Appendix A

Instrumentation 3.1.1-5c, d

October 2017

Instrumentation in Wells

Regional Multi-zone Monitoring Wells

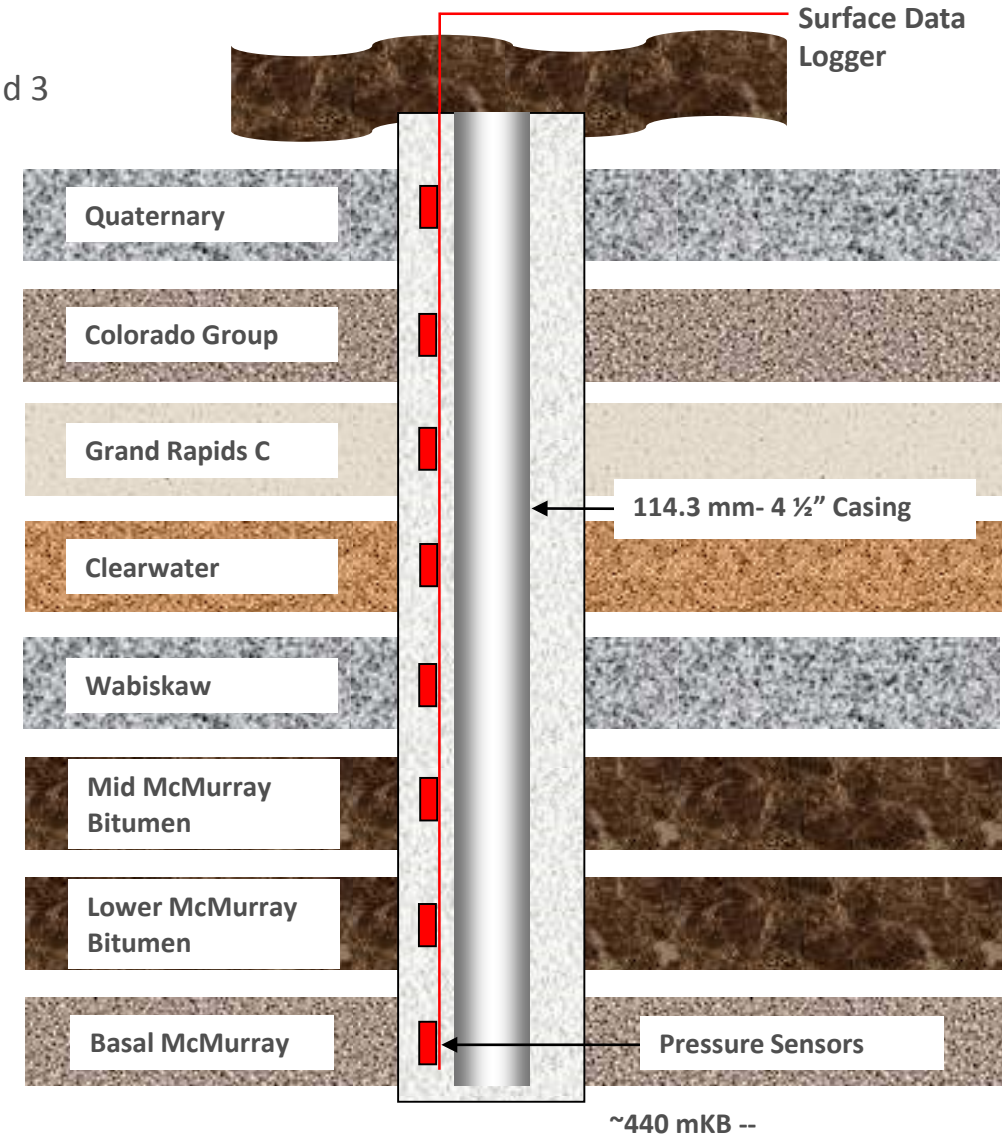
Monitoring wells cover areas of Jackfish 1, 2, and 3

Twenty-one wells

- 00/07-32-75-6W4 (5 piezometers)
- F1/08-28-75-6W4 (4 piezometers)
- F1/09-14-75-6W4 (4 piezometers)
- F1/12-31-75-6W4 (4 piezometers)
- F1/10-22-75-6W4 (5 piezometers)
- F1/04-26-75-7W4 (5 piezometers)
- F1/06-28-75-7W4 (5 piezometers)
- F1/15-19-75-6W4 (5 piezometers)
- F1/09-24-75-7W4 (5 piezometers)
- F1/14-25-75-6W4 (5 piezometers)
- F1/05-12-75-6W4 (5 piezometers)
- F1/09-22-75-7W4 (4 piezometers)
- 02/12-23-75-7W4 (4 piezometers) *
- 02/01-35-75-7W4 (3 piezometers)
- 00/15-07-75-5W4 (4 piezometers)
- 00/07-22-75-7W4 (2 piezometers)
- 00/03-15-75-6W4 (3 piezometers) **
- 02/09-33-75-6W4 (4 piezometers)
- 00/04-30-75-7W4 (3 piezometers)
- 00/01-19-75-6W4 (3 piezometers) **
- 00/11-30-75-6W4 (5 piezometers)

* Perf with a Level Logger

** Perf for water sampling



Observation Well Summary

Measurement Challenges

3.1.1-5d

Measurement Challenge	Description Of Challenge	Action Plan
Non-Repeatable Data: Temperature and/or Pressure	Low confidence in non-repeatable day-to-day temperature and/or pressure data is potentially caused by, but not limited to: • Irregular or noisy power from solar panel, (including SunSaver), inducing noise on the thermocouple wires • Noise induced from other sources • Poor reference temperature devices • Poor grounding/isolation • Power issues	• Working with vendor to identify root cause of non-repeatable data and implement solution(s) from investigation across all observation wells
Piezometer Currently or Historically Considered in Poor Communication With Reservoir	Piezometer pressure data considered suspect due to unlikely pressure readings when compared to other nearby piezometers and downhole operating conditions	• Currently viewing other vendor options • Reviewing moving instrumentation internal to the casing • Continuing to work with current instrumentation vendor to develop corrective actions to improve data reliability • Conducting fluid shots on adjacent wellbores to confirm suspect pressure readings

Observation Well Summary

Measurement Challenges

3.1.1-5d

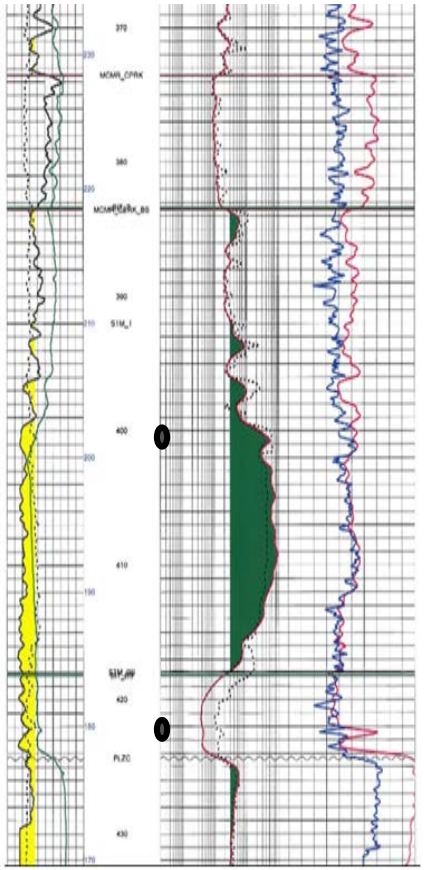
Devon remains committed in working towards overcoming current observation well measurement challenges and increasing data reliability. In 2017, steps towards mitigating the issues outlined in the previous slide included:

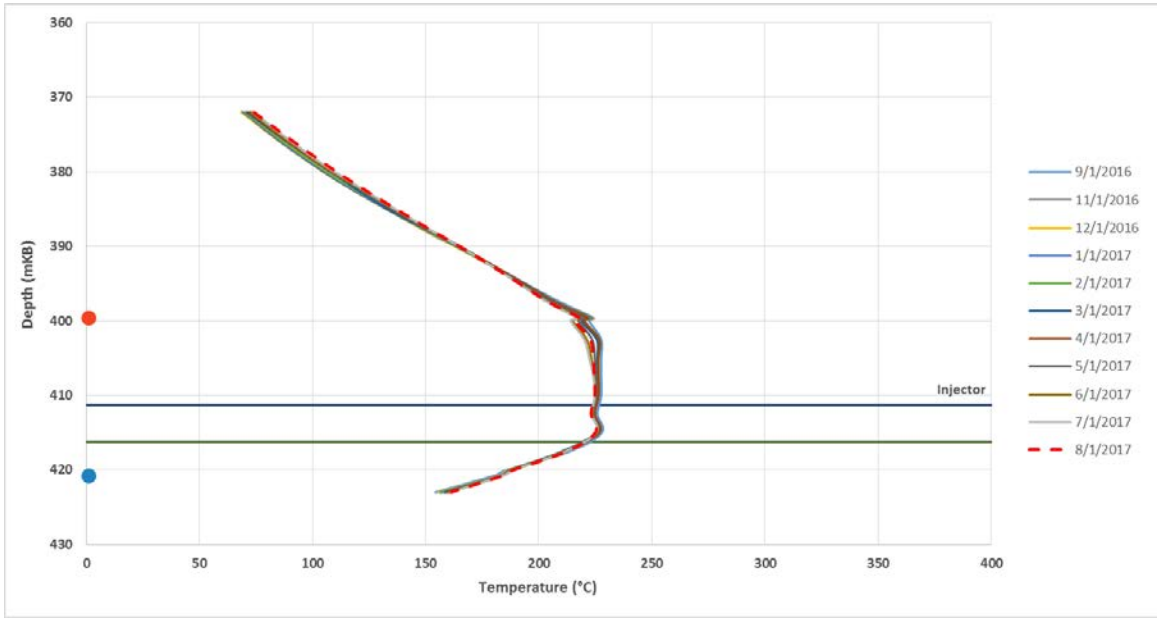
- Monthly reviews of observation well data to track and prioritize issues as identified
- Devon representatives sent to locations to fix wells with battery issues
- Conducting maintenance trips in spring, summer, and fall that involved vendor technicians visiting and troubleshooting various issues at the observation wells
- A planned fall preventative maintenance trip that will include inspection of batteries and power systems to reduce the potential for power loss during winter months
- Work with vendor to investigate non-repeatable data issues and implement corrective actions
- Reduction in polling frequency to lower power use at site to prevent future power loss

Devon has seen improved uptime using the detection process describe above and through increased involvement of Devon representatives to resolve issues that do not require a specialized technician.

Pad A Heel Observation Well Temp
(7.1m from A5 well pair)

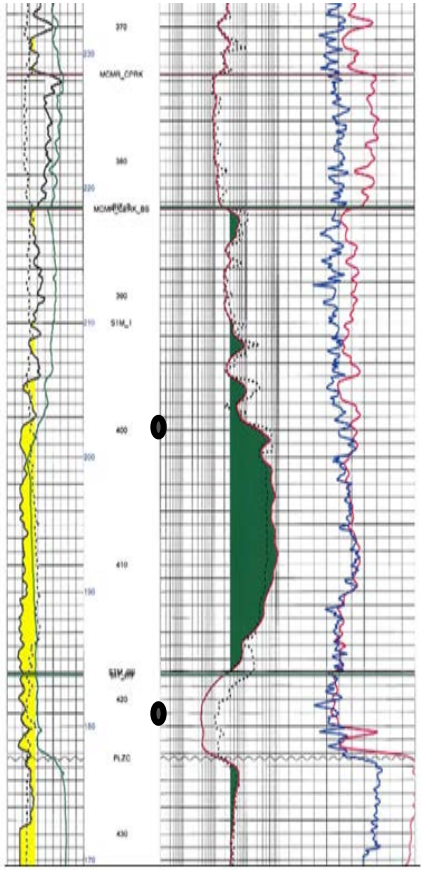
3.1.1-5d

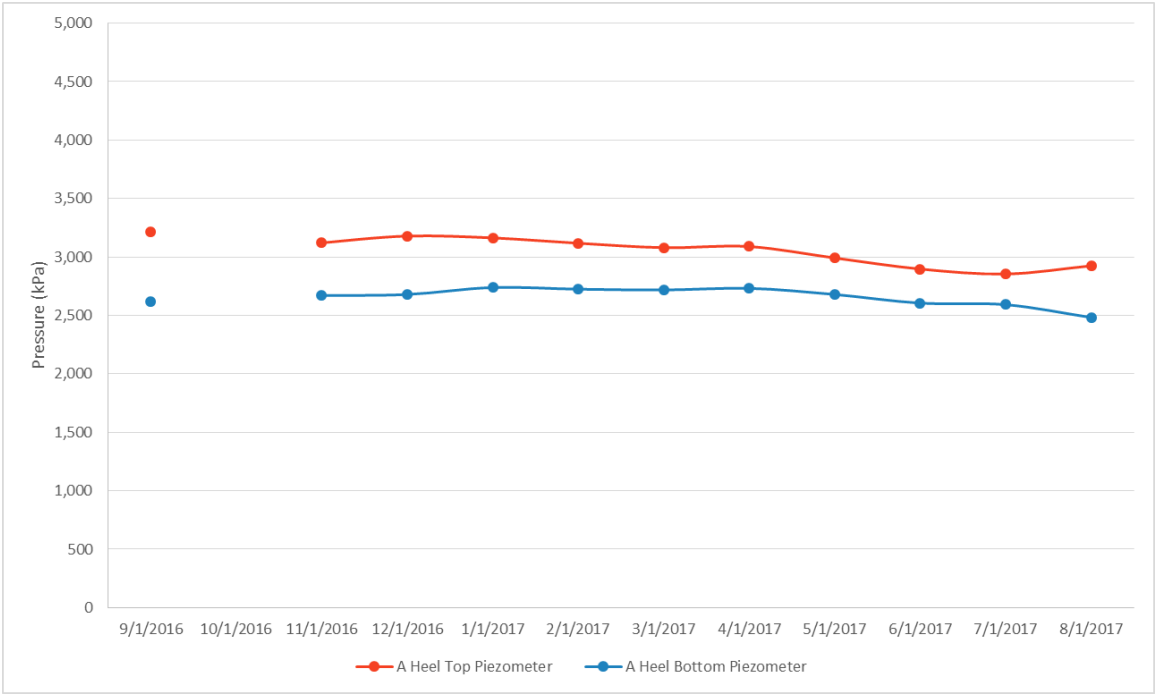




Pad A Heel Observation Well Pressure
(7.1m from A5 well pair)

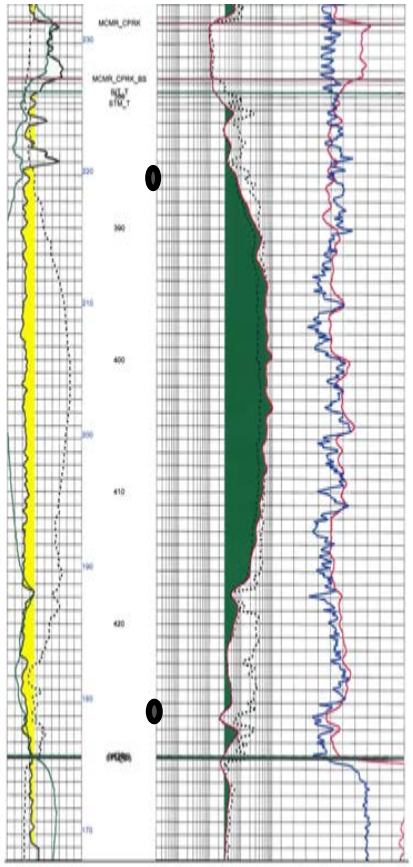
3.1.1-5d

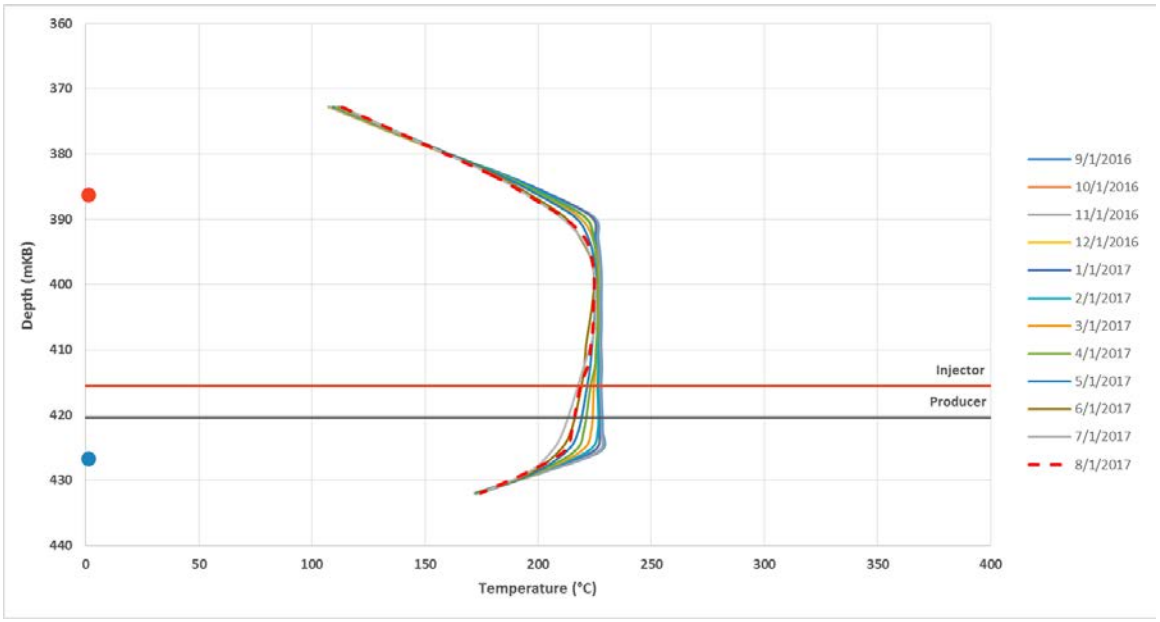




Pad A Toe Observation Well Temp
(5.3m from A5 well pair)

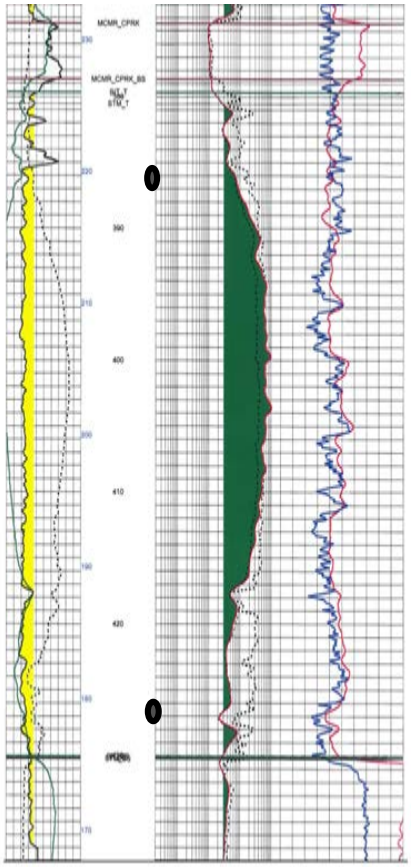
3.1.1-5d





Pad A Toe Observation Well Pressure
(5.3m from to A5 well pair)

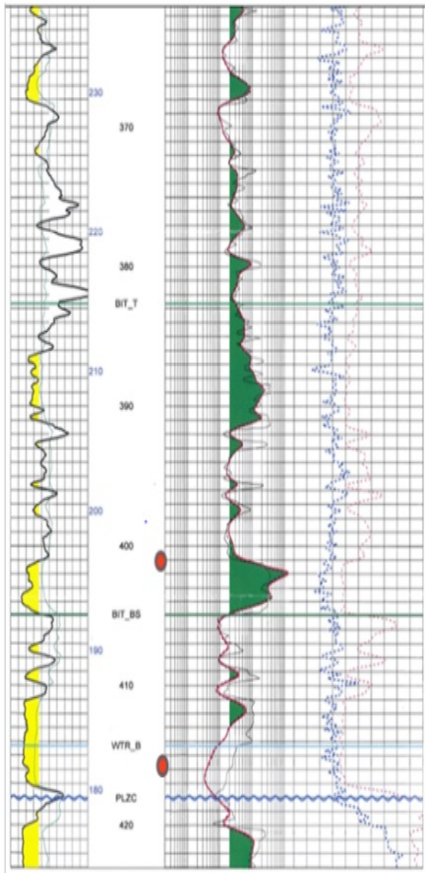
3.1.1-5d

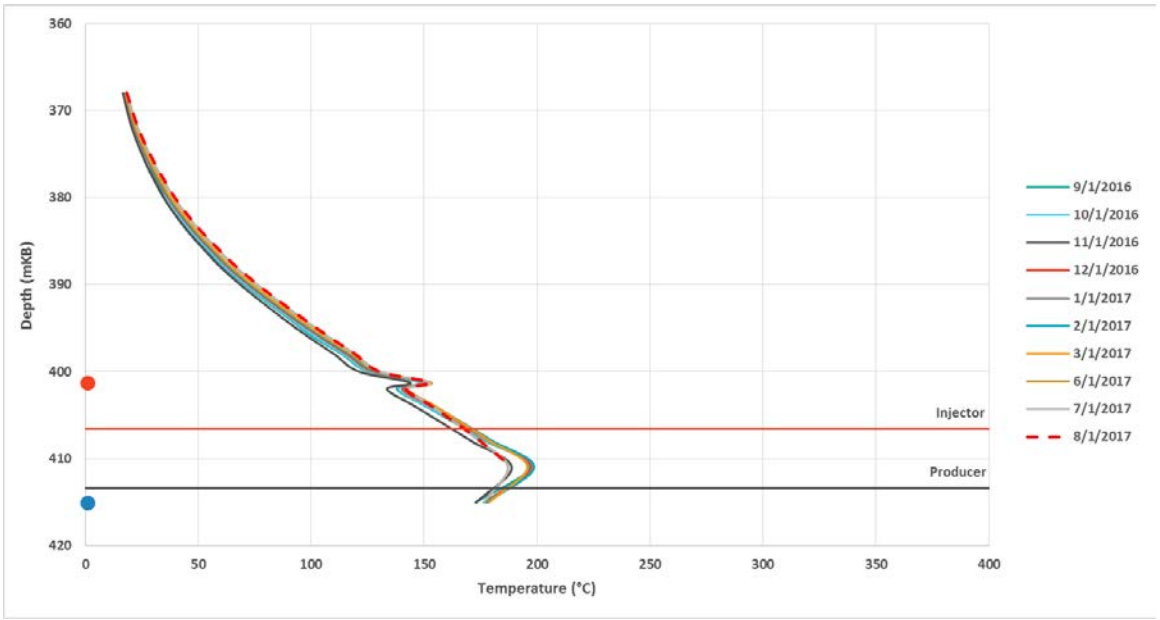


Both piezometers have failed, no pressure data available

Pad B Heel Observation Well Temp
(6.5m from B2 well pair)

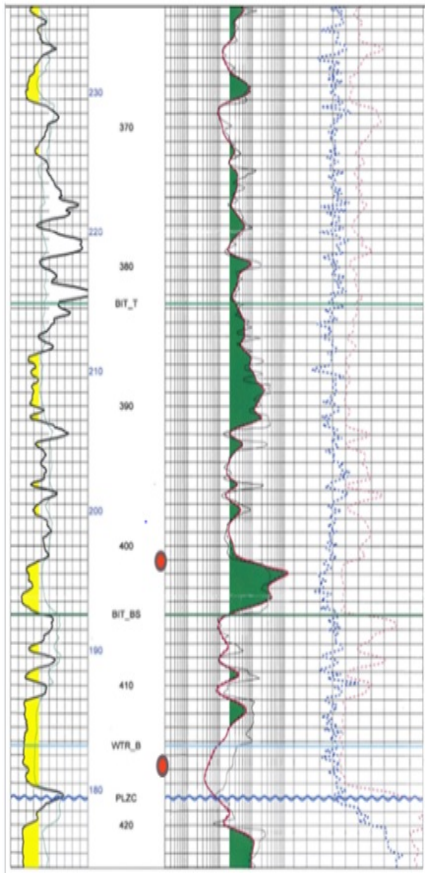
3.1.1-5d

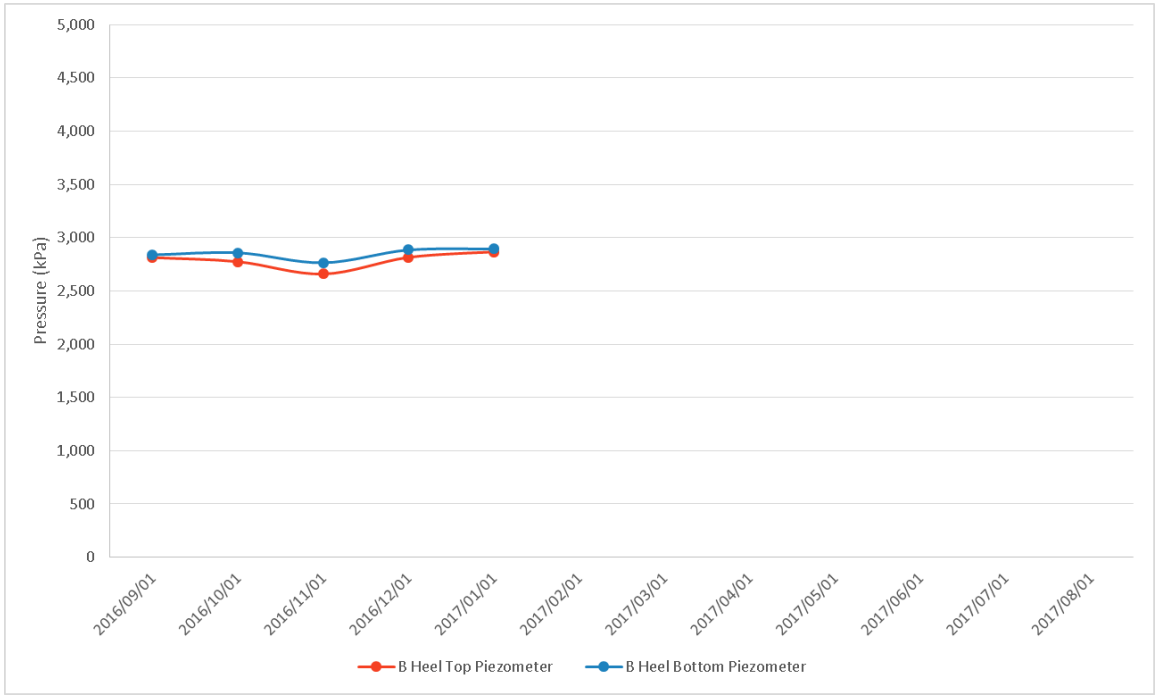




Pad B Heel Observation Well Pressure
(6.5m from B2 well pair)

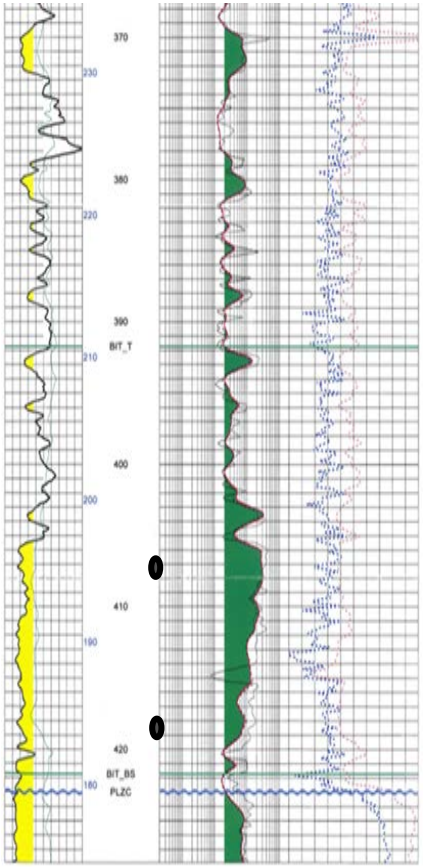
3.1.1-5d

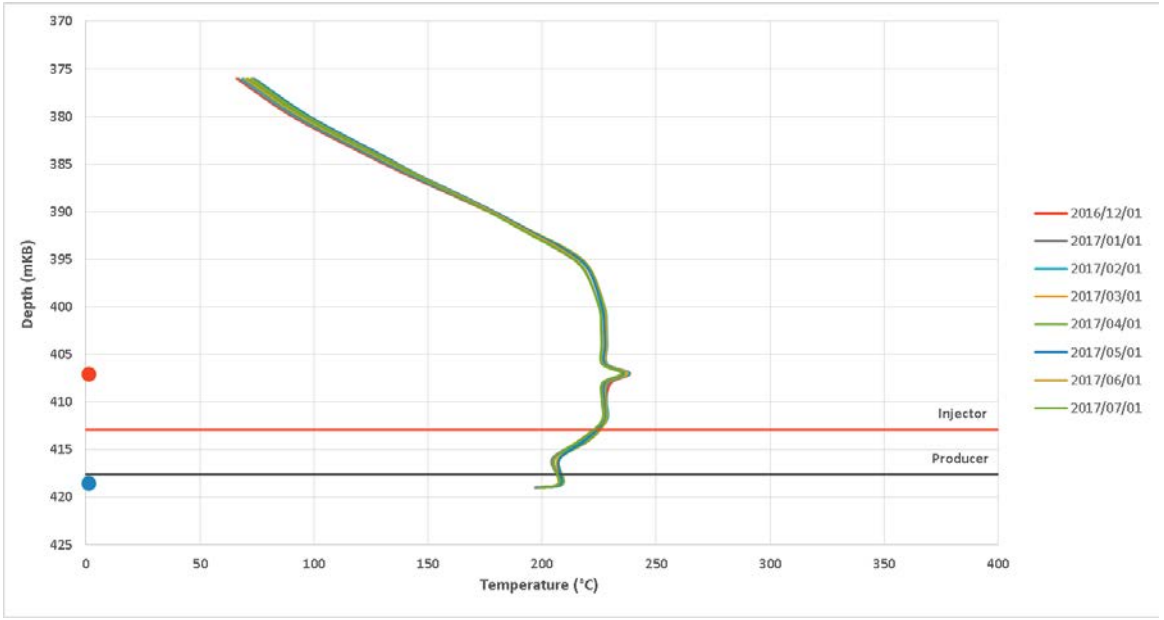




Pad B Toe Observation Well Temp
(4.1m from B2 well pair)

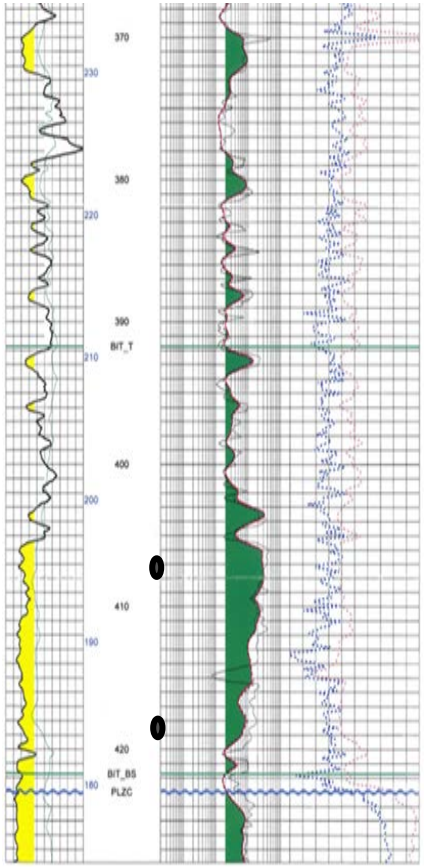
3.1.1-5d

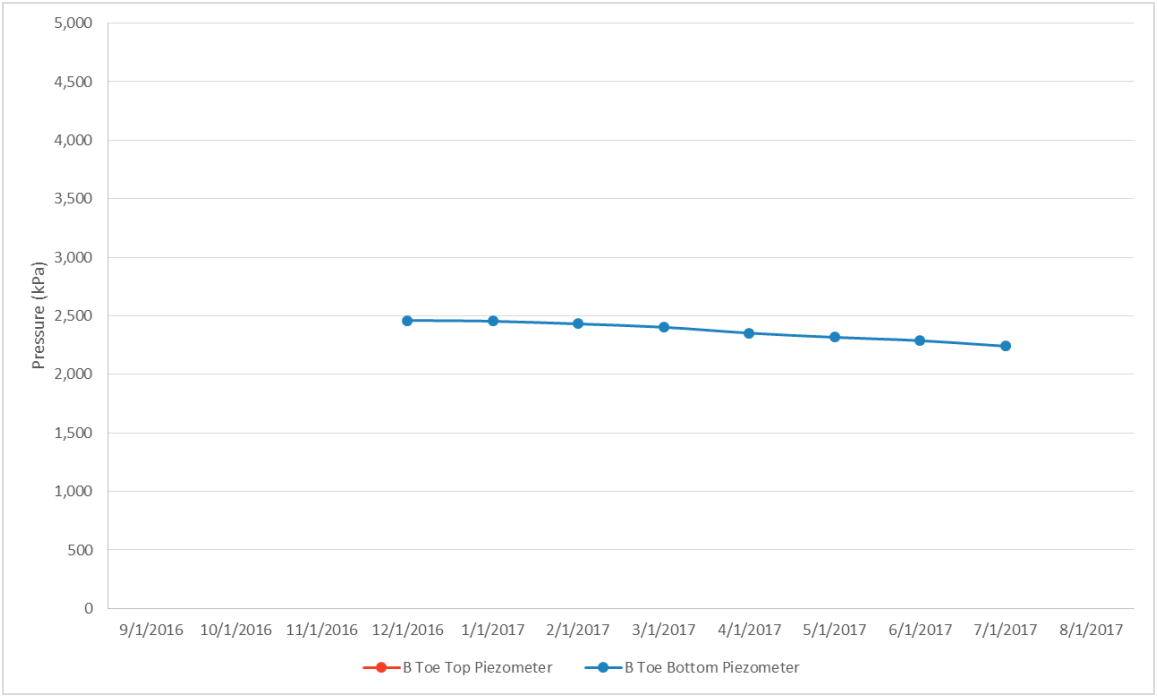




Pad B Toe Observation Well Pressure
(4.1m from B2 well pair)

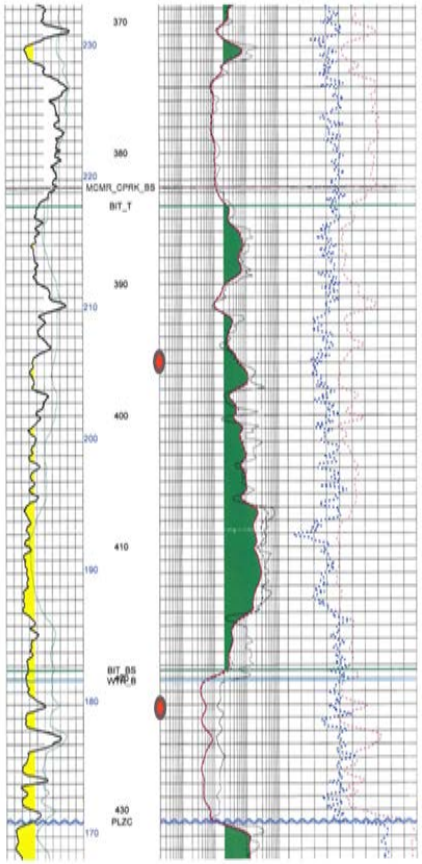
3.1.1-5d

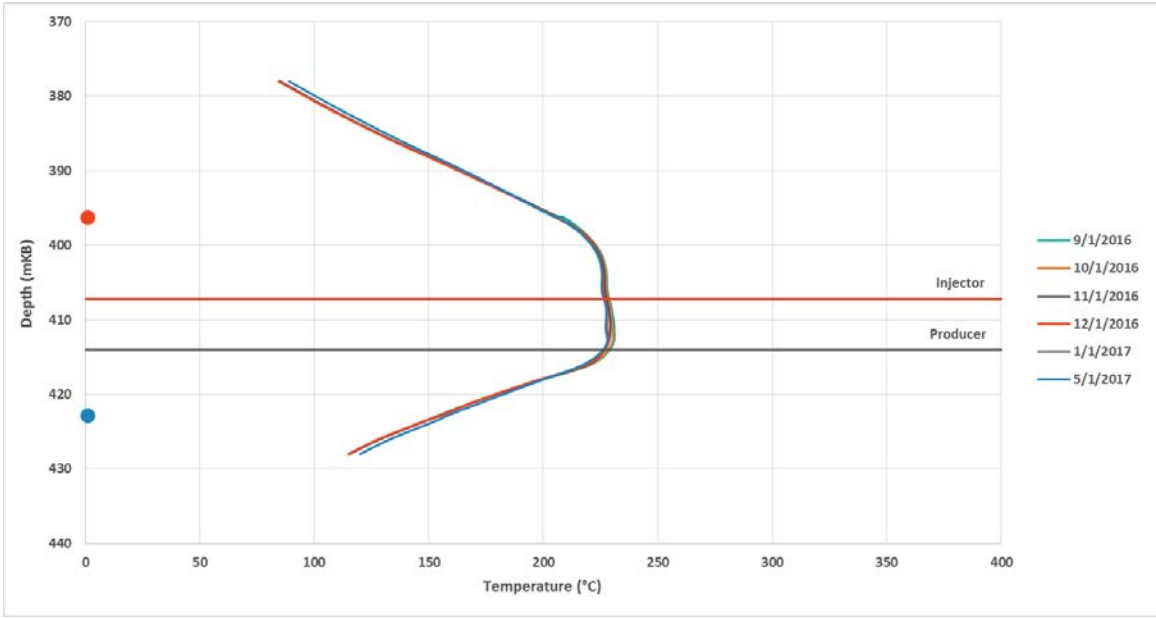




Pad C Heel Observation Well Temp
(3.1m from C5 well pair)

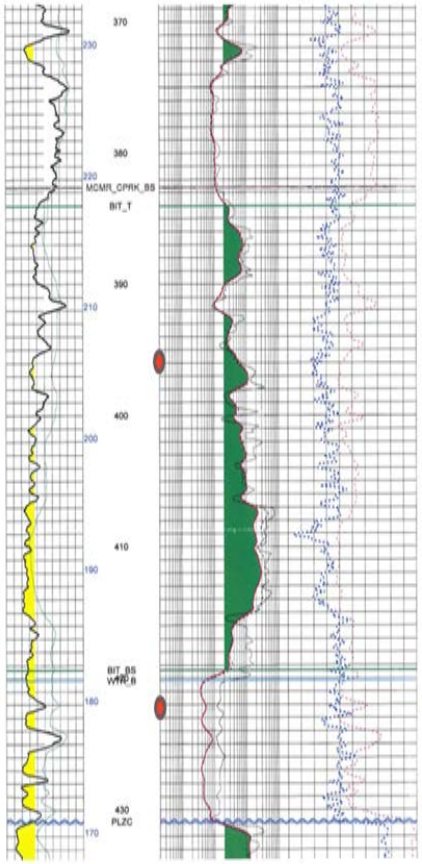
3.1.1-5d





Pad C Heel Observation Well Pressure
(3.1m from C5 well pair)

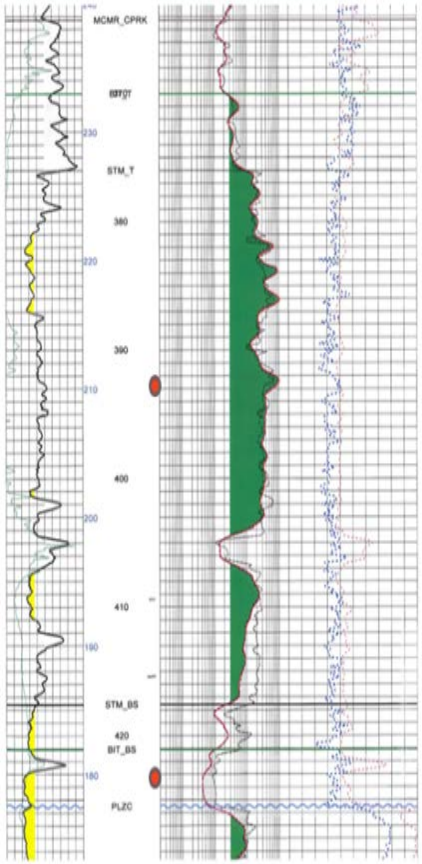
3.1.1-5d

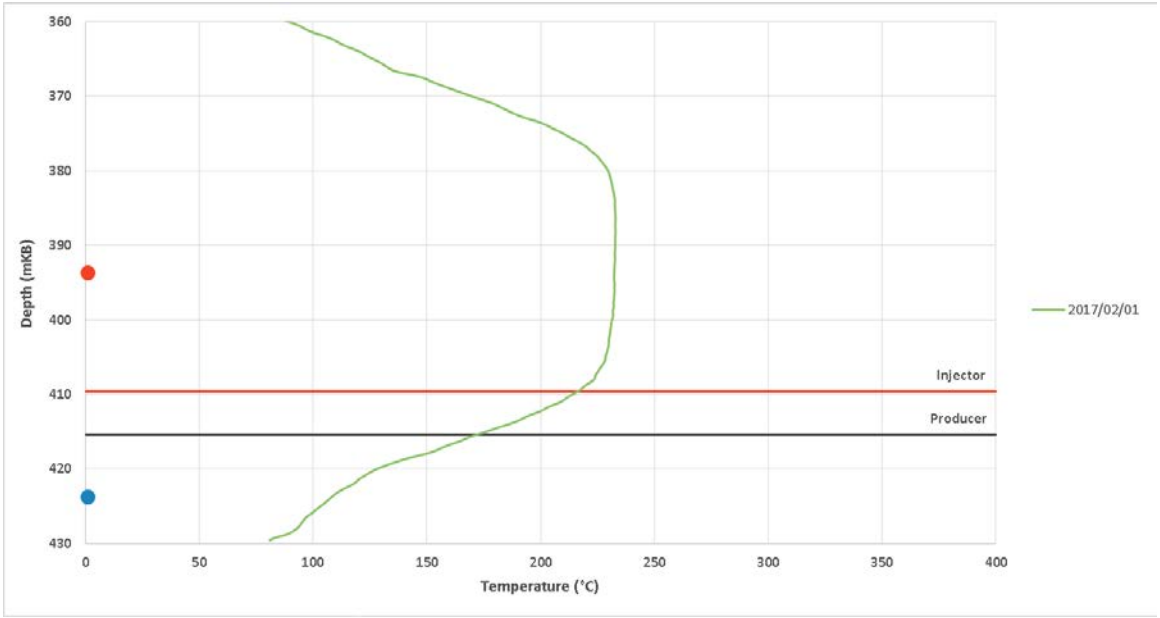


Both piezometers have failed, no pressure data available

Pad C Toe Observation Well Temperature
(5.0m from C5 well pair)

3.1.1-5d

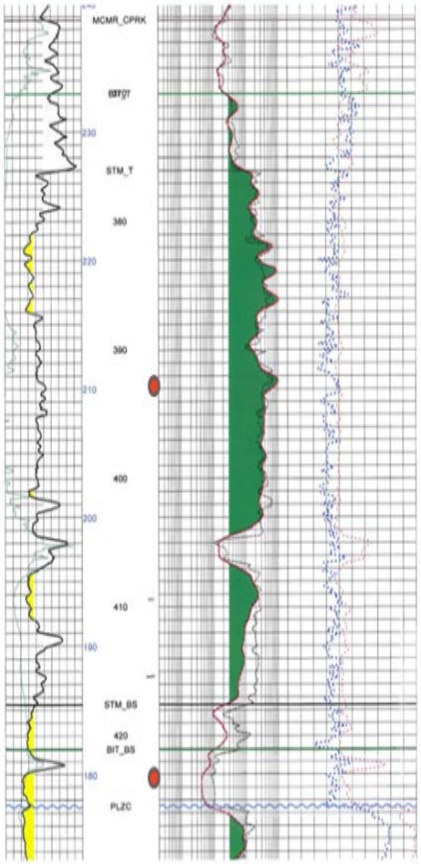


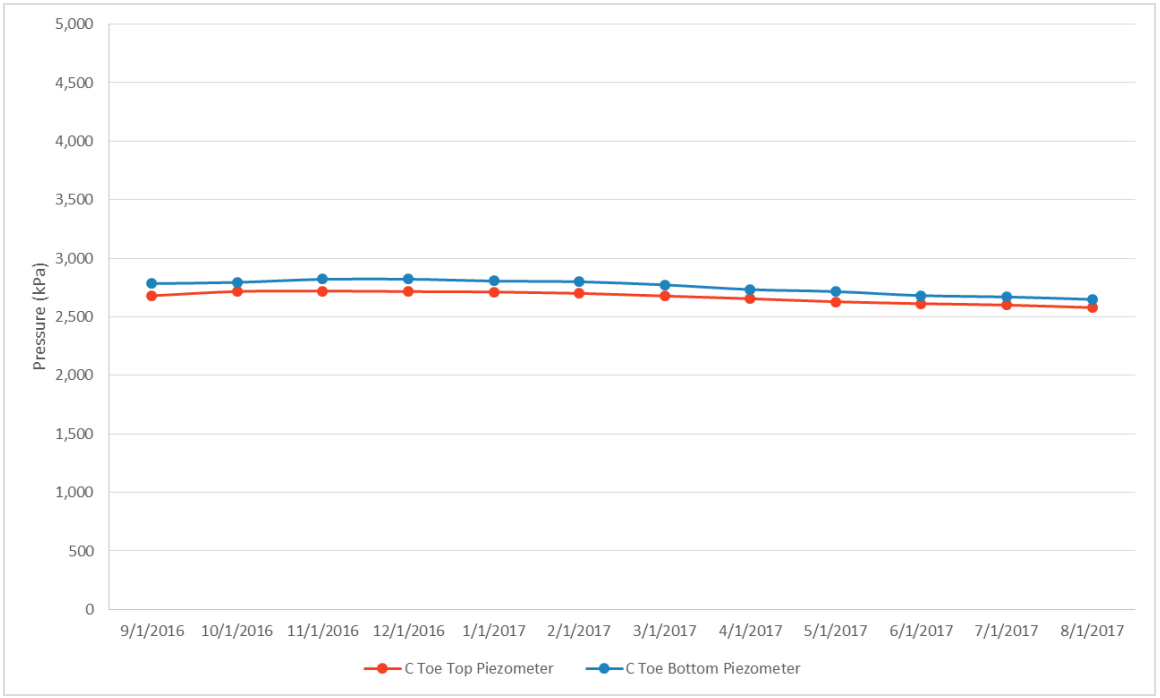


- Temperature Log

Pad C Toe Observation Well Pressure
(5.0m from C5 well pair)

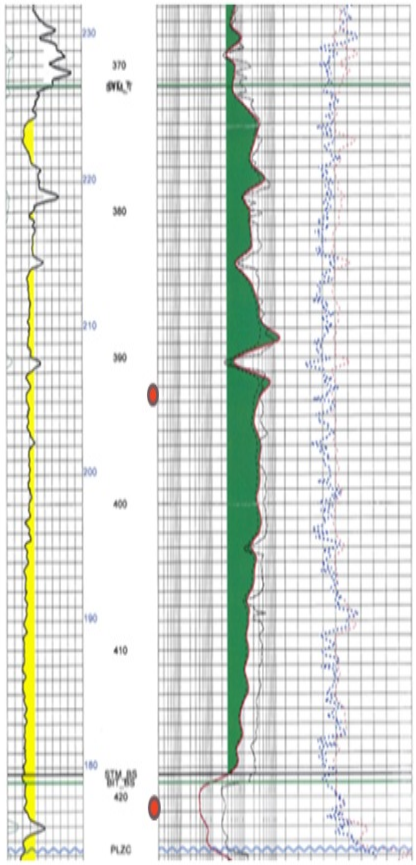
3.1.1-5d

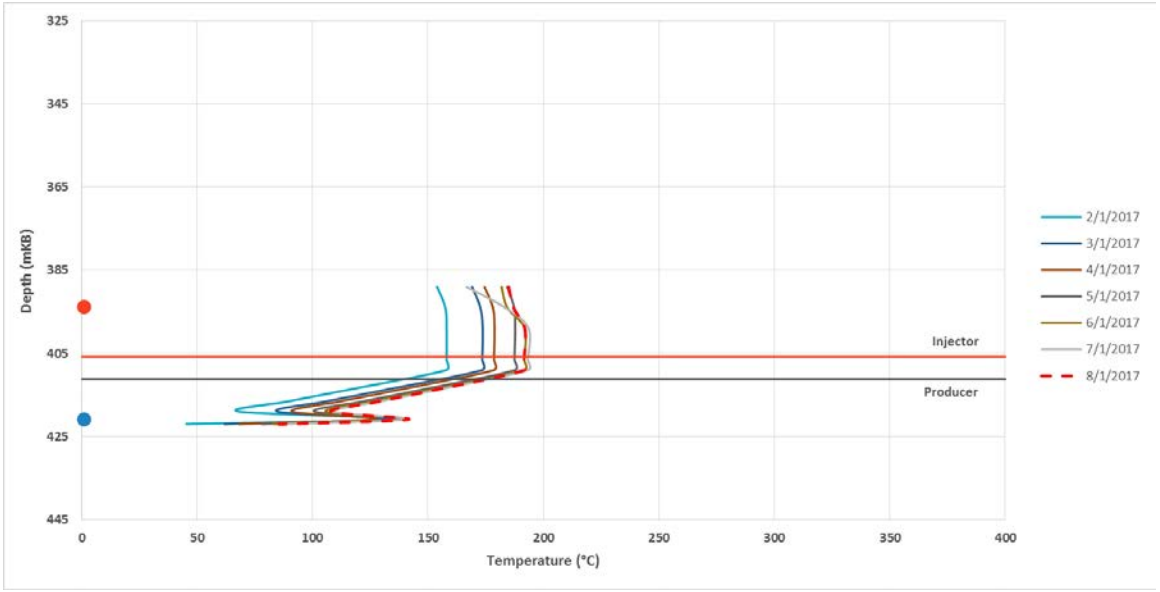




Pad D Heel Observation Well Temp
(10.9m from D4 well pair)

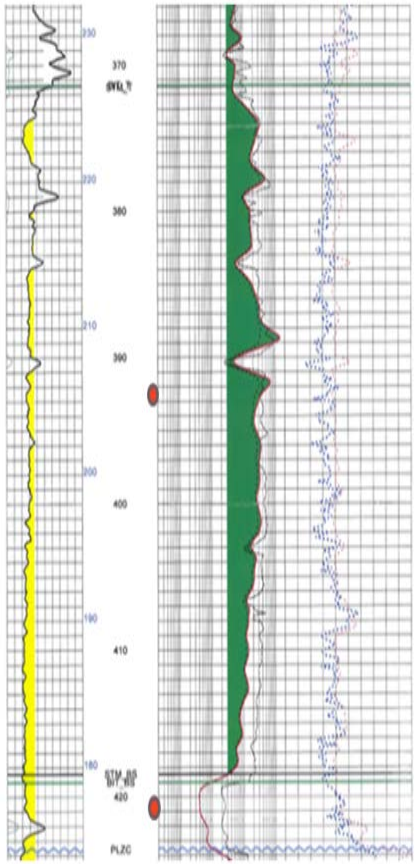
3.1.1-5d





Pad D Heel Observation Well Pressure
(10.9m from D4 well pair)

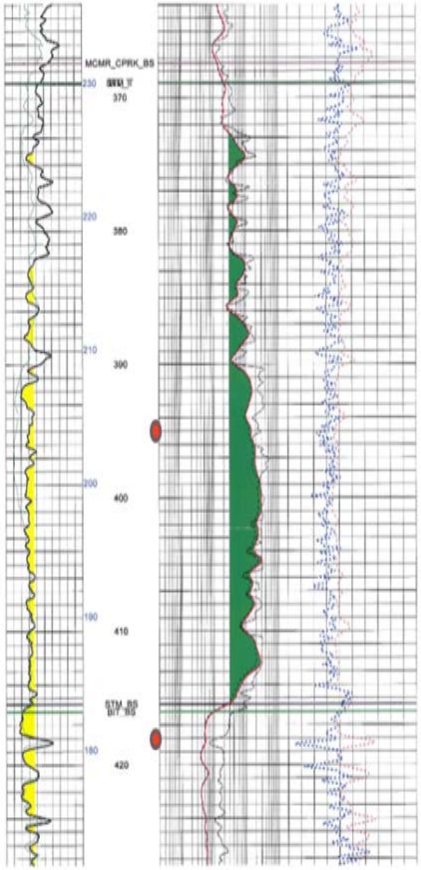
3.1.1-5d

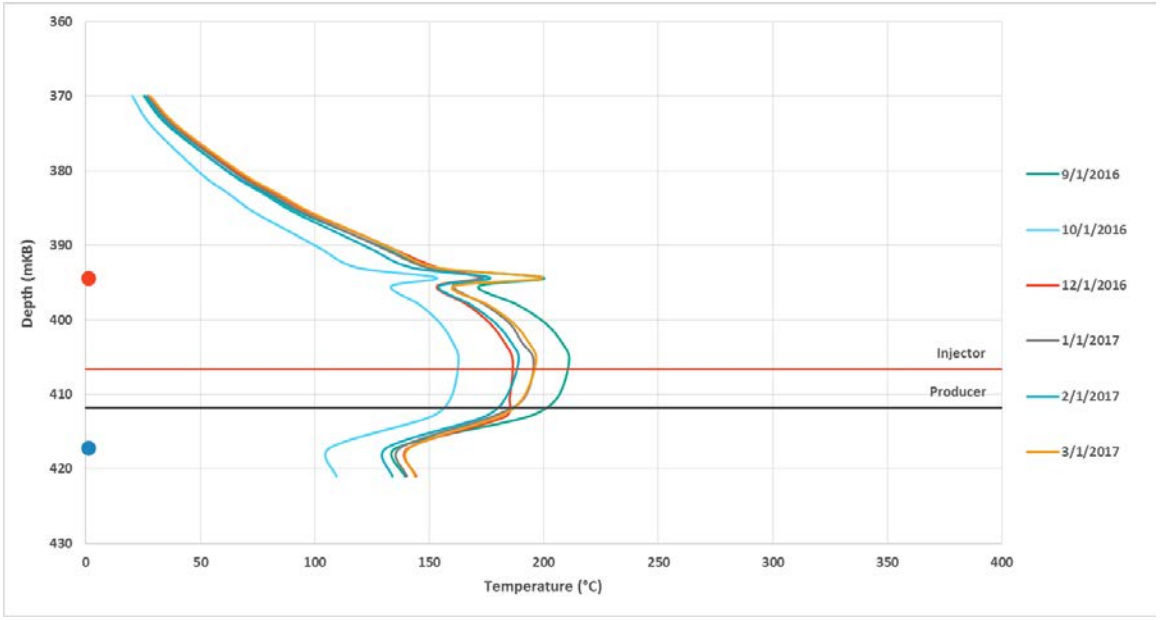


Both piezometers have failed, no pressure data available

Pad D Toe Observation Well Temp
(19.8m from D4 well pair)

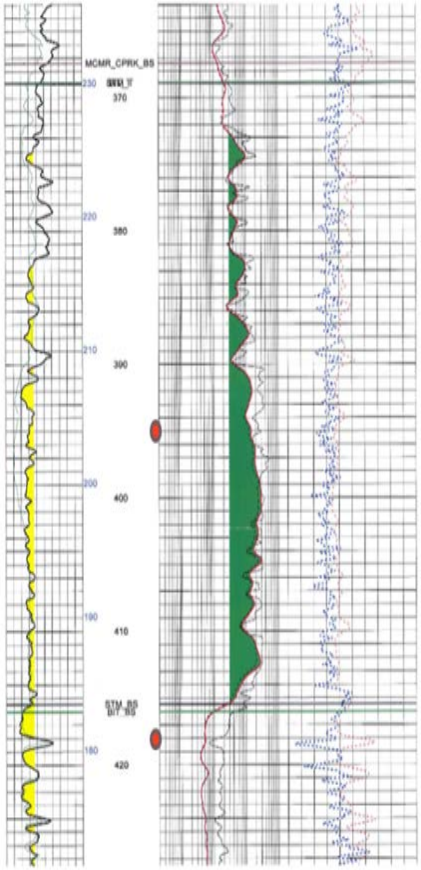
3.1.1-5d

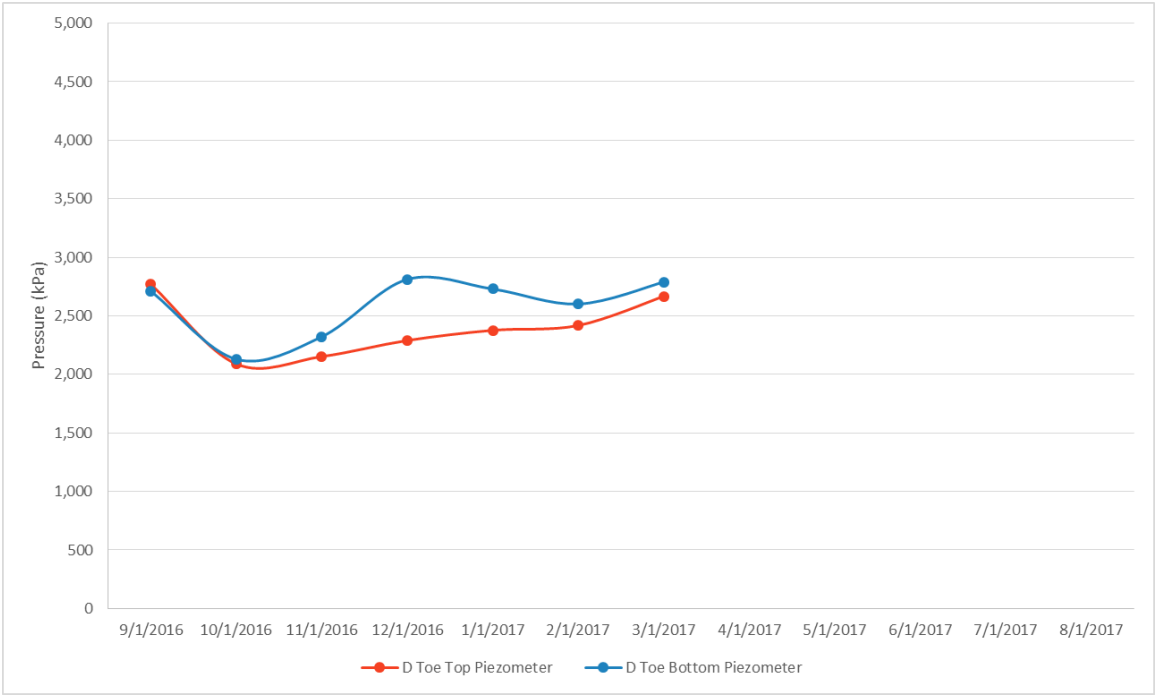




Pad D Toe Observation Well Pressure
(19.8m from D4 well pair)

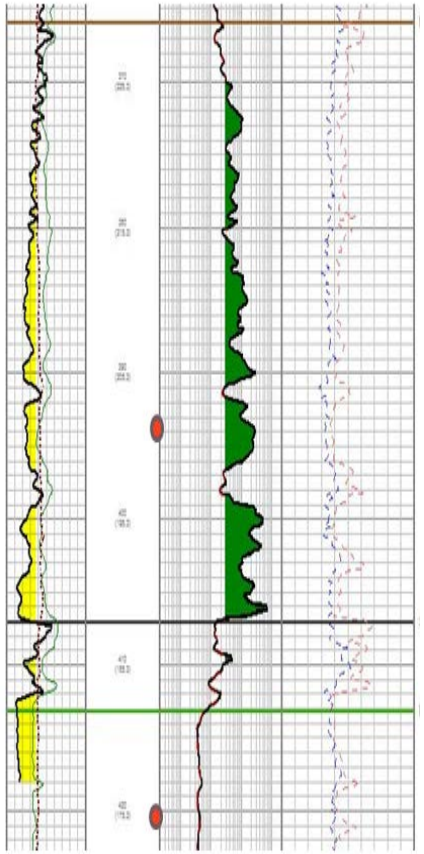
3.1.1-5d





Pad E Heel Observation Well Temp
(35m from E5 well pair)

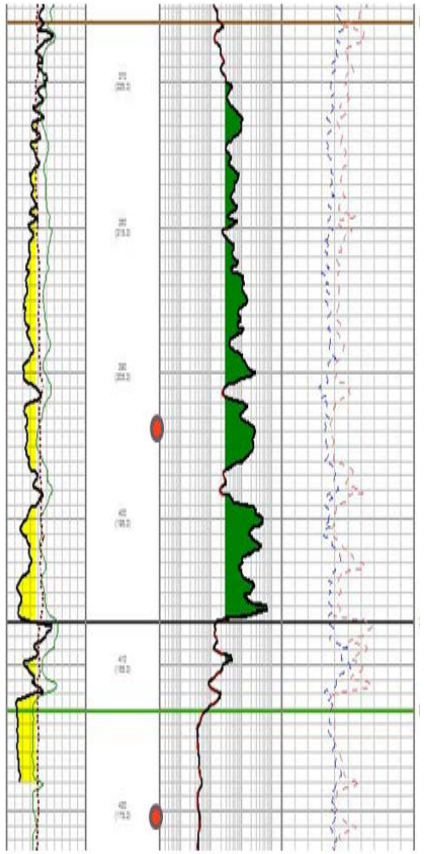
3.1.1-5d

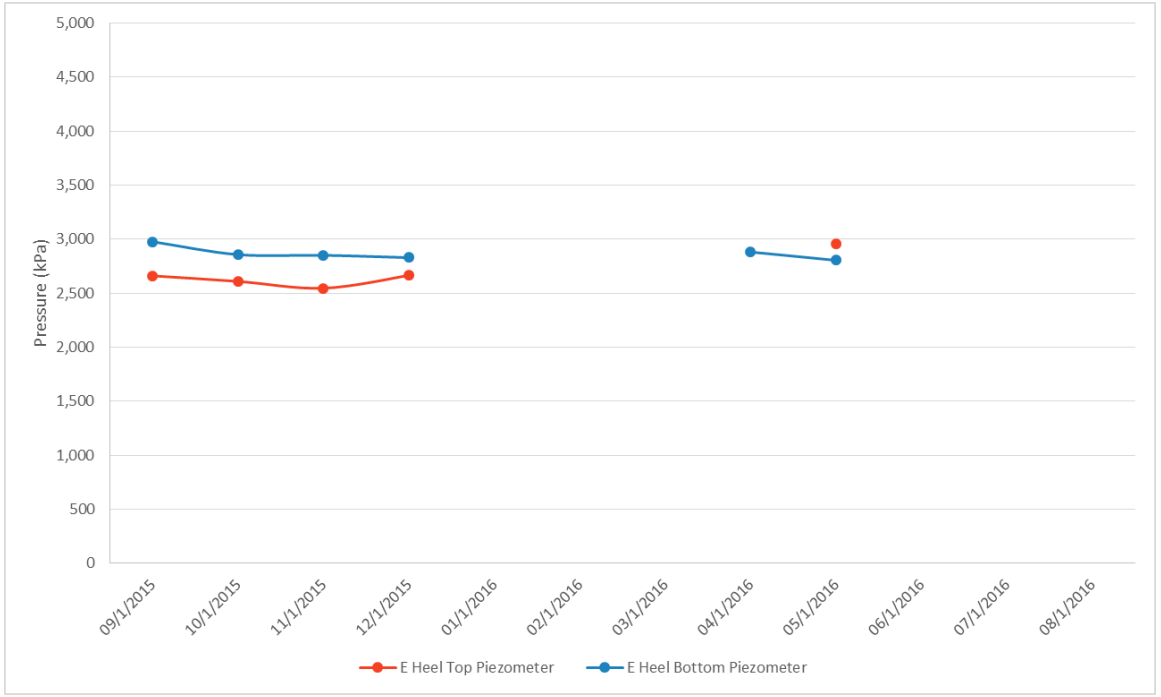


No temperature data available

Pad E Heel Observation Well Pressure
(35m from E5 well pair)

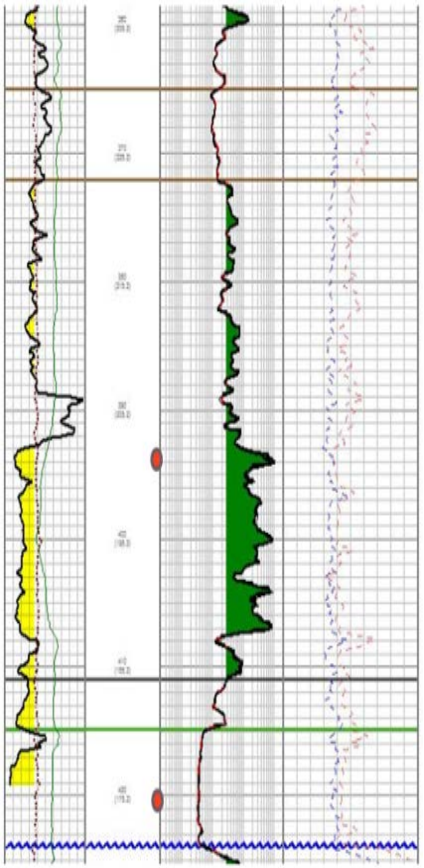
3.1.1-5d

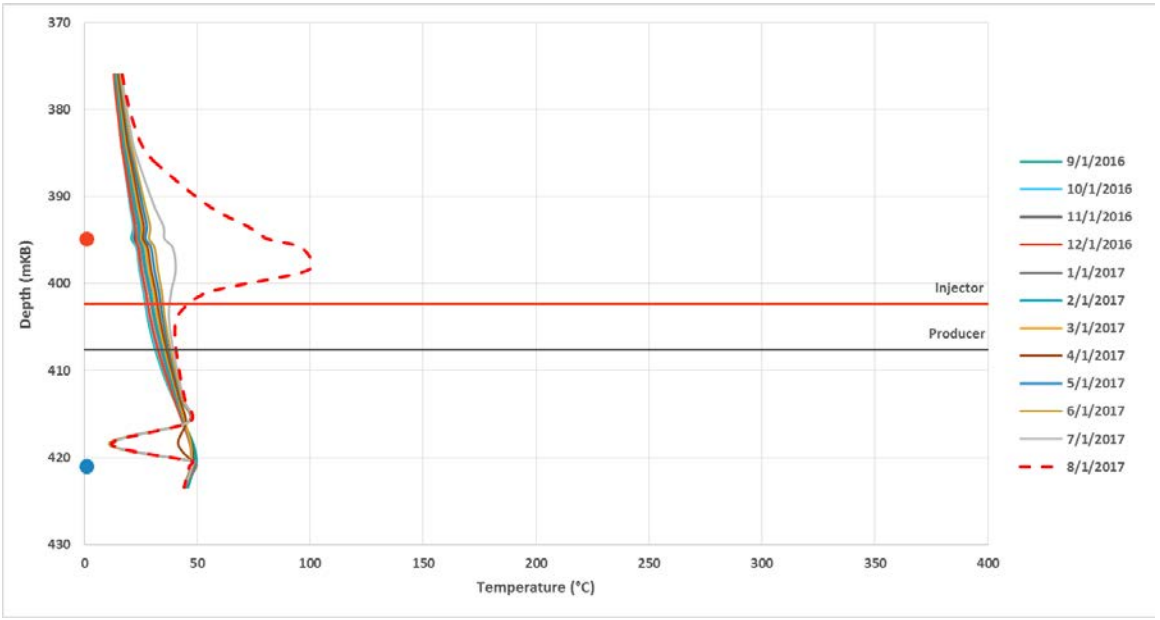




Pad E Toe Observation Well Temp
(32m from E6 well pair)

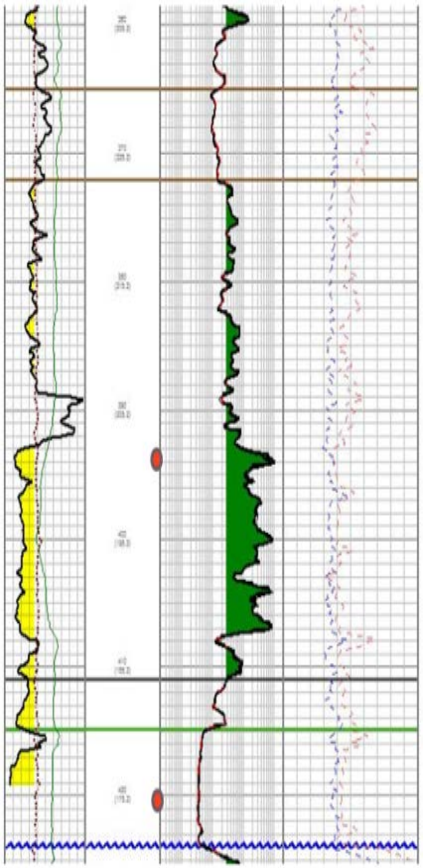
3.1.1-5d

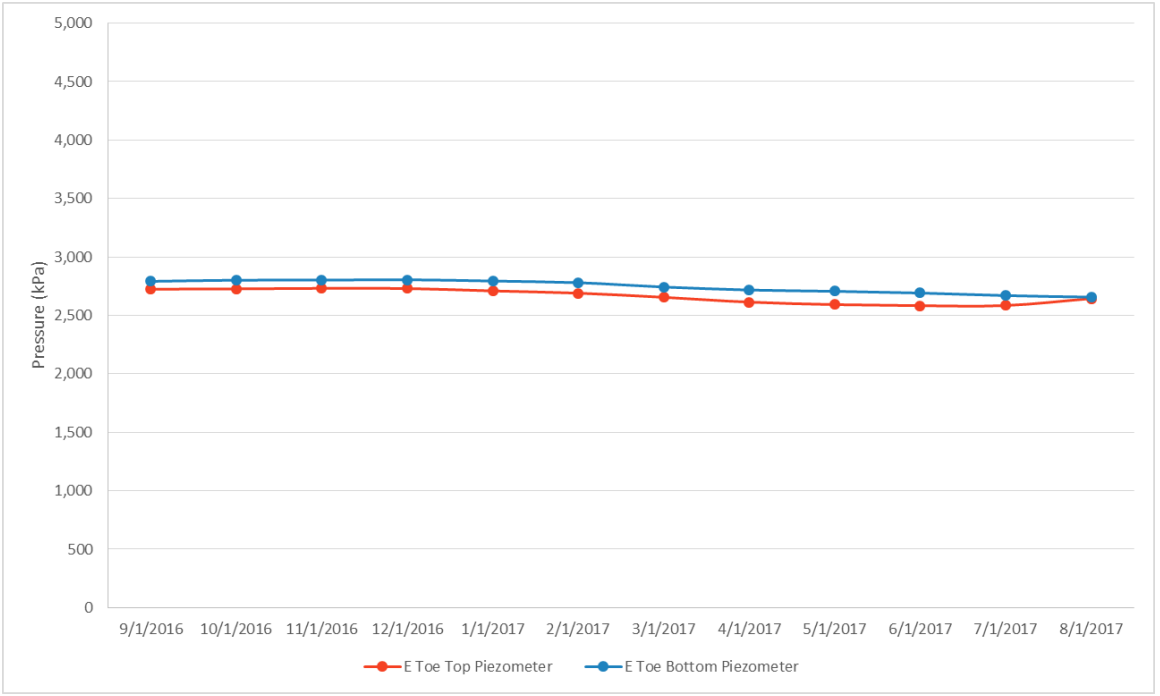




Pad E Toe Observation Well Pressure
(32m from E6 well pair)

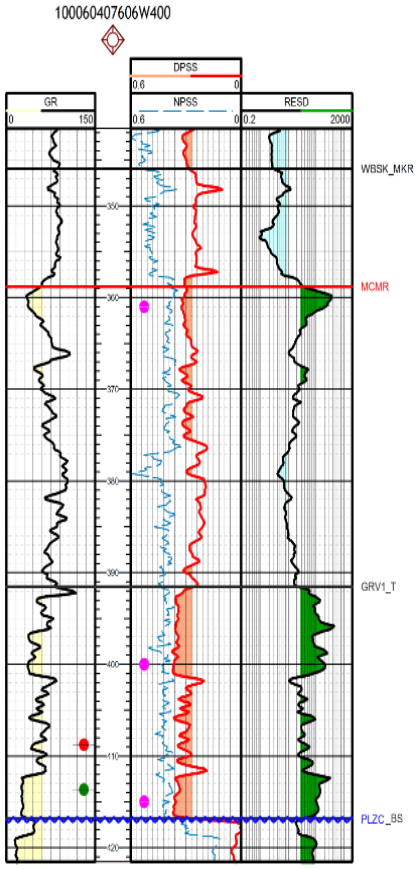
3.1.1-5d

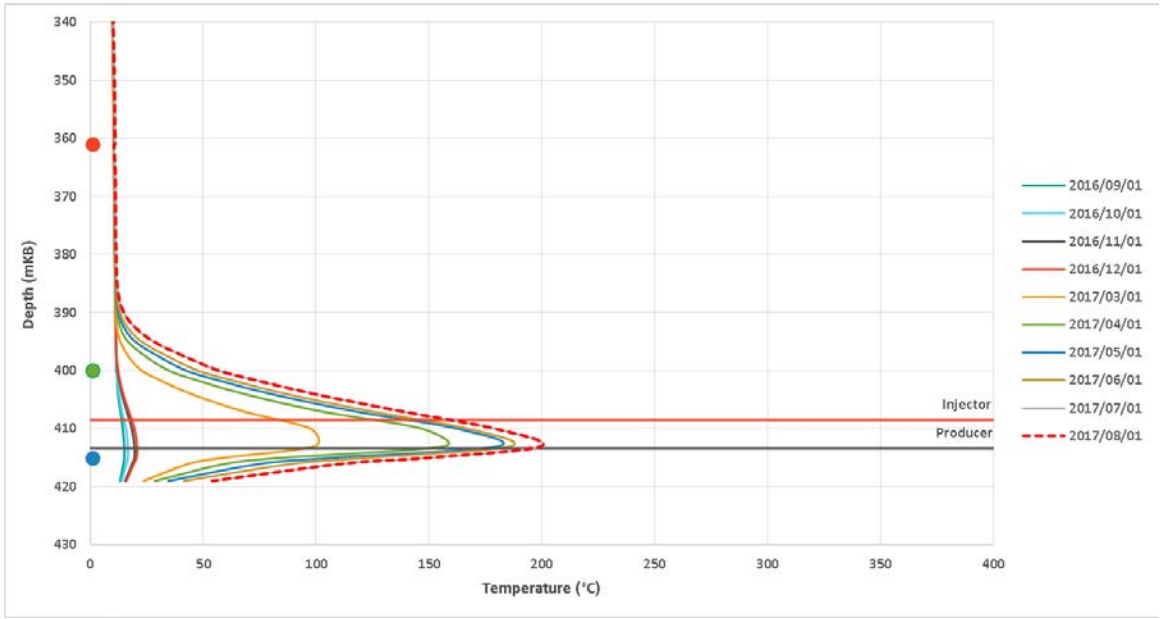




Pad F Heel Observation Well Temp
(17m from F8 well pair)

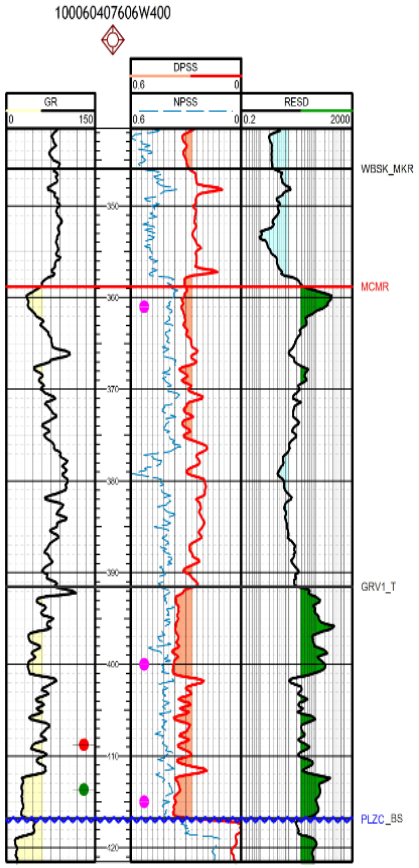
3.1.1-5d

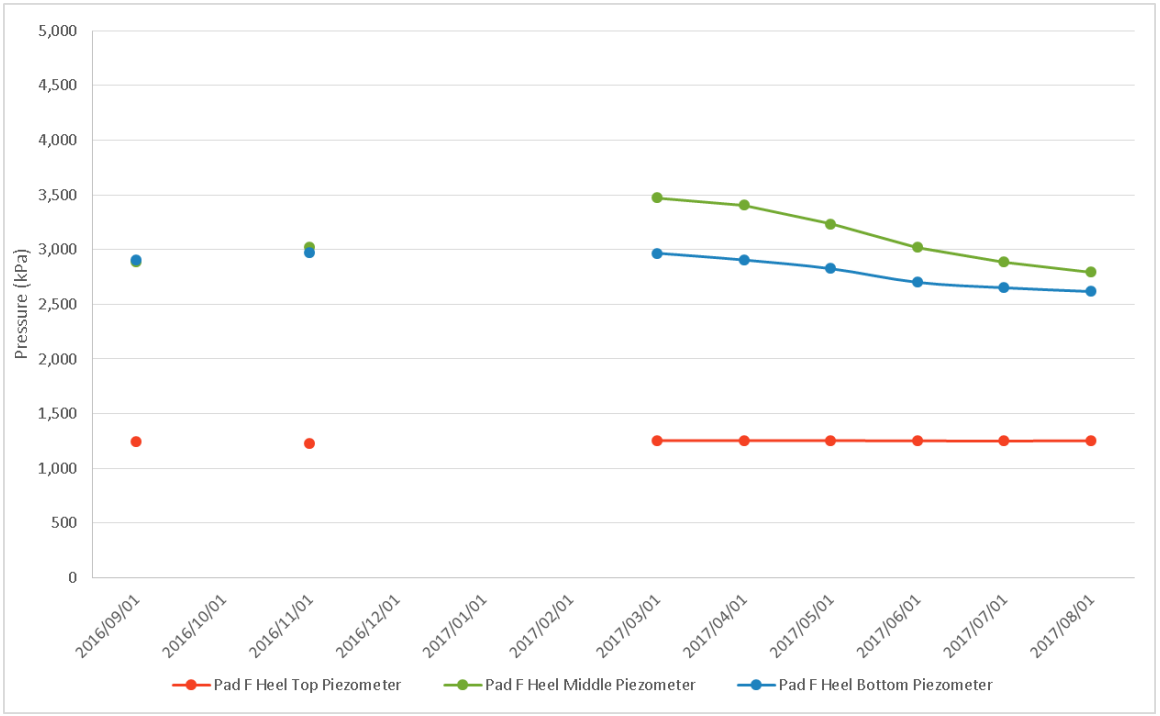




Pad F Heel Observation Well Pressure
(17m from F8 well pair)

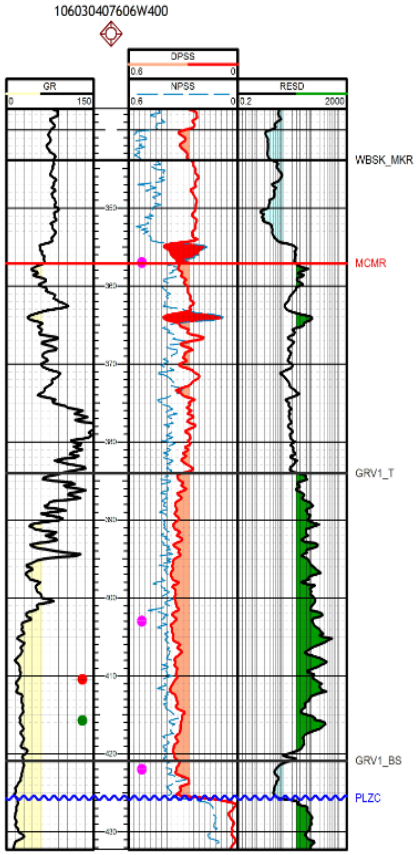
3.1.1-5d

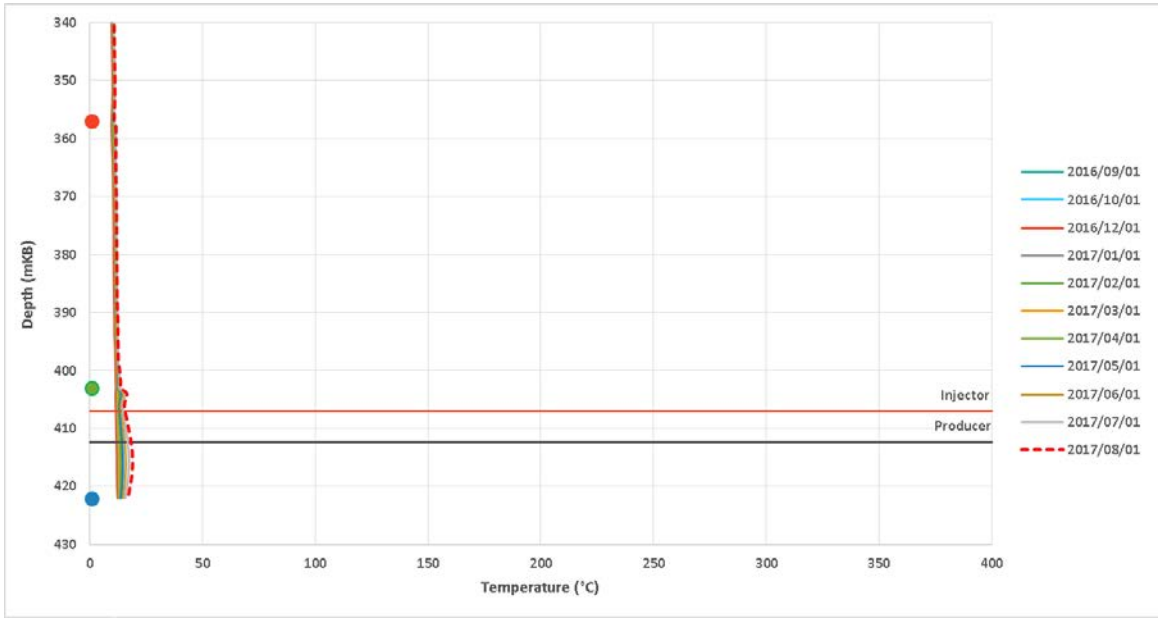




Pad F Toe Observation Well Temp
(20m from F5 well pair)

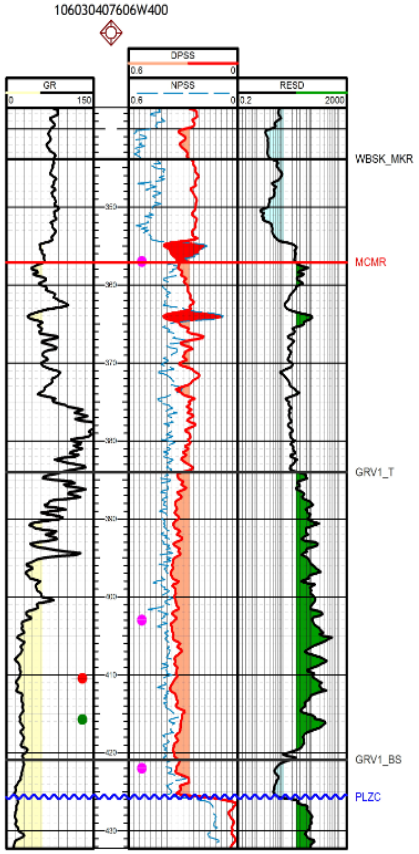
3.1.1-5d

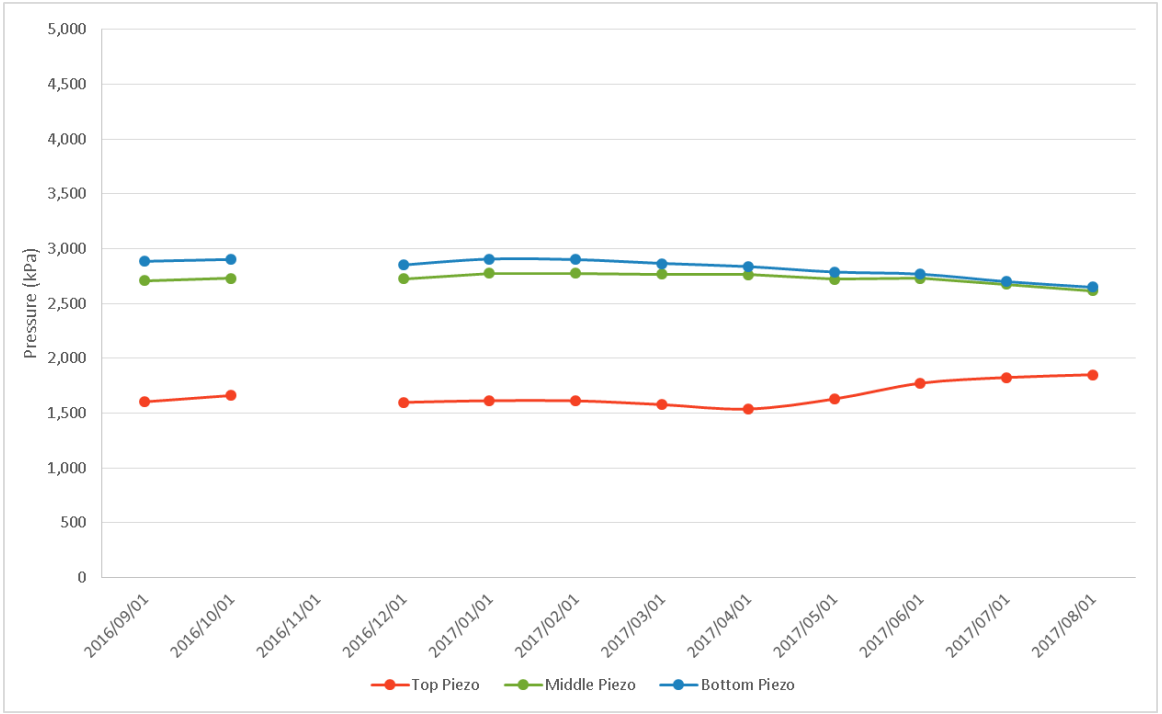




Pad F Toe Observation Well Pressure
(20m from F5 well pair)

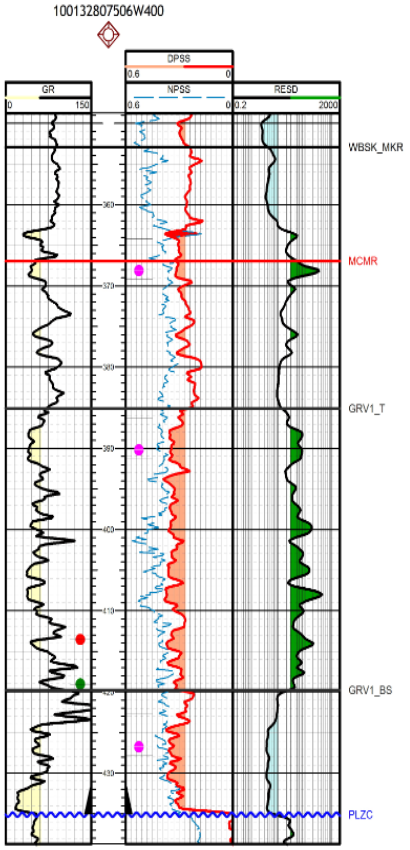
3.1.1-5d

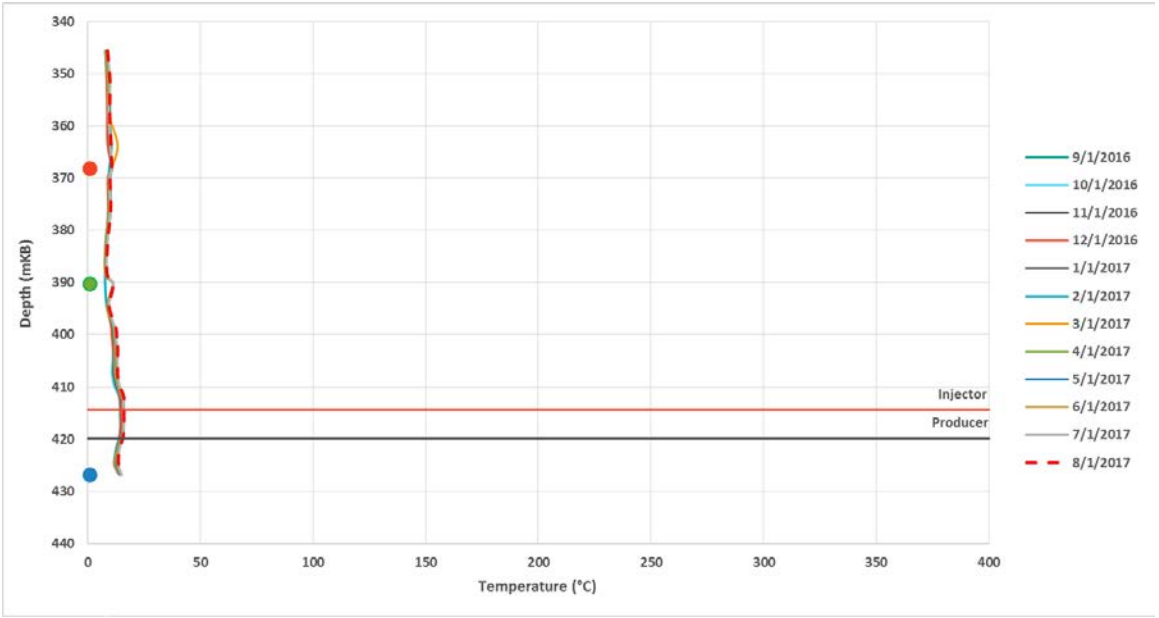




Pad G Heel Observation Well Temp
(13m from G2 well pair)

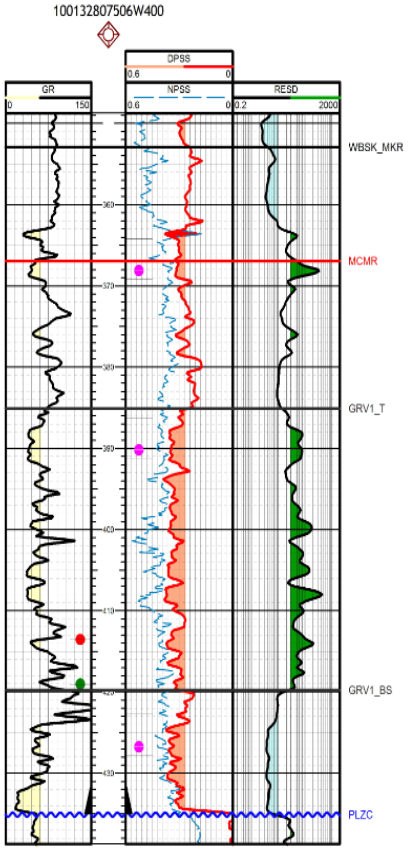
3.1.1-5d

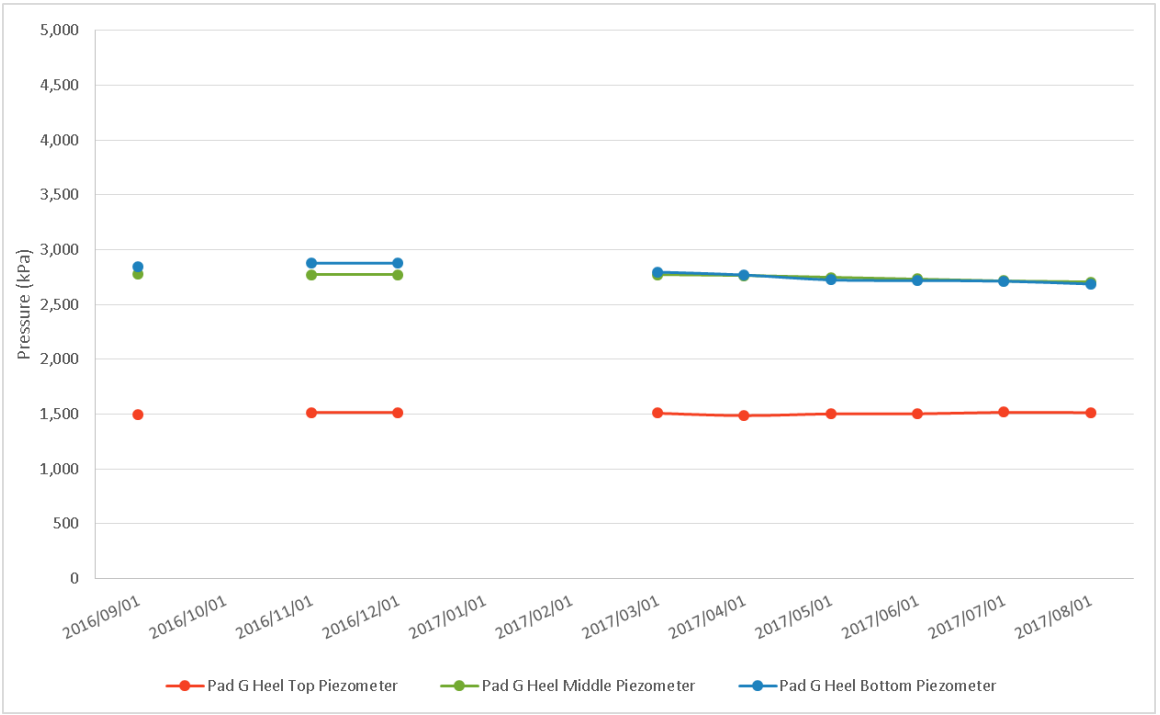




Pad G Heel Observation Well Pressure
(13m from G2 well pair)

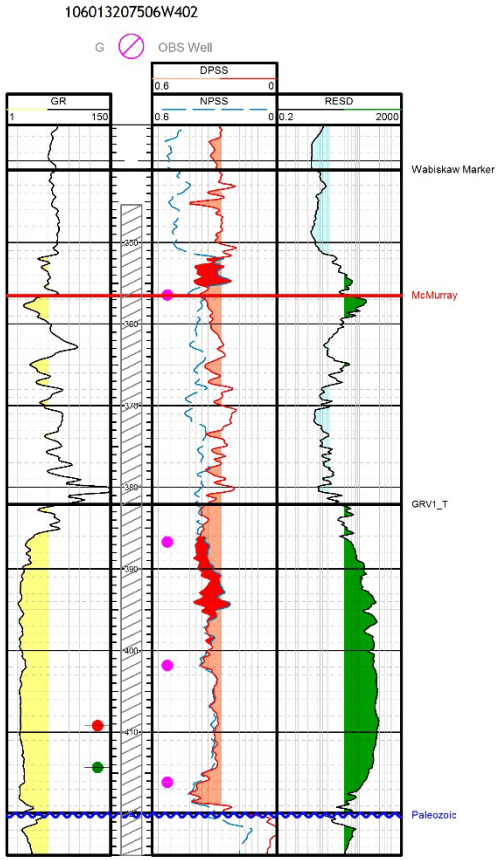
3.1.1-5d

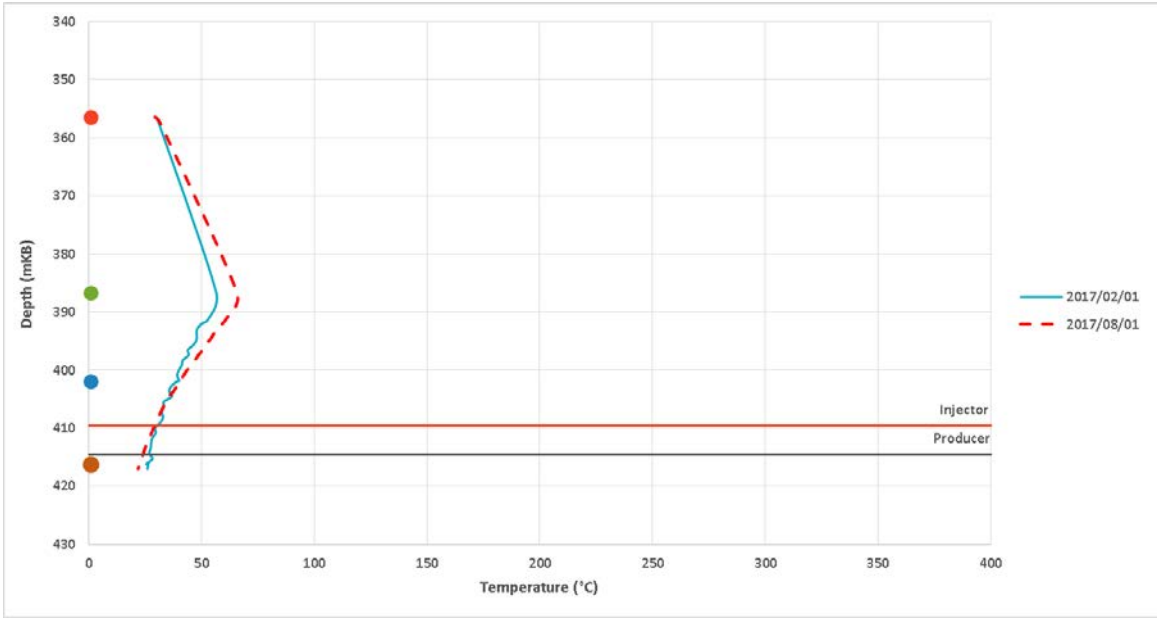




Pad G Mid Observation Well Temp
(36m from G6 well pair)

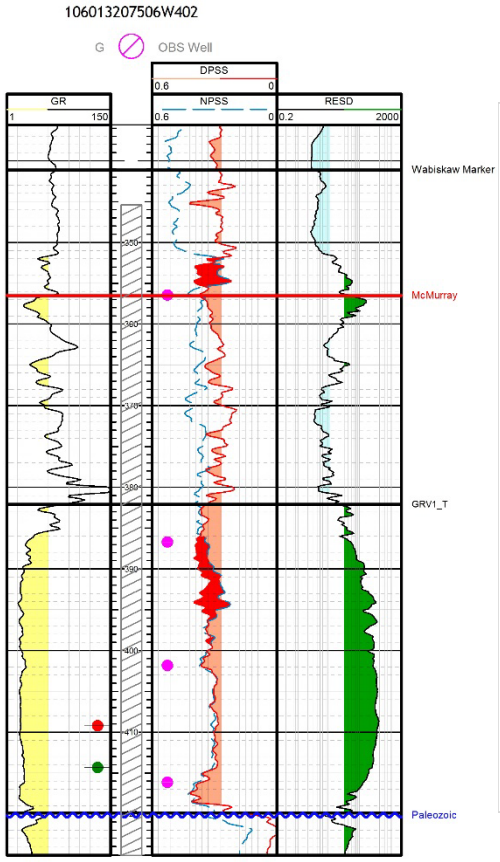
3.1.1-5d

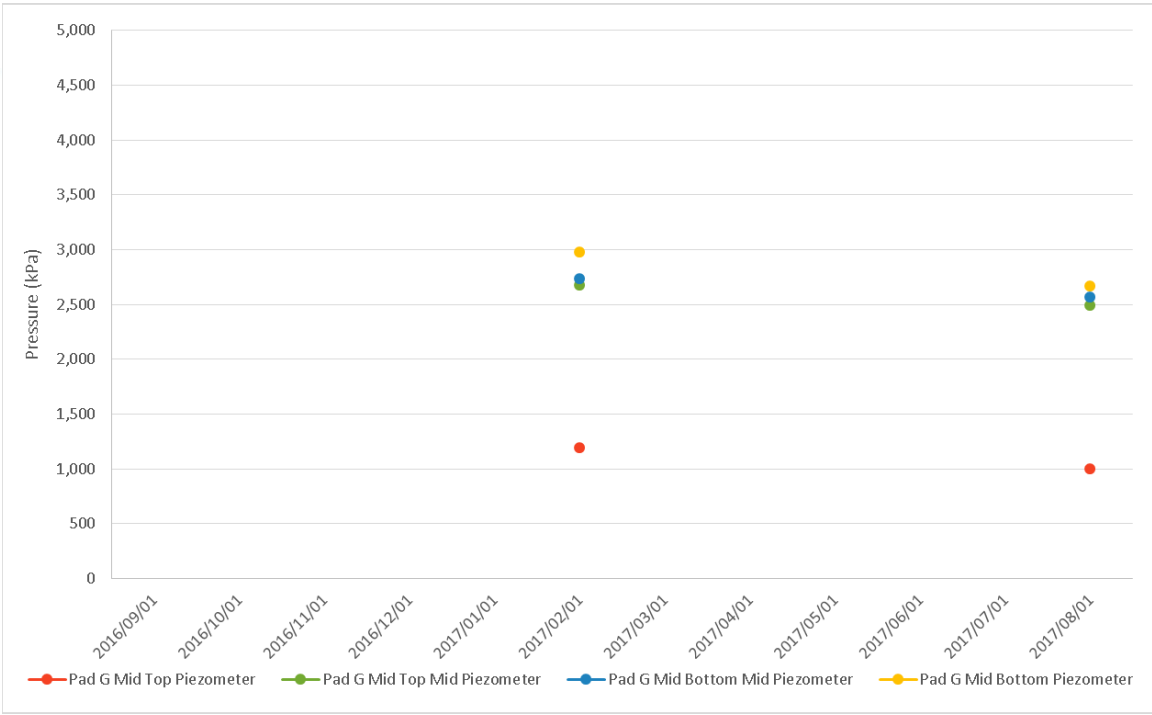




Pad G Mid Observation Well Pressure
(36m from G6 well pair)

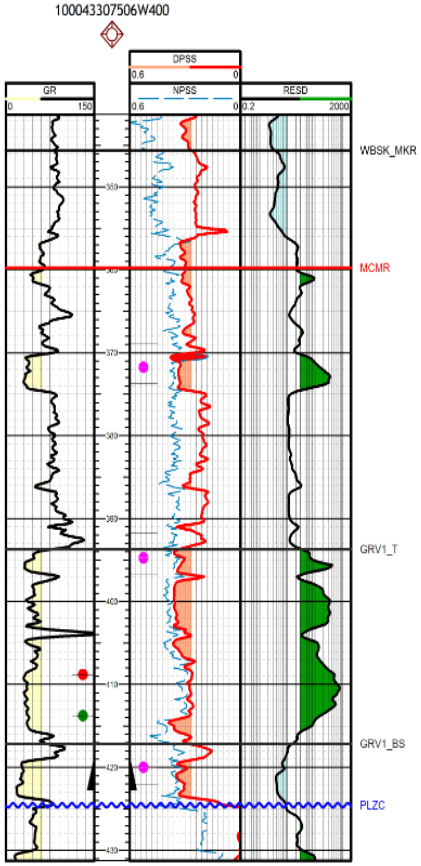
3.1.1-5d

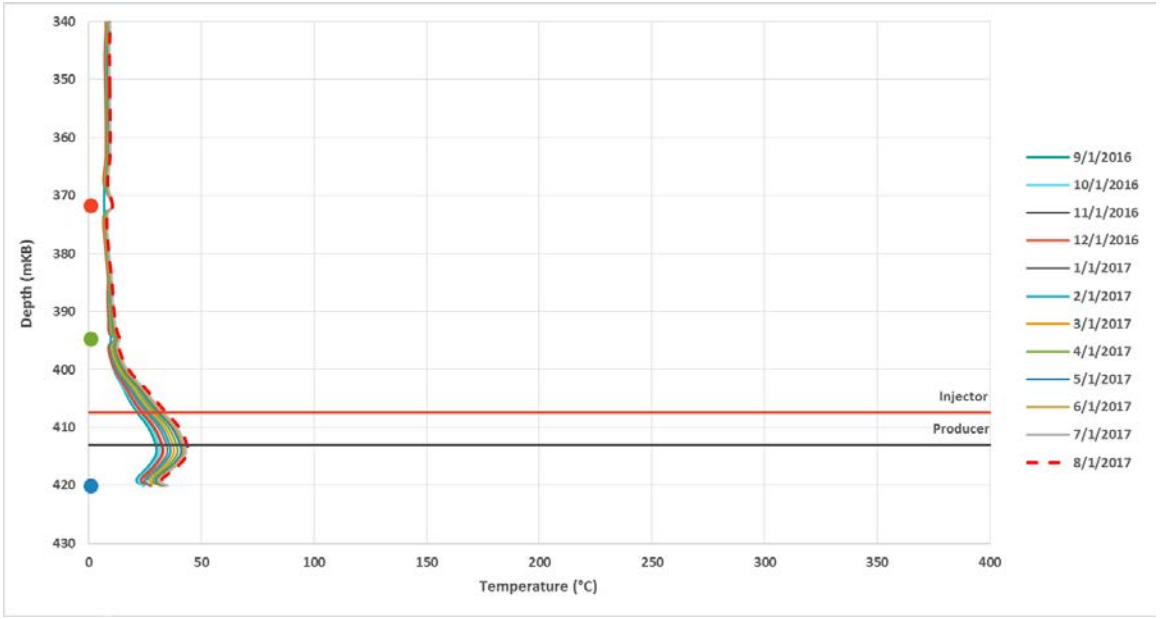




Pad G Toe Observation Well Temp
(4m from G1 well pair)

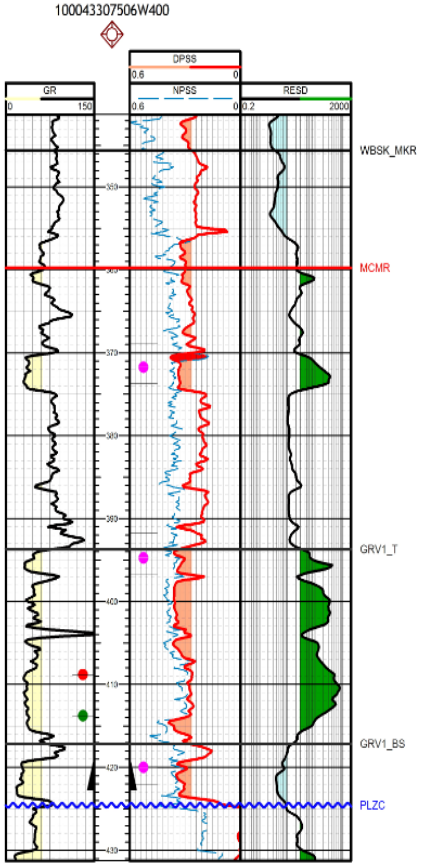
3.1.1-5d

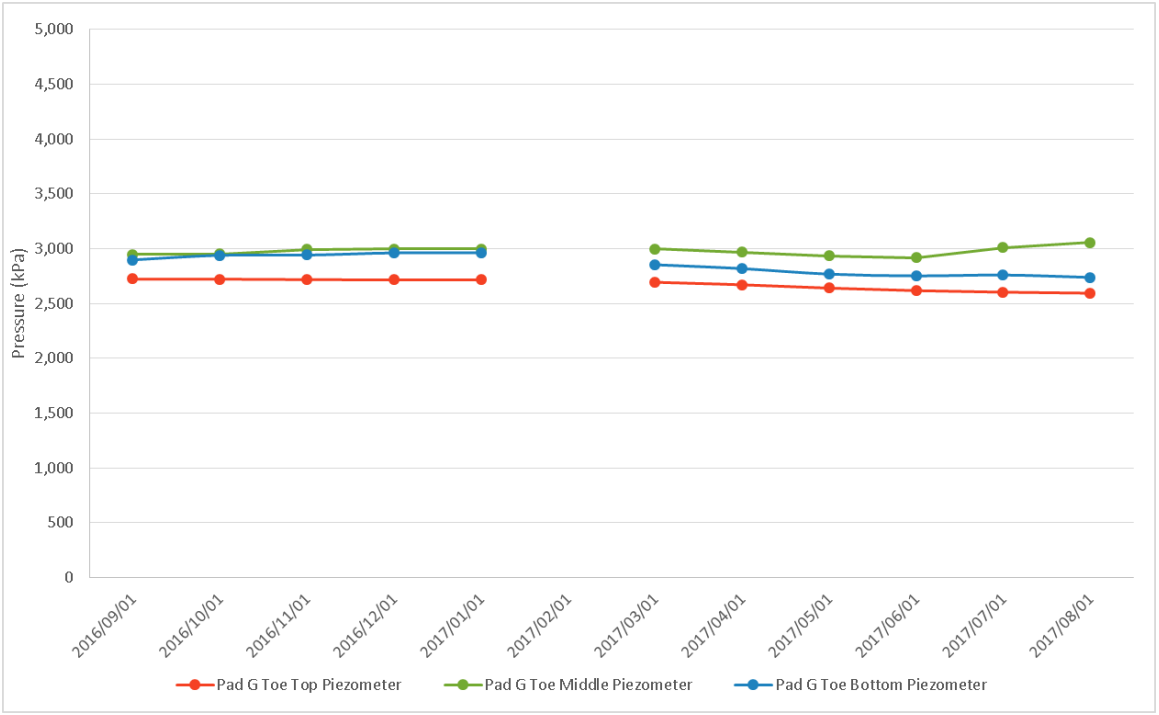




Pad G Toe Observation Well Pressure
(4m from G1 well pair)

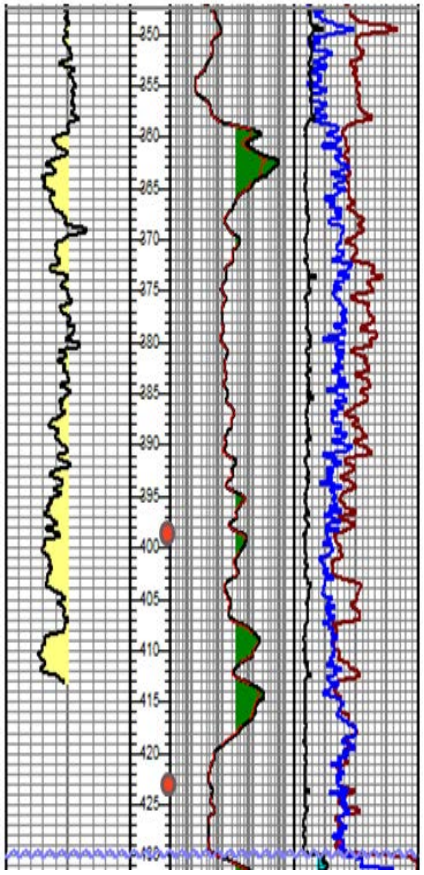
3.1.1-5d

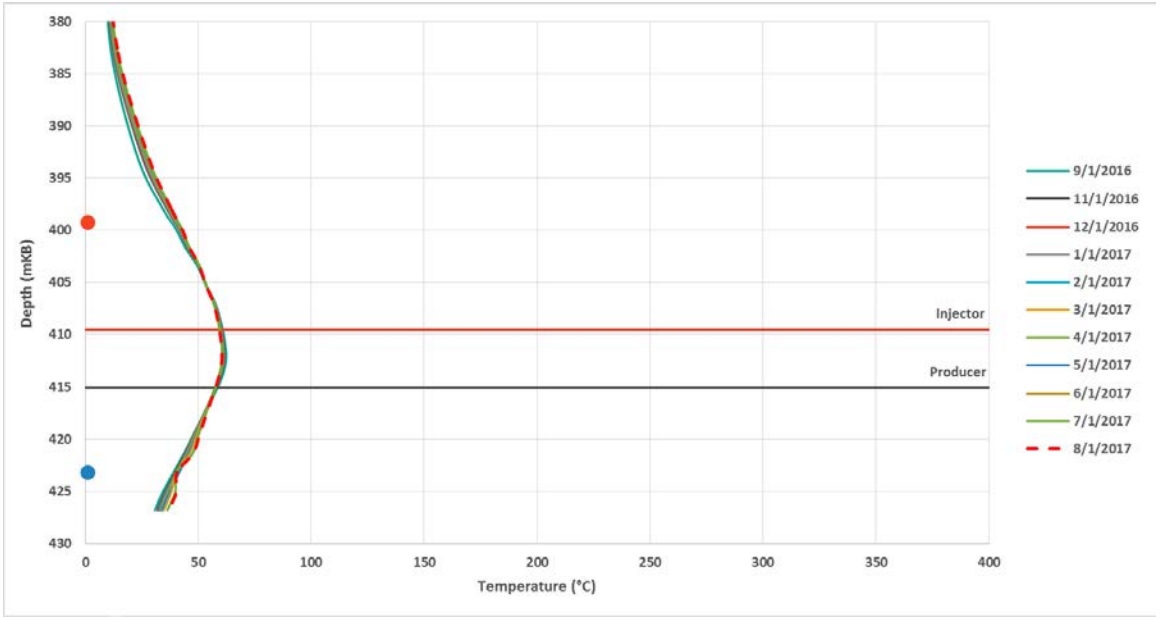




Pad H Heel Observation Well Temp
(11.4m from H7 well pair)

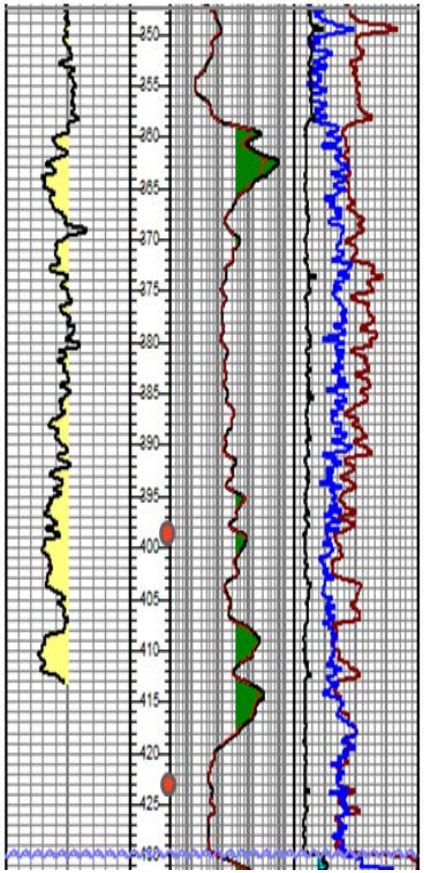
3.1.1-5d

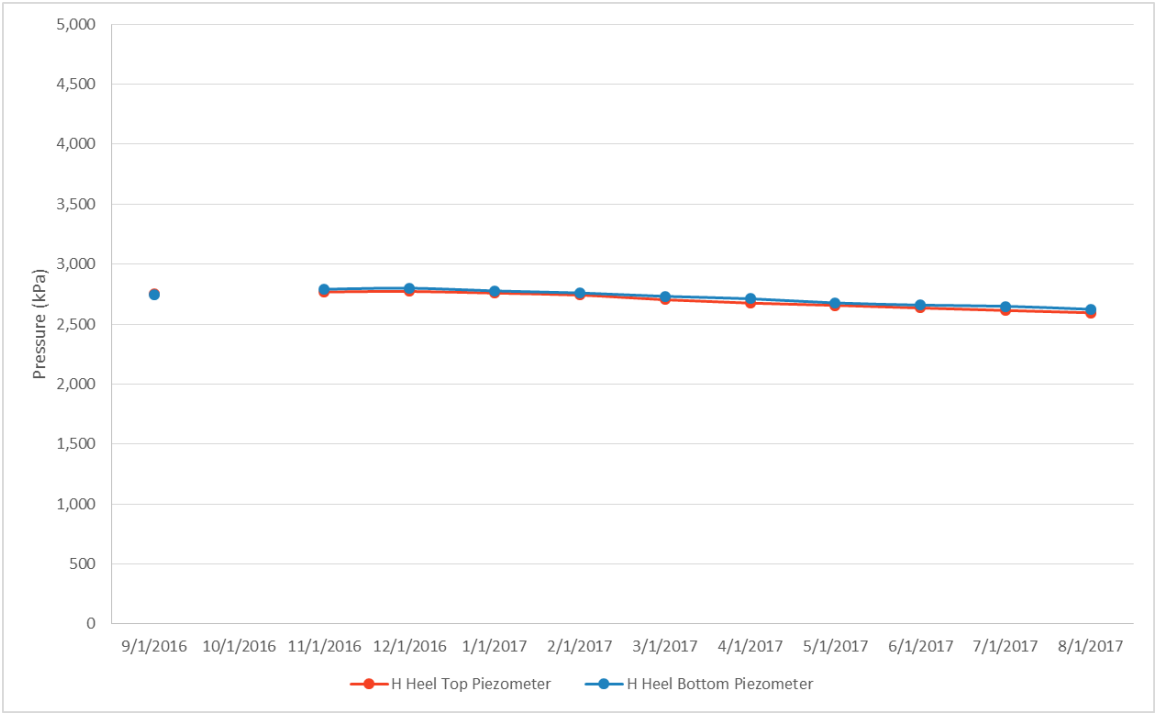




Pad H Heel Observation Well Pressure
(11.4m from H7 well pair)

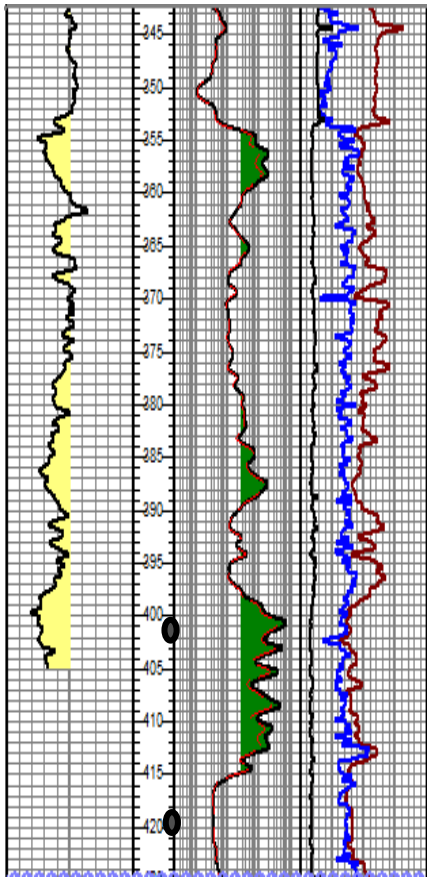
3.1.1-5d

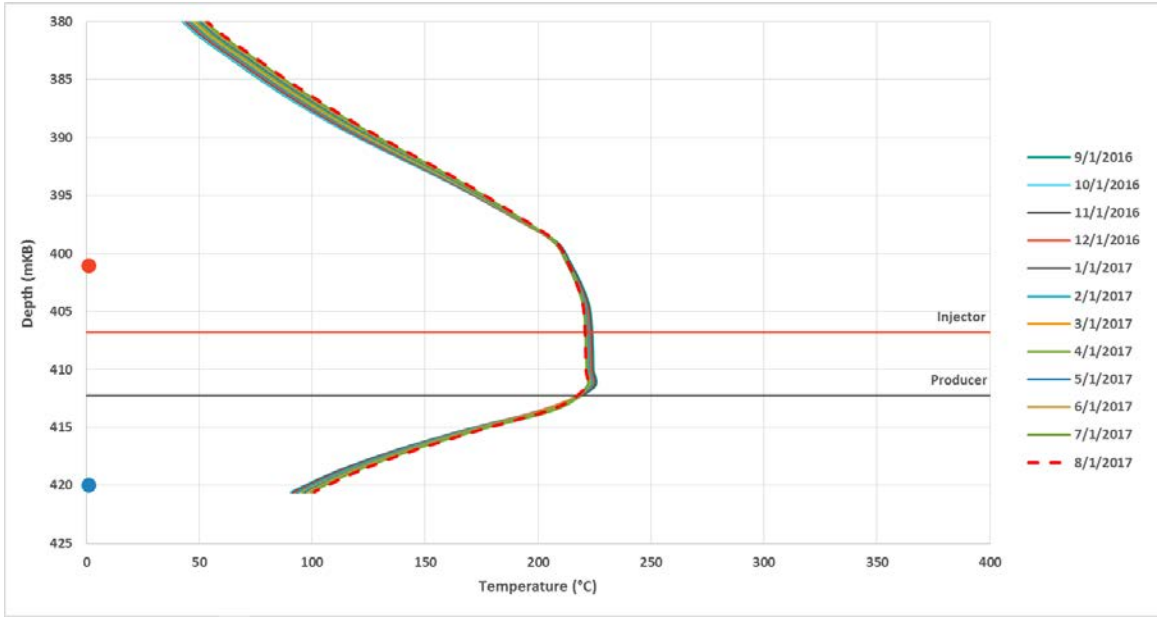




Pad H Toe Observation Well Temp
(7.4m from H4 well pair)

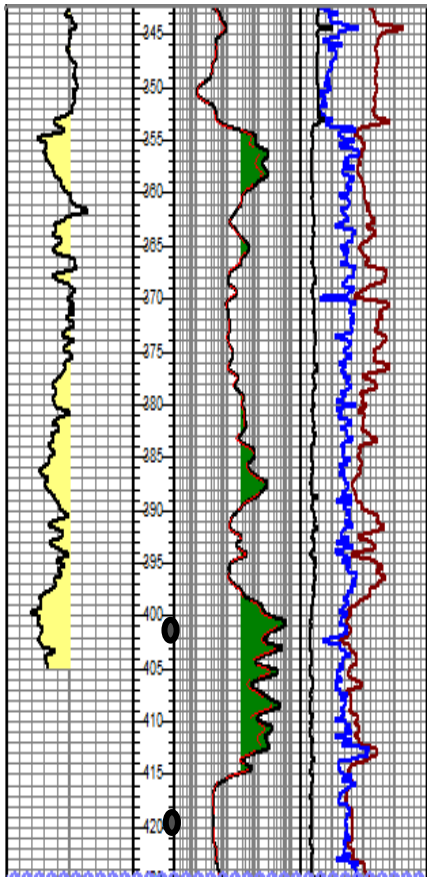
3.1.1-5d





Pad H Toe Observation Well Pressure
(7.4m from H4 well pair)

3.1.1-5d

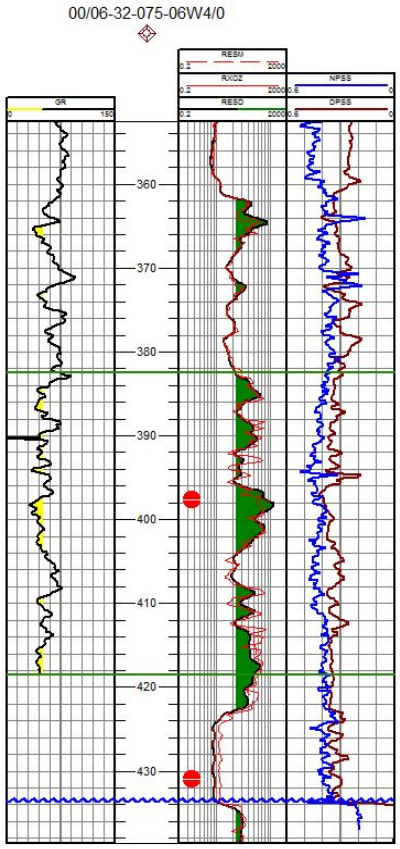


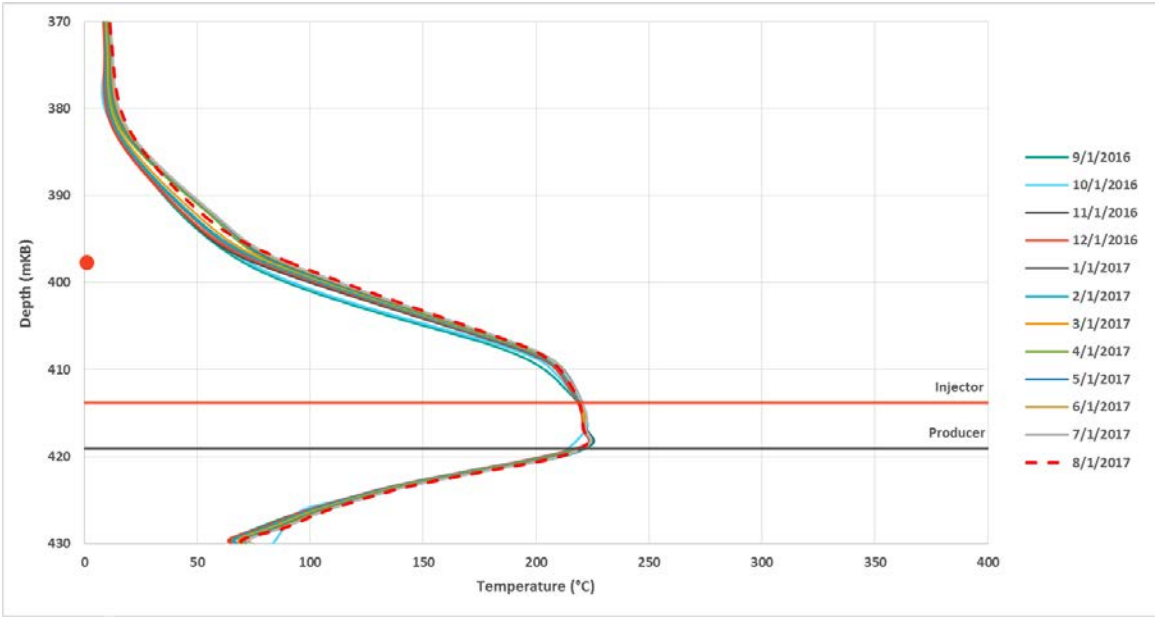
Pad I Toe* Observation Well Temp

*Both pad observation wells at toe of Pad I

(7m from I5 well pair)

3.1.1-5d



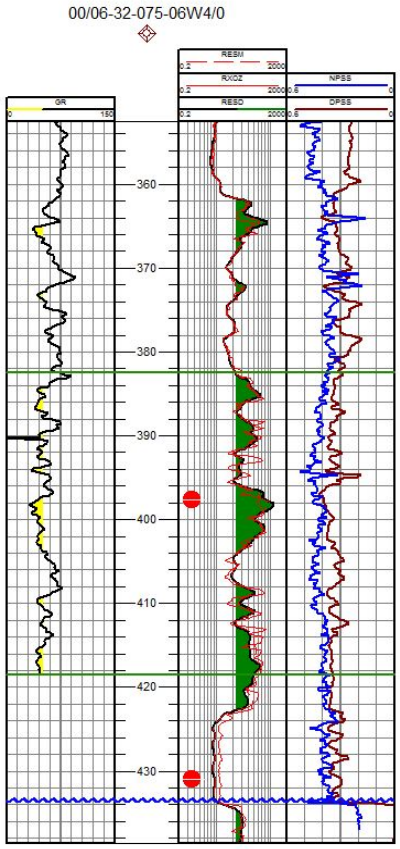


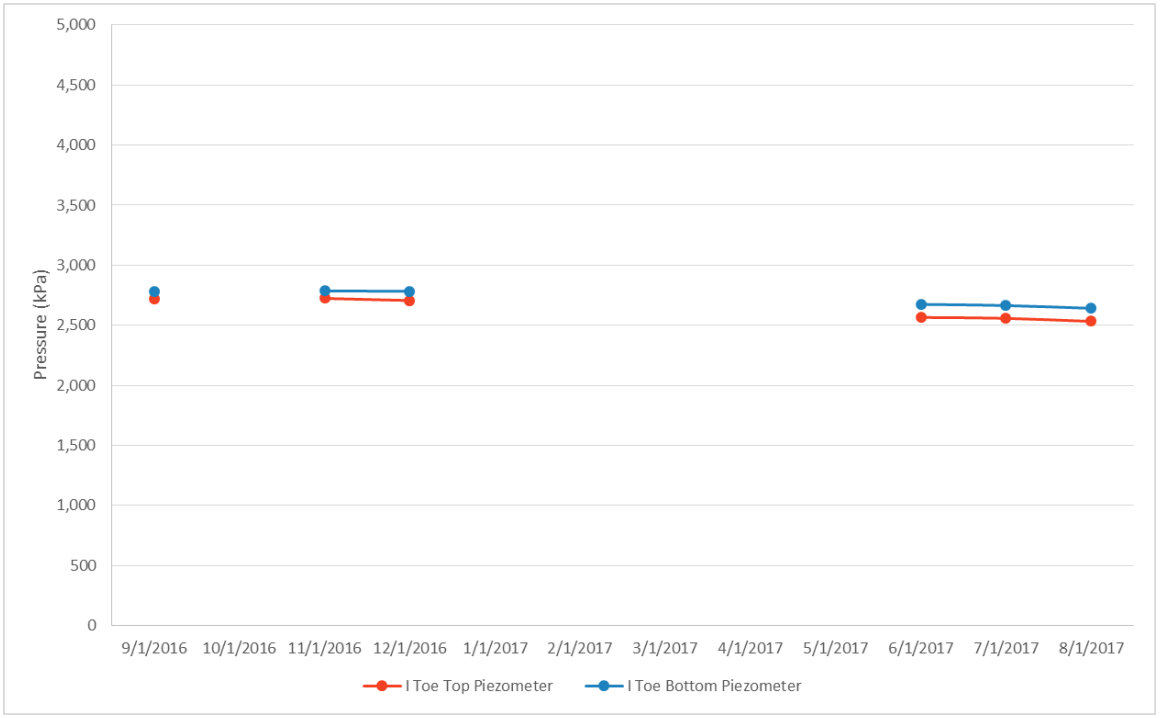
Pad I Toe* Observation Well Pressure

*Both pad observation wells at toe of Pad I

(7m from I5 well pair)

3.1.1-5d



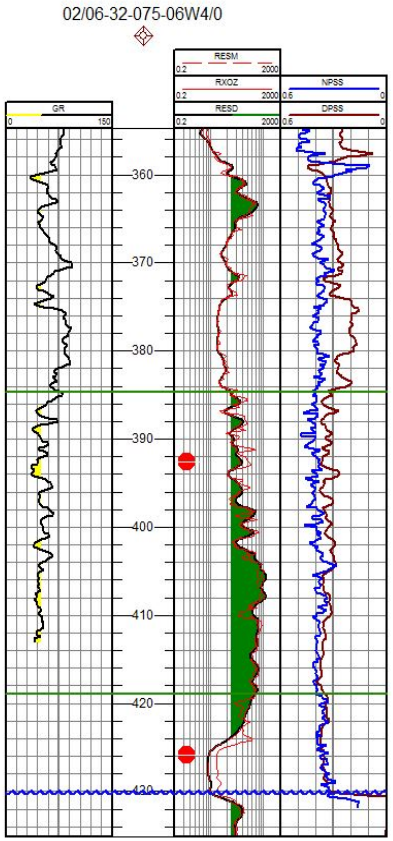


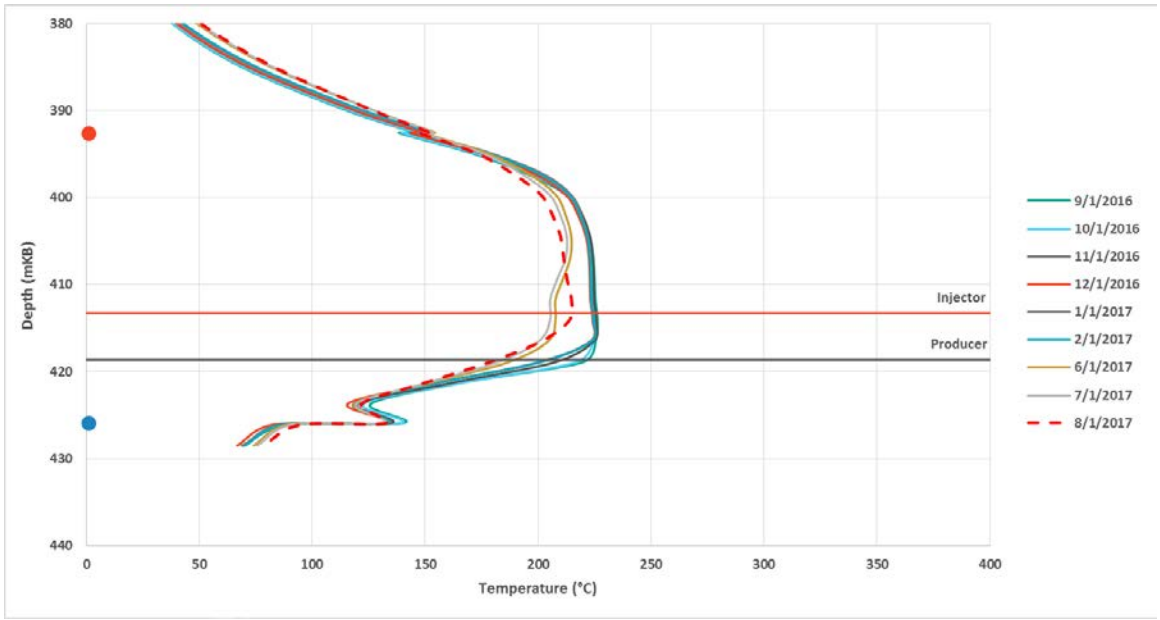
Pad I Toe* Observation Well Temp

*Both pad observation wells at toe of Pad I

(6m from I2 well pair)

3.1.1-5d



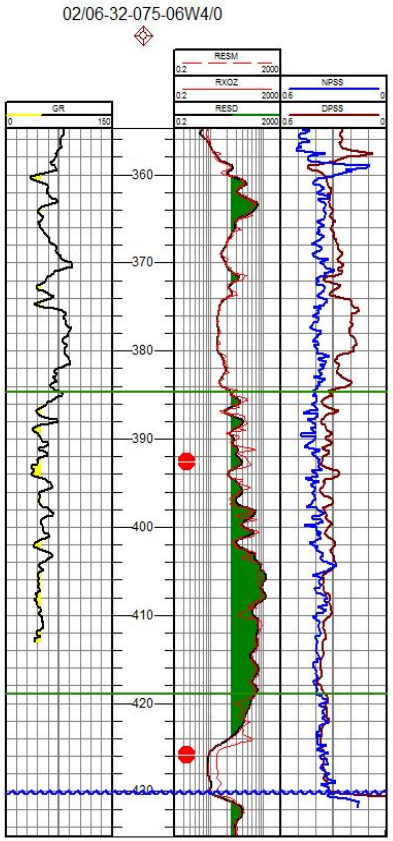


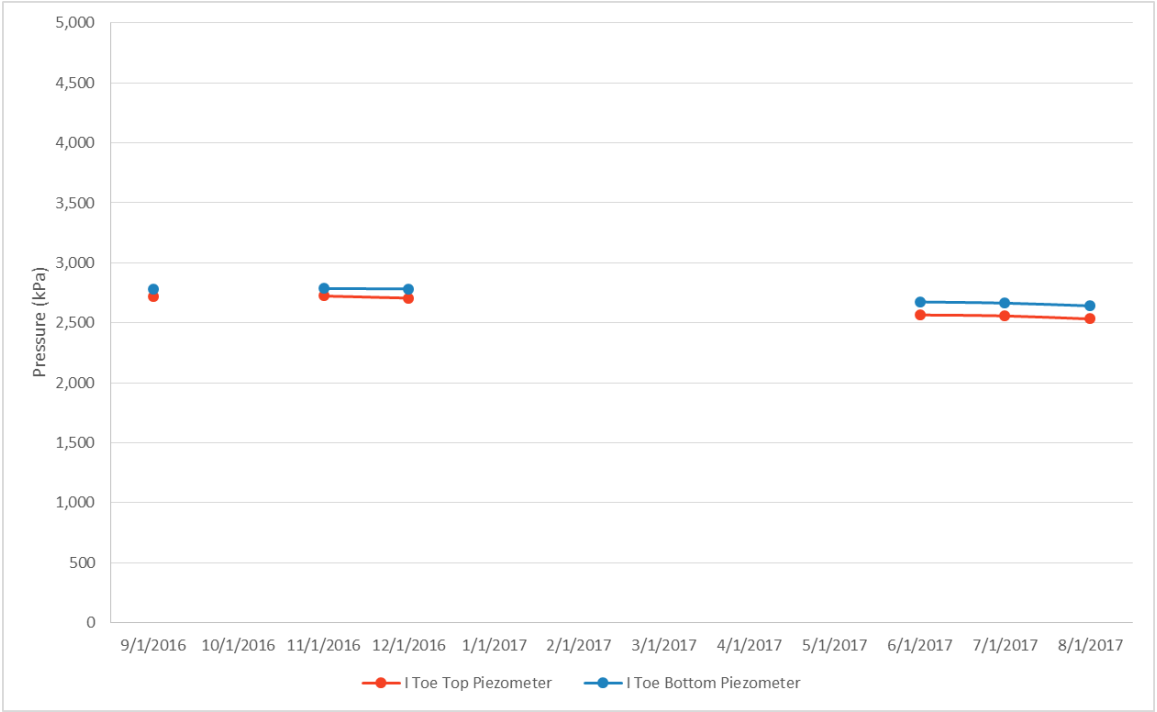
Pad I Toe* Observation Well Pressure

*Both pad observation wells at toe of Pad I

(6m from I2 well pair)

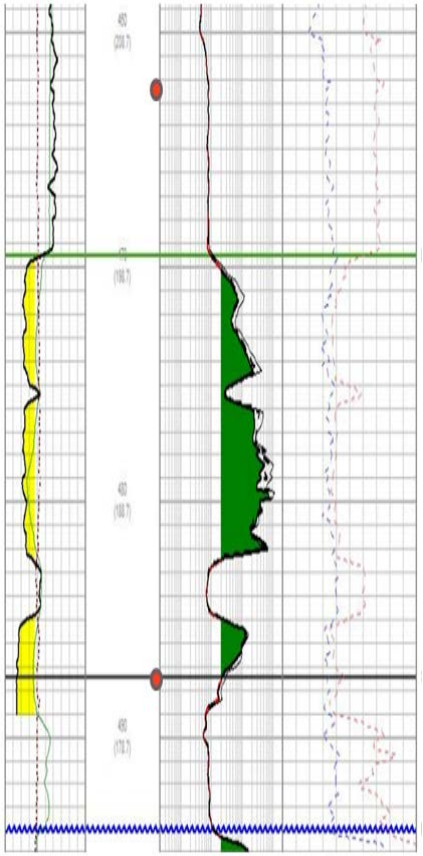
3.1.1-5d

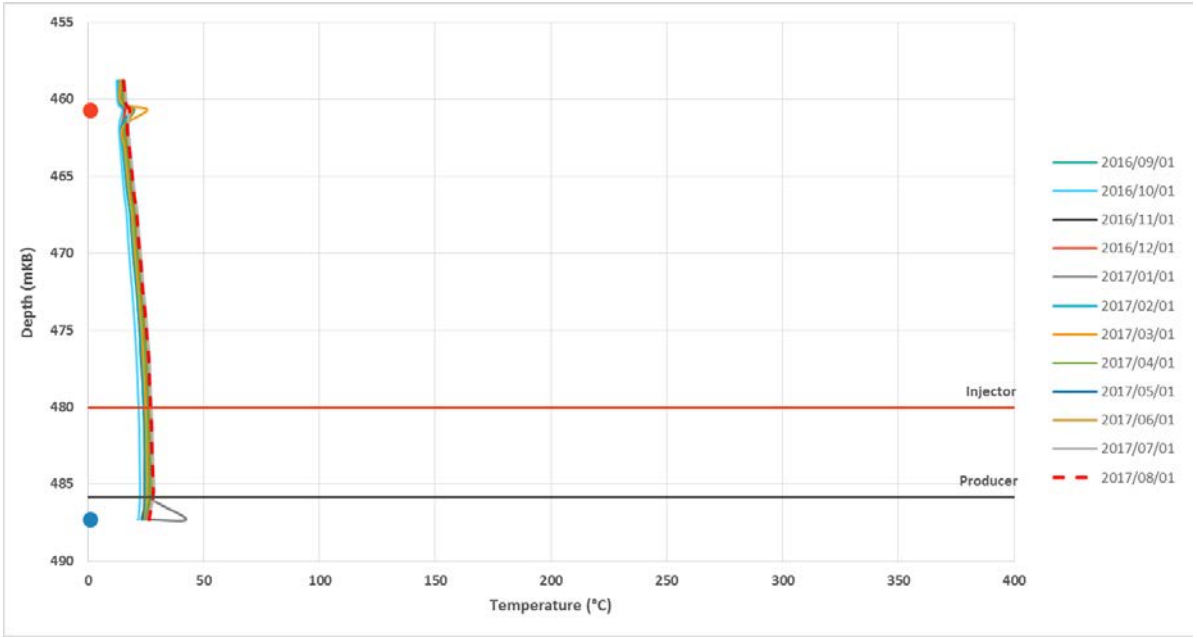




Pad AA Heel Observation Well Temp
(36.5m from AA4 well pair)

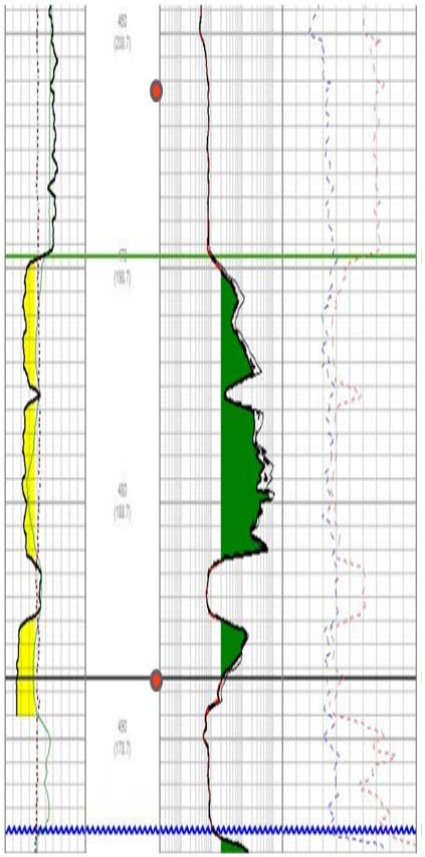
3.1.1-5d

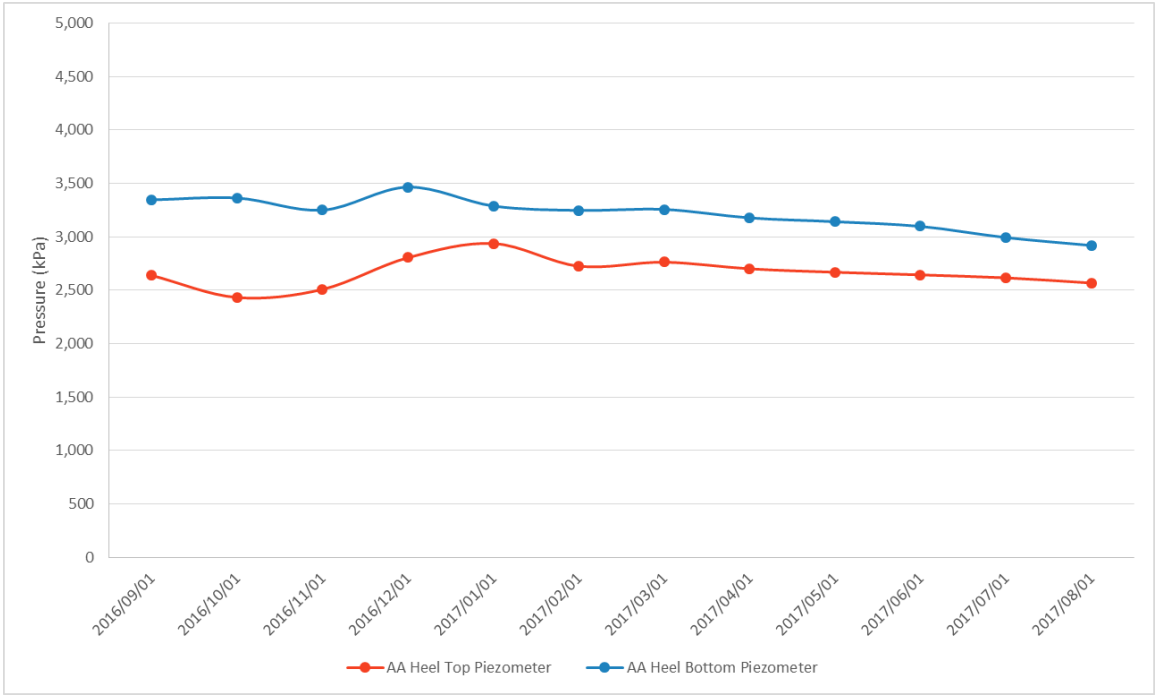




Pad AA Heel Observation Well Pressure
(36.5m from AA4 well pair)

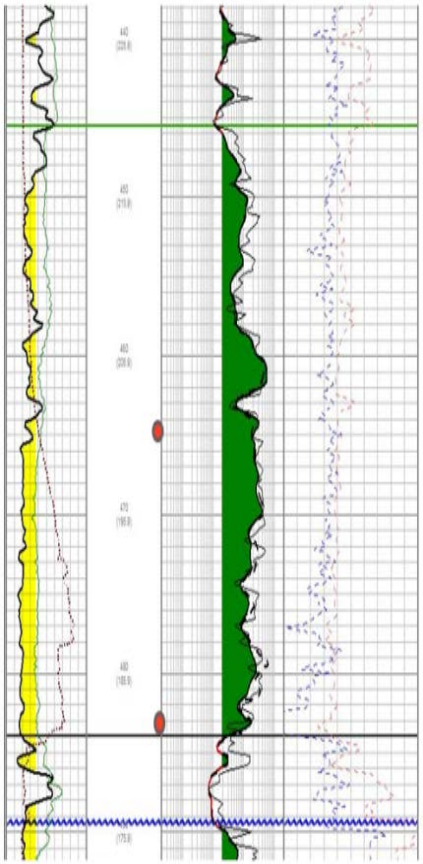
3.1.1-5d

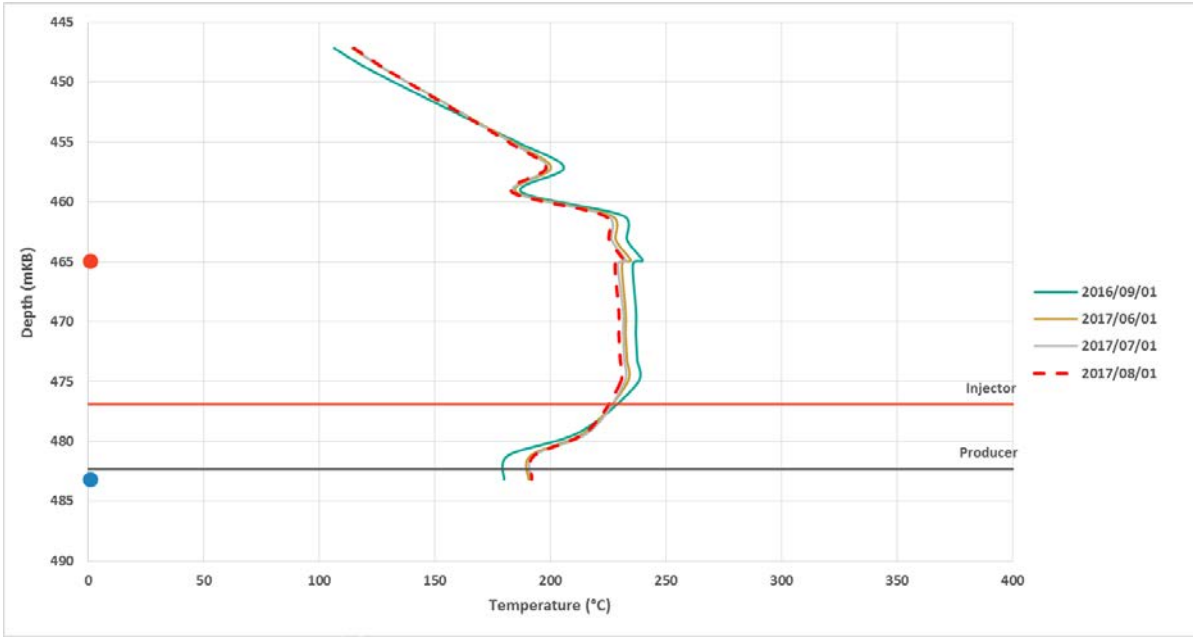




Pad AA Toe Observation Well Temp
(42.8m from AA4 well pair)

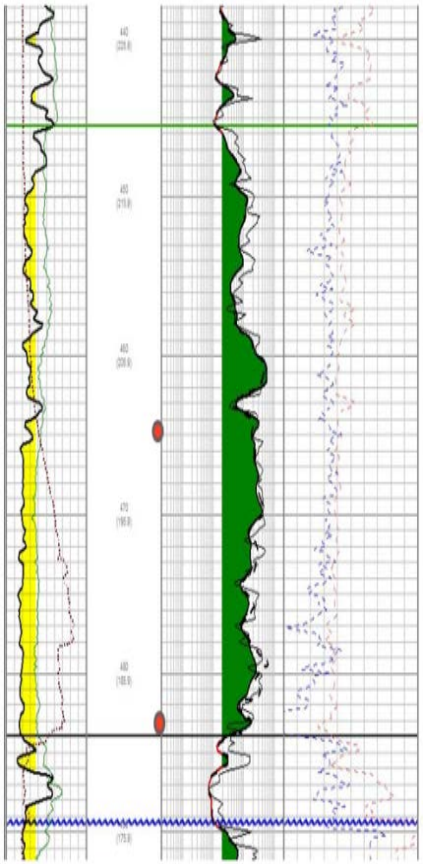
3.1.1-5d

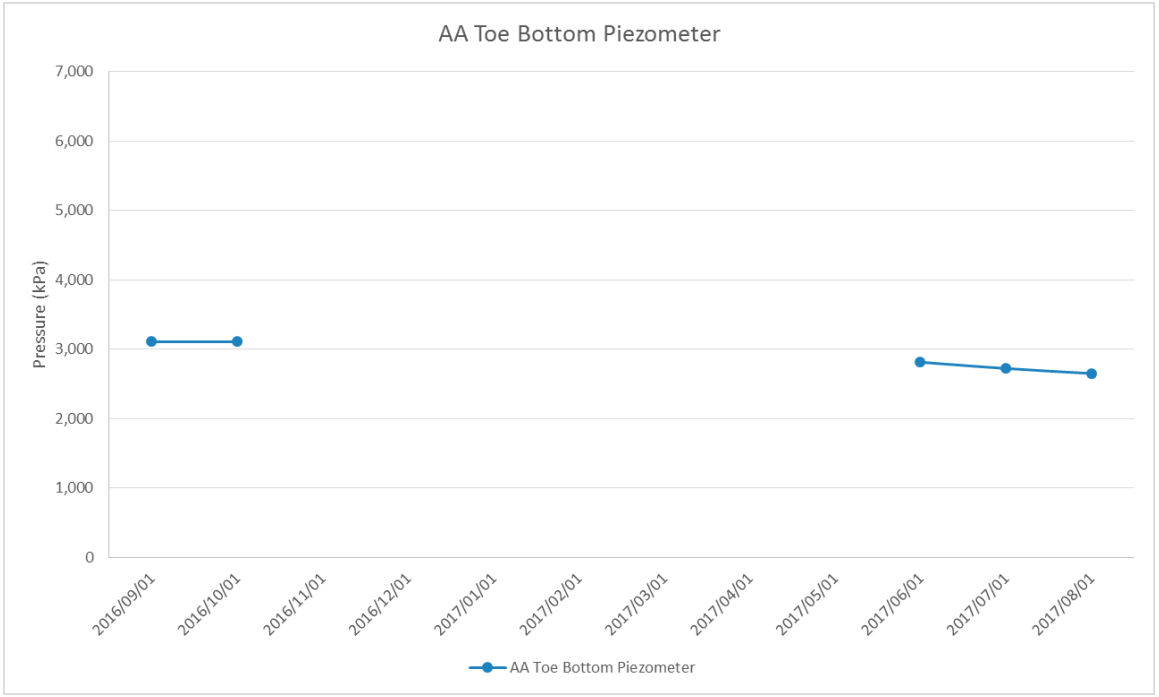




Pad AA Toe Observation Well Pressure
(42.8m from AA4 well pair)

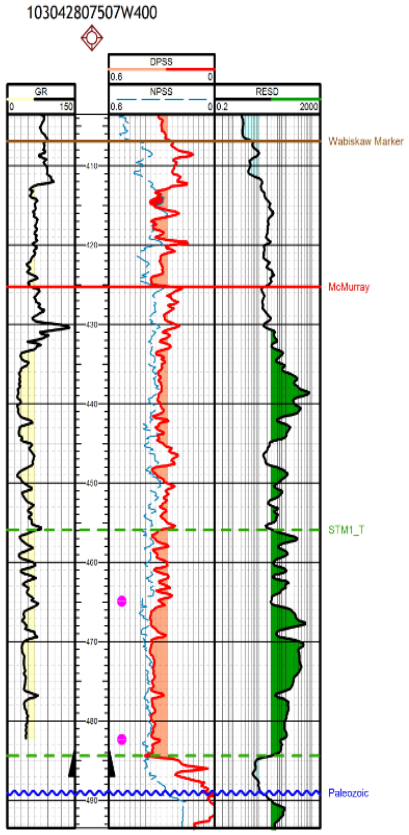
3.1.1-5d

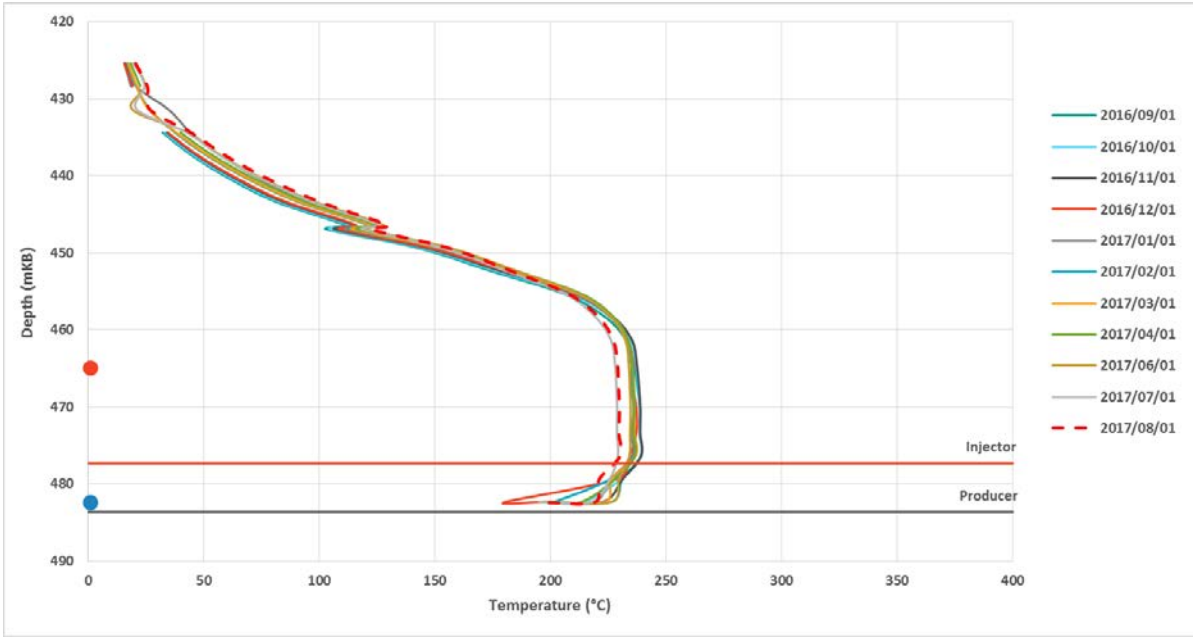




Pad BB Heel Observation Well Temp
(13.5m from BB4 well pair)

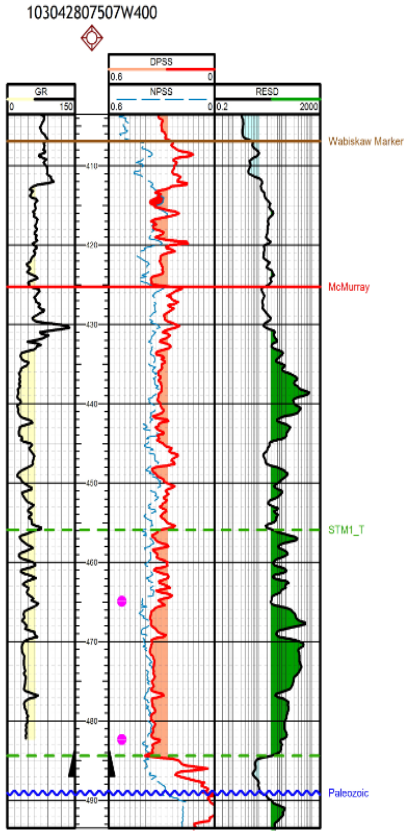
3.1.1-5d

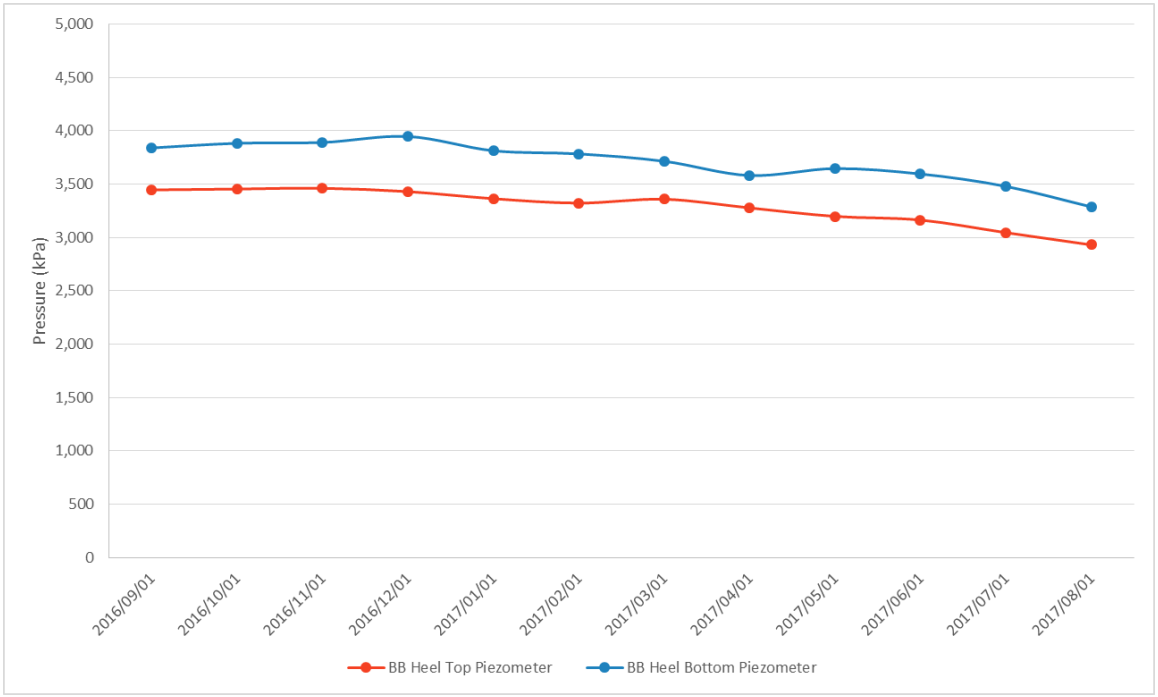




Pad BB Heel Observation Well Pressure
(13.5m from BB4 well pair)

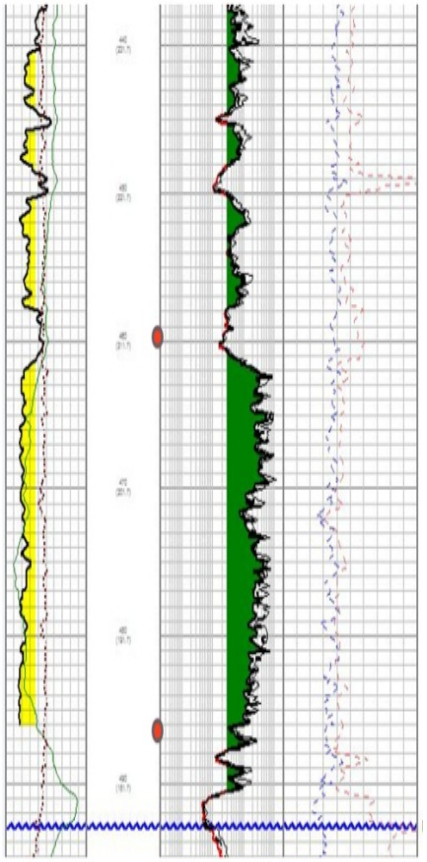
3.1.1-5d

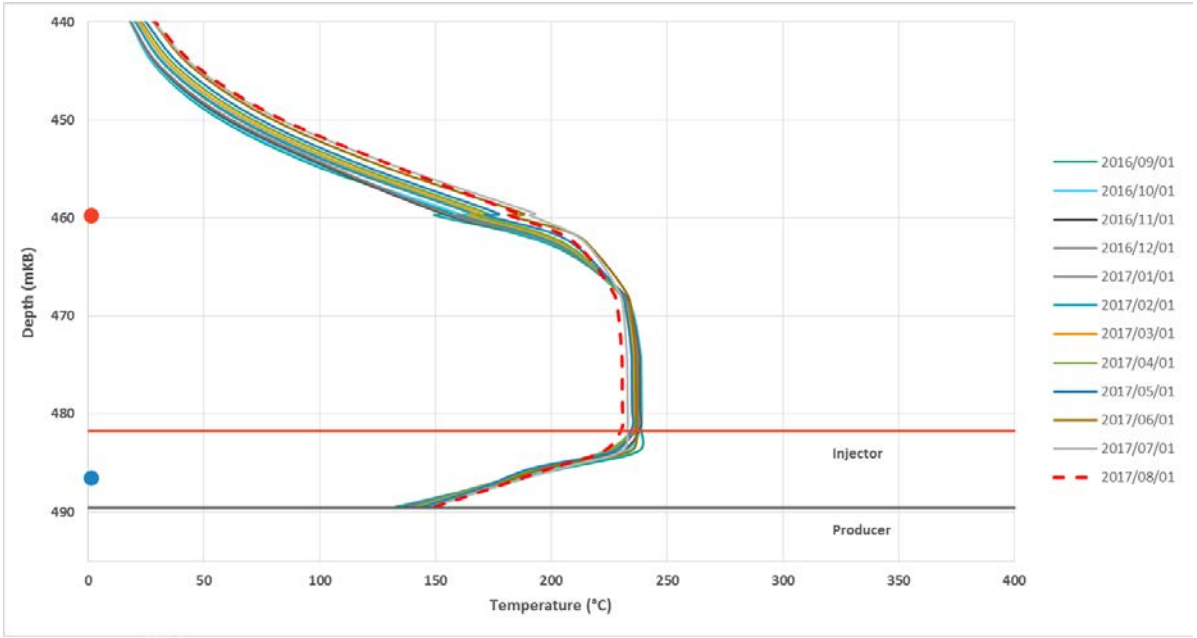




Pad BB Toe Observation Well Temp
(11.5m from BB4 well pair)

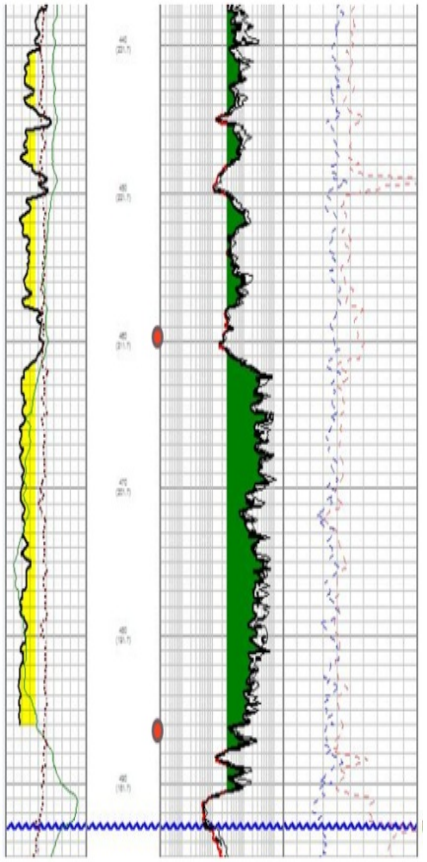
3.1.1-5d

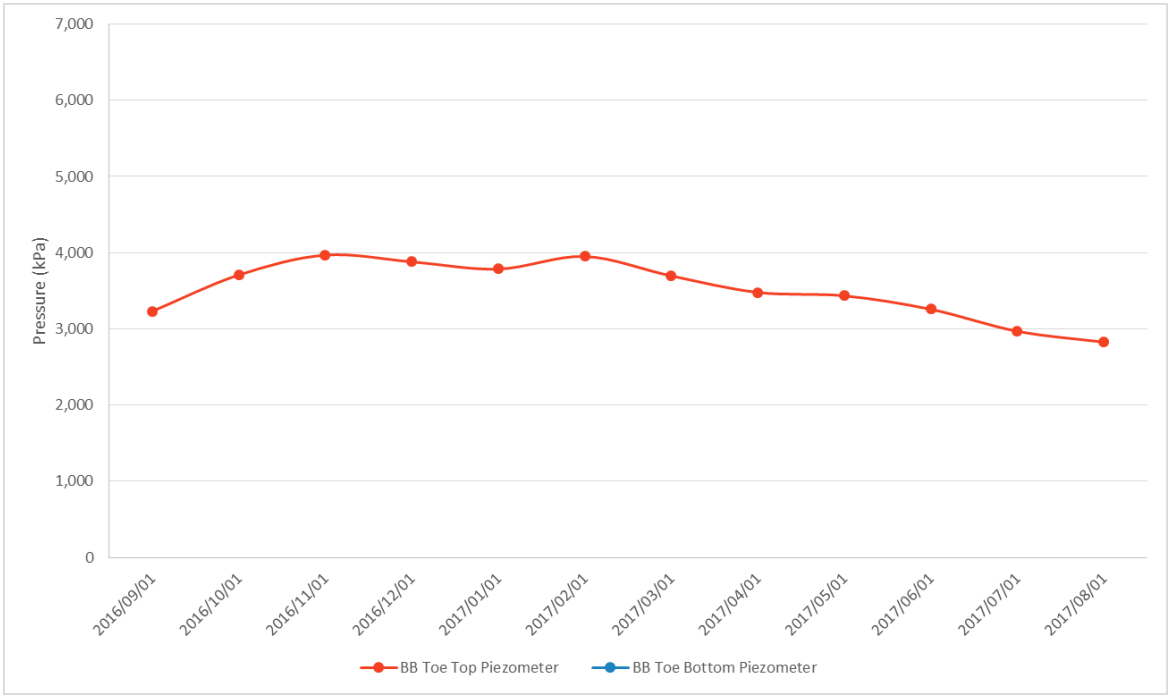




Pad BB Toe Observation Well Pressure
(11.5m from BB4 well pair)

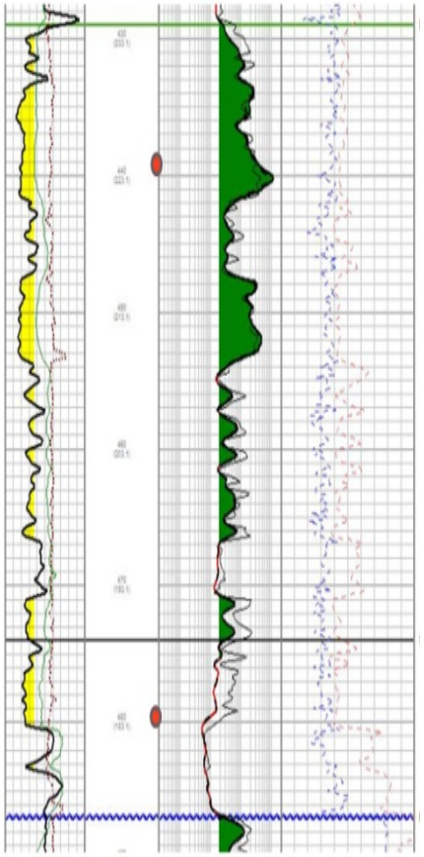
3.1.1-5d

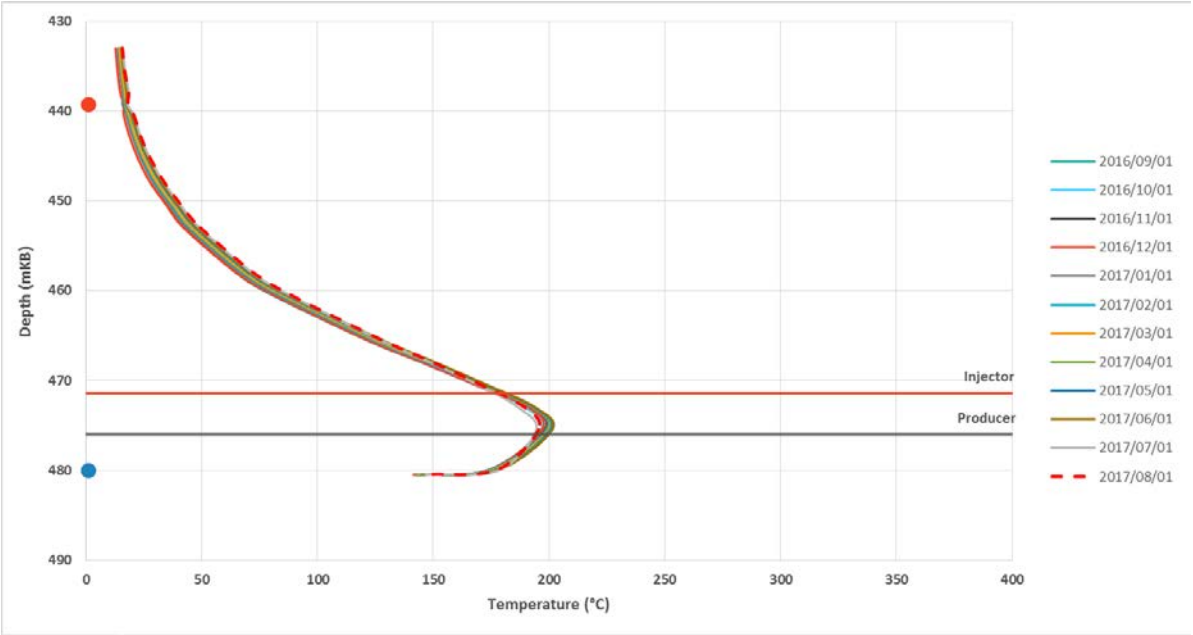




Pad CC Heel Observation Well Temp
(8m from CC4 well pair)

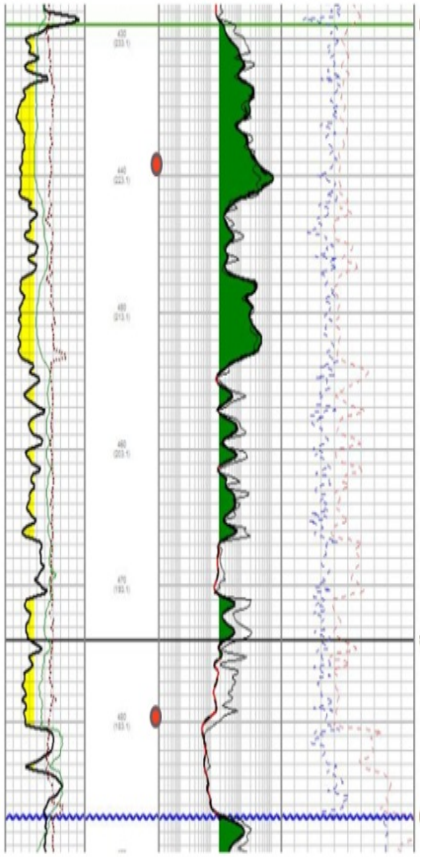
3.1.1-5d

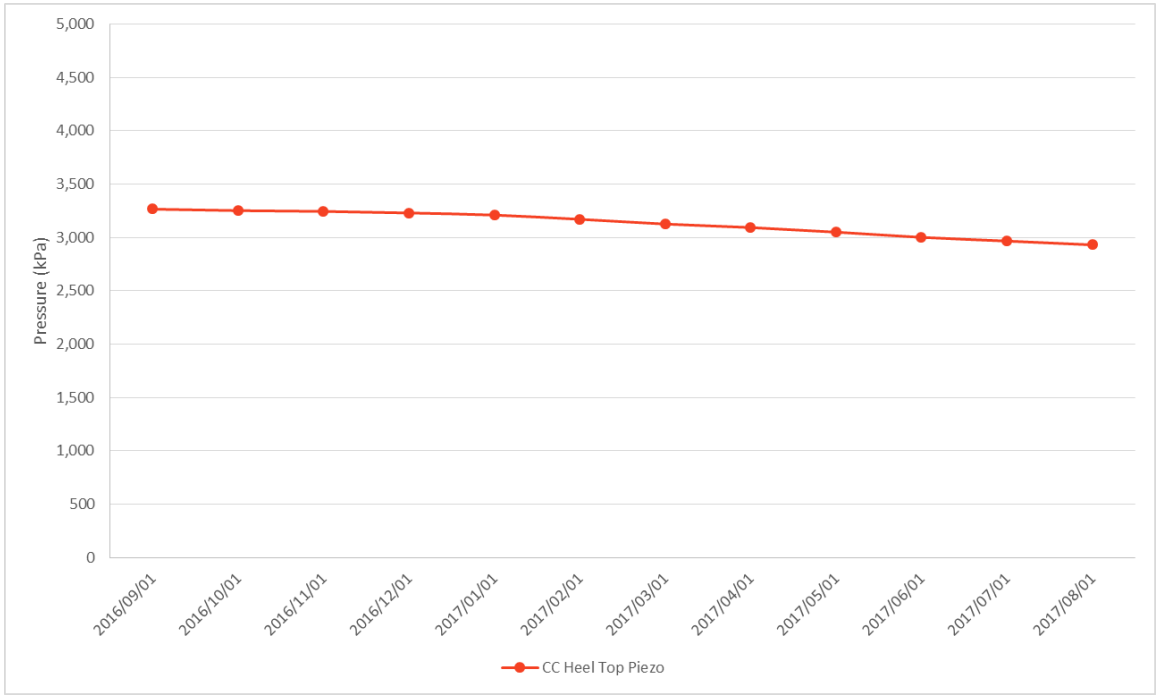




Pad CC Heel Observation Well Pressure
(8m from CC4 well pair)

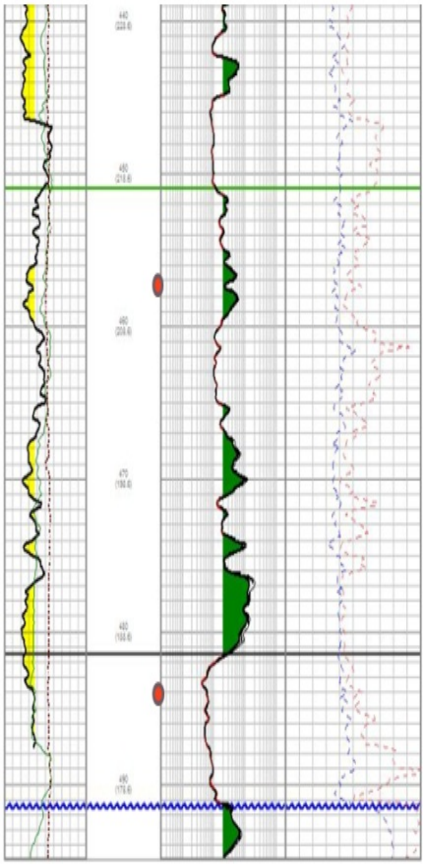
3.1.1-5d

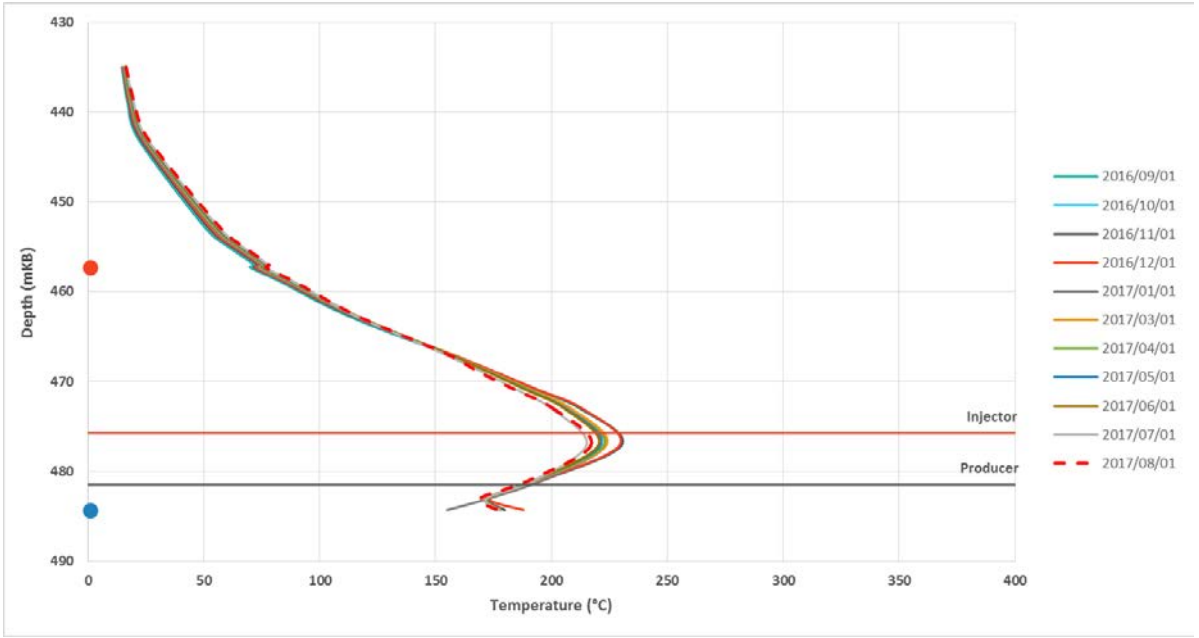




Pad CC Toe Observation Well Temp
(11.7m from CC4 well pair)

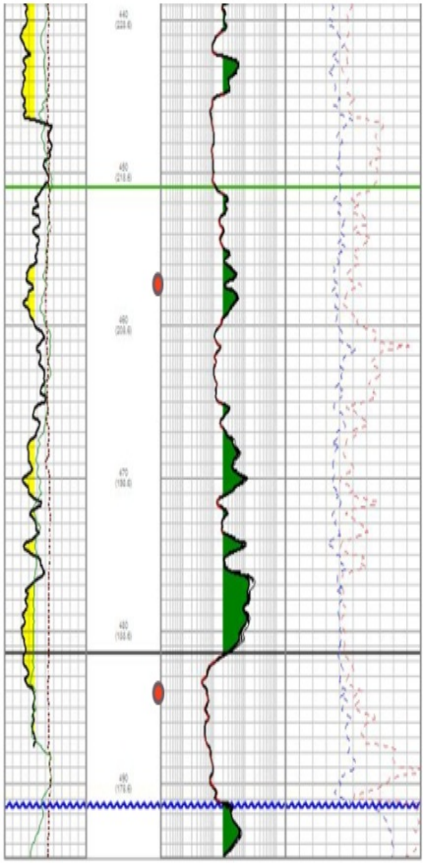
3.1.1-5d

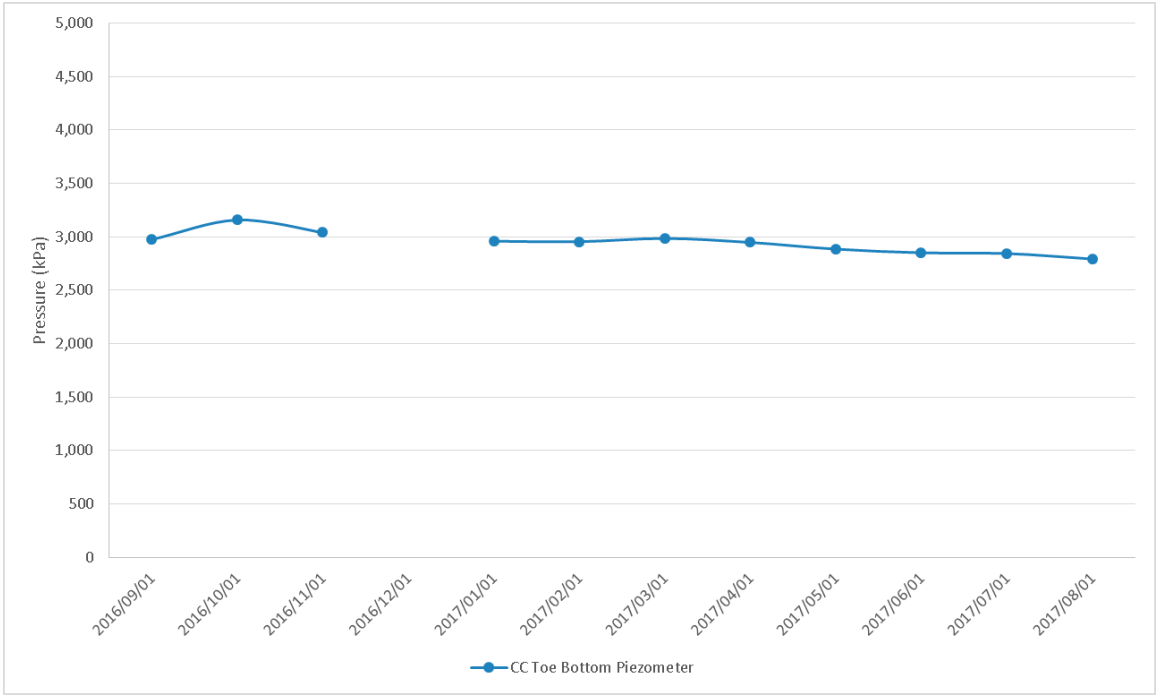




Pad CC Toe Observation Well Pressure
(11.7m from CC4 well pair)

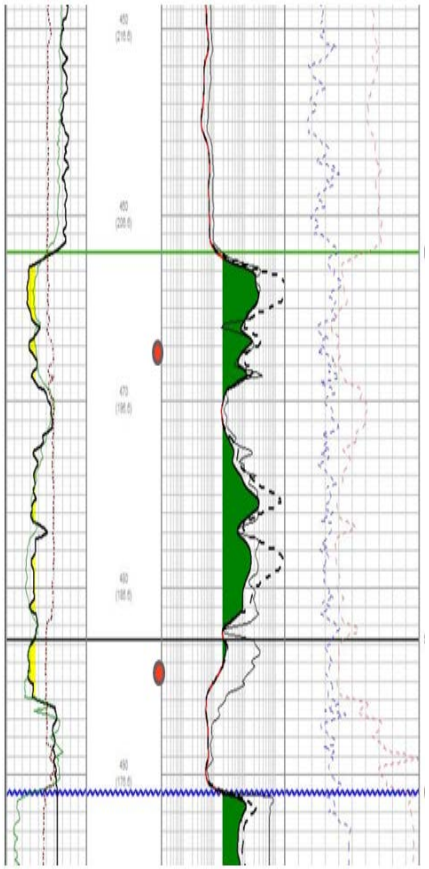
3.1.1-5d

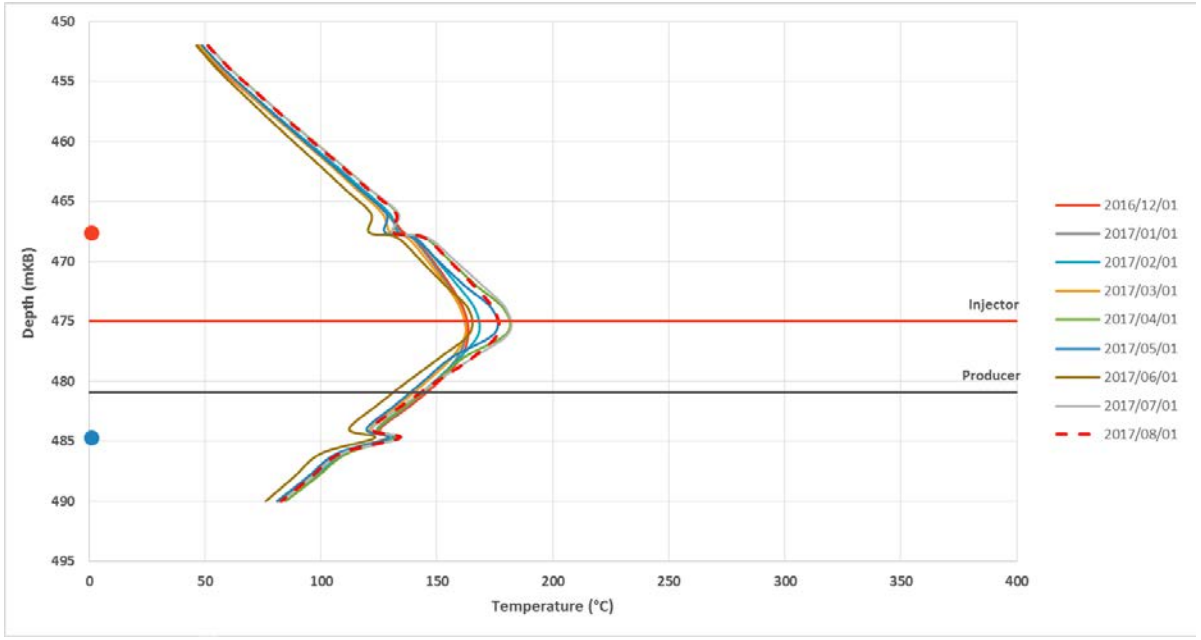




Pad DD Heel Observation Well Temp
(10.4m from DD3 well pair)

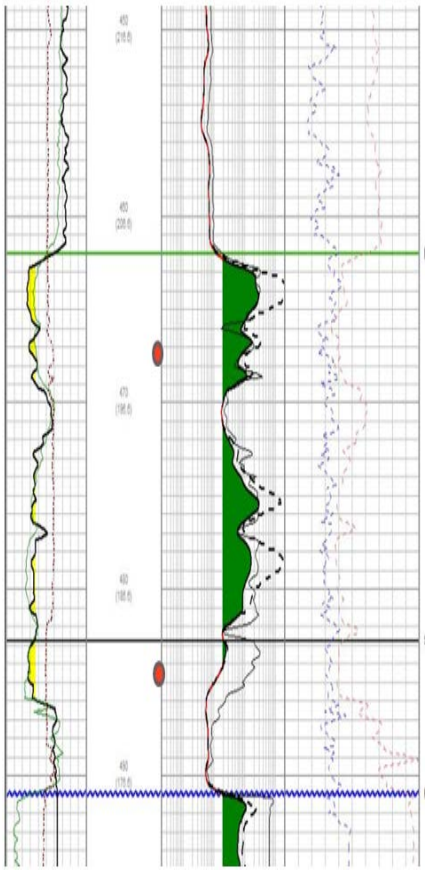
3.1.1-5d

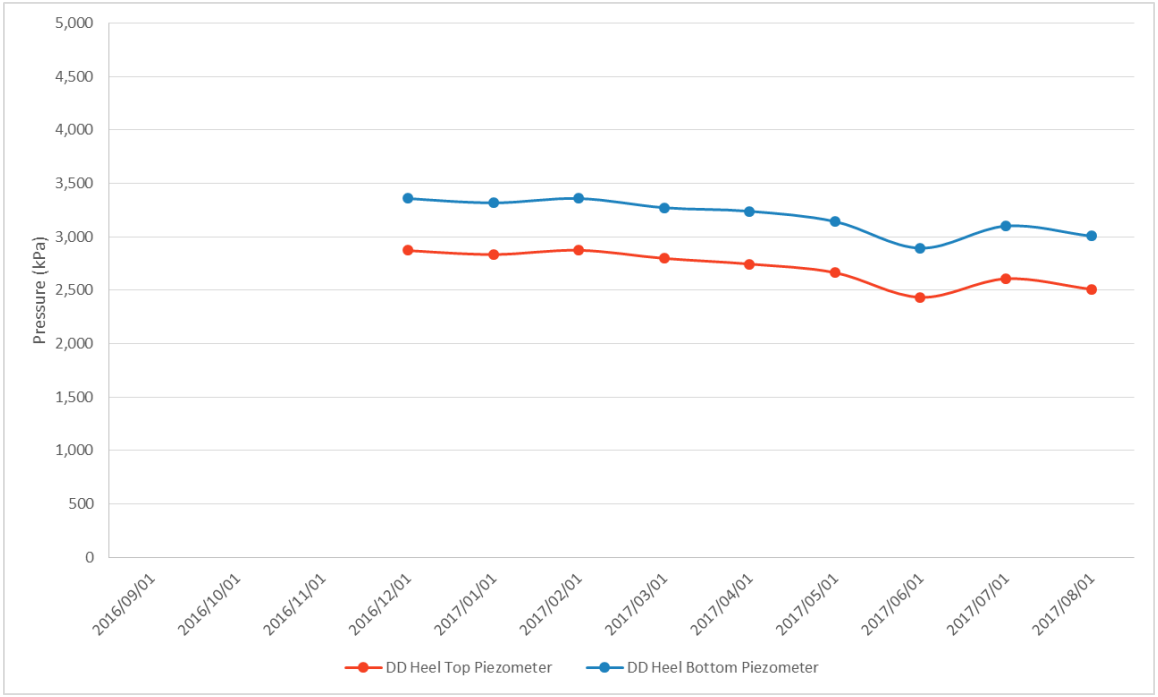




Pad DD Heel Observation Well Pressure
(10.4m from DD3 well pair)

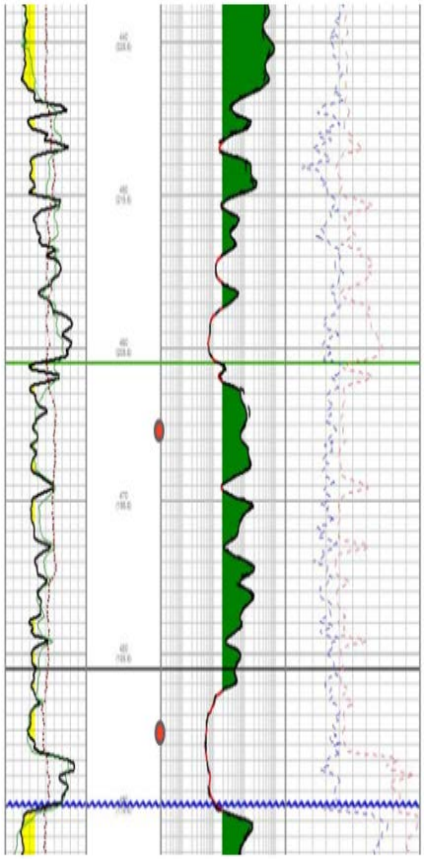
3.1.1-5d

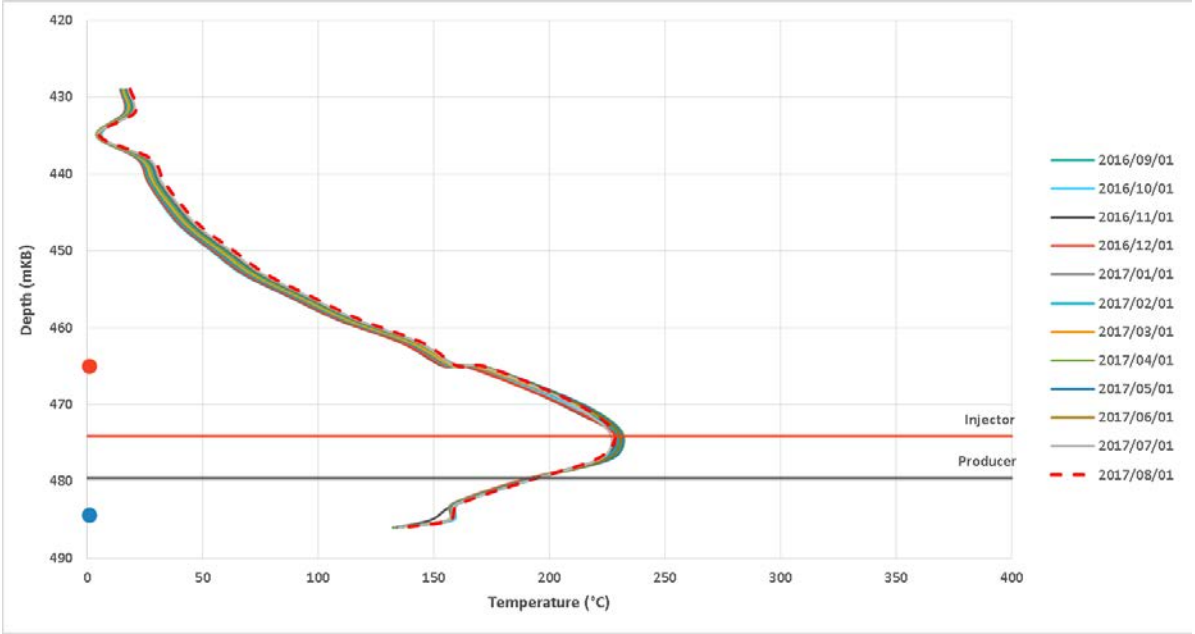




Pad DD Toe Observation Well Temp
(10.5m from DD3 well pair)

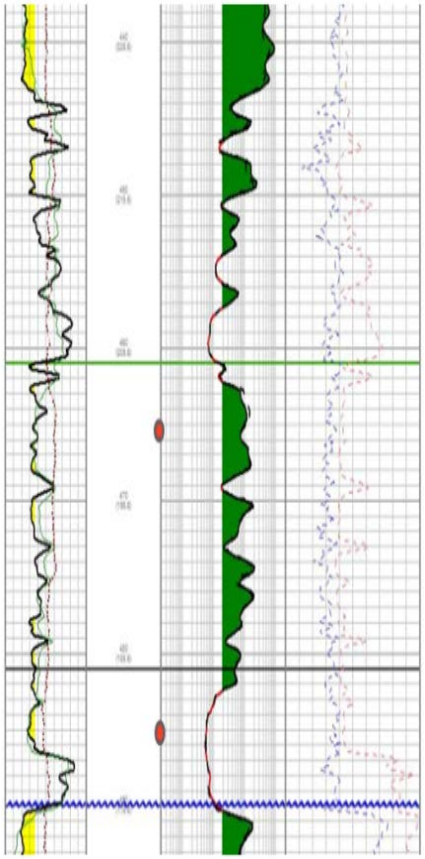
3.1.1-5d

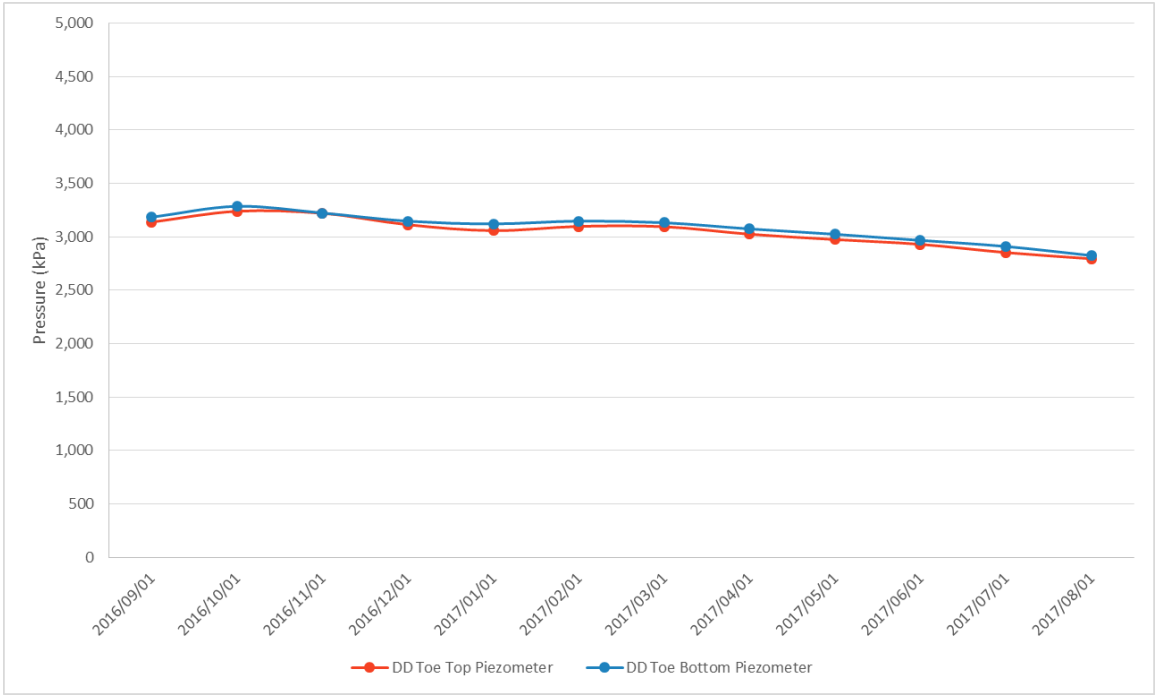




Pad DD Toe Observation Well Pressure
(10.5m from DD3 well pair)

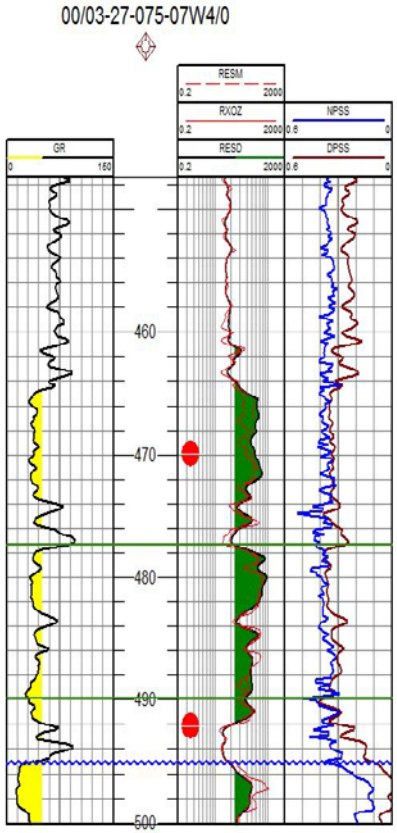
3.1.1-5d

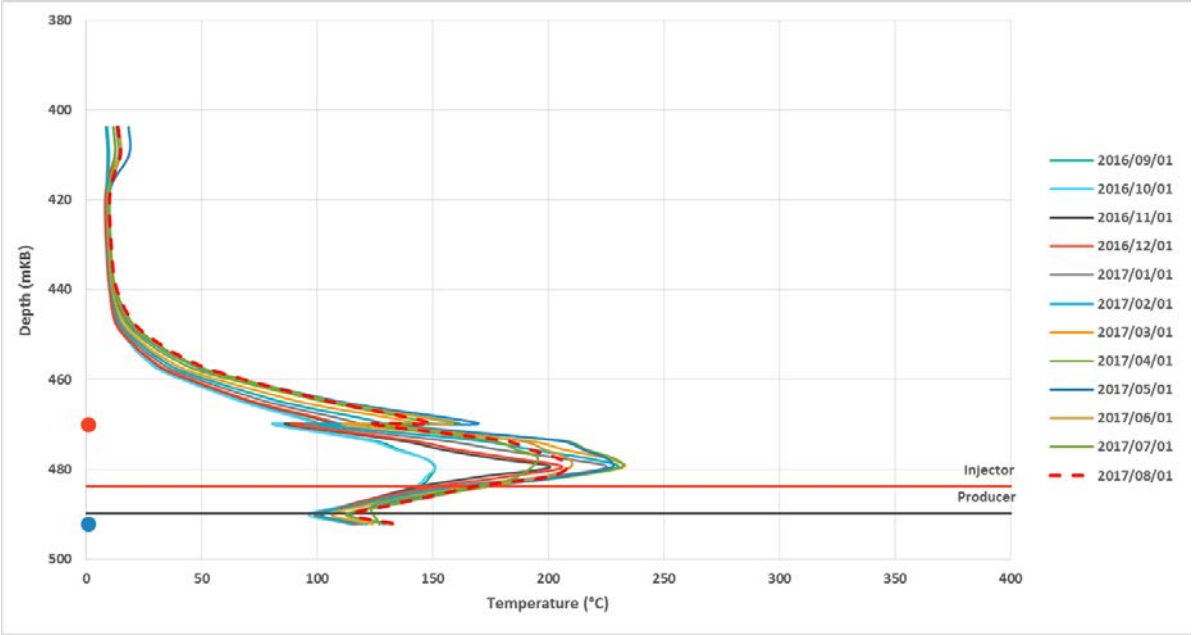




Pad FF Mid Heel Observation Well Temp
(12m from FF5 well pair)

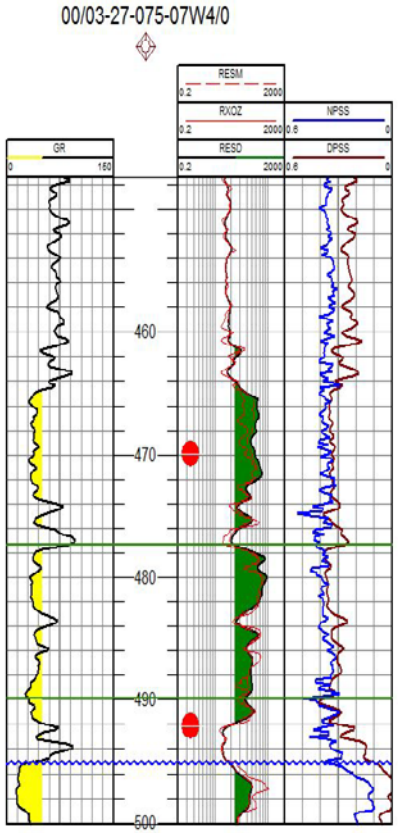
3.1.1-5d

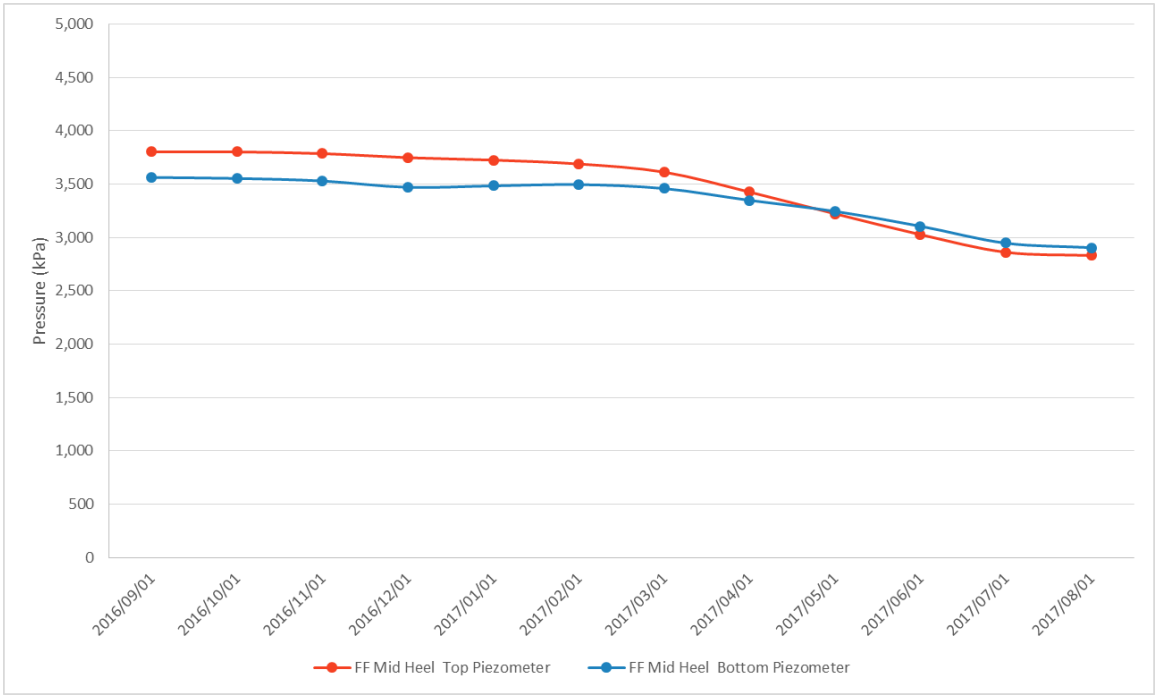




Pad FF Mid Heel Observation Well Pressure
(12m from FF5 well pair)

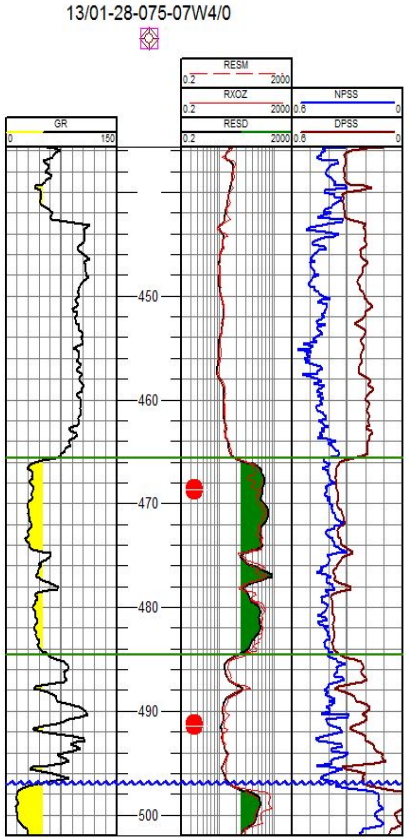
3.1.1-5d

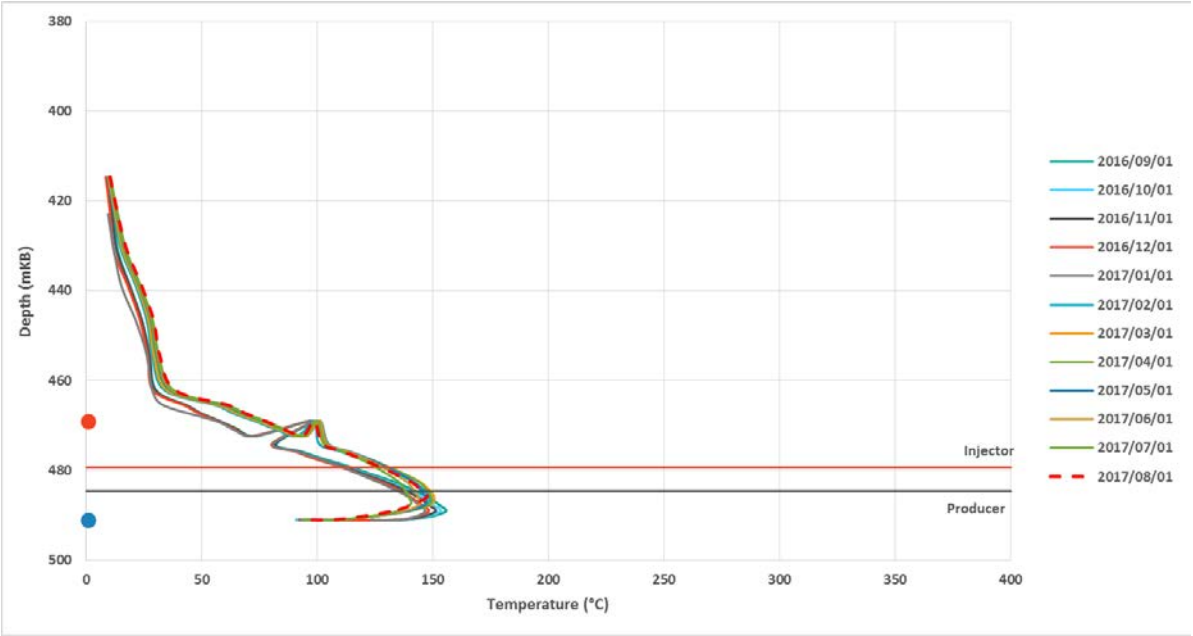




Pad FF Mid Toe Observation Well Temp
(3m from FF5 well pair)

3.1.1-5d

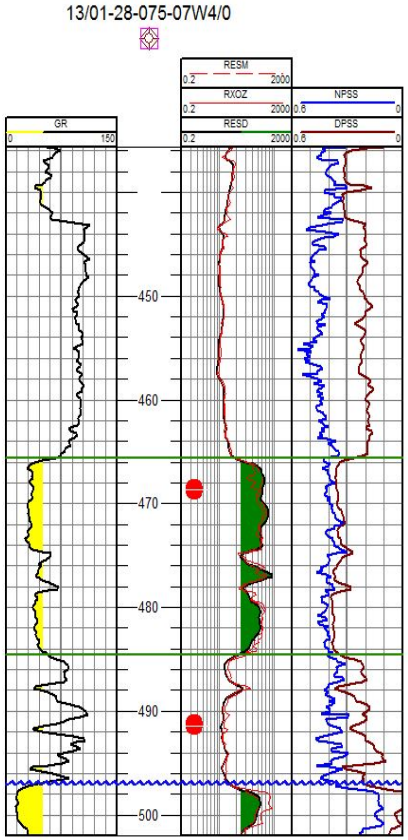


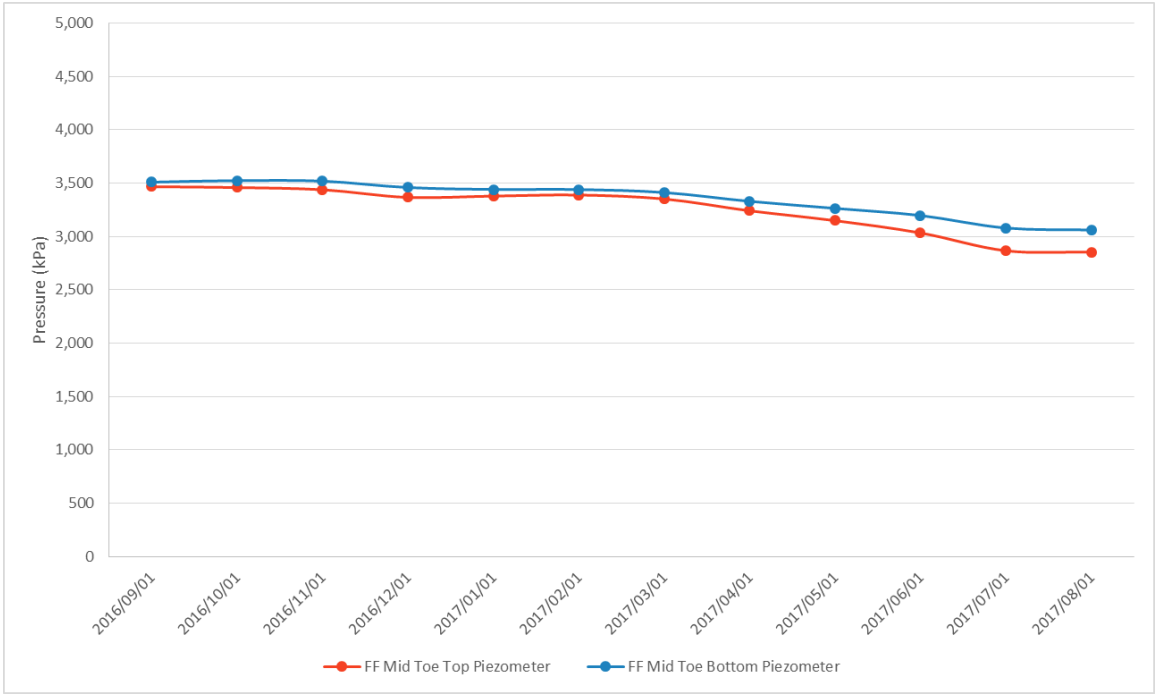


- Internal TC depths adjusted post 2017 logging program

Pad FF Mid Toe Observation Well Pressure
(3m from FF5 well pair)

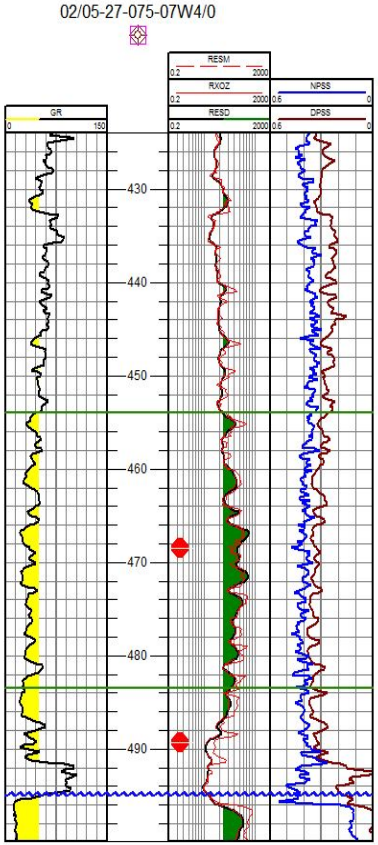
3.1.1-5d

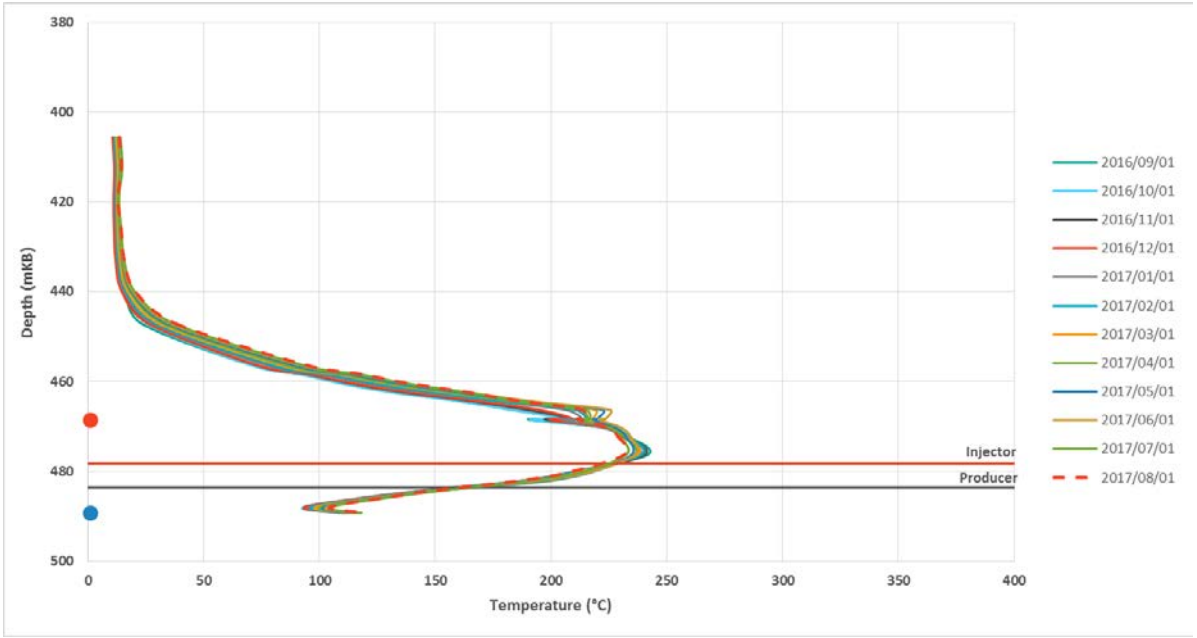




Pad FF North Toe Observation Well Temp
(4.5m from FF2 well pair)

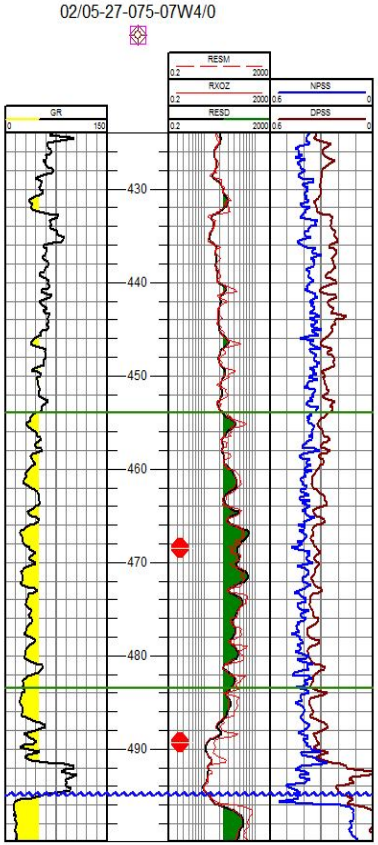
3.1.1-5d

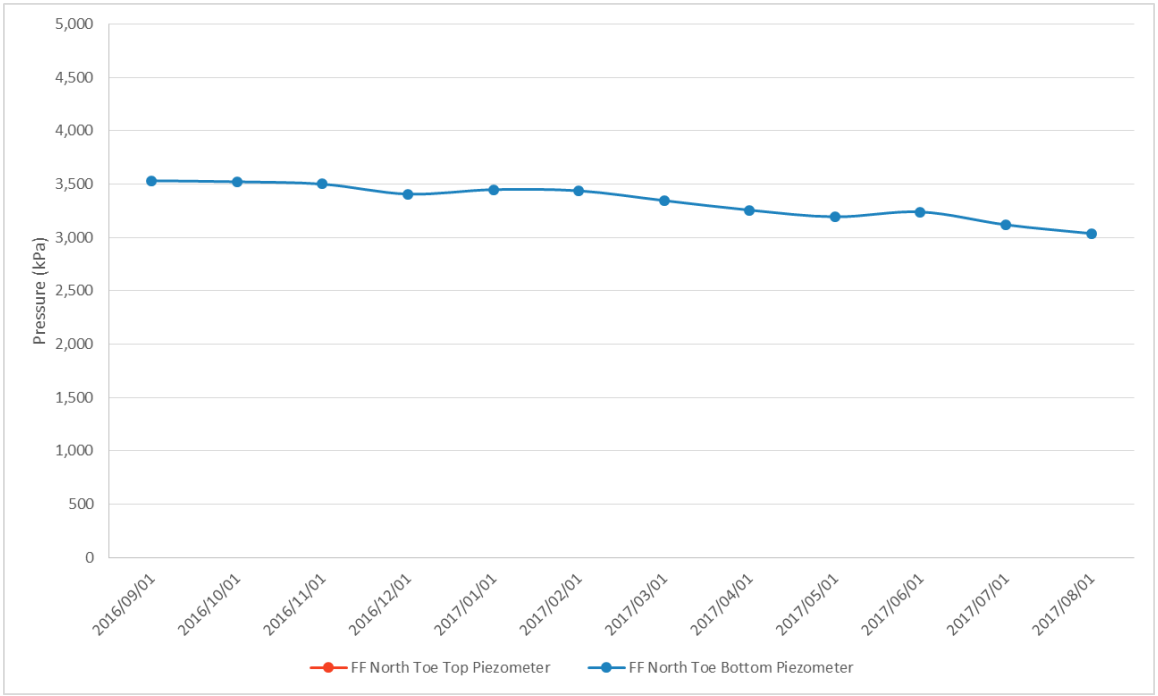




Pad FF North Toe Observation Well Pressure (4.5m from FF2 well pair)

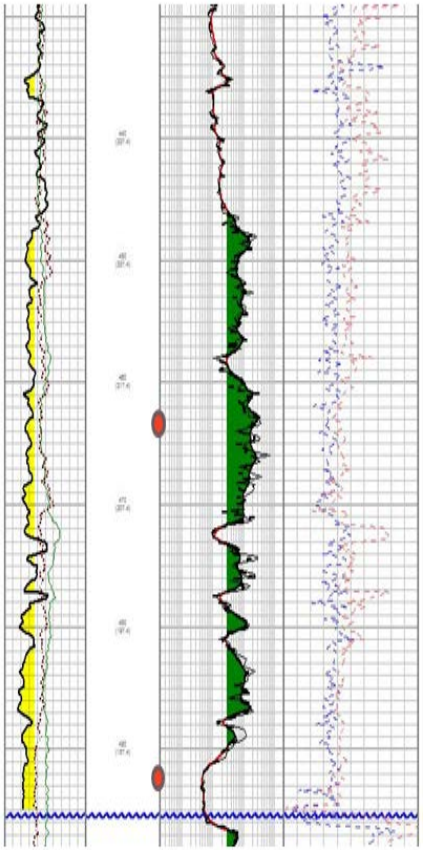
3.1.1-5d

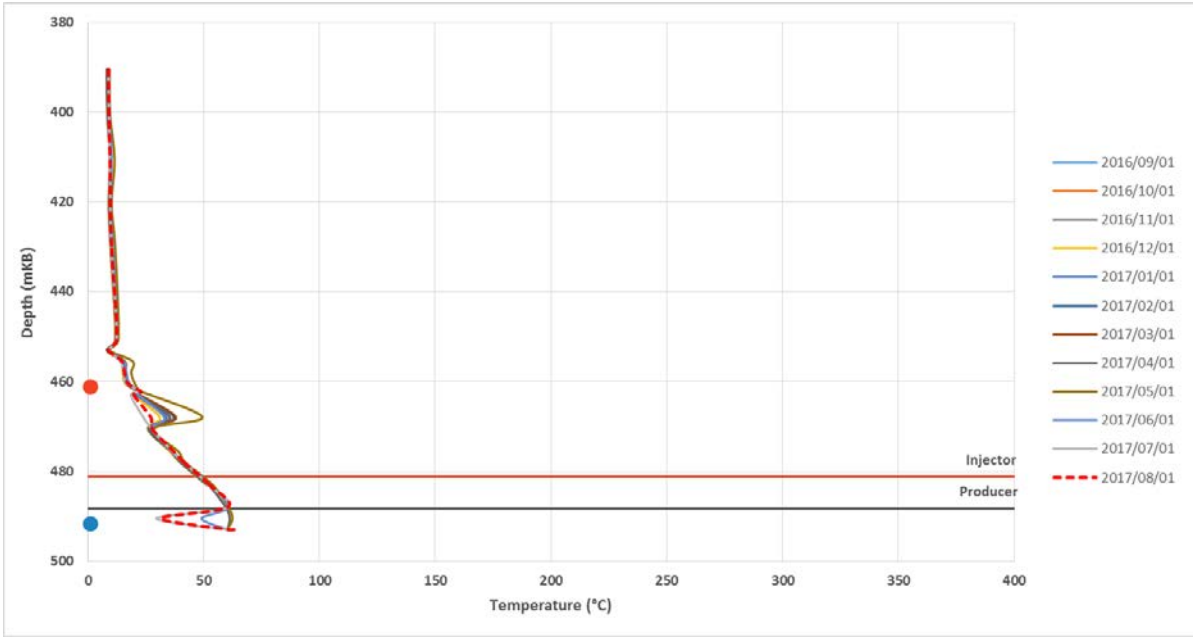




Pad KK Heel Observation Well Temp
(8.5m from KK5 well pair)

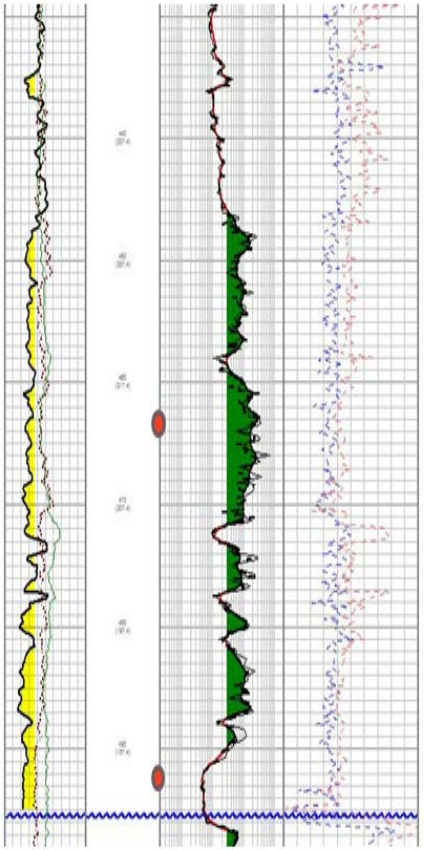
3.1.1-5d

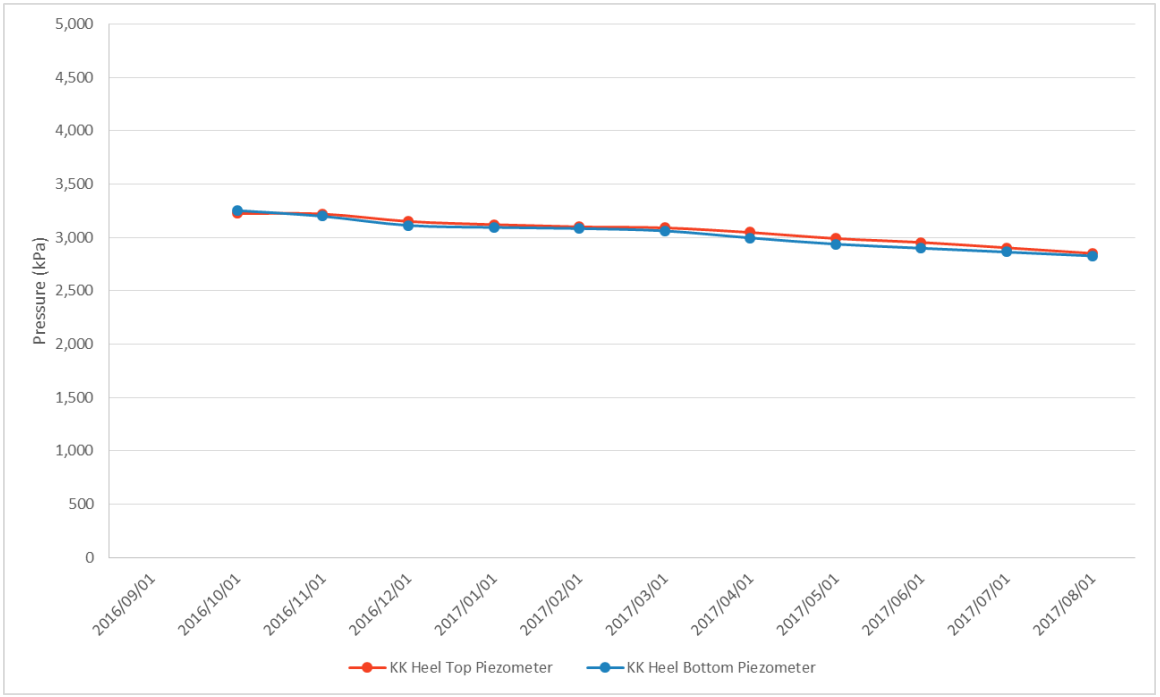




Pad KK Heel Observation Well Pressure
(8.5m from KK5 well pair)

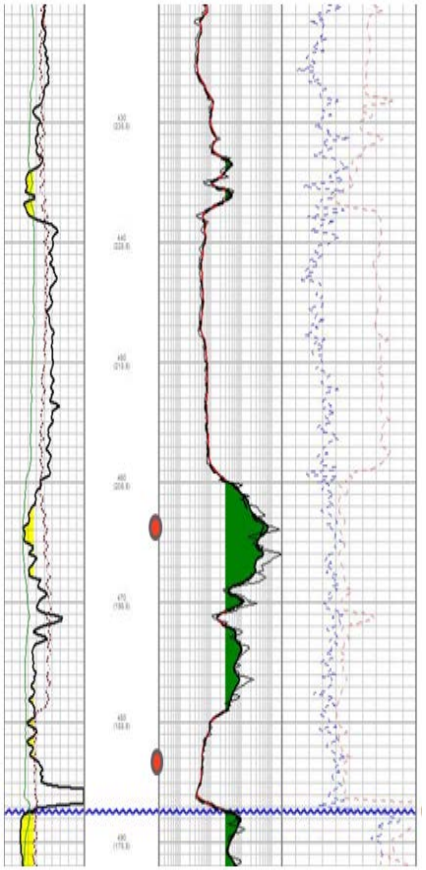
3.1.1-5d

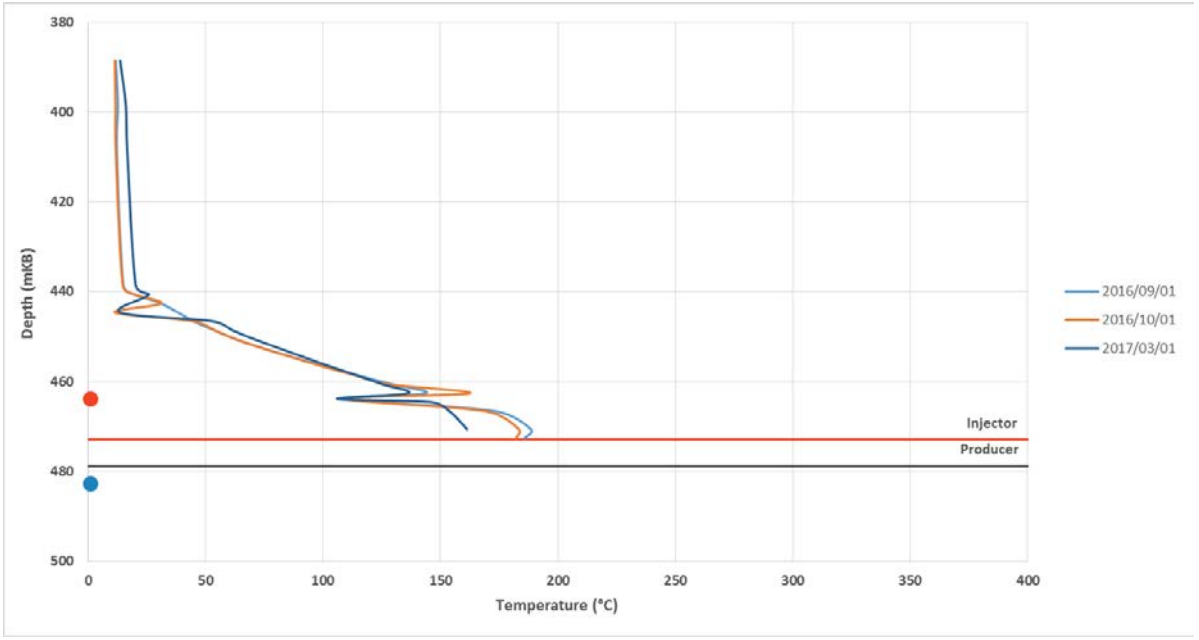




Pad KK Toe Observation Well Temp
(9m from KK5 well pair)

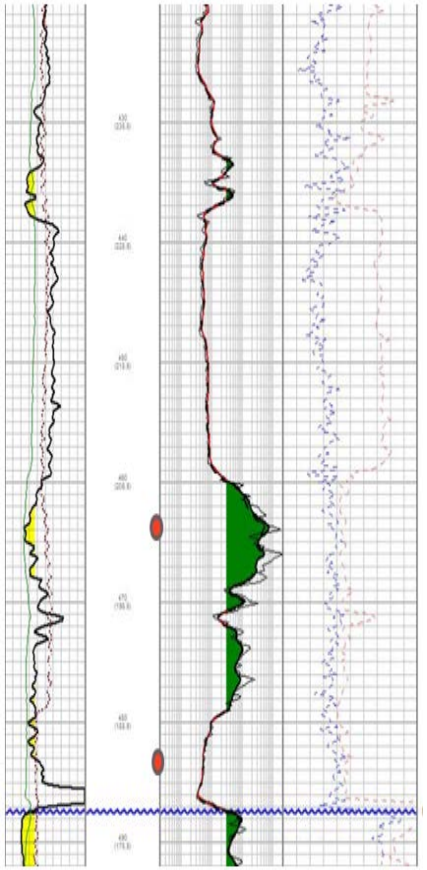
3.1.1-5d

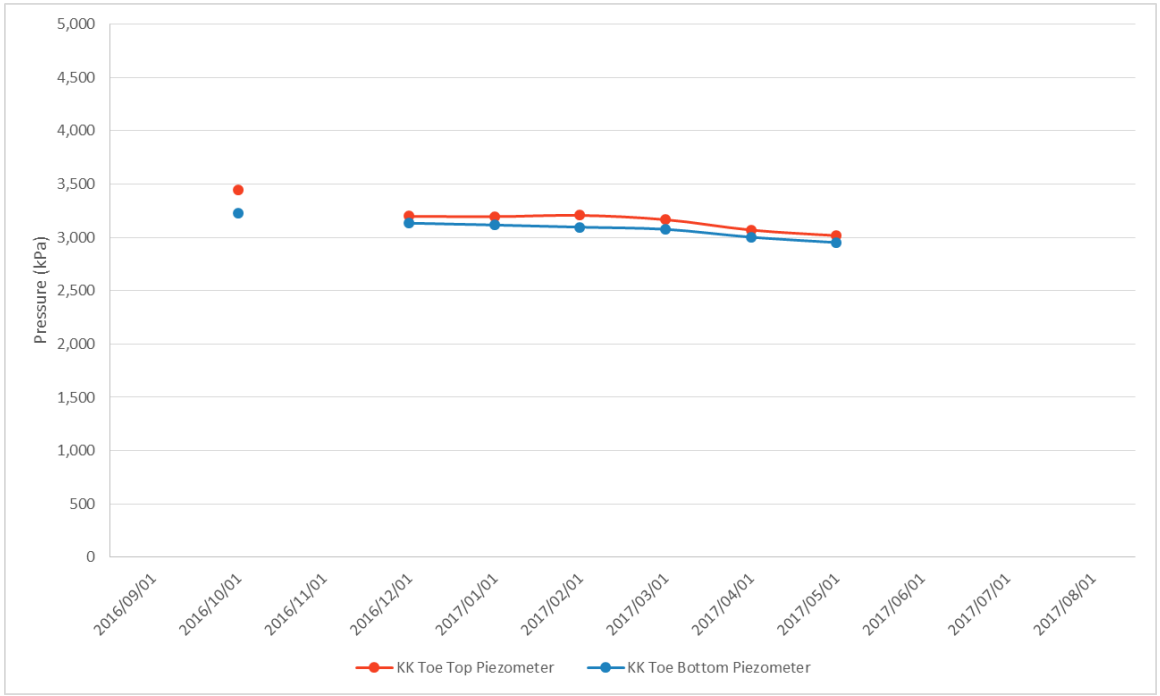




Pad KK Toe Observation Well Pressure
(9m from KK5 well pair)

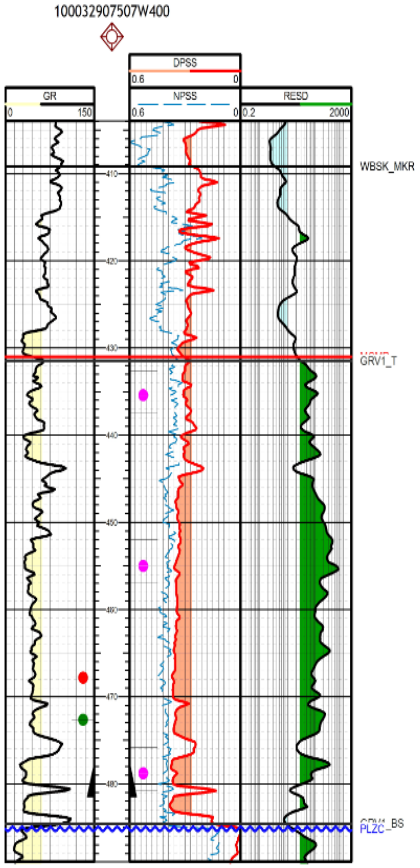
3.1.1-5d

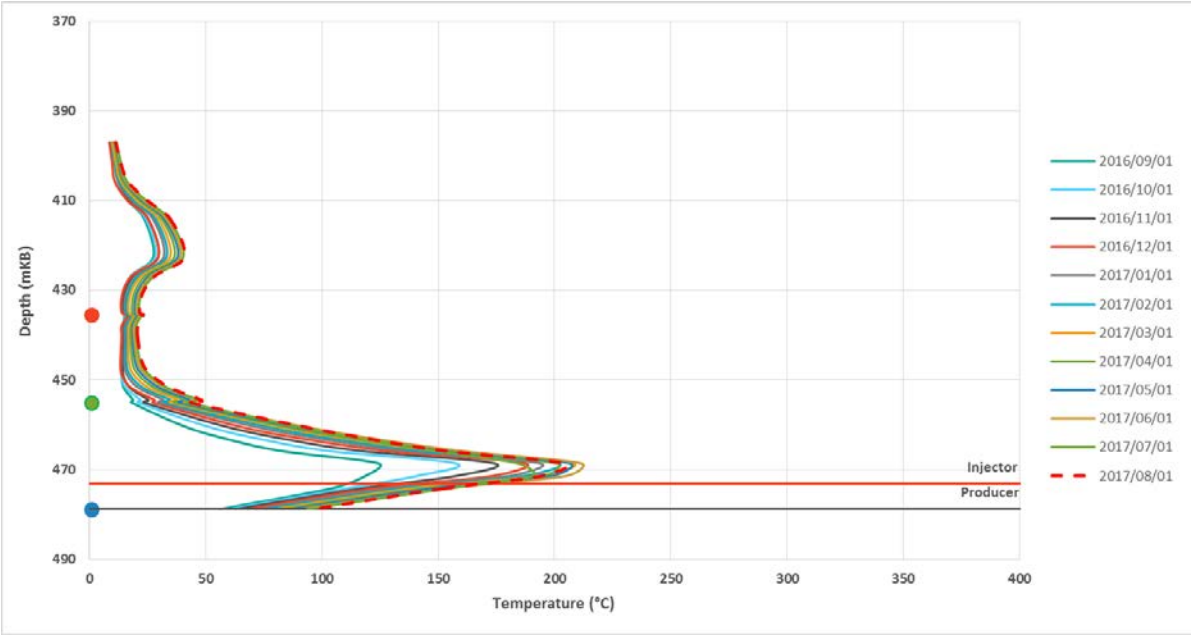




Pad OO Heel Observation Well Temp
(5m from OO6 well pair)

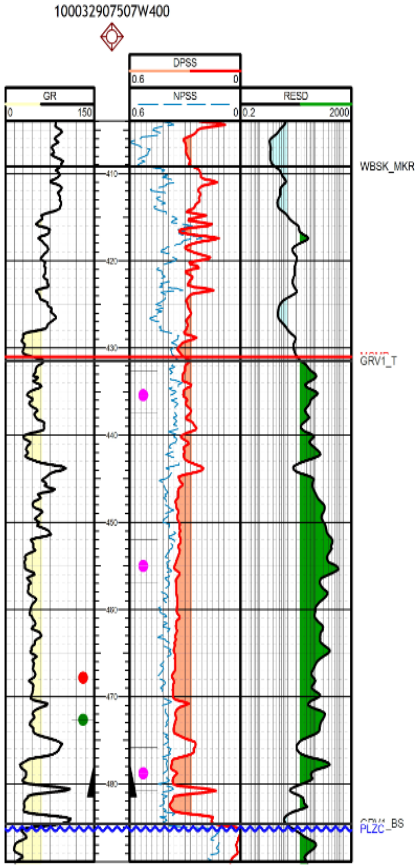
3.1.1-5d

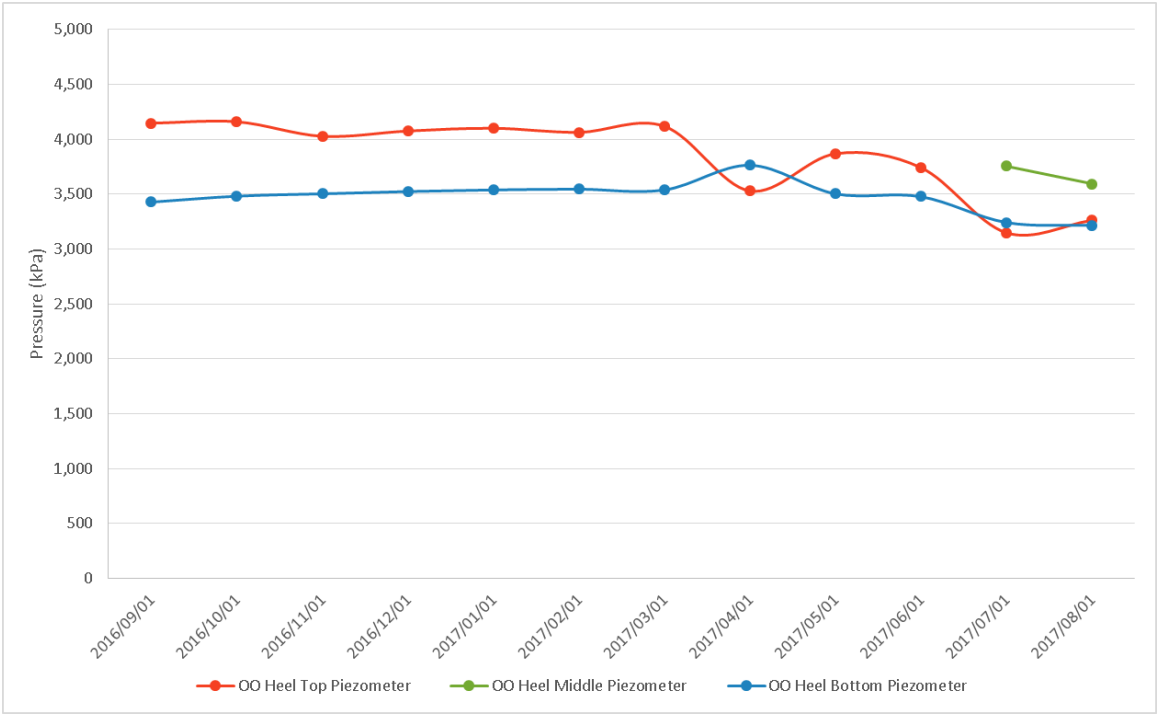




Pad OO Heel Observation Well Pressure
(5m from OO6 well pair)

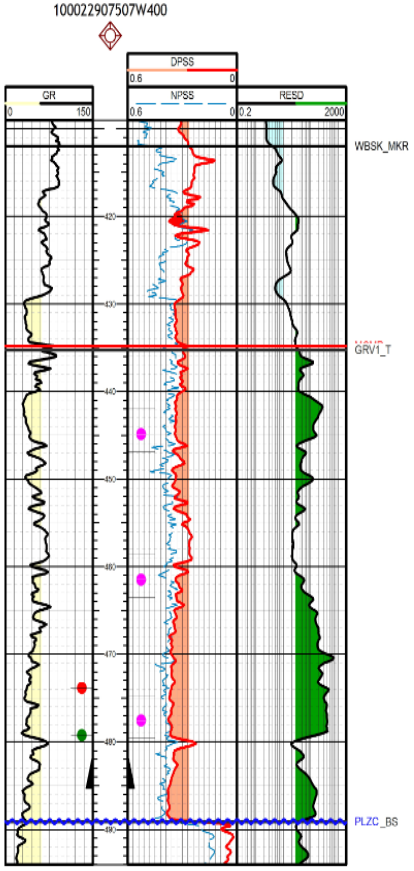
3.1.1-5d

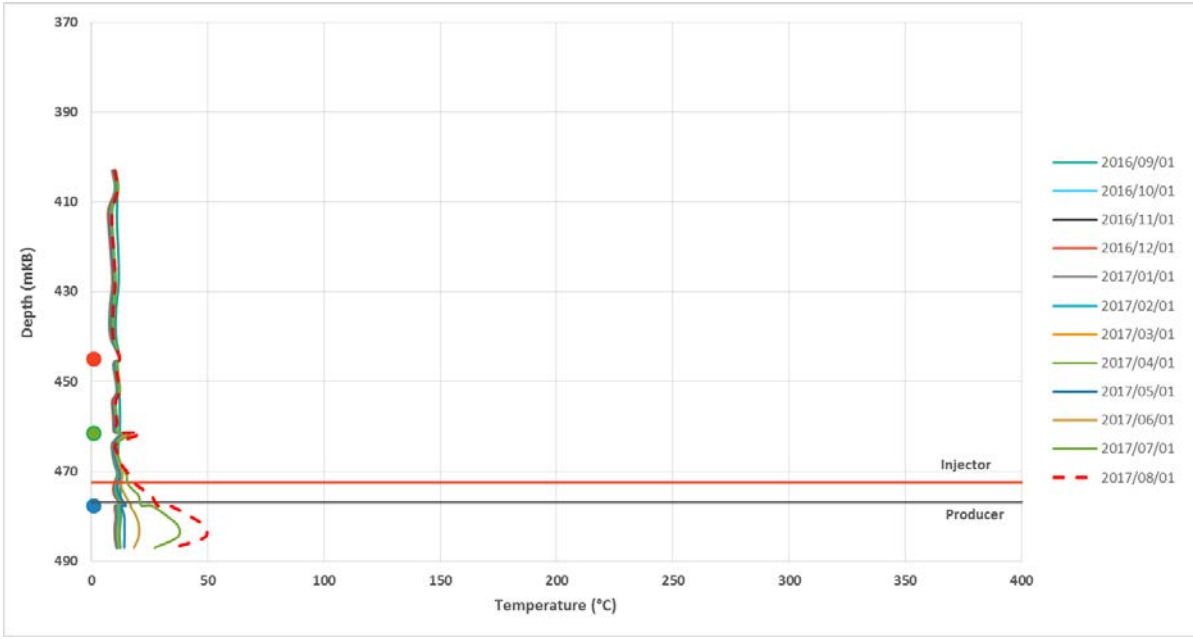




Pad OO Toe Observation Well Temp
(32m from OO4 well pair)

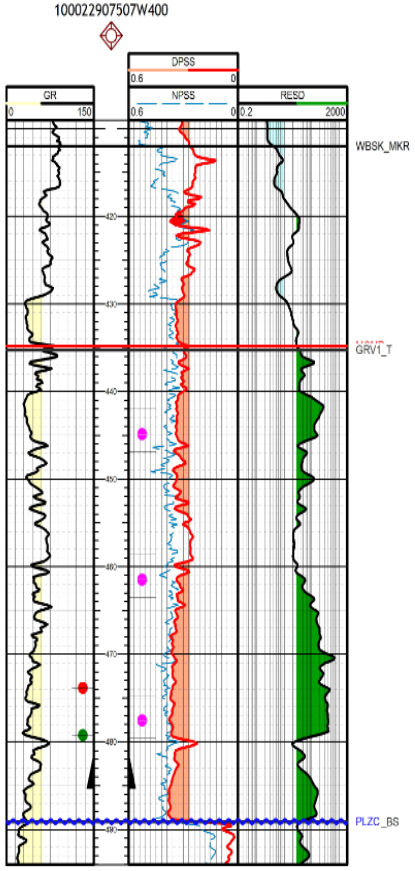
3.1.1-5d

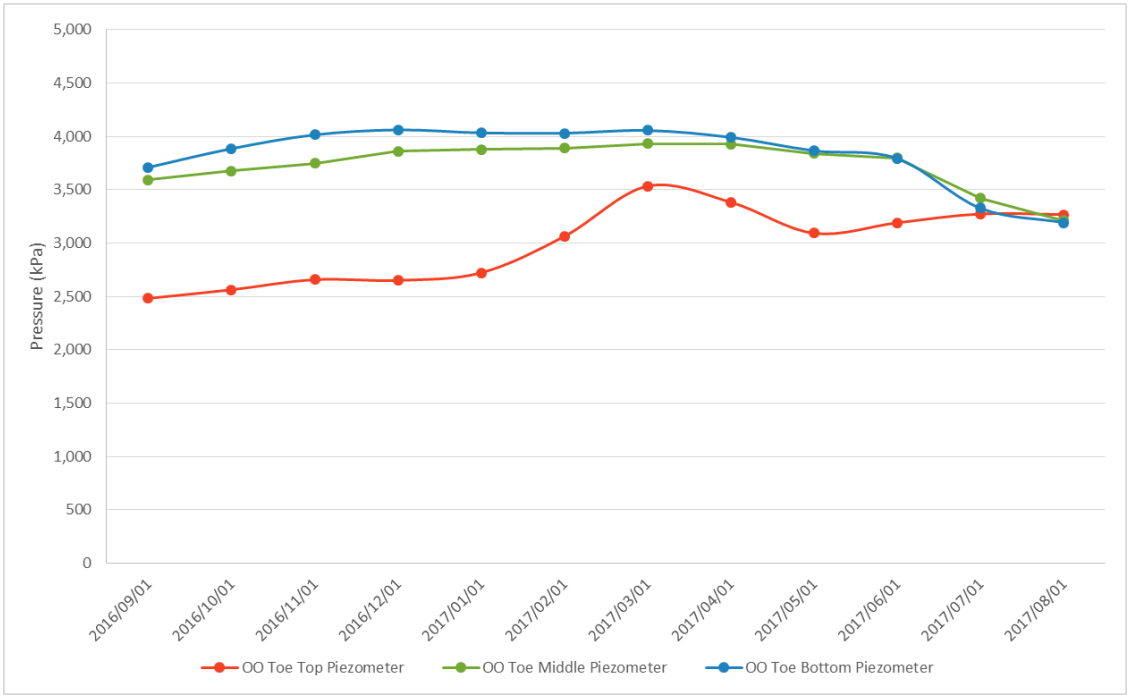




Pad OO Toe Observation Well Pressure
(32m from OO4 well pair)

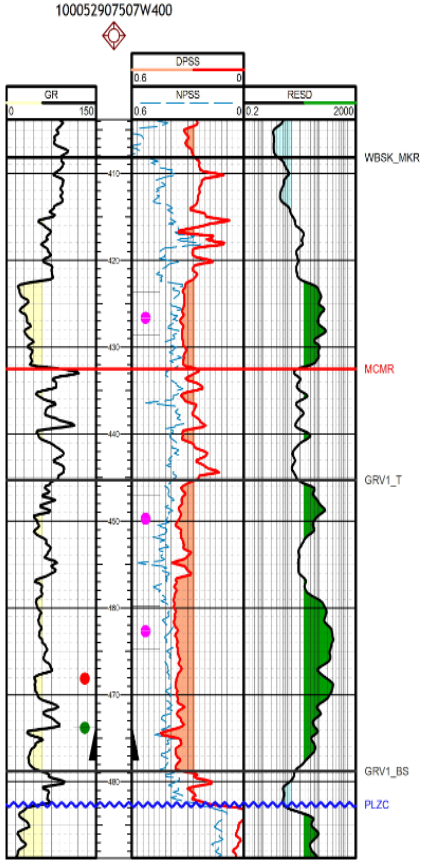
3.1.1-5d

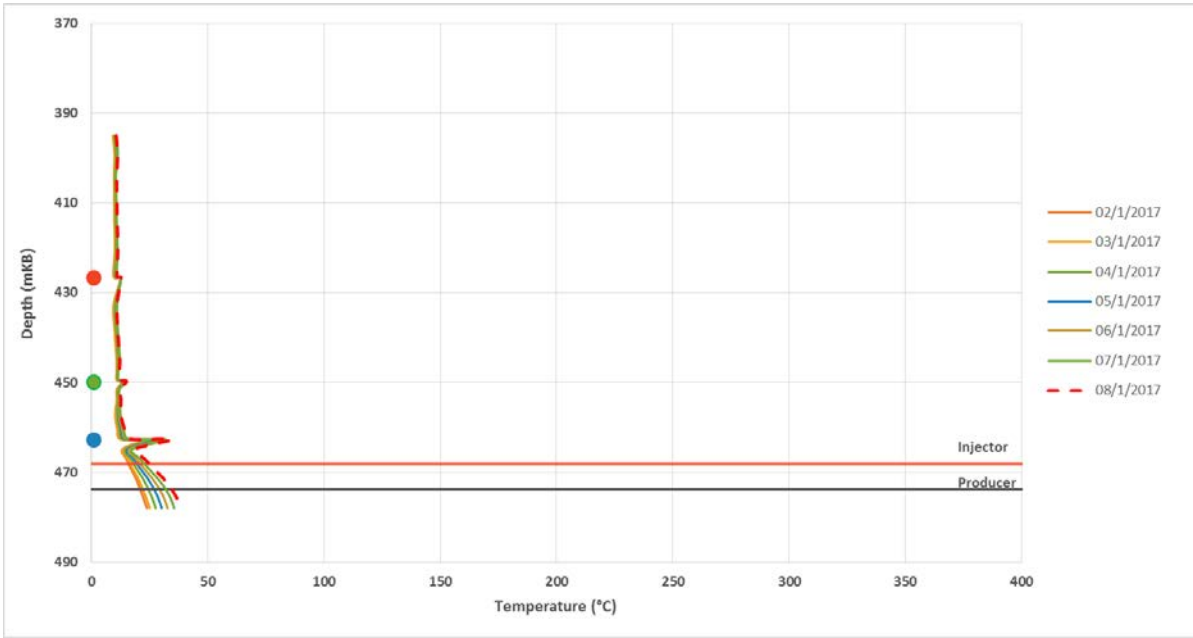




Pad PP Heel Observation Well Temp
(14m from PP1 well pair)

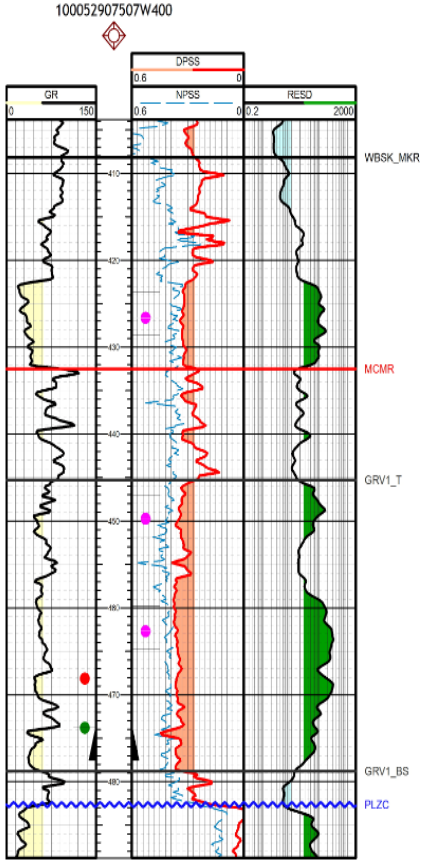
3.1.1-5d

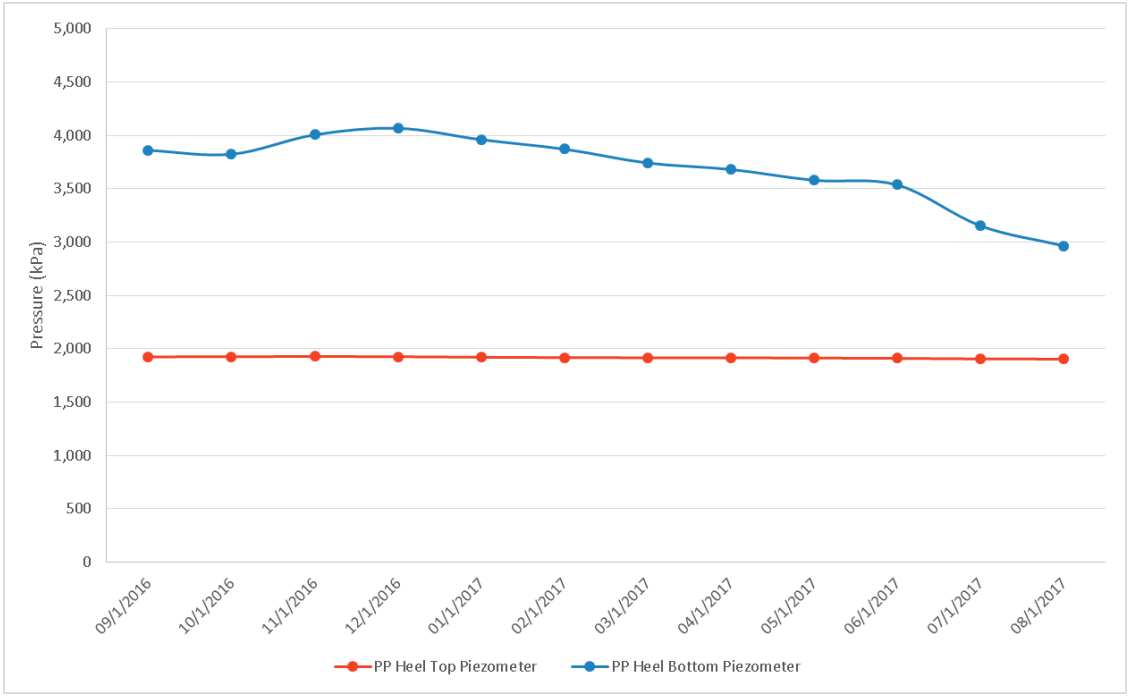




Pad PP Heel Observation Well Pressure
(14m from PP1 well pair)

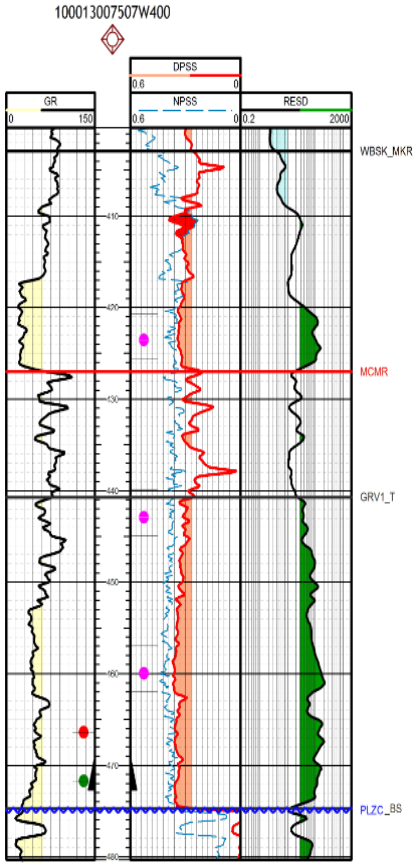
3.1.1-5d

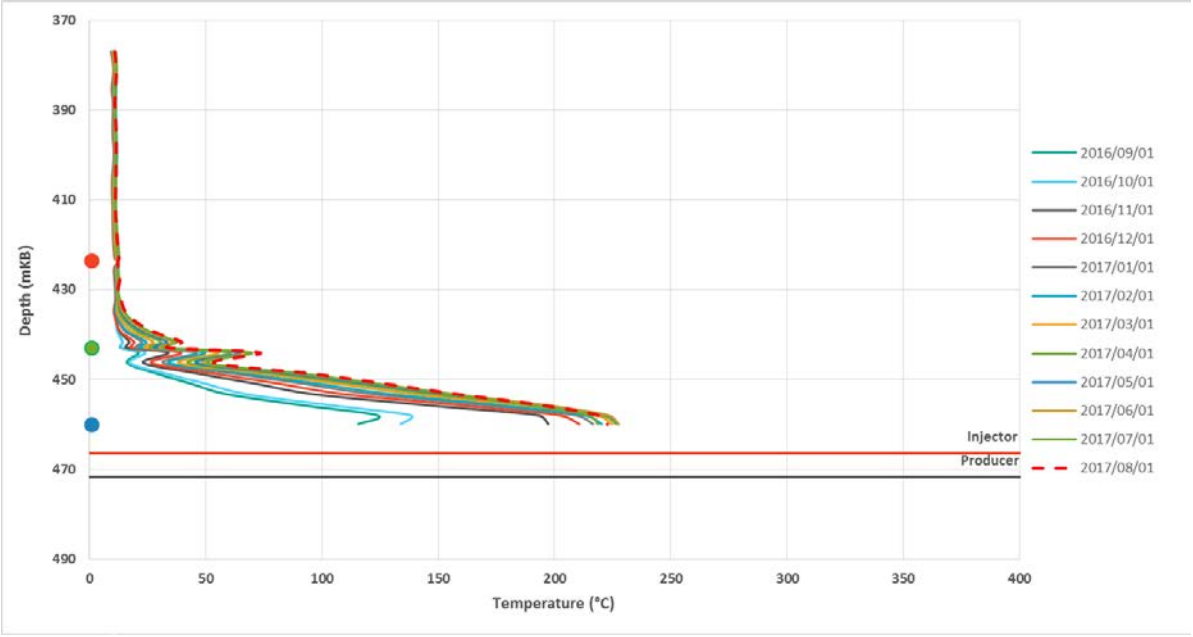




Pad PP Mid Observation Well Temp
(12m from PP5 well pair)

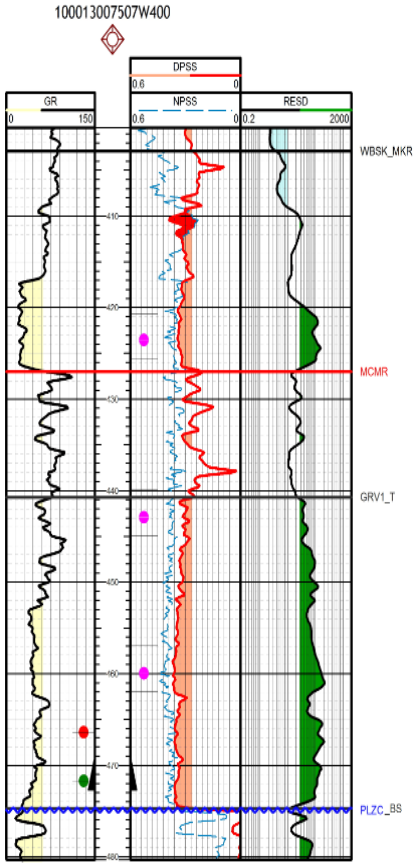
3.1.1-5d

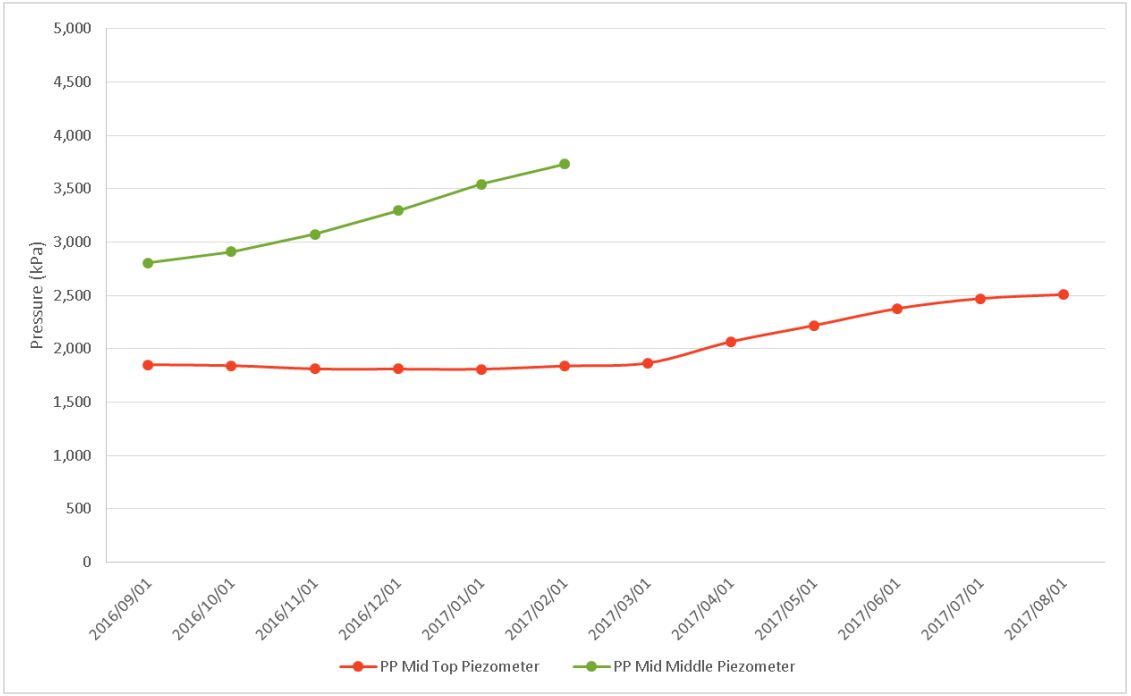




Pad PP Mid Observation Well Pressure
(12m from PP5 well pair)

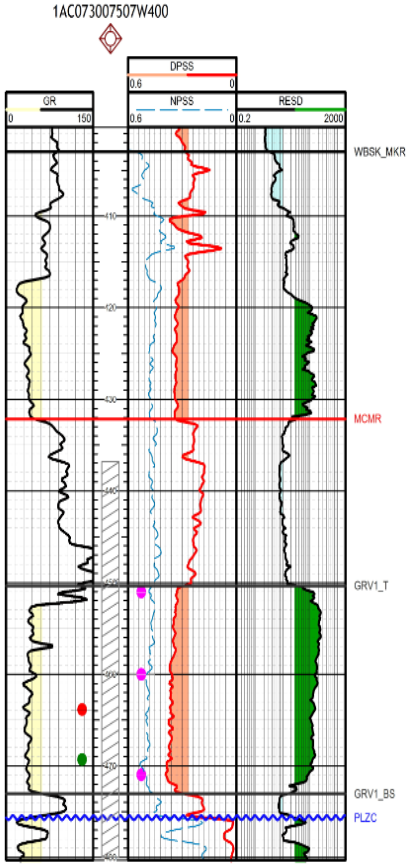
3.1.1-5d

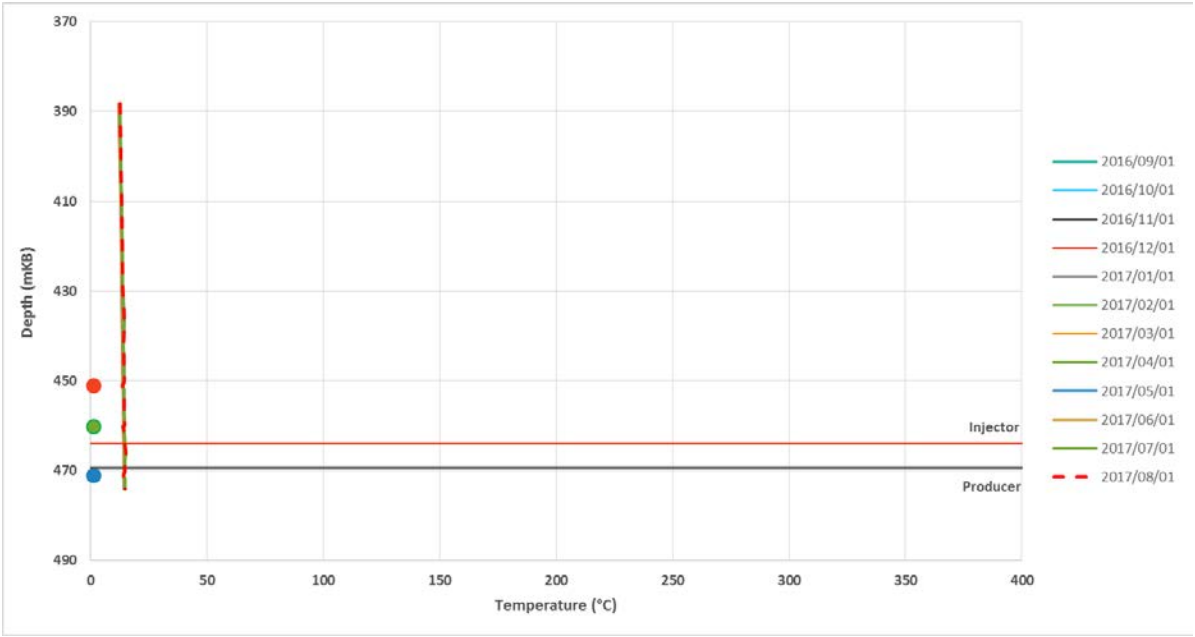




Pad PP Toe Observation Well Temp
(39m from PP3 well pair)

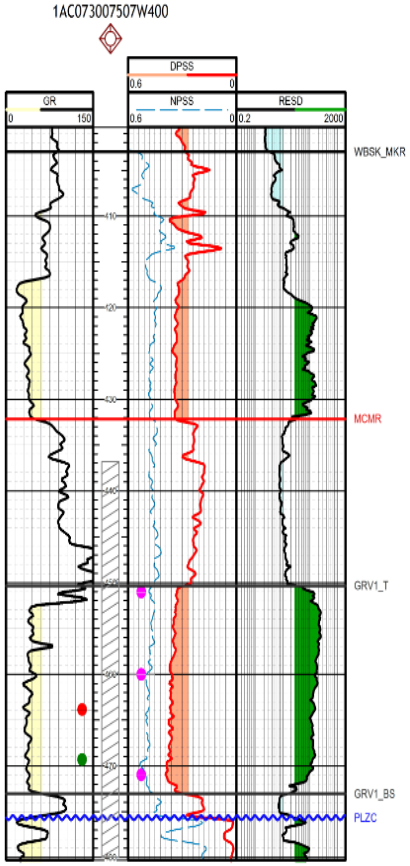
3.1.1-5d

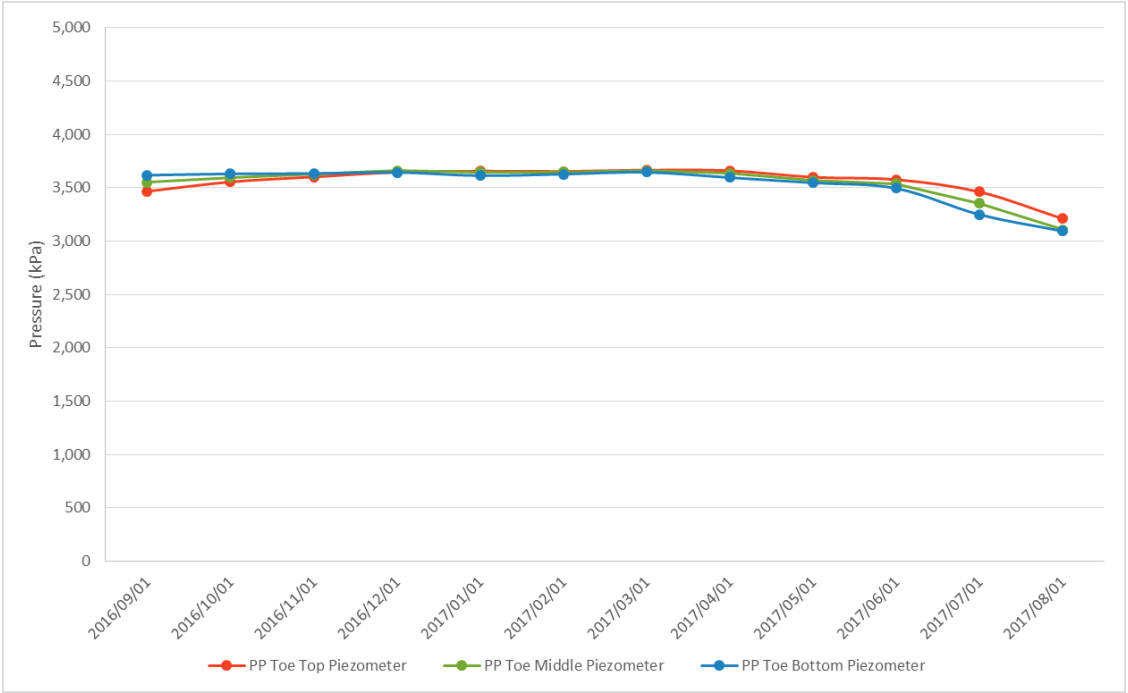




Pad PP Toe Observation Well Pressure
(39m from PP3 well pair)

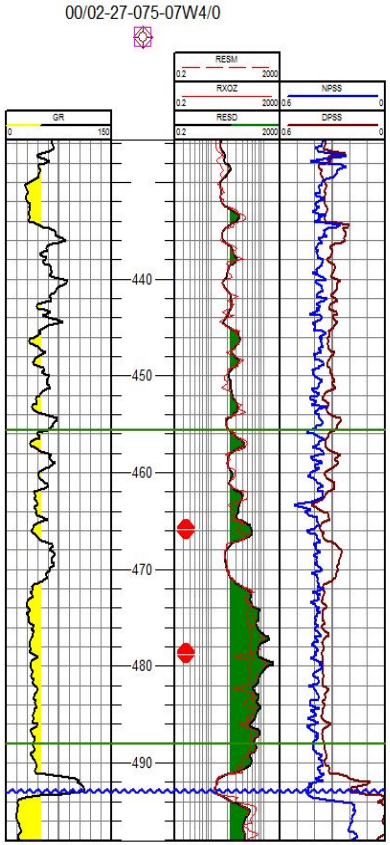
3.1.1-5d

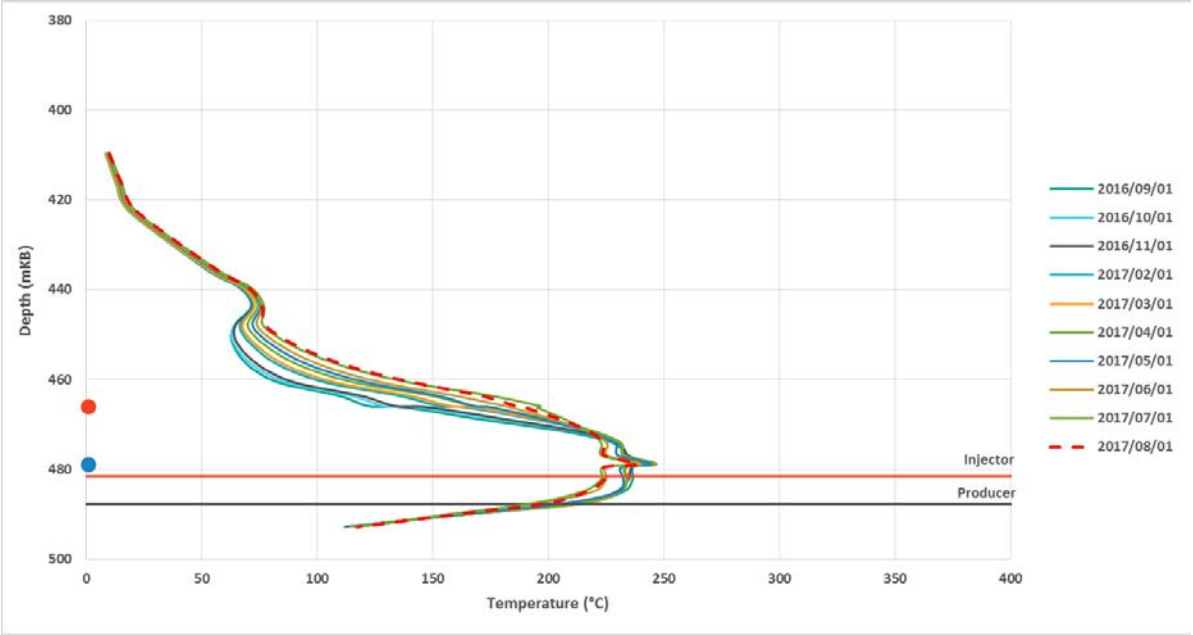




Pad EE Heel Observation Well Temp
(4.8m from EE5 well pair)

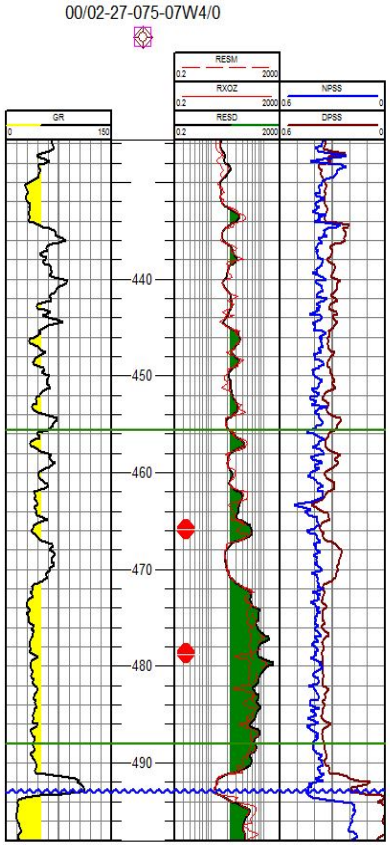
3.1.1-5d

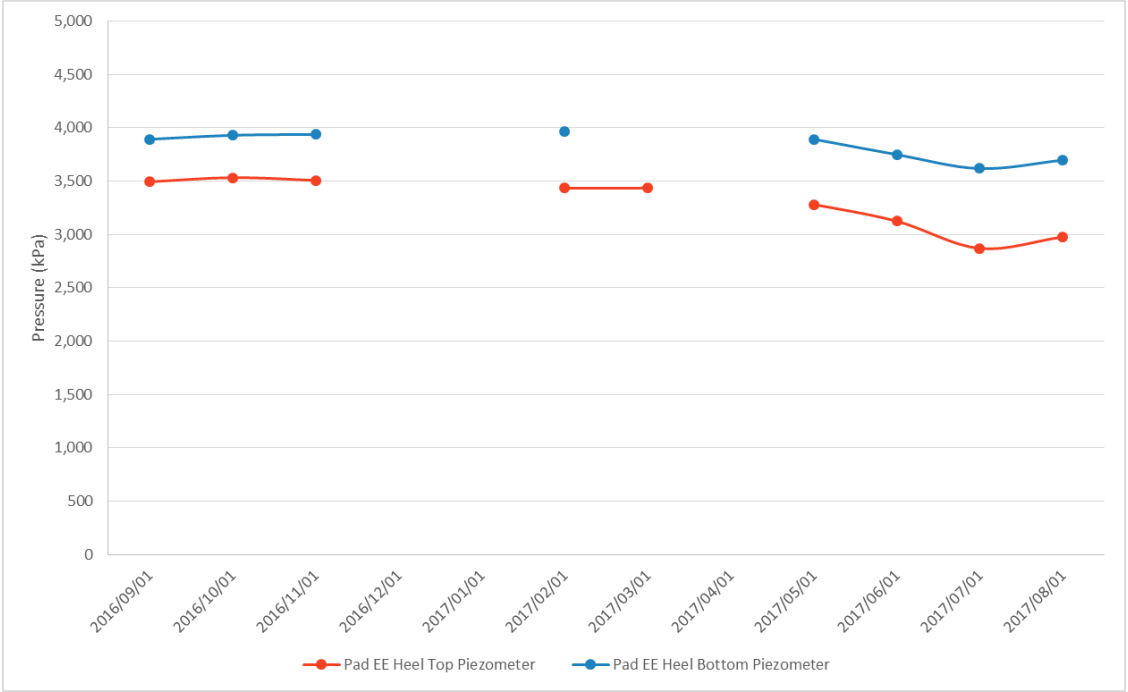




Pad EE Heel Observation Well Pressure
(4.8m from EE5 well pair)

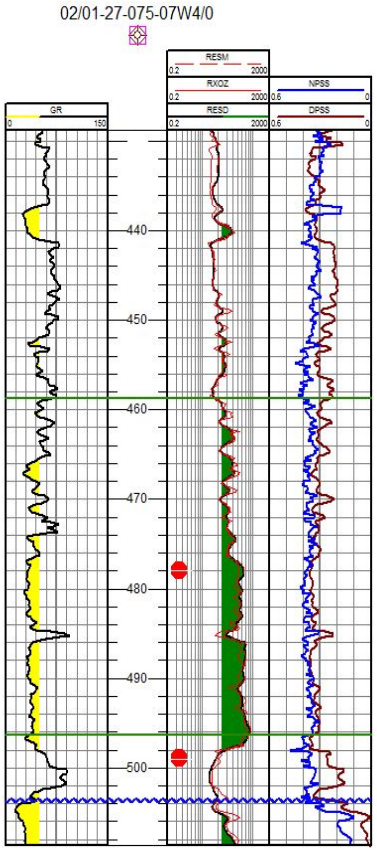
3.1.1-5d

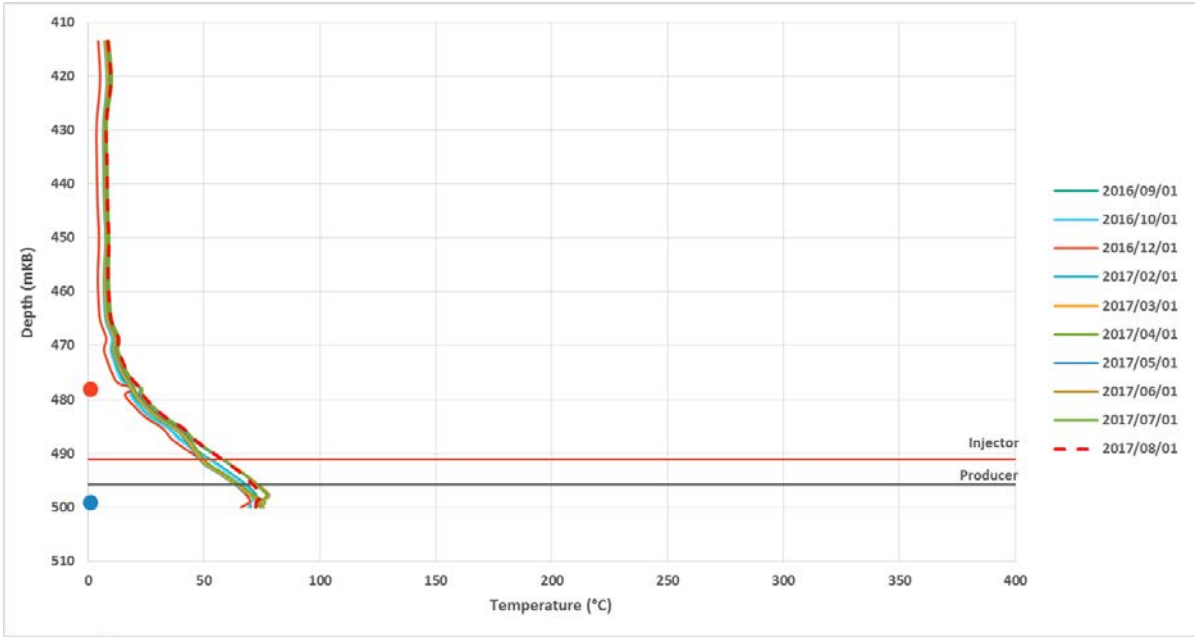




Pad EE Toe Observation Well Temp
(11.2m from EE2 well pair)

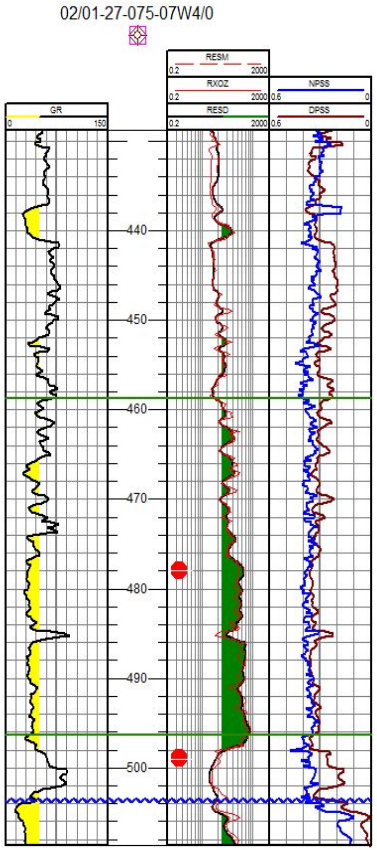
3.1.1-5d

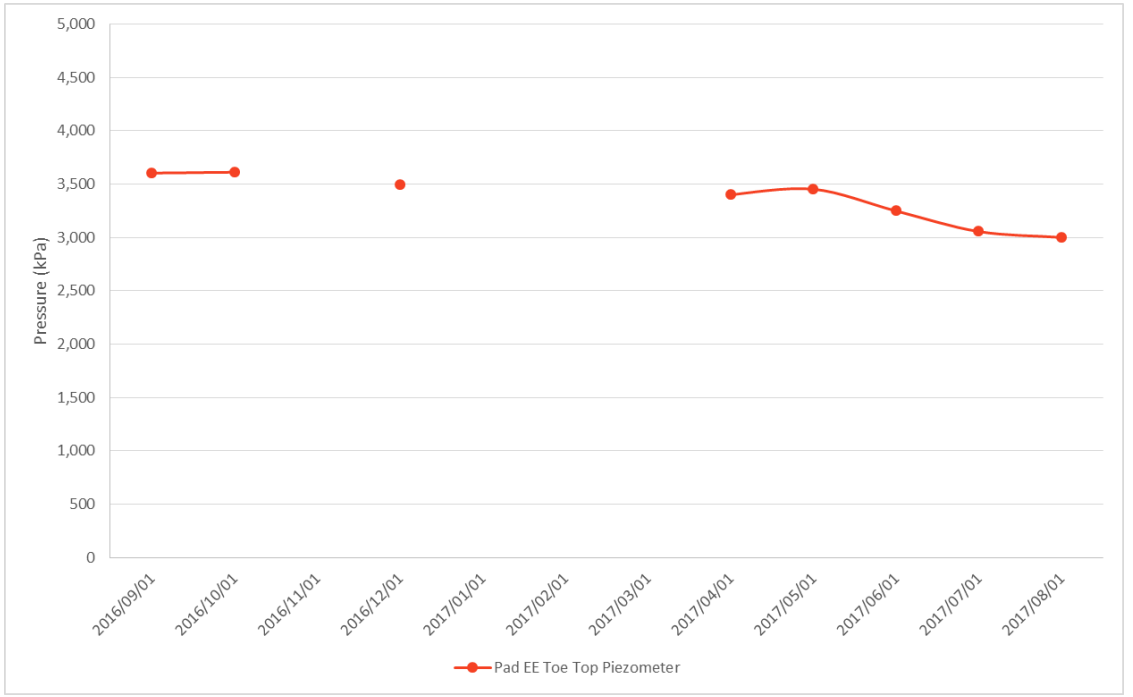




Pad EE Toe Observation Well Pressure
(11.2m from EE2 well pair)

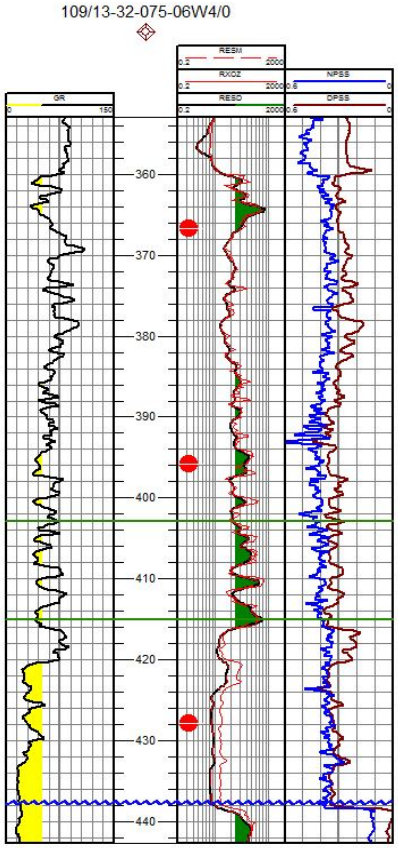
3.1.1-5d

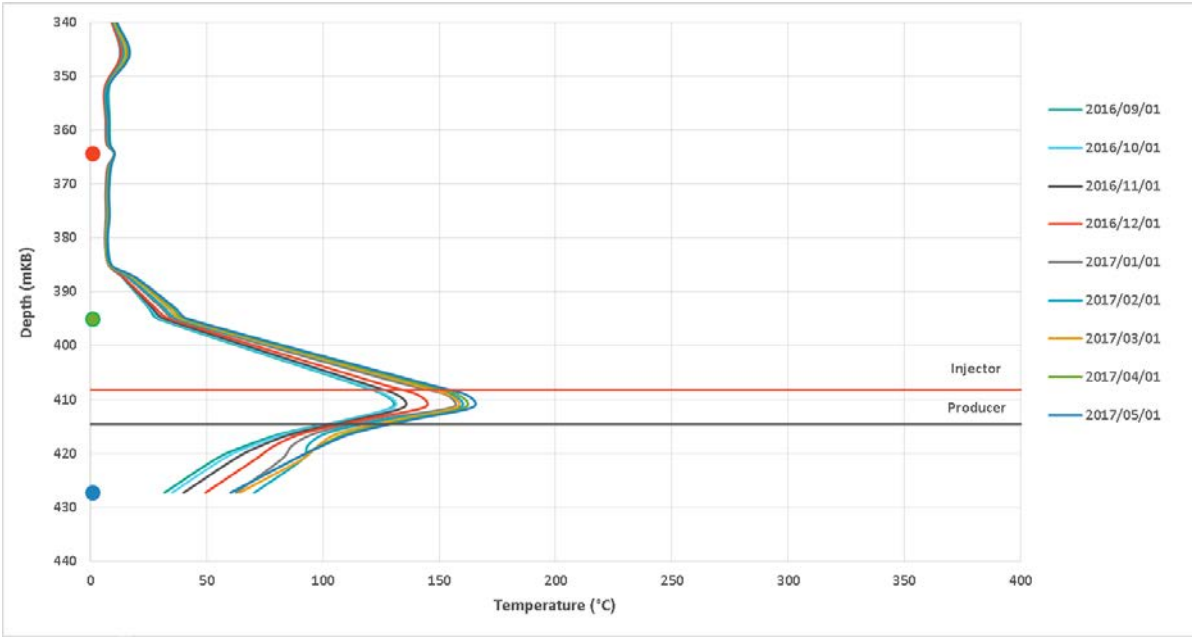




Pad J Mid Heel Observation Well Temp
(5.6m from J5 well pair)

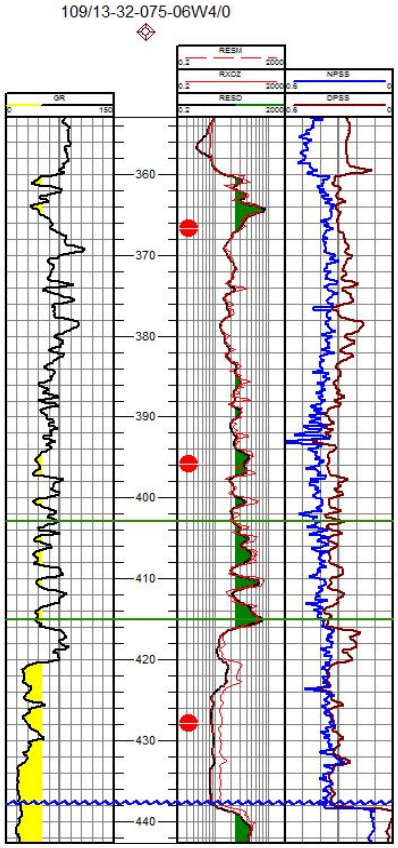
3.1.1-5d

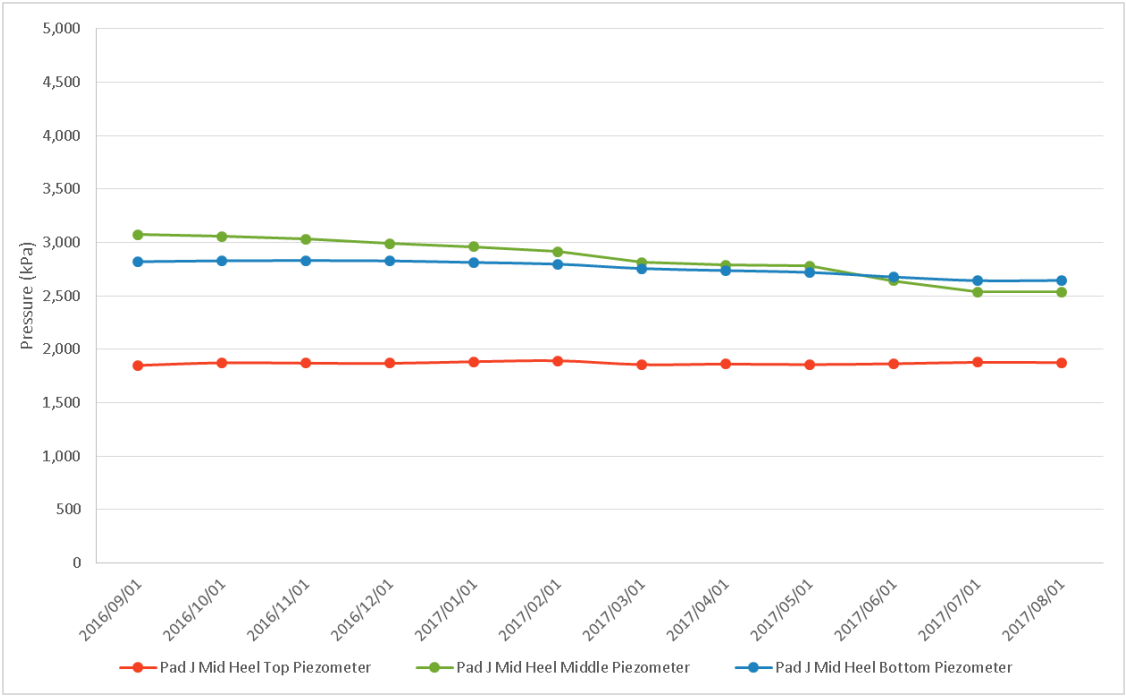




Pad J Mid Heel Observation Well Pressure
(5.6m from J5 well pair)

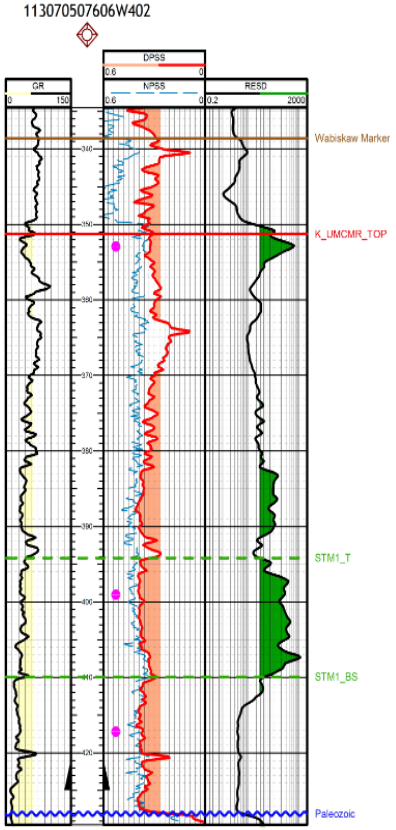
3.1.1-5d

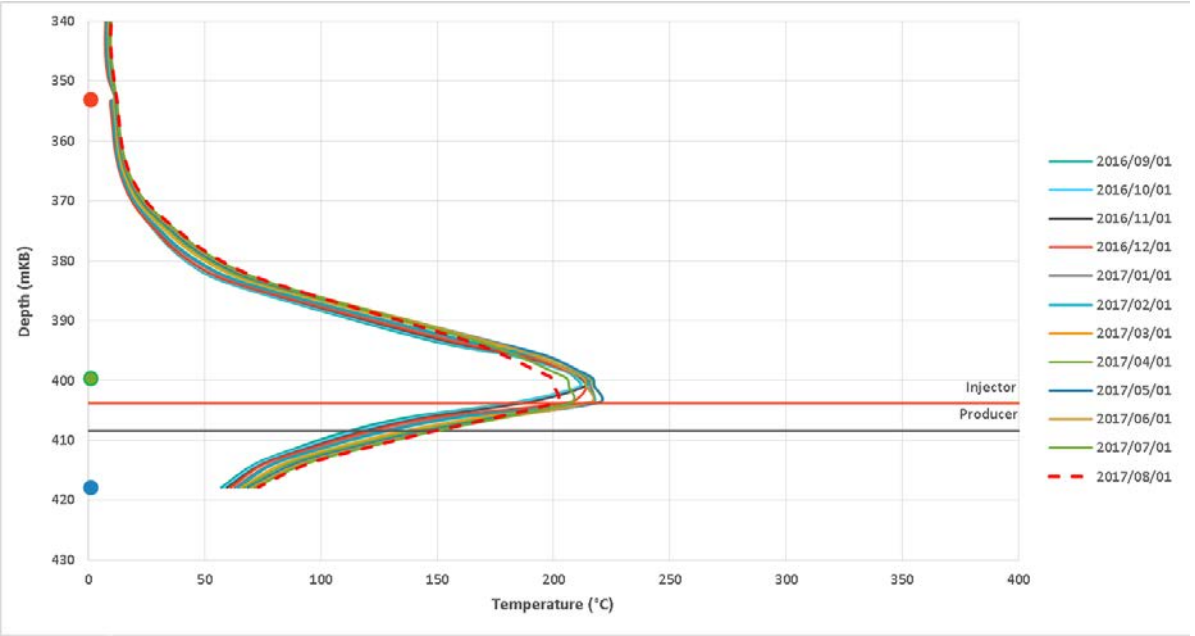




Pad J Mid Toe Observation Well Temp
(6.7m from J3 well pair)

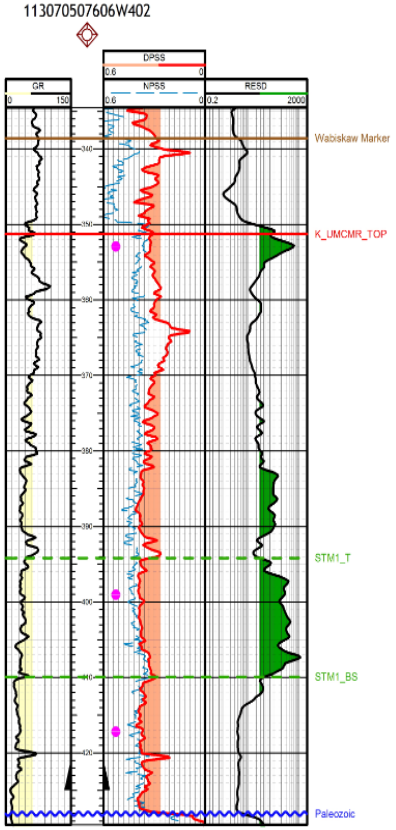
3.1.1-5d

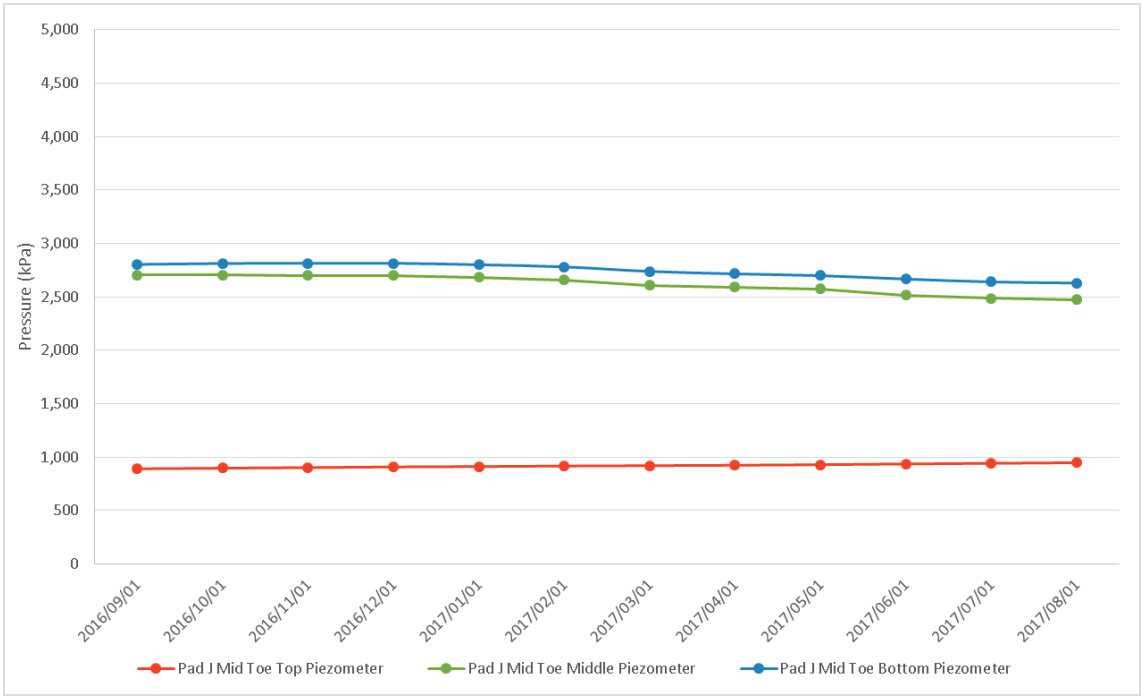




Pad J Mid Toe Observation Well Pressure
(6.7m from J3 well pair)

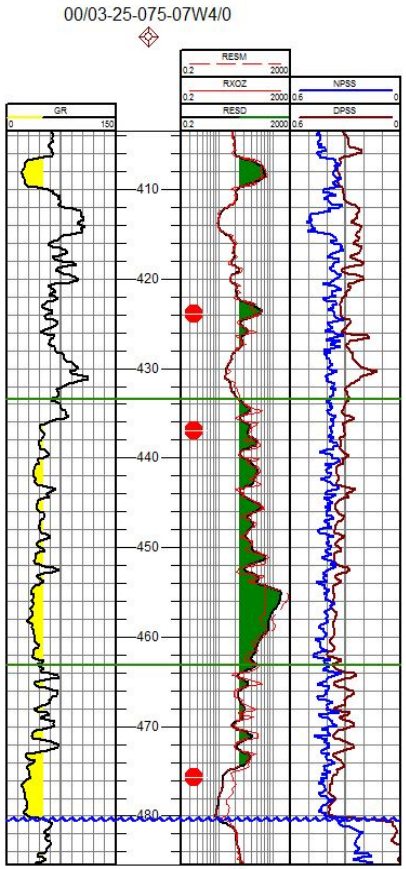
3.1.1-5d

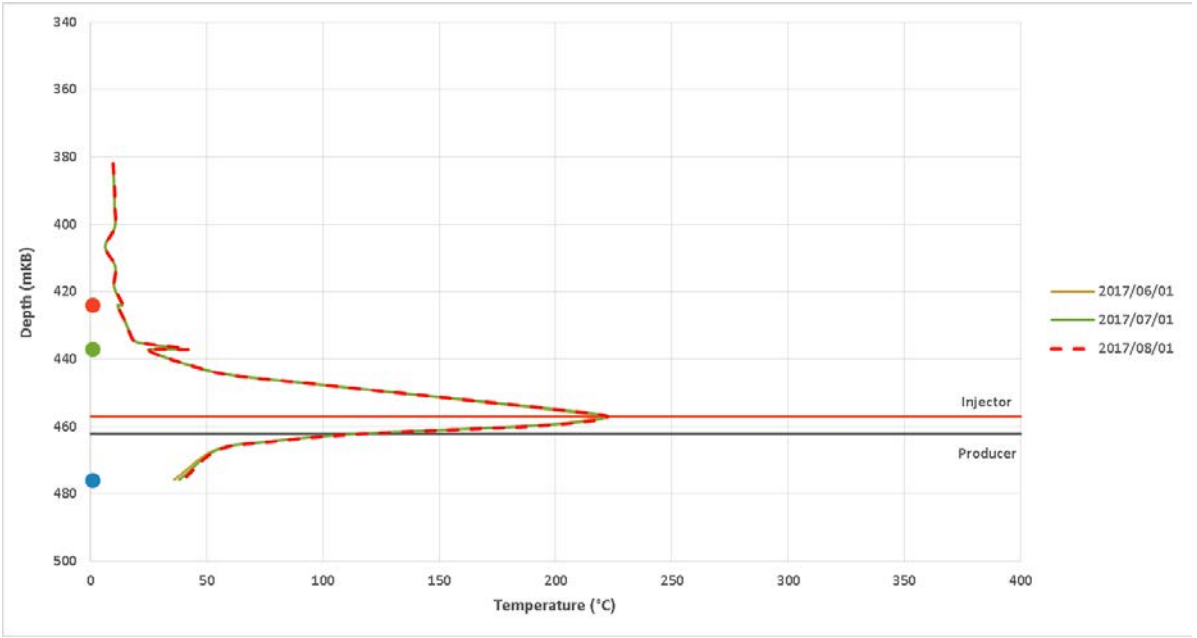




Pad VV South Heel Observation Well Temp
(9.1m from VV6 well pair)

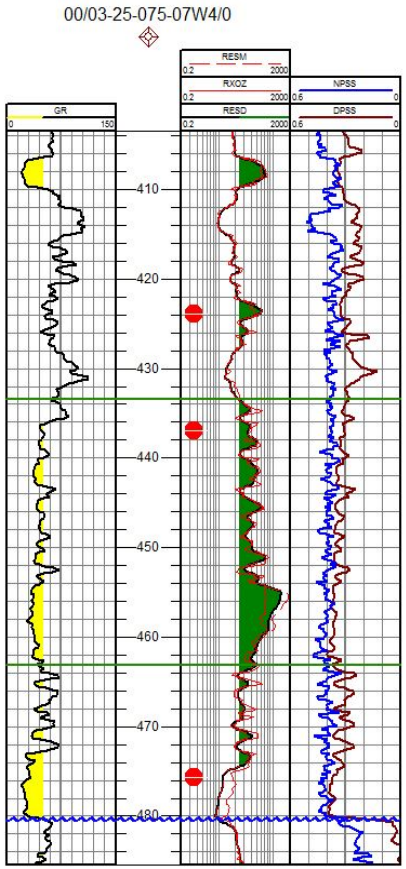
3.1.1-5d





Pad VV South Heel Observation Well Pressure (9.1m from VV6 well pair)

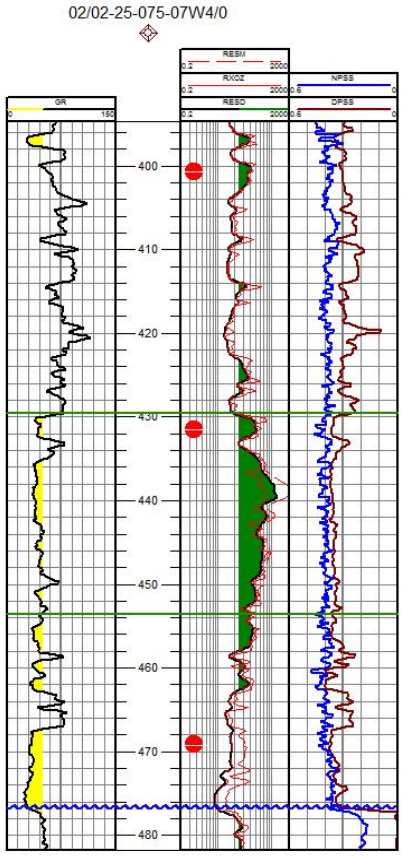
3.1.1-5d

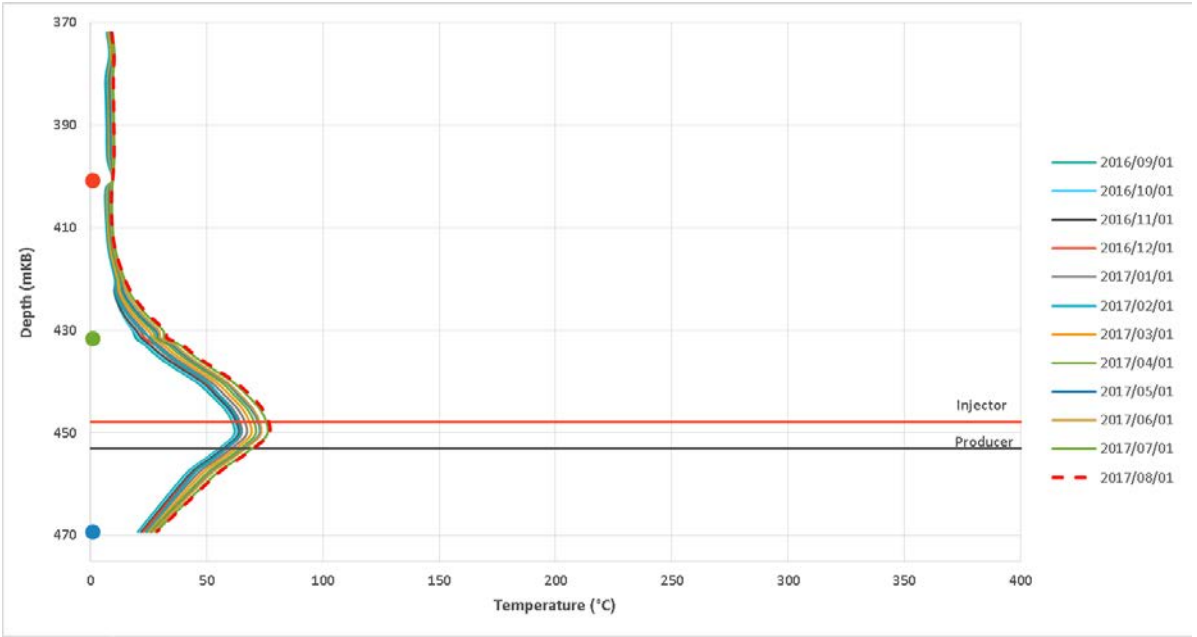


Poor data quality from piezometers, no pressure data available

Pad VV Mid Toe Observation Well Temp
(9.9m from VV7 well pair)

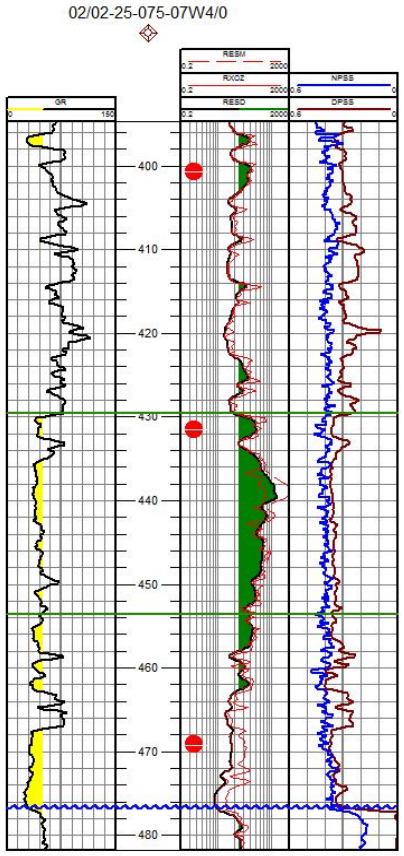
3.1.1-5d

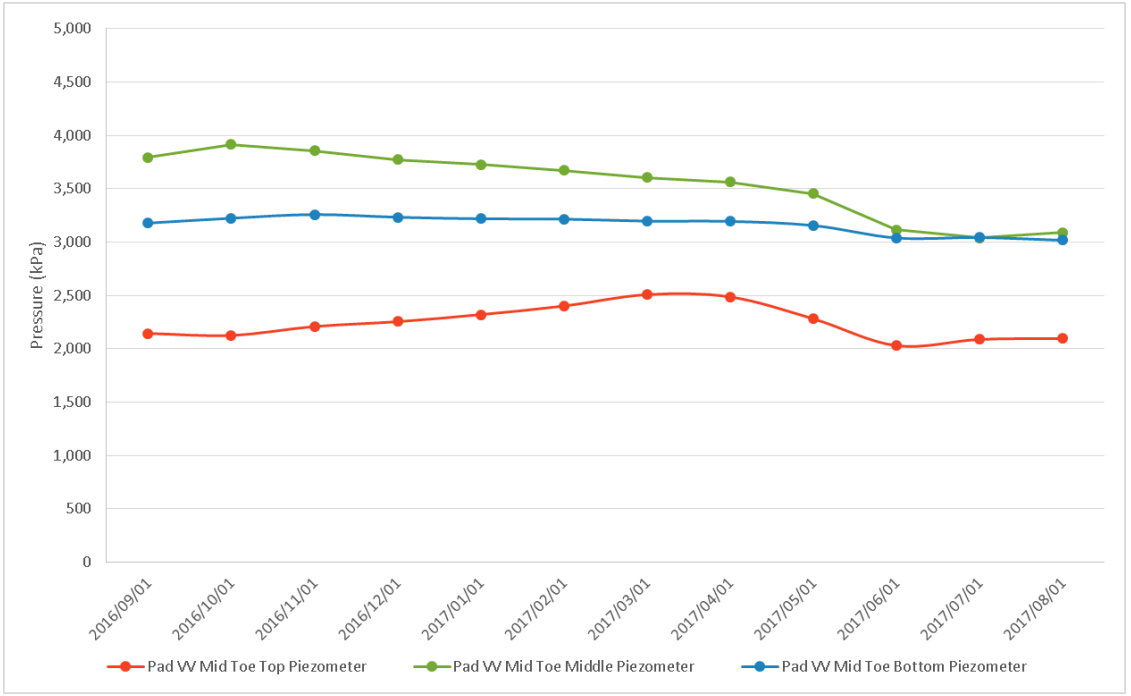




Pad VV Mid Toe Observation Well Pressure
(9.9m from VV7 well pair)

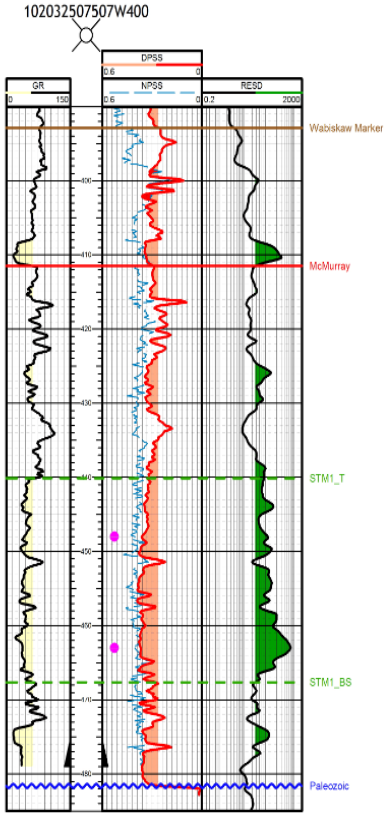
3.1.1-5d





Pad VV Heel Fiber Observation Well Temp
(10.5m from VV4 well pair)

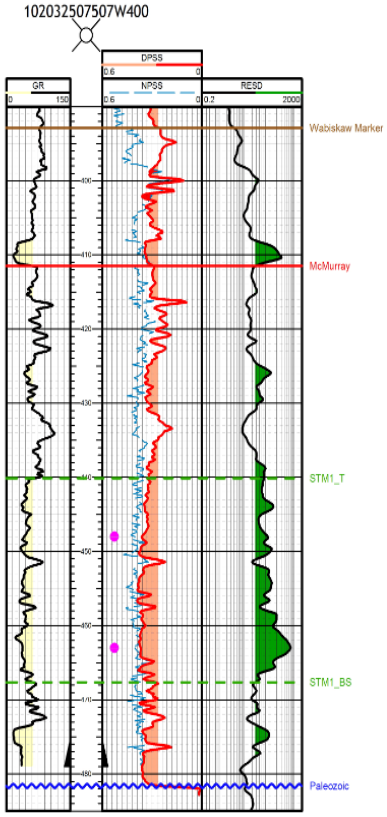
3.1.1-5d

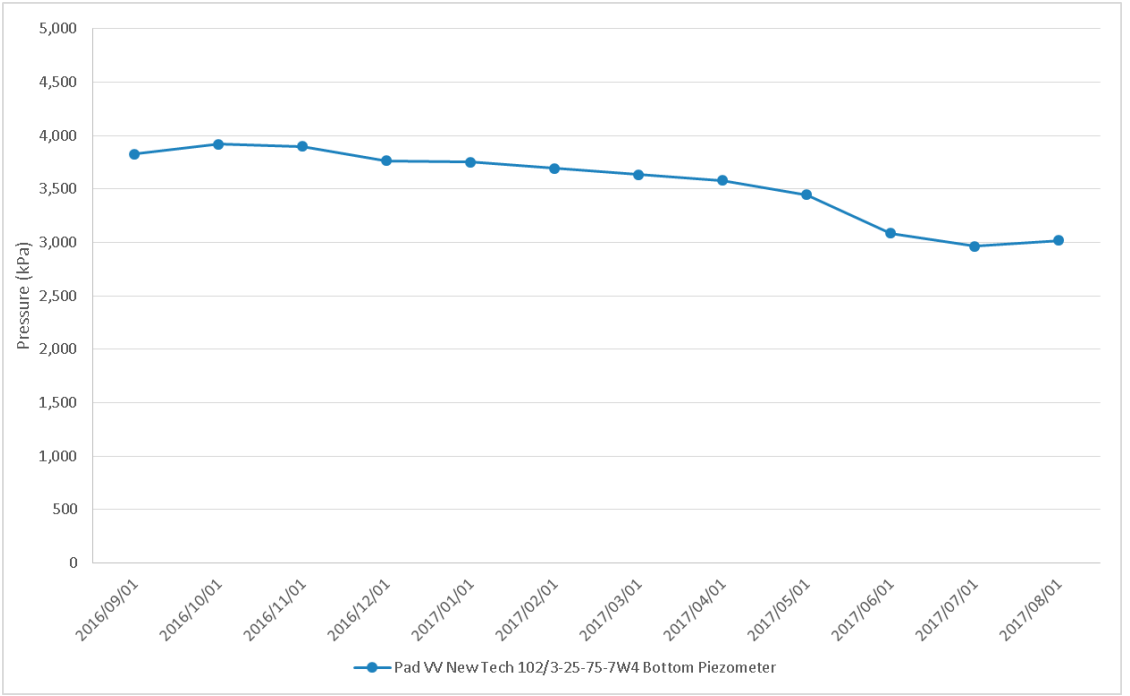


No temperature data available

Pad VV Heel Fiber Observation Well Pressure (10.5m from VV4 well pair)

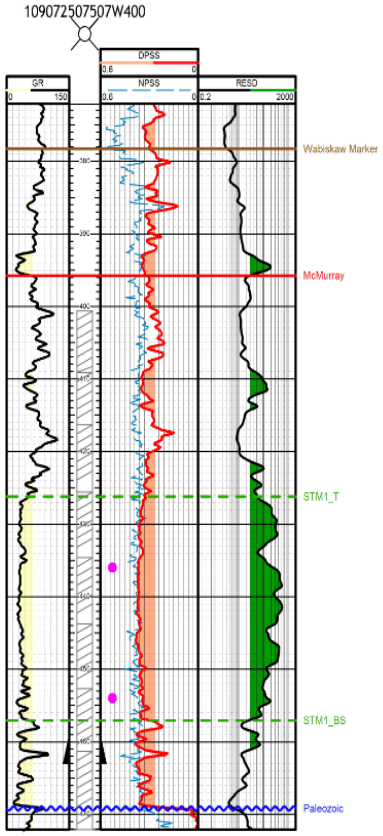
3.1.1-5d





Pad VV Toe Fiber Observation Well Temp
(24.6m from VV4 well pair)

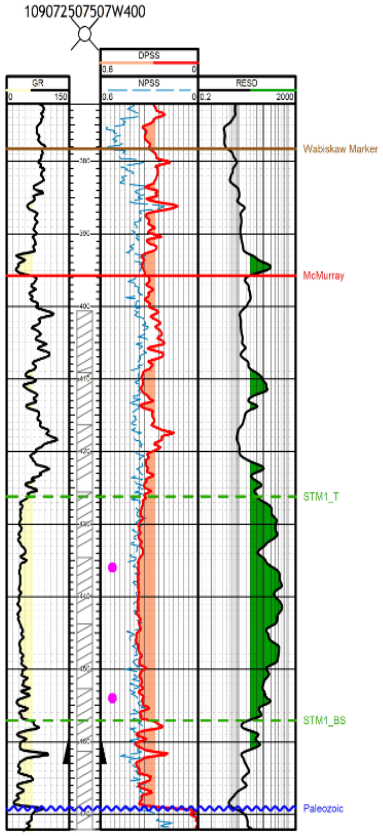
3.1.1-5d

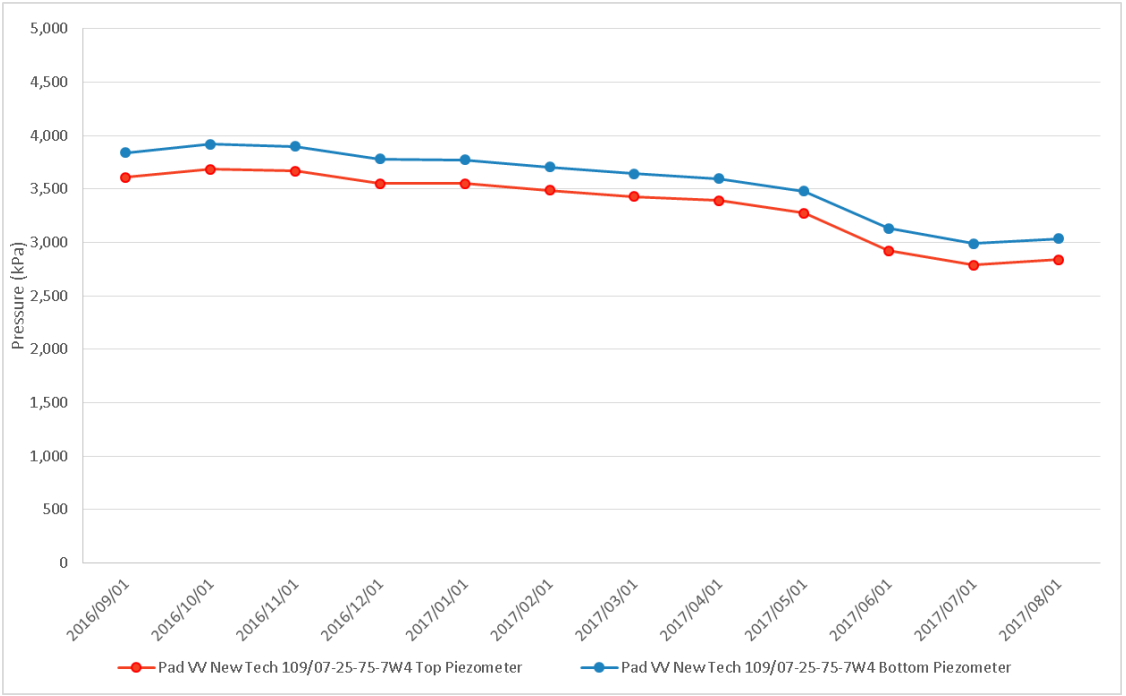


No temperature data available

Pad VV Toe Fiber Observation Well Pressure (24.6m from VV4 well pair)

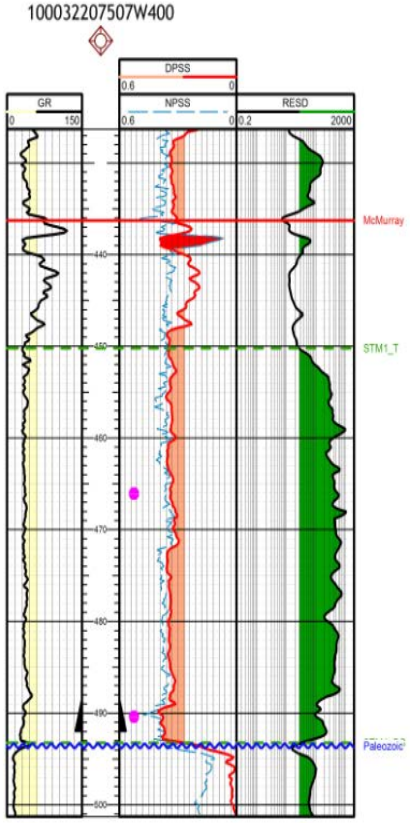
3.1.1-5d

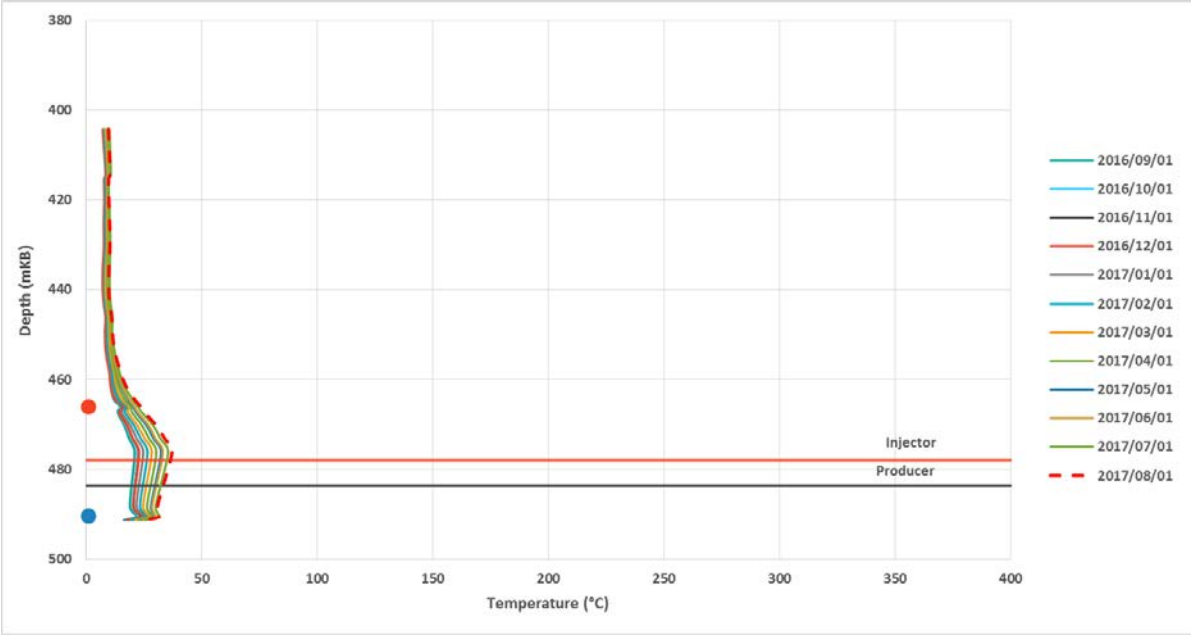




Pad K Heel Observation Well Temp
(10.7m from K6 well pair)

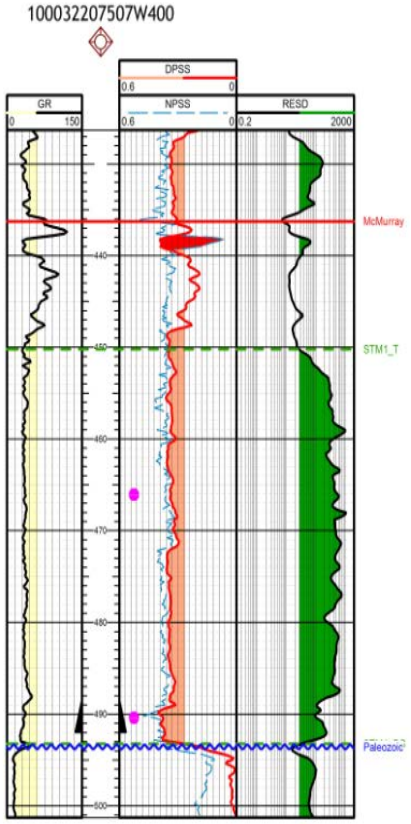
3.1.1-5d

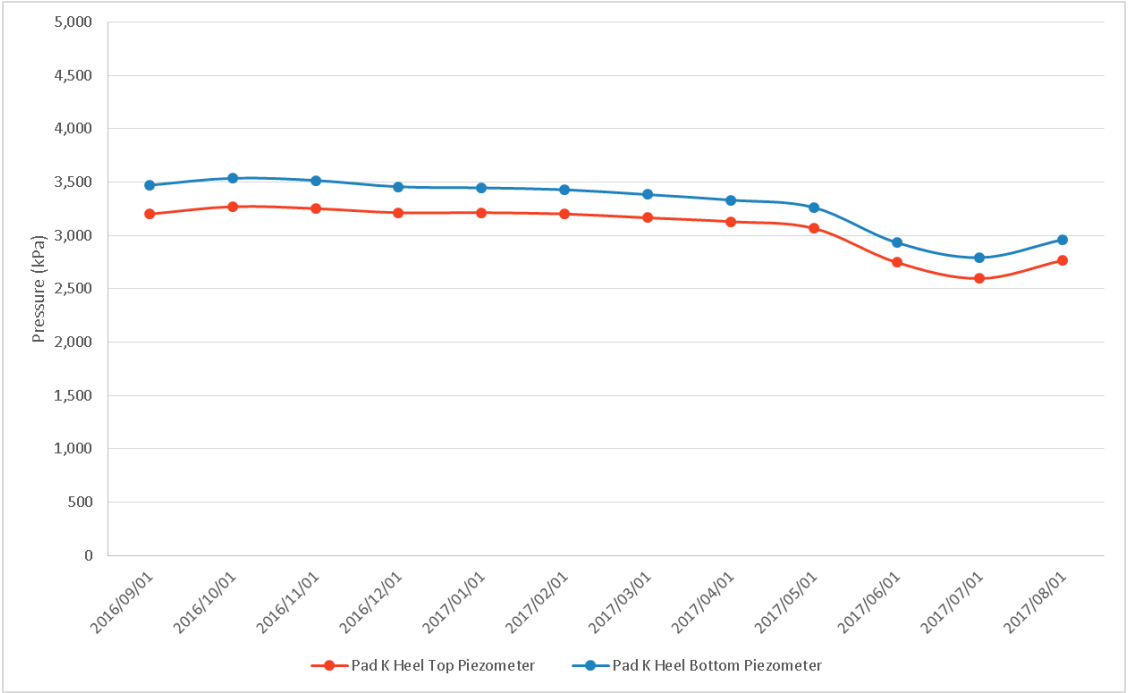




Pad K Heel Observation Well Pressure
(10.7m from K6 well pair)

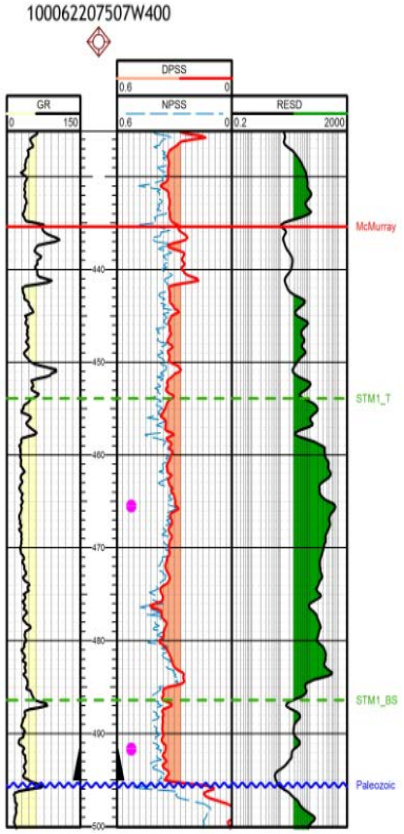
3.1.1-5d

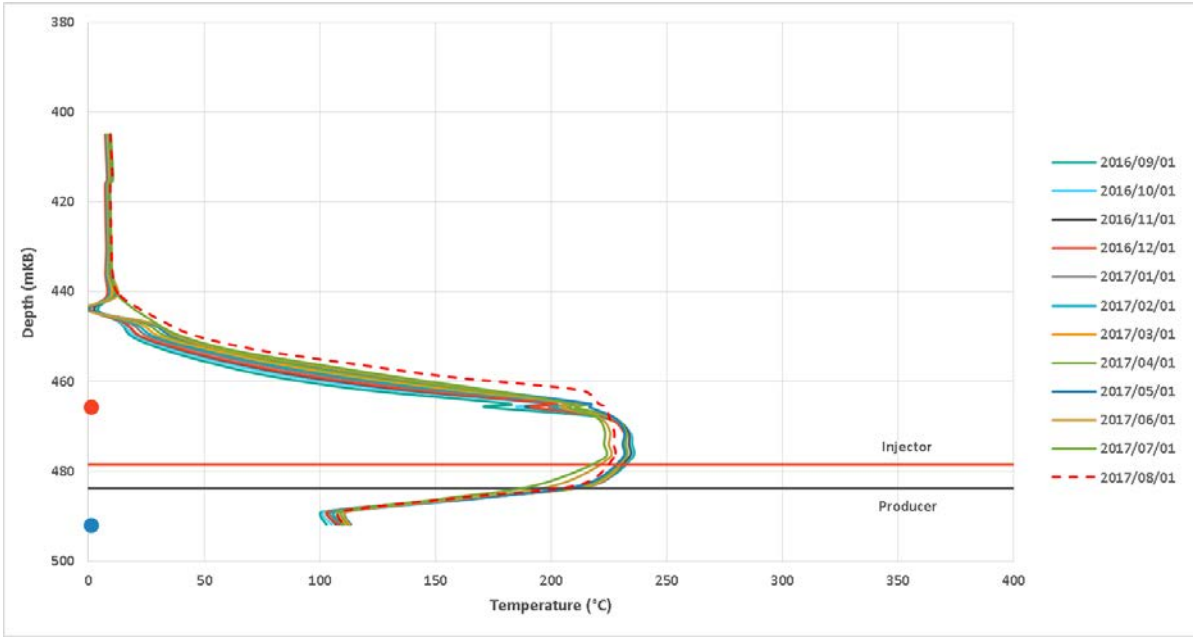




Pad K Toe Observation Well Temp
(9.5m from K5 well pair)

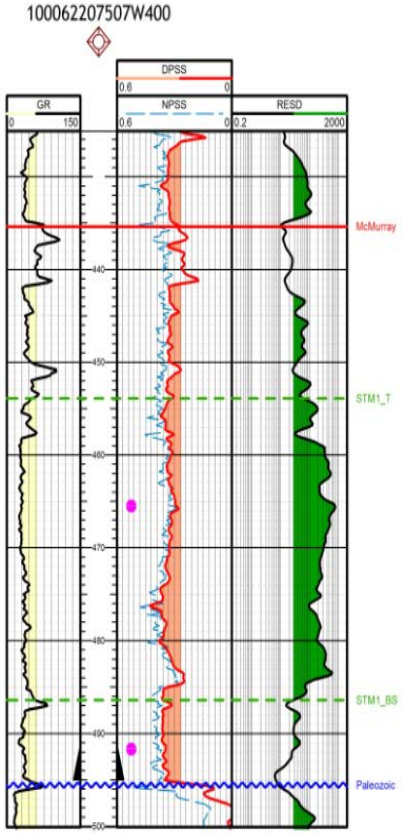
3.1.1-5d

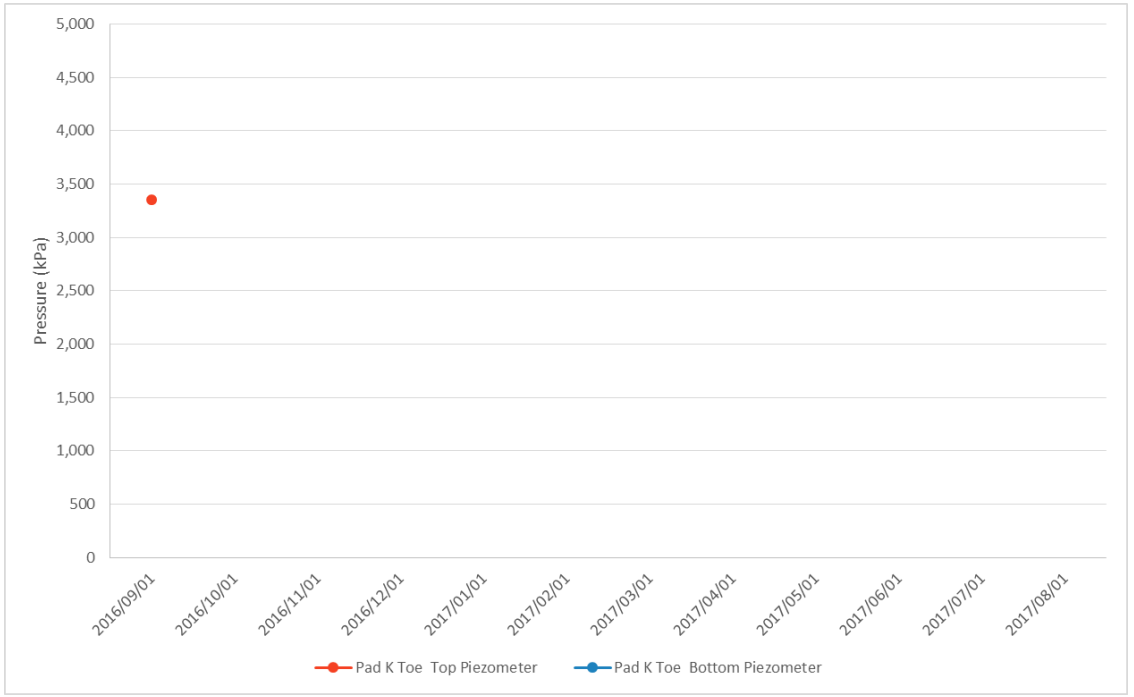




Pad K Toe Observation Well Pressure
(9.5m from K5 well pair)

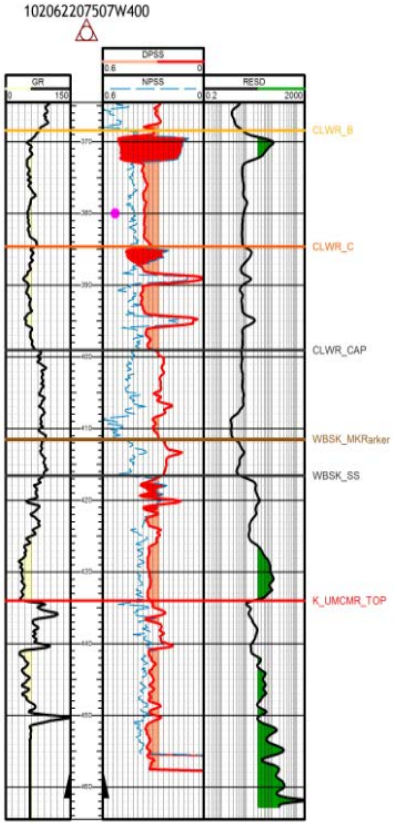
3.1.1-5d

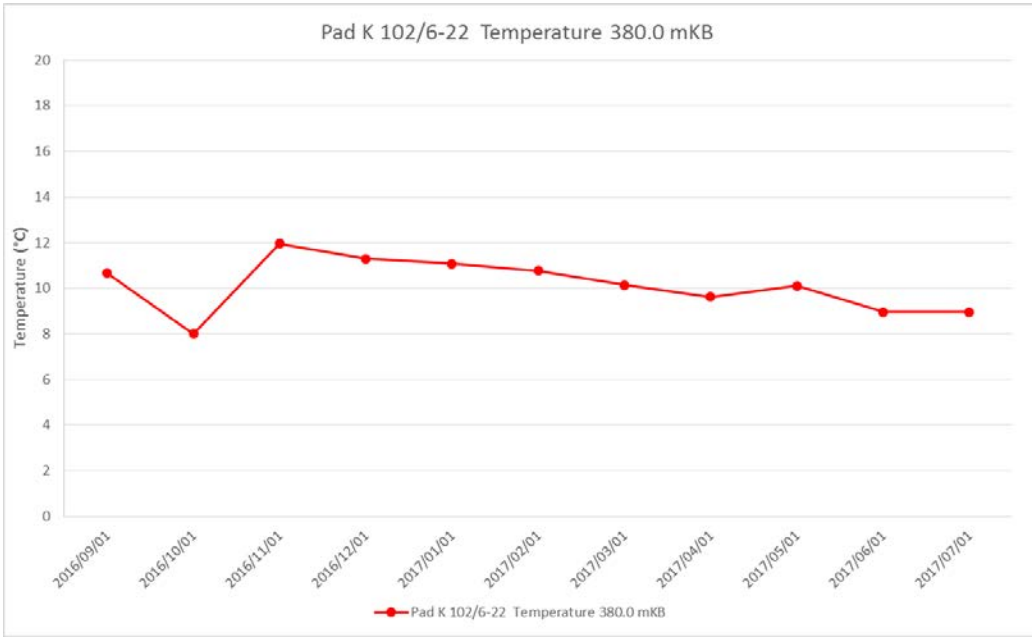




Pad K Caprock 6-22 Observation Well Temp
(9.8m from K5 well pair)

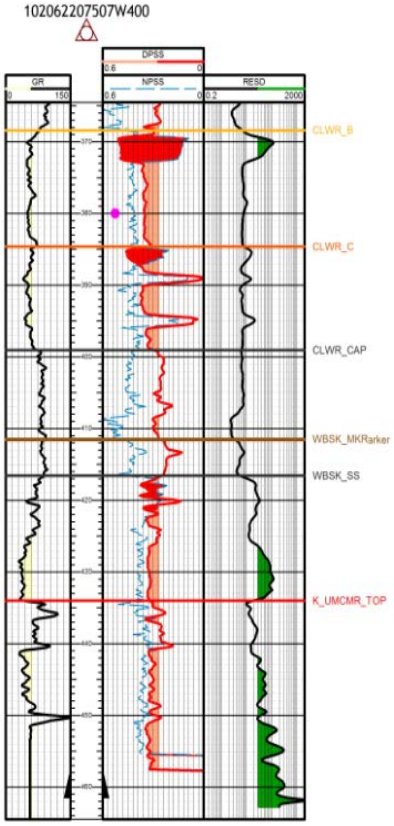
3.1.1-5d

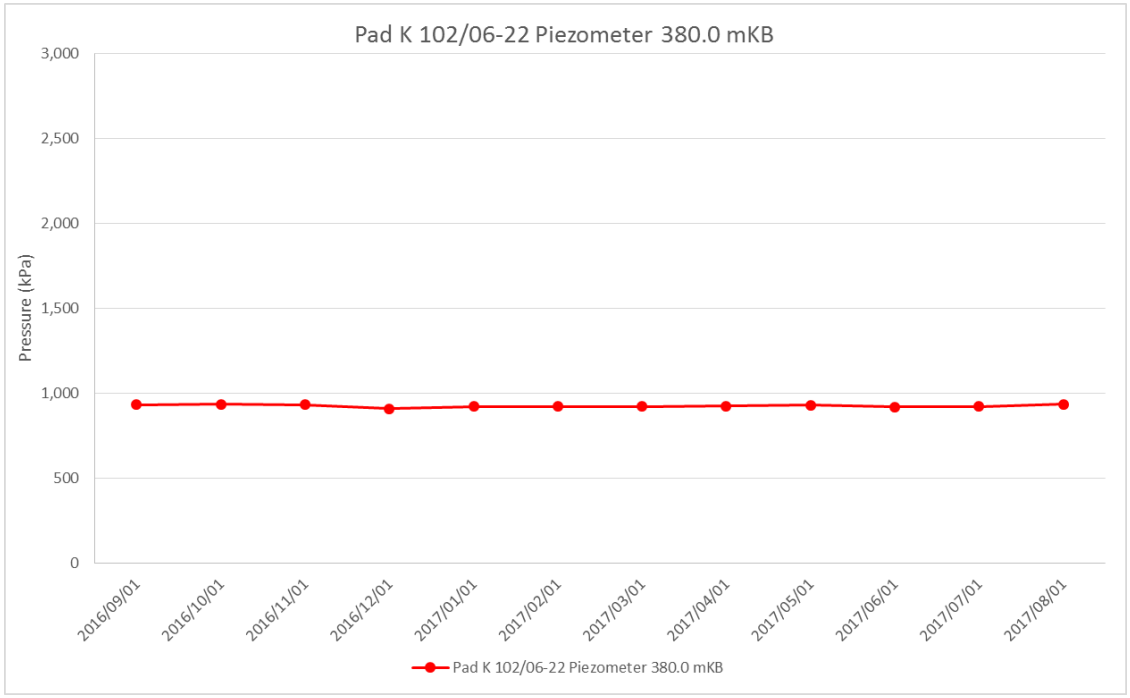




Pad K Caprock 6-22 Observation Well Pressure
(9.8m from K5 well pair)

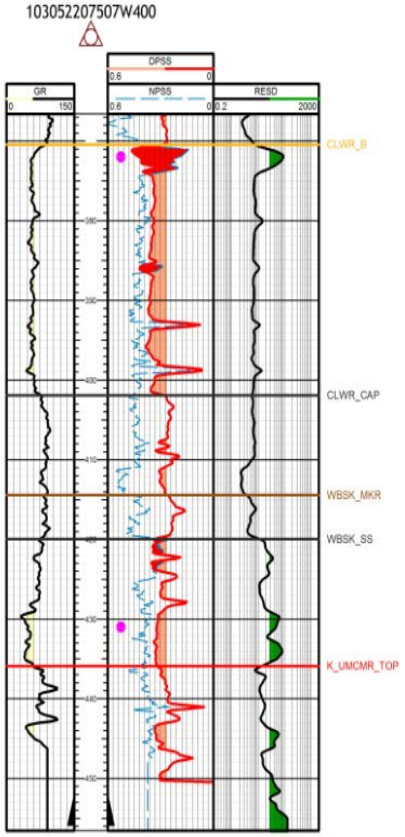
3.1.1-5d

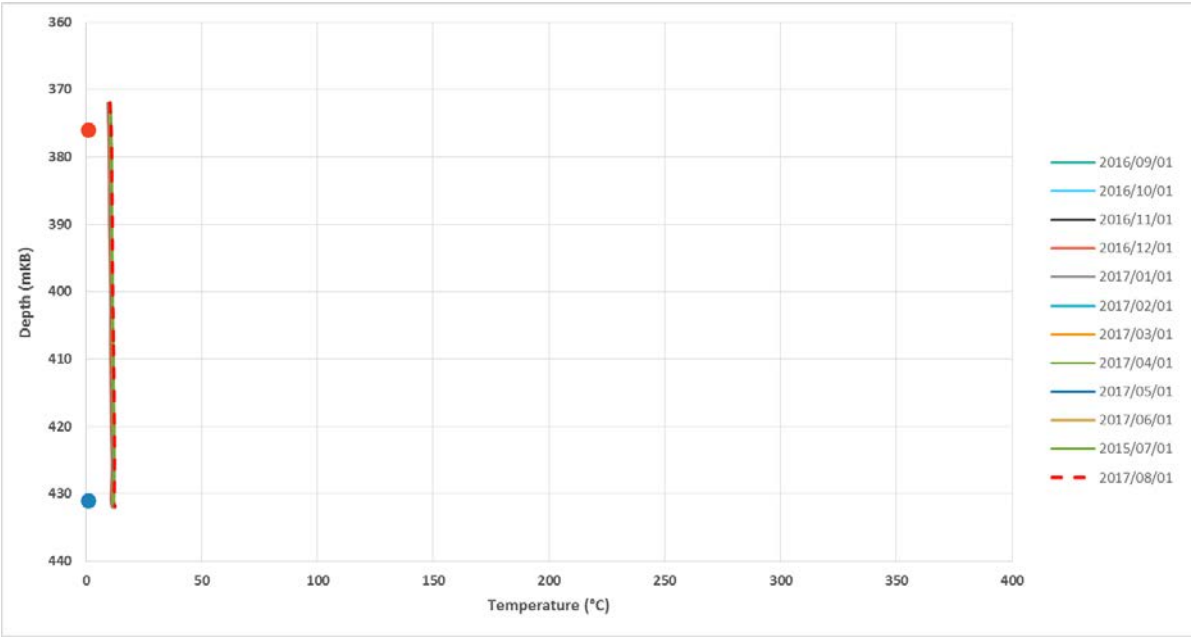




Pad K Caprock 5-22 Observation Well Temp (11.9m from K10 well pair)

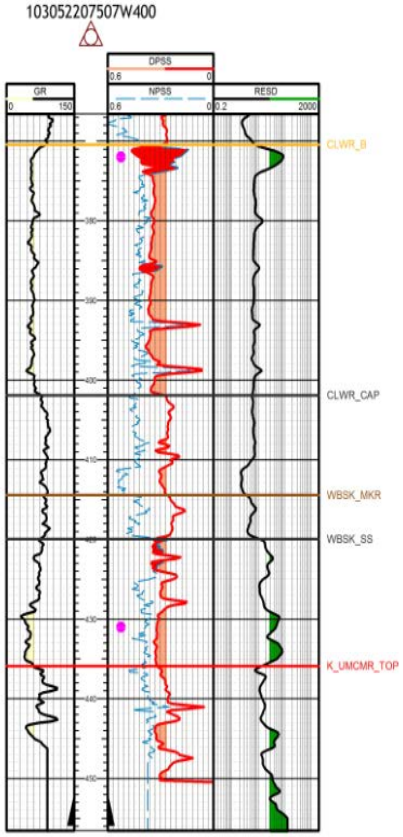
3.1.1-5d

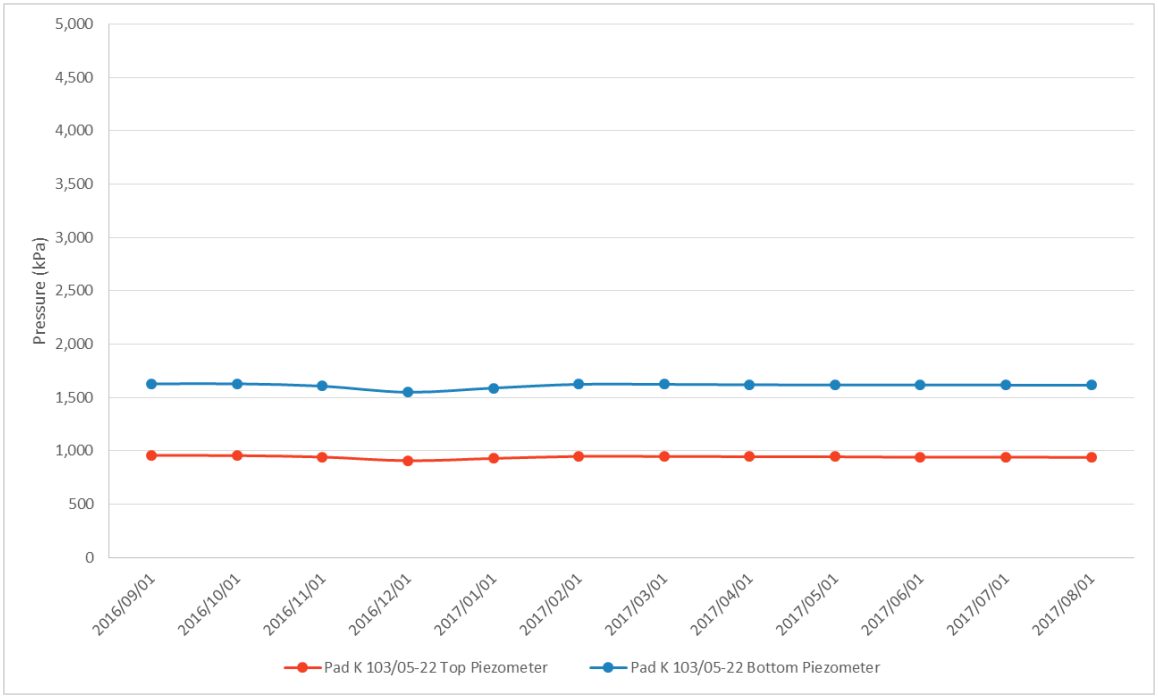




Pad K Caprock 5-22 Observation Well Pressure
(11.9m from K10 well pair)

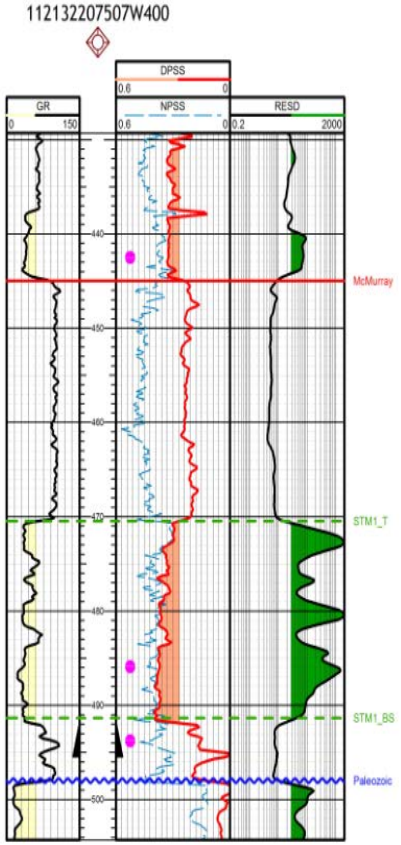
3.1.1-5d

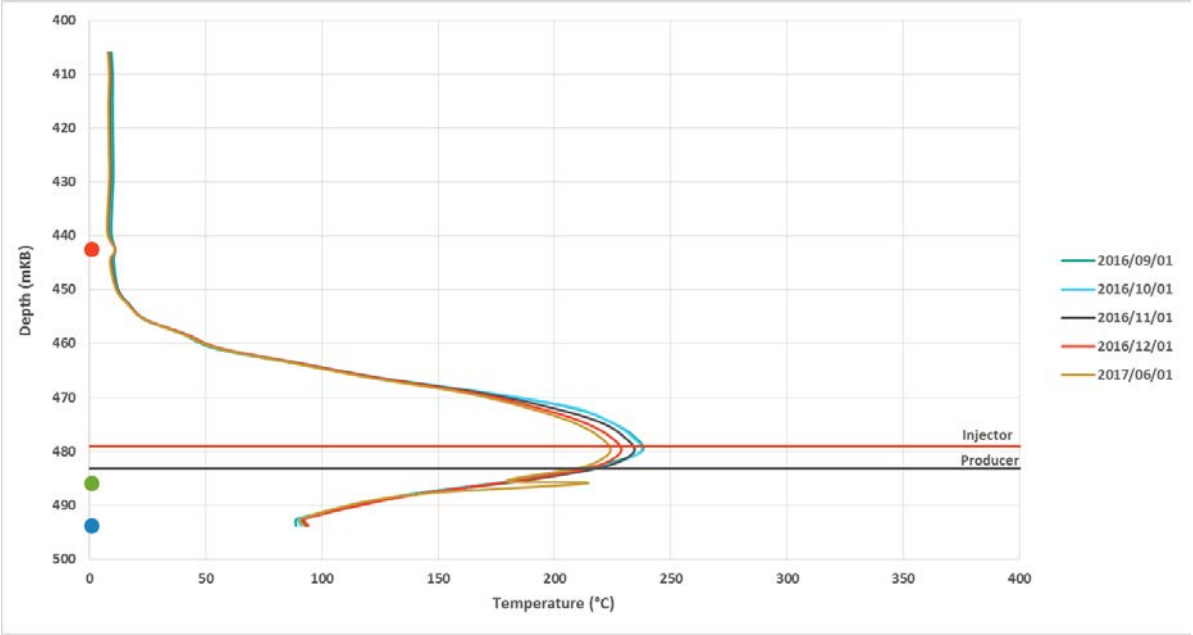




Pad RR North Heel Observation Well Temp
(7.4m from RR8 well pair)

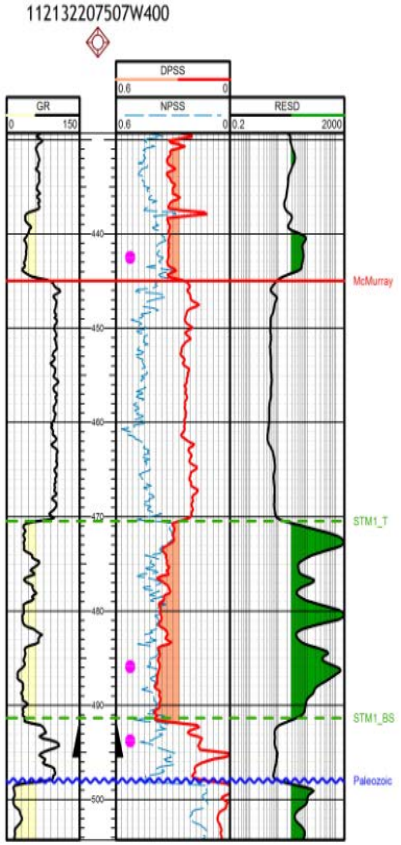
3.1.1-5d

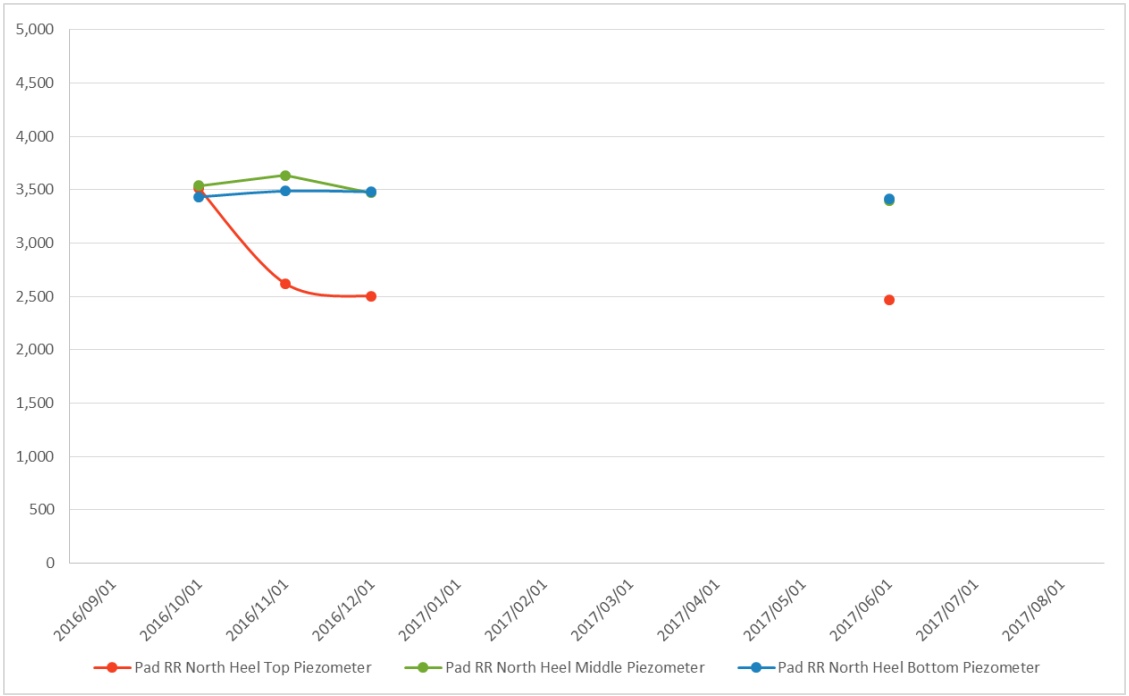




Pad RR North Heel Observation Well Pressure
(7.4m from RR8 well pair)

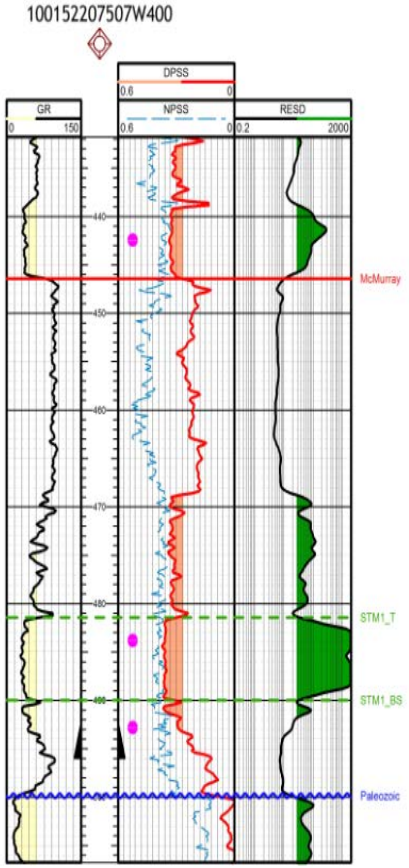
3.1.1-5d

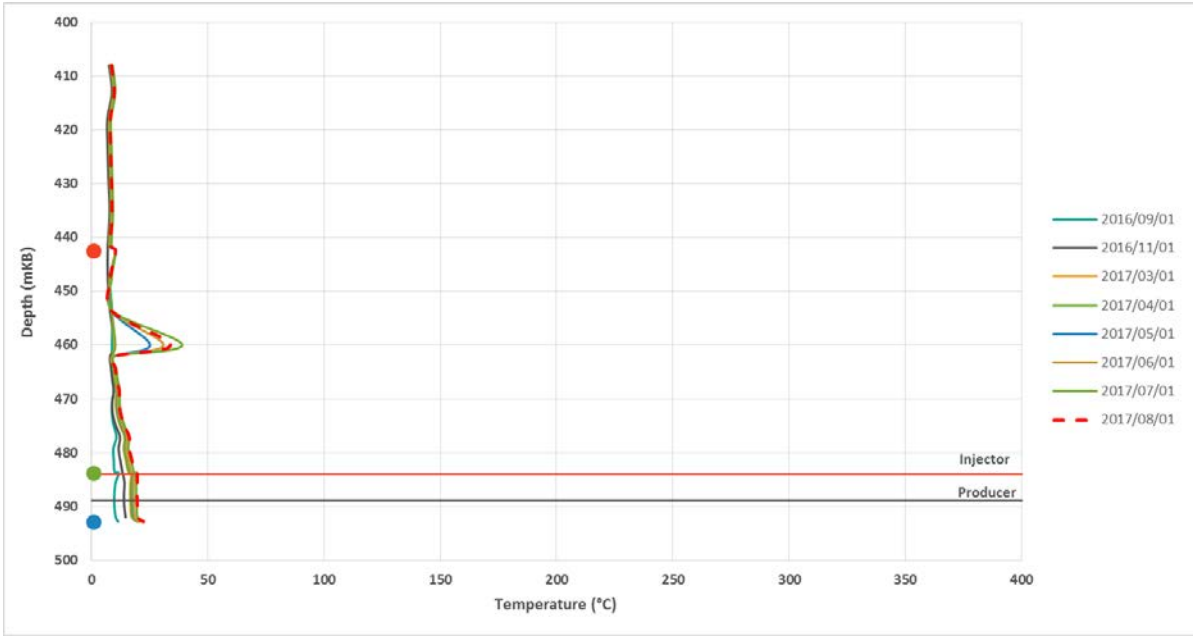




Pad RR Mid Toe Observation Well Temp
(9.9m from RR5 well pair)

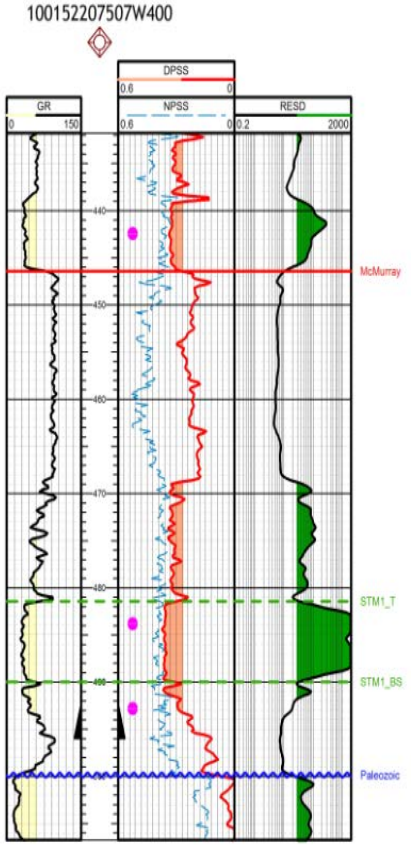
3.1.1-5d

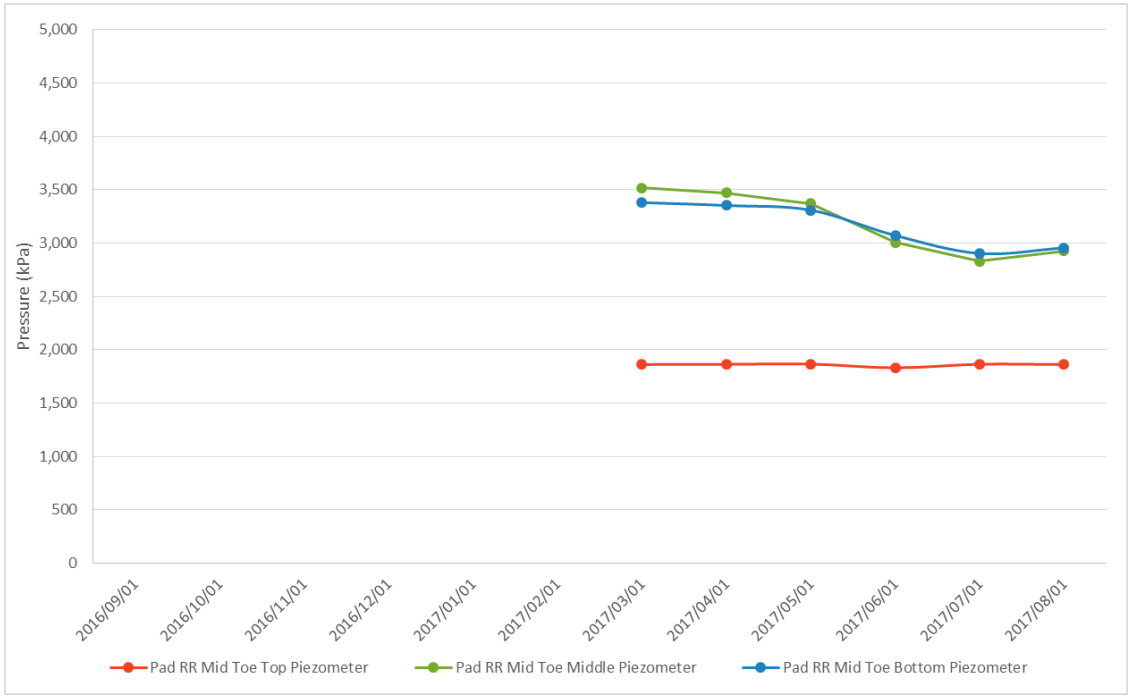




Pad RR Mid Toe Observation Well Pressure
(9.9m from RR5 well pair)

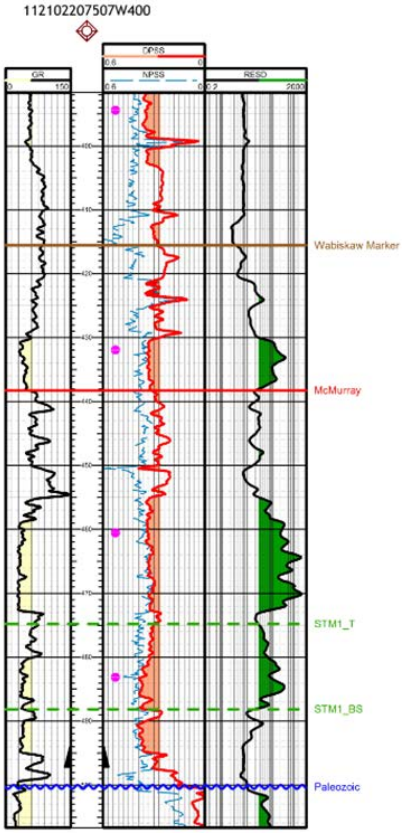
3.1.1-5d

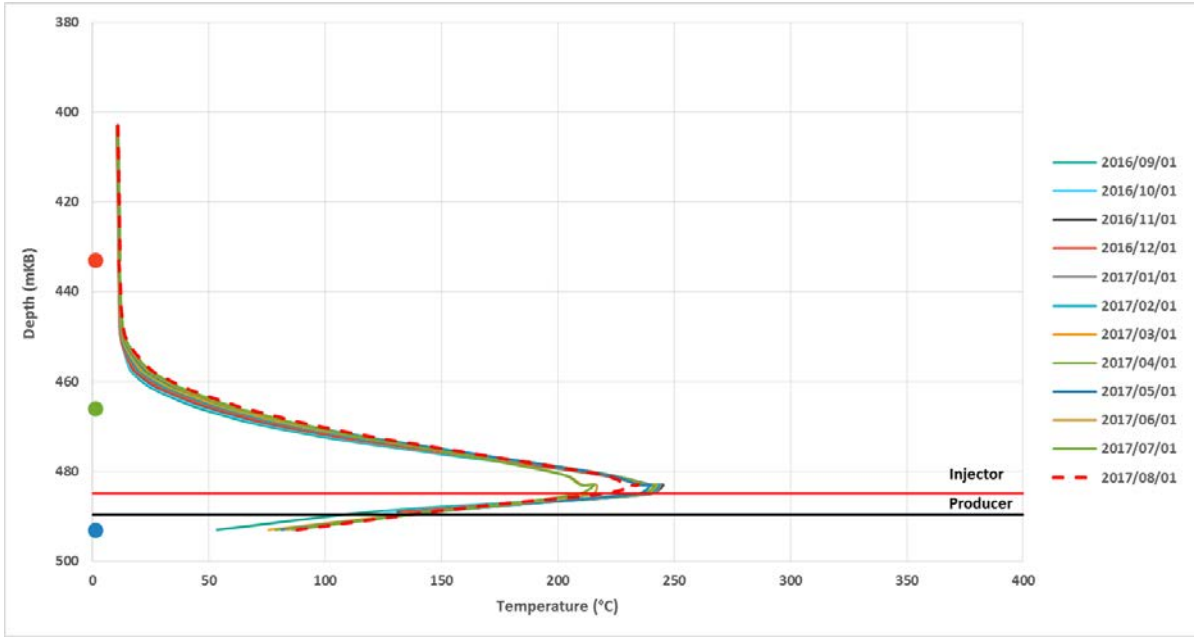




Pad RR South Toe Observation Well Temp
(16.5m from RR3 well pair)

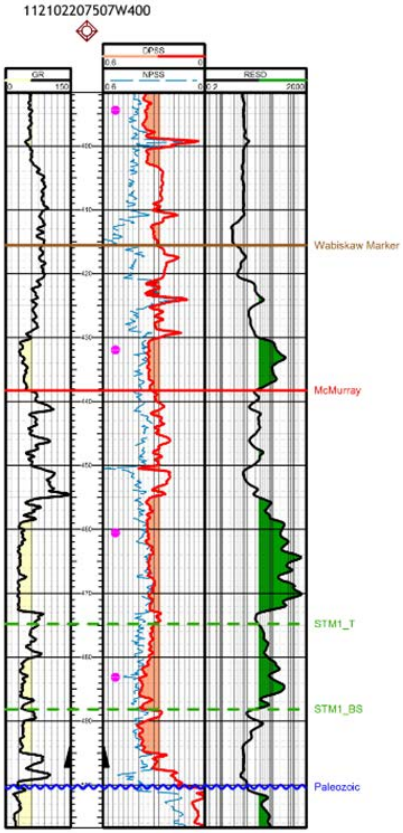
3.1.1-5d

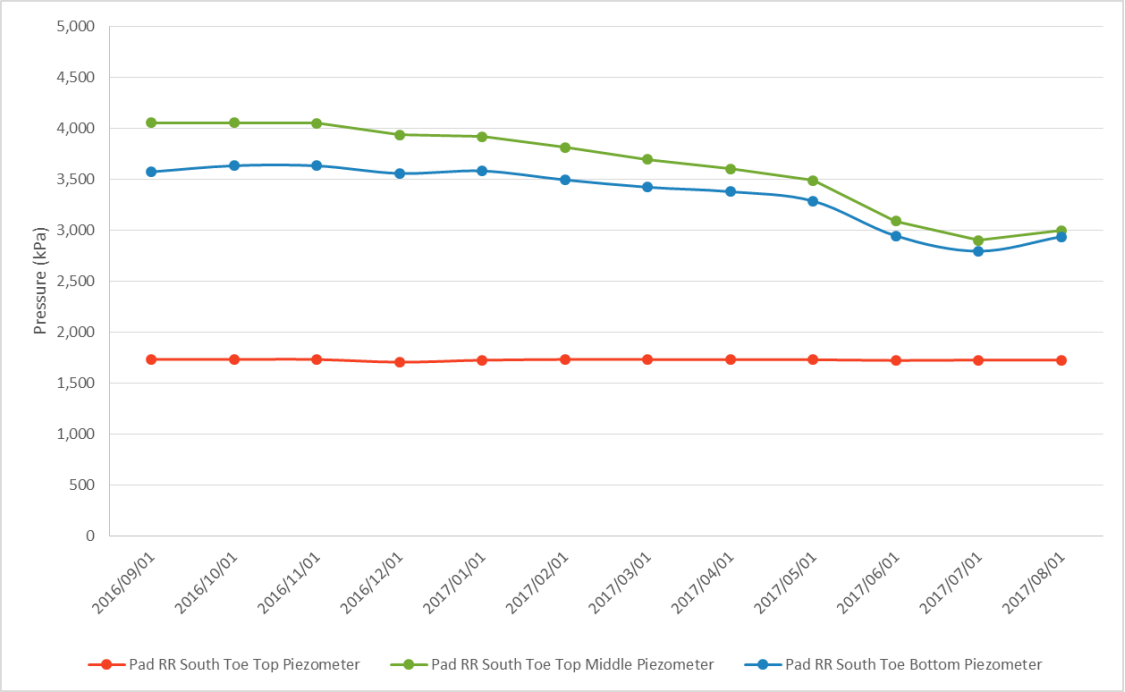




Pad RR South Toe Observation Well Pressure
(16.5m from RR3 well pair)

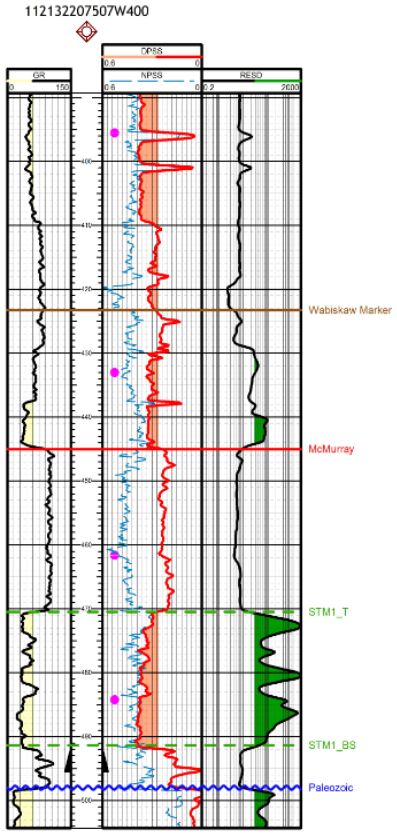
3.1.1-5d

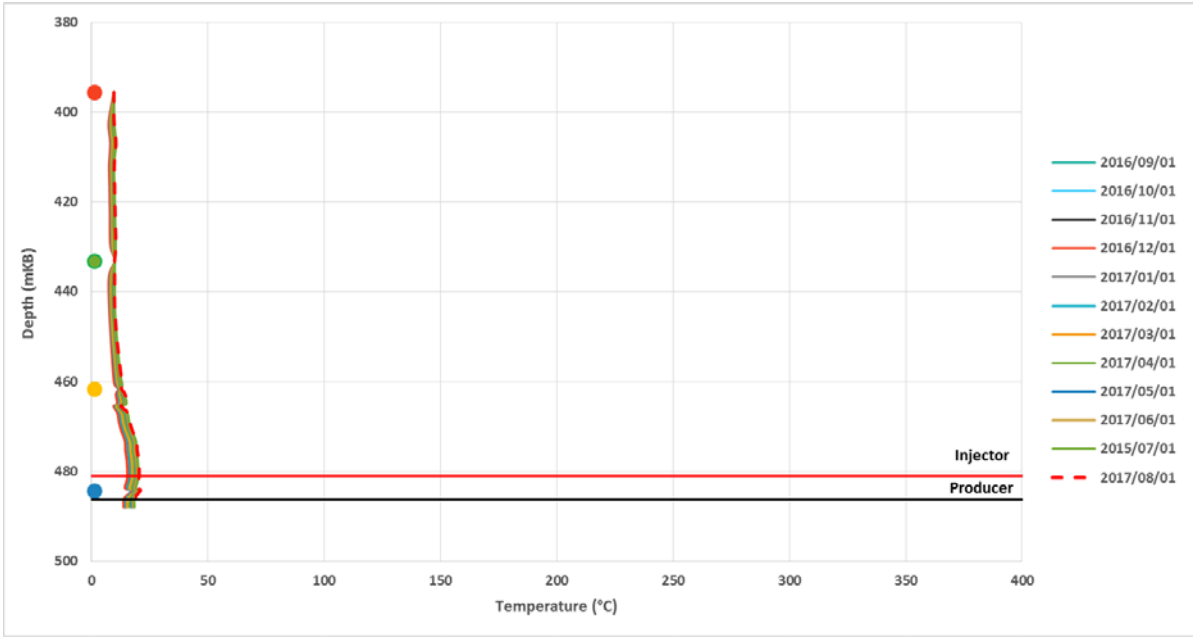




Pad RR Caprock Observation Well Temp
(10.0m from RR1 well pair)

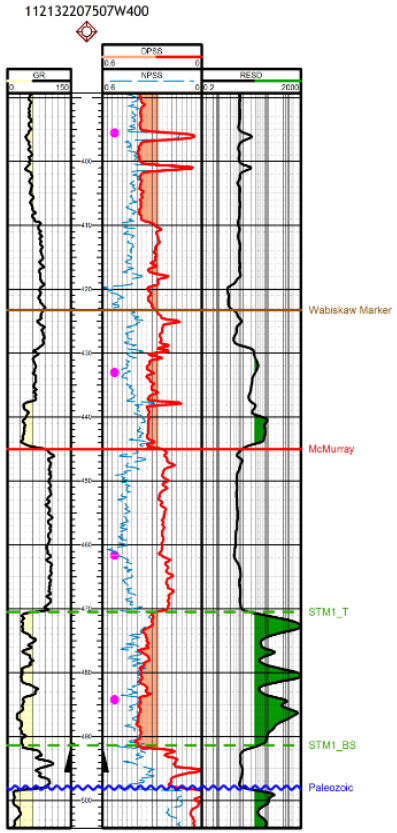
3.1.1-5d

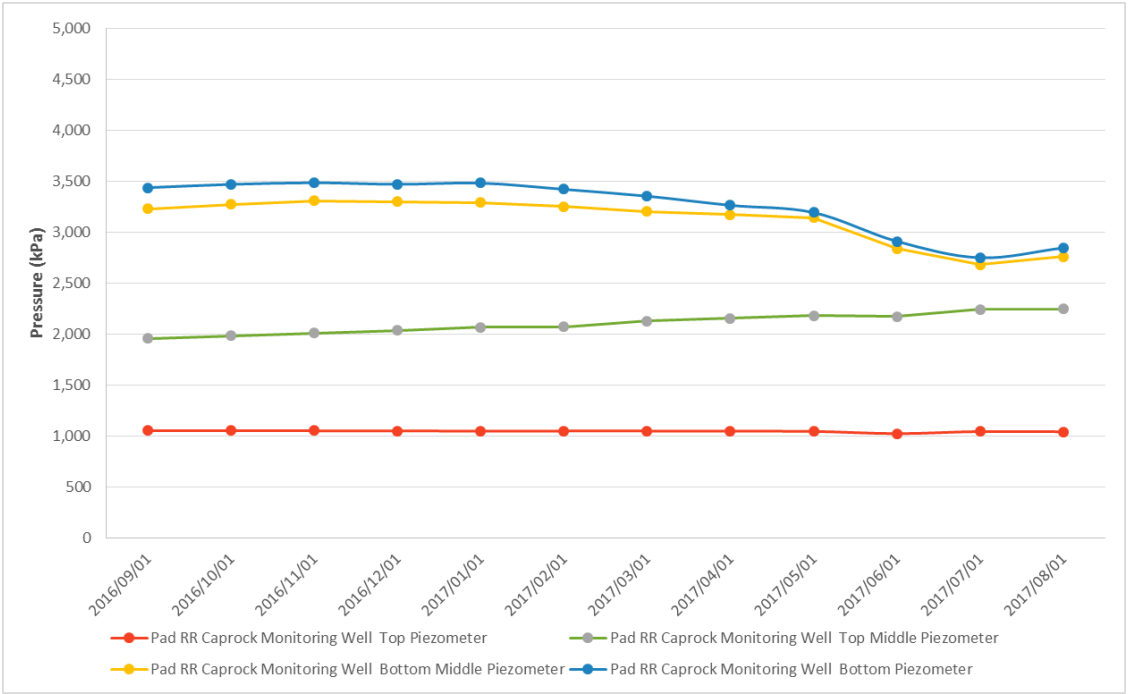




Pad RR Caprock Observation Well Pressure
(10.0m from RR1 well pair)

3.1.1-5d





Appendix B

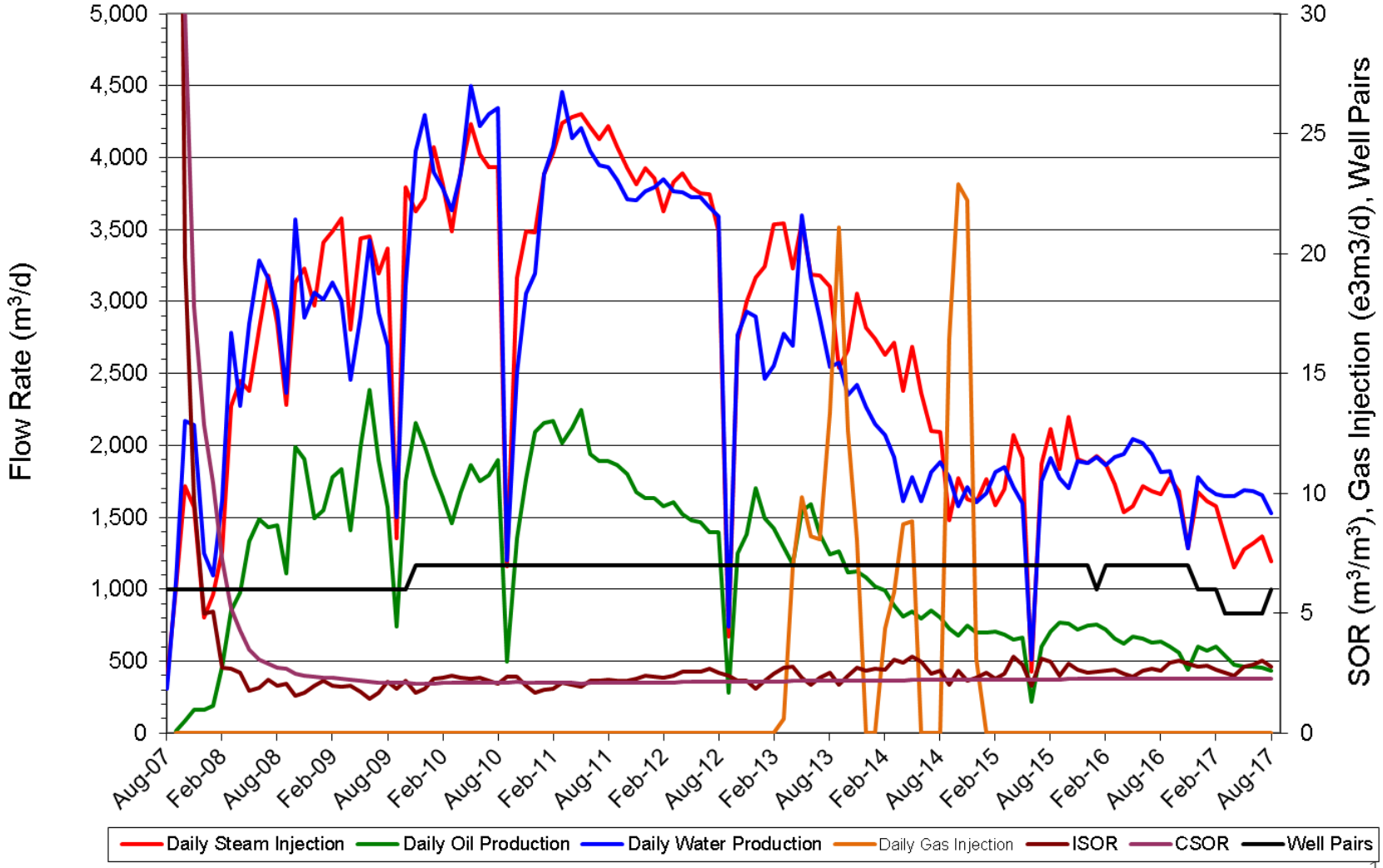
Production 3.1.1-7h

October 2017

Pad A Performance

Jackfish 1 Pad A Life Plot

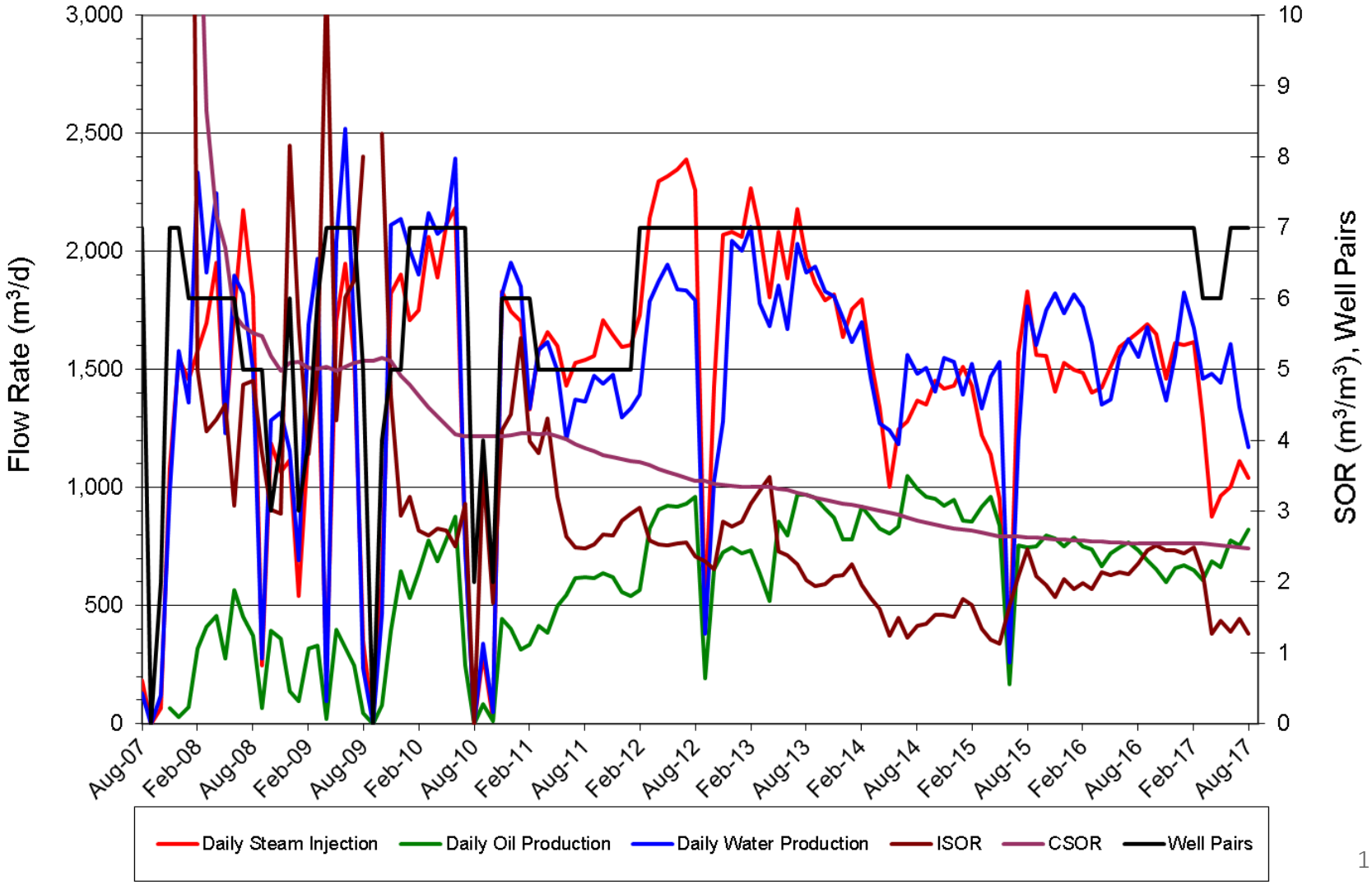
3.1.1-7h



Pad B Performance

Jackfish 1 Pad B Life Plot

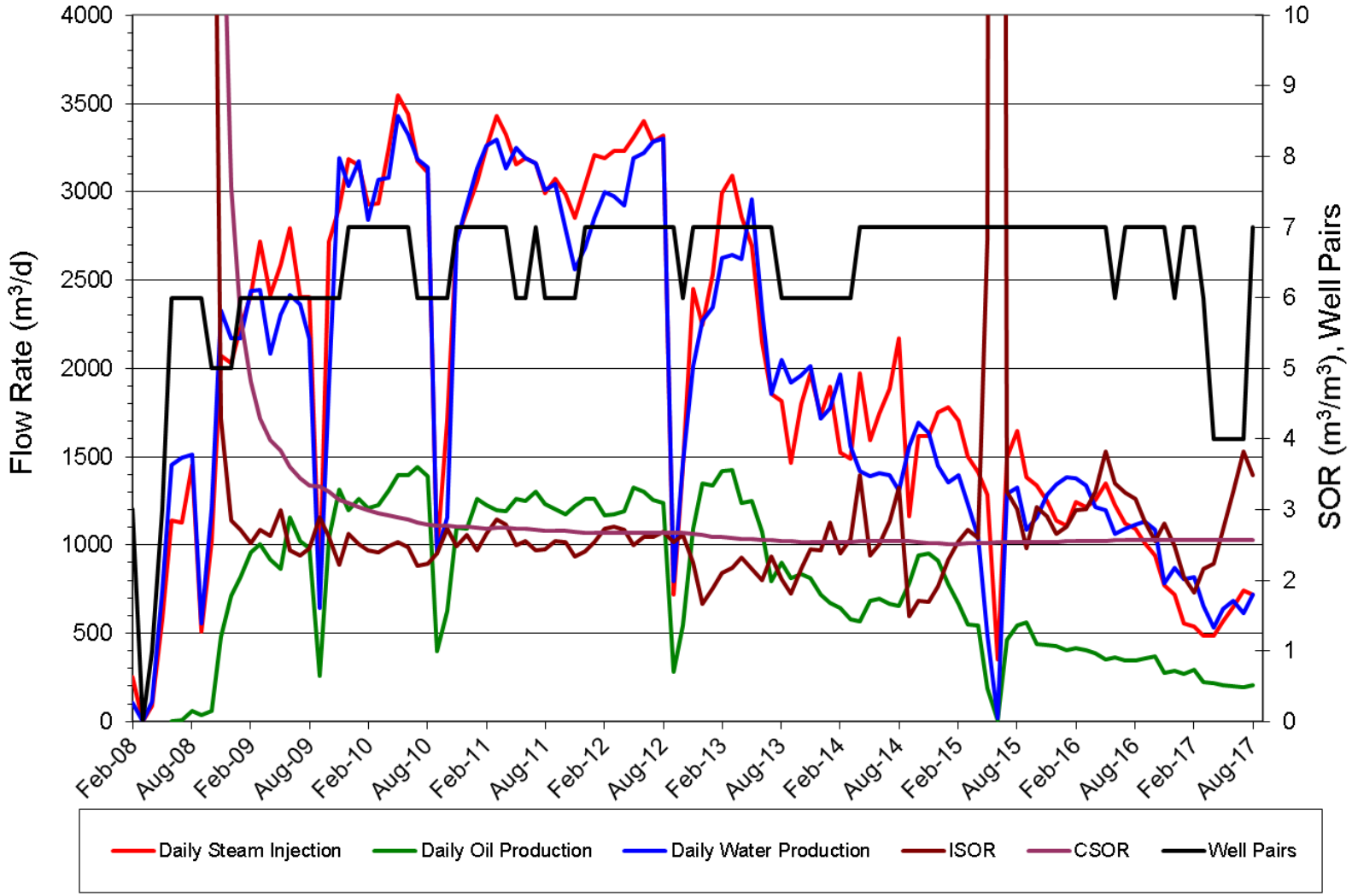
3.1.1-7h



Pad C Performance

Jackfish 1 Pad C Life Plot

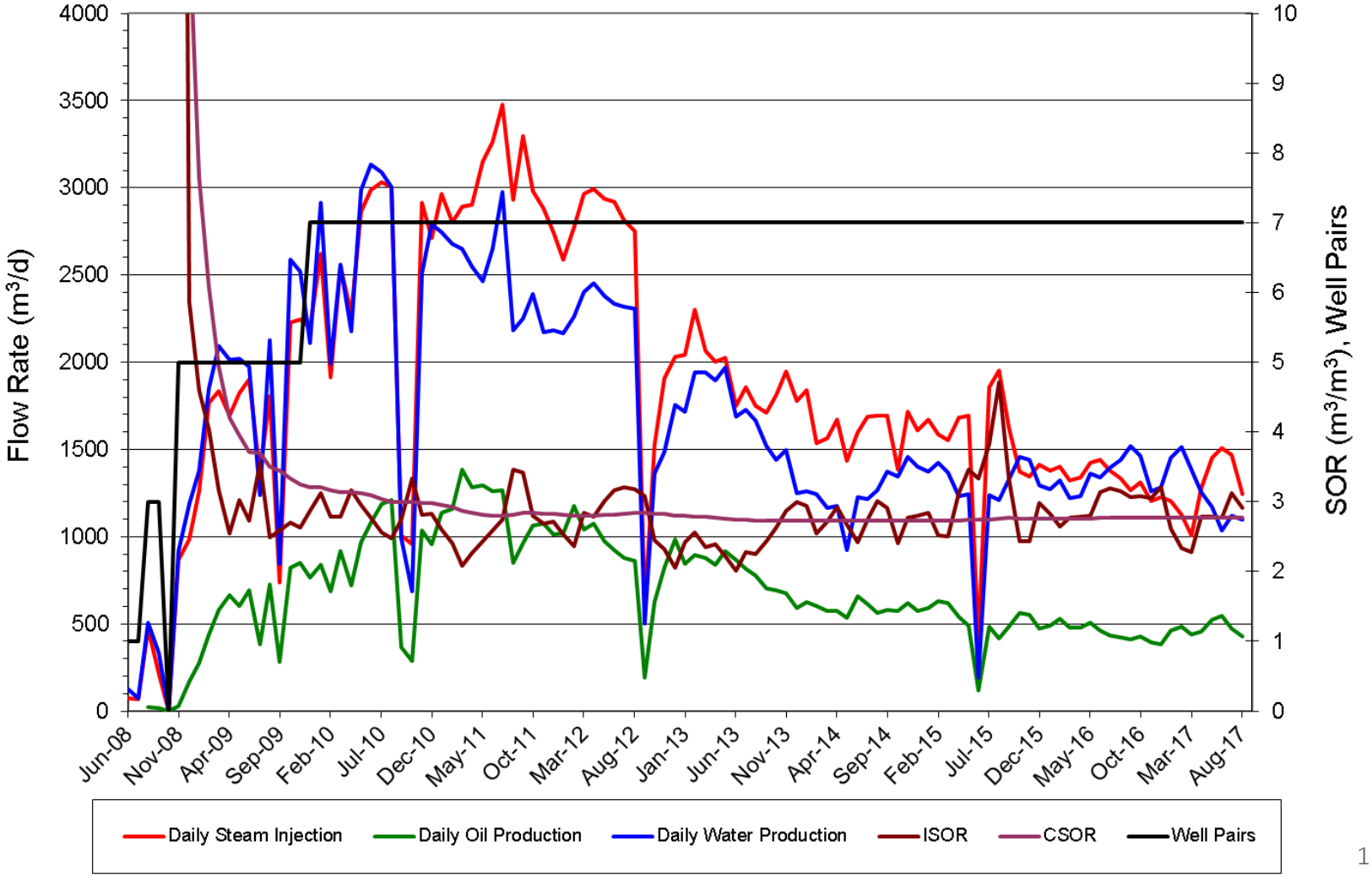
3.1.1-7h



Pad D Performance

Jackfish 1 Pad D Life Plot

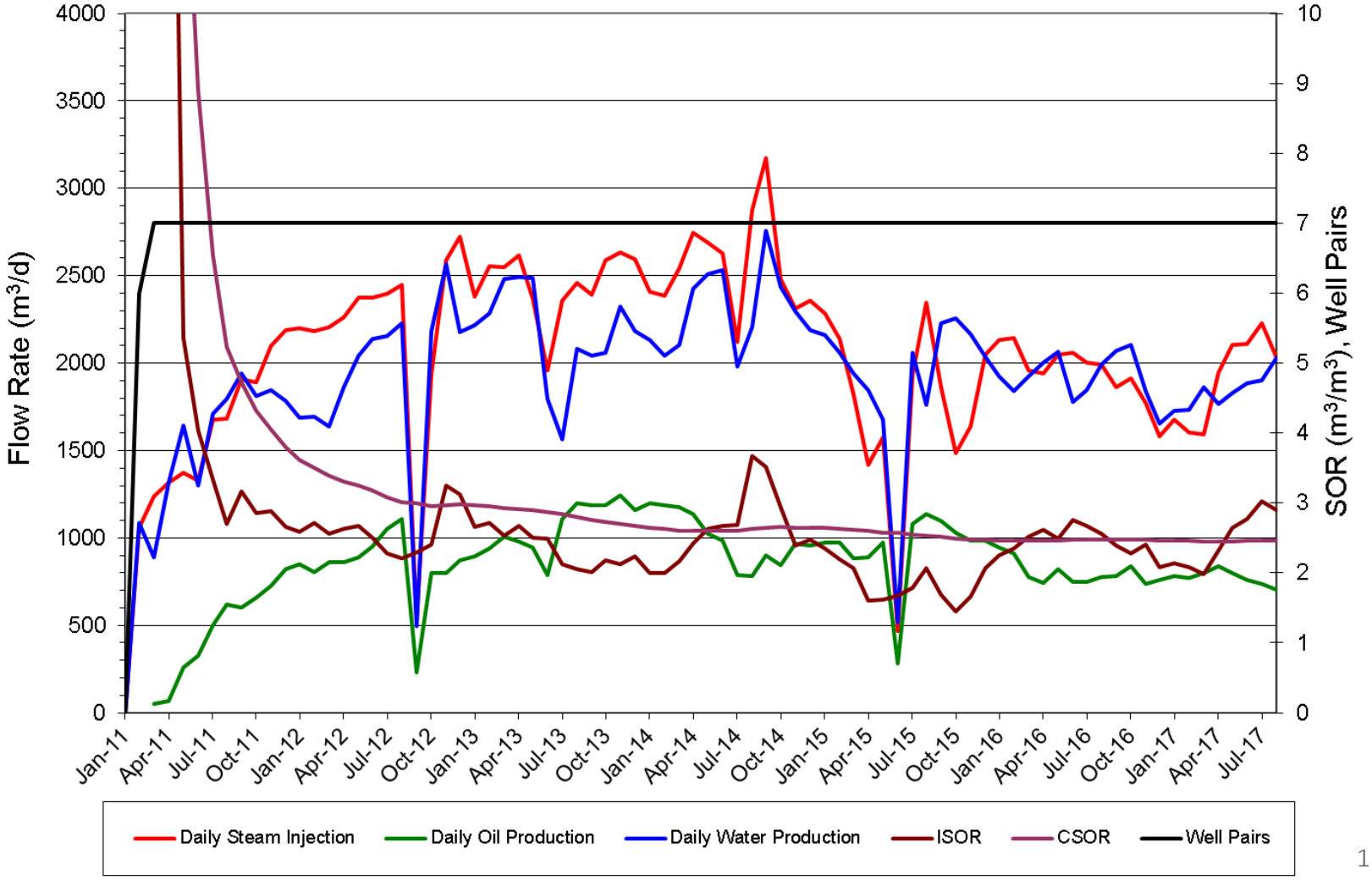
3.1.1-7h



Pad E Performance

Jackfish 1 Pad E Life Plot

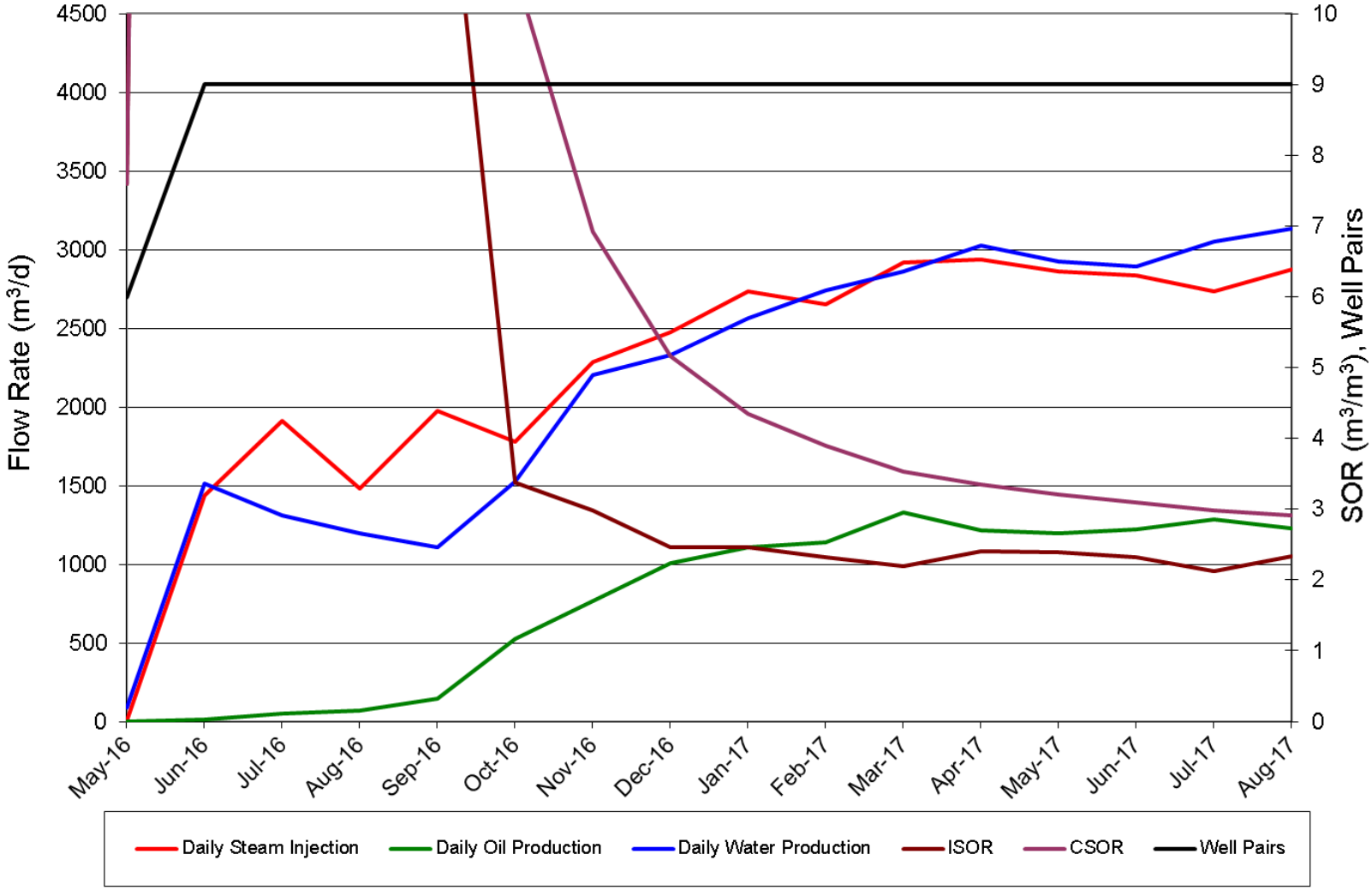
3.1.1-7h



Pad F Performance

Jackfish 1 Pad F Life Plot

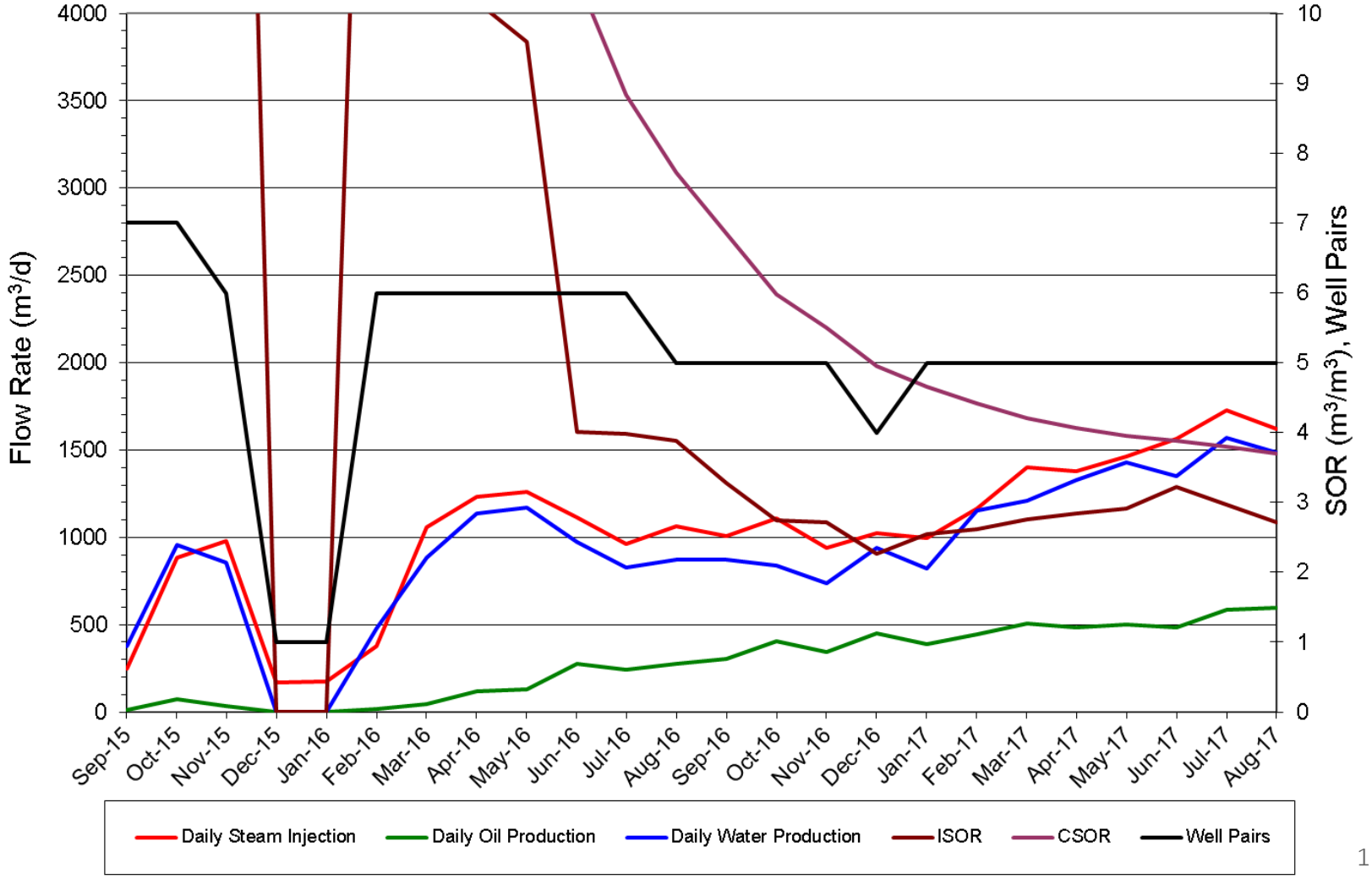
3.1.1-7h



Pad G Performance

Jackfish 1 Pad G Life Plot

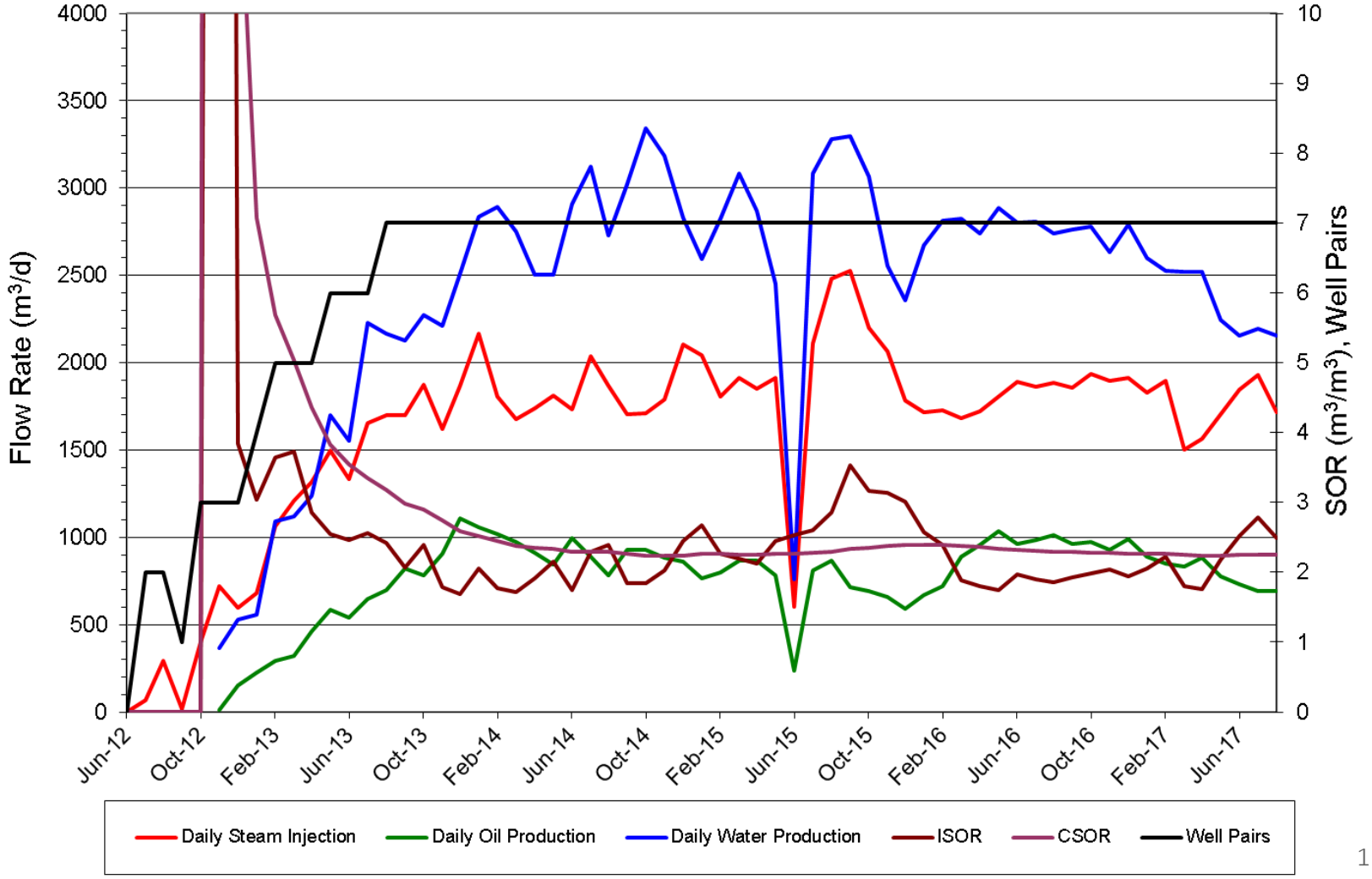
3.1.1-7h



Pad H Performance

Jackfish 1 Pad H Life Plot

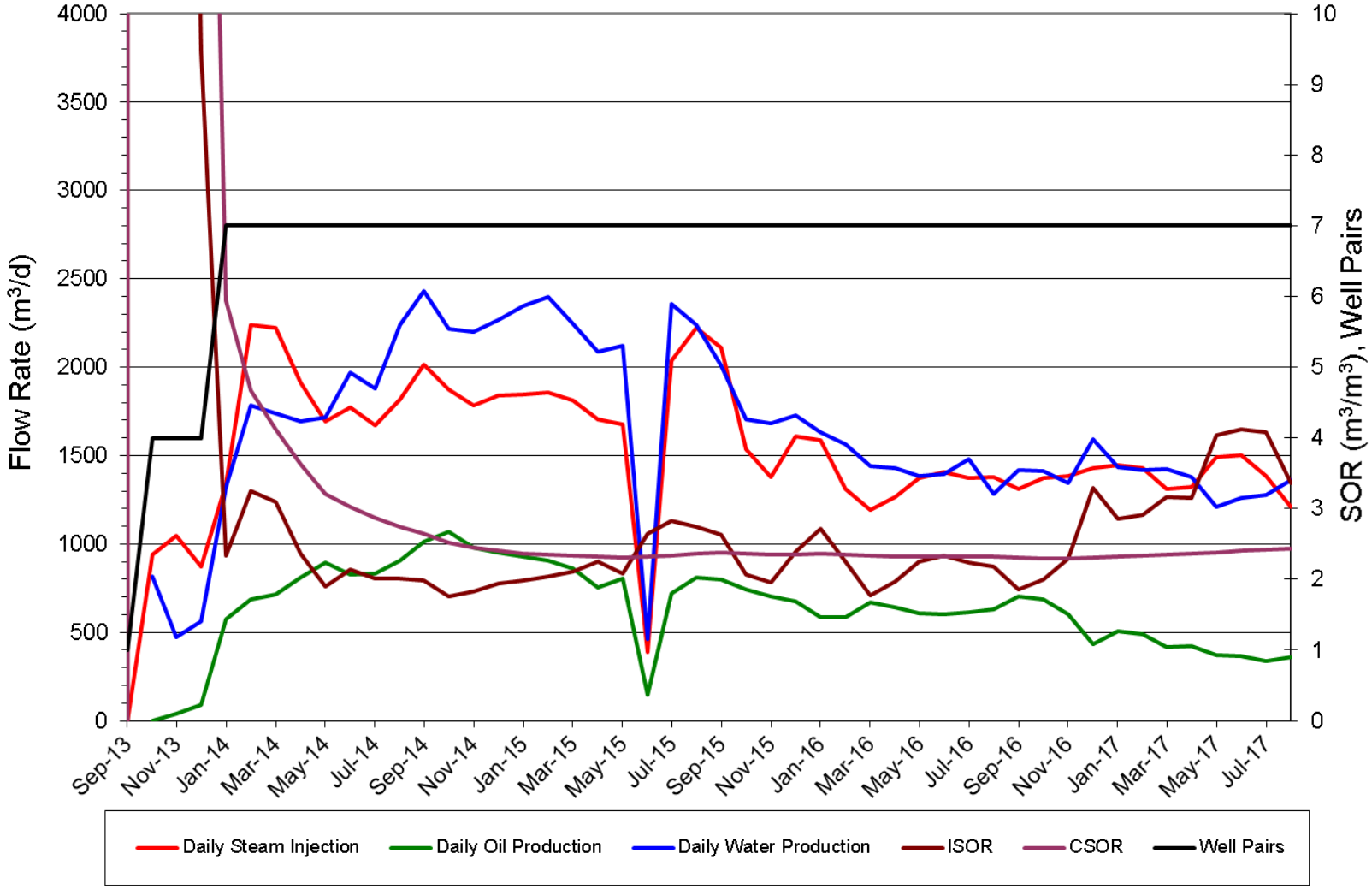
3.1.1-7h



Pad I Performance

Jackfish 1 Pad I Life Plot

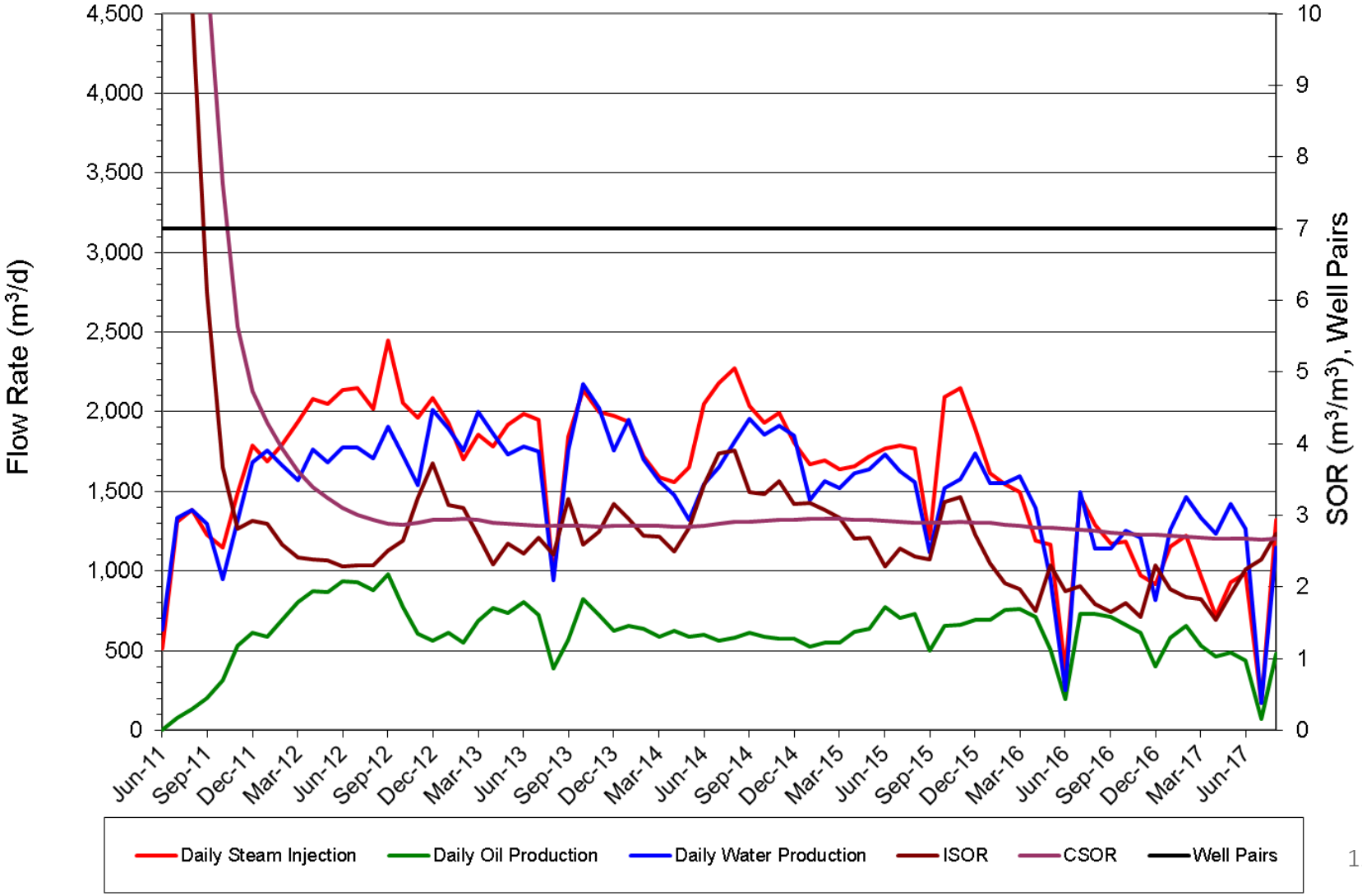
3.1.1-7h



Pad AA Performance

Jackfish 2 Pad AA Life Plot

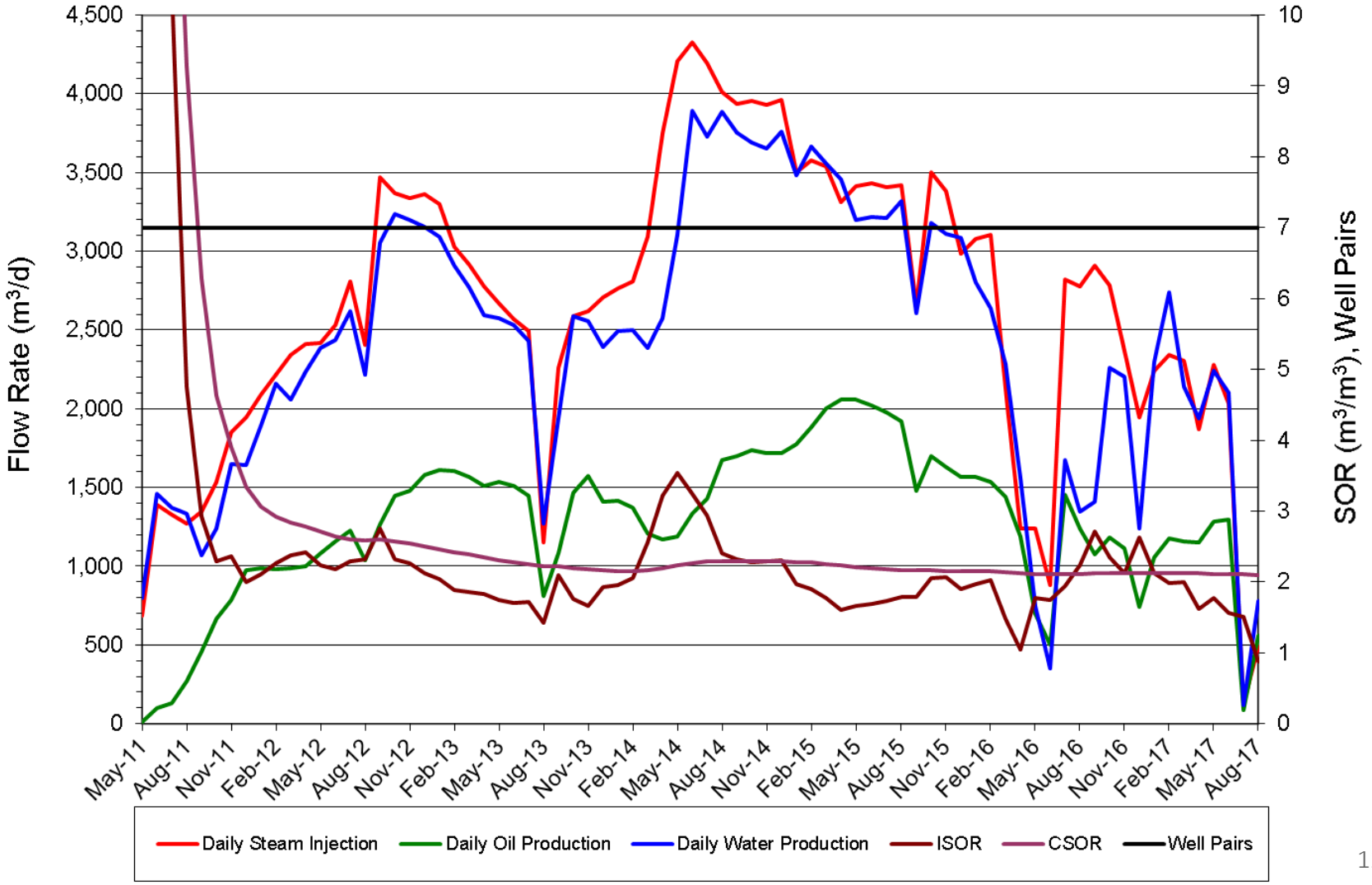
3.1.1-7h



Pad BB Performance

Jackfish 2 Pad BB Life Plot

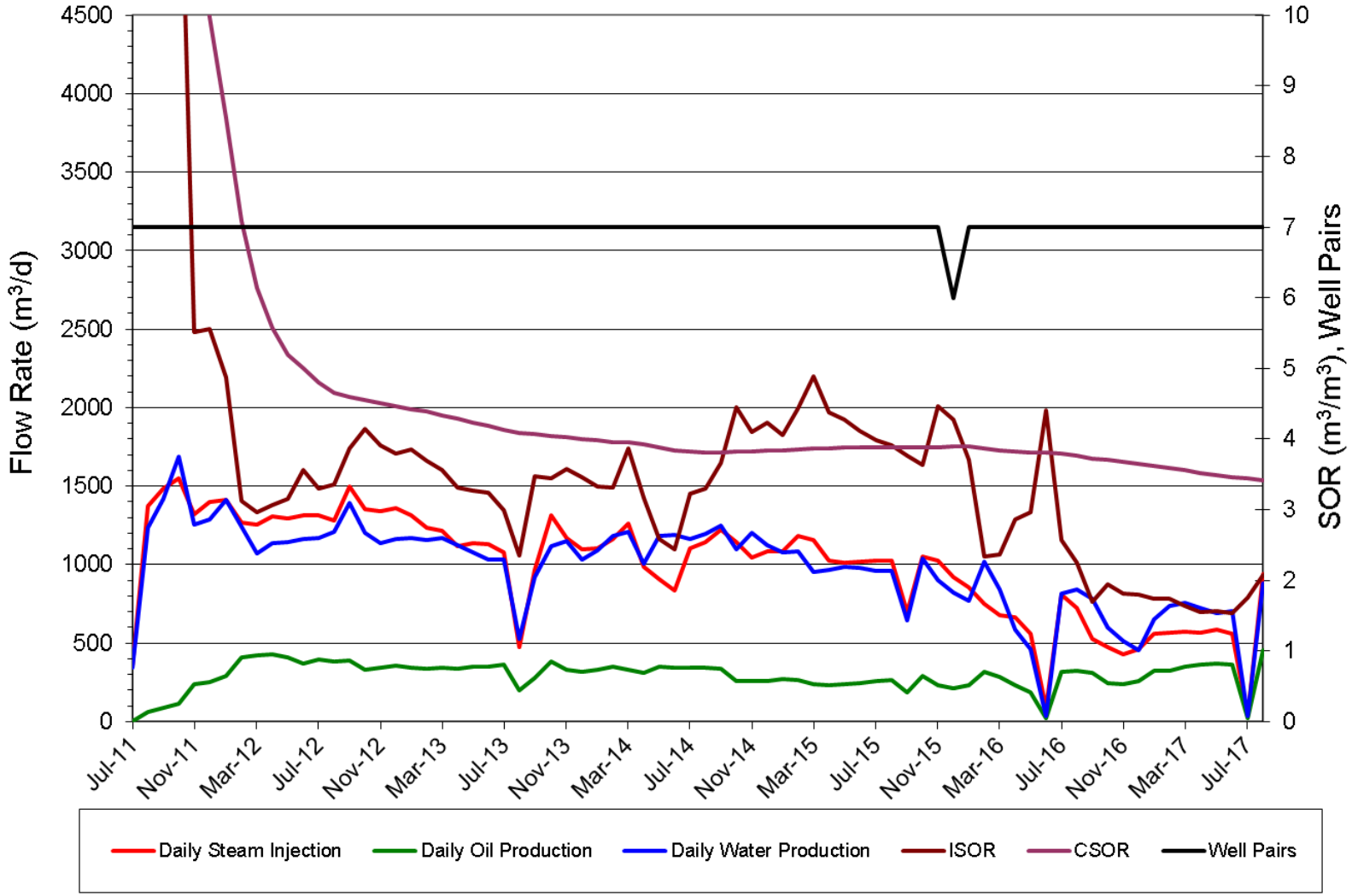
3.1.1-7h



Pad CC Performance

Jackfish 2 Pad CC Life Plot

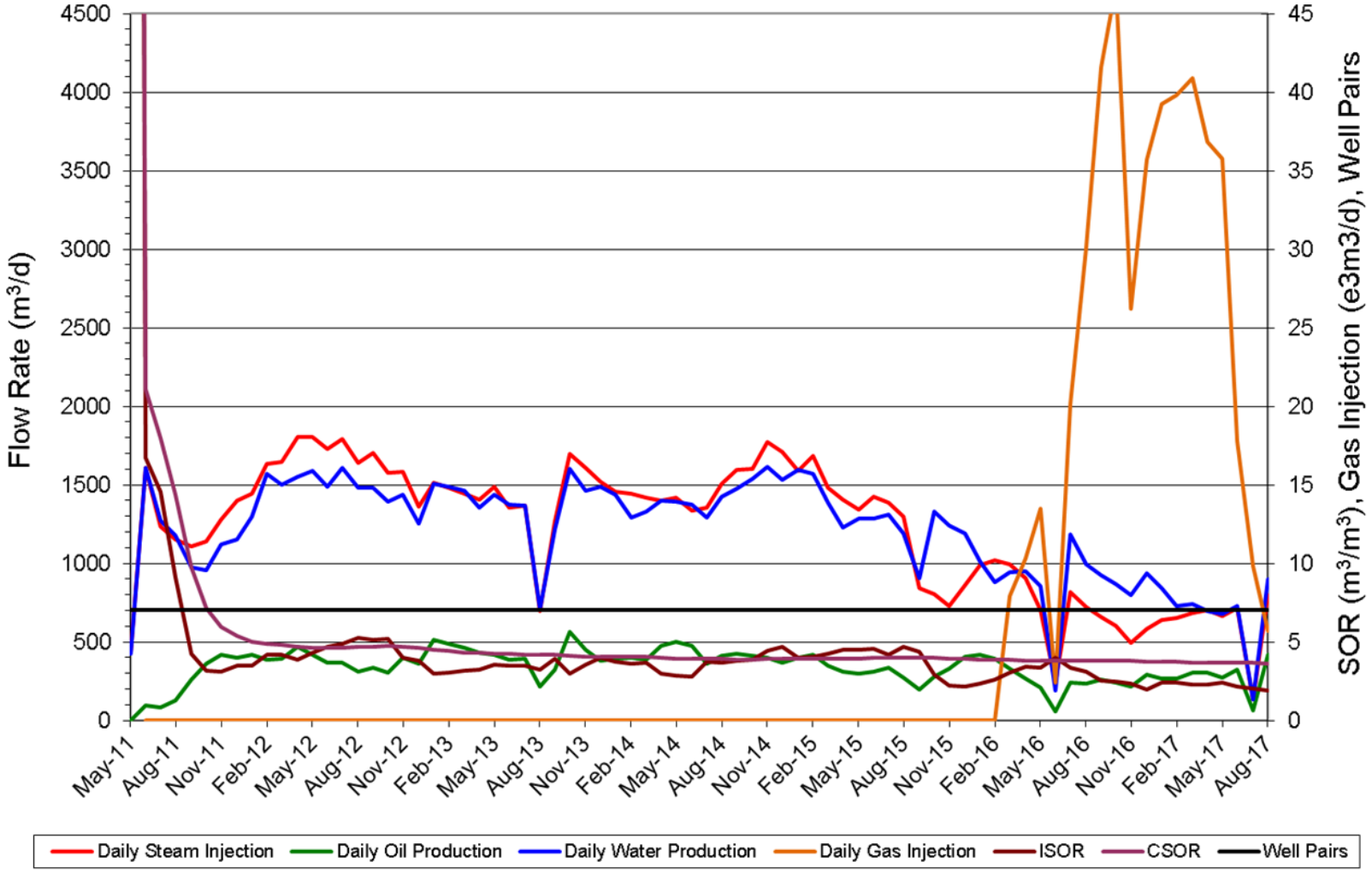
3.1.1-7h



Pad DD Performance

Jackfish 2 Pad DD Life Plot

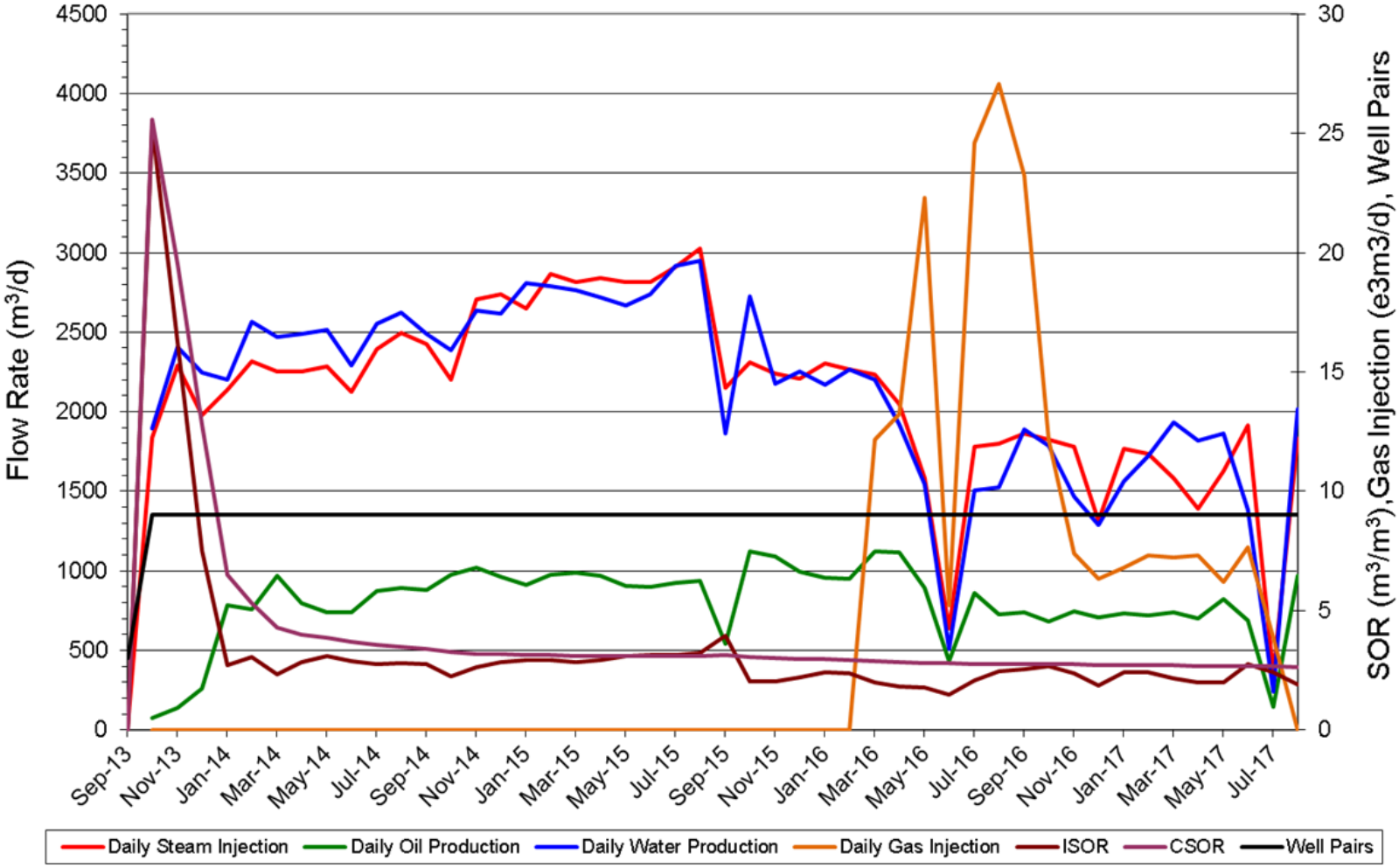
3.1.1-7h



Pad FF Performance

Jackfish 2 Pad FF Life Plot

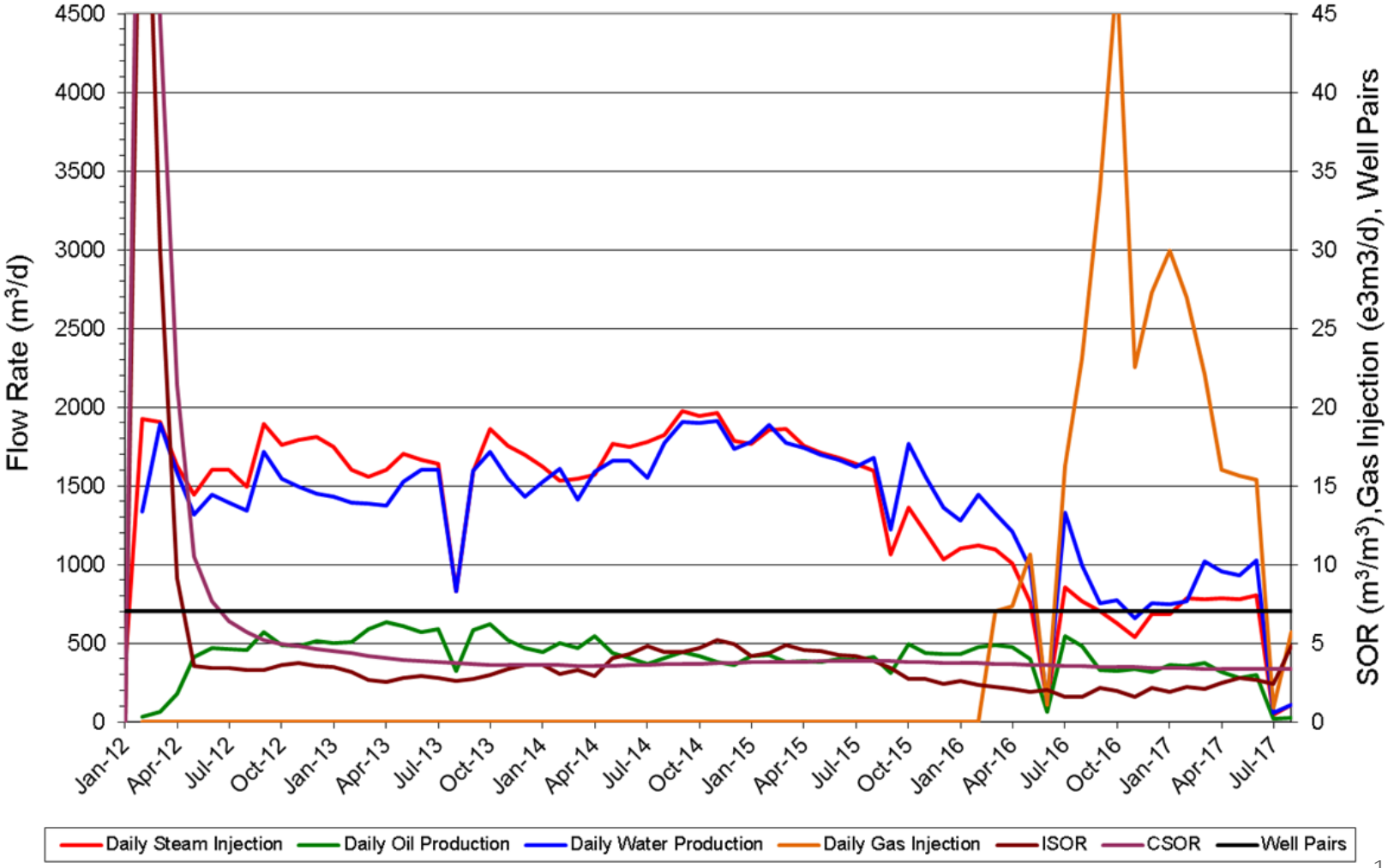
3.1.1-7h



Pad KK Performance

Jackfish 2 Pad KK Life Plot

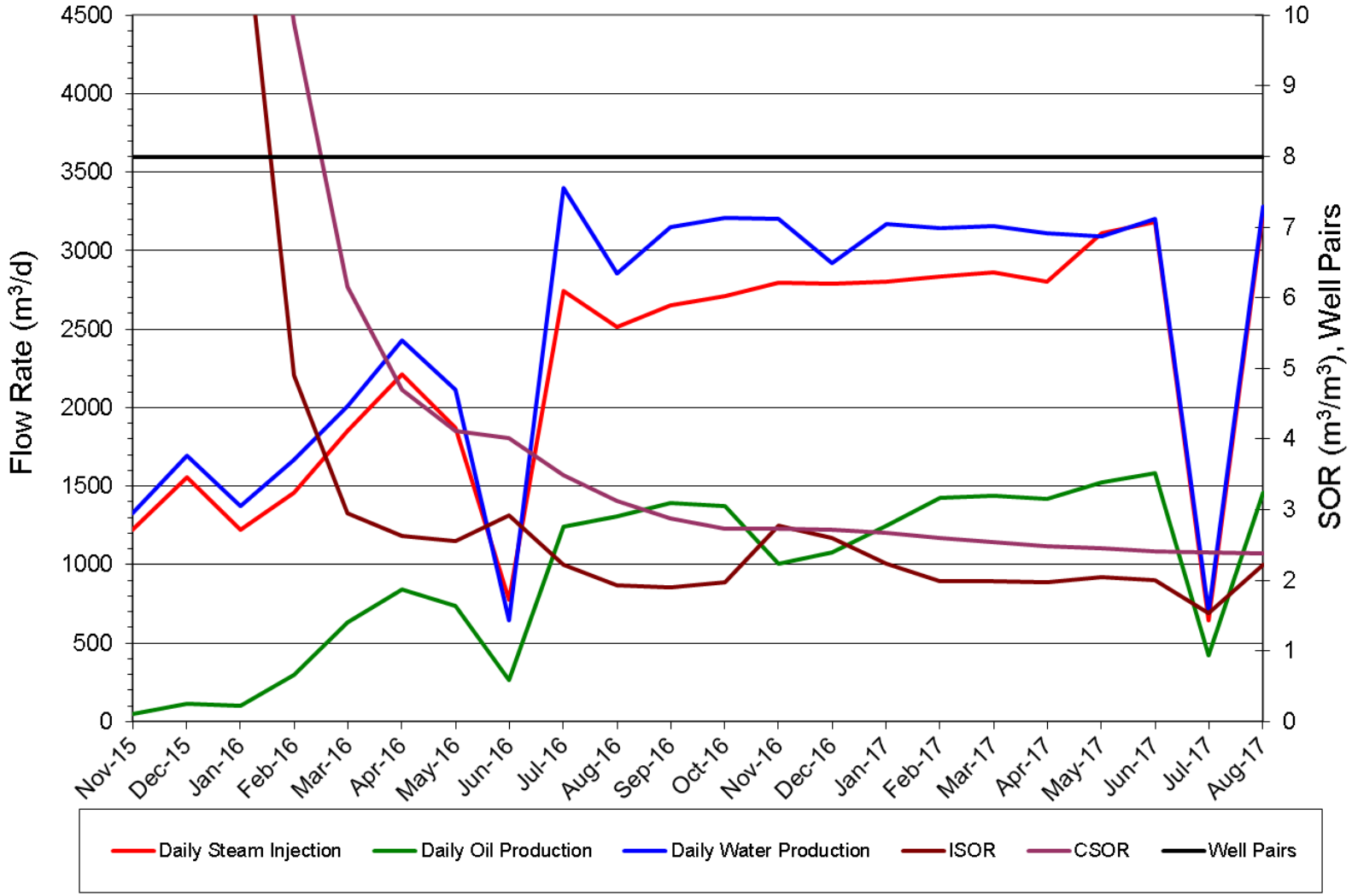
3.1.1-7h



Pad OO Performance

Jackfish 2 Pad OO Life Plot

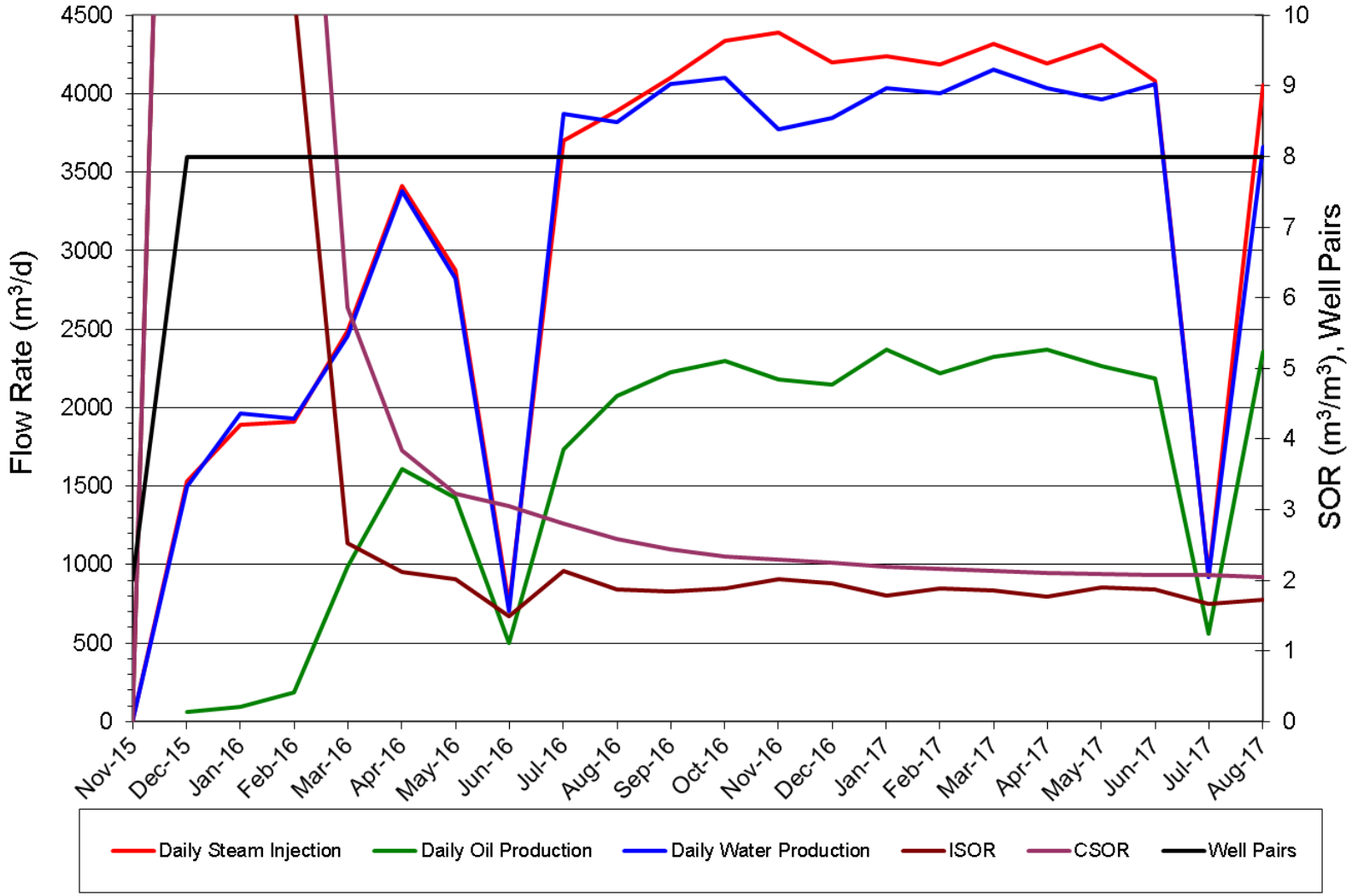
3.1.1-7h



Pad PP Performance

Jackfish 2 Pad PP Life Plot

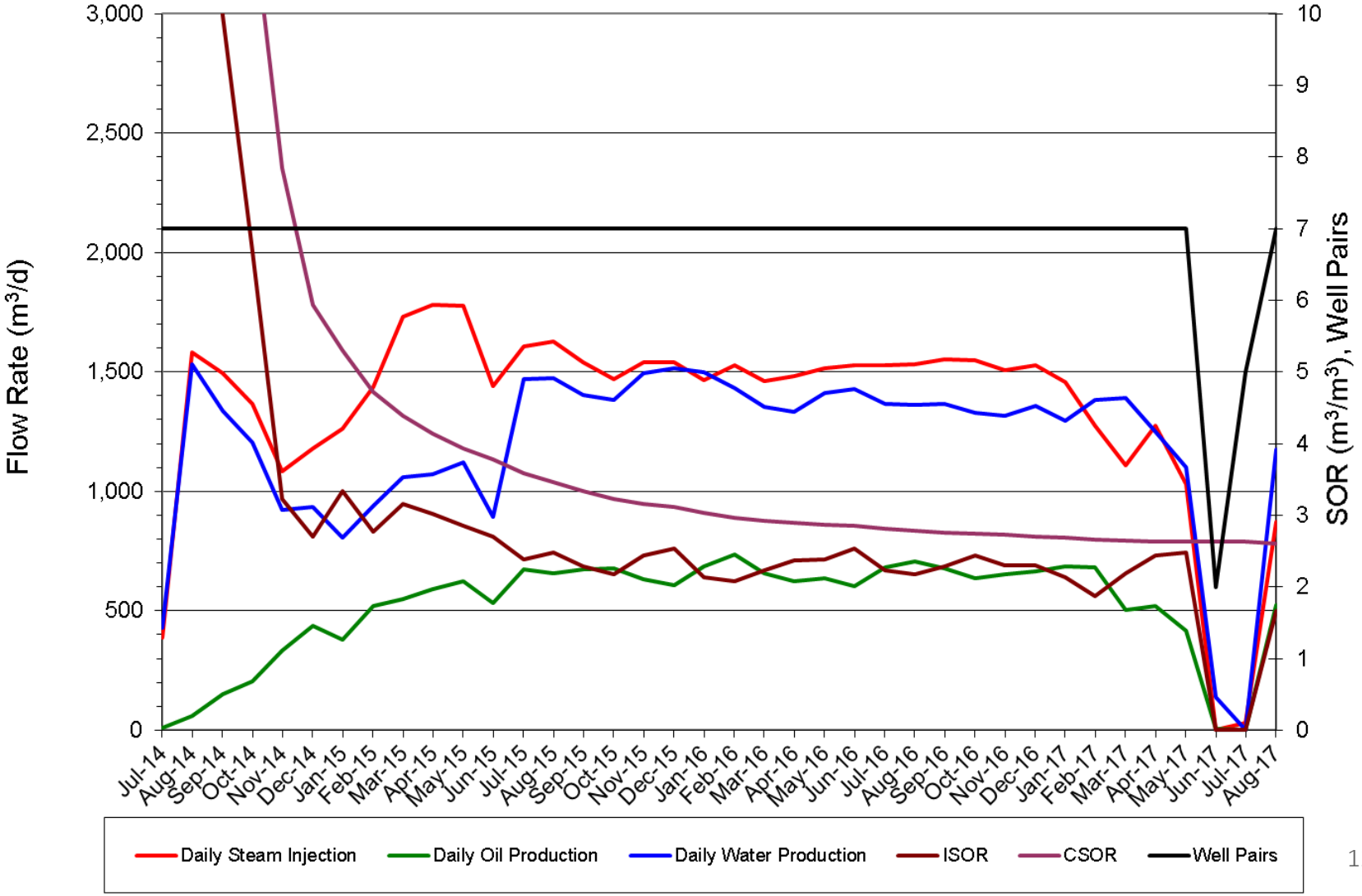
3.1.1-7h



Pad J Performance

Jackfish 3 Pad J Life Plot

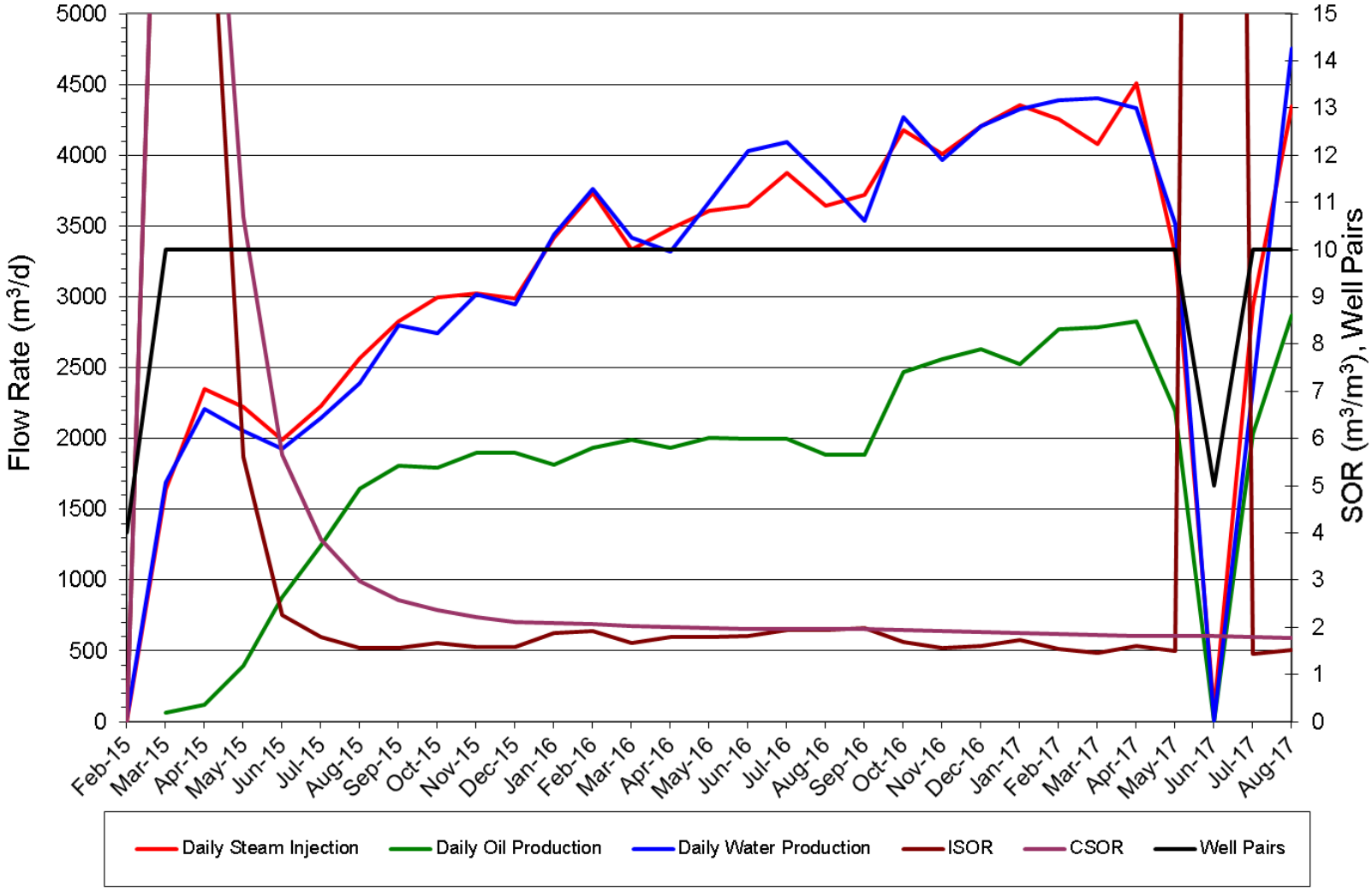
3.1.1-7h



Pad K Performance

Jackfish 3 Pad K Life Plot

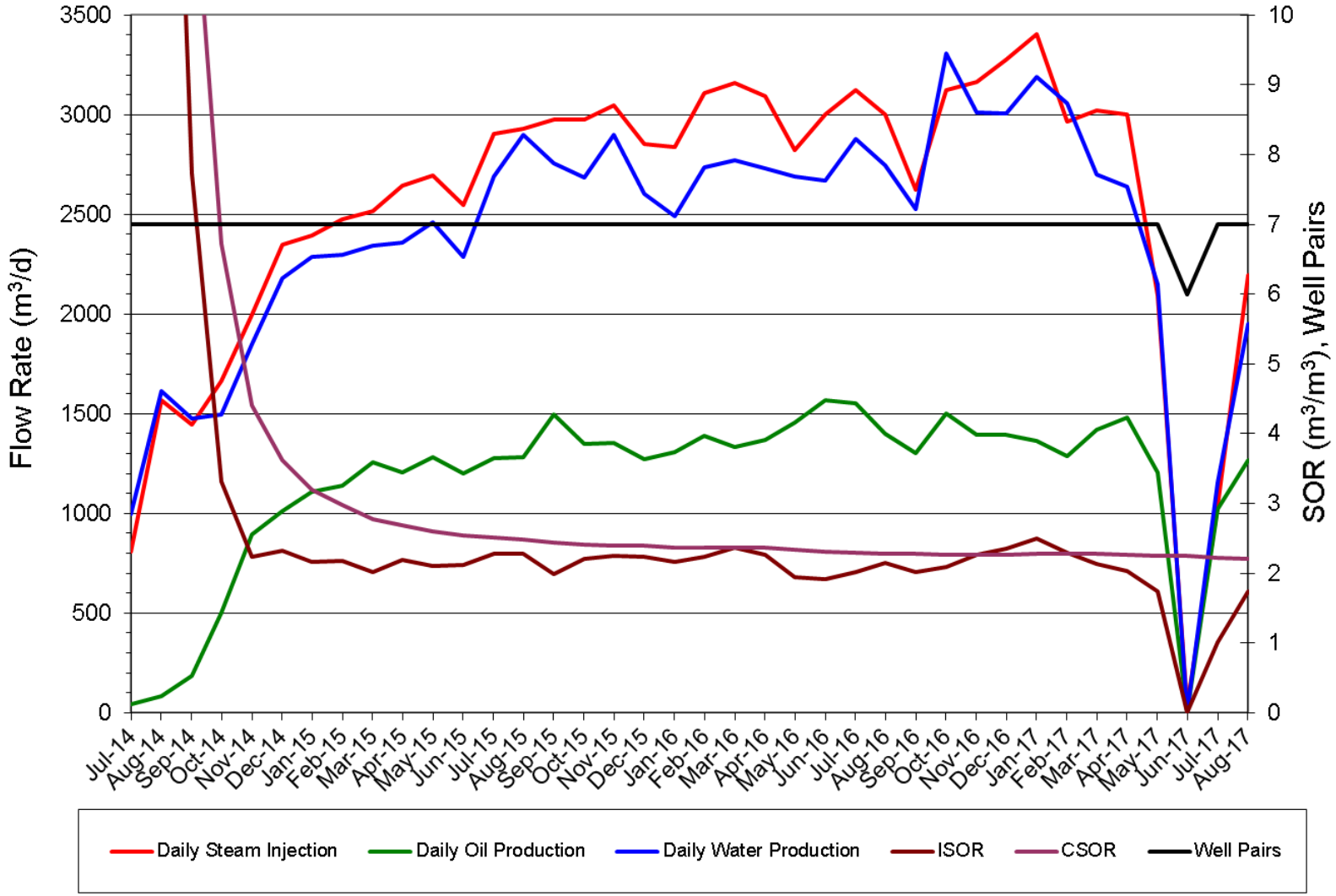
3.1.1-7h



Pad EE Performance

Jackfish 3 Pad EE Life Plot

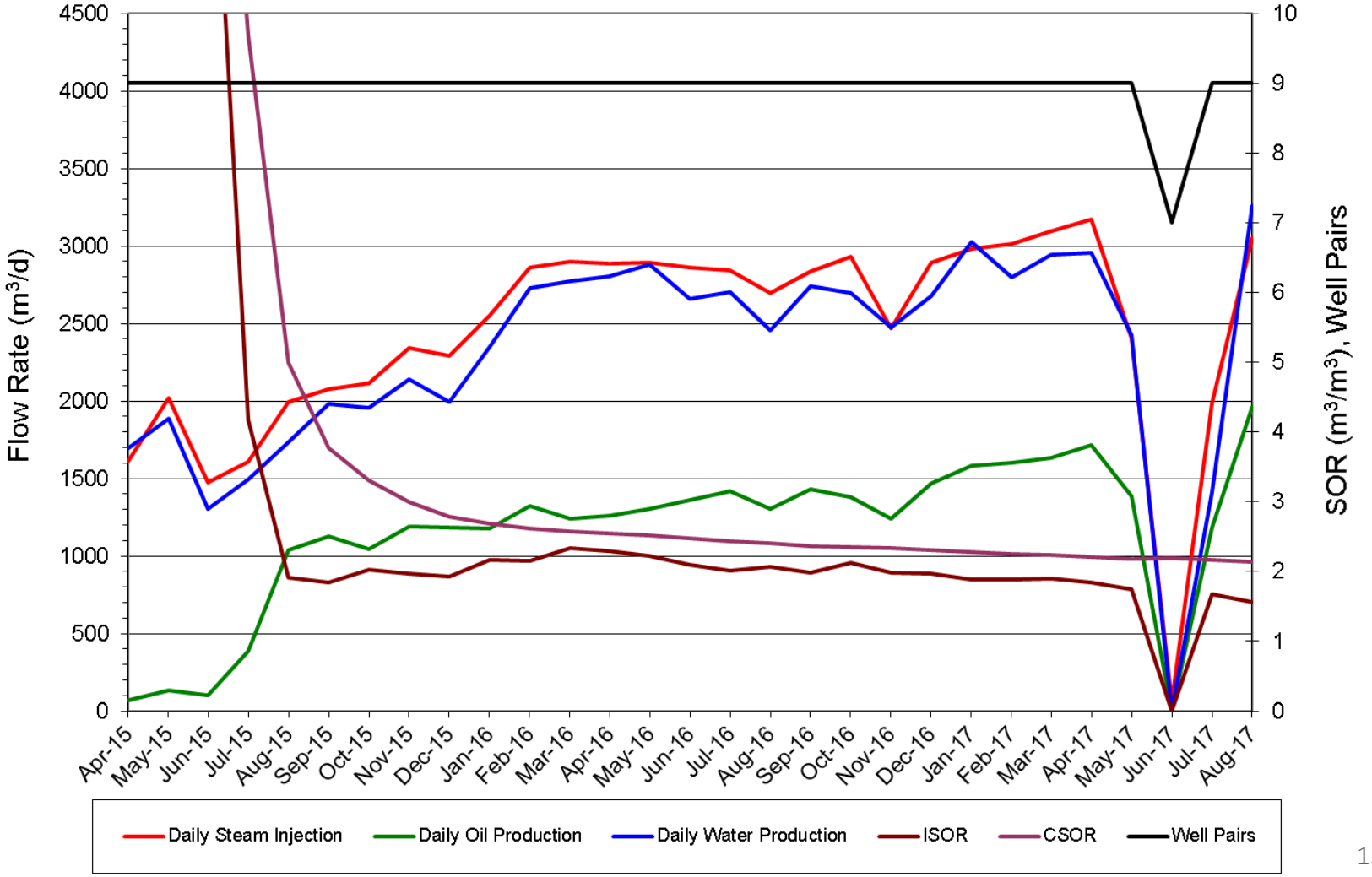
3.1.1-7h



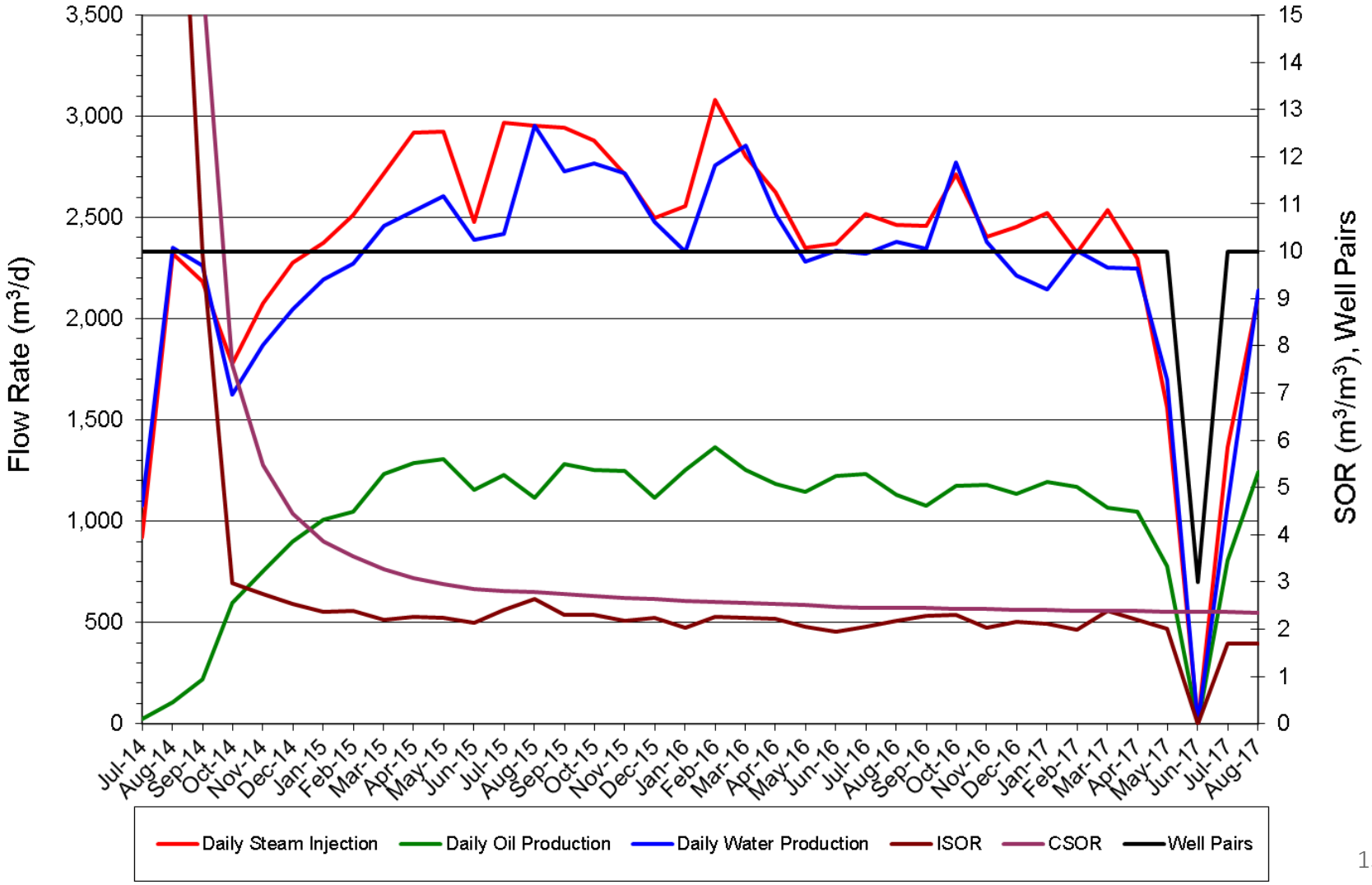
Pad RR Performance

Jackfish 3 Pad RR Life Plot

3.1.1-7h



Pad VV Performance

Jackfish 3 Pad VV Life Plot

3.1.1-7h