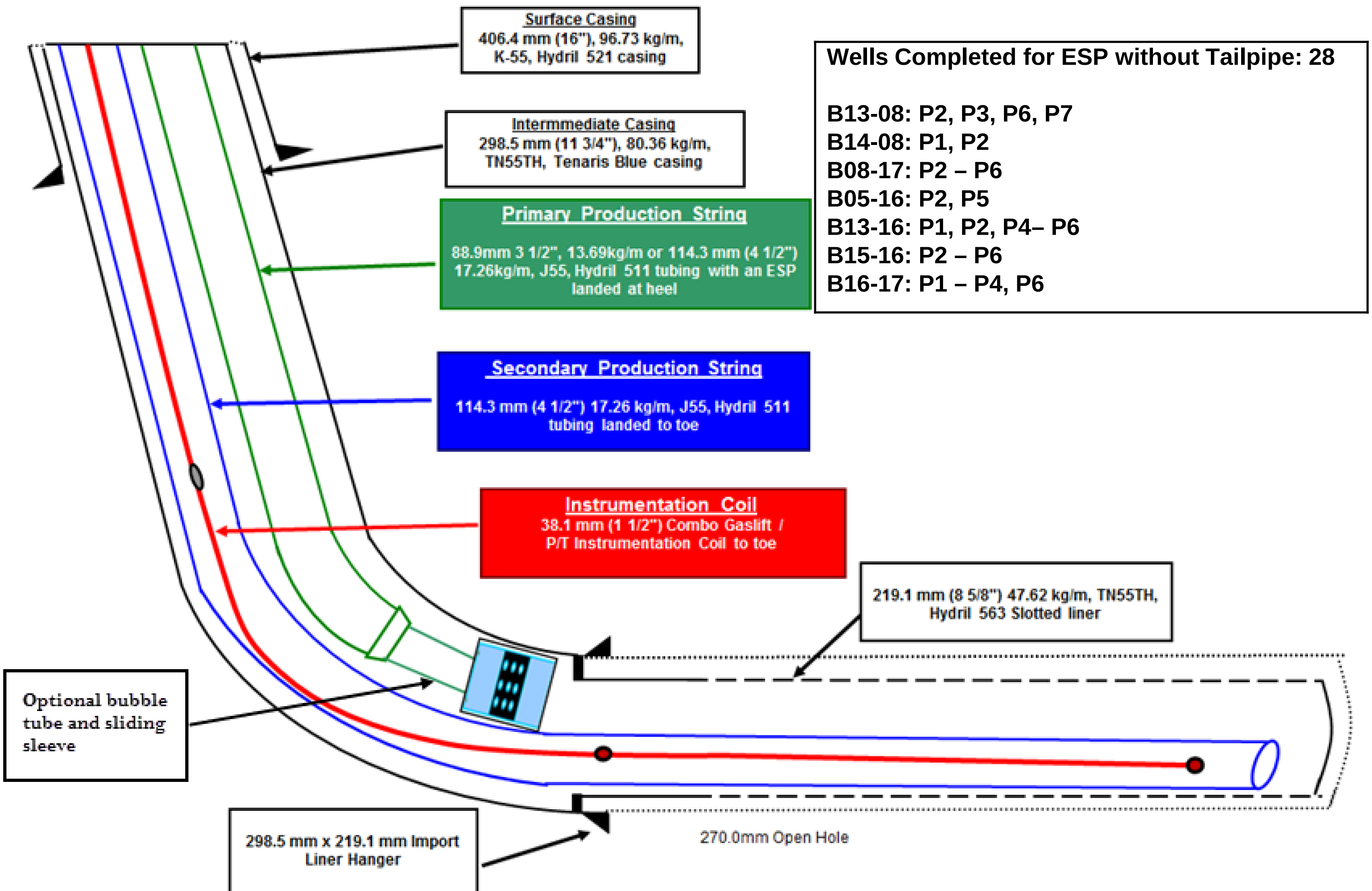
SAGD Well Design: Typical Producer Well – Gas Lift (DA1)



Wells Completed for Gas Lift: 20

B13-08: P1
B14-08: P3, P4, P6
B08-17: P1
B05-16: P3, P4, P6
B13-09: P1 – P6
B16-08: P1 – P6

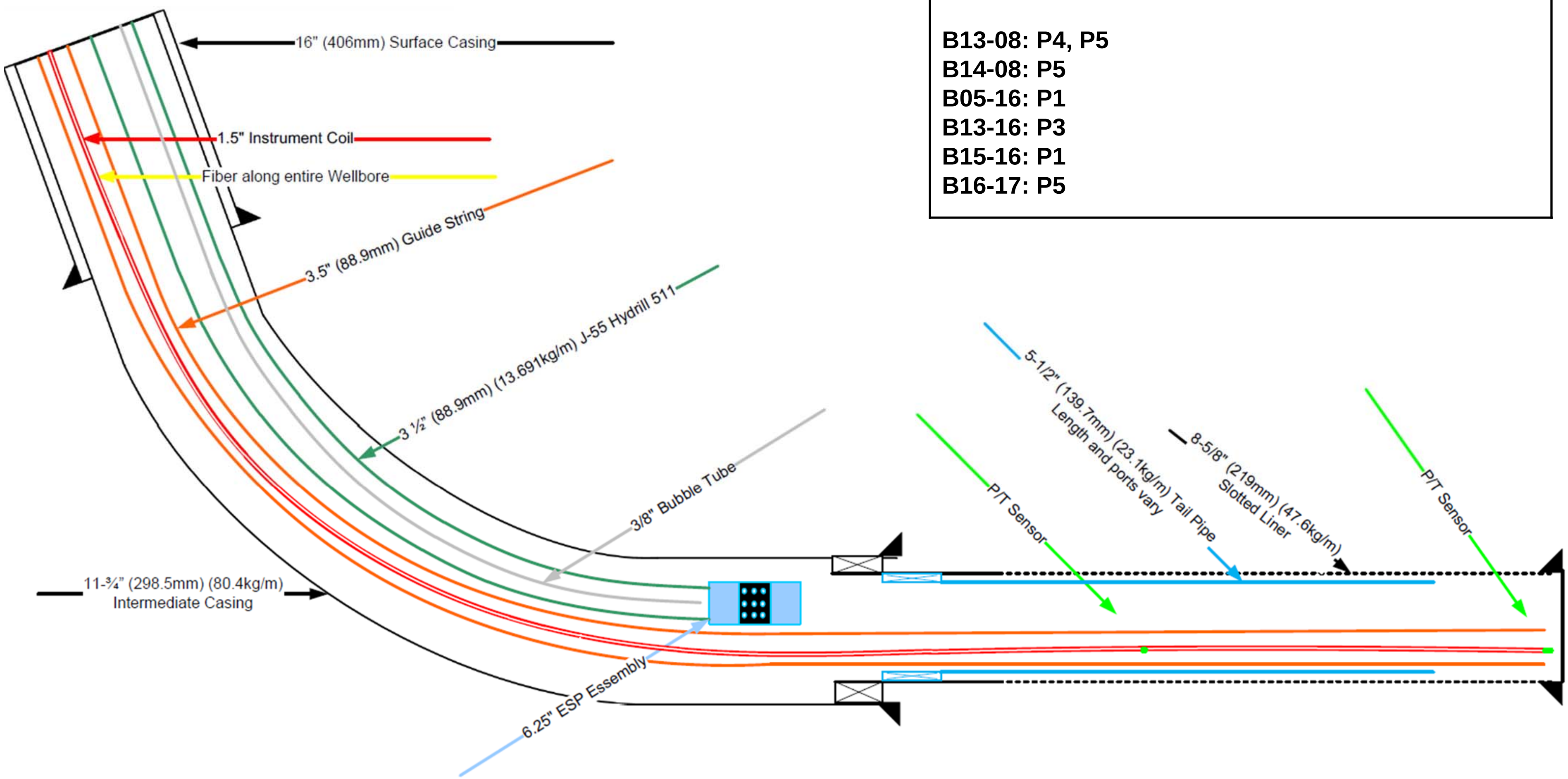
SAGD Well Design: Typical Producer Well – ESP without Tailpipe (DA1)



Wells Completed for ESP without Tailpipe: 28

B13-08: P2, P3, P6, P7
B14-08: P1, P2
B08-17: P2 – P6
B05-16: P2, P5
B13-16: P1, P2, P4– P6
B15-16: P2 – P6
B16-17: P1 – P4, P6

SAGD Well Design: Typical Producer Well – ESP with tail pipe (DA1)



Wells Completed for ESP with tail pipe: 7

B13-08: P4, P5
B14-08: P5
B05-16: P1
B13-16: P3
B15-16: P1
B16-17: P5

4. Artificial Lift

Artificial Lift

- All producer wells on SAGD mode are equipped with either gas-lift or electric submersible pumps (ESP's)

- Gas-lift operational parameters:
  - Bottom hole Pressure: 1,000 kPa – 1,600 kPa
  - Bottom hole Temperature: 100 – 200 ºC
  - Surface Temperature: 100 – 175 ºC
  - Gas Injection rate: 1,000 – 10,000 Sm^3/day

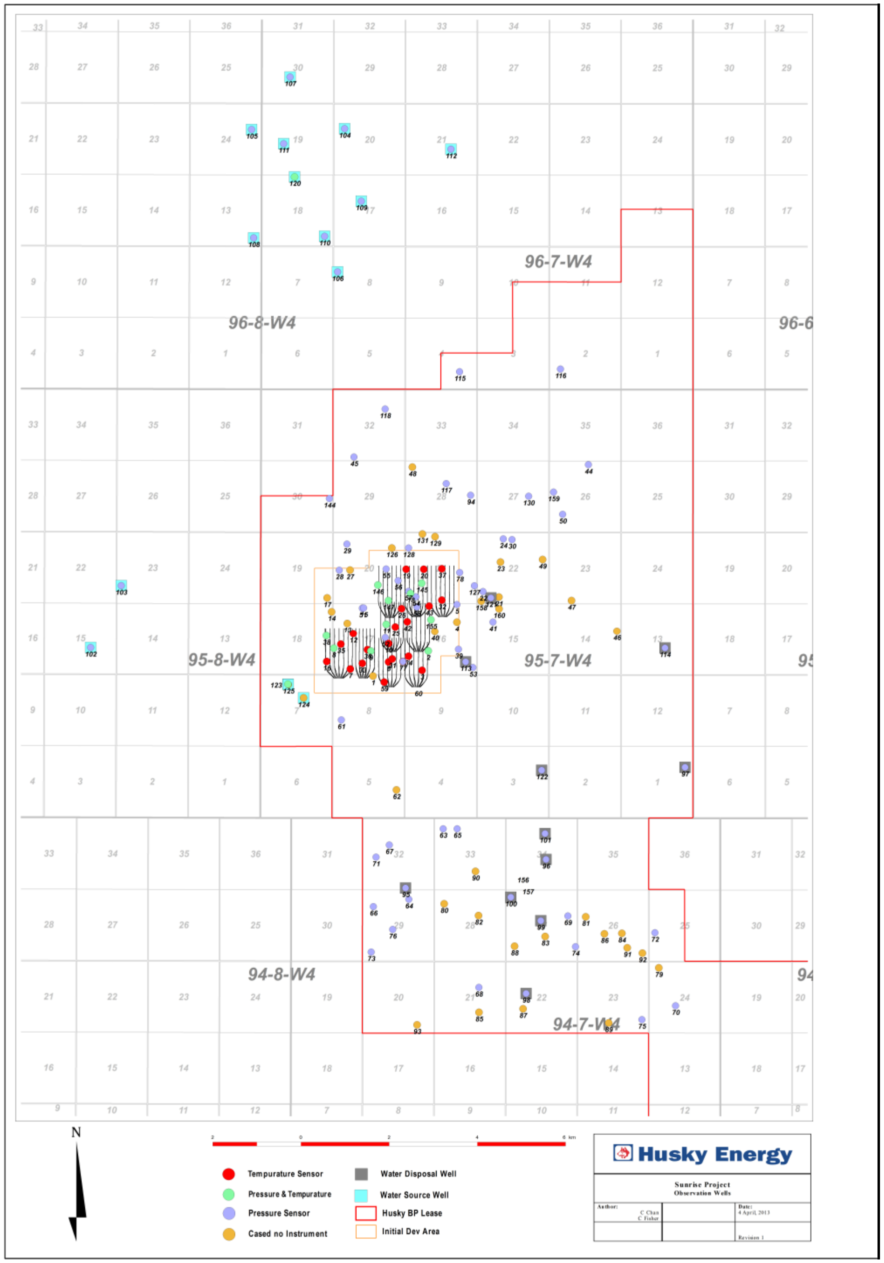
- ESP operational parameters:
  - Bottom hole Pressure: 600 kPa – 1,600 kPa
  - Bottom hole Temperature: 100 – 200 ºC
  - Surface Temperature: 100 – 175 ºC
  - Emulsion Production rate: 60 – 1,600 m^3/day

Gas Lift Production (20 wells)	**B13-08: P1** **B14-08: P3, P4, P6** **B08-17: P1** **B05-16: P3, P4, P6** **B13-09: P1 – P6** **B16-08: P1 – P6**
ESP Production (35 wells)	**B13-08: P2, P3*, P4 – P7** **B14-08: P1, P2*, P5** **B08-17: P2*, P3 – P6** **B05-16: P1, P2*, P5*** **B13-16: P1 – P6** **B15-16: P1 – P6** **B16-17: P1 – P6**

*** wells rely on downhole gauge pressures rather than bubble tubes for pressure**

5. Instrumentation in Wells

Instrumentation – Observation Wells Map



Instrumentation – Observation Wells List

New Well Name	License Number	Downhole Instrumentation - Piezometers (P) or Pressure/Temperature Gauge (PG)	Downhole Instrumentation - Thermocouples	Spud Date
HUSKY OB-1 STEEPBK 15-8-95-7	0387816			1/24/2008
HUSKY OB-2 STEEPBK 5-16-95-7	0388000	P (6)	T	2/23/2008
HUSKY OB-3 STEEPBK 4-16-95-7	0387999		T	1/21/2008
HUSKY OB-4 STEEPBK 10-16-95-7	0387993			1/11/2008
HUSKY OB-5 STEEPBK 15-16-95-7	0387992	P (6)		2/28/2008
HUSKY OB-6 STEEPBK 1-17-95-7	0387662		T	1/6/2008
HUSKY OB-7 STEEPBK 4-17-95-7	0388021		T	1/15/2008
HUSKY OB-8 STEEPBK 5-17-95-7	0387994	P (6)	T	2/11/2008
HUSKY OB-9 STEEPBK 7-17-95-7	0388098	P (6)	T	2/16/2008
HUSKY OB-10 STEEPBK 8-17-95-7	0388099		T	1/7/2008
HUSKY OB-11 STEEPBK 10-17-95-7	0388100	P (4) + B.T. (1)	T	2/20/2008
HUSKY OB-12 STEEPBK 11-17-95-7	0388101		T	1/12/2008
HUSKY OB-13 STEEPBK 13-17-95-7	0388102			1/17/2008
HUSKY OB-14 STEEPBK 16-18-95-7	0387991			1/21/2008
HUSKY OB-15 STEEPBK 14-17-95-7	0323815	P (5) + B.T. (1)	cemented	6/27/2005
HUSKY OB-16 STEEPBK 1-18-95-7	0387998		T	2/6/2008
HUSKY OB-17 STEEPBK 1-19-95-7	0388807			3/10/2008
HUSKY OB-18 STEEPBK 4-21-95-7	0388808	P (3)	T	3/2/2008
HUSKY OB-19 STEEPBK 6-21-95-7	0388806		T	3/12/2008
HUSKY OB-20 STEEPBK 8-21-95-7	0388805		T	3/10/2008
HUSKY OB-21 STEEPBK 3-22-95-7	0388104			2/7/2008
HUSKY OB-22 STEEPBK 4-22-95-7	0391266	P (6)		3/4/2008
HUSKY OB-23 STEEPBK 11-22-95-7	0388105			2/4/2008
HUSKY OB-24 STEEPBK 14-22-95-7	0388106	PG		3/4/2008
HUSKY OB-25 STEEPBK 8-17-95-7	0430827		T	2/10/2011
HUSKY OB-26 STEEPBK 16-17-95-7	0428000		T	1/22/2011
HUSKY OB-27 STEEPBK 5-20-95-7	0428458			1/12/2011
HUSKY OB-28 STEEPBK 5-30-95-7	0428380	P (5)		1/6/2011
HUSKY OB-29 STEEPBK 13-20-95-7	0428993	P (6)		1/6/2011
HUSKY OB-30 STEEPBK 14-22-95-7	0430161	PG		2/17/2011
HUSKY OB-31 STEEPBK 1-17-95-7	0428815		T	2/5/2011
HUSKY OB-32 STEEPBK 2-21-95-7	0429146		T	2/12/2011
HUSKY OB-33 STEEPBK 3-17-95-7	0428809		T	1/20/2011
HUSKY OB-34 STEEPBK 5-16-95-7	0428818		T	2/1/2011
HUSKY OB-35 STEEPBK 5-17-95-7	0428145		T	1/16/2011
HUSKY OB-36 STEEPBK 6-17-95-7	0428403		T	2/4/2011
HUSKY OB-37 STEEPBK 7-21-95-7	0428399		T	2/15/2011
HUSKY OB-38 STEEPBK 8-18-95-7	0428404	P (6)	T	1/11/2011
HUSKY OB-39 STEEPBK 7-16-95-7	0430376	P (6)		1/4/2012
HUSKY OB-40 STEEPBK 11-16-95-7	0428298			2/6/2011
HUSKY OB-41 STEEPBK 12-15-95-7	0429670	P (6)		1/16/2011
HUSKY OB-42 STEEPBK 12-16-95-7	0428713		T	2/13/2011
HUSKY OB-43 STEEPBK 14-16-95-7	0428111		T	2/1/2011
HUSKY OB-44 STEEPBK 16-21-95-7	0430112	PG		2/19/2011
HUSKY OB-45 STEEPBK 3-22-95-7	0430049	PG		3/7/2011
HUSKY OB-46 STEEPBK 9-14-95-7	0430358			3/22/2011
HUSKY OB-47 STEEPBK 3-23-95-7	0430097			3/15/2011
HUSKY OB-48 STEEPBK 13-28-95-7	0429927			3/3/2011
HUSKY OB-49 STEEPBK 9-22-95-7	0430183			3/19/2011
HUSKY OB-50 STEEPBK 4-26-95-7	0430380	PG		2/21/2011
HUSKY OB-51 MFOR D STEEPBK 14-1	0343952	P (6)	cemented	1/7/2006
HUSKY OB-52 STEEPBK 10-17-95-7	0323817	P (5) + B.T. (1)	cemented	2/6/2005
HUSKY OB-53 C STEEPBK 1-16-95-7	0343949	P (4)	cemented	12/15/2005
HUSKY OB-54 1V01 STEEPBK 4-21-95	0417750	P (2)	cemented	2/16/2010
HUSKY OB-55 1A8 STEEPBK 7-20-95-	0417694	P (2)	cemented	1/26/2010
HUSKY OB-56 STEEPBK 8-20-95-7	0418062	P (2)	cemented	2/21/2010
HUSKY OB-57 1Y6 STEEPBK 4-21-95-7	0417637	P (2)	cemented	2/2/2010
HUSKY OB-58 1Y7 STEEPBK 13-16-95	0417754	P (2)	cemented	2/11/2010
HUSKY OB-59 STEEPBK 15-8-95-7	Y0002686		T	22/03/1964
HUSKY OB-60 R 13-9 PR STEEPBK 4-1	0434958		T	2/10/2011
HUSKY OB-61 STEEPBK 5-8-95-7	0441331	PG		2/6/2012
HUSKY OB-62 STEEPBK 8-8-95-7	0440667			2/14/2012
HUSKY OB-63 STEEPBK 13-33-94-7	0452132	P (2)		3/17/2013
HUSKY OB-64 STEEPBK 15-29-94-7	0452096	P (4)		3/9/2013
HUSKY OB-65 STEEPBK 14-33-94-7	0452081	P (3)		3/26/2013
HUSKY OB-66 STEEPBK 13-29-94-7	0451950	P (4)		3/13/2013
HUSKY OB-67 STEEPBK 11-32-94-7	0451986	P (3)		3/13/2013
HUSKY OB-68 STEEPBK 10-21-94-7	0451963	P (3)		2/25/2013
HUSKY OB-69 STEEPBK 8-27-94-7	0452011	P (3)		3/4/2013
HUSKY OB-70 STEEPBK 6-24-94-7	0453872	P (3)		2/25/2013
HUSKY OB-71 STEEPBK 5-32-94-7	0452211	P (3)		3/8/2013
HUSKY OB-72 STEEPBK 5-25-94-7	0452259	P (3)		1/10/2013
HUSKY OB-73 STEEPBK 4-29-94-7	0453941	P (3)		2/20/2013
HUSKY OB-74 STEEPBK 1-27-94-7	0451935	P (3)		3/3/2013
HUSKY OB-75 STEEPBK 1-23-94-7	0451815	P (3)		2/19/2013
HUSKY OB-76 STEEPBK 8-29-94-7	0451933	P (3)		3/17/2013
HUSKY OB-77 STEEPBK 1-17-95-7	0452022	P (3)	T	1/3/2013
HUSKY OB-78 STEEPBK 8-21-95-7	0451944	P (3)		1/9/2013
HUSKY OB-79 STEEPBK 13-24-94-7	0451938			2/17/2013
HUSKY OB-80 STEEPBK 13-28-94-7	0451945			3/3/2013
HUSKY OB-81 STEEPBK 12-26-94-7	0452023			2/12/2013
HUSKY OB-82 STEEPBK 10-28-94-7	0451937			3/7/2013
HUSKY OB-83 STEEPBK 7-27-94-7	0452215			1/4/2013
HUSKY OB-84 STEEPBK 7-26-94-7	0451970			1/18/2013
HUSKY OB-85 STEEPBK 7-21-94-7	0452021			2/20/2013
HUSKY OB-86 STEEPBK 6-26-94-7	0452084			2/7/2013
HUSKY OB-87 STEEPBK 5-22-94-7	0452024			3/2/2013
HUSKY OB-88 STEEPBK 4-27-94-7	0452083			1/11/2013
HUSKY OB-89 STEEPBK 3-23-94-7	0452029			2/15/2013
HUSKY OB-90 STEEPBK 7-33-94-7	0453639			3/6/2013
HUSKY OB-91 STEEPBK 2-28-94-7	0453807			2/28/2013
HUSKY OB-92 STEEPBK 1-26-94-7	0452210			2/22/2013
HUSKY OB-93 STEEPBK 1-20-94-7	0451942			2/15/2013
HUSKY OB-94 STEEPBK 8-28-95-7	0451951	PG		1/4/2013
HUSKY KR-OB-95 STEEPBK 2-32-94-7	0452332	P(2)		2/24/2013
HUSKY KR-OB-96 STEEPBK 7-34-94-7	0452291	P(2)		2/4/2013
HUSKY KR-OB-97 STEEPBK 9-1-95-7	0452736	P(2)		2/12/2013
HUSKY KR-OB-98 STEEPBK 11-22-94-	0452280	P(2)		1/25/2013
HUSKY KR-OB-99 STEEPBK 11-27-94-	0452270	P(2)		1/25/2013
HUSKY KR-OB-100 STEEPBK 13-27-94	0452281	P(2)		1/18/2013
HUSKY KR-OB-101 STEEPBK 15-34-94	0452289	P(2)		1/31/2013
HUSKY SRC-OB-102 SUNRISE 7-15-95	0373494	P (2)		2/9/2007
HUSKY SRC-OB-103 SUNRISE 5-23-95	0373506	P (3)		2/13/2007
HUSKY SRC-OB-104 SUNRISE 12-20-9	0389637	P (2)		1/28/2008
HUSKY SRC-OB-105 SUNRISE 9-24-96	0383115	P (2)		9/18/2006
HUSKY SRC-OB-106 SUNRISE 12-8-96	0382623	P (2)		9/13/2006
HUSKY SRC-OB-107 SUNRISE 6-30-96	0389630	P (2)		2/14/2008
HUSKY SRC-OB-108 SUNRISE 1-13-96	0391346	P (2)		2/19/2008
HUSKY SRC-OB-109 SUNRISE 11-17-9	0389636	P (2)		1/19/2008
HUSKY SRC-OB-110 SUNRISE 1-18-96	0382886	P (2)		9/15/2006
HUSKY SRC-OB-111 SUNRISE 6-19-96	0382577	P (2)		9/13/2006
HUSKY SRC-OB-112 SUNRISE 7-21-95	0389635	P (2)		2/3/2008
HUSKY KR-OB-113 AZ1 STEEPBK 1-10	0316284	P		10/22/2004
HUSKY KR-OB-114 STEEPBK 7-13-95-	0325423	P		3/15/2004
HUSKY PM-OB-115 STEEPBK 1-4-96-	0452212	P (3)		3/14/2013
HUSKY PM-OB-116 STEEPBK 5-2-96-	0452226	P (3)		3/10/2013
HUSKY PM-OB-117 STEEPBK 10-28-9	0453724	P (3)		3/12/2013
HUSKY PM-OB-118 STEEPBK 10-32-9	0453768	P (3)		3/18/2013
HUSKY SWD-OB-119 SUNRISE 9-21-9	0442976			2/25/2012
HUSKY SRC-OB-120 SUNRISE 14-18-9	0382870	P (2)		9/17/2006
HUSKY SWD-OB-121 STEEPBK 4-22-9	0431972	PG		3/15/2011
HUSKY SWD-OB-122 STEEPBK 9-3-95	0431974	PG		3/24/2011
HUSKY SRC-OB-123 STEEPBK 14-7-95-7	0304879	PG		3/14/2004
HUSKY SRC-OB-124 STEEPBK 10-7-95	0304964			3/9/2004
HUSKY SRC-OB-125 STEEPBK 14-7-95	0305114			3/15/2004
HUSKY OB-126 STEE PBK 16-20-95-7	0461747			1/11/2014
HUSKY OB-127 STEE PBK 8-21-95-7	0461748	P (6)		2/18/2014
HUSKY OB-128 STEE PBK 13-21-95-7	0461649	P (6)		1/16/2014
HUSKY OB-129 STEE PBK 14-21-95-7	0461765			1/29/2014
HUSKY OB-130 STEE PBK 10-27-95-7	0462203	PG		1/7/2014
HUSKY OB-131 STEE PBK 13-21-95-7	0461937			1/28/2014
HUSKY OB-144 STEE PBK 8-30-95-7	0462043	P (4)		3/3/2014
HUSKY OB-145 STEE PBK 5-21-95-7	0462143	P (6)	T	1/21/2014
HUSKY OB- 146 STEEPBK 7-20-95-7	0462141	P (6)	T	1/26/2014
HUSKY OB- 147 STEEPBK 1-20-95-7	0462142	P (5)	T	2/14/2014
HUSKY OB-155 STEE PBK 14-16-95-7	0462196	P (5)	T	2/11/2014
HUSKY KR-OB-156 STEEPBK 4-34-94-	0462284	PG		1/31/2014
HUSKY KR-OB-157 STEEPBK 3-34-94-	0462372	PG		2/5/2014
HUSKY OB-158 STEE PBK 4-22-95-7	0462389			2/3/2014
HUSKY OB-159 STEE PBK 12-28-95-7	0462095	PG		1/7/2014
HUSKY OB-160 STEE PBK 14-15-95-7	0461803			2/8/2014

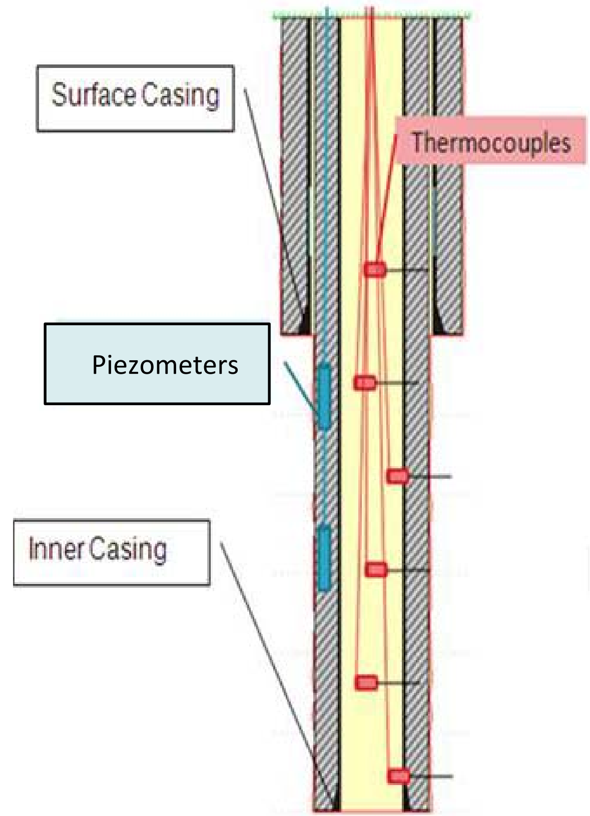
Instrumentation in SAGD OBS Wells

- 81 OBS Wells with Instrumentation:
  - 21 wells with thermocouple only
  - 50 wells with piezometer only
  - 10 wells with piezometer and thermocouples

- 62 OBS Wells connected to SCADA:
  - 21 wells with thermocouple only
  - 31 wells with piezometers only
  - 10 wells with piezometer and thermocouples

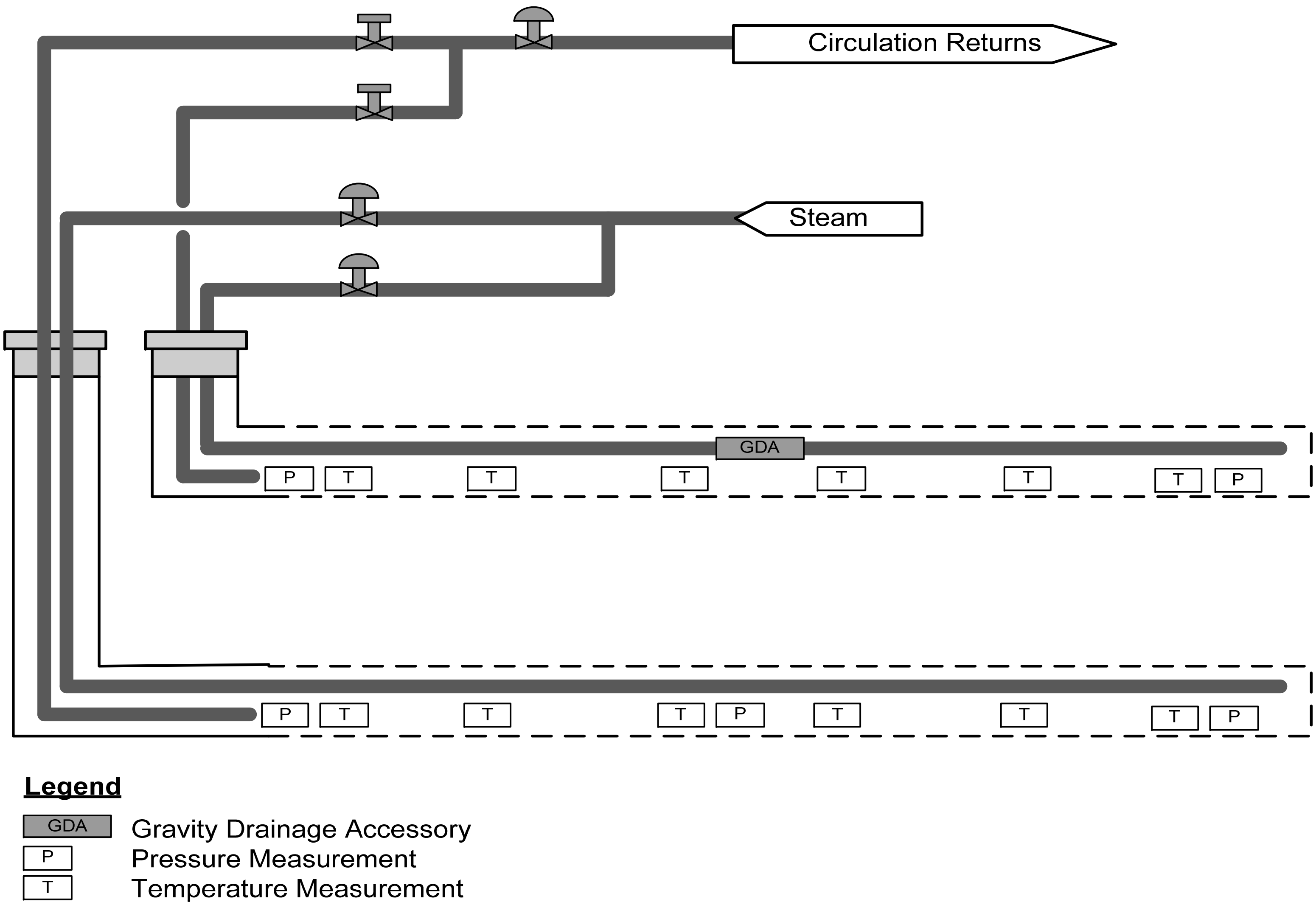
- Thermocouples: Up to 24 thermocouples per well, the majority of which are placed across the pay interval

- Piezometers: Up to 8 piezometers per well. Cemented behind casing. Placed within the Clearwater, Wabiskaw, IHS and/or the McMurray Intervals

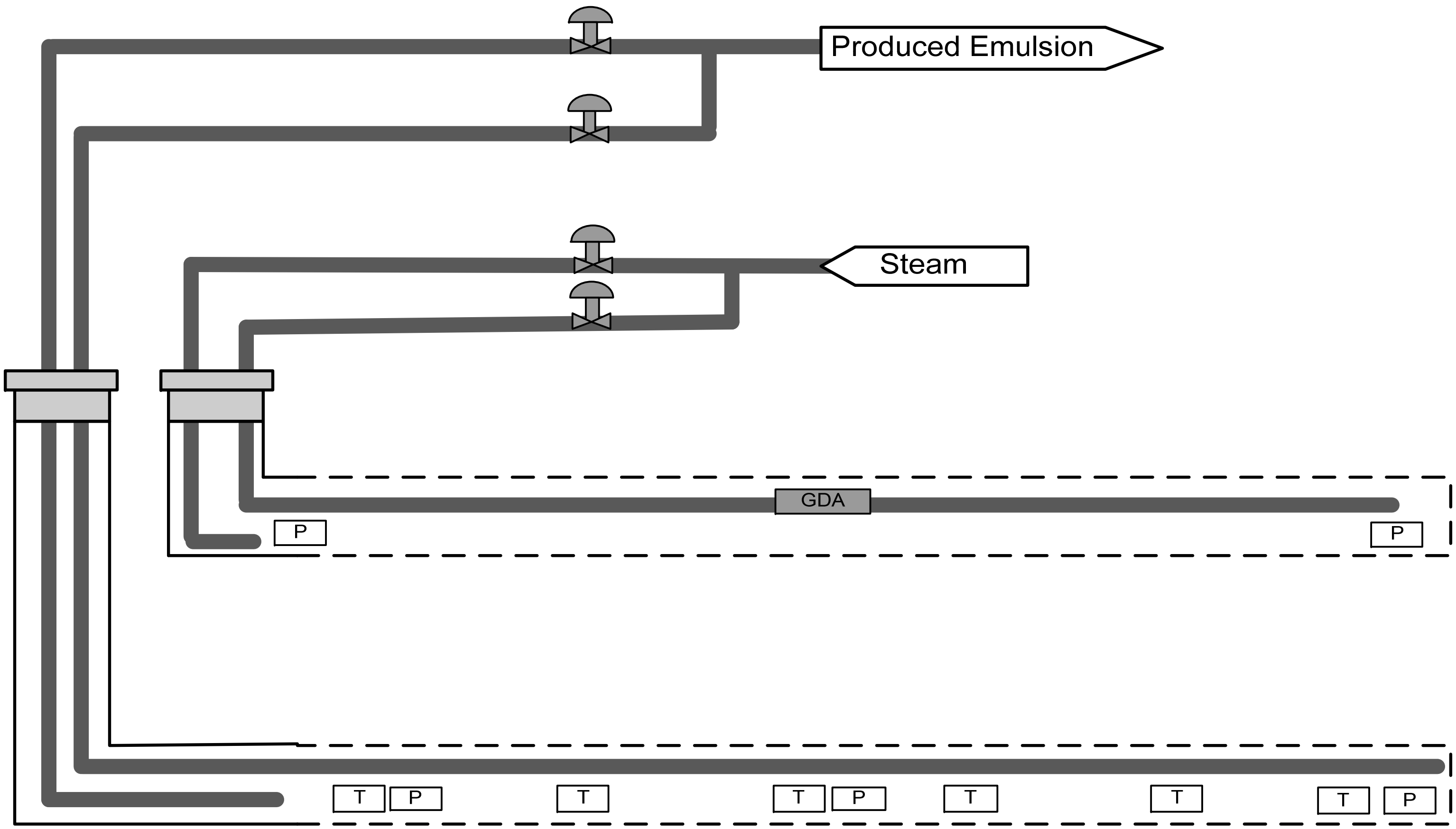


Typical SAGD Observation Well

Temperature and Pressure Measurement – Circulation



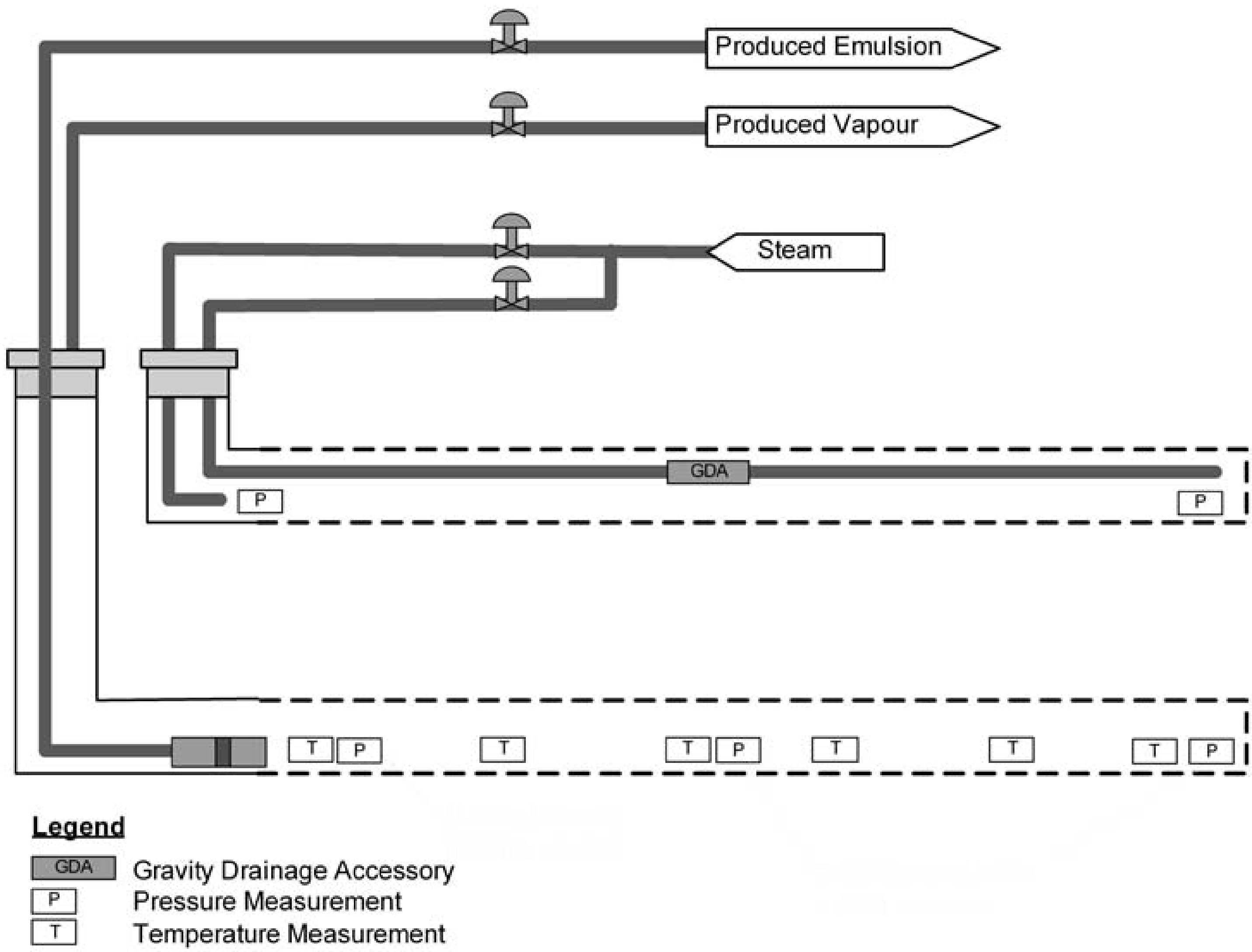
Temperature and Pressure Measurement – Gas Lift



Legend

GDA	Gravity Drainage Accessory
P	Pressure Measurement
T	Temperature Measurement

Temperature and Pressure Measurement – ESP



6. 4D Seismic

4D Seismic Data

- No 4D seismic programs were carried out in the reporting period

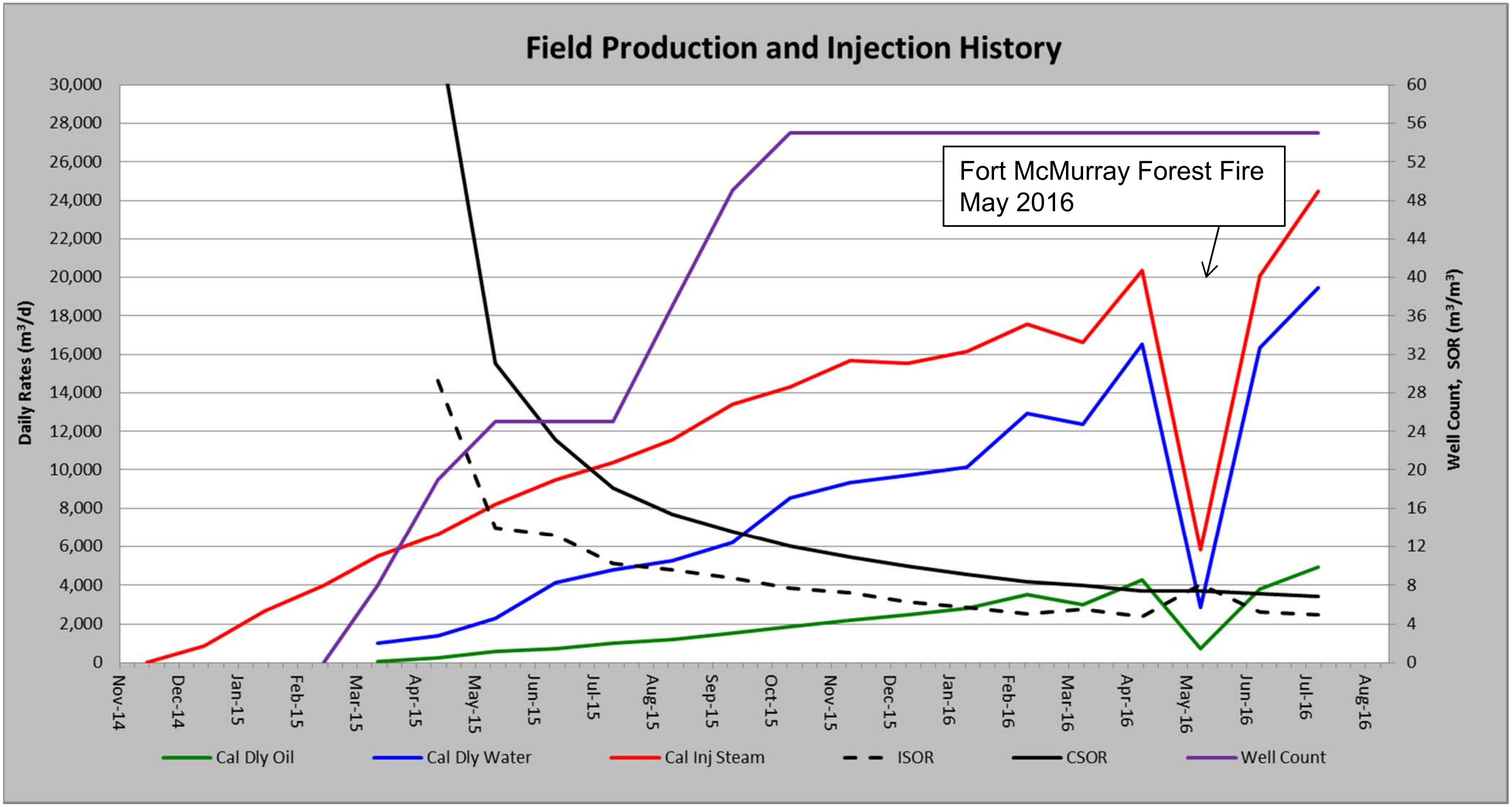
7. Scheme Performance

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

Field Production and Injection History



Field Production and Injection History cont'd

- The reservoir gas oil ratio (GOR) is estimated to be 2 m^3/m^3
  - 2 m^3/m^3 is within the expected GOR range for Sunrise according to the modelling completed before project start-up. This modelling followed Dr. Thimm's work, calculating separately CH_4 dissolved in bitumen at virgin reservoir conditions and CO_2 and H_2S production based on operating conditions
- Fluctuations in lift gas are due to variations in well operations and the number of wells on lift gas
- Total gas production is the sum of lift gas injected and the produced reservoir gas
- The majority of the total gas production is the injected lift gas

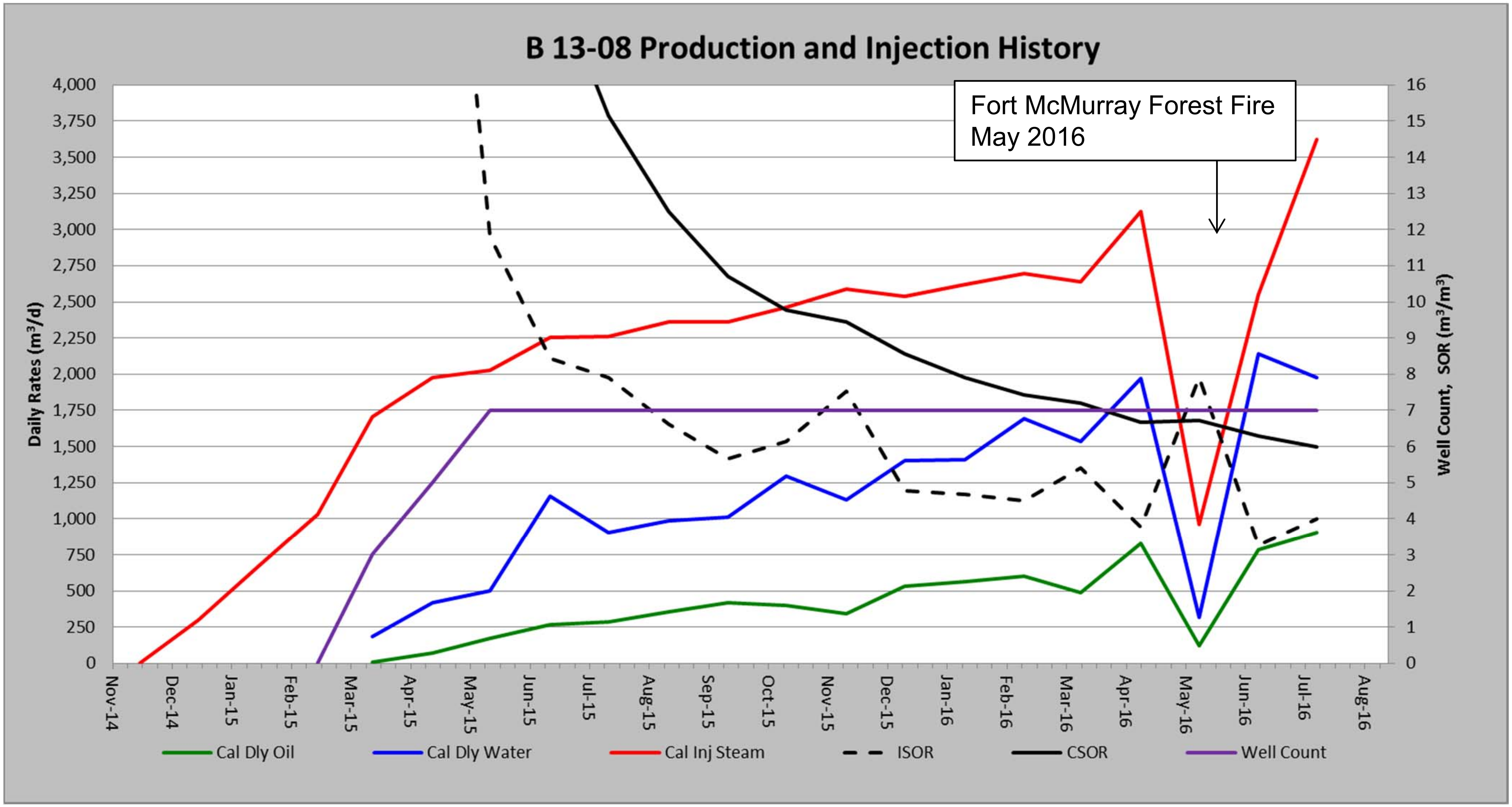
Production

- Highest daily average bitumen production over a one month period during the reporting period was 4,931 m^3/d
- The cumulative oil production for the reporting period was 985,153 m^3
- Most producing well pairs are currently in ramp-up phase and will continue to increase production rates as the steam chambers develop
- 55 of the 55 total well pairs were on production as of December 2015
- The average SOR over the reporting period was 5.9 m^3/m^3
- As of July 31, 2016 the cumulative SOR was 6.9 m^3/m^3
- The instantaneous and cumulative SOR are expected to drop as bitumen production ramps up

Production vs. Approval Capacity Variance

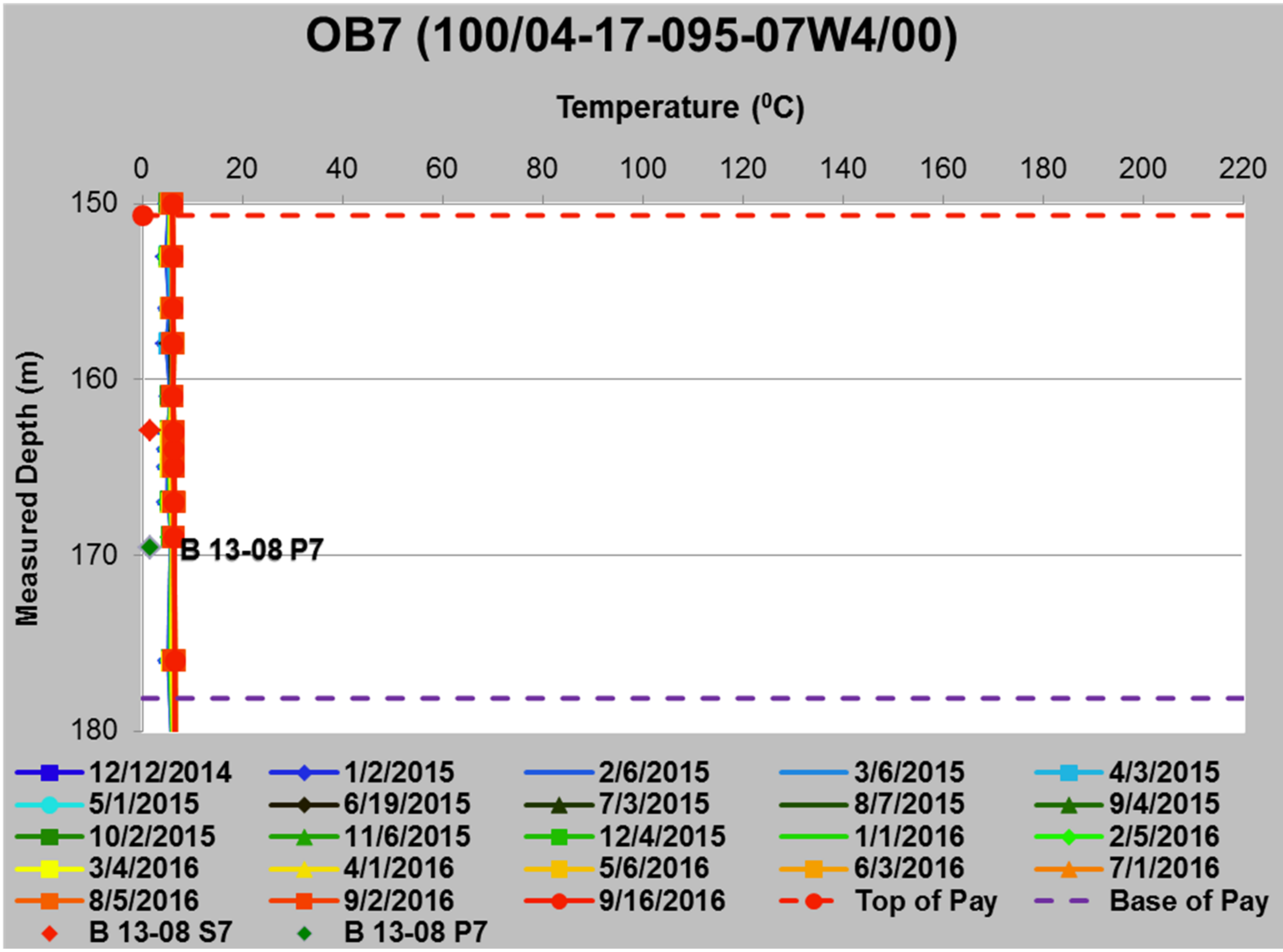
- Ramp-up towards approval capacity will continue during the next reporting period

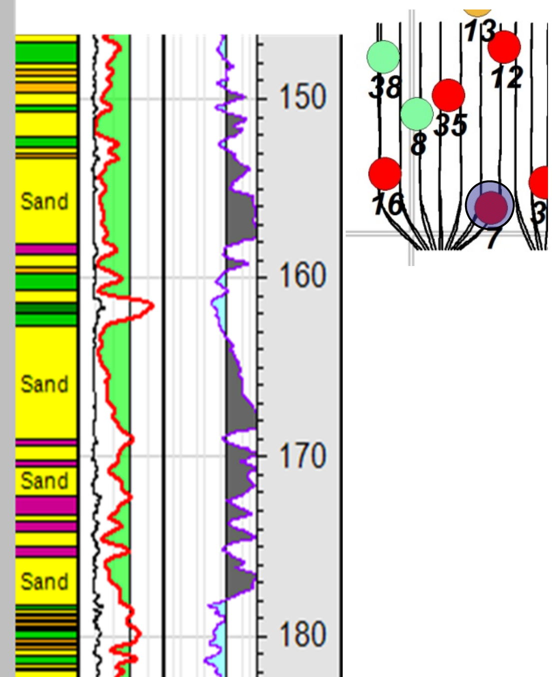
Pad B13-08 (B) Production and Injection History (High Recovery Pad)



Pad B13-08 (B) Heel Observation Well

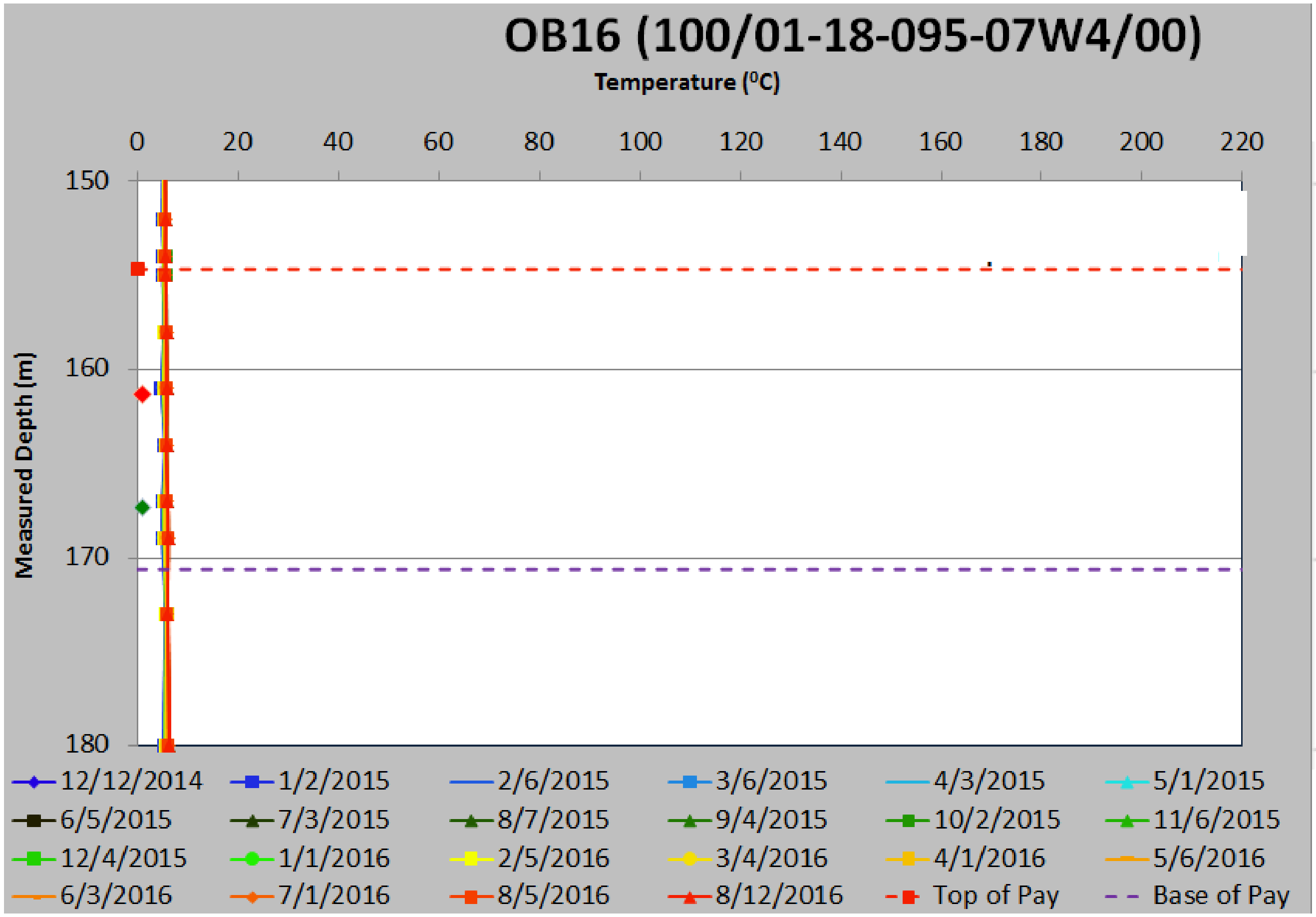
Distance to Horizontal: 29 m
Measured Depth: 337 m

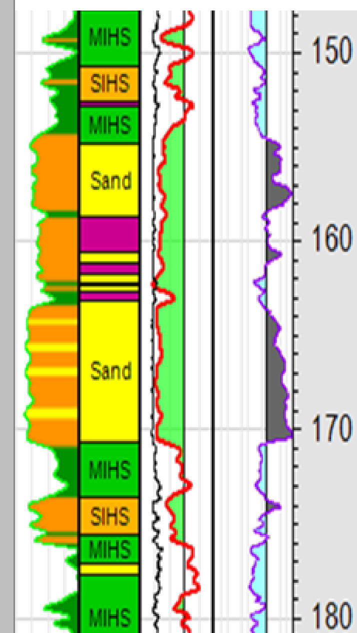


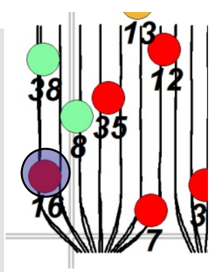


Pad B13-08 (B) B1 Heel Observation Well

Distance to Horizontal: 29 m
Measured Depth: 510 m

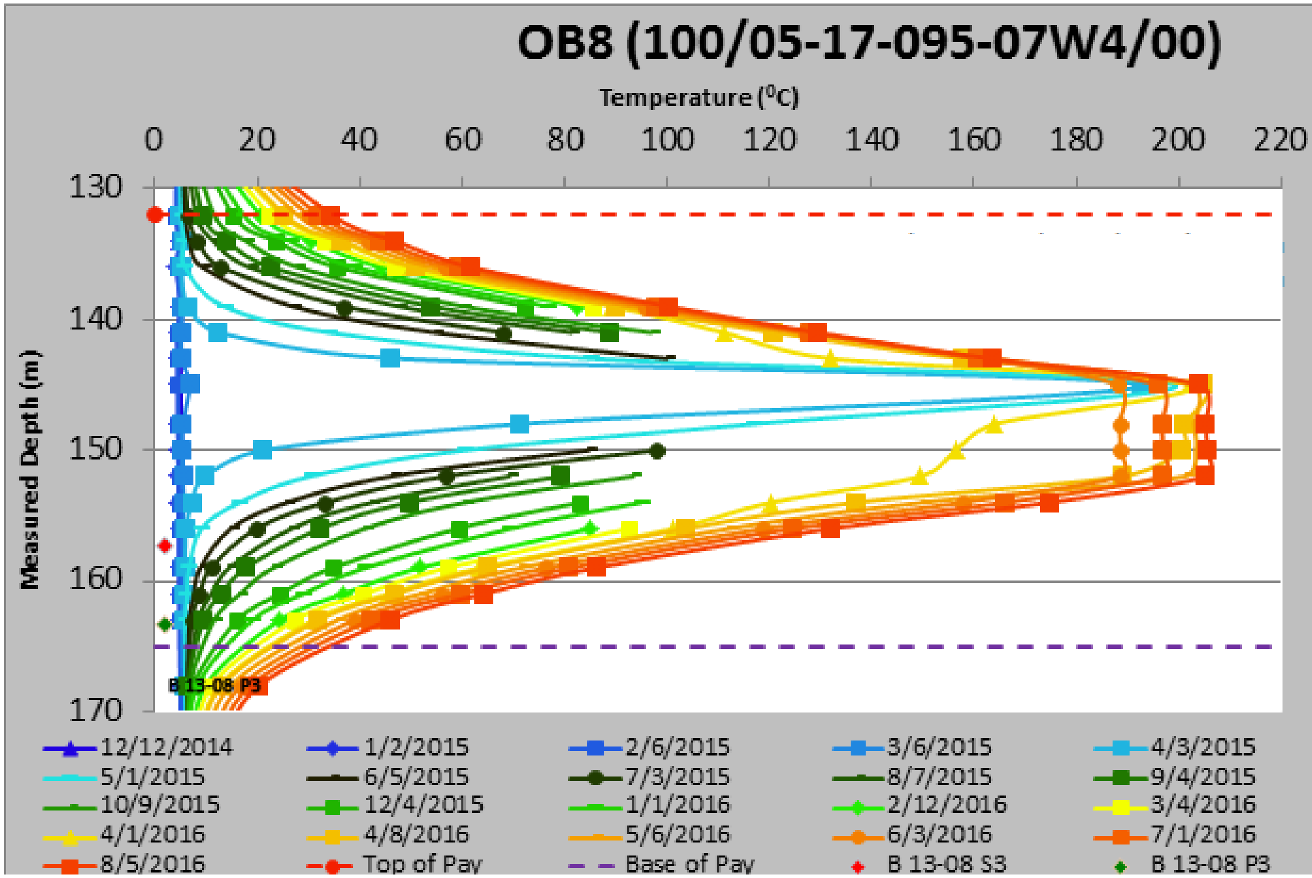


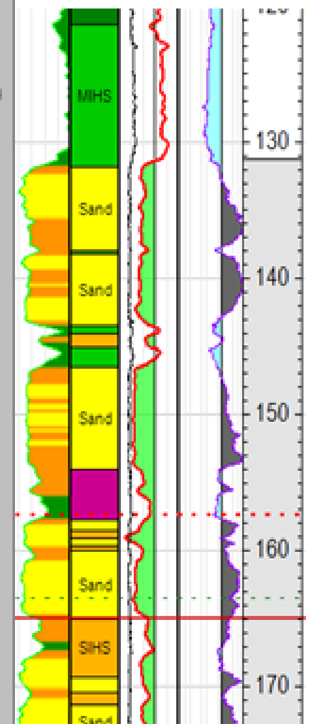


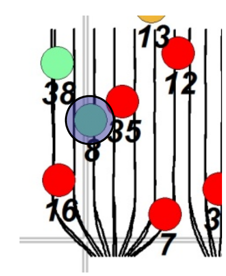


Pad B13-08 (B) B3 Mid Observation Well

Distance to Horizontal: 17.4 m
Measured Depth: 753 m

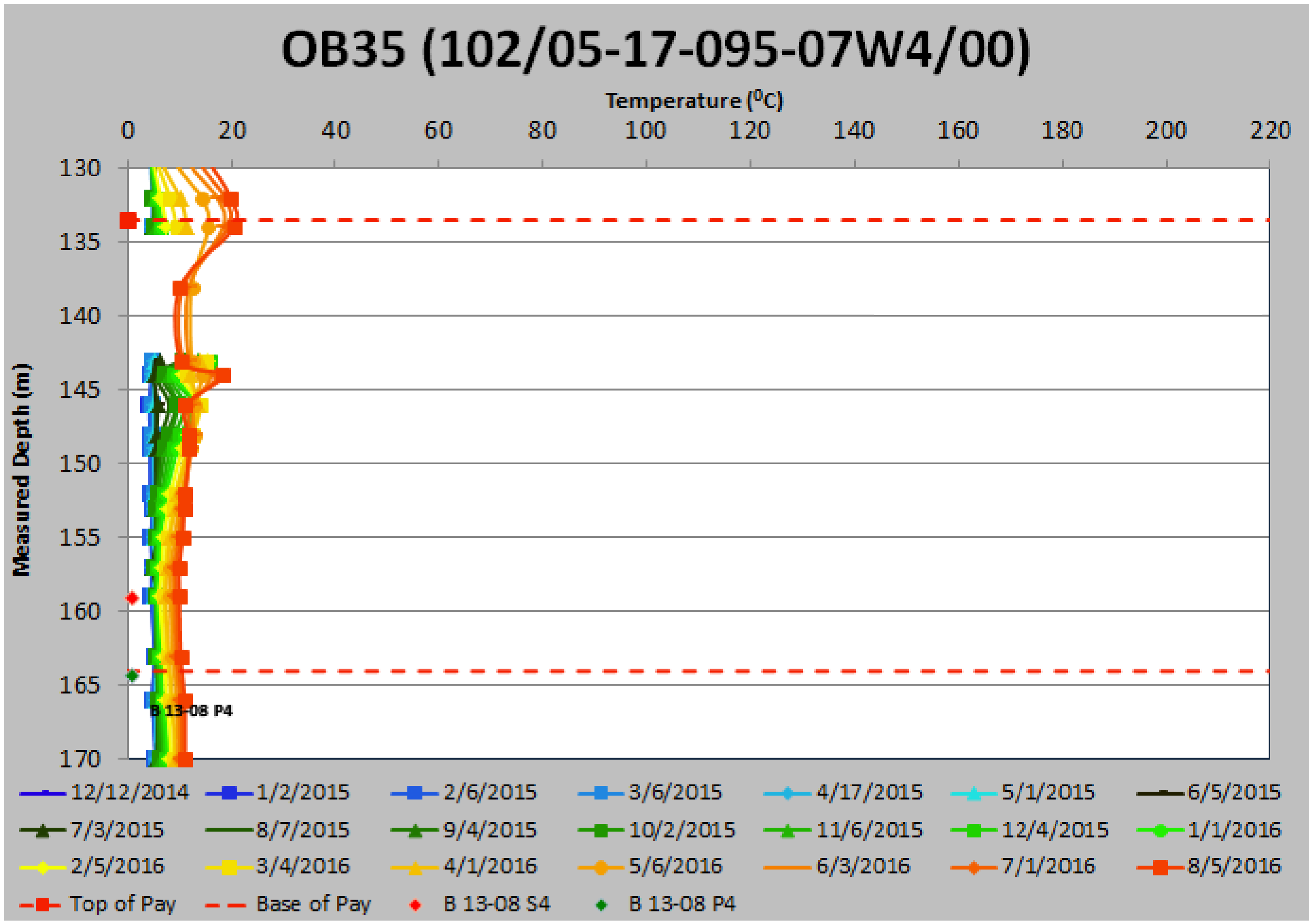


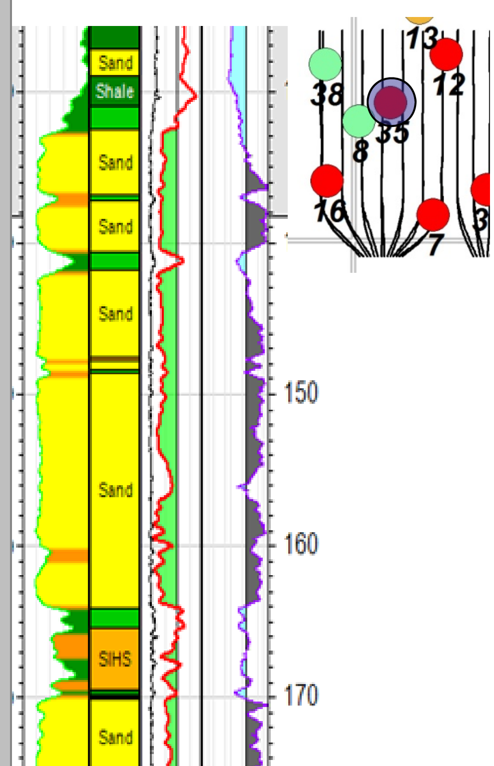




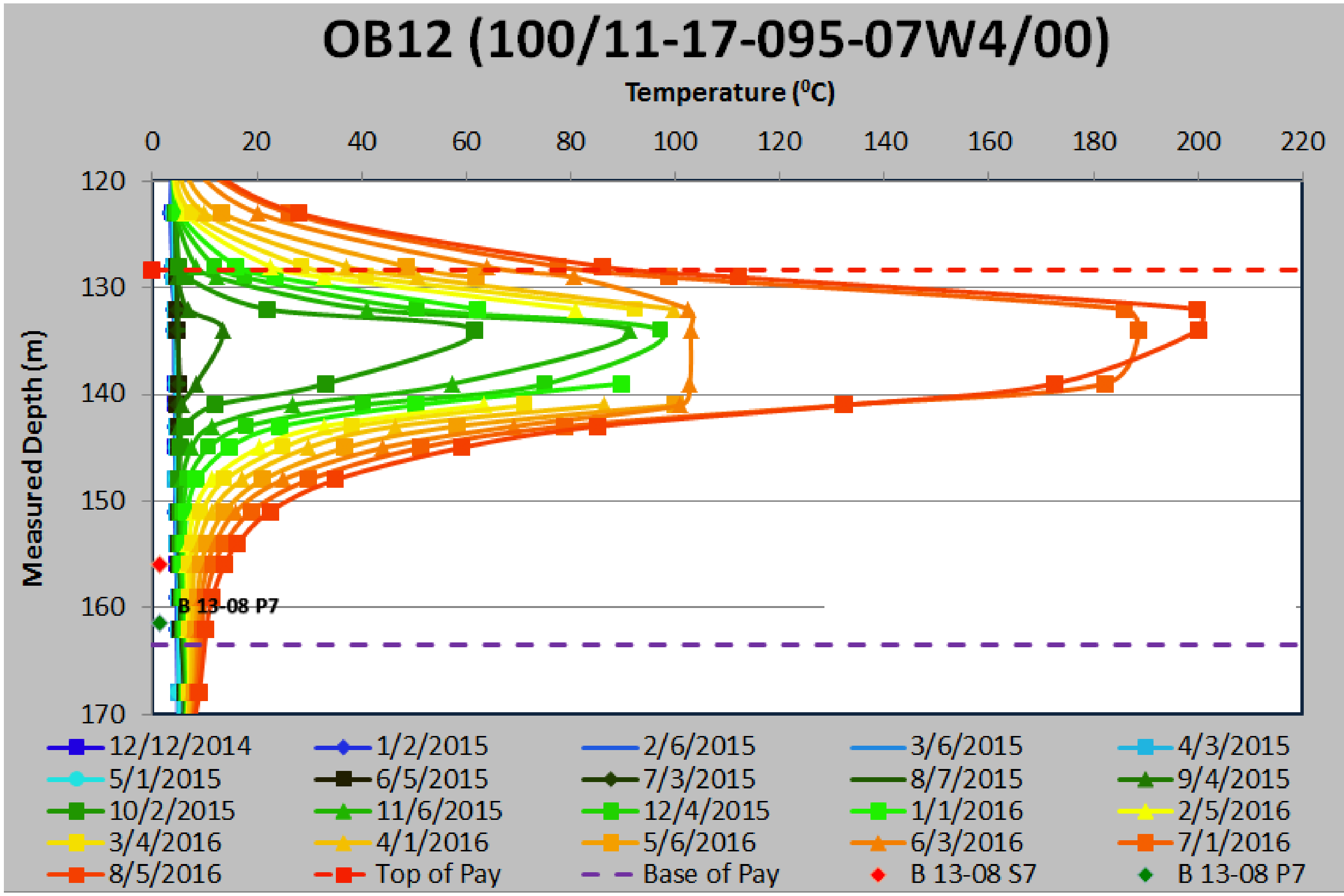
Pad B13-08 (B) B4 Mid Observation Well

Distance to Horizontal: 40 m
Measured Depth: 835 m

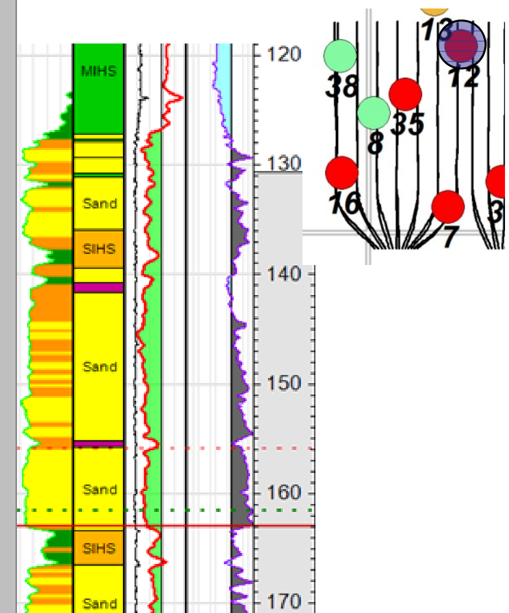




Pad B13-08 (B) B7 Toe Observation Well

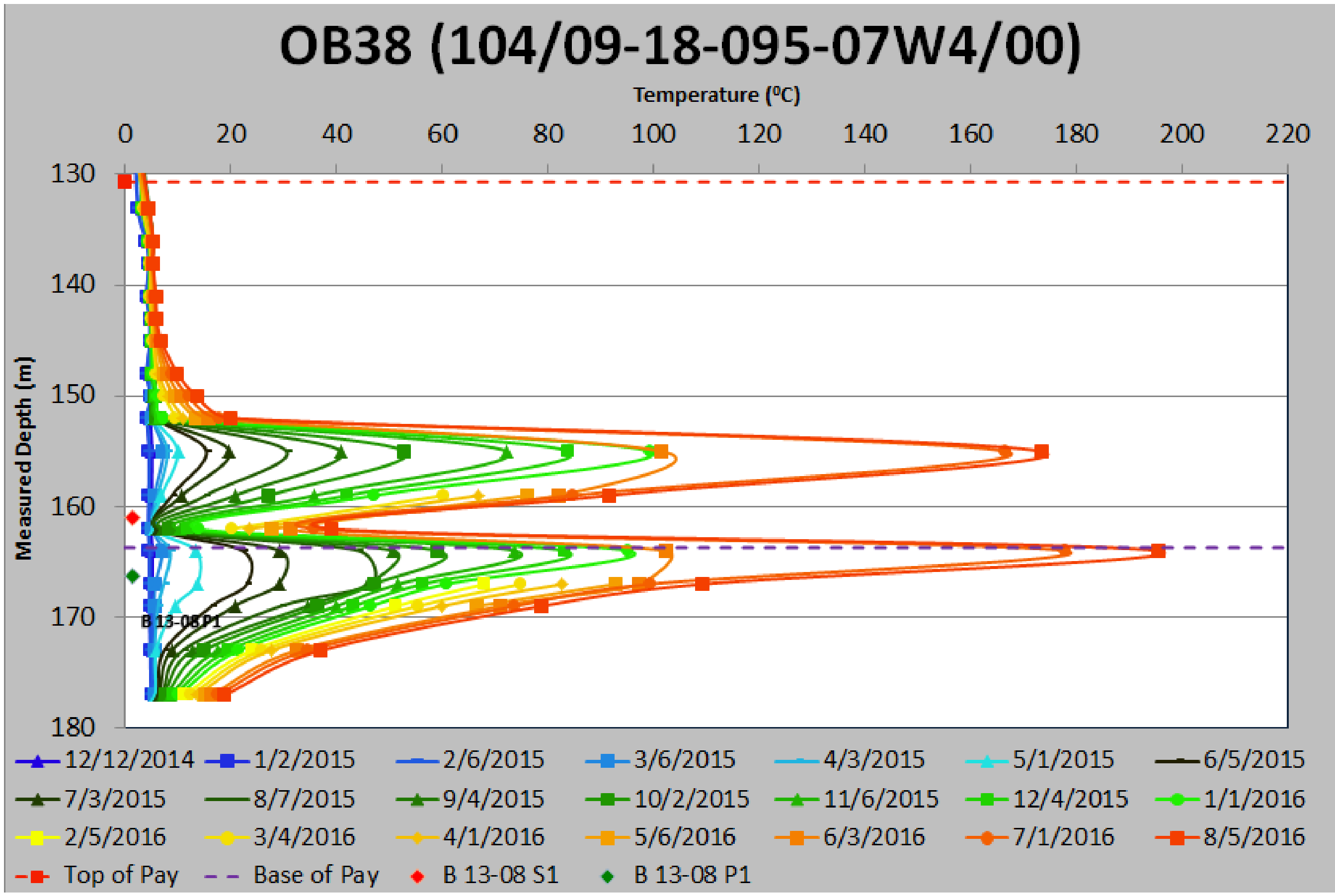


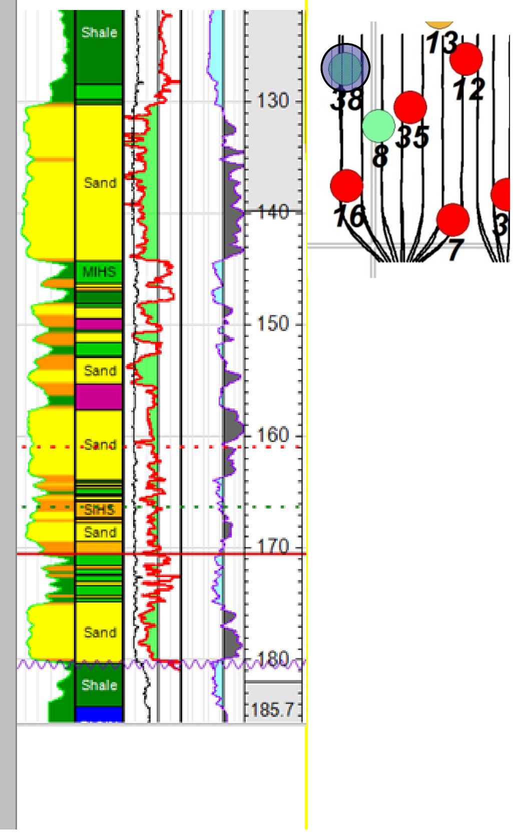
Distance to Horizontal: 19 m
Measured Depth: 1162 m



Pad B13-08 (B) B1 Toe Observation Well

Distance to Horizontal: 24 m
Measured Depth: 1097 m



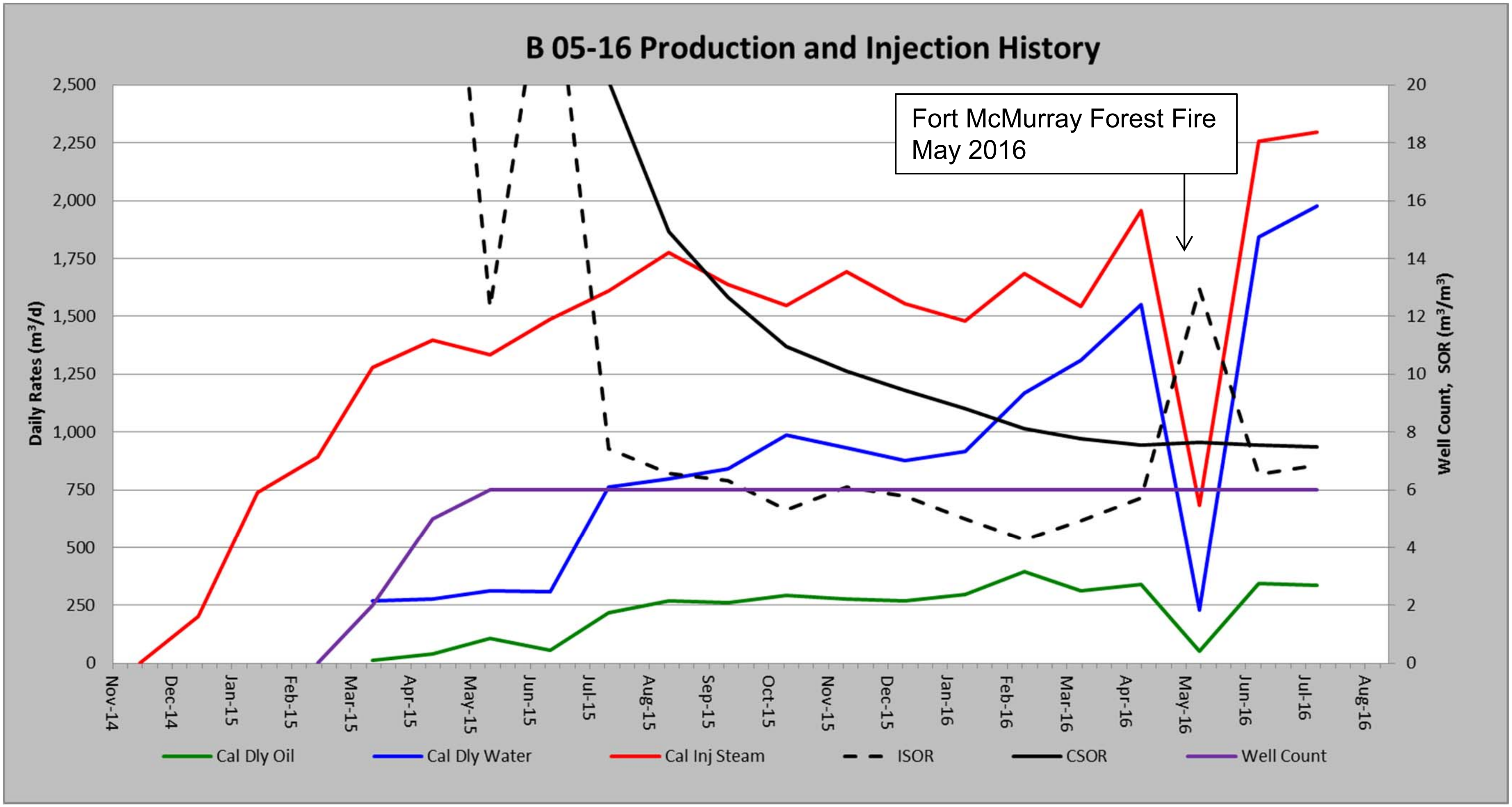


Discussion of Pad B13-08 (B) Performance

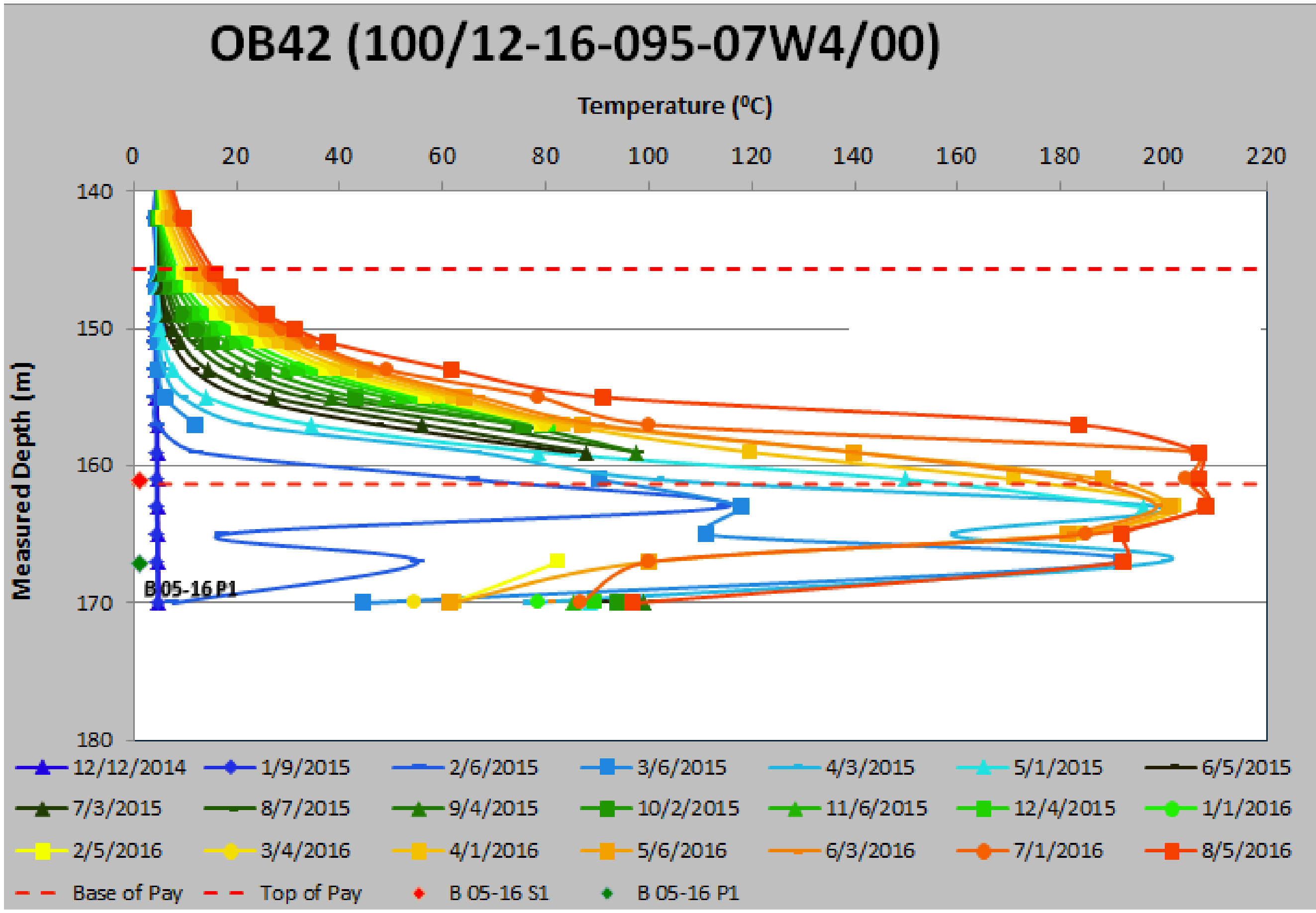
- Overall bitumen and steam rates are ramping up as per expectations
- Instantaneous and cumulative water losses are within the expected range
- Five wells were initially completed with gas lift completions; two wells were initially completed with ESP's. Four of the gas lift wells were converted into ESP to increase and optimize lift
- Injection pressure during the reporting period ranged from 1,340 to 1,725 kPa_g
- Five out of six observation wells on Pad B13-08 (B) show vertical and lateral chamber growth

- Pad B13-08 (B) performance indicators as of July 31, 2016:
  - Cum. Oil : 217,555 m^3
  - Cum. Steam Injected: 1,302,008 m^3
  - Cum. Water Produced: 610,131 m^3
  - CSOR: 6.0

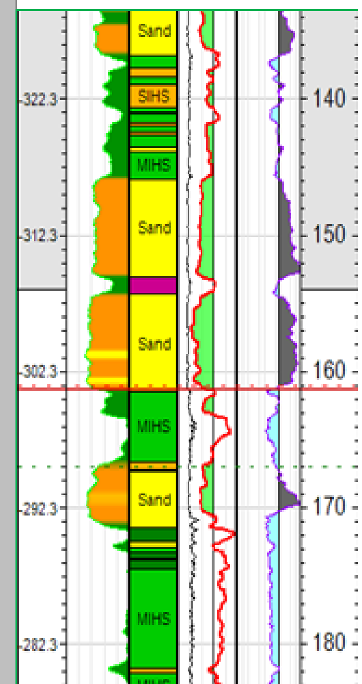
Pad B05-16 (H) Production and Injection History (Medium Recovery Pad)

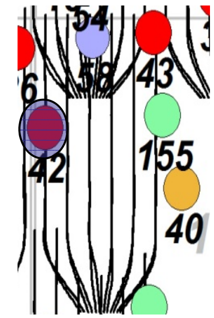


Pad B05-16 (H) Mid Observation Well

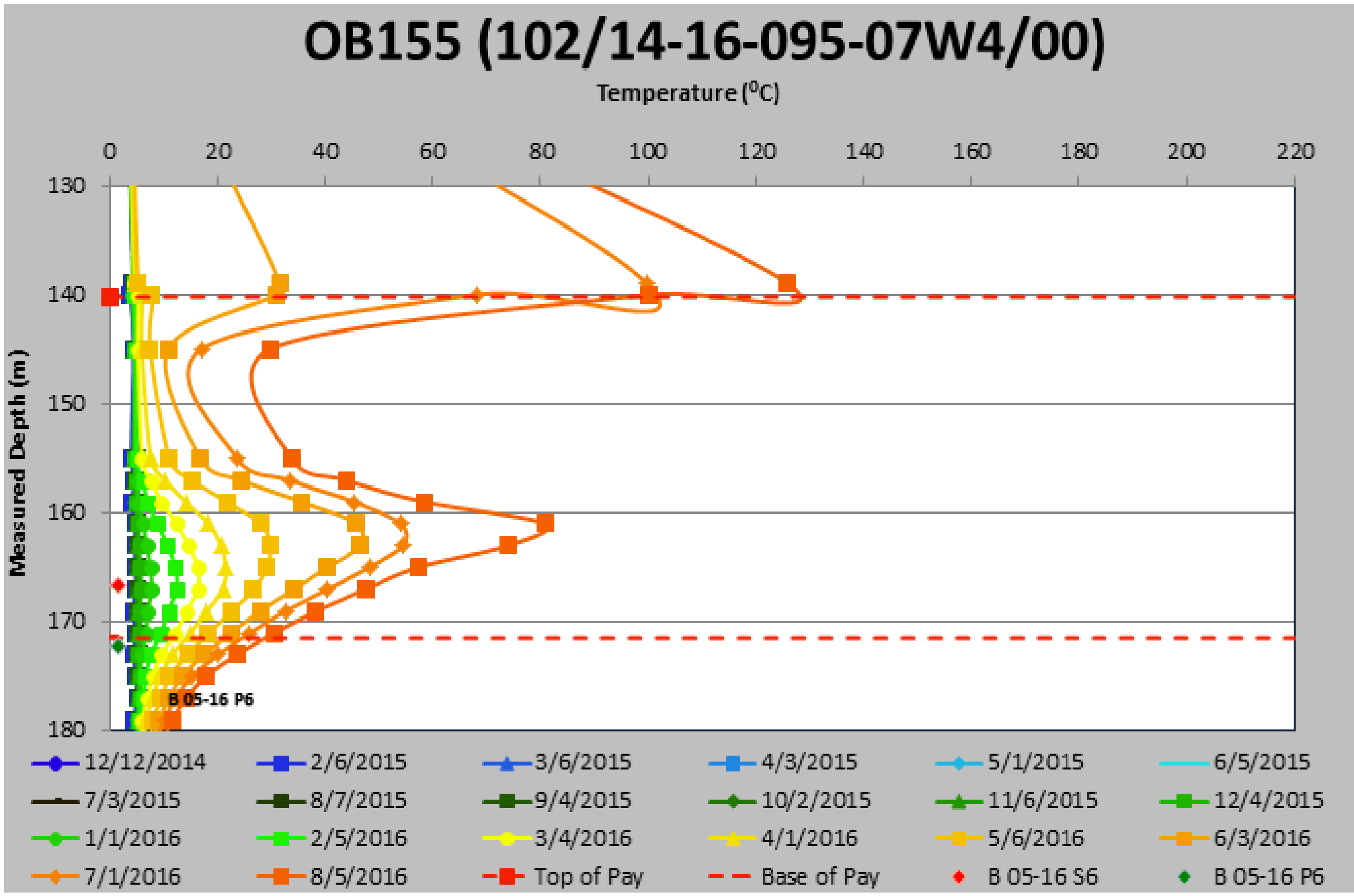


Distance to Horizontal: 8 m
Measured Depth: 801 m

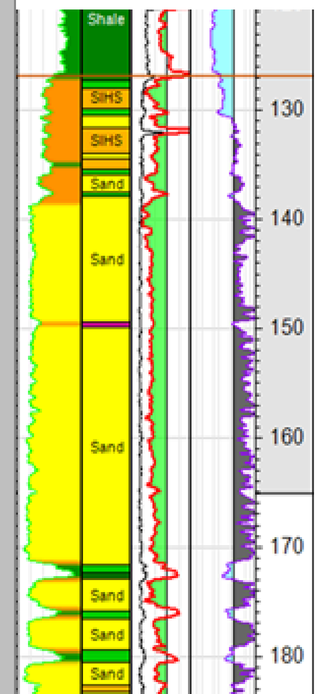


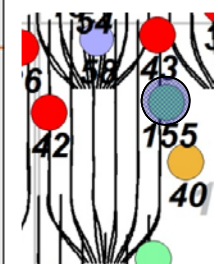


Pad B05-16 (H) Mid Observation Well



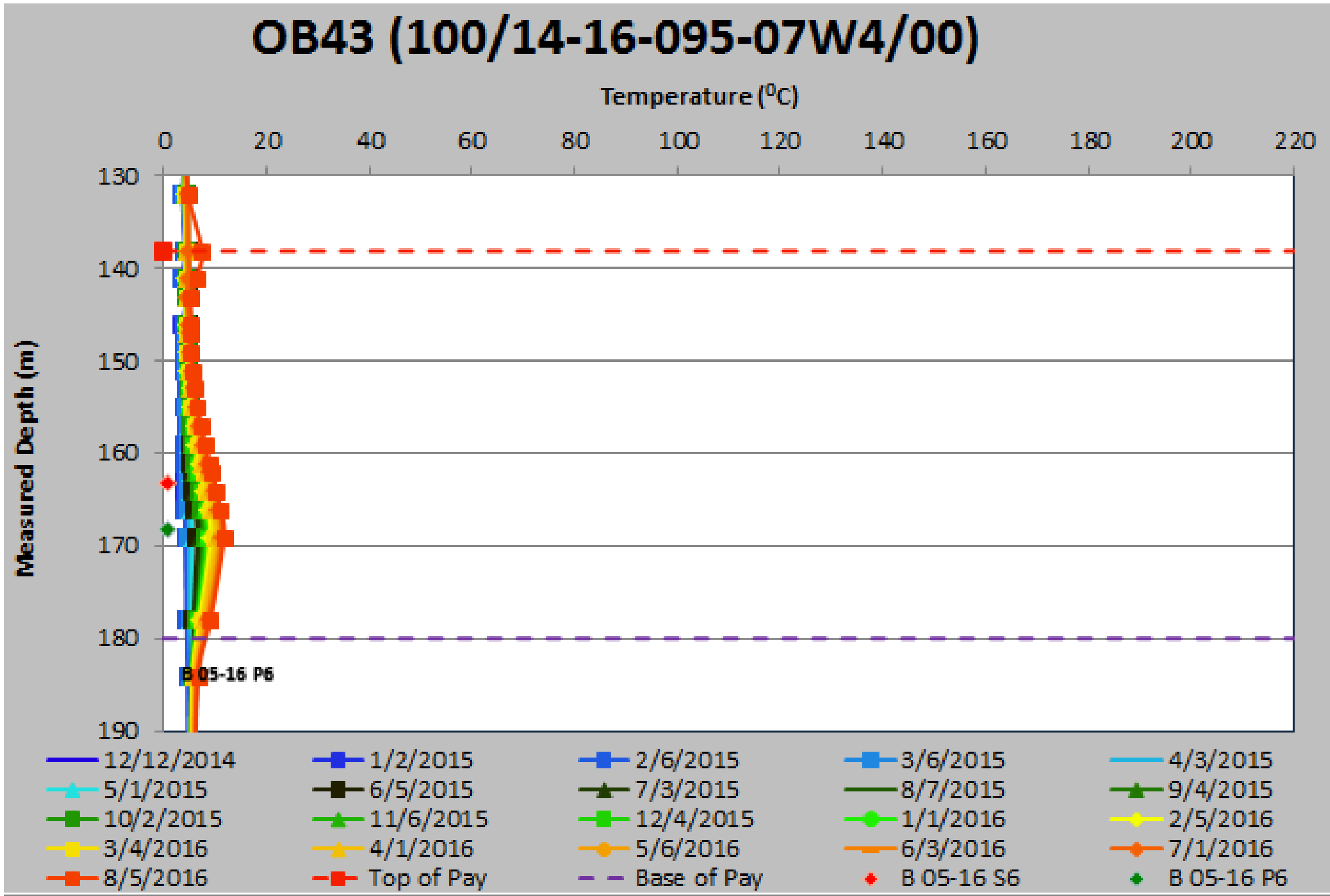
Distance to Horizontal: 34 m
Measured Depth: 857 m

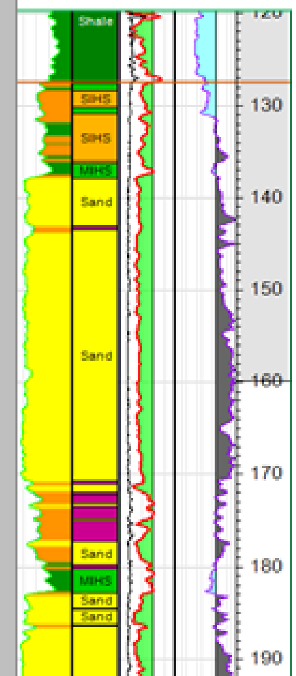


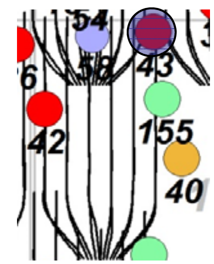


Pad B05-16 (H) Toe Observation Well

Distance to Horizontal: 10.4 m
Measured Depth: 1147 m





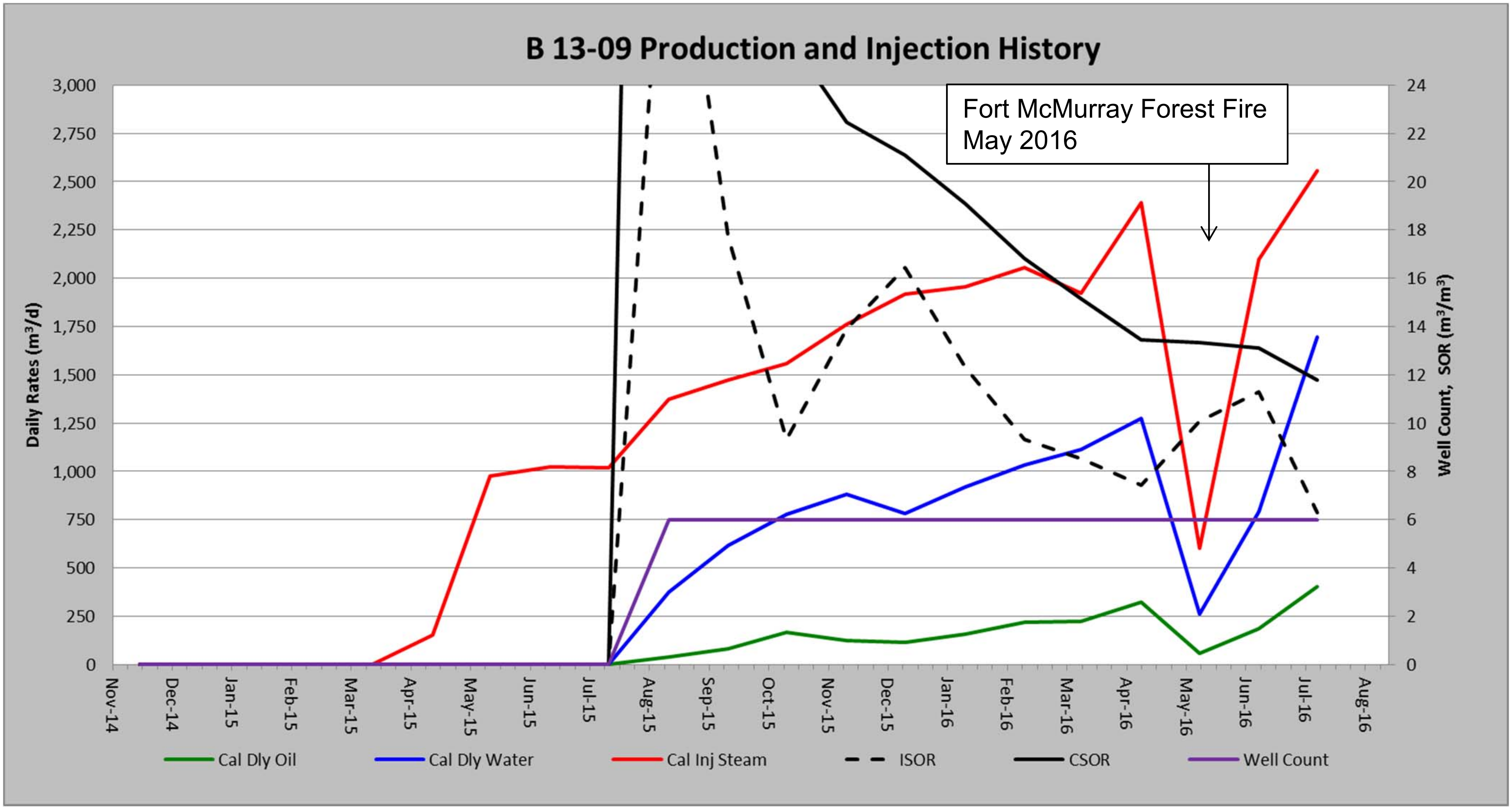


Discussion of Pad B05-16 (H) Performance

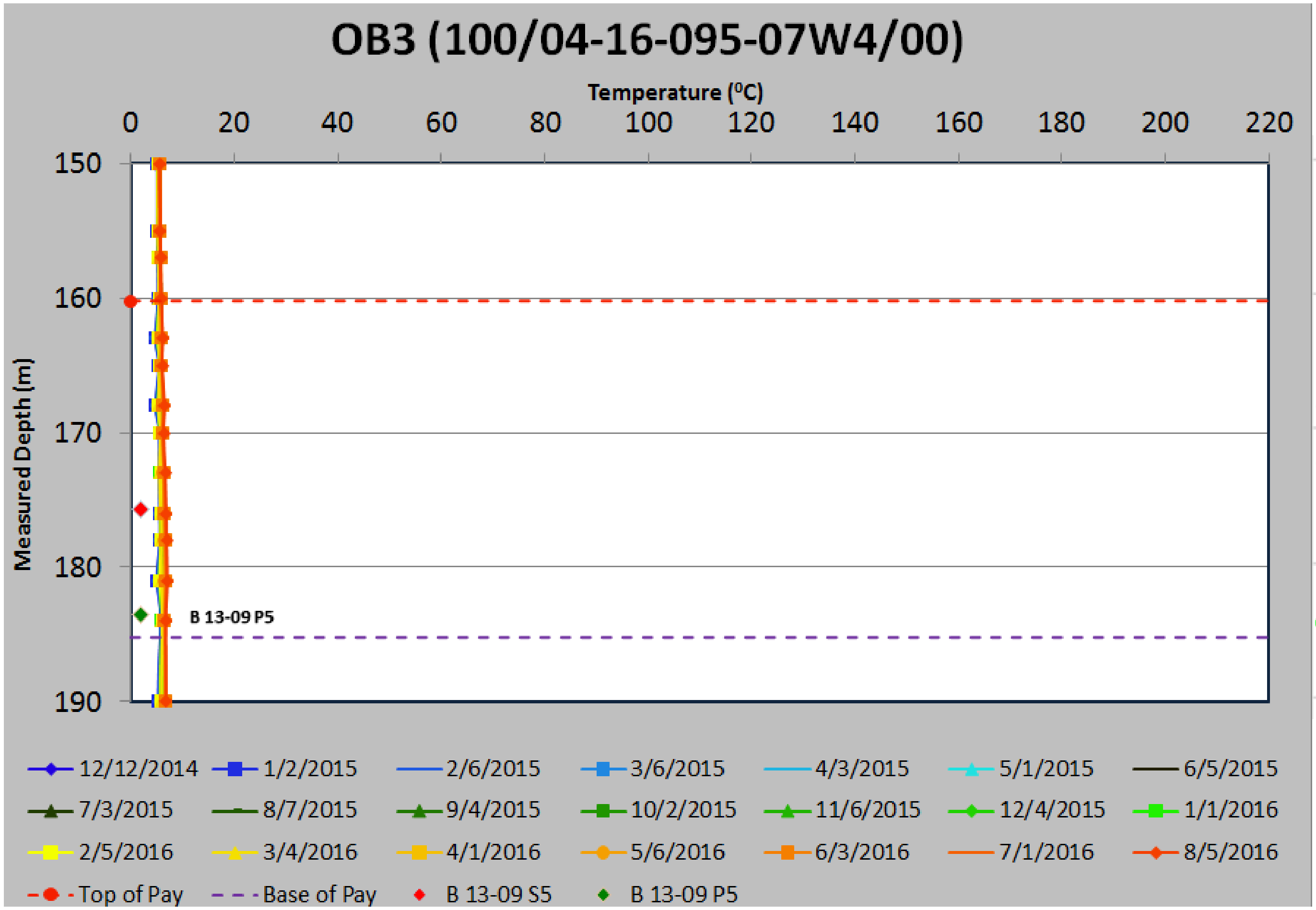
- Currently producing approximately 318 m^3/day of bitumen, as per expectations
- All wells have been operating at 1,725 kPa_g
- In July 2016, four wells (H1, H3, H4 and H6) were converted from gas lift to ESP. Tailpipes were also installed on H1 and H6
- H1 continues to be the most challenging well on the pad due to unfavorable reservoir conditions at the producer level. It also has the lowest oil cut of approximately 3% and relatively high total fluid to steam ratio (TFSR) compared to other wells
- There are three observation wells located on the well pad, two of which are close to well pair H6 and show signs of steam chamber development at the top of the reservoir
- The recent temperature fall-off data shows hot toe regions across the drainage pattern (excluding H1) indicating steam chamber development
- Communication is observed between well pairs H4, H5 and H6

- Pad B05-16 (H) performance indicators as of July 31, 2016:
  - Cum. Oil : 118,286 m^3
  - Cum. Steam Injected: 884,242 m^3
  - Cum. Water Produced: 468,045 m^3
  - CSOR: 7.5

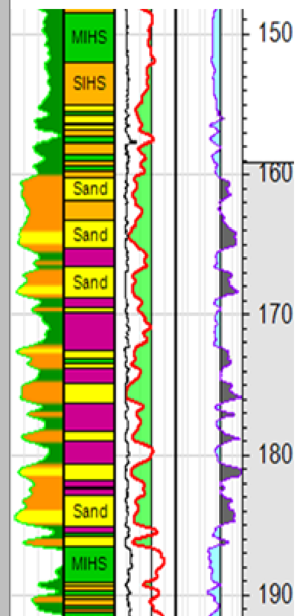
Pad B13-09 (E) Production and Injection History (Low Recovery Pad)

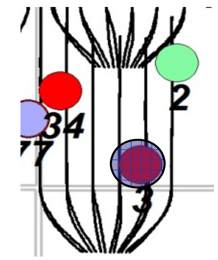


Pad B13-09 (E) Heel Observation Well



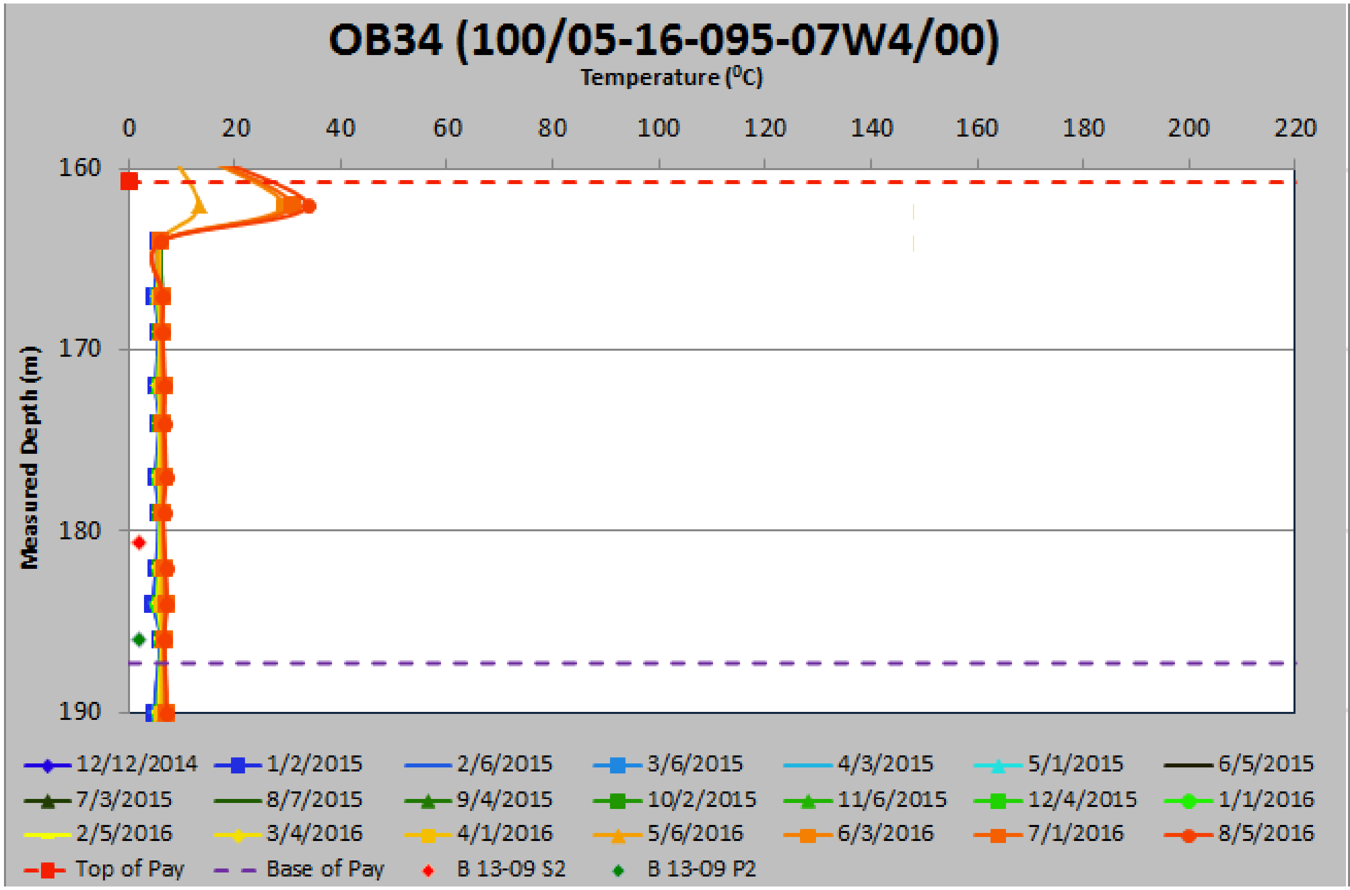
Distance to Horizontal 24 m
Measured Depth: 484 m

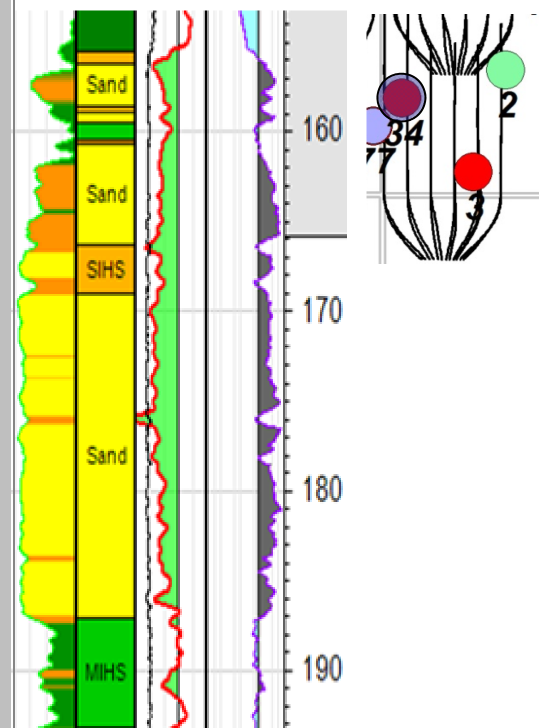




Pad B13-09 (E) Mid Observation Well

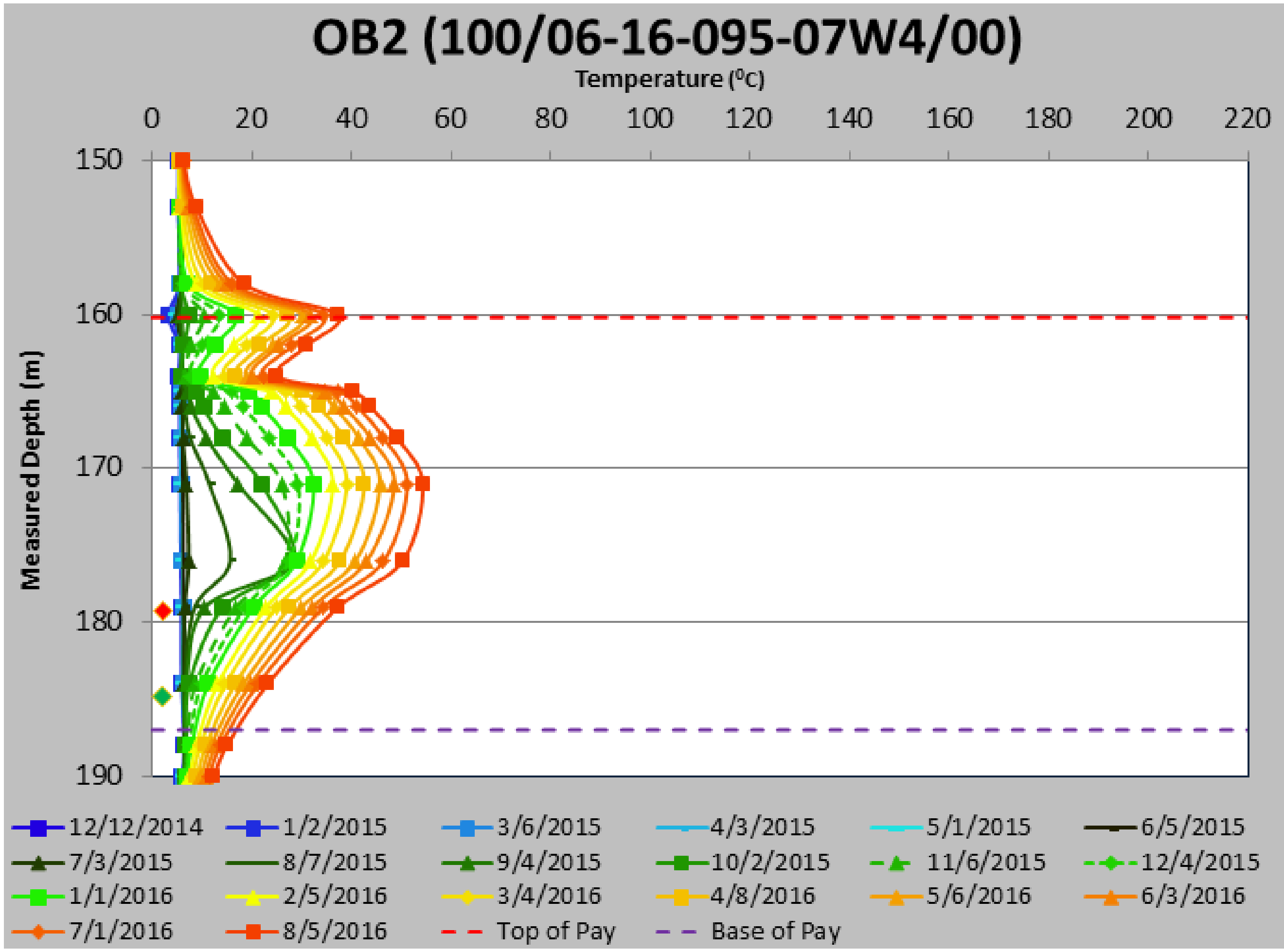
Distance to Horizontal: 28 m
Measured Depth: 789 m

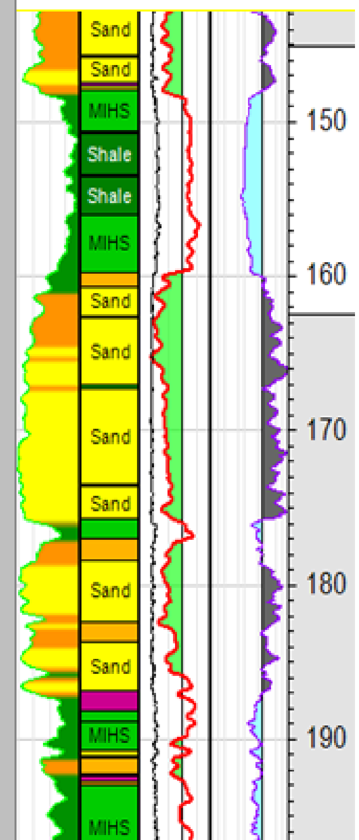


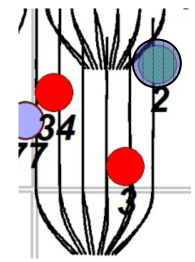


Pad B13-09 (E) Toe Observation Well

Distance to Horizontal: 18 m
Measured Depth: 947 m





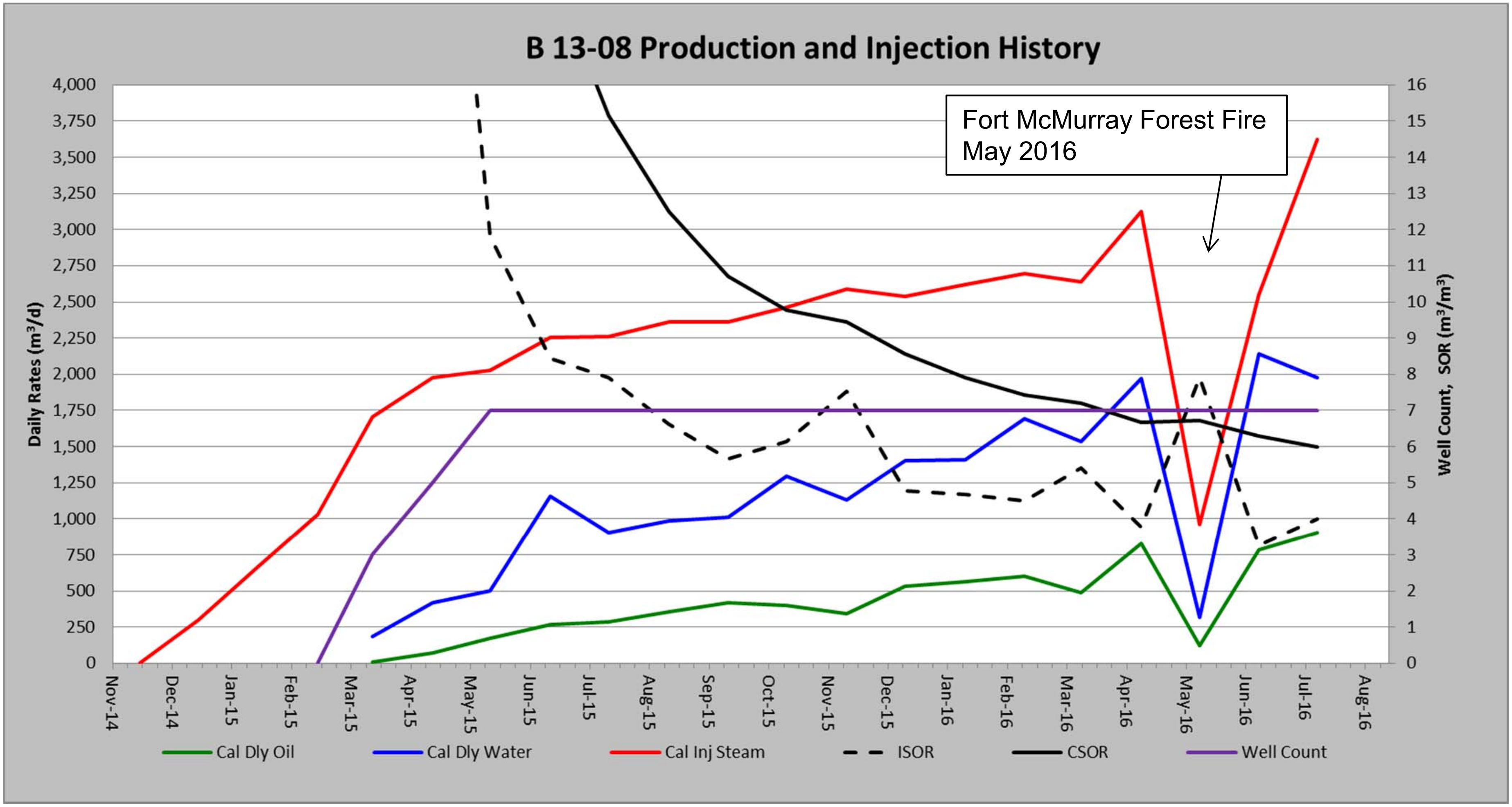


Discussion of Pad B13-09 (E) Performance

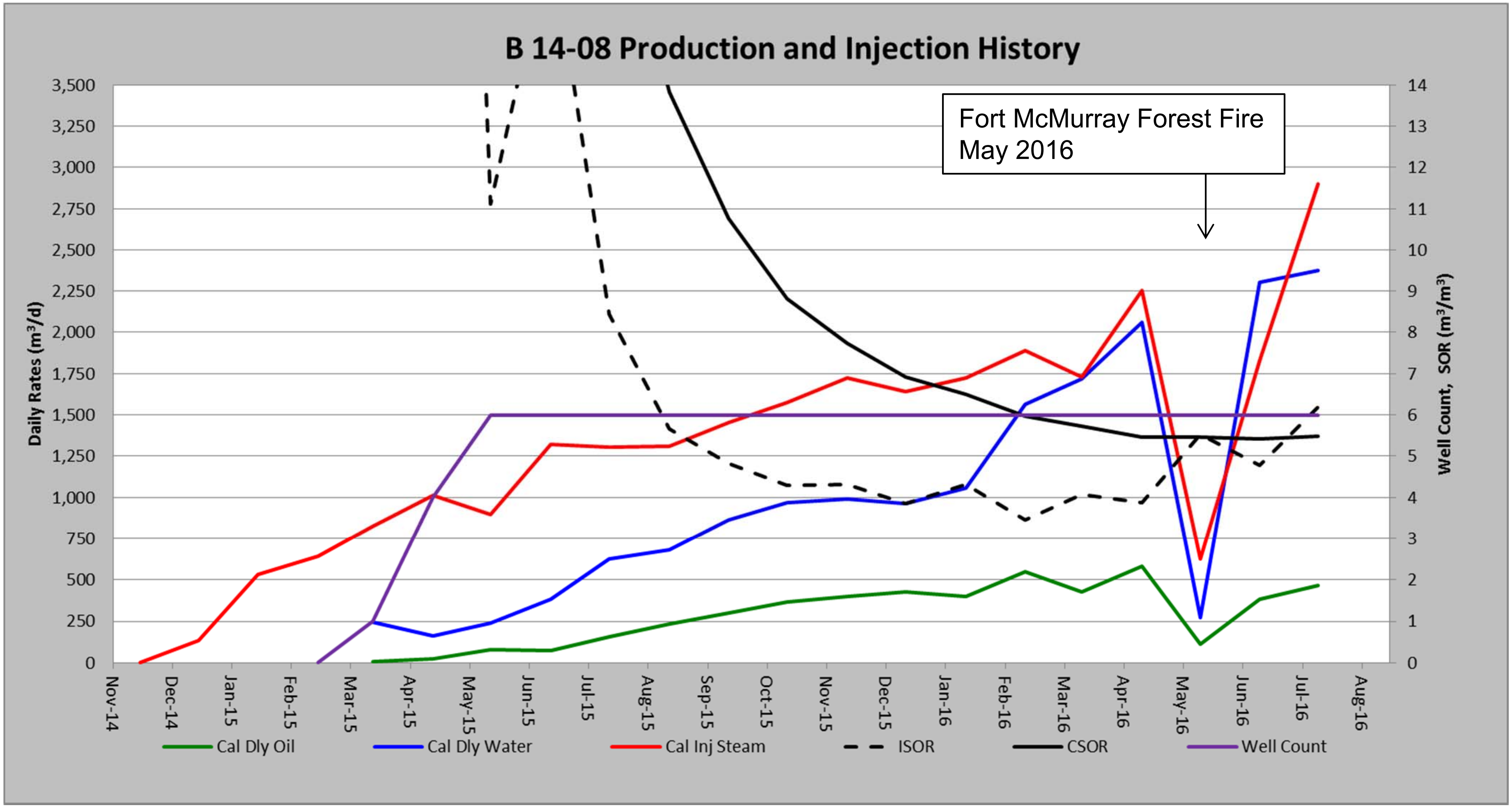
- In April 2015 warm-up was initiated
- Between August and September 2015 all six wells were converted to SAGD
- All six wells are equipped with gas lift completions
- Pad B13-09 (E) has a higher ISOR when compared to other pads due to relatively higher water saturation
- Injection pressure during the reporting period ranged from 700 to 1,725 kPa_g

- Pad B13-09 (E) performance indicators as of July 31, 2016:
  - Cum. Oil : 64,240 m^3
  - Cum. Steam Injected: 756,810 m^3
  - Cum. Water Produced: 320,464 m^3
  - CSOR: 11.8

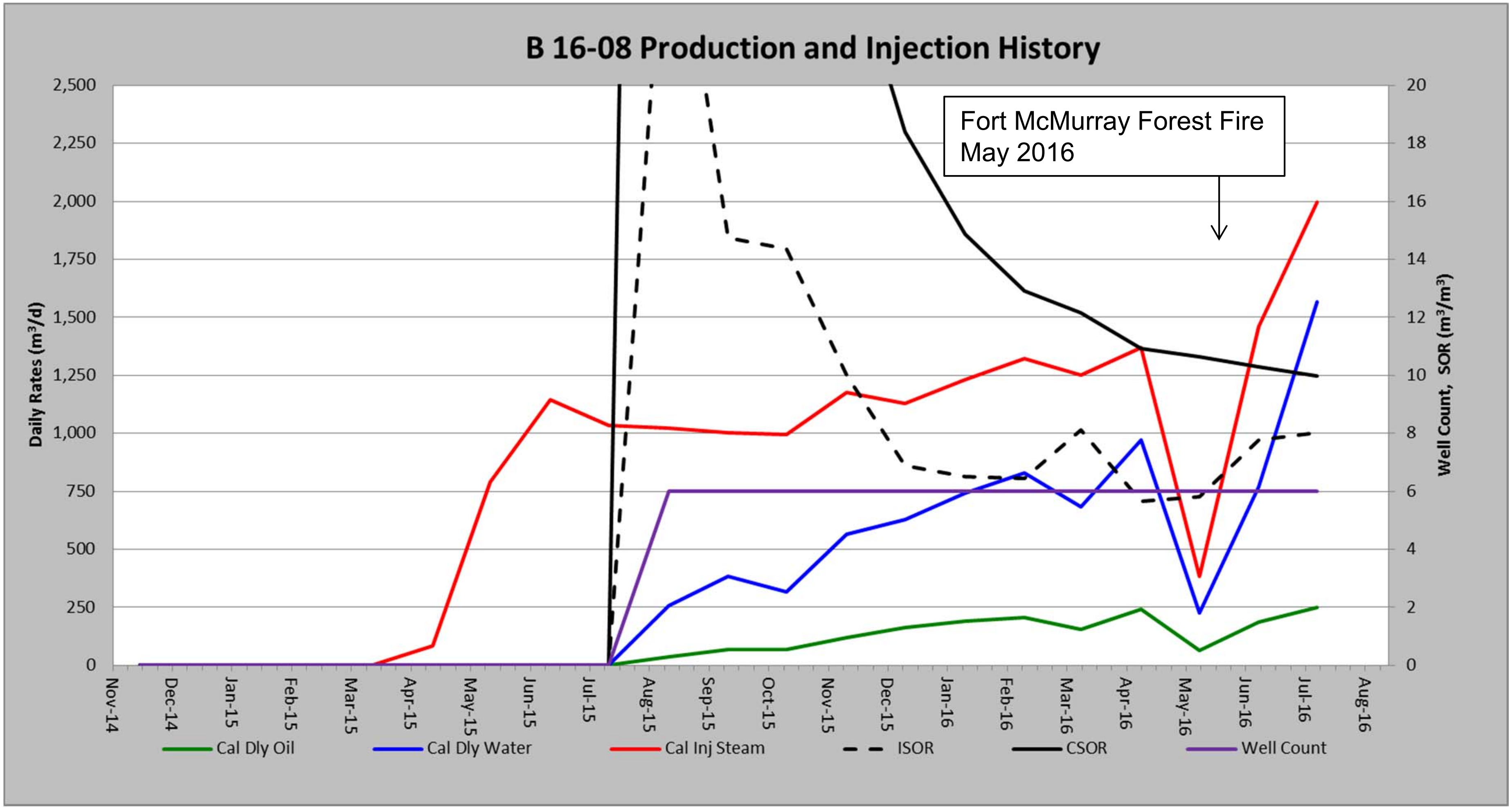
Pad B13-08 (B) Production and Injection History



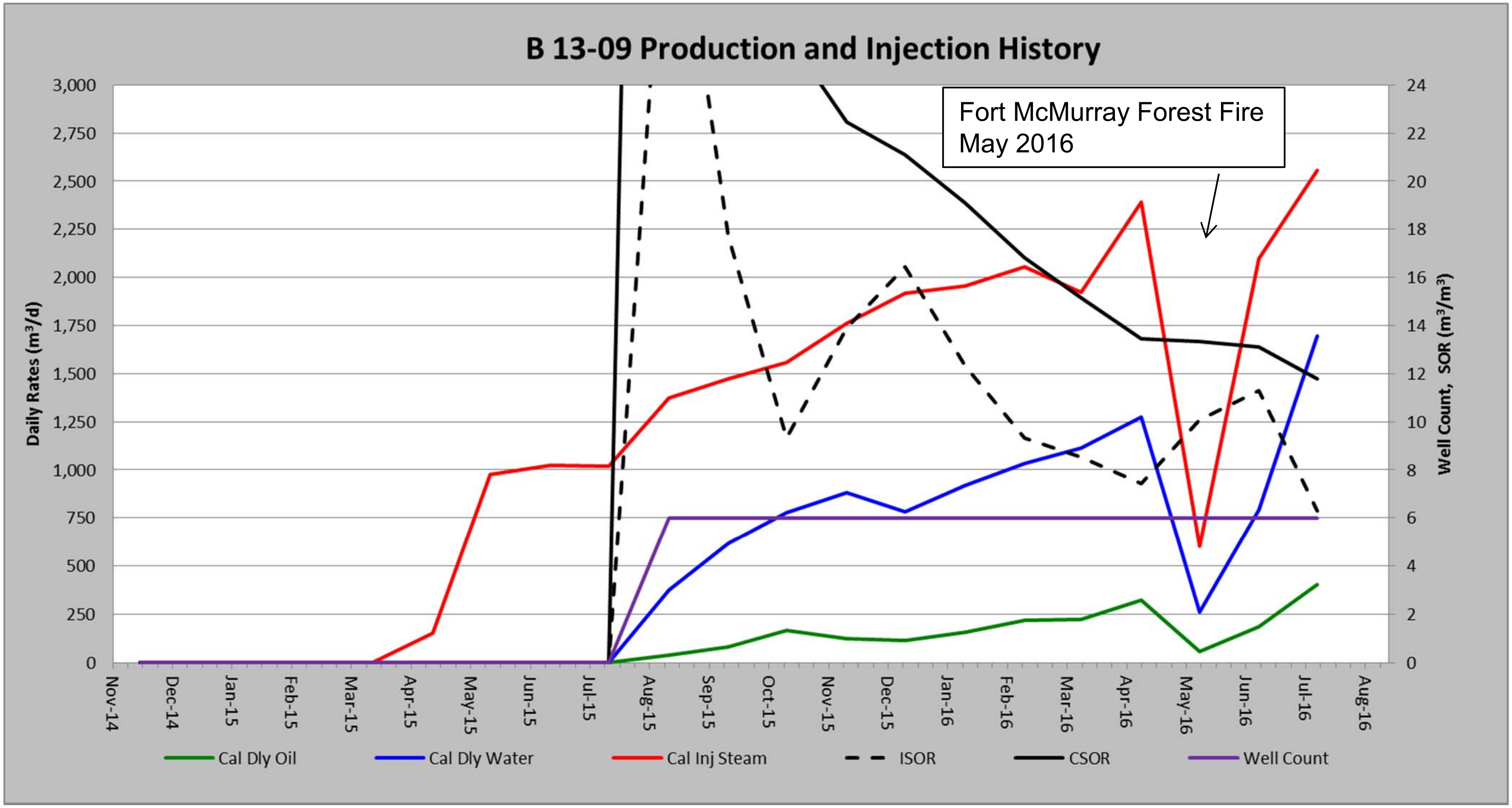
Pad B14-08 (C) Production and Injection History



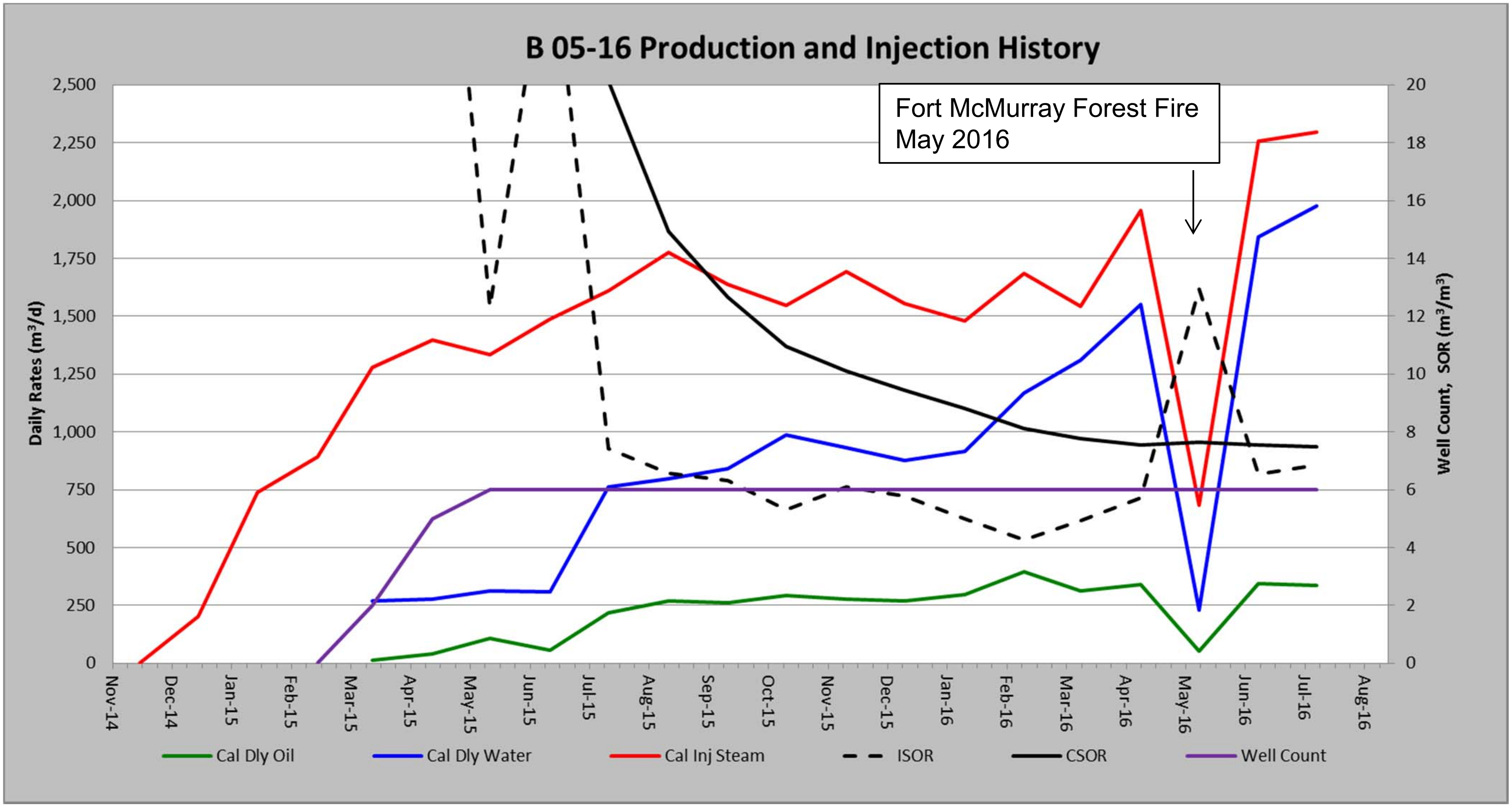
Pad B16-08 (D) Production and Injection History



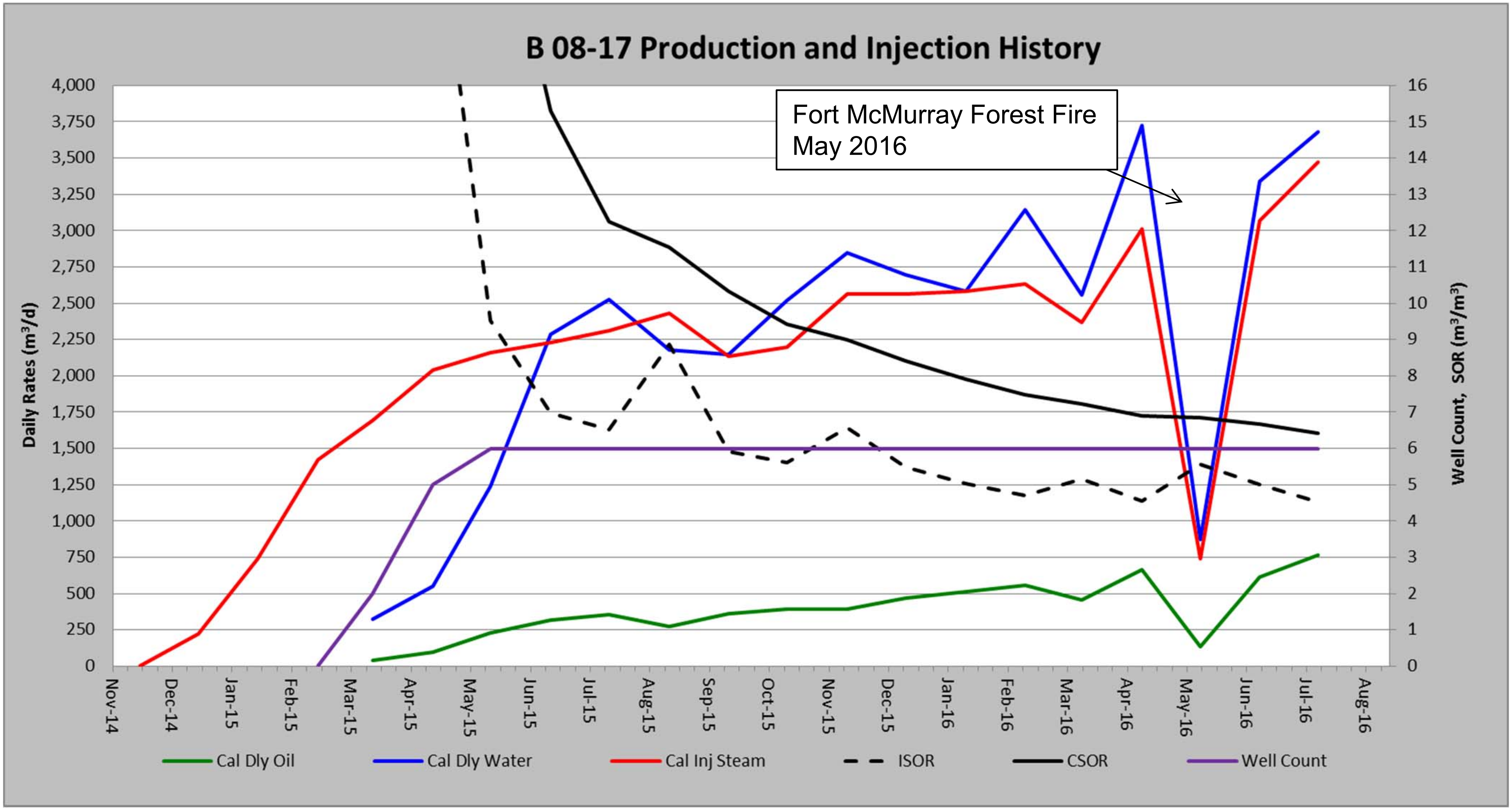
Pad B13-09 (E) Production and Injection History



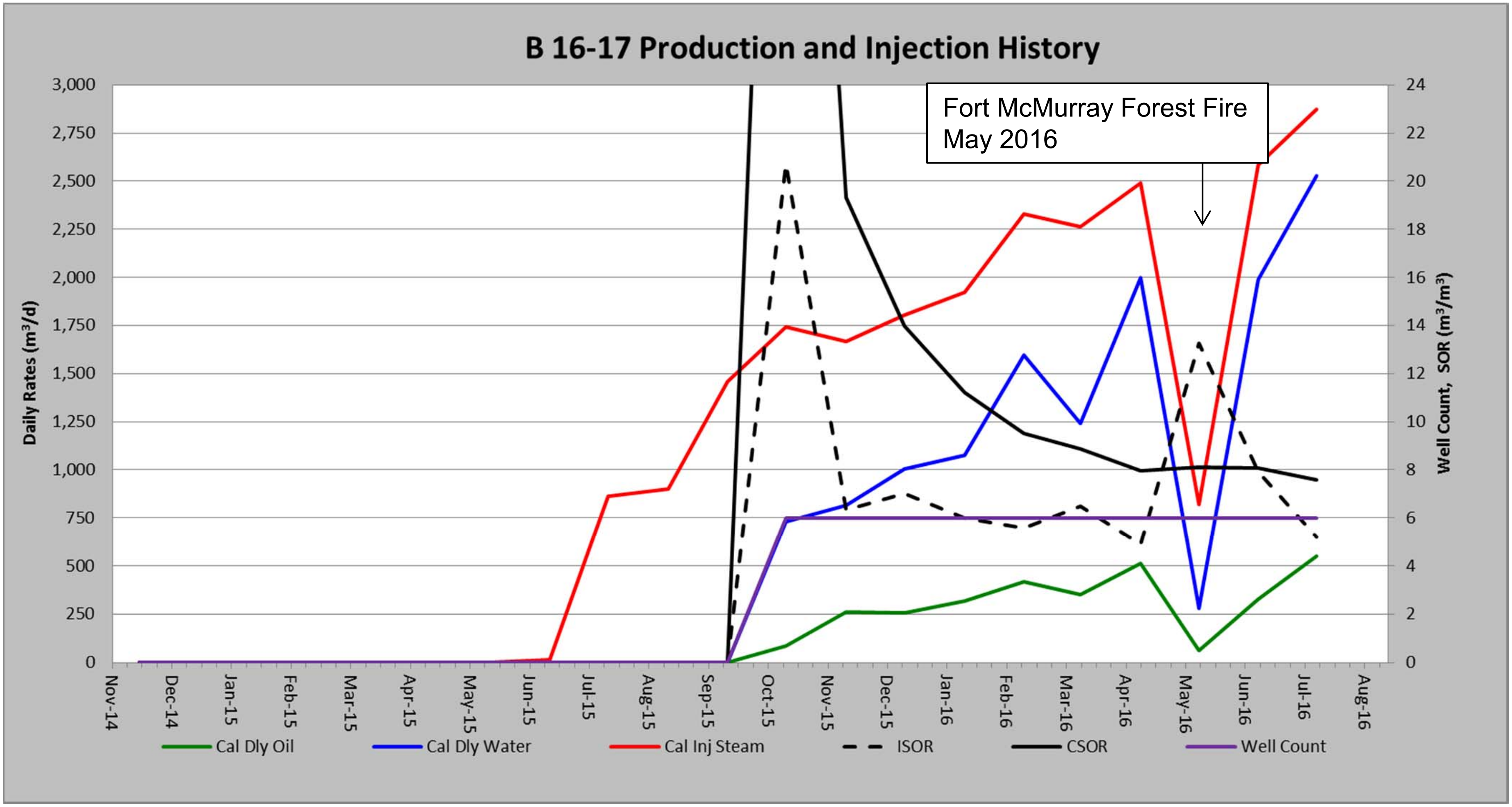
Pad B05-16 (H) Production and Injection History



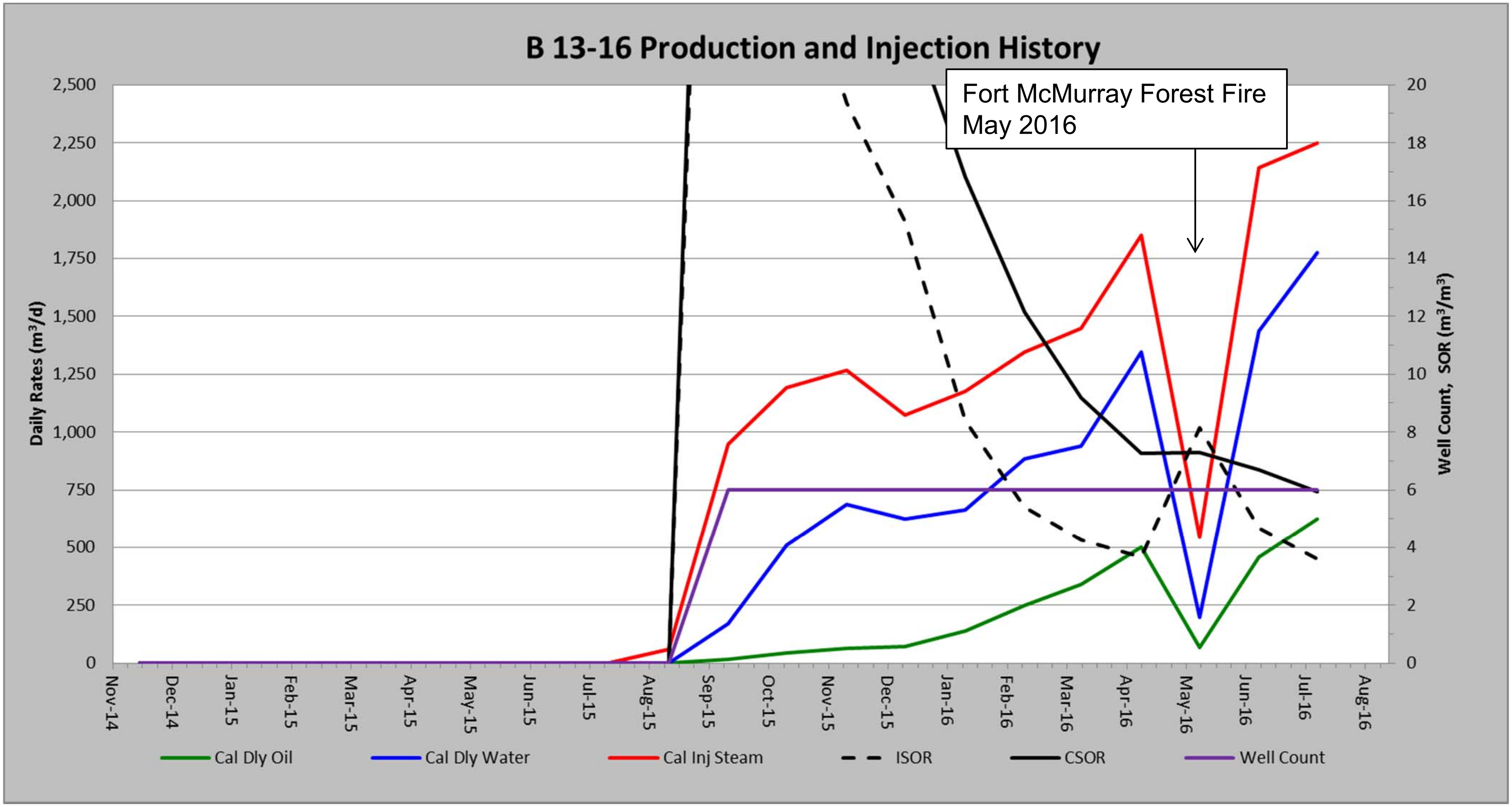
Pad B08-17 (G) Production and Injection History



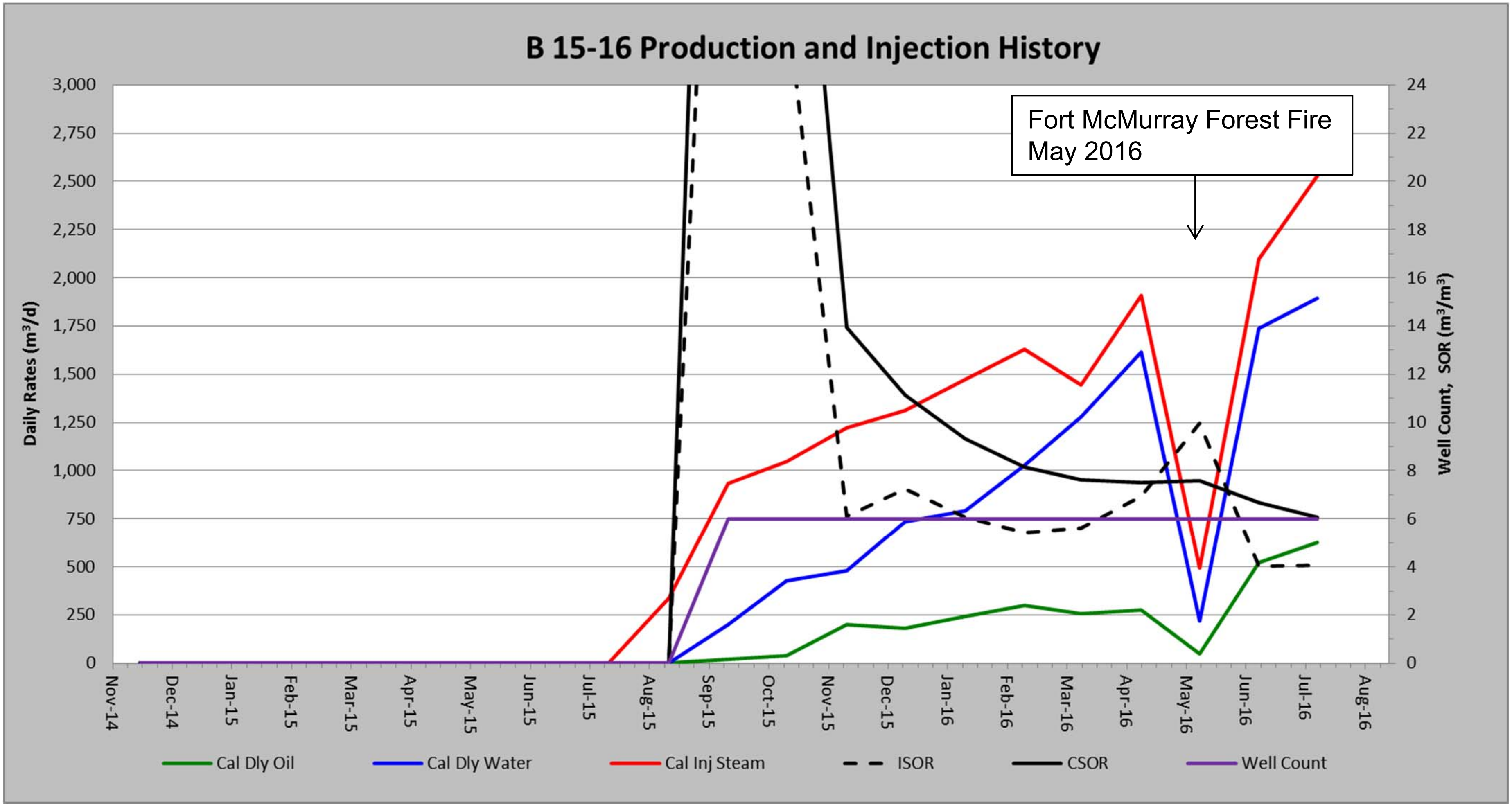
Pad B16-17 (L) Production and Injection History



Pad B13-16 (M) Production and Injection History



Pad B15-16 (N) Production and Injection History



Start-up Strategy / Key Learnings

- Five Pads (B16-08 (D), B13-09 (E), B16-17 (L), B13-16 (M), and B15-16 (N)) were started up during the reporting period

- Well pairs on Pads B16-08 (D), B13-09 (E), and B16-17 (L) were started up using a combination of bullheading and circulation techniques. All well pairs on Pads B13-16 (M) and B15-16 (N) were started up using circulation.

- Key learnings:
  - Whenever possible, circulation is the preferred start up strategy due to it providing the ability to control steam injection pressures and rates in both the injection and production wells. This helps establish communication in the well pair
  - Circulation provides a greater certainty of achieving high steam quality at the toe of the injection string
  - Circulation removes some of the bitumen from the reservoir, which helps accelerate steam chamber development

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

OBIP and Recoveries by Pad

Well PAD	Wells	OBIP (10^3 m^3)	Recovery to date July 31, 2016 (10^3 m^3)	Recovery Factor (%)	Estimated Ultimate Recovery (10^3 m^3)	Ultimate RF (%)
B13-08	7	3,868	217.6	5.6	1,934	50
B14-08	6	4,394	151.6	3.5	2,197	50
B16-08	6	3,219	53.2	1.7	1,610	50
B13-09	6	2,677	64.2	2.4	1,339	50
B05-16	6	3,351	118.3	3.5	1,676	50
B13-16	6	4,325	78.4	1.8	2,163	50
B15-16	6	4,374	82.4	1.9	2,187	50
B08-17	6	3,334	201.9	6.1	1,667	50
B16-17	6	3,999	95.5	2.5	2,000	50
B06-21	7	5,160	0	0	2,580	50
B05-21	7	5,628	0	0	2,814	50
Total	**69**	**44,329**	**1063.1**	**2.4**	**22,167**	**50**

5-Year Outlook of Expected Pad Abandonment

- No pad abandonment is anticipated in the next 5 years

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%

Composition of Other Injected/Produced Fluids

- Not applicable for the reporting period

Summary of Key Learnings

- Circulation is the method of choice, if available, for well pair start up
- Well pair conformance is a challenge – especially in well pairs encountering reservoir heterogeneity
- Periods of extended shut in create challenges when re-starting well pairs

8. Future Plans

Future Plans (2016/2017)

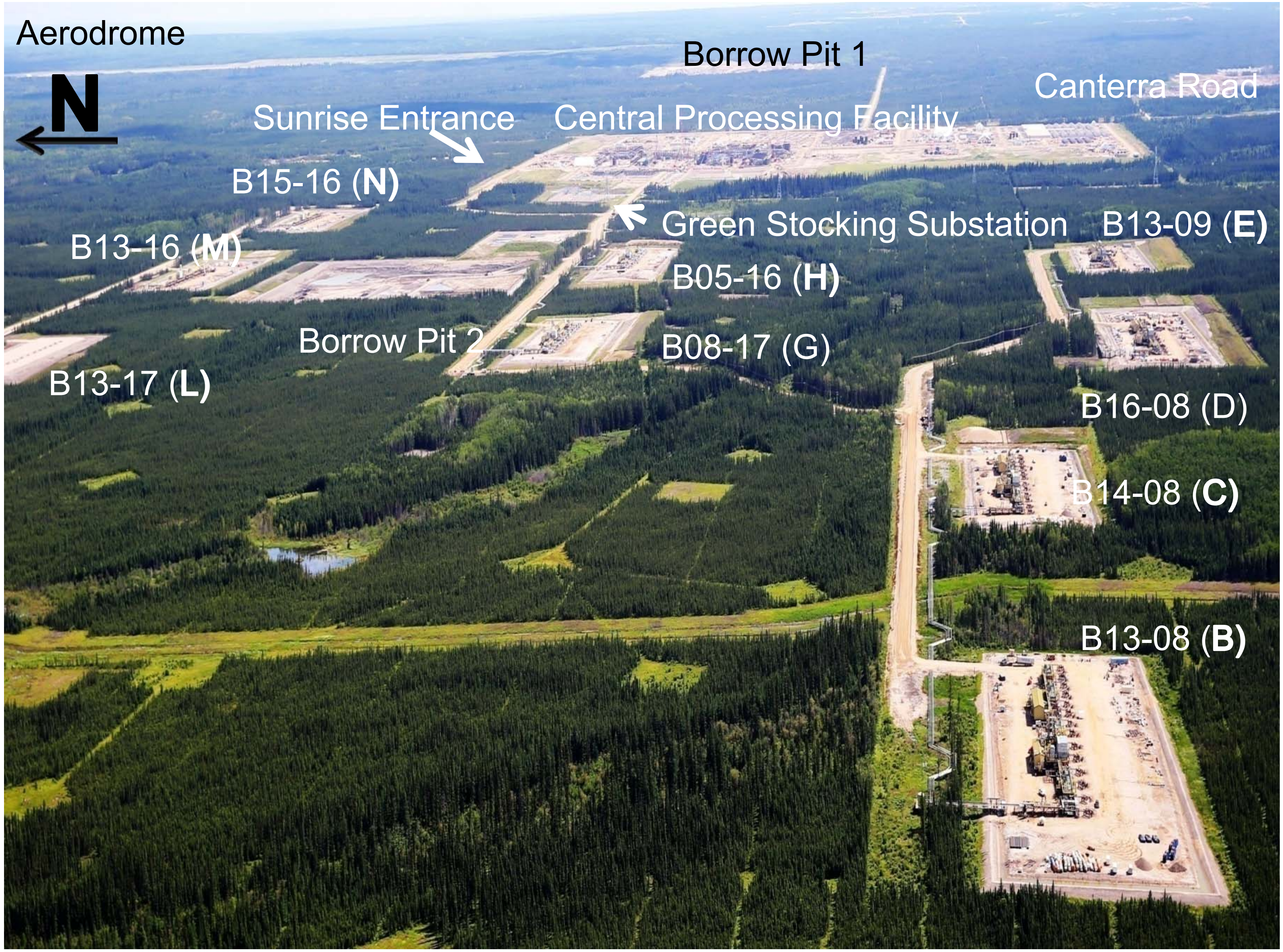
- DA2 Development:
  - Tie-in and start up of first two sustaining pads (B06-21 & B05-21)
  - Sustaining pad drilling planned for 2017
  - Well elevation Amendment Application for Pad B16-16
  - Well Pad B10-16 subsurface & surface facilities Amendment Application
    - drill drainage pattern B10-16 from well pad B13-16(M)
  - Corner reflector installation

- SAGD Operations:
  - Continue to optimize SAGD operations, continue to ramp-up existing wells
  - Ongoing well pair surveillance
  - Ongoing observation wells monitoring
  - Ongoing surface heave monitoring

3.1.2. Surface Operations – Table of Contents

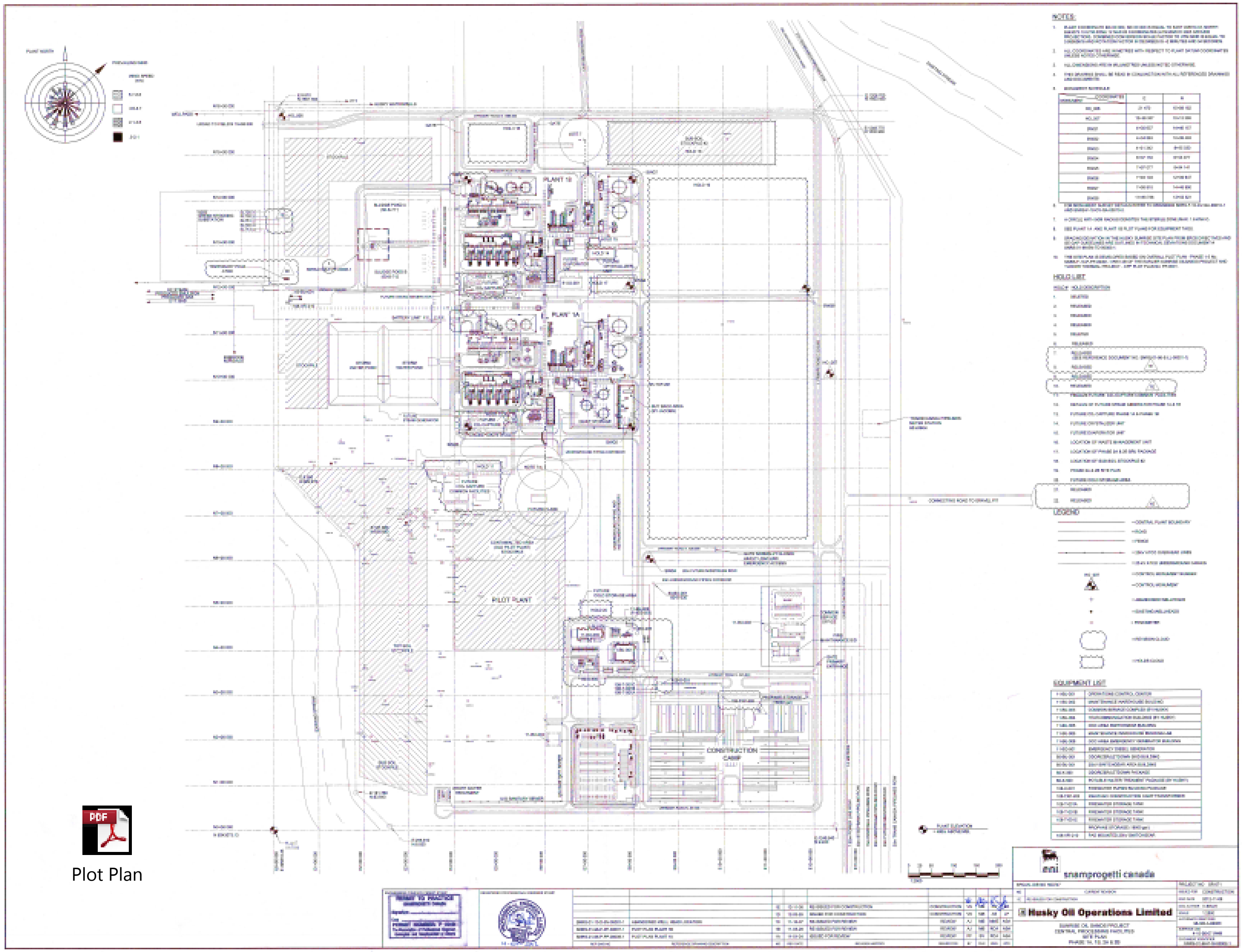
1. Facilities

Sunrise Layout



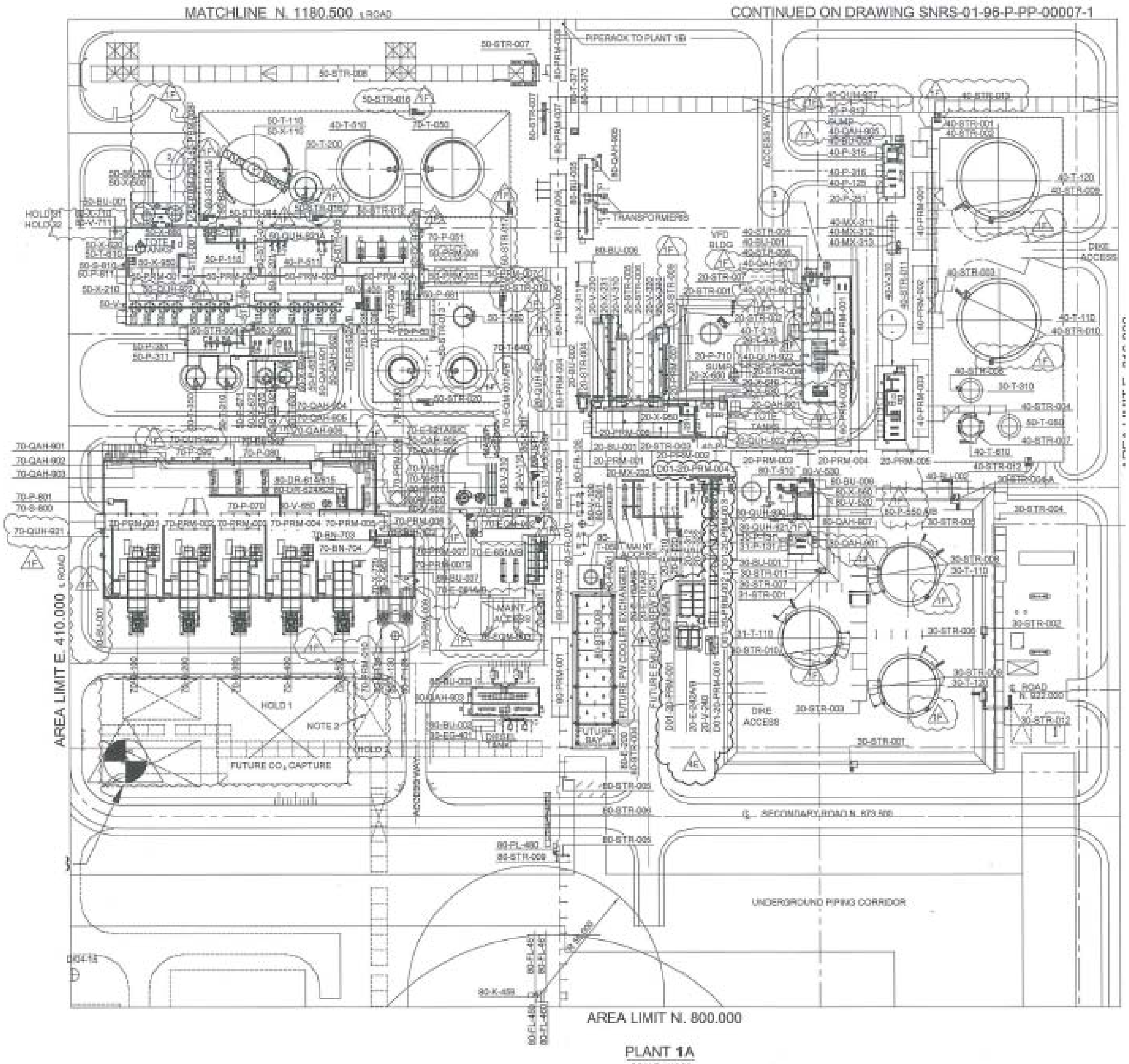
Sunrise Layout Cont.

Facility Plot Plan (CPF)

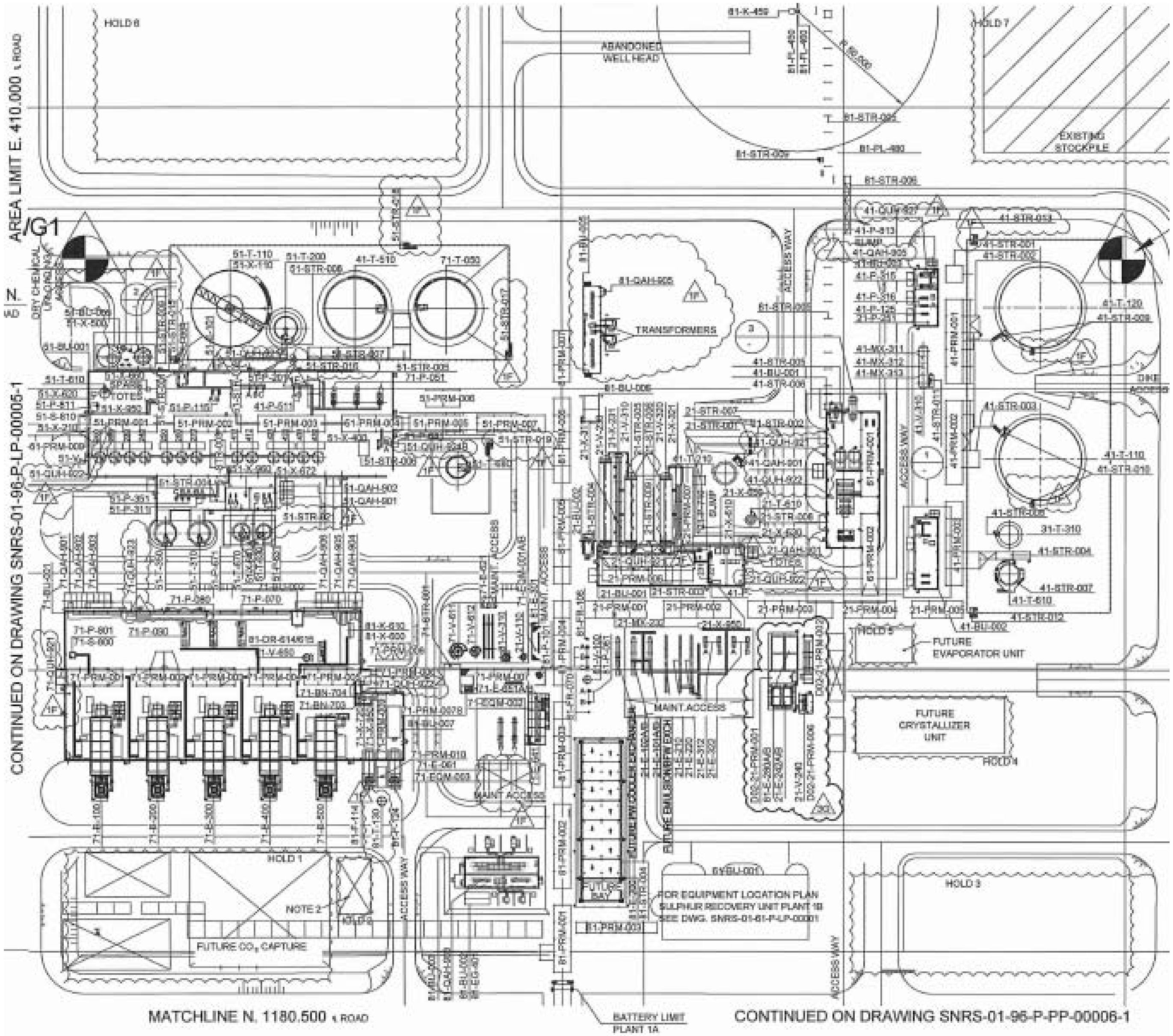


Plot Plan

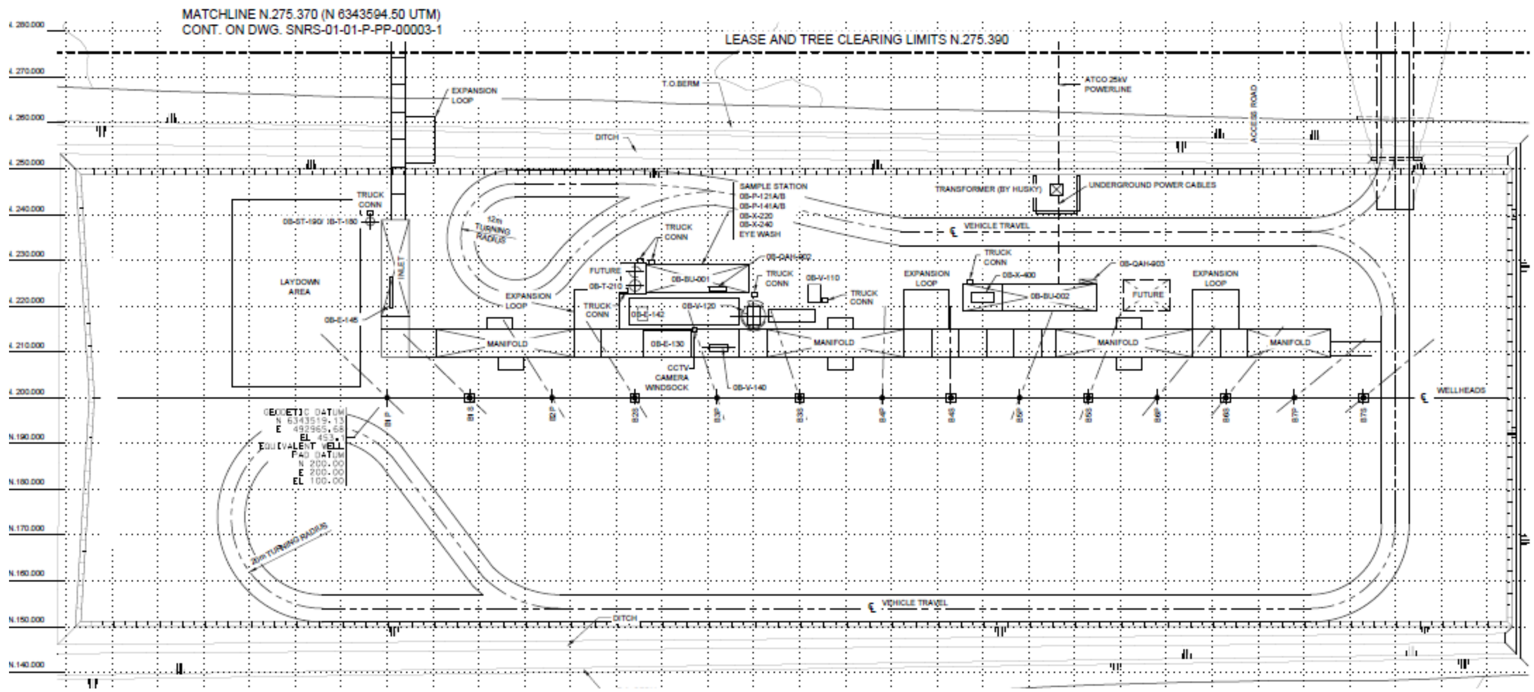
Facility Plot Plan (1A CPF)



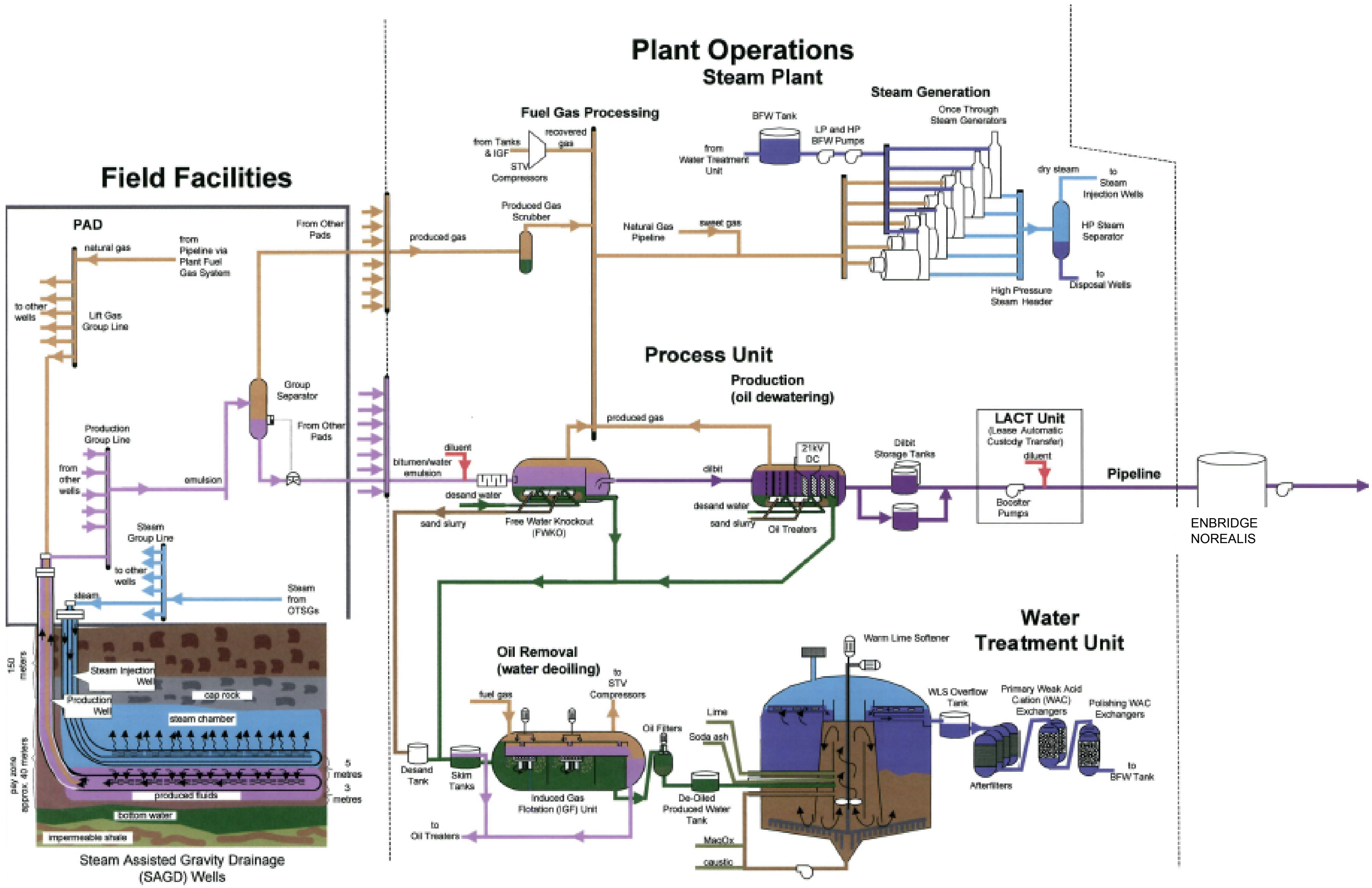
Facility Plot Plan (1B CPF)



Field Facility Plot Plan (Typical)



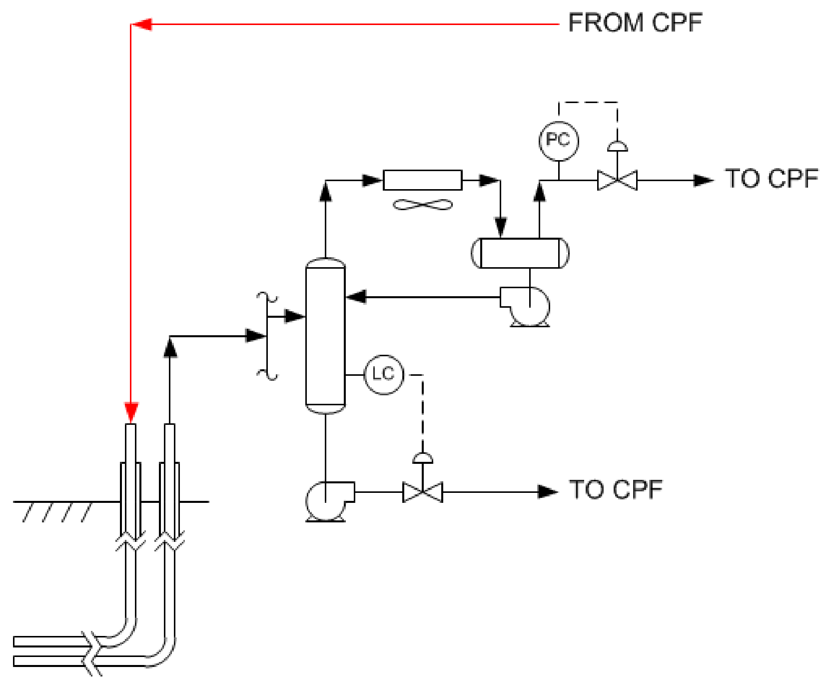
Simplified Plant Schematic



Field Facilities

The operating field facilities consists of:

- Steam and production pipelines
- Injection and production wells
- Group separator
- Test separator package
- Produced gas condenser
- Produced gas separator
- Emulsion and condensate pumps



The performance of the field facilities:

- Calibration issues with water cut analyzers (resolved)
- D060 waivers for DA1 and DA2 well pads (complete)

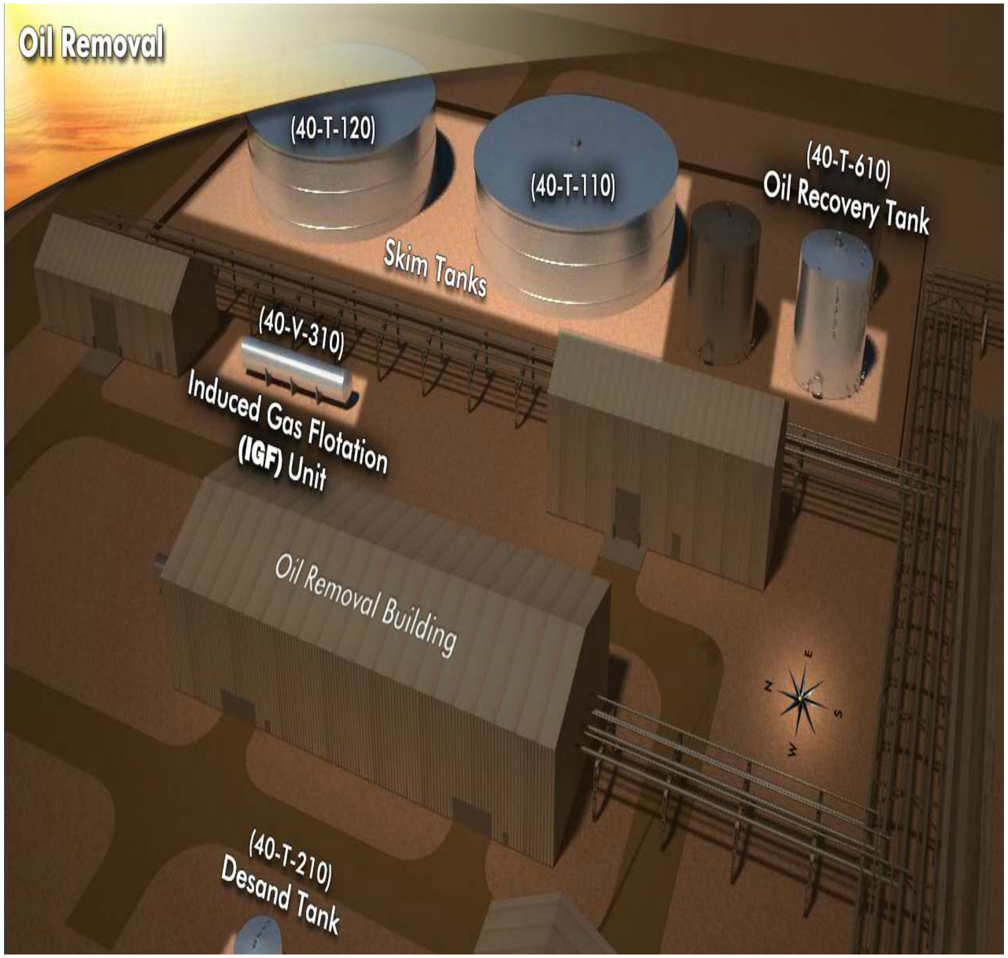
DA2 (initial pads in construction):

- ESPs
- Multiphase pumps for casing gas injection in emulsion
- Minimal surface equipment

Oil Treating

Oil Treating consists of:

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



The Oil Treating equipment has continued to face challenges due to exchanger fouling, turn-down and mixing issues, diluent flashing, and fines. Oil and water upsets are occurring frequently.

Oil Treating KPI's are:

- <0.5% BS&W in Oil (average ~0.4 ppm)
- <1000 ppm Oil in PW (average <400 ppm)

Process Water De-Oiling

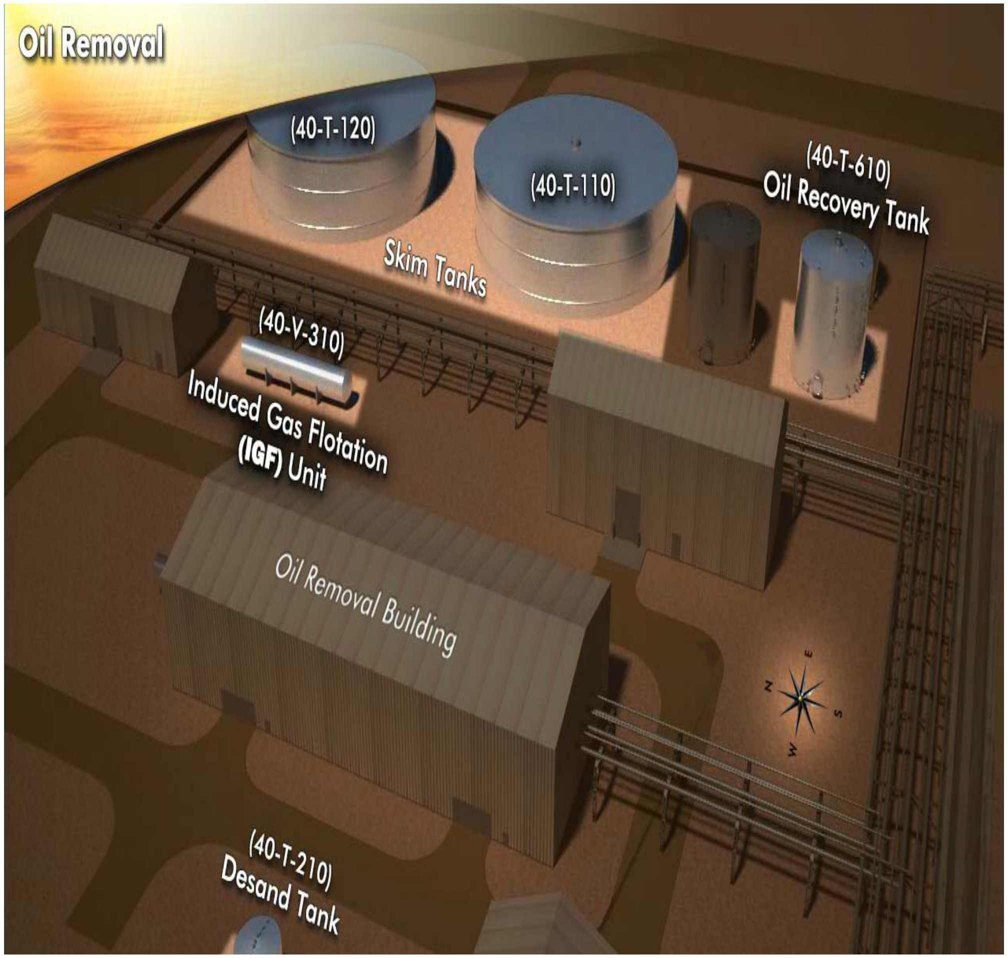
The de-oiling process consists of:

- 2 Skim Tanks
- 1 IGF
- 2 Oil Removal Filters
- 1 Oil Recovery Tank
- 1 Desand Tank

The performance of the de-oiling equipment has been close to spec and is performing well

De-Oiling KPI's are:

- FWKO – 1000 ppm (average <400 ppm)
- IGF Inlet – 100 ppm (average <100 ppm)
- IGF Out – 20 ppm (average <20 ppm)
- ORF Outlet – 3 ppm (average < 3 ppm)



Water Treatment

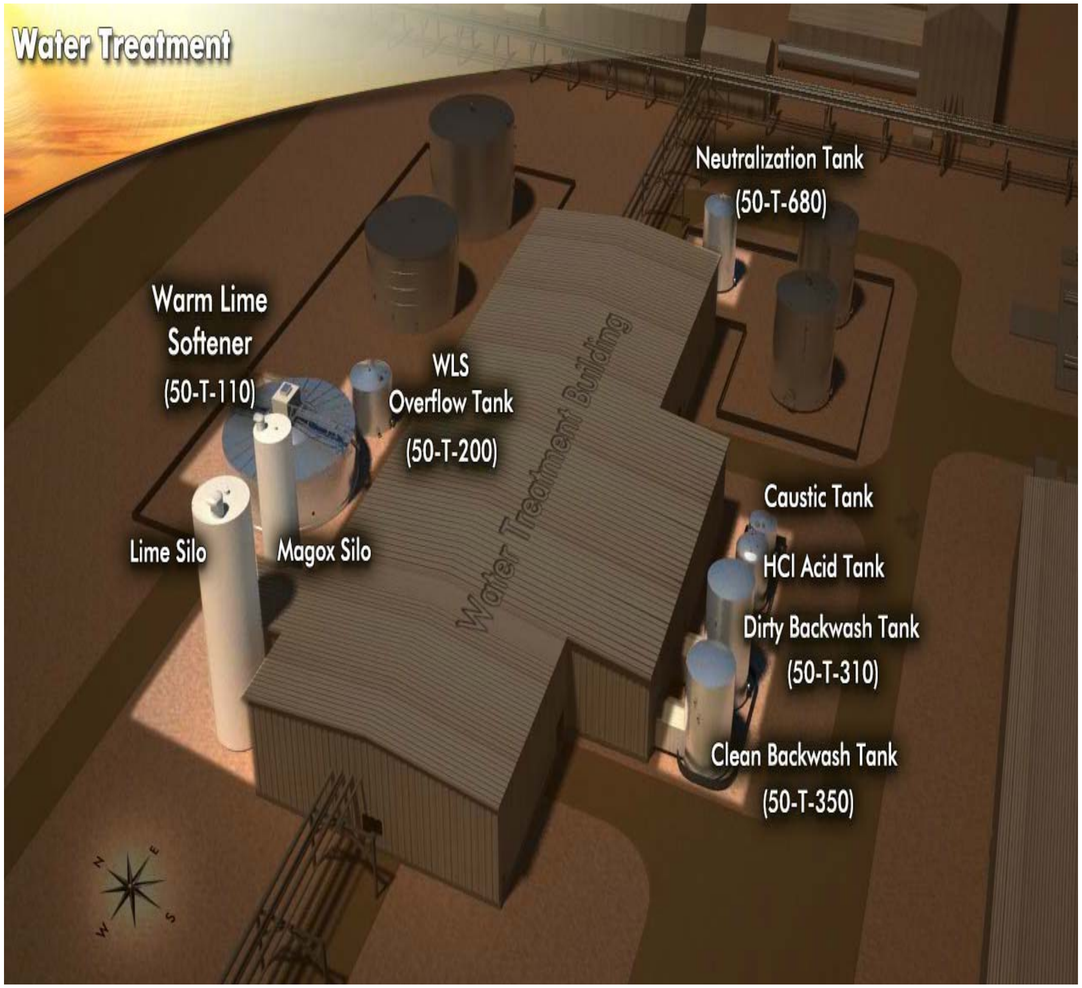
The Water Treatment process consists of:

- Warm Lime Softener
- After Filters
- Weak Acid Cation (WAC) Exchangers/Polishers
- Neutralization / Backwash Systems
- Water treatment chemical feed systems
- Sludge Ponds

The performance of the water treatment equipment has been close to spec and is performing well

Water Treatment KPI's are:

- Total dissolved hardness: < 0.5 mg/L
- Silica: < 50 mg/L
- Turbidity < 2 NTU
- Oil in Water < 1.0
- Total iron: < 300 ppb
- pH: 9.8 to 10.2

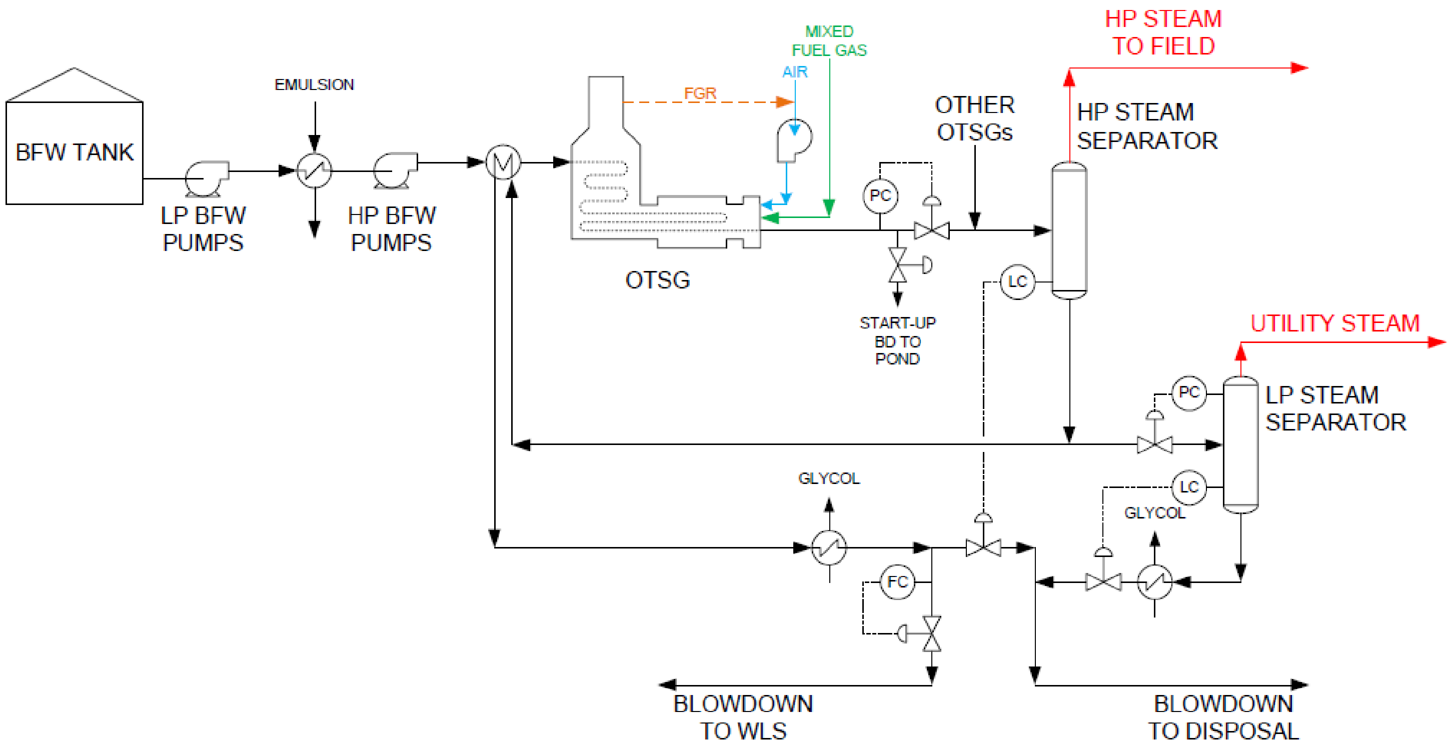


Steam Generation

The Steam Generation System consists of:

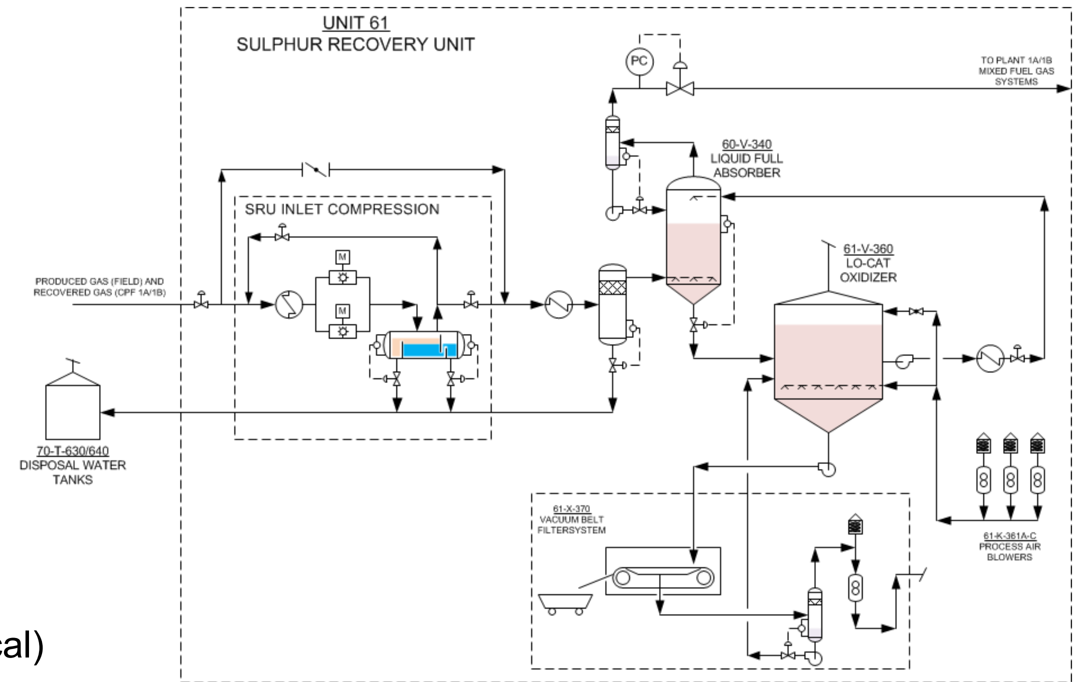
- Once Through Steam Generators
- LP and HP BFW Pumps
- LP Steam system
- Blowdown cooling and disposal

The performance of the Steam Plant is approaching target quality and capacity.



Suphur Recovery Unit (LoCat)

- Permanent SRU online as of October 2015
- SRU consists of:
    - Sour Gas Compression Package
    - Cooler & Coalescing Filter
    - Liquid Full Absorber
    - Absorber KO Pot
    - LoCat ® Oxidizer
    - Solution Cooler/Heater
    - Process Air Blowers
    - Vacuum Belt Package
    - Circulation, Slurry, and Chemical Feed Pumps, Tanks, and Ancillary Equipment

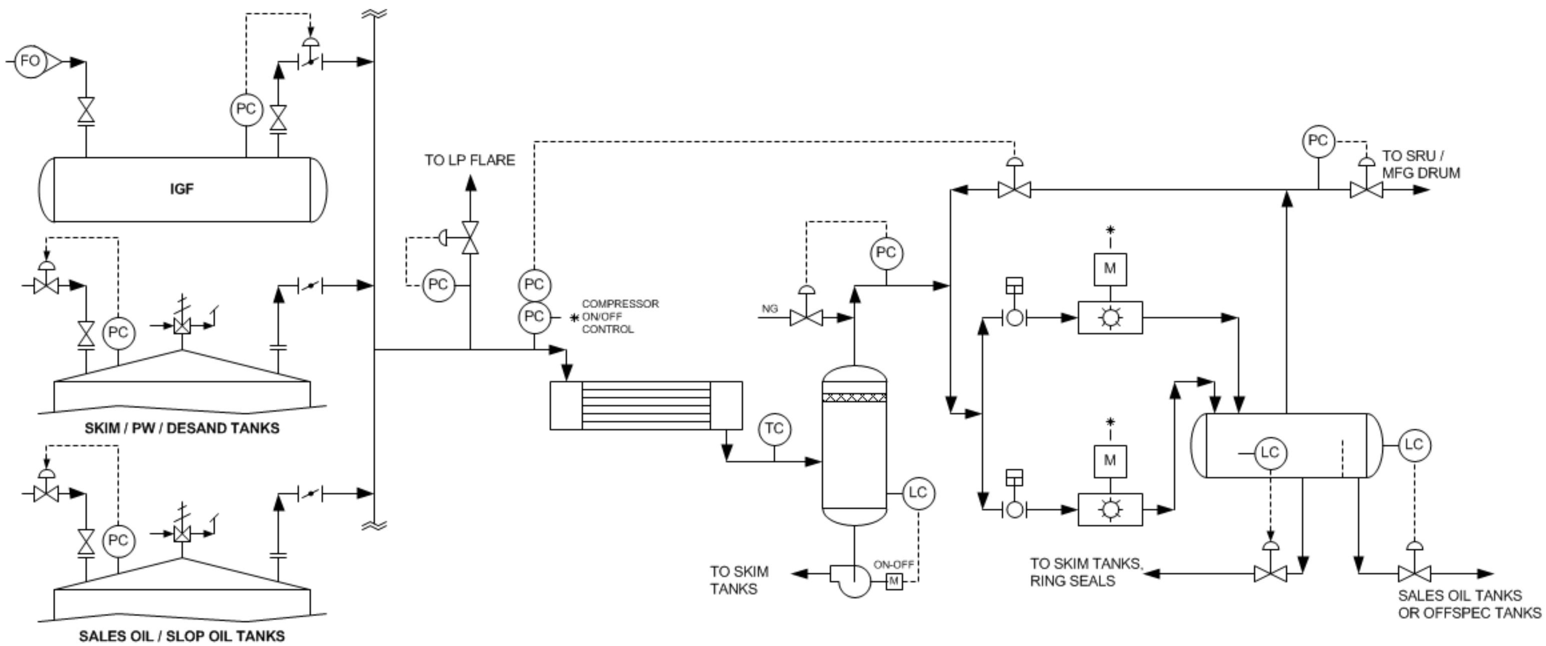


- SRU KPI's are:
    - Net Sulphide Recovery: 80% (typical)
    - Downstream SO_2 < 1.0 t/d

- Triazene Scrubber Package
    - Unit was used on a temporary basis to facilitate start-up of Sunrise
    - Remains on-site pending a determination on whether it can be used as potential stand-by unit for planned SRU outages

Vapour Recovery

- Storage Tank Vapour (STV) recovery system consists of:
  - Collection header with high pressure diversion to LP Flare
  - Inlet Cooler & Suction Scrubber
  - Liquid Ring Compressors
  - Discharge Separator
  - Casing Water Coolers (liquid ring seal water)
  - Condensate Pumps



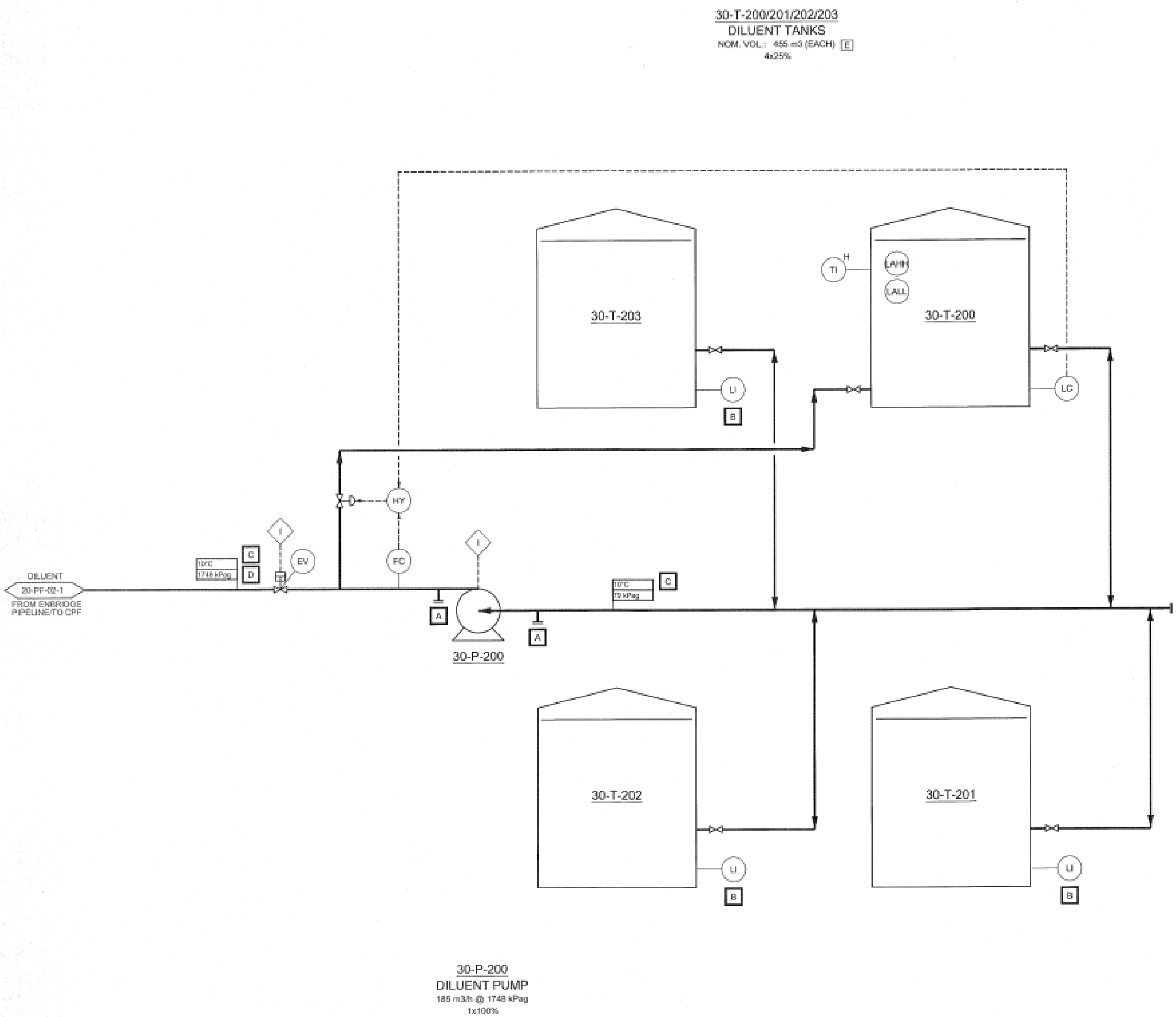
Facility Modifications

- Permanent diluent storage approved; implementation in progress
- Diluent recovery process changes implemented in Q1/Q2 2016
- OTSGs: Duty re-rate for downtime / FGR isolation and analysis / structural reinforcement
- Tank Venting / STV System
- Spent lime pond containment – return to operation – Fall 2015 Leak detection system – Leakage meets ALR
- Free water knock-out (FWKO) and treater internal modifications

Facility Modifications – On-Site Diluent Storage

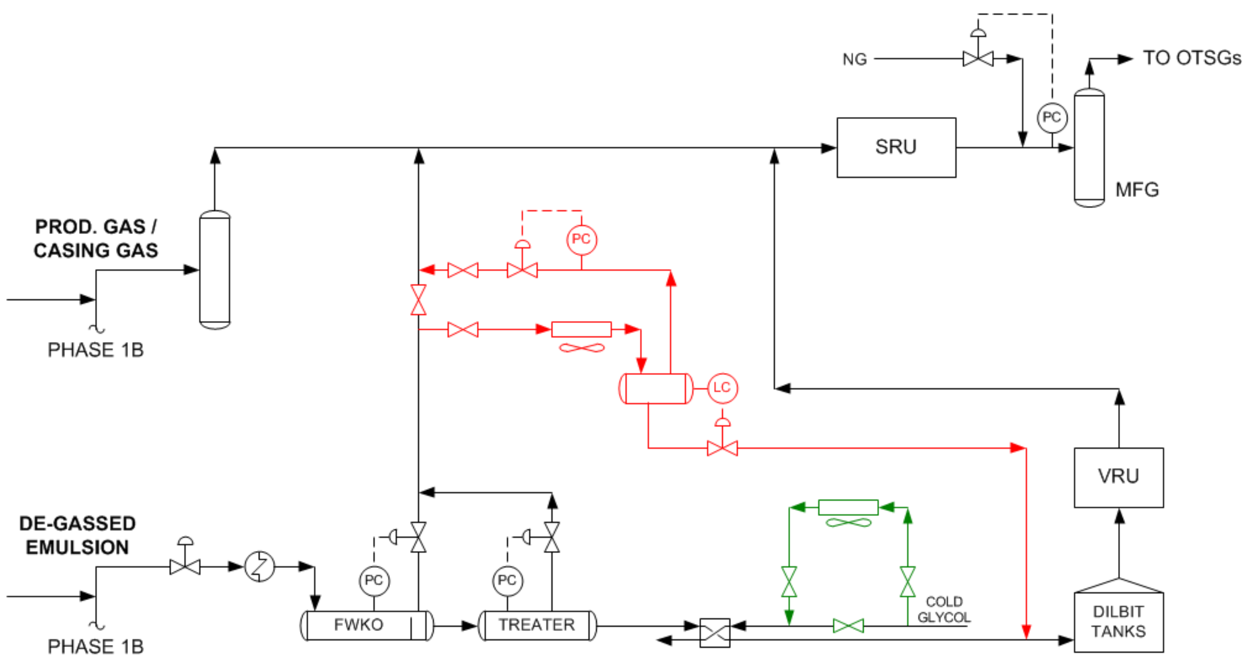
- Original design had no diluent storage on-site; was anticipated that diluent could be supplied continuously from Norealis due to proximity to Sunrise
- During start-up, determined that there is a minimum required flow rate for the pipeline to ensure pipeline leak detection and metering
- Frequent diluent supply outages were occurring and any diluent outage longer than a few minutes results in a plant upset and shut-down
- Submitted Amendment Application to install on-site diluent storage tanks on the CPF
- ~1,800 m^3 nominal capacity to provide for typical forecasted outages and those experienced to date. Includes required AER Directive 055 secondary containment and supply pump
- Internal floating roof tank

Facility Modifications – Diluent Storage Cont'd



Facility Modifications – Diluent Recovery

- Diluent composition significantly lighter than the original design anticipated
- Original CPF design based on 75 kPa Reid Vapour Pressure (RVP) diluent
- Current diluent RVP ranges between 95 kPa and > 103 kPa
- Completed Q1 2016 (1A) and Q2 2016 (1B)



Facility Modifications – OTSGs

OTSG Duty Re-rate:

- Increase duty to allow for increased steam generation to compensate for downtime/pigging
- Regulatory and ABSA approvals received

FGR Isolation and Analysis / Structural Reinforcement:

- OTSGs were experiencing high vibration issues; flue gas recirculation suspended and isolated
- Implemented structural reinforcement but still experienced significant vibration when FGR operated
- FGR offline
- Will provide update to AER in October 2016, as required

Facility Modifications - Tank Venting

- Husky submitted updates to the AER in Nov 2015 and Jul 2016 summarizing the cause of the intermittent tank venting and mitigation measures employed. Husky has committed to submitting an update to AER in November 2016.

Causes:

- All of the intermittent venting issues are interrelated and can be divided into the following categories:
  - Oil in produced water (under-carry of emulsion and/or dilbit
  - Rag and slop draining (flashing in tanks)
  - Off-spec recycle and resulting build-up of fines and rag/emulsion stabilizers
  - Produced water cooler fouling (operability and effect of cleaning)
  - Light diluent issues (cooling and diluent recovery)
  - Vapour recovery system

Facility Modifications – Tank Venting Cont'd

Mitigations:

- Replaced all pressure transmitters on tanks connected to the vapour recovery systems; improvement in measurement and control
- Implemented strap-on meters to measure inlet emulsion flow rates and made pressure control modifications; improved process stability
- Completed modifications to the FWKO and Treater internals
- Adding globe valve to restrict slop/rag run-down rates in progress
- Implemented modifications to FWKO interface control using nuclear density transmitters to reduce oil under-carry
- Installed inline mixers on recycle with ability to add diluent
- Initiated a multi-vendor review of inlet mixing (emulsion and diluent)
    - Original equipment manufacturer
    - Independent EPC review
    - Computational fluid dynamics (CFD) review of the inlet mixing system
- Reviewed and replaced recycle valve trim and liquid control valves to optimize the system
- Currently testing chemical addition to discharge separator to break emulsion

2. Facilities Performance

Operating Issues and Limitations

Operating issues / limitations:

- Downstream disruptions causing sales pipeline curtailment
- Fort McMurray forest fire resulted in a complete shut down and a cold start-up
- Low flow rates (turn-down issues during initial ramp)
- Separation issues in Free Water Knock Out (FWKO) and Treaters
- Fines in bitumen resulting in the need to truck slop oil off-site
- Light diluent vaporizing into fuel gas
- OTSG operability
- SRU - potential mercaptan odour
- SRU - hydrocarbon venting mitigation and Continuous Emission Monitoring System (CEMS) issues
- Tank venting

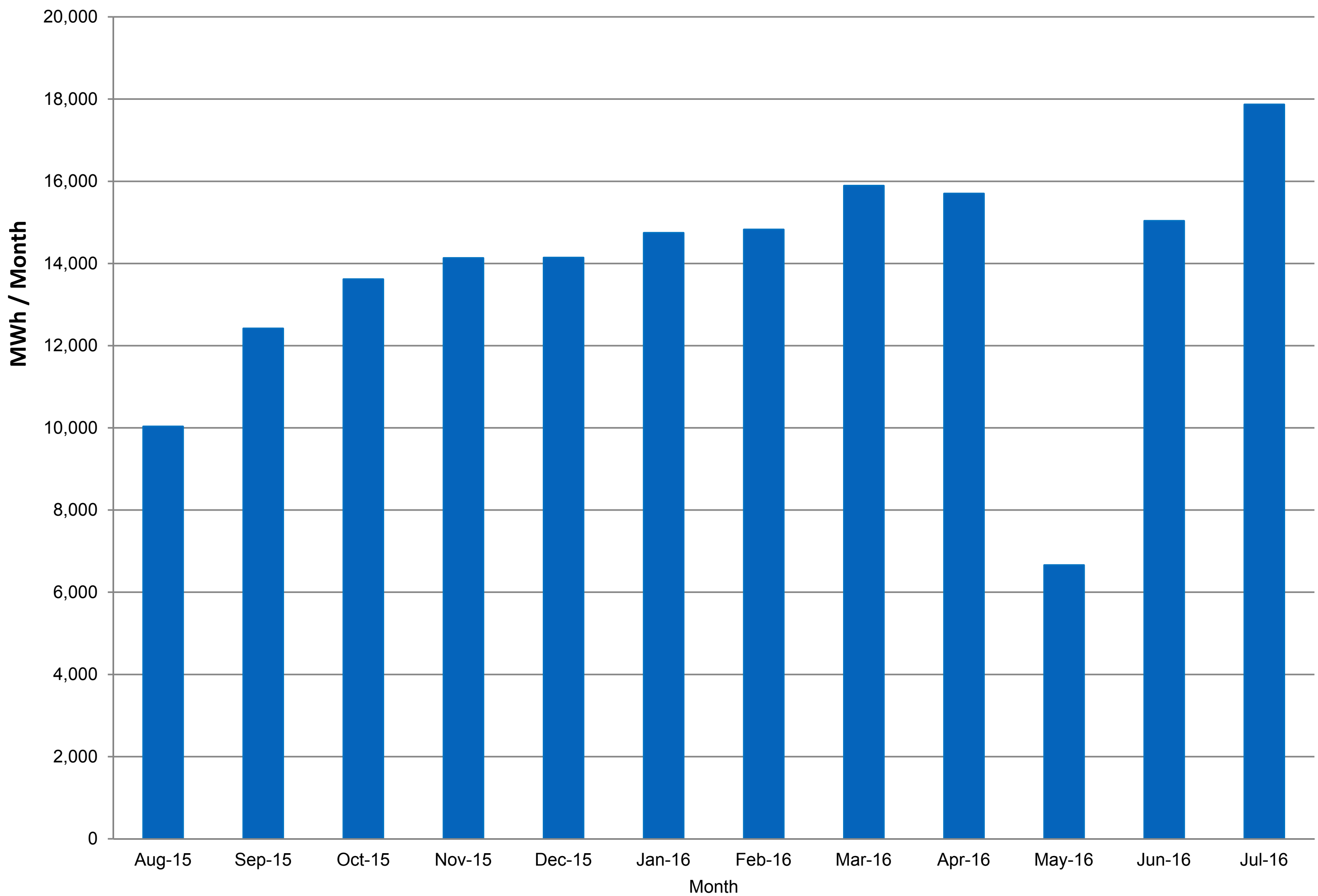
SRU Issues Summary – Hydrocarbon Venting

- October 20, 2015 - Odour identified and notification provided to AER
- Sampled oxidizer vent stack - Determined source of odour present in the vent stream was mercaptans and hydrocarbons (not anticipated)
- November 12, 2015 - Following confirmation of analytical, non-compliance reported to AER (7-day letter submitted November 19, 2015)
- December 4, 2015 - Met with AER to discuss path forward; committed to ongoing reporting into Petrinex (continue vent sampling)
- March 14, 2016 - Met with AER to discuss progress on mitigation development; requested to return September 2016 with mitigation option and schedule
- Requested and received AER Directive 060 Venting Variance (valid until December 31, 2016)
- Continue vent analytical sampling
- Ongoing communications with Stakeholders
- October 3, 2016 – Met with AER to present mitigation plan and schedule

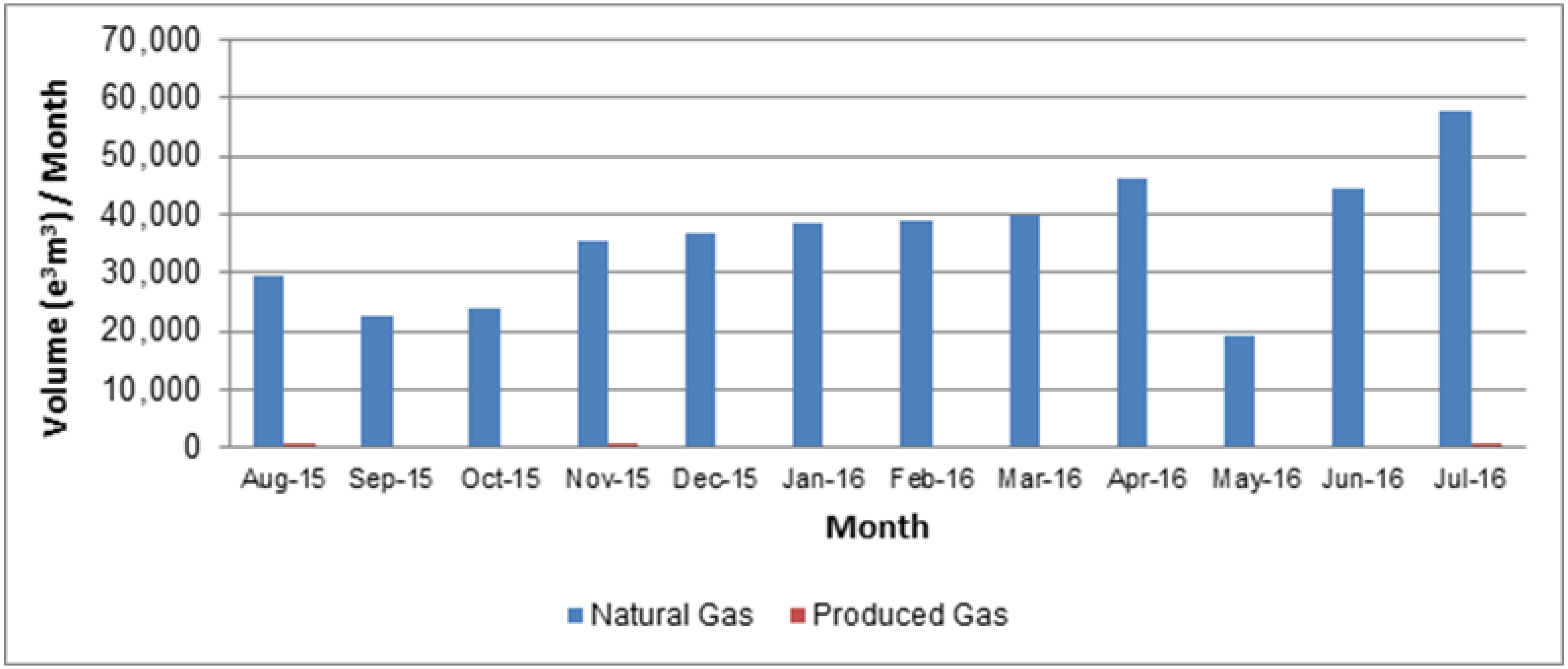
SRU Issues Summary – CEMS

- November 11, 2015 – Notification provided to AER that Sunrise was experiencing operational challenges with the CEMS installed on the SRU oxidizer vent stack
- November 18, 2015 - 7-day letter submitted, outlining proposed strategy to rectify the issues
- Strategy was unsuccessful and neither Husky nor the vendor had been able to develop a solution to enable the CEMS unit to operate properly within the SRU oxidizer vent stack
- Husky applied for and received a Temporary Authorization from AER to vary from the CEMS requirements as listed in the facility EPEA Approval 206355-01-00 (Conditions 3.7 and 3.8) until October 31, 2016
- In addition to the operational challenges with the CEMS, Husky was in the process of determining a mitigation for the SRU oxidizer vent hydrocarbon emissions
    - given that the mitigation for the hydrocarbon venting would have an impact on the operation of the SRU vent stack, Husky requested the temporary authorization until October 31, 2016
    - at that time, the impact of the mitigation should be understood and Husky will be able to commit to a solution/alternative for the CEMS requirement
- Husky is continuing to sample the oxidizer vent stack for H_2S on a regular basis
- To date, no H_2S has been detected in the vent stream samples

Power Consumption



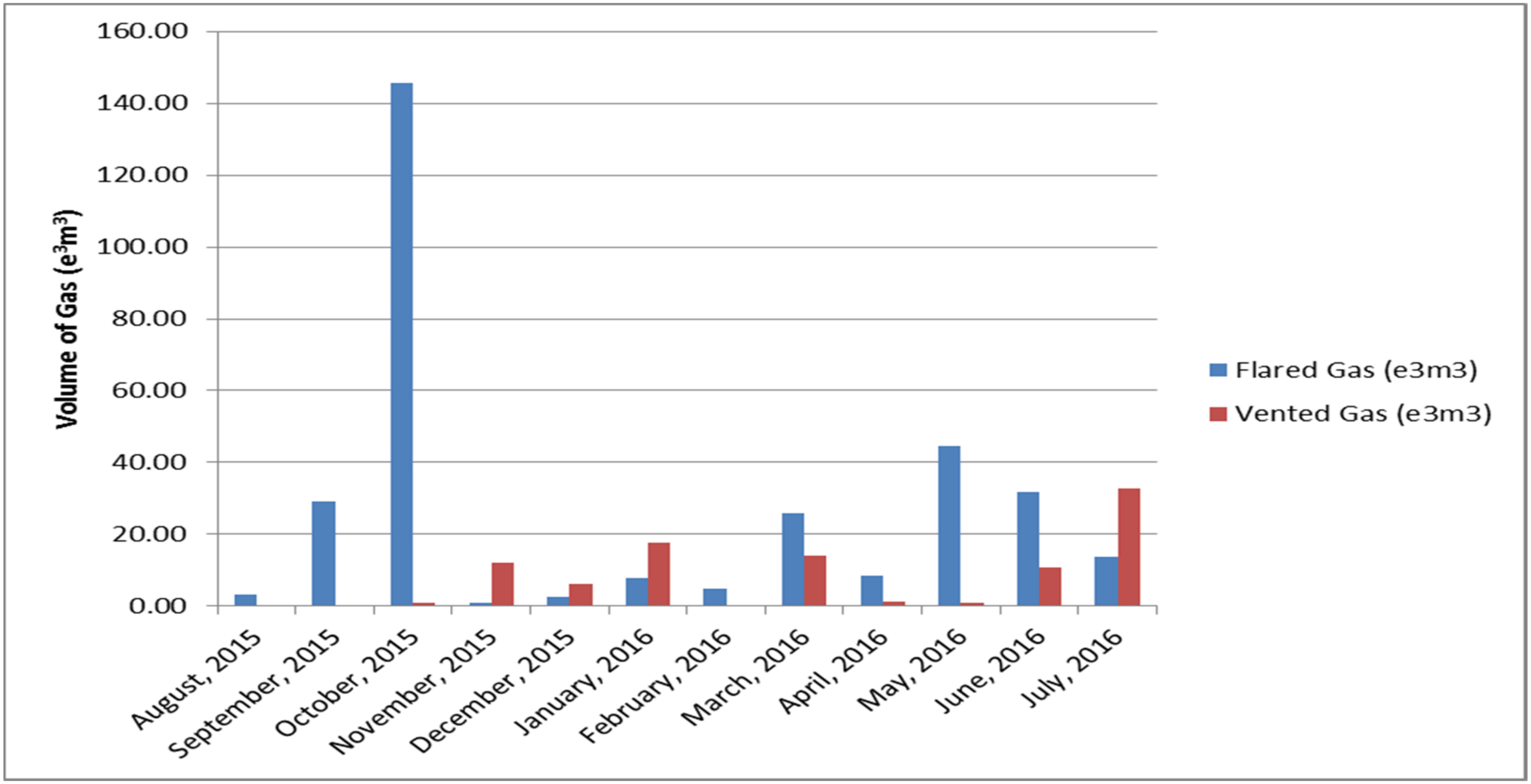
Gas Usage



Volume (e³m³) / Month
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Aug-15
Sep-15
Oct-15
Nov-15
Dec-15
Jan-16
Feb-16
Mar-16
Apr-16
May-16
Jun-16
Jul-16
Month
Natural Gas
Produced Gas

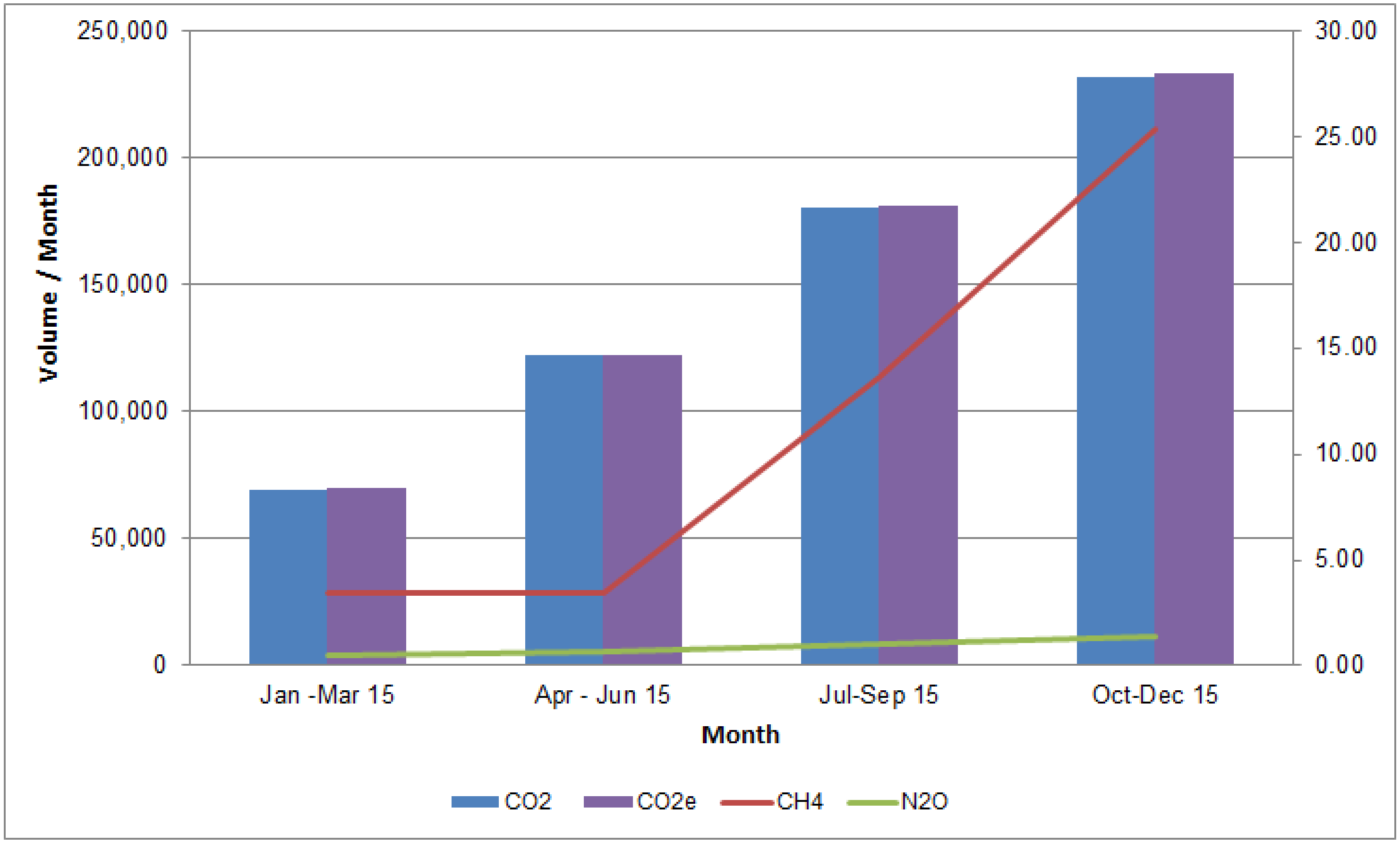
Flaring and Venting

- No occurrence exceeded 4 hour in duration
- All solution gas is recovered to the CPF for treatment in the SRU and combustion in the OTSGs



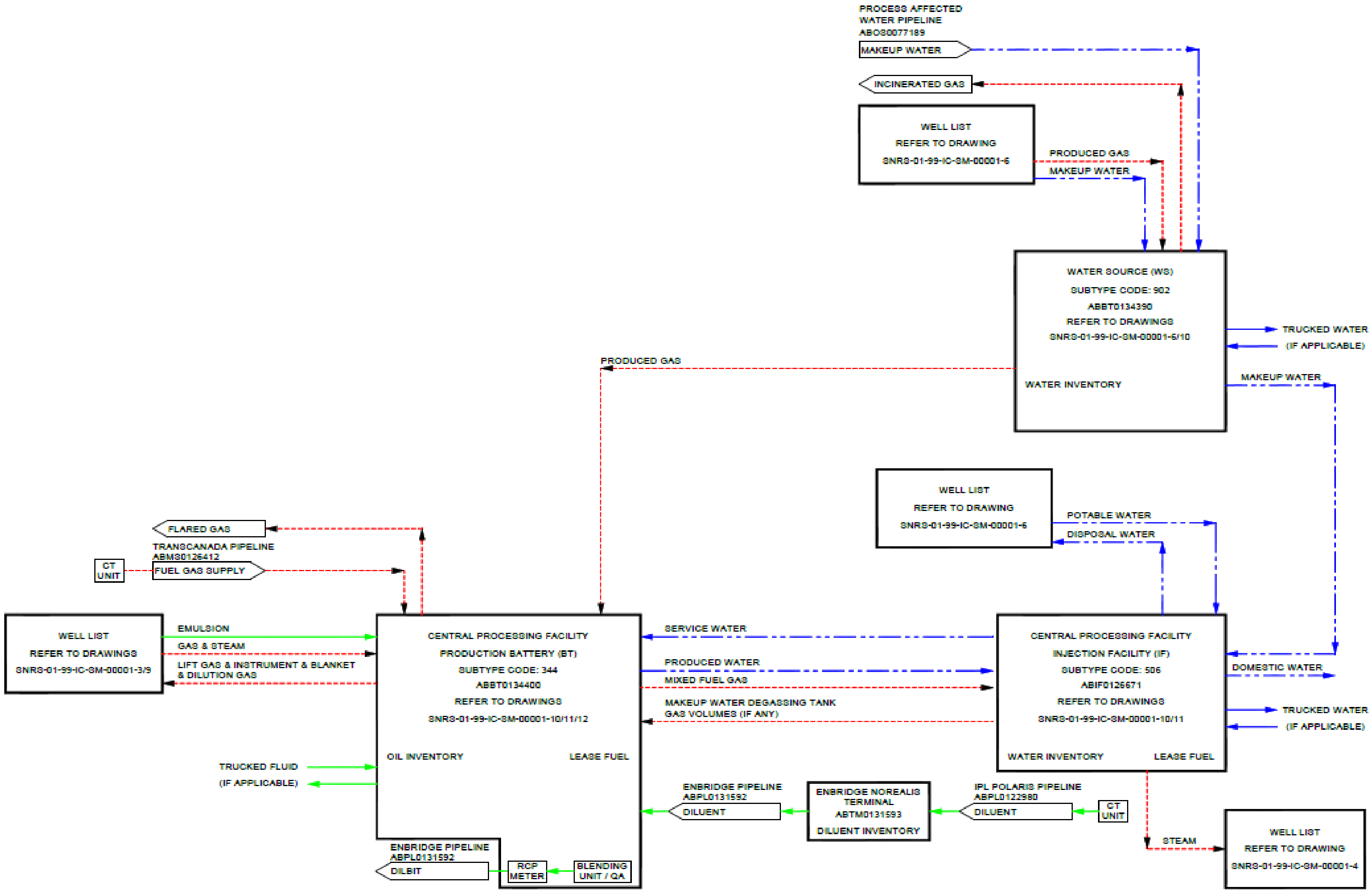
Green House Gas (GHG)

- Emission sources considered include stationary combustion associated with steam generators and glycol heaters, flaring, venting and fugitive emissions. Does not include GHG emissions from fugitives and mobile sources, propane and diesel combustion.



3. Measurement and Reporting

Measurement and Reporting - Overview



Measurement and Reporting
Water Source Battery ABBT0134390

- Suncor PAW water receipt started November 2014
- Kearl MUW wells all started up:
  - 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
- Water source battery water balance closed at:

Date	Water Balance (%)
Aug-15	-1.3
Sep-15	-0.1
Oct-15	1.26
Nov-15	-1.74
Dec-15	3.68
Jan-16	0.62
Feb-16	1.44
Mar-16	4.41
Apr-16	4.62
May-16	1.38
Jun-16	2.47
Jul-16	4.04

Measurement and Reporting
Injection Facility ABIF0126671

- Primary and secondary Boiler Feed Water (BFW) measurement balances within 5%
- Reported Spent Lime Pond inventory:
  - <u>Sources:</u> OTSG blowdown, SWS, leachate from landfill.
  - <u>Users:</u> water treatment
- Trucked in/out water loads are accounted for
- No solvents or non-condensable gases injected to the reservoir
- Injection Facility closing water balance and steam allocation:

Date	Water Balance (%)	Steam Allocation (%)
Aug-15	3.7	0.98
Sep-15	2.5	1.00
Oct-15	-3.3	0.99
Nov-15	4.4	0.95
Dec-15	2.5	0.98
Jan-16	1.8	0.98
Feb-16	3.0	0.99
Mar-16	0.1	0.96
Apr-16	0.3	0.99
May-16	1.6	0.91
Jun-16	2.2	0.98
Jul-16	3.3	1.02

Measurement and Reporting
In Situ Oil Sands Battery ABBT0134400

- Primary and secondary produced water measurement balances within 5%
- Temporary diluent storage approved until completion of construction and turnover of permanent diluent storage
- Blending shrinkage used in bitumen production accounting
- Trucked in/out water and oil loads are accounted for the reporting period

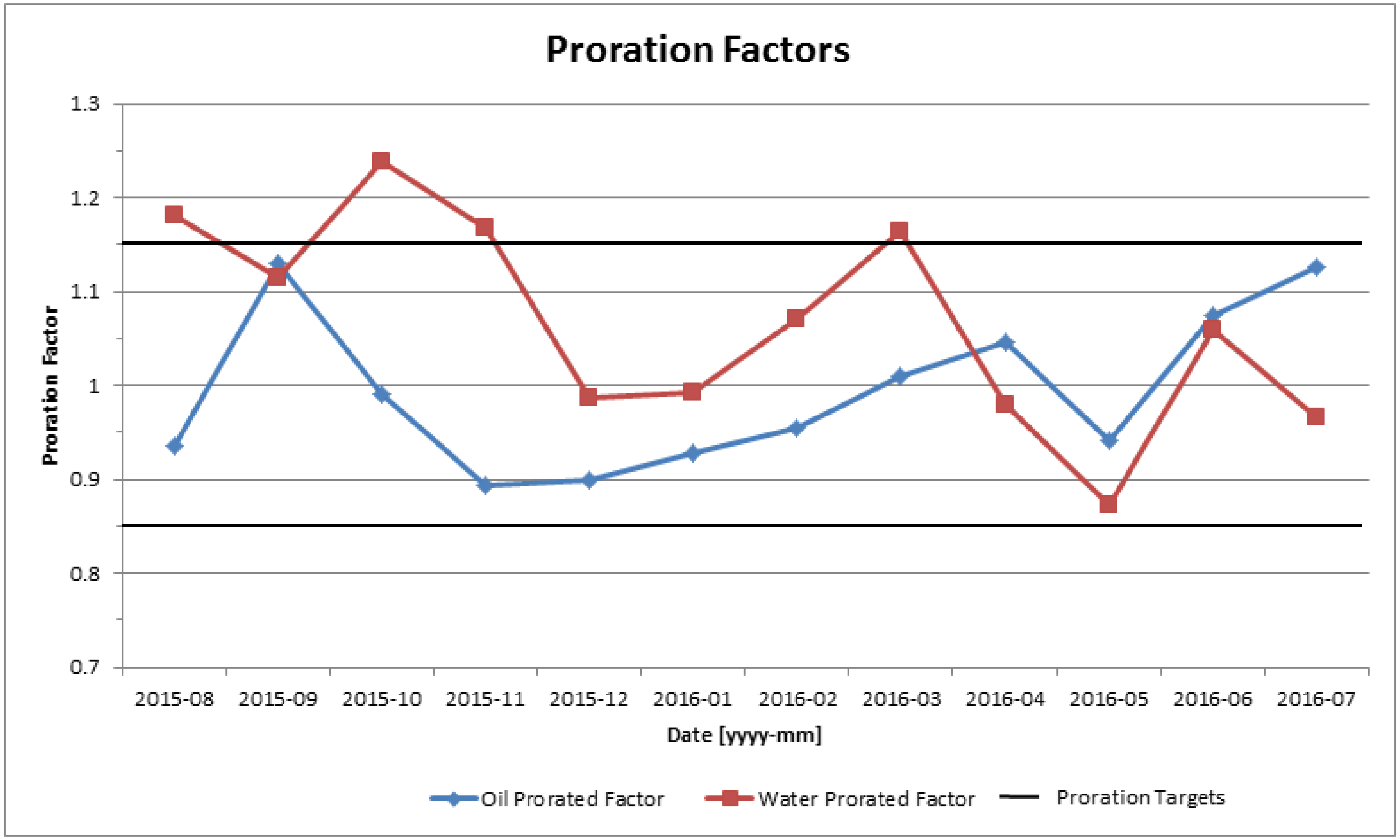
Monthly Battery GOR	
Date	GOR e^3m^3/m^3
Aug-15	0.02016
Sep-15	0.00257
Oct-15	0.00537
Nov-15	0.00956
Dec-15	0.00345
Jan-16	0.00318
Feb-16	0.00136
Mar-16	0.00000
Apr-16	0.00000
May-16	0.01018
Jun-16	0.00000
Jul-16	0.00535

Measurement and Reporting
In Situ Oil Sands Battery ABBT0134400

- Well testing:
  - Oil proration battery. Oil and water estimated by well tests
  - Technical issues identified with well testing equipment :
    - VSD submitted August 24, 2015, updates submitted in December 2015 and March 2016. Final update submitted May 31, 2016
  - ESP well emulsion production measured at each wellhead
  - Total emulsion produced per well pad measured
  - Gas lifted well emulsion production estimated by difference as per above measurement, split between well based process conditions
  - Bottom Sediment and Water (BS&W) measured per well

Measurement and Reporting
In Situ Oil Sands Battery ABBT0134400

- Proration factors



4. Water Production, Injection and Uses

Water Usage

Sunrise Water Sources:

- Quaternary (non-saline)
  - 2 wells – 01-23 and 16-22-095-07W4
  - Licenced to divert 202,575 m^3 annually for Industrial (Camp) purposes
    - 2015 Withdrawal: 84,478 m^3
    - Up to 10 m^3/d for SRU RO package feed (starting Sep/Oct 2015)
  - Outflow: licenced to divert 202,575 m^3 annually from the *Domestic Waste Water Treatment Plant* for Industrial (injection) purposes

- Basal McMurray - Kearl (non-saline)
  - 8 Wells – 06-19, 14-18, 12-20, 09-24, 12-08, 06-30, 01-13 and 11-17-096-07W4
  - Approved to divert 2,190,000 m^3 annually for Industrial (injection) purposes
  - 2015 Withdrawal: 375,831 m^3
  - Withdrawal from Aug 1, 2015 to July 31, 2016: 1,222,412 m^3

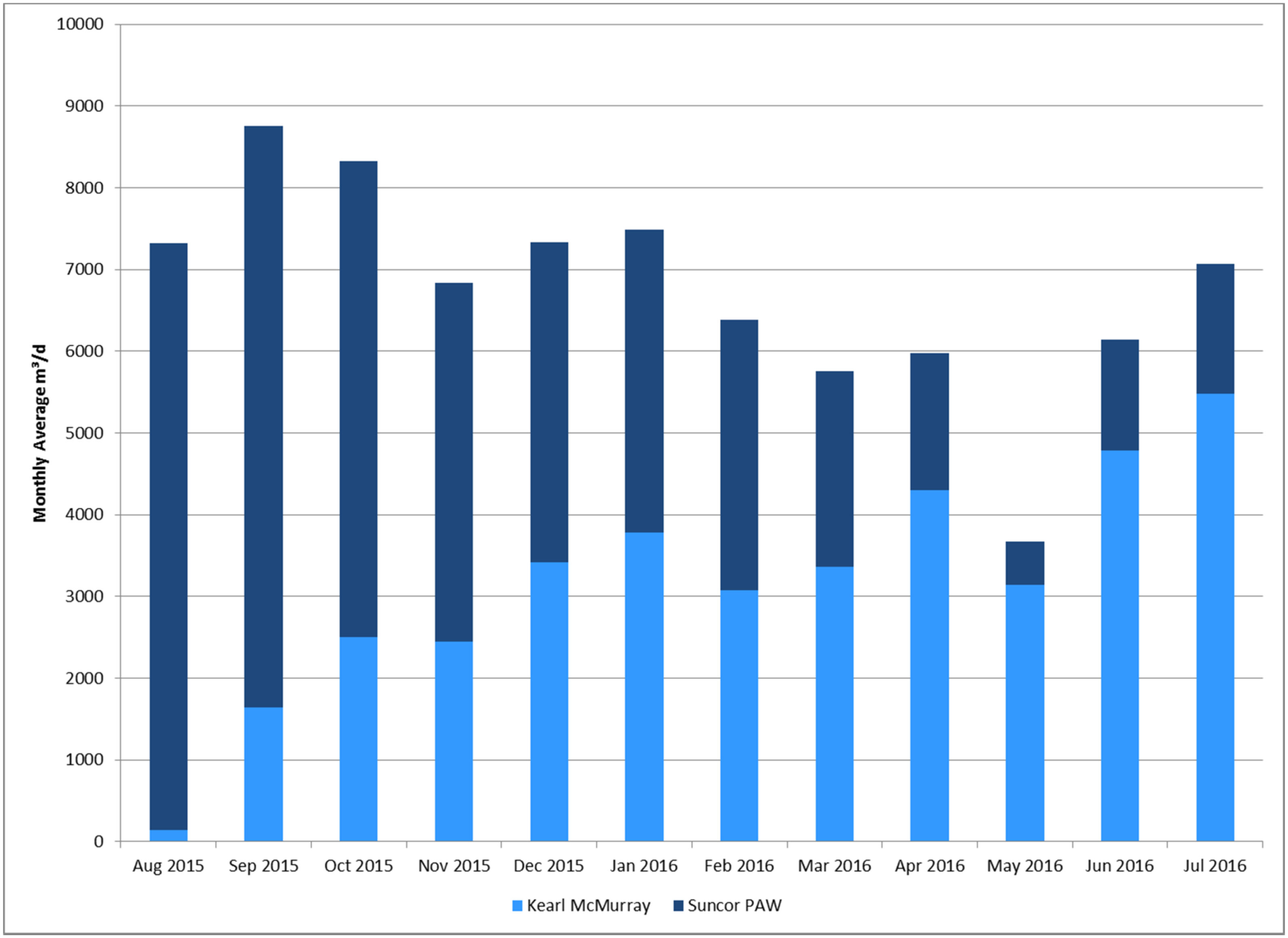
- Process Affected Water - Suncor (PAW) (non-saline)
  - Licenced to divert 3,650,000 m^3 annually for Industrial (injection) purposes
  - Sourced from Suncor Oil Sands Facility
  - 2015 Withdrawal: 2,124,784 m^3
  - Withdrawal from Aug 1, 2015 to July 31, 2016: 1,317,622 m^3

Water Usage – cont'd

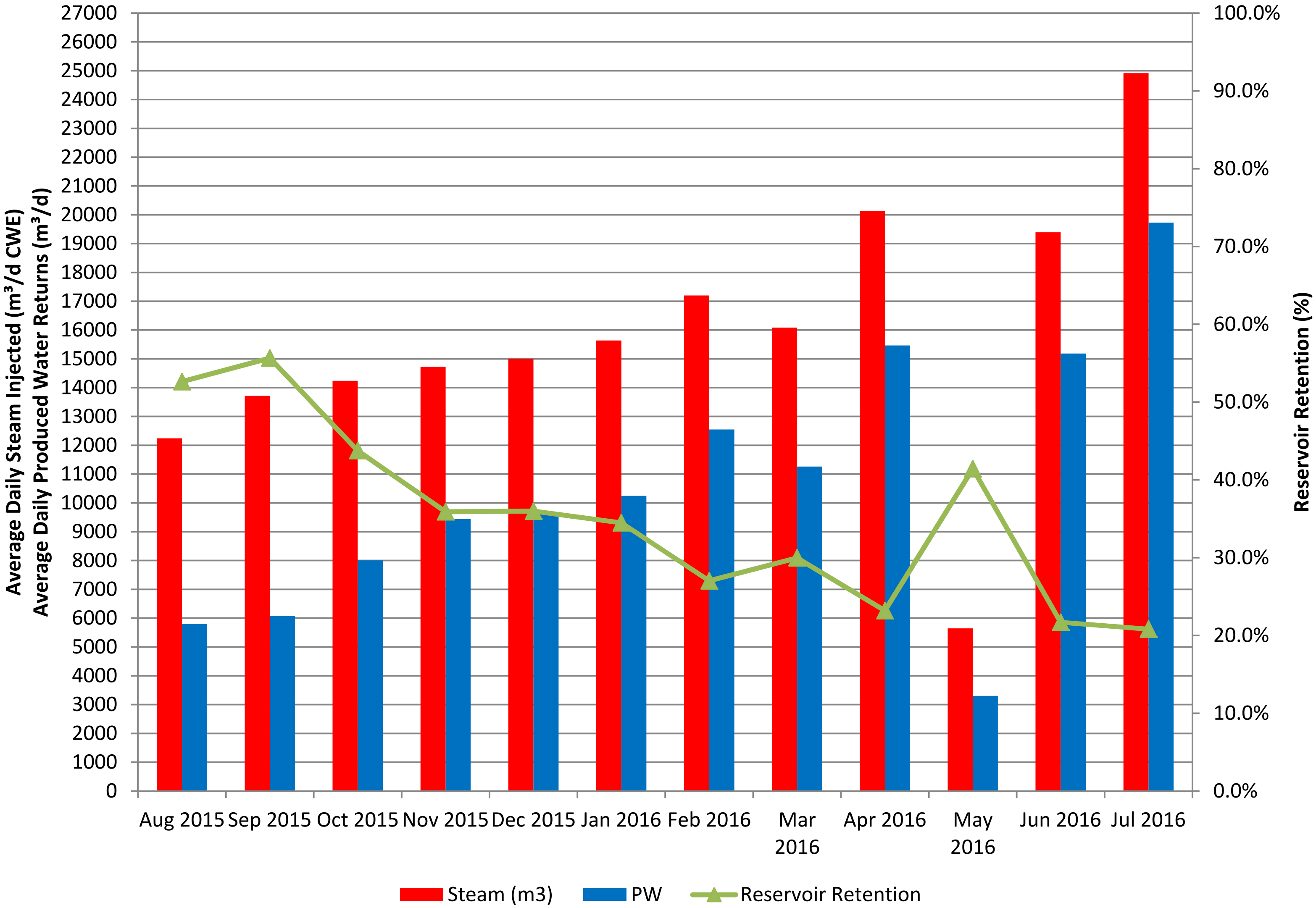
- No Brackish water sources are currently available to Sunrise

- 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

Total Make-Up Water Consumption



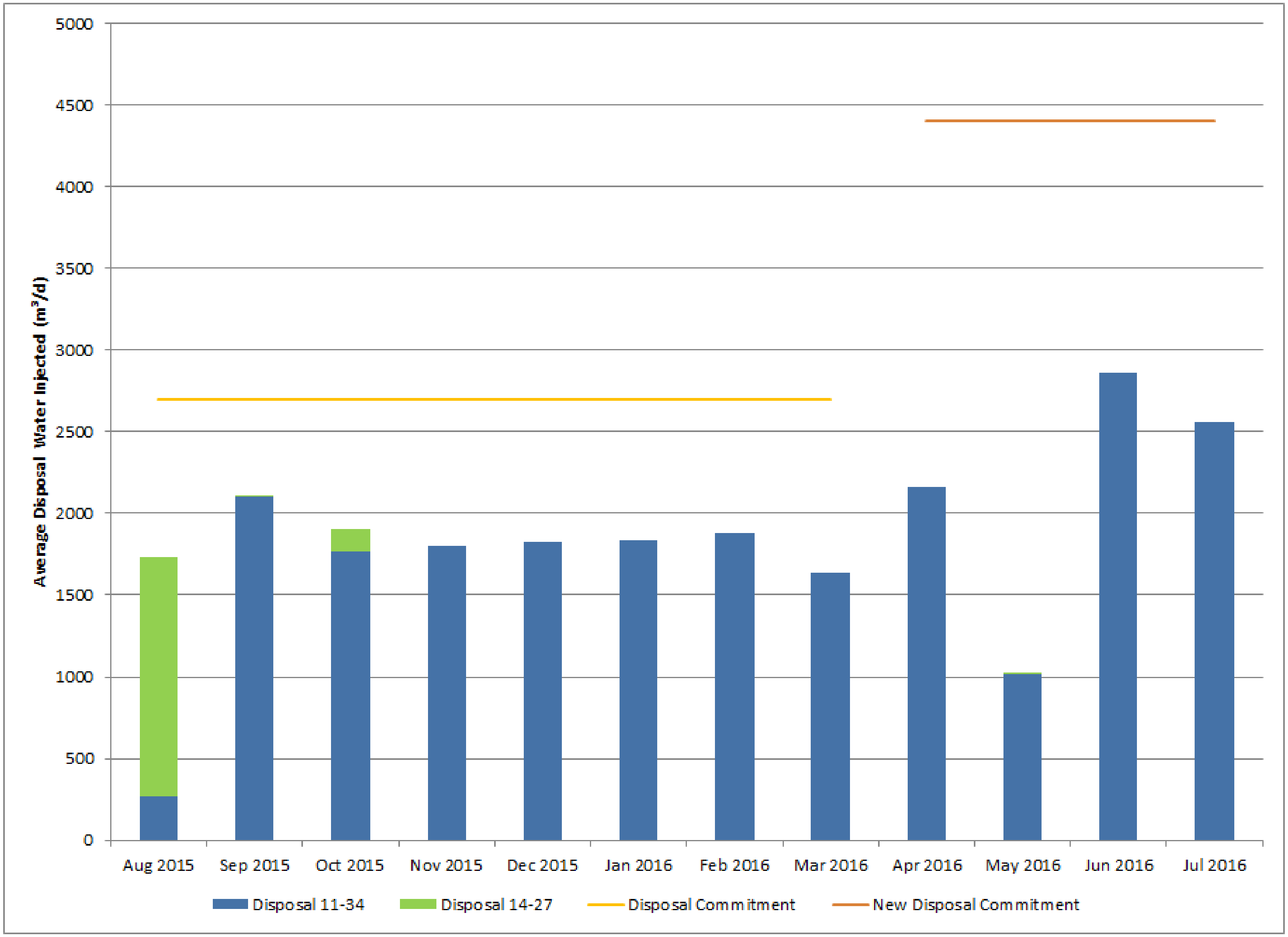
Produced Water & Steam Injected



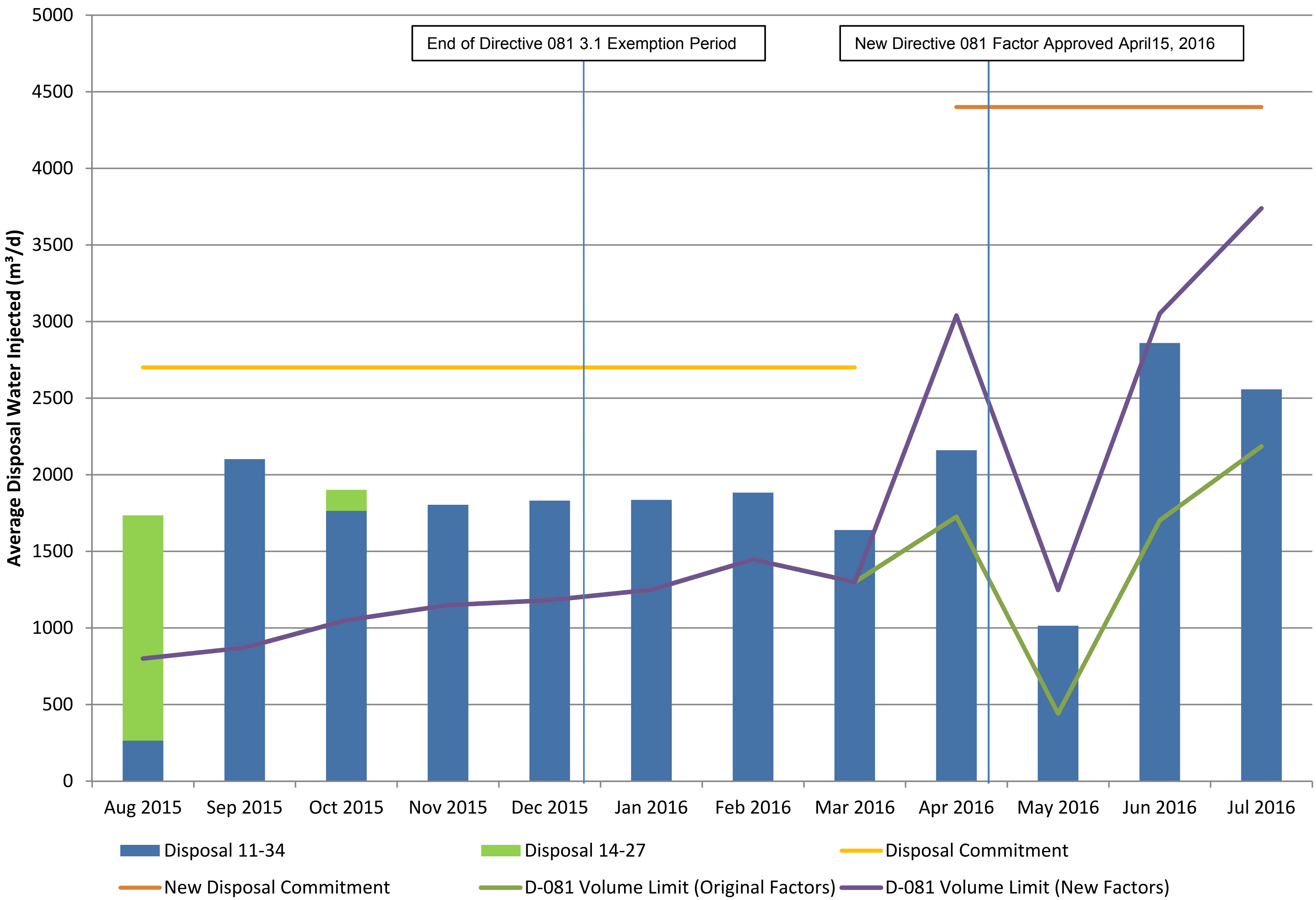
Water Disposal Limits

- Class Ib 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
- Daily Disposal Limit Commitment
  - Prior to April 15, 2016 = 2,700 m^3/day
  - Approved revision as of April 15, 2016 = 4,400 m^3/day
- Directive 081
  - Scheme Amendment issued on April 15, 2016
    - PAW and Kearl source water well disposal factors = 0.25

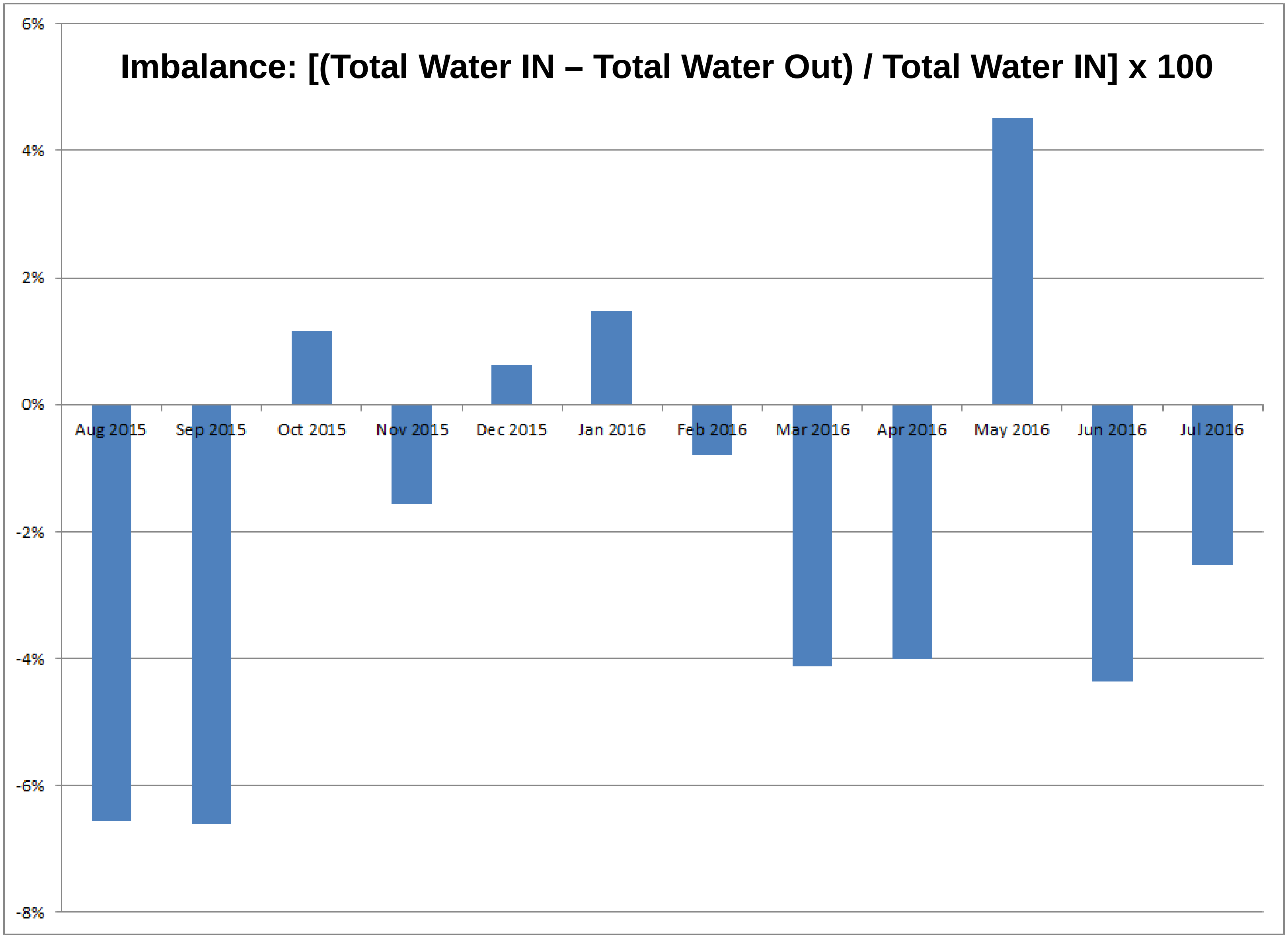
Water Disposal



Water Disposal – Total vs Directive 081 Limit



Monthly Injected Water Balance

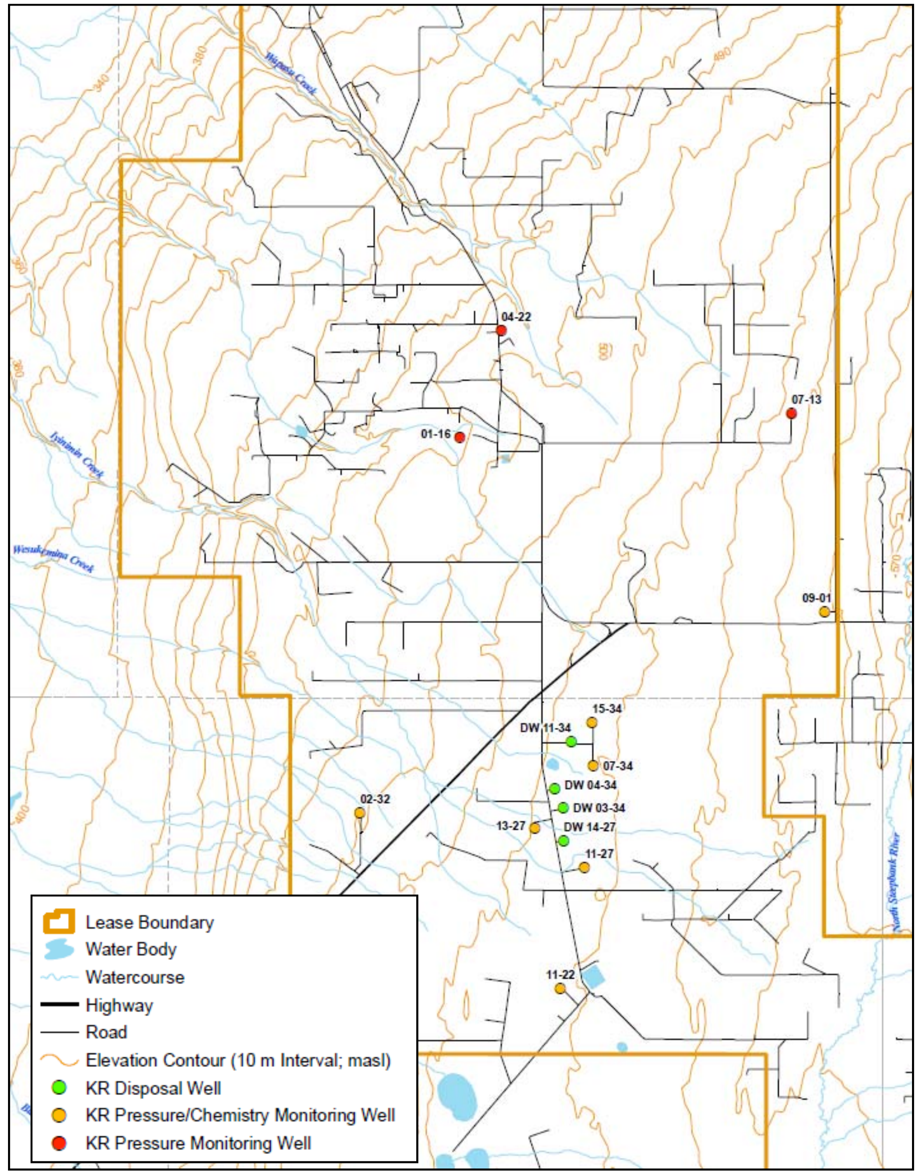


Disposal Wells

- AER Class 1 Approved Disposal Wells (Approval No. 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



Disposal Summary

- 2015 Annual Report submitted to AER; Approved August 8, 2016
- Total fluids disposed = 650,158 m^3 (includes November-December 2014)
- No exceedances in the maximum well head injection pressure (5,000 kPa_g)

- Daily Disposal Limit Commitment of 2,700 m^3/d was exceeded on September 11, 2015 (2,827 m^3/d) and on February 1, 2016 (2,763 m^3/d)
  - Approved revision as of April 15, 2016 = 4,400 m^3/day

- The monitoring wells continue to show pressure responses as a result of disposal
- Two local and one intermediate flow systems are proposed to explain the hydraulic head at the monitoring wells
- Chemistry results may indicate early effects of disposal from the Project at wells 100/15-34-094-07W4/00 and 100/11-27-094-07W4/00

- Muted pressure response observed in off-reef monitoring well 100/09-01-095-07W4/00
  - Disposal-related data will be shared between Husky Sunrise and Suncor Firebag to allow further characterization of on- and off-reef effects

Data Gaps

- Pressure Data Gaps >30 days: Monitoring Well - 100/01-16-095-07W4/00
  - Malfunctioned November 4, 2015 – issued discussed with the AER
  - Monitoring Well 100/04-22-095-07W4/00 approved as a temporary surrogate to well 100/01-16-095-07W4/00
  - Well 100/04-22-095-07W4/00 monitoring history covers well 100/01-16-095-07W4/00 data gap

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	137.5	m3
Drilling Waste Gel Chemical	Husky Sunrise Landfill	5032.0	m3
Contaminated Debris and Soil (produced/salt water)	Husky Sunrise Landfill	204.0	m3
Cement	Husky Sunrise Landfill	2766.0	m3
Construction/Demolition Debris	Husky Sunrise Landfill	2994.0	m3
Sulphur Waste	Husky Sunrise Landfill	82.3	m3
Contaminated Debris and Soil (non-halogenated aromatic)	Husky Sunrise Landfill	1036.0	m3
Drilling Waste Hydrocarbon	Husky Sunrise Landfill	8617.0	m3

Waste Volumes

Waste Code	Waste Description	Receiving Facility	Total	Unit
BATT	Batteries Wet and Dry Cell	Row Waste Management Ltd	2.40	m3
CAUS	Caustic Solutions Unneutralized, Spent	Row Waste Management Ltd	12.41	m3
COEMUL	Condensate/Crude Oil Emulsions	NewAlta Elk Point Service Centre	40.00	m3
		NewAlta Niton Junction Service Centre	148.00	m3
	Interphase > 20%, Oil <= 30%	NewAlta Elk Point Service Centre	3,879.50	m3
		NewAlta Fort McMurray Service Centre	2,655.50	m3
		NewAlta Hughenden Service Centre	525.00	m3
		NewAlta Kitscoty Onsite	149.50	m3
		NewAlta Redwater Service Centre	28.50	m3
	Interphase > 20%, Oil > 30%	NewAlta Elk Point Service Centre	825.50	m3
		NewAlta Fort McMurray Service Centre	1,311.00	m3
		NewAlta Hughenden Service Centre	48.00	m3
	Interphase 0 - 10%, Oil <= 30%	NewAlta Elk Point Service Centre	4,949.20	m3
		NewAlta Fort McMurray Service Centre	5,412.50	m3
		NewAlta Hughenden Service Centre	6,359.00	m3
		NewAlta Kitscoty Onsite	80.90	m3
		NewAlta Redwater Service Centre	124.00	m3
	Interphase 0 - 10%, Oil > 30%	NewAlta Elk Point Service Centre	2,680.50	m3
		NewAlta Fort McMurray Service Centre	2,187.00	m3
		NewAlta Hughenden Service Centre	3,700.00	m3
		NewAlta Redwater Service Centre	76.00	m3

Waste Volumes – Cont'd

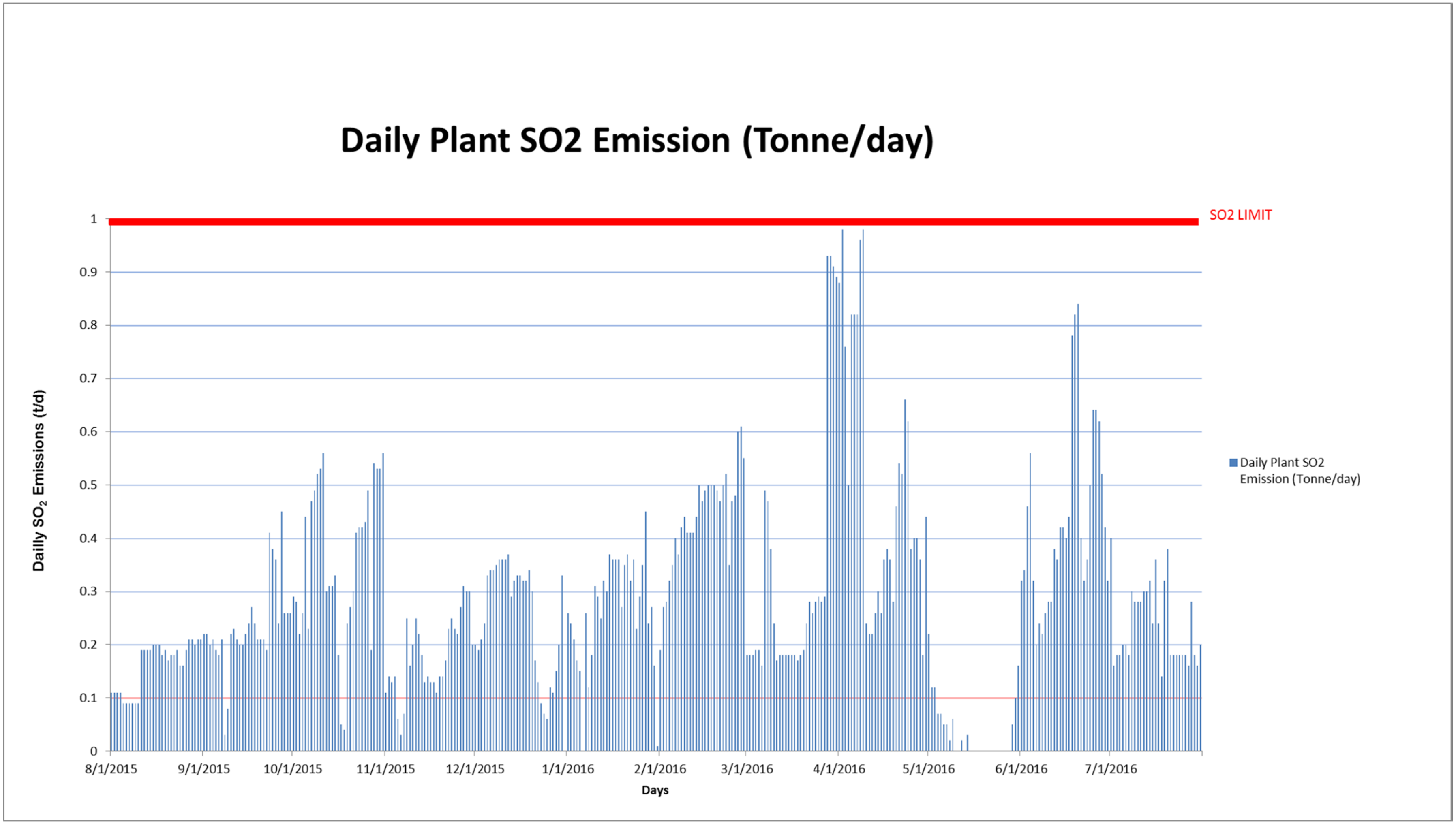
Waste Code	Waste Description	Receiving Facility	Total	Unit
COEMUL	Interphase 10.1 - 20.0%, Oil <= 30%	NewAlta Elk Point Service Centre	3,414.00	m3
		NewAlta Fort McMurray Service Centre	7,047.50	m3
		NewAlta Hughenden Service Centre	2,914.00	m3
	Interphase 10.1 - 20.0%, Oil > 30%	NewAlta Elk Point Service Centre	2,425.50	m3
		NewAlta Fort McMurray Service Centre	5,340.50	m3
		NewAlta Hughenden Service Centre	1,387.00	m3
	Solids 0%, Free Oil 01-10%	NewAlta Redwater Service Centre	79.00	m3
	Solids 0%, Free Oil 11-30%	NewAlta Brooks Service Centre	39.70	m3
		NewAlta Niton Junction Service Centre	80.00	m3
		NewAlta Redwater Service Centre	80.00	m3
	Solids 0%, Free Oil 31-40%	NewAlta Niton Junction Service Centre	37.40	m3
	Solids 0%, Free Oil 41-100%	NewAlta Niton Junction Service Centre	160.50	m3
	Solids 01-05%, Free Oil 0-30%	NewAlta Redwater Service Centre	248.50	m3
	Solids 01-05%, Free Oil 31-40%	NewAlta Redwater Service Centre	160.00	m3
	Solids 01-05%, Free Oil 41-100%	NewAlta Greencourt Service Centre	37.10	m3
		NewAlta Redwater Service Centre	508.00	m3
	Solids 06-10%, Free Oil 0-30%	NewAlta Greencourt Service Centre	39.90	m3
	Solids 06-10%, Free Oil 41-100%	NewAlta Greencourt Service Centre	498.90	m3
		NewAlta Redwater Service Centre	152.00	m3
	Solids 11-15%, Free Oil 31-40%	NewAlta Redwater Service Centre	24.00	m3
	Solids 51-100%, Free Oil 0-10%	NewAlta Redwater Service Centre	60.00	m3
	Waste Oil Solids	Tervita - High Prairie	40.18	m3
		Tervita - Lindbergh	494.07	m3
		Tervita - Valleyview	37.89	m3
	Waste Water, Oilfield, Sweet	NewAlta Hughenden Service Centre	296.00	m3
		NewAlta Redwater Service Centre	203.00	m3
CWATER	Contaminated Water	NewAlta Fort McMurray Service Centre	16.00	m3
		Row Waste Management Ltd	1.44	m3
DOMWST	Garbage Domestic Waste	Clean Harbors - Ryley	9.20	m3
		Row Waste Management Ltd	362.04	m3
EMTCON	Empty Container	Row Waste Management Ltd	120.64	m3
FILAPC	Filters Air Pollution Control Cardboard	Row Waste Management Ltd	0.46	m3
FILLUB	Filters Lube Oil	Row Waste Management Ltd	2.05	m3
FILOTH	Filters Other (Raw Fuel Gas, NGL's)	Row Waste Management Ltd	3.91	m3
GLYC	Waste Water, Oilfield, Sweet	NewAlta Elk Point Service Centre	3.00	m3
GLYCHM	Glycol Solutions Containing Lead or Other Heavy Metals	Row Waste Management Ltd	0.21	m3
INOCHM	Chemicals Inorganic	Row Waste Management Ltd	1.20	m3
LUBOIL	Lubricating Oil Hydrocarbon & Synthetic	Row Waste Management Ltd	0.21	m3
NONOFD	Interphase > 20%, Oil > 30%	NewAlta Hughenden Service Centre	76.00	m3

Waste Volumes – Cont’d

Waste Code	Waste Description	Receiving Facility	Total	Unit
OILABS	Absorbents	Row Waste Management Ltd	23.45	m3
OILRAG	Rags Oily	Row Waste Management Ltd	7.71	m3
ORGCHM	Chemicals Organic	Row Waste Management Ltd	1.24	m3
PWTROR	Waste Water, Oilfield, Sweet	NewAlta Redwater Service Centre	6.00	m3
SAND	Sand Produced	Row Waste Management Ltd	2.30	m3
SLGEML	Sludge Emulsion	NewAlta Fort McMurray Service Centre	16.00	m3
		Tervita - Lindbergh	52.22	m3
SLGHYD	Interphase > 20%, Oil <= 30%	NewAlta Niton Junction Service Centre	297.00	m3
	Interphase > 20%, Oil > 30%	NewAlta Niton Junction Service Centre	40.00	m3
	Interphase 0 - 10%, Oil <= 30%	NewAlta Kitscoty Onsite	63.80	m3
		NewAlta Niton Junction Service Centre	40.00	m3
	Interphase 0 - 10%, Oil > 30%	NewAlta Kitscoty Onsite	67.30	m3
		NewAlta Niton Junction Service Centre	40.00	m3
	Interphase 10.1 - 20.0%, Oil <= 30%	NewAlta Kitscoty Onsite	35.90	m3
		NewAlta Niton Junction Service Centre	497.20	m3
	Interphase 10.1 - 20.0%, Oil > 30%	NewAlta Kitscoty Onsite	27.80	m3
		NewAlta Niton Junction Service Centre	461.50	m3
	Sludge Hydrocarbon	Tervita - Lindbergh	43.39	m3
	Solids 0%, Free Oil 01-10%	NewAlta Niton Junction Service Centre	79.00	m3
	Solids 0%, Free Oil 11-30%	NewAlta Niton Junction Service Centre	592.80	m3
	Solids 0%, Free Oil 41-100%	NewAlta Niton Junction Service Centre	118.30	m3
	Solids 01-05%, Free Oil 0-30%	NewAlta Drayton Valley Service Centre	36.80	m3
		NewAlta Redwater Service Centre	46.00	m3
	Solids 01-05%, Free Oil 31-40%	NewAlta Drayton Valley Service Centre	38.90	m3
	Solids 01-05%, Free Oil 41-100%	NewAlta Drayton Valley Service Centre	188.20	m3
	Solids 51-100%, Free Oil 0-10%	NewAlta Redwater Service Centre	40.00	m3
SMETAL	Metal Scrap	Row Waste Management Ltd	34.35	m3
SOILCO	Contaminated Debris and Soil Crude Oil Condensate	Clean Harbors - Ryley	11.30	m3
		Row Waste Management Ltd	11.00	m3
		Tervita - Lindbergh	2.53	m3
SOILHM	Debris/ Soil Contam. W/ Mercury/ Metals	Secure - Pembina Landfill	5.00	m3
SOILPW	Contaminated Debris and Soil Produced Salt Water	Row Waste Management Ltd	6.90	m3
WATER	Waste Water, Oilfield, Sweet	NewAlta Redwater Service Centre	104.10	m3
WPAINT	Waste Paint	Row Waste Management Ltd	0.21	m3
WSHWTR	Interphase 0 - 10%, Oil <= 30%	NewAlta Fort McMurray Service Centre	15.00	m3
WSTCGS	Waste Compressed or Liquefied Gases	Row Waste Management Ltd	0.34	m3
WSTFLQ	Waste Flammable Liquid	Row Waste Management Ltd	1.03	m3
WSTMIS	Leachable Waste Liquids	Absolute Environmental Management Inc.	59.38	Tonnes
	Leachable Waste Solids	Clean Harbors - Ryley	16.40	Tonnes
		MCL Waste Systems Environmental	660.28	Tonnes
		Row Waste Management Ltd	1.40	m3
		Total:	64,651.34	m3
			736.06	Tonnes

5. Sulphur Production

SO_2 Emissions



Sulphur Dioxide (SO_2) Sources

- Ten Once-Through Steam Generators (OTSG) - all operational during the reporting period

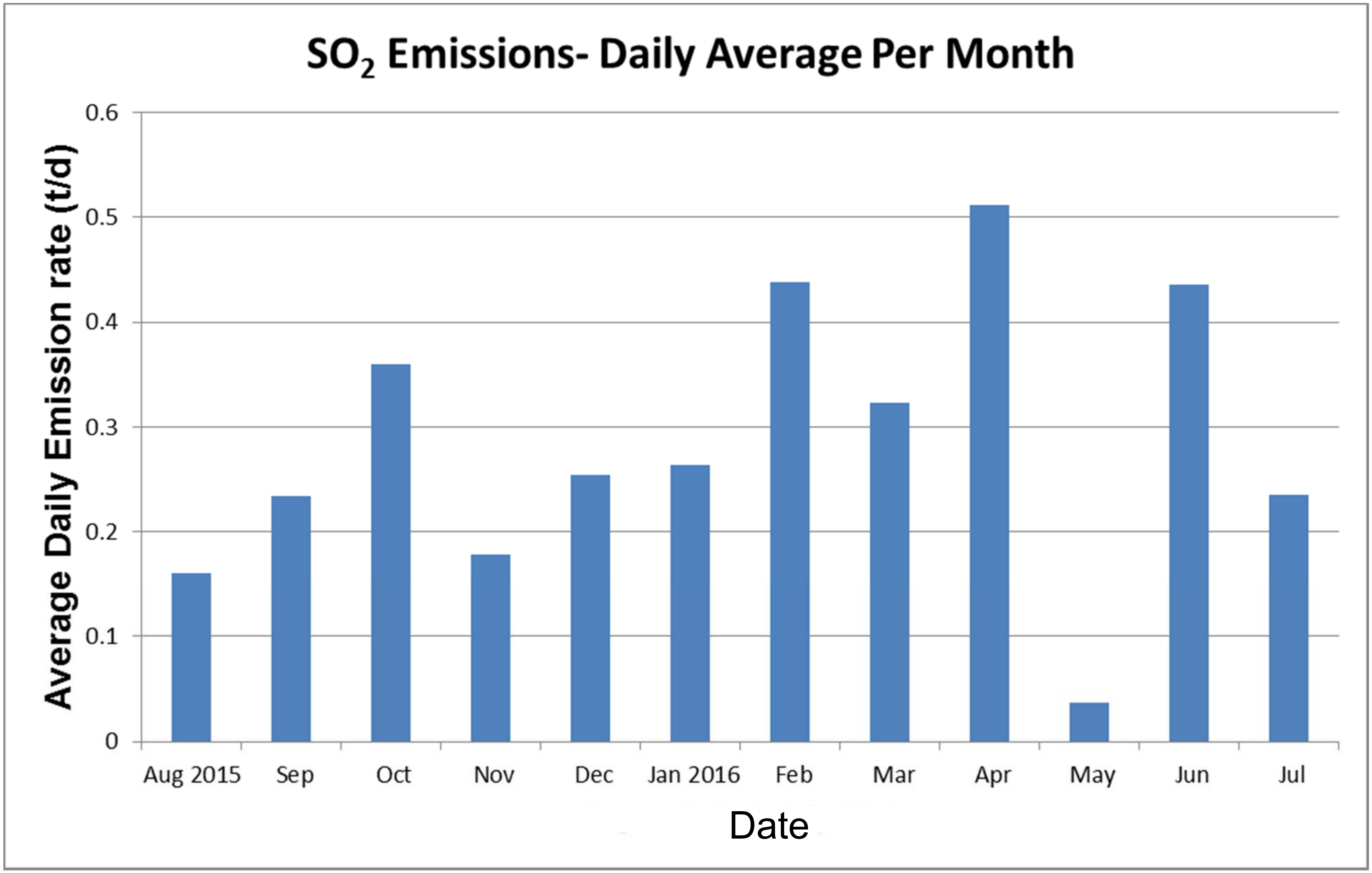
- Two High Pressure Flare Stacks - one operational during the reporting period

- Two Low Pressure Flare Stacks - one operational during the reporting period

Quarterly SO_2 Emissions

2015 Q3 (Aug – Sep)	11.99 tonnes
2015 Q4 (Oct - Dec)	24.36 tonnes
2016 Q1 (Jan – Mar)	30.92 tonnes
2016 Q2 (Apr – June)	29.58 tonnes
2016 Q3 (July)	7.3 tonnes

SO_2 Emissions Trends



Peak and Average SO_2 Emissions

- August 1, 2015 to July 31, 2016:

SO_2 Emissions	
Average Daily	0.28 tonnes
Maximum Daily (highest)	0.98 tonnes

- Limit under EPEA Approval is 1.0 tonnes/day

- No exceedences

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 exceedences recorded during the reporting period
- PM2.5 and O_3 exceedences 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 Issues

Environmental Issues – Compliance

- EPEA Approval 206355-01-00 (as amended):
  - Husky received a renewed EPEA Approval (No. 206355-01-00) on January 25, 2016; expiry December 31, 2025
  - 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, formerly ESRD):
  - No compliance issues during this reporting period
  - Reported one dead bird that struck a maintenance building window on the CPF

- Fisheries and Oceans Canada (DFO, Federal):
  - No compliance issues during this reporting period

Environmental Issues – Compliance (EPEA)

Spent Lime Pond (Release Notification File 294542)

- September 30, 2015: Action Plan Update
    - Completed north pond investigation and repair
    - Discovered defects of the liner at the penetration points of pipes crossing the primary and secondary liners
    - Pond design was retrofitted to remove the pipe penetrations

- January 24, 2016: Action Plan Update and Request for File Closure
    - Process water re-introduced into the north pond on December 10, 2015
    - Water chemistry data collected since the re-introduction of process water have not suggested leakage from the north pond

- Monthly Action Leakage Rate (ALR) Reports continue to be submitted to the AER
    - Continue to evaluate natural groundwater component of leakage

Environmental Issues – Compliance (EPEA)

SRU Oxidizer Venting

- Event: October 2015, Husky identified on lease odours related to the SRU operation. Samples collected from the SRU hydrocarbon oxidizer vent stack. The results of the lab analyses indicated that there were concentrations of hydrocarbon compounds in the oxidizer vent stream.
- Corrective Action: Husky disclosed to AER (AER File Ref. No. 305604). On May 24, Husky submitted a request for temporary variance from the venting volumes listed on the Facility's Directive 056 license and from Directive 060 (venting) to allow Husky to continue to operate the SRU while developing a permanent mitigation strategy for the oxidizer vent stream. On June 30, Husky received a variance from AER until September 30, 2016. The variance has been extended to December 31, 2016.

SRU Continuous Emissions Monitoring System (CEMS)

- Event: CEMS installed on the SRU vent to monitor H_2S concentration (ppmv) of the vented gas from the SRU exhaust vent did not operate due the sample extracted from the vent being too wet and causing the filter in the sample system to plug.
- Corrective Action: Husky disclosed to AER (AER File Ref. No. 305572) and proposed corrected action (sampling system modification) based on recommendations by the CEMS vendor . The modifications did not resolved the issue. On June 17, Husky requested and received temporary authorization until October 31, 2016 to further investigate and mitigate the SRU CEMS operational issues.

Environmental Issues – Compliance (EPEA)

Missed Waste Water Treatment Plant (WWTP) 3rd Party sample analysis

- Event: On May 2016, during the forest fire in Fort McMurray, daily samples from the WWTP could not be sent to a third party laboratory due to road closures and absence of courier services from May 4 to 22, 2016.

- Corrective Action: A contravention report was submitted to AER (Ref # 310980). Husky WWTP operators conducted daily onsite bench tests to ensure that waste water was meeting regulatory criteria prior to discharge during the forest fire.

Environmental Issues - Releases

Spill Material	Number of Incidents	Total Volume (m^3)	AER Notification
Caustic Spill	1	0.2	Release report submitted
Dilbit	2	62	Release report submitted
Emulsion	4	9.3	Release report submitted
Process affected water	4	114	Release report submitted
Sewage Spill	2	0.65	7-day letters submitted
Tank Venting	91	49,016	7-day letter and DDS report submitted

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

Environmental - EPEA Approval Amendments

Approval Date	Application Number	Application Name
2015-08-25	Not assigned	Temporary SO_2 Emission Relief (to Phase 2 limit) –related to the Temporary H_2S Scrubber
2015-09-15	Not assigned	Construction Camp Emergency Generators Amendment Application
2015-10-15	Not assigned	Temporary SO2 Emission Relief (to Phase 2 limit) Extension Request
2015-10-15	Not assigned	Temporary Suspension of Flue Gas Recirculation (FGR) Notification
2015-10-17	Not assigned	Process Change for Condensate Removal from Produced Gas Pipeline
2016-01-25	1777569	Phase 2 CPF and DA3 Amendment Application/Renewal
2015-02-01	1848181	Development Area 2 Amendment Application
2016-02-23	Not assigned	Notification of Removal of Sunrise Drilling Camp
2016-04-26	Not assigned	Permanent Diluent Storage Amendment Application (temporary diluent storage was extended to July 31, 2016 while the permanent diluent storage is operational)
2016-05-25	Not assigned	Request for Variance for Oxidizer Vent Stack
2016-06-17	Not assigned	Request for Variance SRU CEMS

Environmental – Biodiversity

- As a requirement of the regulatory approval, Husky conducts an annual Environmental Monitoring Program with data compilation and report submission every three years

- 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
    - Negative effects on water quality attributable to Sunrise have not been found based on monitoring program data collected to date
  - Wetlands
    - Water level data observed 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 will continue to be monitored; no other indications of trends in water quality results
    - No impoundment effect has been observed to date for the two monitored transects
  - Wildlife
    - No evident trend for habitat use and distribution for wildlife species based on dataset thus far
    - Canadian Toads not detected at Project site
    - Tracking and camera surveys indicate the pipeline is crossable for birds and mammals including large ungulates (moose)

Environmental – Biodiversity (cont'd)

- Monitoring program and findings include (cont'd):
  - Biodiversity
    - Trend showing preliminary higher instances of song bird species associated with edge and open habitat
    - Rare plant species detected during EIA are persisting in Project area
    - Mammal relative abundance and diversity does not appear to be negatively affected by anthropogenic disturbances in Project area based on dataset

Environmental – Wildlife

- Caribou Mitigation and Monitoring Plan
  - Approved by AER January 2015
  - 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 installation in caribou habitat along previous cutlines and seismic lines
  - Updated plan due October 2017

- Wildlife Monitoring, Enhancement and Monitoring Program
  - Approved by AEP December 2012
  - New monitoring and mitigation proposal submitted to AER (April); currently pending approval
  - 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 regularly monitors and reviews mitigation strategies to ensure ongoing effectiveness and evaluate areas for improvement

Environmental - Industrial Wastewater

- Disposal Locations:
  - Four Disposal wells: 100/14-27-094-07W4, 100/11-34-094-07W4, 102/03-34-094-07W4 and100/04-34-094-074W - only two used
  - 709,275 m^3 of boiler blow-down was disposed
  - Two Keg River Monitoring Wells (sampling)
- 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 11 discharge locations:
    - Pad B13-08 (B), Pad B14-08 (C), Pad B16-08 (D), Pad B13-09 (E), Pad B08-17 (G), Pad B05-16 (H), Pad B16-17 (L), Pad B13-16 (M) and Pad B15-16 (N)
      Total volumes discharged:
      - 2015 /16: 211,825 m^3
  - All discharges were in compliance with EPEA approval

Environmental – Soils

- No soil monitoring activity conducted in the reporting year
- The next Soil Monitoring Program proposal to be completed on or before September 30, 2017
- The next Soil Monitoring Program Report is due on or before September 30, 2018

Environmental – Air

- Site Air Monitoring Contains Source monitoring and Ambient Air Monitoring

- Source Monitoring
    - Three CEMS; two for the OTSGs and one for the SRU
    - Engineering calculations aided by gas metering and sampling or inline GC
    - Fugitive emission leak surveys

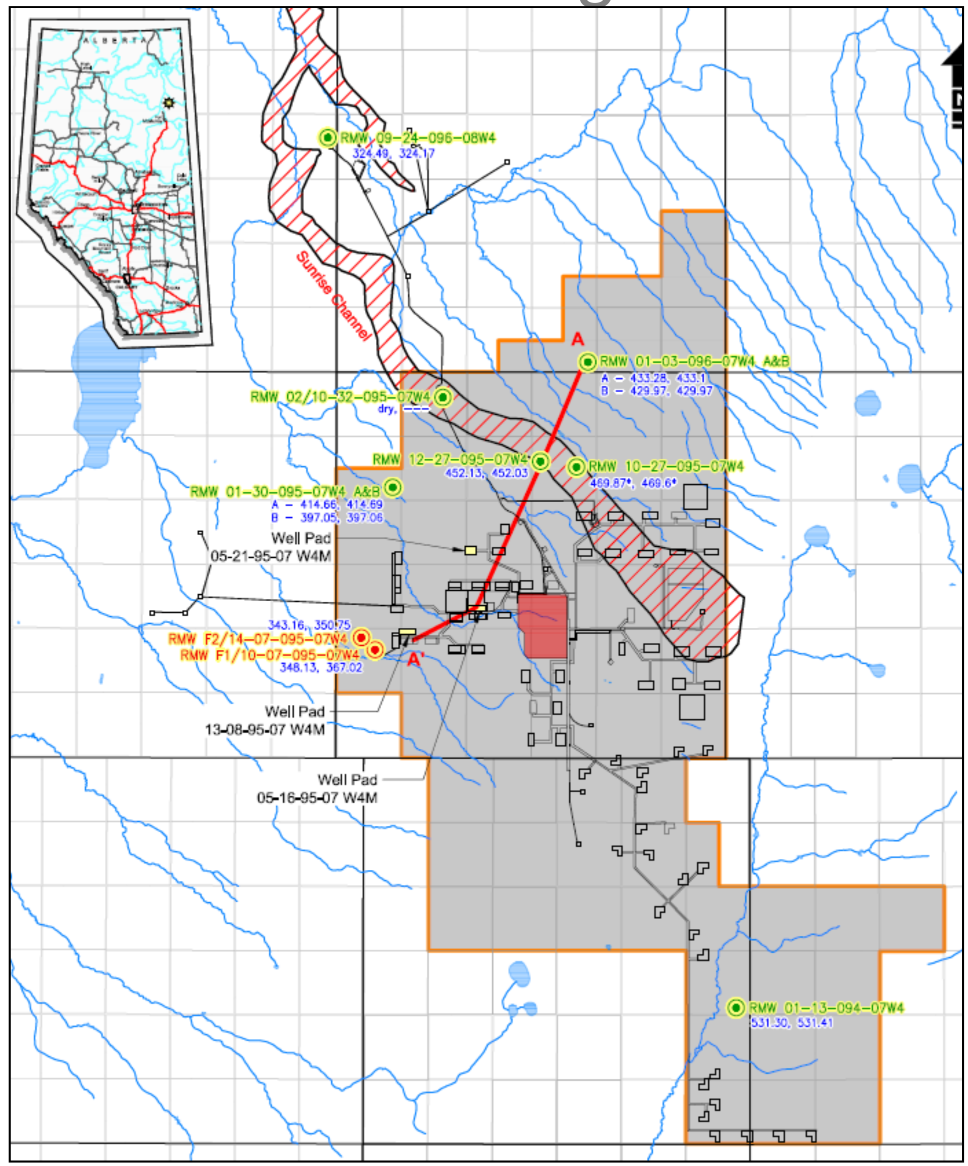
- Ambient Air Monitoring
    - Permanent Air Monitoring Station
    - Participation in Wood Buffalo Environmental Association network of ambient air monitoring stations (Wapasu Station)
    - Continuous process area monitoring for LEL and H_2S

Environmental – Groundwater Monitoring

- CPF:
  - 22 wells: 0.8 to 4.5 m depth
- Pad Well:
  - 3 pads: B05-16, B13-08, B05-21
  - 8 wells: 21.0 m to 69.0 m depth
- Regional:
  - 2 McMurray well: 177.2 m and 182.0 m depth
  - 9 Quaternary wells: 9.5 m to 58.8 m depth

- 2015 Compliance Groundwater Monitoring Report submitted March 2016
  - Groundwater quality control limits proposed based on baseline data
  - Replace damaged well on CPF in 2016

- 2016 Groundwater Monitoring Proposal submitted August 2016



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)
  - Caribou Conservation Breeding Workshop (COSIA JIP)
  - CAPP Species Management and Caribou Shadow Committees
  - Petroleum Technology Alliance Canada (PTAC) Ecological Research Planning Committee
  - Industrial Footprint Reduction Options Group (iFROG)
  - Former Joint Oil Sands Monitoring (JOSM)
  - Former Alberta Environmental Monitoring, Evaluation and Reporting Agency (AEMERA)

Environmental – Reclamation

- Objectives of the Annual 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
- Site perimeter clearing to create firebreaks in response to forest fire in the region
  - 30 meters firebreak was built around each Condensate Management Systems (CMS)
  - 25 meter firebreak was built around the above ground pipelines.
  - 20 meters firebreak was built around power lines.
  - 30 meters firebreak was built around each transformer
  - 30 meters firebreak was built on the north side of the ATCO substation
  - 140 meters firebreak was built on the south side of the Central Processing Facility to protect the onsite camps
  - 30 meters firebreak was built around each of the backup generators at the potable water wells
- Vegetation Monitoring:
  - Annual weed monitoring and control completed as per Husky's best practices
- Reclamation Activities:
  - Test plots for reclamation at Gravel Pit 1 were started in 2013. A total of approximately 2 ha in Gravel Pit 1 is undergoing progressive reclamation as of July 2015.

7. Compliance Statement

Compliance

- OSCA 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

8. Non-Compliance Events

Non-Compliance Event – Disposal

Daily Disposal Limit Commitment:

- On September 11, 2015 and February 1, 2016, Husky exceeded the daily disposal limit of 2,700 m^3 by 127 m^3 and 26 m^3, respectively
- During these incidents Husky did not exceed the Maximum Well Head Injection Pressure of 5,000 kPa_g

Non-Compliance Event – Directive 013

Notice of Non-compliance (*Directive 013: Suspension Requirements for Wells*)

- Event: March 2016, Husky received notice of non-compliance from AER for five suspended water wells.
  - 1F1/09-15-095-08-W4,1F1/07-15-095-08-W4,1F1/05-15-095-08-W4 , 1F1/05-23-095-08-W4, and 1F1/09-22-095-08-W4
- Husky missed the required five year inspection deadline

- Corrective Action: On June 22, 2016 Husky completed the inspection and found the following deficiencies.
  - Lease signs are missing (except for 07-15 well site)
  - Wellheads are not clearly visible (covered by vegetation)
  - Vegetation is not satisfactorily controlled

- July 2016 - AER issued an enforcement order - deadline October 15, 2016. Husky addressed the deficiencies and on August 22 Husky submitted inspection reports to AER.

Self Declarations – Test Separators

Directive 017 Measurement Requirements:

- Event: The test separators on the DA1 well pads (nine well pads) were not able to perform valid well tests

- Corrective Action: Husky submitted a VSD on August 24, 2015. Husky initiated an internal project through the Management of Change system to address test separator system design limitations. Three main components were identified that contributed to the issues with the test separator packages:
  - Process Control;
  - Flow Measurement and;
  - Sample Loop (Test Separator Pump and Water-Cut Analyzer)

- December 31, 2015 and March 31, 2016 - Husky provided progress updates to AER
- May 31, 2016 - all non-compliance issues have been addressed and Husky provided final update to AER

Self Declarations – Anomalous Pressure Reading

- Well: 105/11-21-095-07W400 N3P (Well Pad B15-16 (N)) License No. 440253

  Summary:

  - October 1, 2015 - Reported anomalous pressure reading
  - Inconsistent data reading from the ERD pressure sensor monitoring bottom-hole pressures was observed
    - During circulation, the ERD pressure measurement reading exceeded the approved Maximum Operating Pressure (MOP) of 1,750 kPa_g

  Status Update:

  - Submitted VSD to AER Bonnyville Field Office on May 11, 2015
  - Discusses were held with AER staff to explain that the ERD's were inconsistent and unreliable
  - Husky will use blanket gas to monitor bottom-hole pressure during circulation phase
  - VSD acceptance letter received December 16, 2015

8. Future Plans

Future Plans (2016/2017)

- Commission and start-up of well pads B05-21 and B06-21 (DA2)
- Permanent diluent storage completion and commissioning
- Evaluation of using triazene scrubber package as potential stand-by unit for planned SRU outages (potential regulatory submission)
- Phase 1 Debottleneck/70% Sulphur Recovery Amendment Application
- SRU Oxidizer Vent Mitigation Amendment Application
- Sulphur Management Amendment Application
- Kearl Well casing gas permanent strategy update submission
- Directive 058 submission to convert remote sump to drilling waste processing facility
- On-site slop/rag treating (scoping)