



Husky Oil Operations Limited

Sunrise Thermal Project

Annual Performance Presentation

Commercial Scheme Approval No. 10419

June 30, 2021



Advisory

This presentation contains information in compliance with:

AER Directive 054 - Performance Presentations, Auditing, and Surveillance of In Situ Oil Sands Schemes

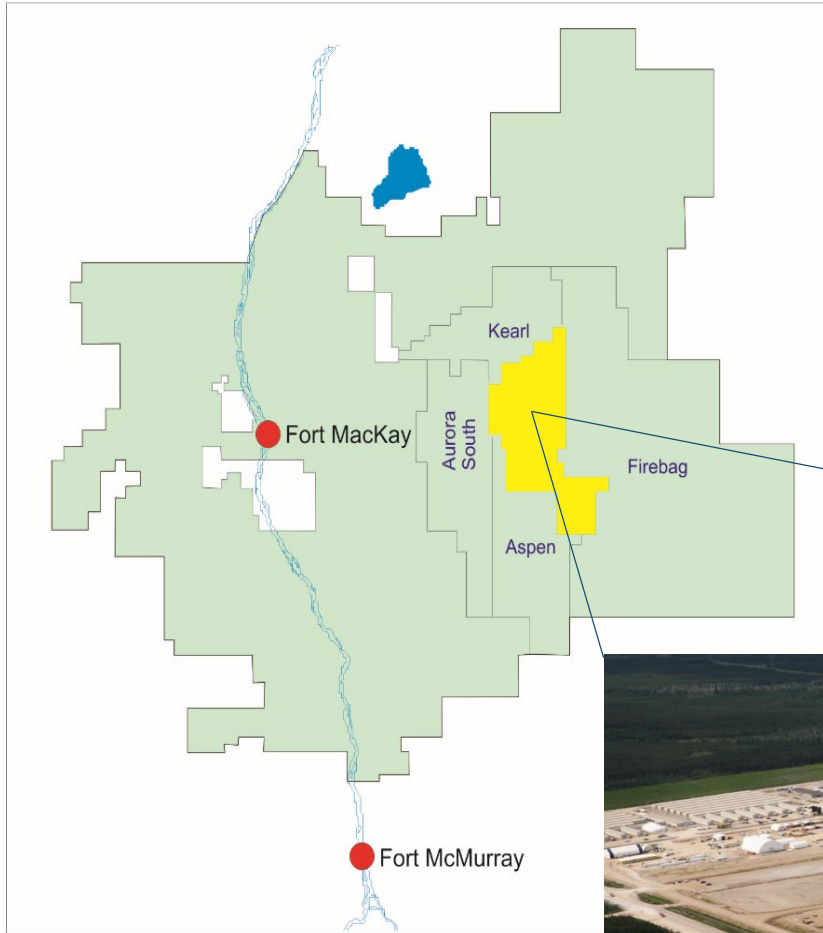
This document contains forward-looking information prepared and submitted pursuant to Alberta regulatory requirements and is not intended to be relied upon for the purpose of making investment decisions, including without limitation, to purchase, hold or sell any securities of Cenovus Energy Inc.

Introduction

Section 4.1.1

Area Map

PROJECT OVERVIEW



Legend

 Sunrise Lease Boundary

- AER Approval No's. OSCA Scheme 10419 and EPEA 206355-01-00, as amended
- McMurray Formation
- 7-9° API Bitumen
- 50% Partnership with BP
- First Steam December 12, 2014
- First Production March 8, 2015



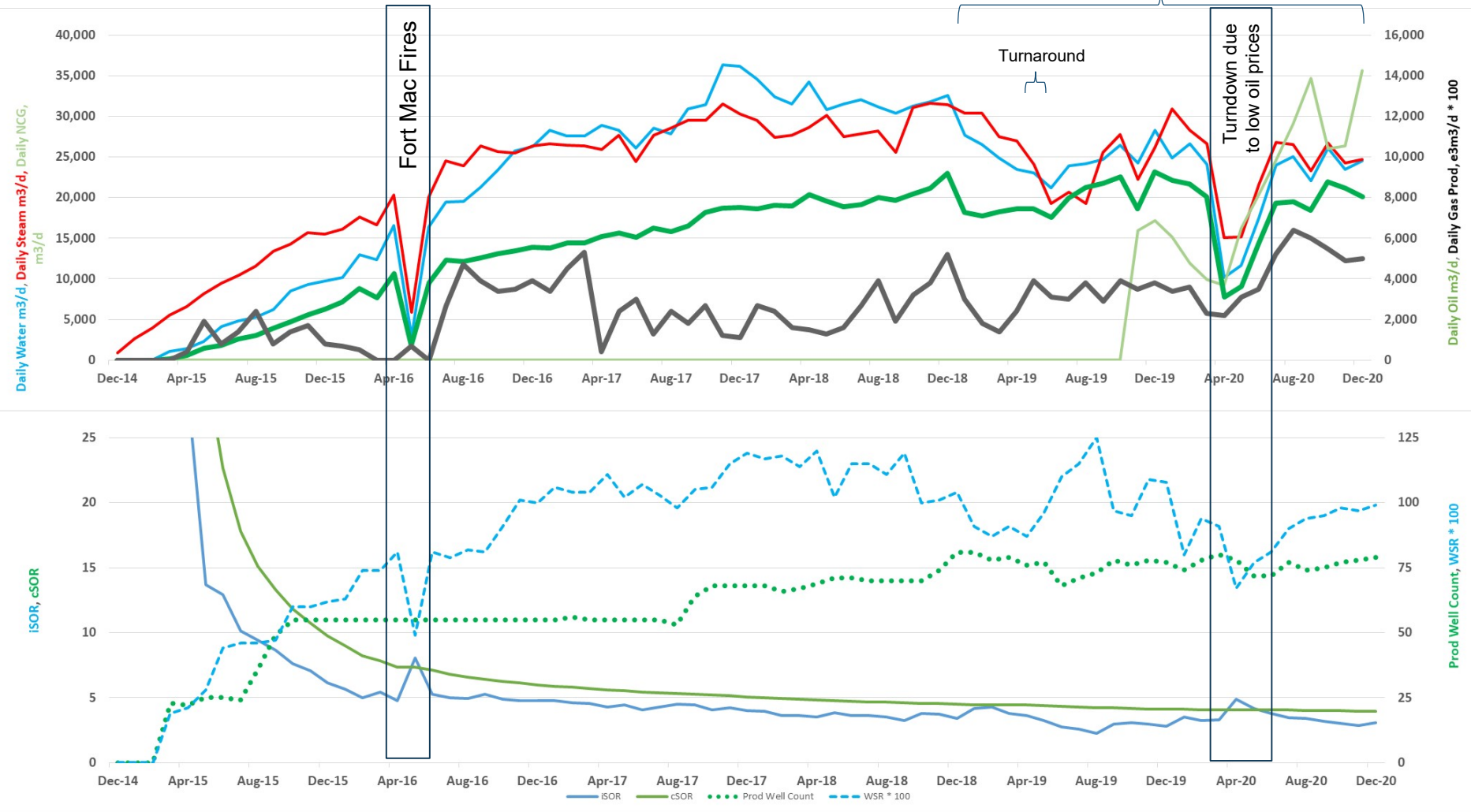
Subsurface

Section 4.2, Subsections 2 to 7

Production Plot

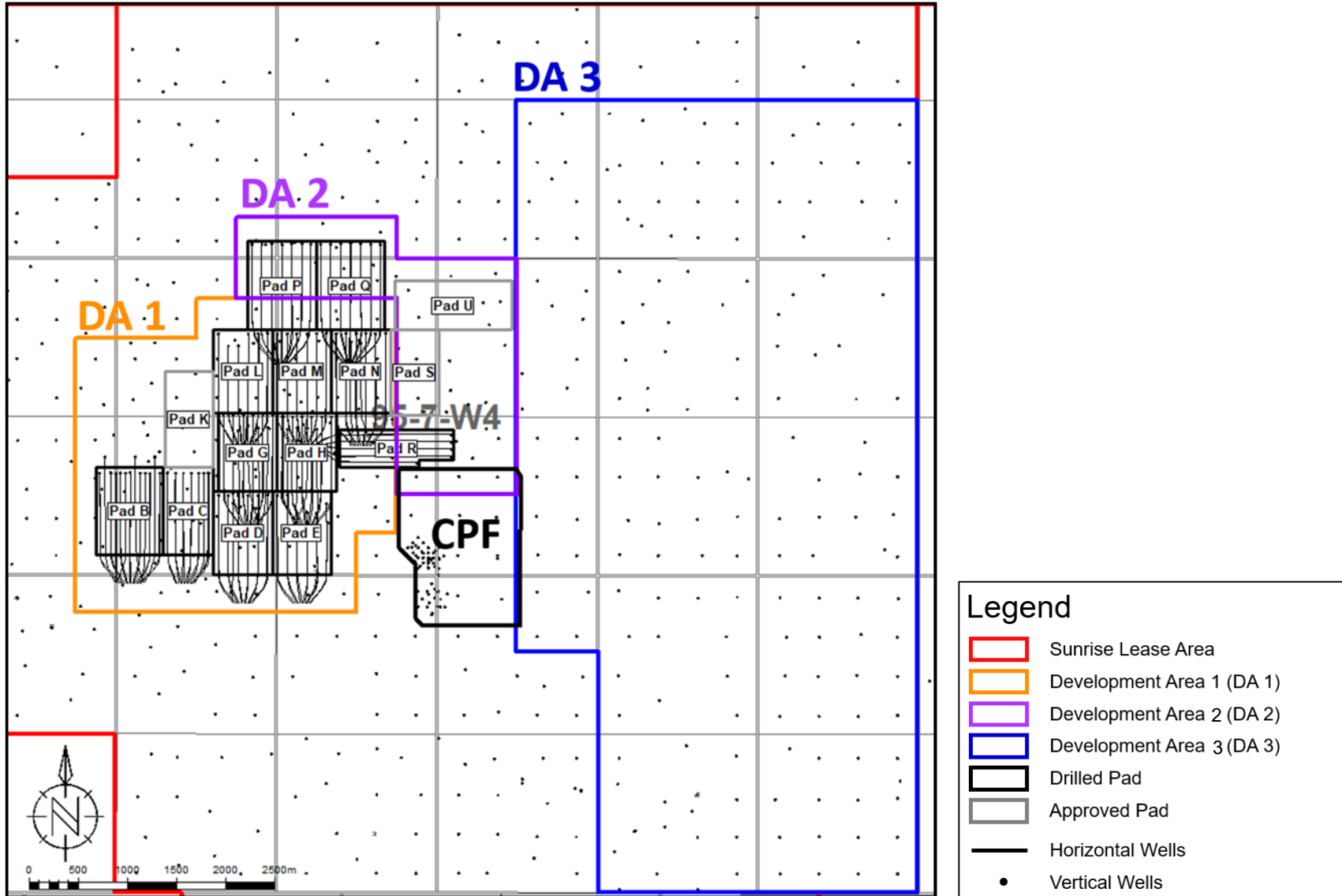
Section 4.2.2

Alberta Production Curtailment



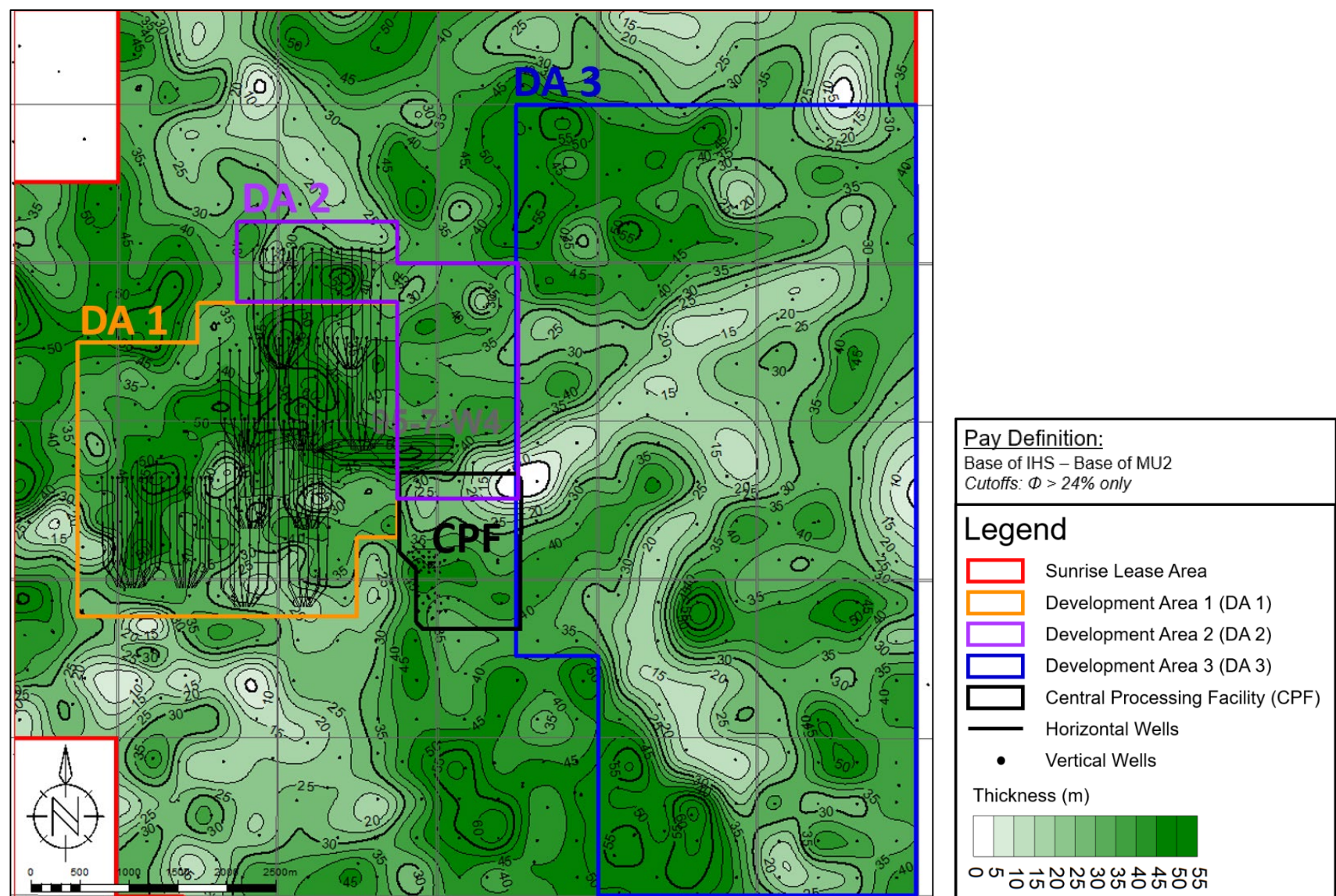
Development Area Map

Section 4.2.3.a



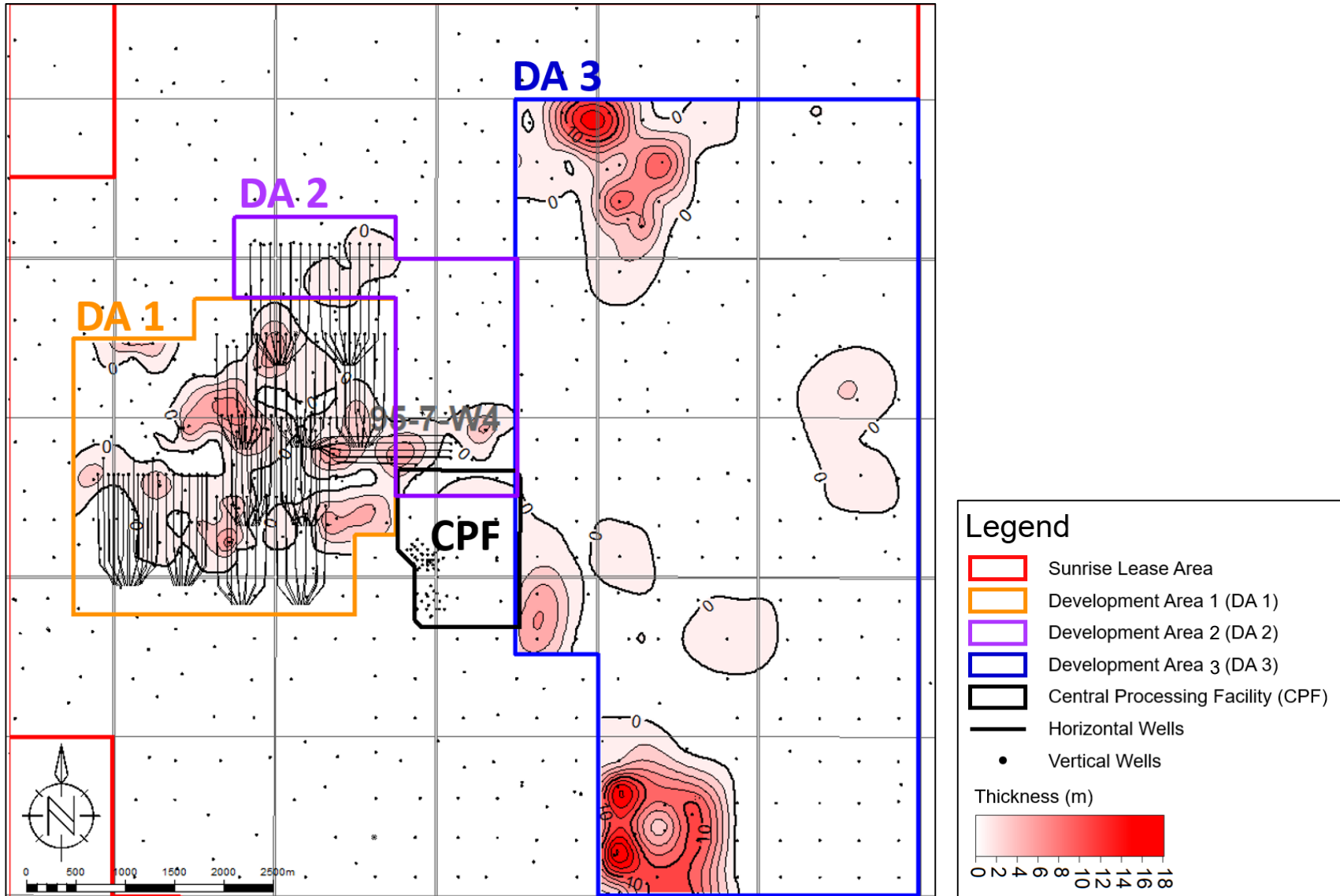
SAGD Pay Isopach Map

Section 4.2.3.b



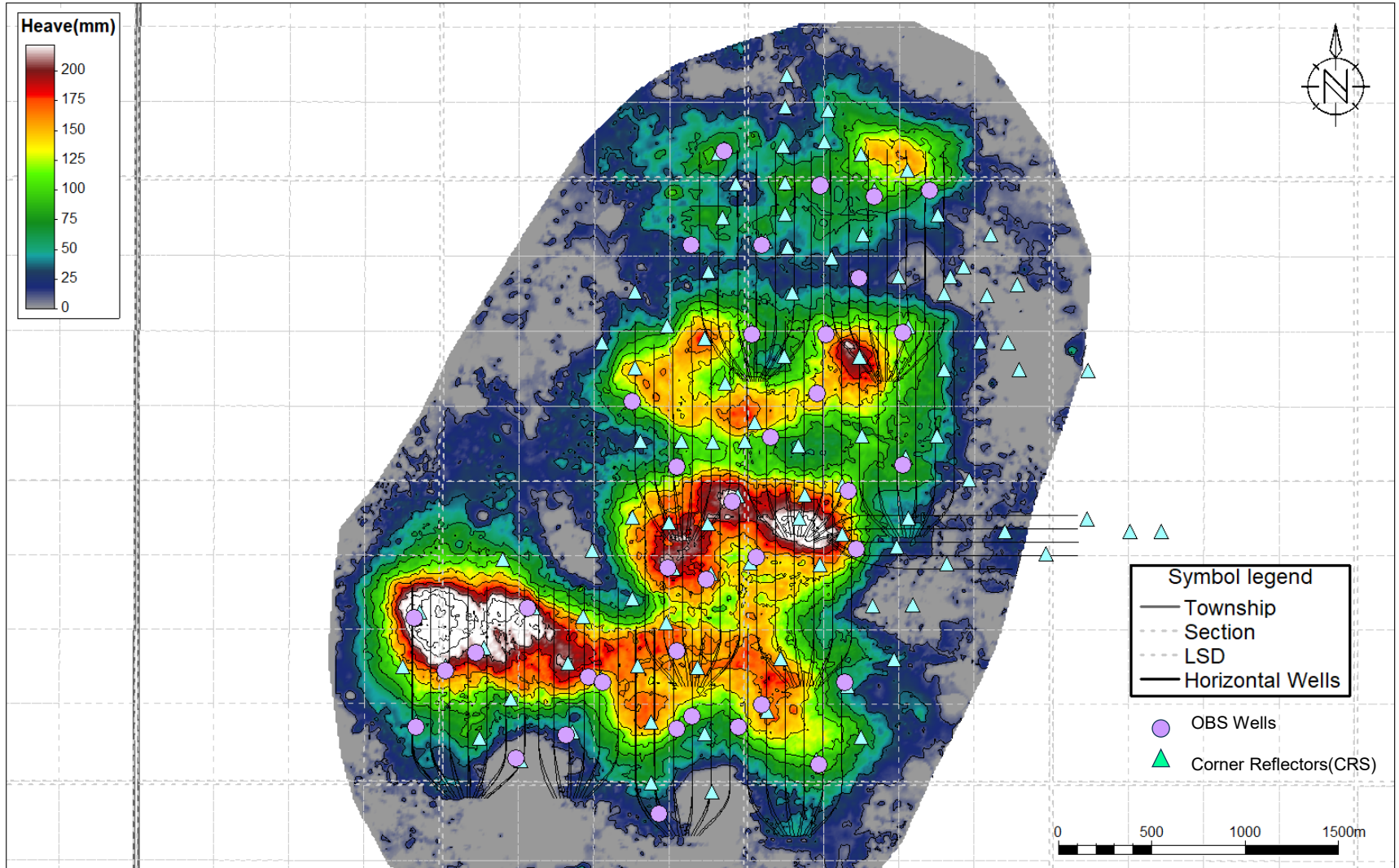
SAGD Top Gas Isopach Map

Section 4.2.3.c



Geomechanical – Surface Heave

Section 4.2.3.d

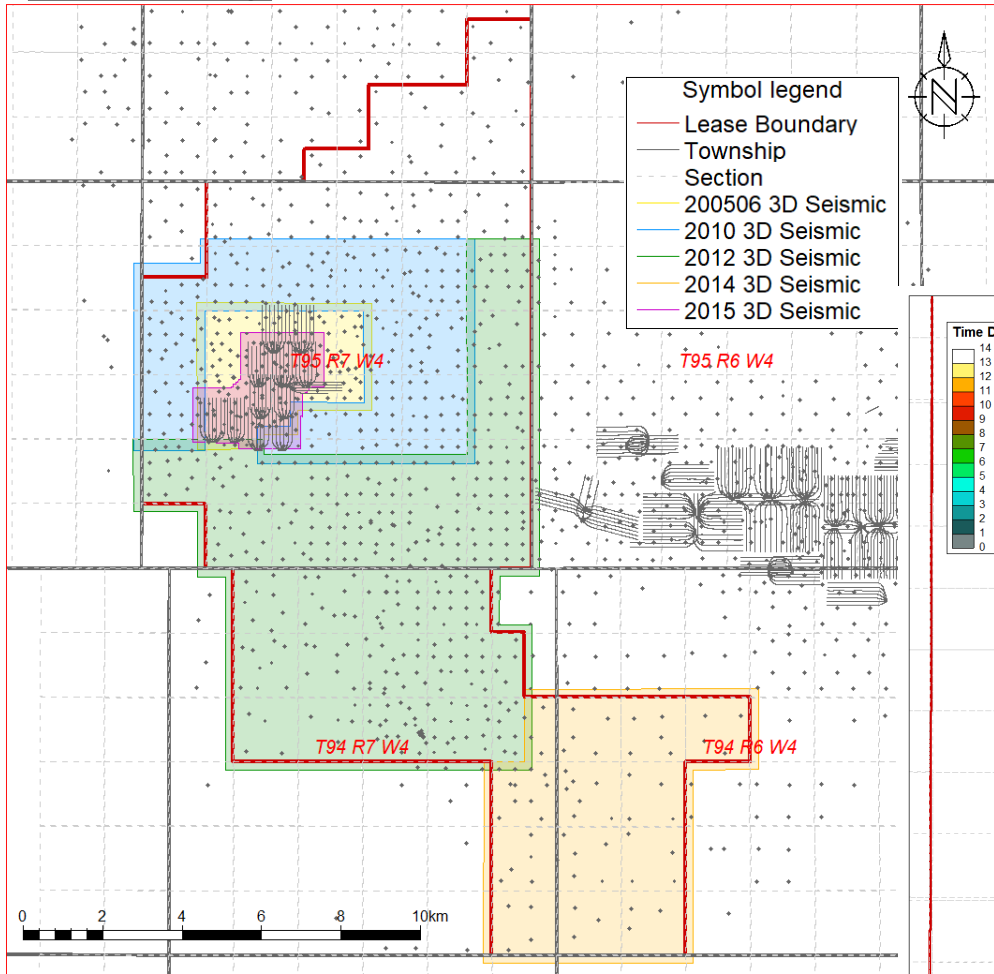


Seismic

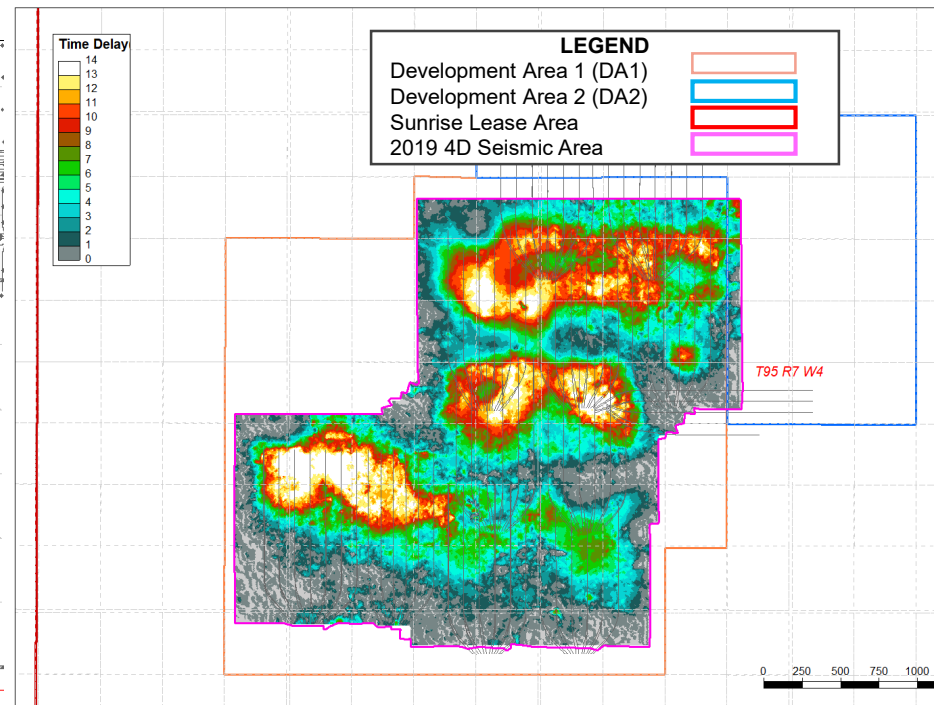
Section 4.2.3.e

- No seismic was acquired during the reporting period

3D Seismic Coverage

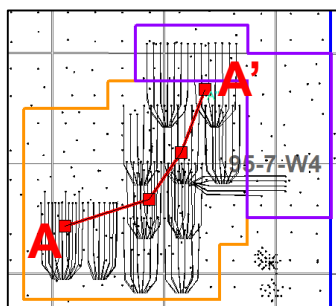
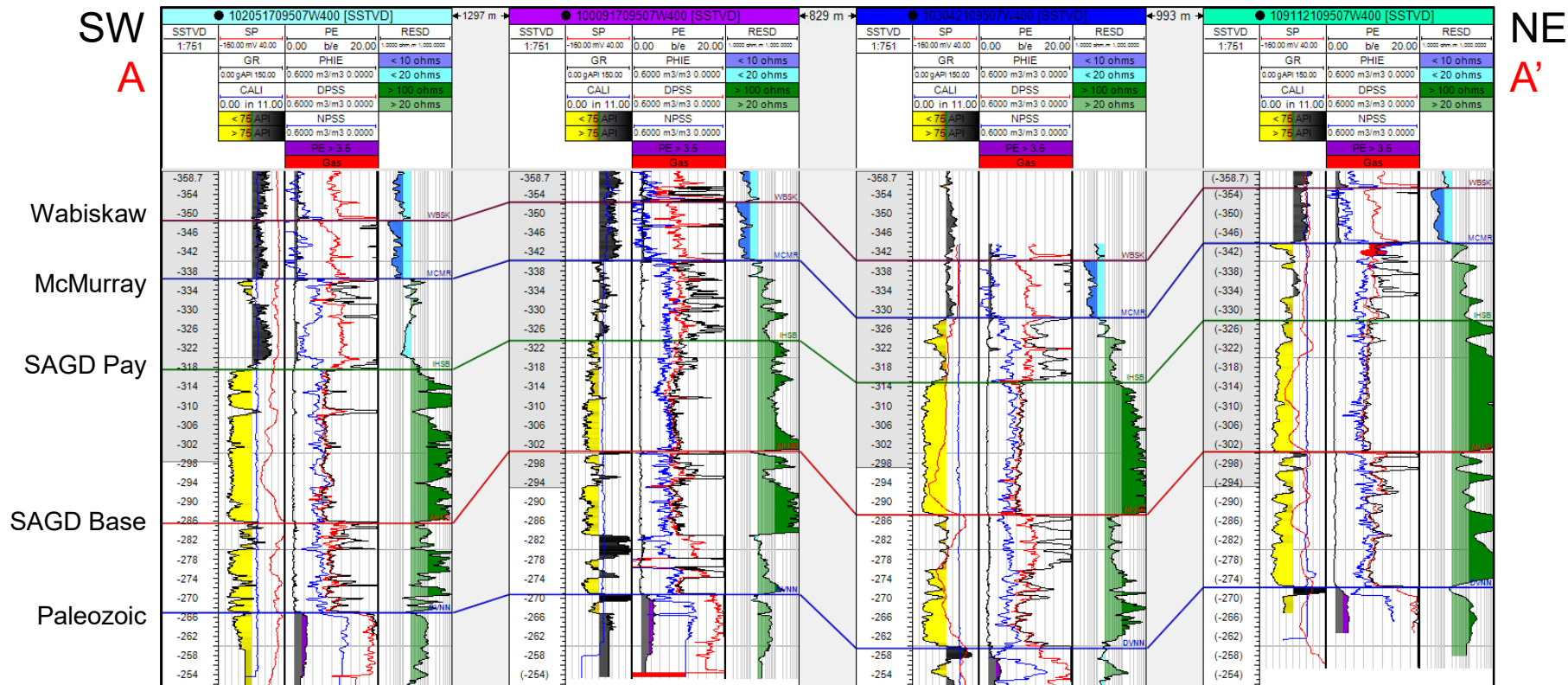


4D Seismic Coverage



Representative Cross-Section

Section 4.2.4



Reservoir Parameters

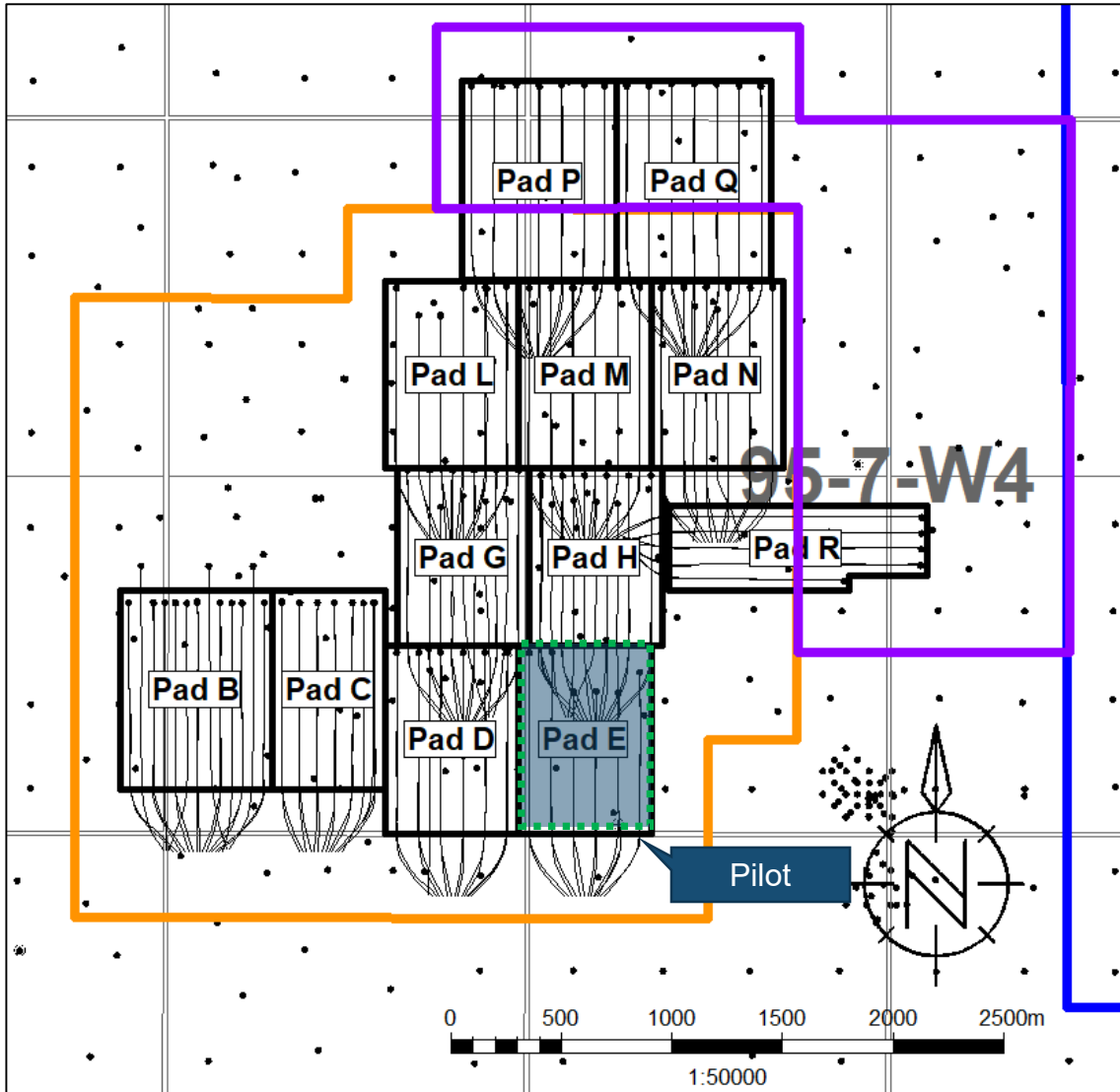
Sections 4.2.5 and 4.2.6

Pad	Area (m ²)	Height (m)	Porosity (%)	So (%)	OBIP (Mm3)
Project/Lease Area	169,824,000	35	32	70	1,122,109
Development Area 1	9,652,000	27	31	72	58,399
Development Area 2	4,308,000	23	30	70	20,483
Development Area 3	31,018,000	23	30	70	154,239

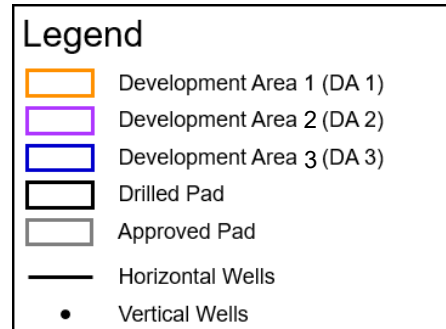
Pad	Area (m2)	Height (m)	Average Permeability (D)	Porosity (%)	So (%)	PBIP (Mm3)	OBIP (Mm3)	Cum Oil (Mm3) to Dec 31, 2020	Recovery % PBIP	Recovery % OBIP	Estimated Ultimate Recovery (Mm3)	Ultimate Recovery as % of PBIP	Ultimate Recovery as % of OBIP
B 13-08 (B)	621,000	30	7.0	32%	75%	3,939	4,475	1,641	42%	37%	2,238	57%	50%
B 14-08 (C)	459,000	29	7.0	33%	75%	3,064	3,260	1,346	44%	41%	1,630	53%	50%
B 16-08 (D)	510,000	25	7.0	32%	75%	2,895	3,079	1,021	35%	33%	1,539	53%	50%
B 13-09 (E)	510,000	23	7.0	32%	75%	2,468	2,778	982	40%	35%	1,389	56%	50%
B 08-17 (G)	480,000	27	7.0	32%	72%	2,753	2,990	1,453	53%	49%	1,495	54%	50%
B 05-16 (H)	480,000	26	7.0	33%	76%	2,694	3,155	1,260	47%	40%	1,577	59%	50%
B 16-17 (L)	510,000	29	7.0	33%	74%	3,079	3,648	1,031	33%	28%	1,824	59%	50%
B 13-16 (M)	510,000	32	7.0	33%	73%	3,303	3,887	1,183	36%	30%	1,944	59%	50%
B 15-16 (N)	510,000	37	7.0	33%	76%	4,241	4,765	1,424	34%	30%	2,383	56%	50%
B 05-21 (P)	630,000	38	7.0	32%	74%	4,336	5,660	497	11%	9%	2,830	65%	50%
B 06-21 (Q)	630,000	27	7.0	32%	73%	3,319	3,928	568	17%	14%	1,964	59%	50%
B 13-16 (R)	427,320	30	7.0	32%	77%	2,592	3,116	-	0%	0%	1,558	60%	50%
Total SR	6,277,320					38,683	44,741	12,406	32%	28%	22,371	58%	50%

Co-Injection Map

Section 4.4.7.a



- November 8, 2019 - Non-Condensable Gas (NCG) Pilot started on Pad B13-09 (E)
- NCG injection into all six injector wells on Pad B13-09 (E)



Non-Condensable Gas (NCG) Co-Injection Performance

Section 4.2.7

Pad B13-09 (E) NCG Co-Injection Pilot

- NCG Co-Injection Pilot started November 8, 2019, with injection into all six injection wells
 - Stage 1: 15 E³m³/d NCG (0.6 volume % or 0.5 mol%) for 6 months
 - Stage 2: 19 E³m³/d NCG (0.9 volume % or 0.8 mol%) for 6 months
- Cumulative gas injection (December 31, 2020) = 8,915 E³m³
- Cumulative gas production (December 31, 2020) = 1,175 E³m³
- Baseline gas production (assuming pre-NCG GOR) = 3 E³m³/d
- Net gas retained = 7,740 E³m³
- Current recycle ratio = 20% (Current Recycle ratio does not account for thief zone influence)
- Cumulative Recycle Ratio (December 31, 2020) = 13%

Pilot Results

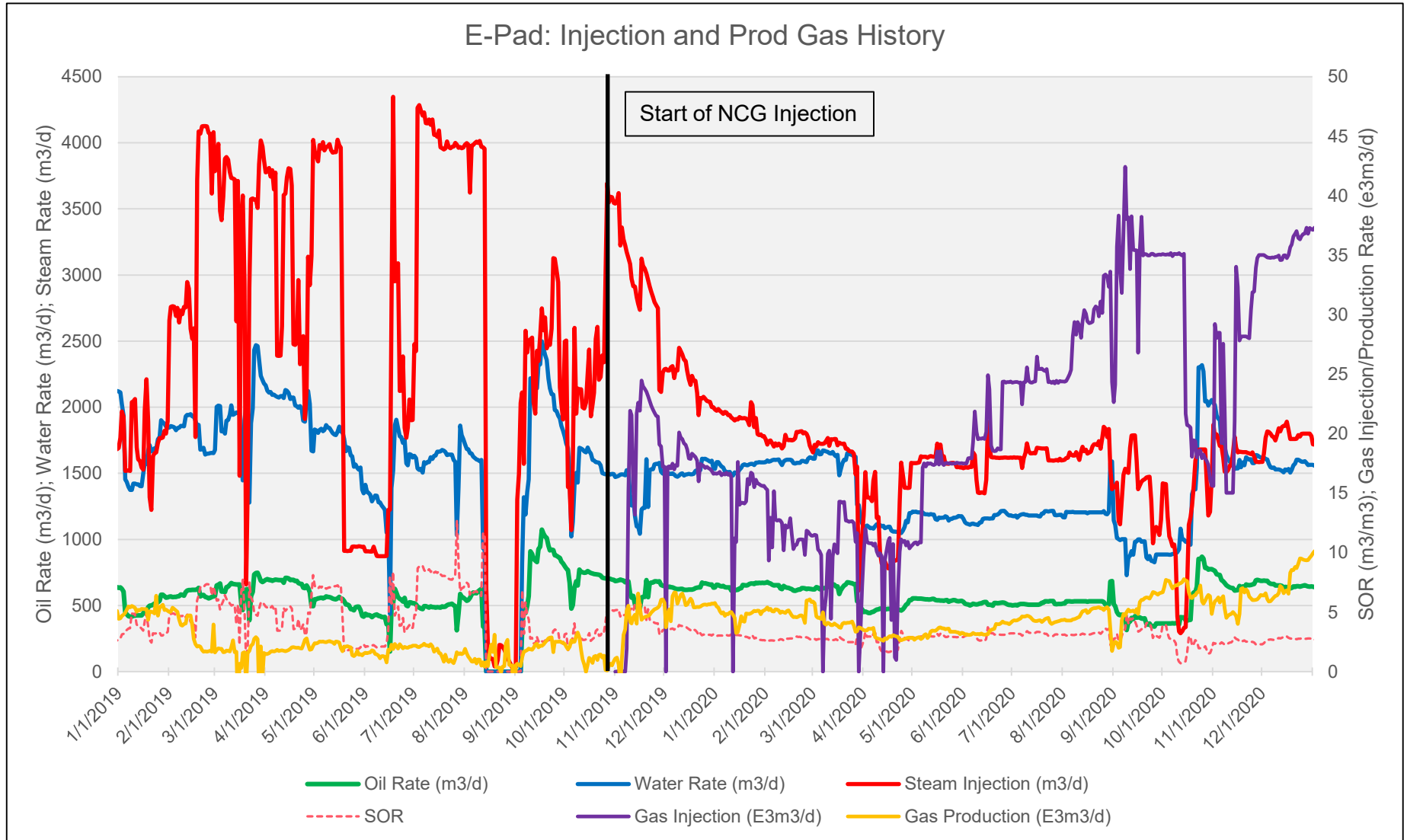
- Able to significantly reduce SOR without drops in pad bottom hole pressure (BHP)
- NCG Co-Injection Pilot showed decreased SOR, while maintaining pre-NCG oil forecast
- Recycle ratio of 20% indicating gas is staying within reservoir
- There has been no observed impact of NCG co-injection on aquifers or wellbore integrity

Operational Issues

- Low temperatures in injection gas header
- Potential for gas handling constraint of surface facilities with field wide implementation

Non-Condensable Gas Co-Injection Performance

Section 4.2.7

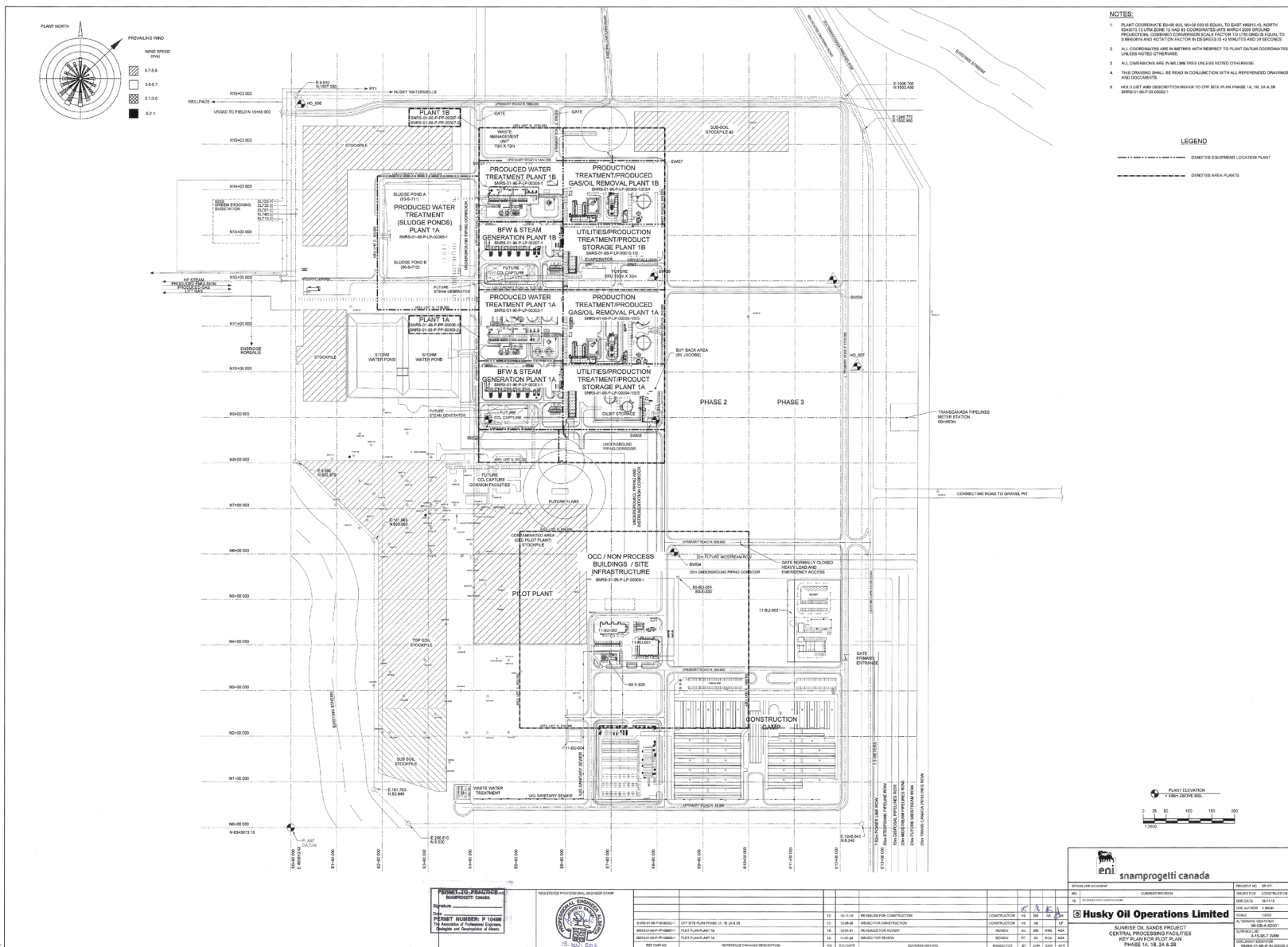


Surface

Section 4.3

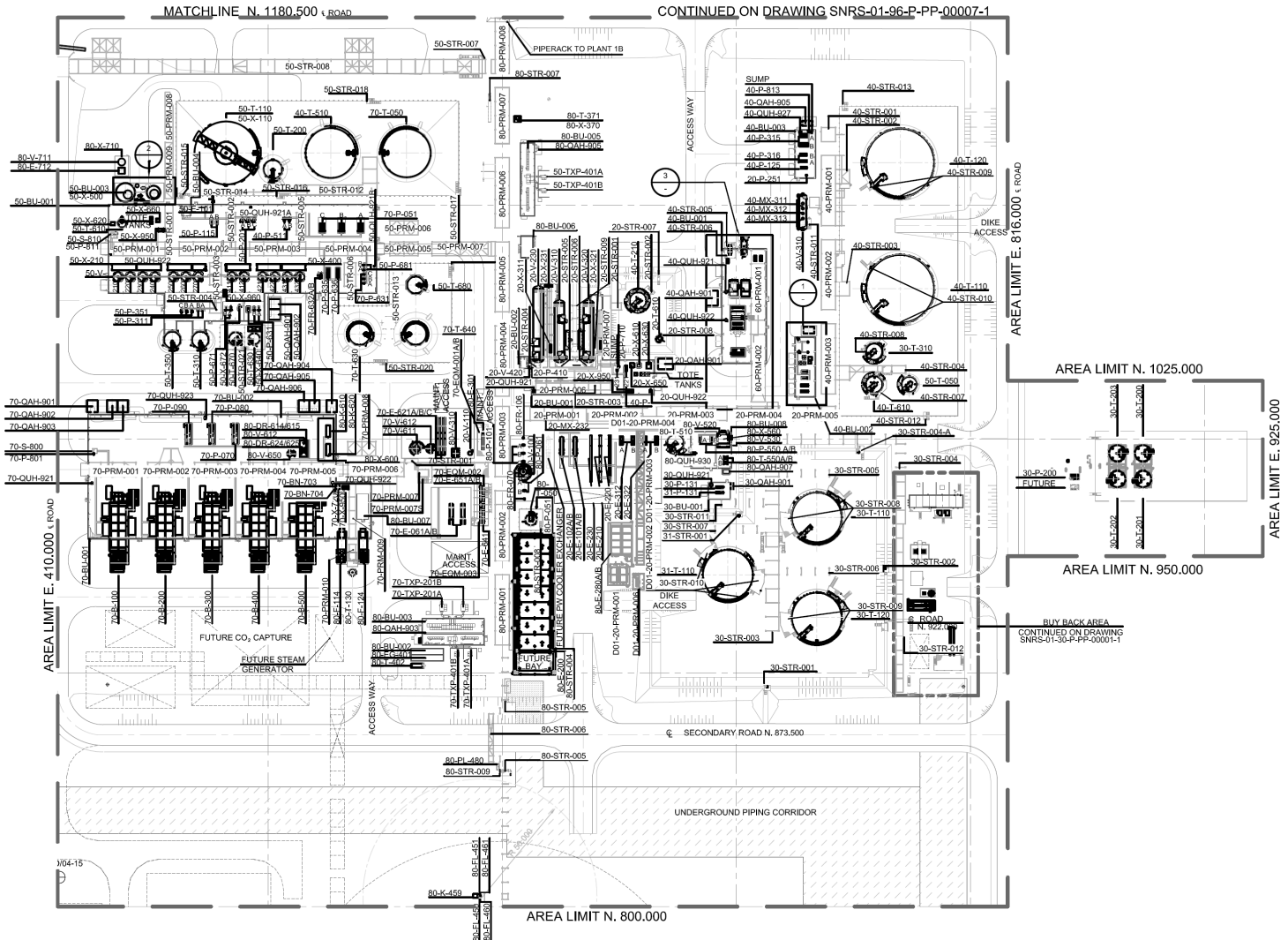
Central Processing Facility – Plot Plan

Section 4.3.8.a



Central Processing Facility 1A – Plot Plan

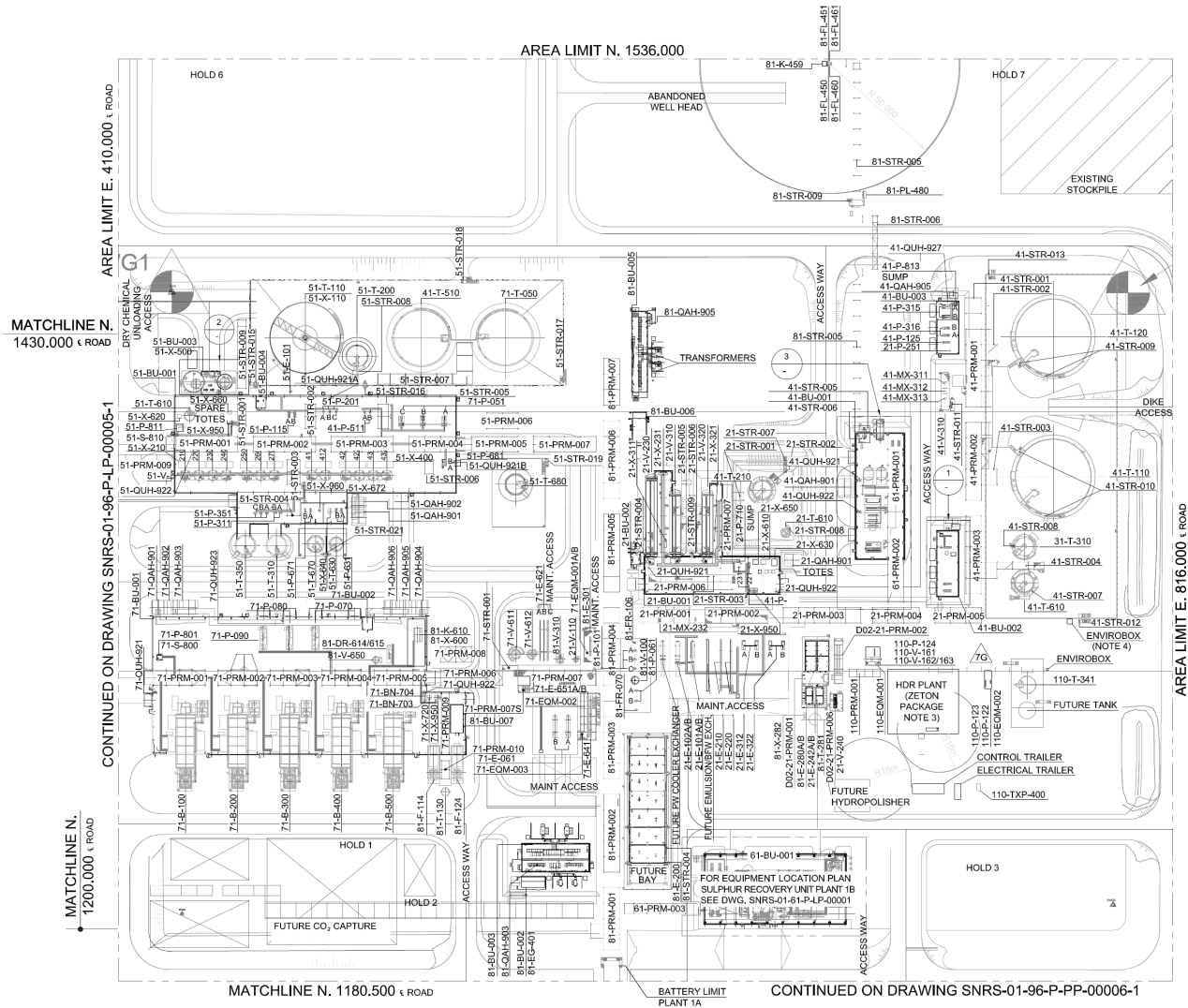
Section 4.3.8.a



PLAN 1A
SCALE 1:1000

Central Processing Facility 1B – Plot Plan

Section 4.3.8.a



PLANT 1B
SCALE 1:1000

CPF Modifications

Section 4.3.8.b

- Sump Upgrades:
 - All sumps within the CPF were modified to meet AER Directive 055 requirements
- No other modifications were completed which required AER Application Approval.

Annual and Design Throughput Comparison

Section 4.3.8.c

- Steam
 - System capacity 33,800 m³/d of steam
 - August 2019 to December 2020 average flowrate of 23,892 m³/d | 71% of Capacity

- Bitumen
 - System capacity 10,324 m³/d of oil (64,937 bbl/d)
 - August 2019 to December 2020 average flowrate of 7,477 m³/d (47,028 bbl/d) | 72% of capacity
 - Approved bitumen capacity is 11,765 m³/d of oil (74,000 bbl/d)

Historical and Upcoming Activity

Section 4.4, subsections 9 to 12

Well Suspensions and Abandonments

Section 4.4.9

- No wells were abandoned or suspended during the reporting period

Regulatory Approvals

Section 4.4.10.a

ACT	Application No.	Application Description	Approval Issue Date
OSCA	1922679	Category 1 Amendment Application - Development Area 1 Drainage Pattern B13-08 (B)	2019-08-09
OSCA	1925265	Category 2 Amendment Application - Infill Wells #4 21 infill wells in Development Area 1 and 2	2019-11-29
OSCA	1926056	Category 2 Amendment Application - Well Pad B06-20 (K) Shift in Development Area 1	2020-01-08
OSCA	1927667	Category 2 Amendment Application - NCG Pilot (2 conditions rescinded)	2020-04-08
OSCA	1929822	Category 2 Amendment Application - NCG Co-injection (gas pressurization)	2020-12-08
OSCA/EPEA	1930039/016-206355	Category 2 Amendment Application - DA2 Well Pad B10-21 (U) - Add 2 well pairs and increase the well pad	2021-01-27/2021-03-05
OSCA	1930426	Category 2 Amendment Application - Drainage Pattern B06-20 (K) Shift	2021-03-10
EPEA	N/A	SRU CEMS variance extension and sampling reduction request	2019-12-10
EPEA	N/A	Camp Heater additions (odorizer skid)	2019-10-28
EPEA	N/A	SRU CEMS variance extension	2019/12/10
EPEA	017-206355	SRU Downtime Request for Turnaround Activities	2021/04/28

Material Changes to Performance or Operations

Section 4.4.10.b

- May to June 2019 - CPF 1A turnaround activities
- There were no other material changes to the performance, material balance, or energy balance during the reporting period

Lessons, Successes and Failures

Section 4.4.10.c

Oil Treating

- Overall bitumen and production rates were reduced due to market conditions and reduced steam production
- Minimal treating concerns were observed during reporting period
- 2020 (Q3/Q4) Diluent outage

De-Oiling

- Overall produced water rates were reduced due to market conditions and reduced steam production
- Minimal treating concerns were observed in Plant 1A during reporting period
- Oil in Water (OIW) removal in Plant 1B was challenging due to Skim Tank and IGF performance

Lessons, Successes and Failures

Section 4.4.10.c

Water Treatment

- Overall produced water rates were reduced due to market conditions and reduced steam production
- Operational challenges included troubleshooting and re-establishing Warm Lime Softener performance after bed collapse
- Optimization was completed to improve equipment performance:
 - Media replacement in After Filters
 - WAC Resin change-out

Lessons, Successes and Failures

Section 4.4.10.c

Steam Generation

- Overall steam production rates were reduced due to market conditions and limitations of steam system
- Steam generation aligned with High Pressure Steam Separator PSV capacity
- OTSG convection section repairs completed on remaining boilers
- OTSG building trenches upgraded in 2020
- BFW specifications adjusted to better align with industry practice

Sulphur Recovery Unit (SRU) & Utilities

- Plugging and overall SRU performance continued to be evaluated and mitigated
- Unplanned cleaning requirements led to approximately 434 hours of downtime in the SRU
- Progressed the regenerative thermal oxidizer (RTO) project

Success/failure learned during and after turndown due to low oil price in 2020

- Demonstrated ability to recover production performance with minimal issues following low commodity price-driven curtailment

Update on Pilots or Technical Innovations

Section 4.4.10.d

- Husky Diluent Recovery (HDR)
 - Pilot was technically successful, evaluating commerciality
- Non-Condensable Gas (NCG) Pilot
 - NCG Pilot on Pad B13-09 (E); ongoing

Compliance History

Section 4.4.11

Reportable Incidents

- Husky had one AEP non-compliance due to unapproved soil management practice
- Issues with Continuous Emission Management System (CEMS) unit on the SRU oxidizer vent stack

Voluntary Self-Disclosures

- NCG Co-Injection Pilot Pad B13-09 (E) - AER OSCA Scheme Approval 10419 (as amended)
Condition 5b and c
 - In December 2019 and January 2020, once the data was gathered and evaluated, Husky identified that two wells (E3 and E1) exceeded Condition 5c of Approval 10419 (as amended) by approximately 5%
 - Amendment application (Category 2) submitted March 6, 2020, and received approval April 8, 2020
 - VSD Closed April 15, 2020
- Maximum Operating Pressure (MOP) Exceedance
 - On November 7, 2020, 36 hours after steaming operations commenced on Pad B10-16 (R) well R5P, the approved maximum operating pressure (MOP) of 1,750 kPag was exceeded on two (2) occasions, 7 hours apart. The maximum pressure observed at well R5P was 1,796 kPag
 - On November 9, the approved MOP was exceeded, and the maximum pressure observed at well R5P was 1,792 kPag
 - Since November 9, there were no additional MOP exceedances at well R5P. Throughout period (November 7 - November 11) bottomhole pressure in the corresponding injector well did not exceed 1,697 kPag, which is below approved MOP. Husky monitored and will managed the steam injection at low rates there were no further MOP exceedances while unloading
 - VSD pending AER review

2019-2020 Non-Compliance Summary - AER

Section 4.4.11

Date	Non-Compliance	Follow-up
08/13/2019	Edge 357451 - During transportation of boiler feed water (BFW), the bottom sight glass on the tank in water truck broke off releasing BFW. Improper truck was used to transport BFW.	Procedure updated to ensure proper truck used for intended service. JSA for hauling BFW to include temperature ratings.
9/14/2019	Edge 358888- Emulsion line off lease Pad D steam was isolated for infill well drilling activities on Pad G. Steam trap on steam header showed signs of plugging. It was discovered D2A infill well was not isolated and flow back from the well was entering steam header.	Operations increased frequency for review of the infill well steaming list to manage wells appropriately during pad outages. Check valves installed on steam headers tied into infill wells.
9/21/2019	Edge 359198-Dredging at South Lime Sludge Pond used hoses to redirect waste process water back to pond. Hose moved from its' location releasing process water into ditch due to continuous friction causing strap on hose to break.	All filter press discharge hoses connected to the lime sludge pond are to be secured with double strapping or an abrasion resistant strapping.
10/05/2019	Edge 359733 – Emulsion released when low point drain opened after produced gas condensate pump isolation at Condensate Management System (CMS) 224.	The process for draining low points of CMS Tanks to include utilization of larger spill containment or a blow off tank.
10/14/2019	Edge 360027- During valve isolation on CMS 221 Produced gas condensate pump, emulsion released splashed out of the drip tray onto the surrounding muskeg.	A blow off tank will be used to confirm zero energy during isolation for CMS's.
12/20/2019	Edge -362183 – Adapter on a temporary transfer line connecting BFW tank to disposal water tank failed causing release of BFW.	This was a temporary transfer line and was taken out of service. Aluminum adapters to be phased out.
12/24/2019	Edge 362271 – Dirty backwash tank overflowed while performing manual backwash due to disregarded alarm on the control panel	Procedure developed to ensure backwash outlet valves closed during manual backwash events
12/30/2019	Edge 362339-Steamline drain leak- An Operator was driving by the location and noticed an icicle forming below the steam line	Permanent repairs needed were made to drain line during 2021 turnaround.
1/25/2020	Edge 360109 - Produced water seal flush line connecting sample exchanger/cooler ruptured on Pad B releasing produced water.	Heat trace configuration will be changed to a single circuit to eliminate failure points
2/11/2020	Edge 363601 - Low point drain valves passed on emulsion pipeline servicing pads P and Q releasing emulsion to ground	Permanent repairs to low point drain were completed during 2021 Turnaround
3/10/2020	Edge 364489 – Leak discovered on 1A neutralization tank nozzle. No fluid from the leak escaped the tank berm.	Permanent repair to tank nozzle made during 2021 Turnaround.

2019-2020 Non-Compliance Summary - AER

Section 4.4.11

Date	Non-Compliance	Follow-up
3/15/2020	Edge 364614 – After a plant trip in 1B and during restart and resetting control valve, a downstream valve was manually blocked in and a block valve started to pass.	Updated start up SOP to ensure two block valves are isolated prior to opening control valve on HP Separator using manual globe valve to control flow.
3/31/2020	Edge 363873 - CEMS Units failed to meet required 90% monthly availability for CPF 1a and 1b.	Root cause of this issue was identified and corrected by replacing corroded hardware which was replaced.
4/16/2020	Edge 365336 – During pipeline in-service test, a liner vent was inadvertently opened due to mislabeling of vent. The vent liner was left open on the operating pipeline where a spill was discovered.	Disposal pipeline liner vents were re-labelled correctly. Pipeline procedures were updated to maintain pressure on the pipeline during trips.
4/20/2020	Edge 365484 - Storm water from the CPF ditch system bypassed the storm pond and went off lease before being tested.	Preventative maintenance request was created to inspect ditches/culverts before spring to ensure there is capacity to function properly for spring thaw runoff
4/30/2020	Edge 366007 - CEMS Units failed to meet required 90% monthly availability for CPF 1a and 1b due to failed calibrations	Step added to preventative maintenance to ensure CEMS optical alignment zero adjusted regularly.
5/27/2020	Edge 366897 - Glycol was found to be leaking from heat trace fitting	Efforts to prevent future releases focus on ensuring proper installment of heat tracing
7/15/2020	Edge 369067 - BTEX exceedance of ambient air quality guidelines from Sulphur Recovery Unit (SRU) vent.	RTO to be installed on SRU in 2021 to combust VOC's and residual hydrocarbons
11/1/2020	Edge 373637 - Monthly arithmetic mean for total phosphorus at Wastewater Treatment Plant (WWTP) exceeded	Injection point of Alum dose moved to influent side to allow more contact time with waste stream.
11/26/2020	Edge 374027 - CEMS data late reporting. Late reporting due to CEMS data stalled on submission website.	This was manual error. All reporting continues to follow normal procedures. No further issues.
12/13/2020	Edge 374452 - Two NOx Exceedances on 71-B-500 due to plant trip	No follow up required.
12/16/2020	Edge 374522 - Malfunction of 1B HP Flare Flow Meter due to freezing	Heat trace added to flare probe.
12/23/2020	Edge 374725 - make up water line supplying treater 21-V-320 sample cooling split in unit 21	A section of the line was replaced with a new spool on Jan 11,2021.
12/27/2020	Edge 375811 - Failure to meet 90% monthly operational time for 1B CEMS unit due to failed heater board in CEMS unit.	Heater board was replaced and CEMS software server updated.

Future Plans

Section 4.4.12

Expected Changes to Performance or Operations

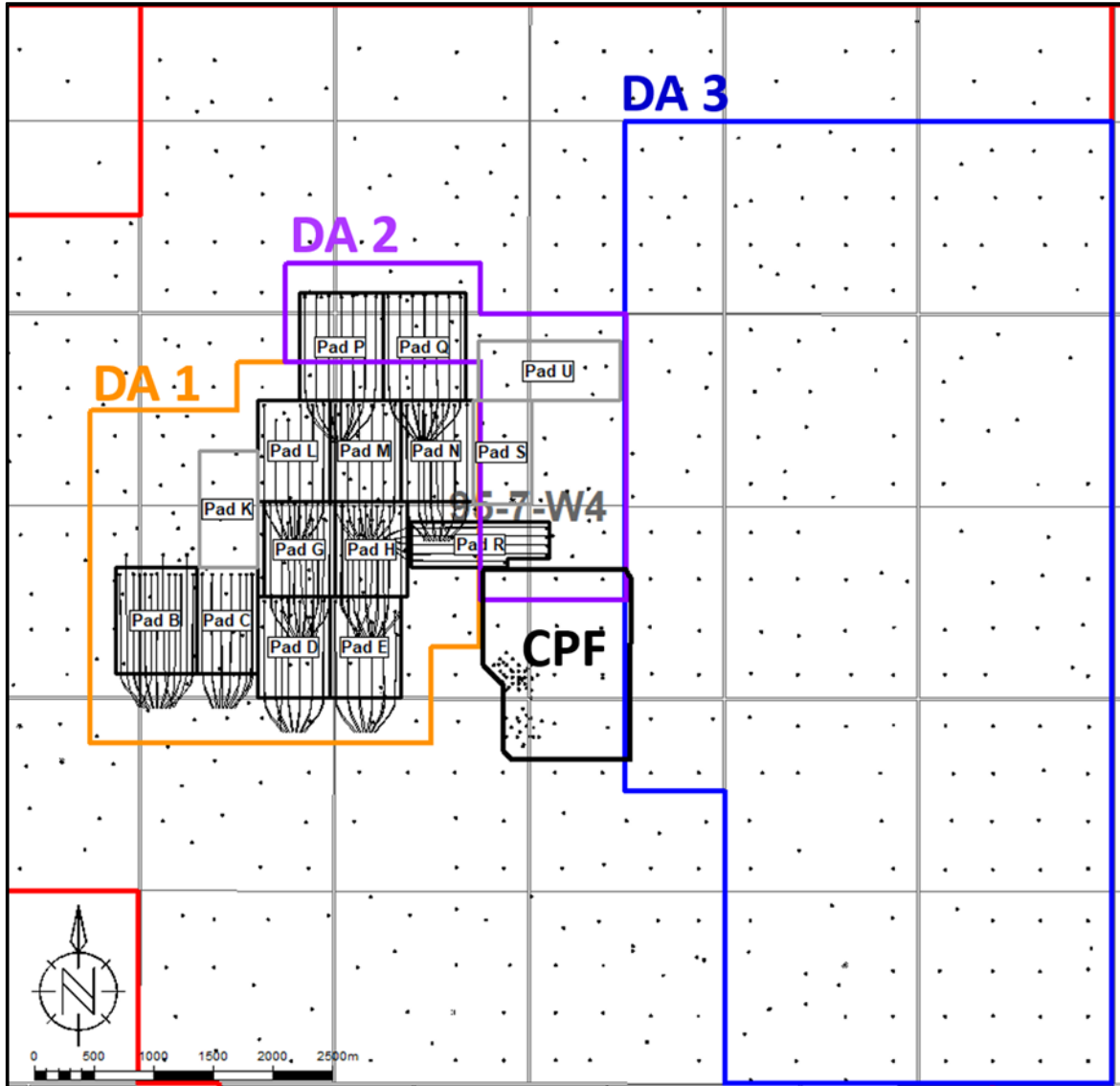
- Q2 2021 Turnaround of CPF1B planned
- No other material changes to performance or operations are expected

Expected AER Applications

- Permanent MOP increase for DA1 and DA2; submitted to AER on April 15, 2021; pending review and approval
- Addition of a regenerative thermal oxidizer (RTO) onto the SRU oxidizer vent stack as a permanent mitigation for hydrocarbon venting; submitted June 5, 2021, in service target date Q4 2021

Planned Development

Section 4.4.12



- Pads B16-16(S), B06-20(K) and B10-21(U) are the next pads in the development plan
- Evaluating development options for DA3

Legend

- Sunrise Lease Area
- Development Area 1 (DA 1)
- Development Area 2 (DA 2)
- Development Area 3 (DA 3)
- Drilled Pad
- Approved Pad
- Horizontal Wells
- Vertical Wells