



Canadian Natural

KIRBY SOUTH SUBSURFACE APPENDIX

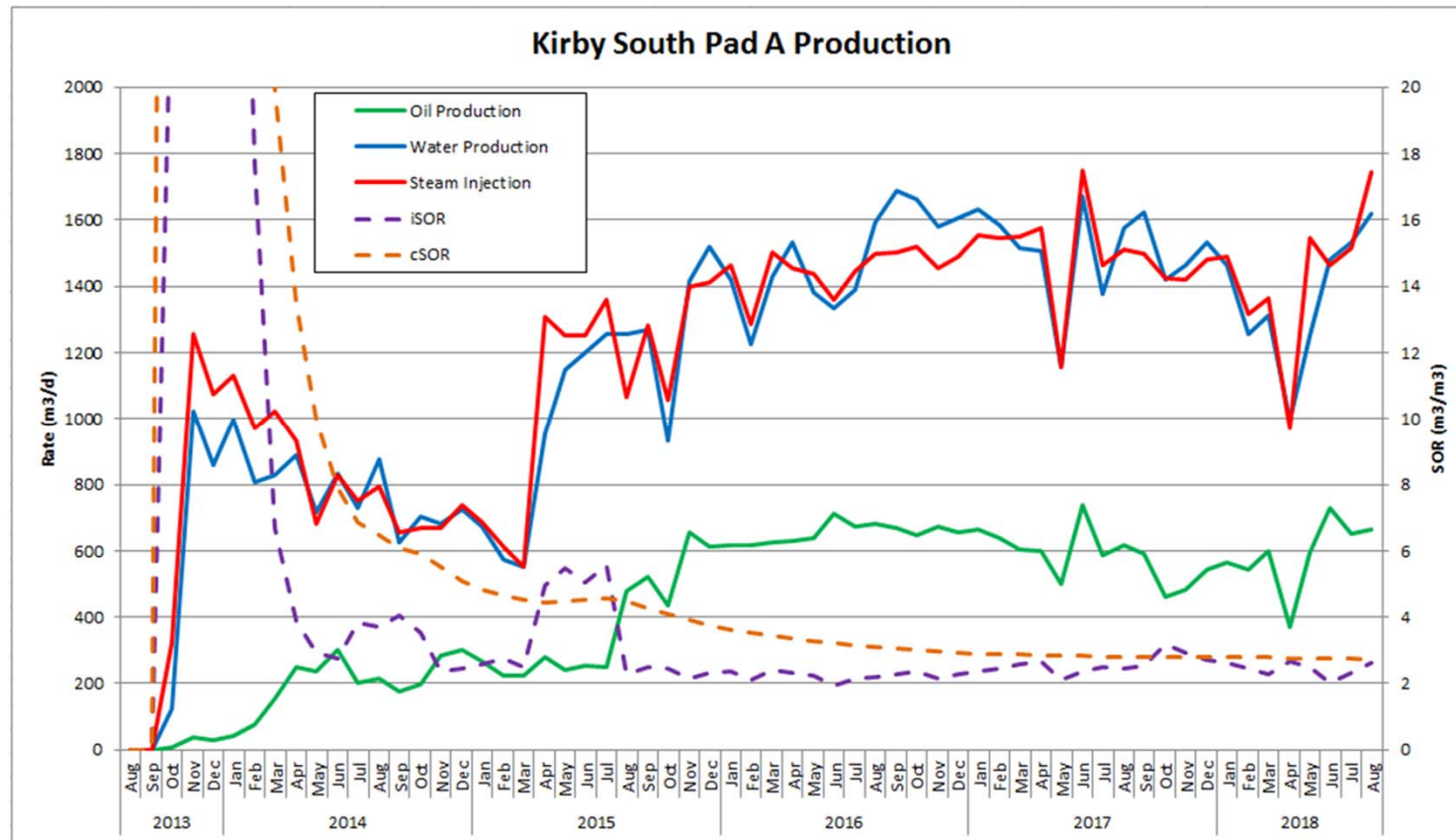
10/03/2018

PREMIUM VALUE. DEFINED GROWTH. INDEPENDENT.

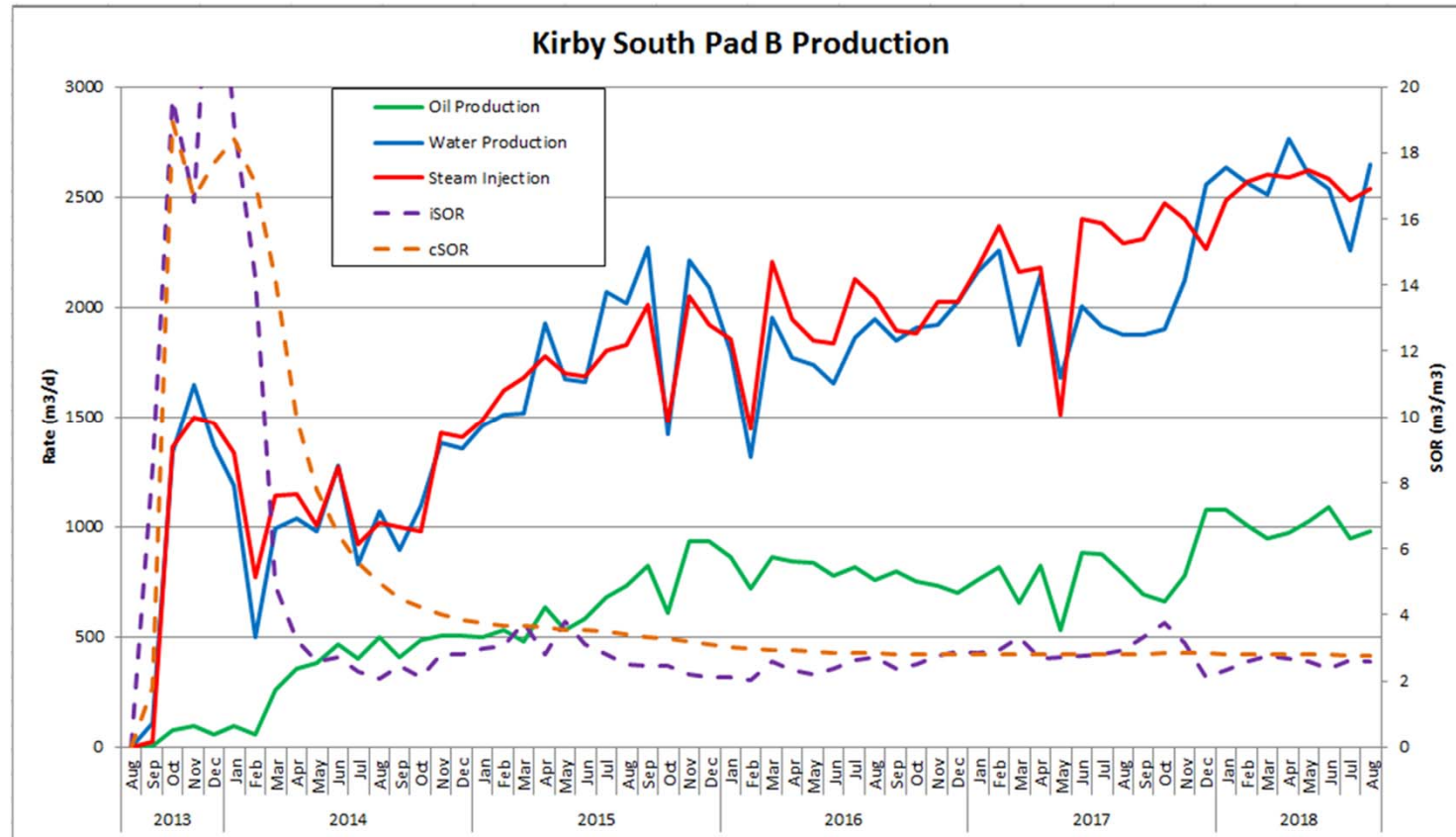


APPENDIX A PRODUCTION PLOTS

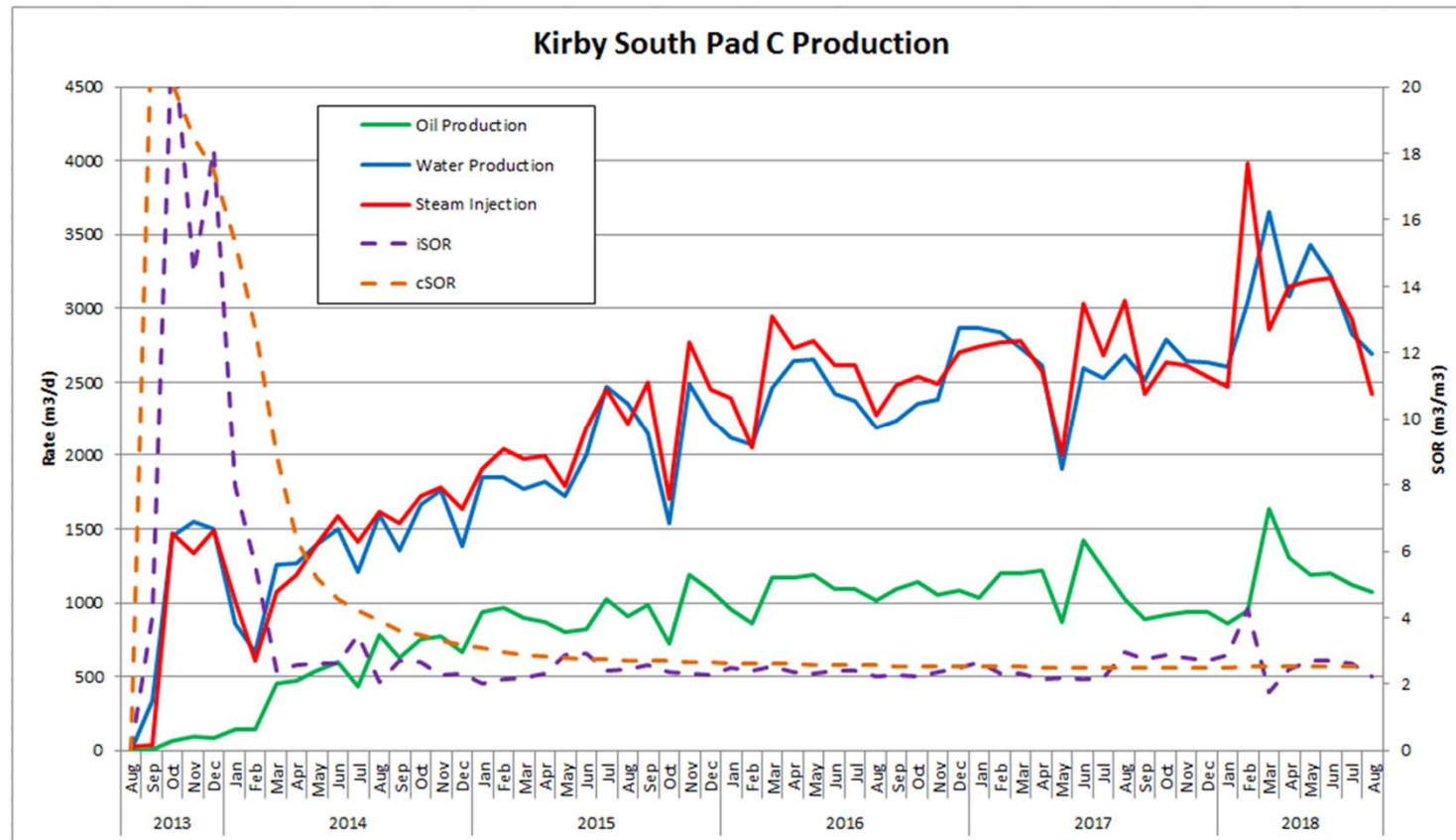
Pad A Production



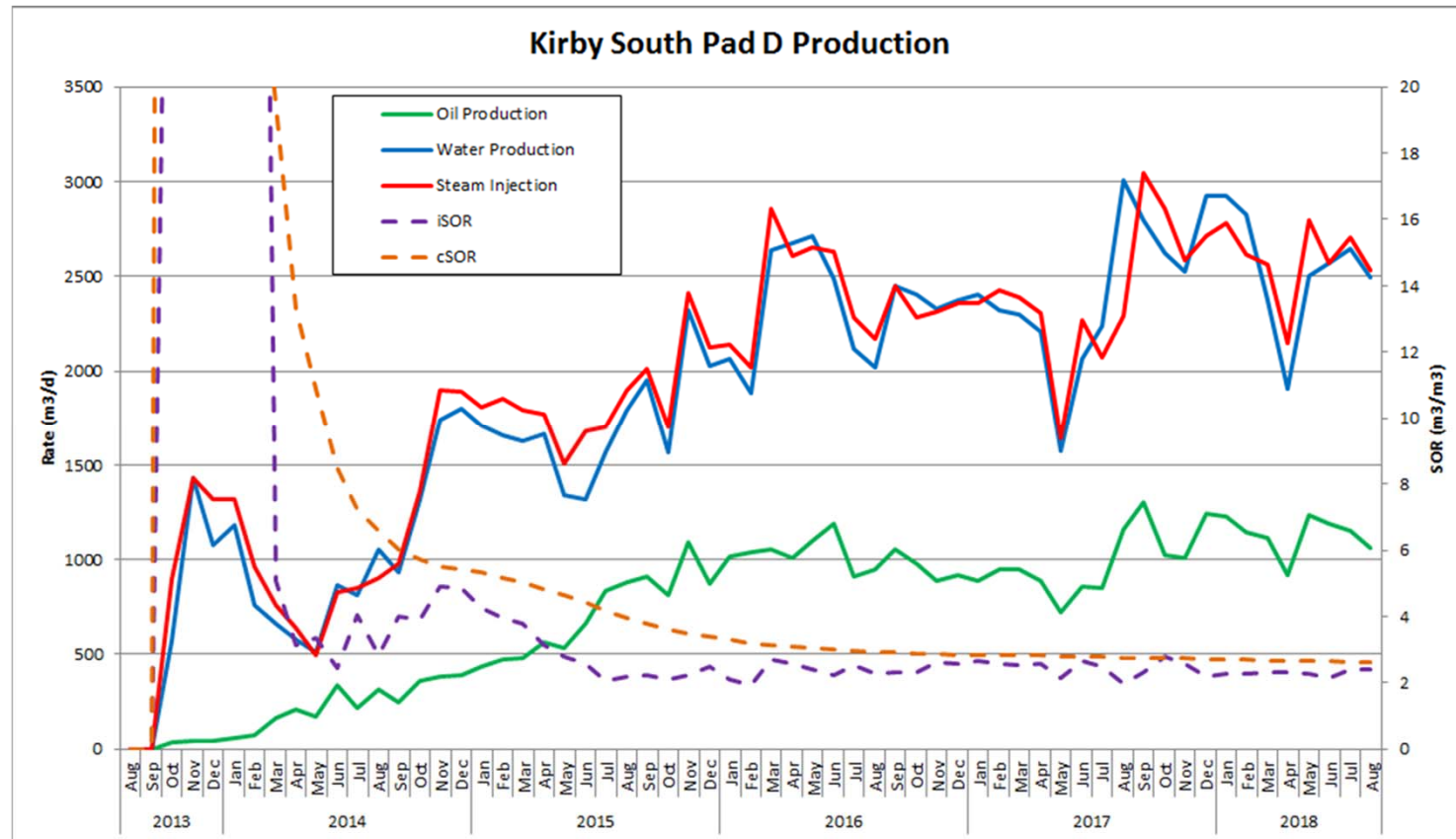
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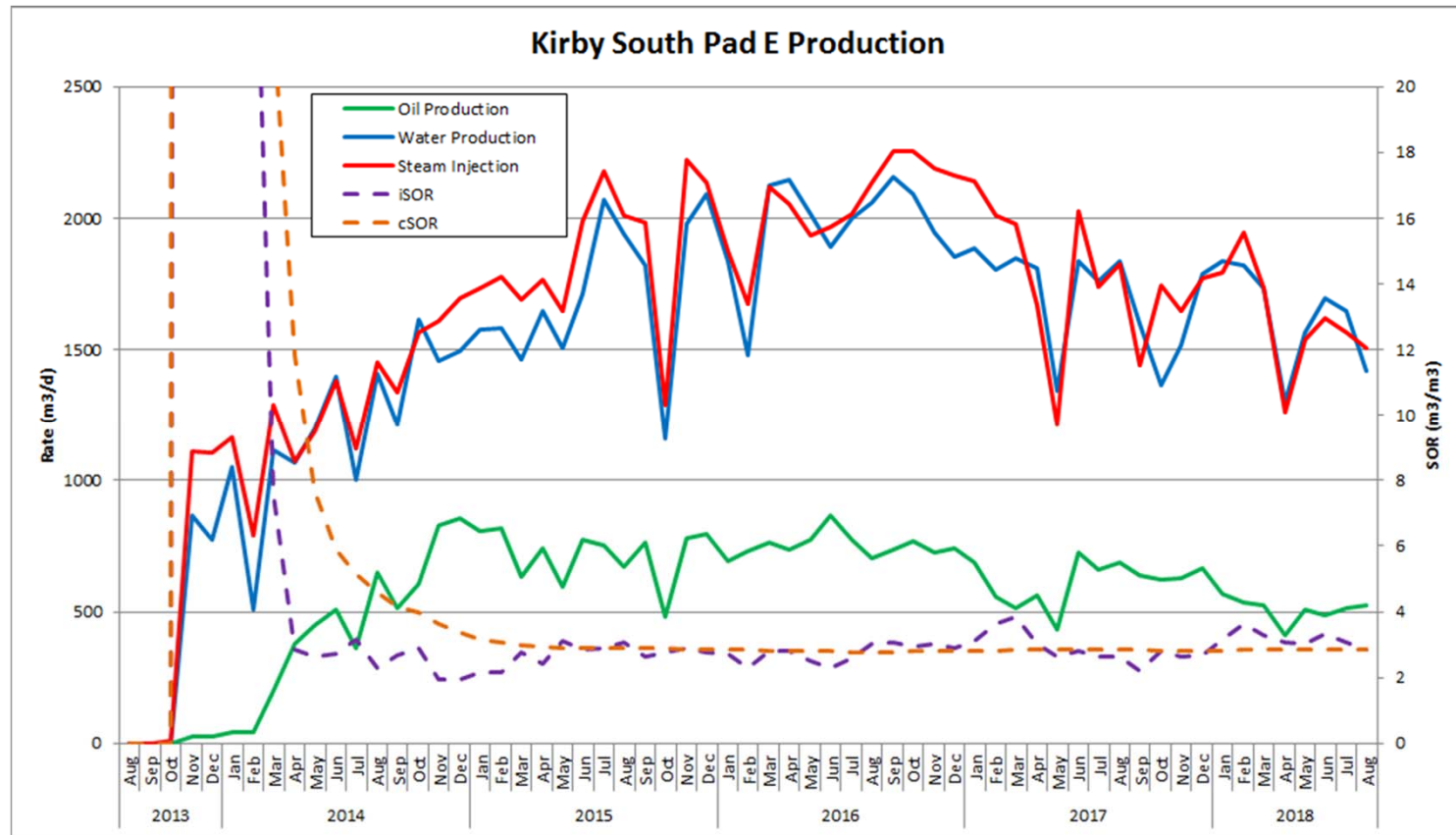
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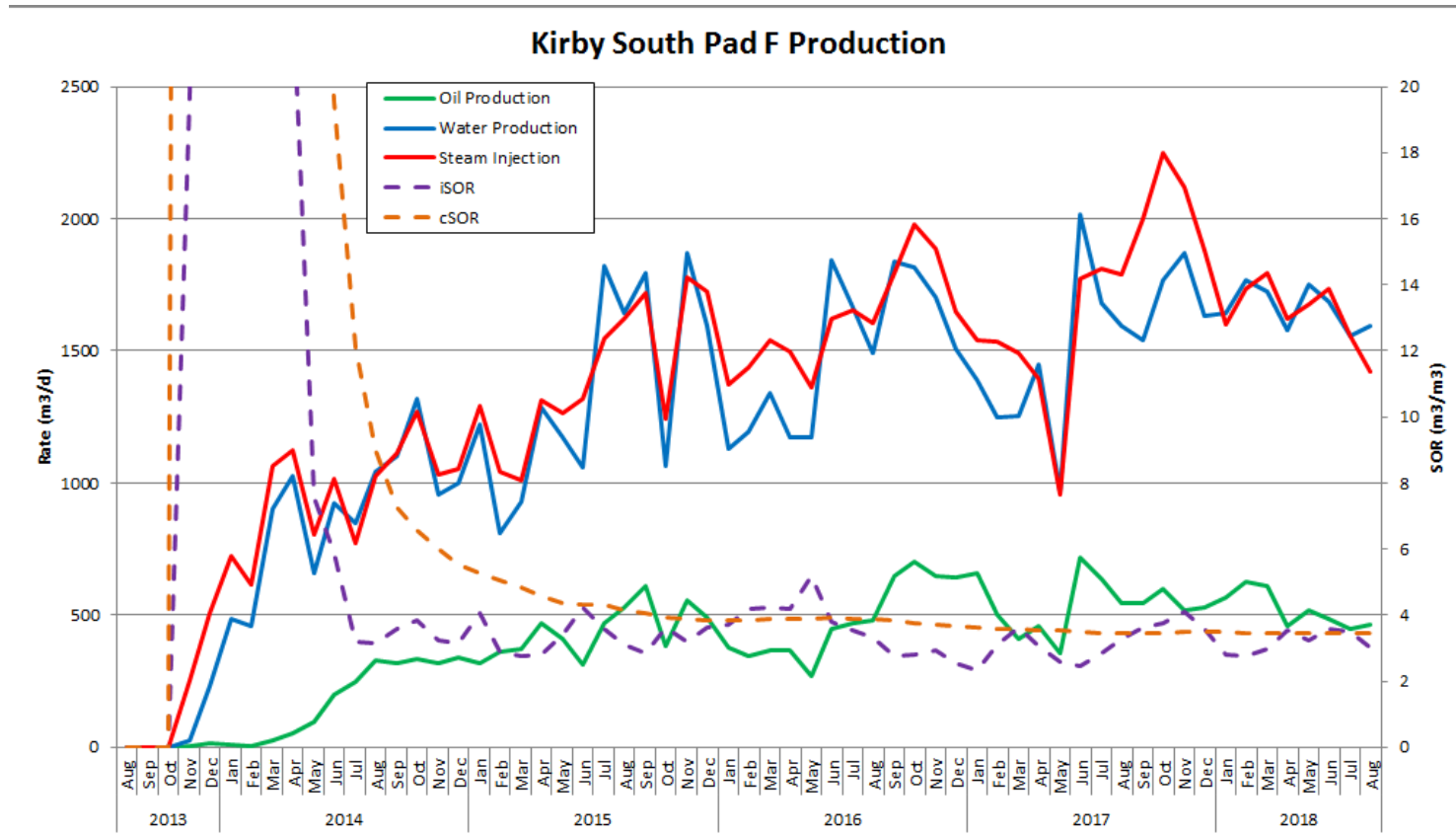
Pad D Production



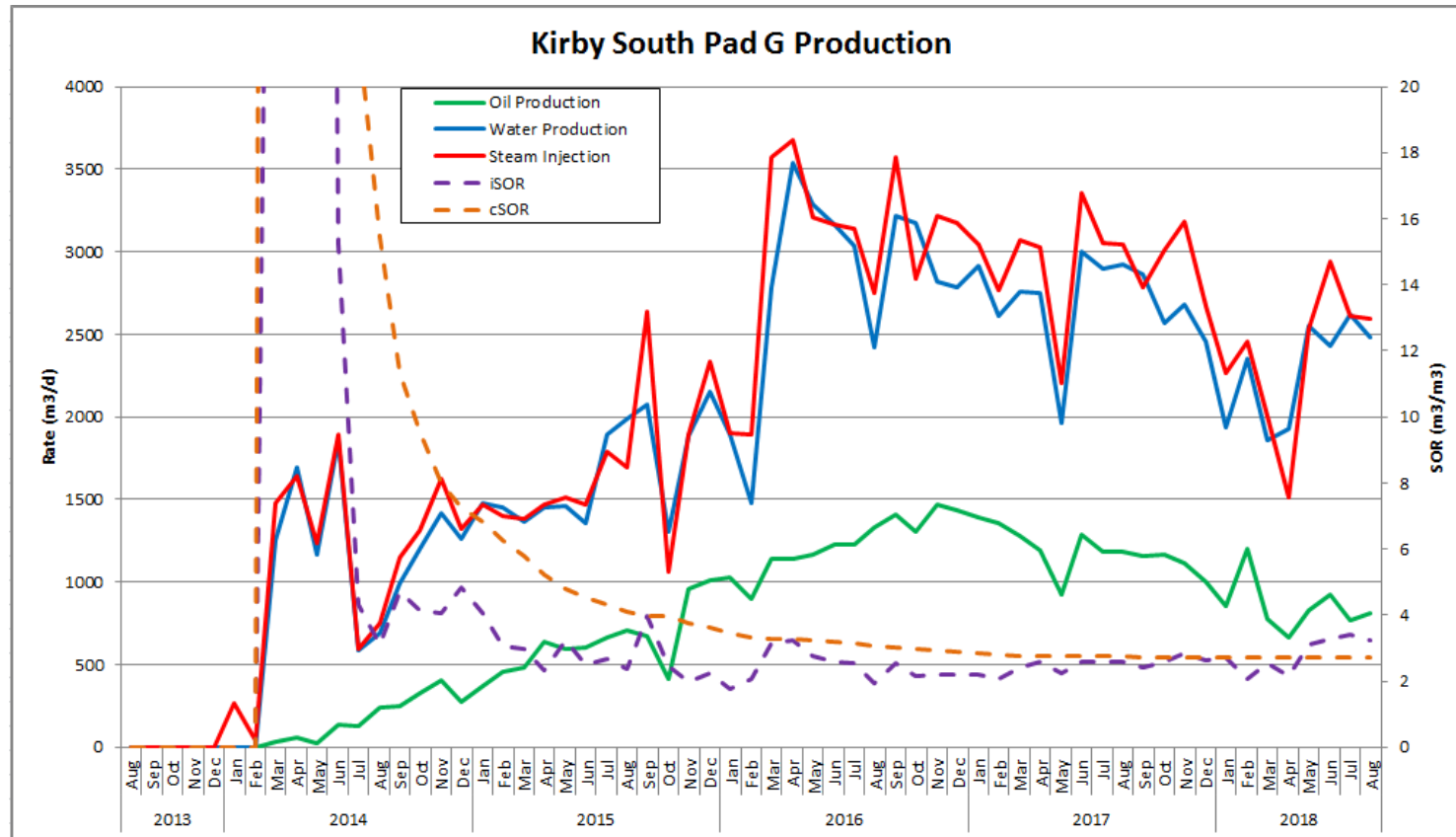
Pad E Production



Pad F Production



Pad G Production



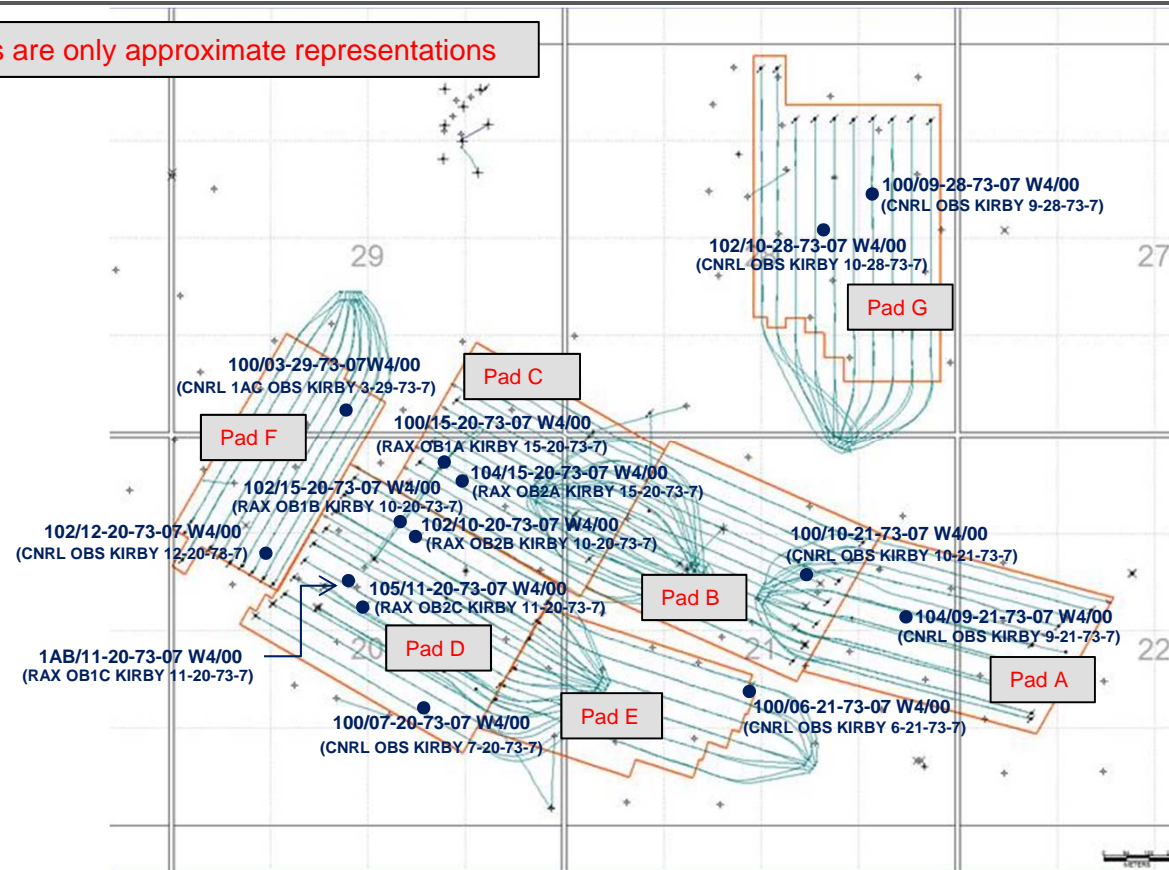


APPENDIX B OBSERVATION WELLS

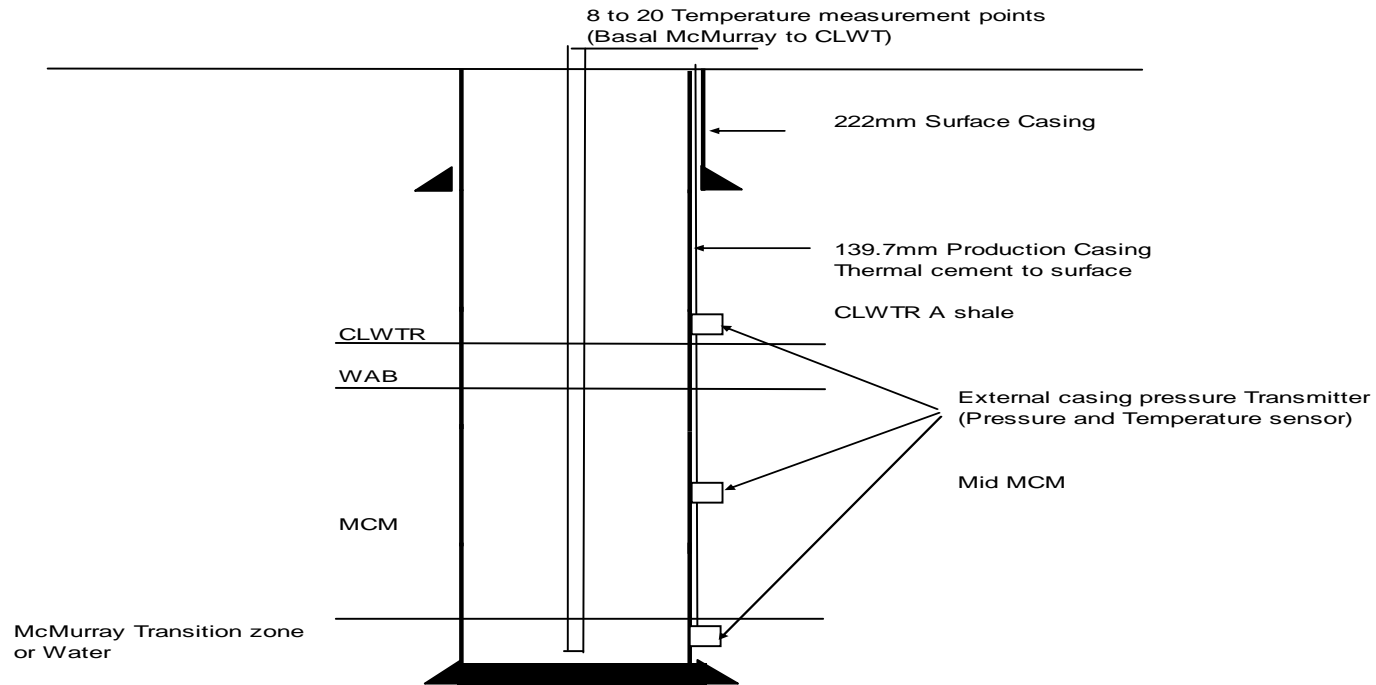
Pad Observation Wells Map

Drainage boxes are only approximate representations

● Observation Wells



Well Schematics Observation Well

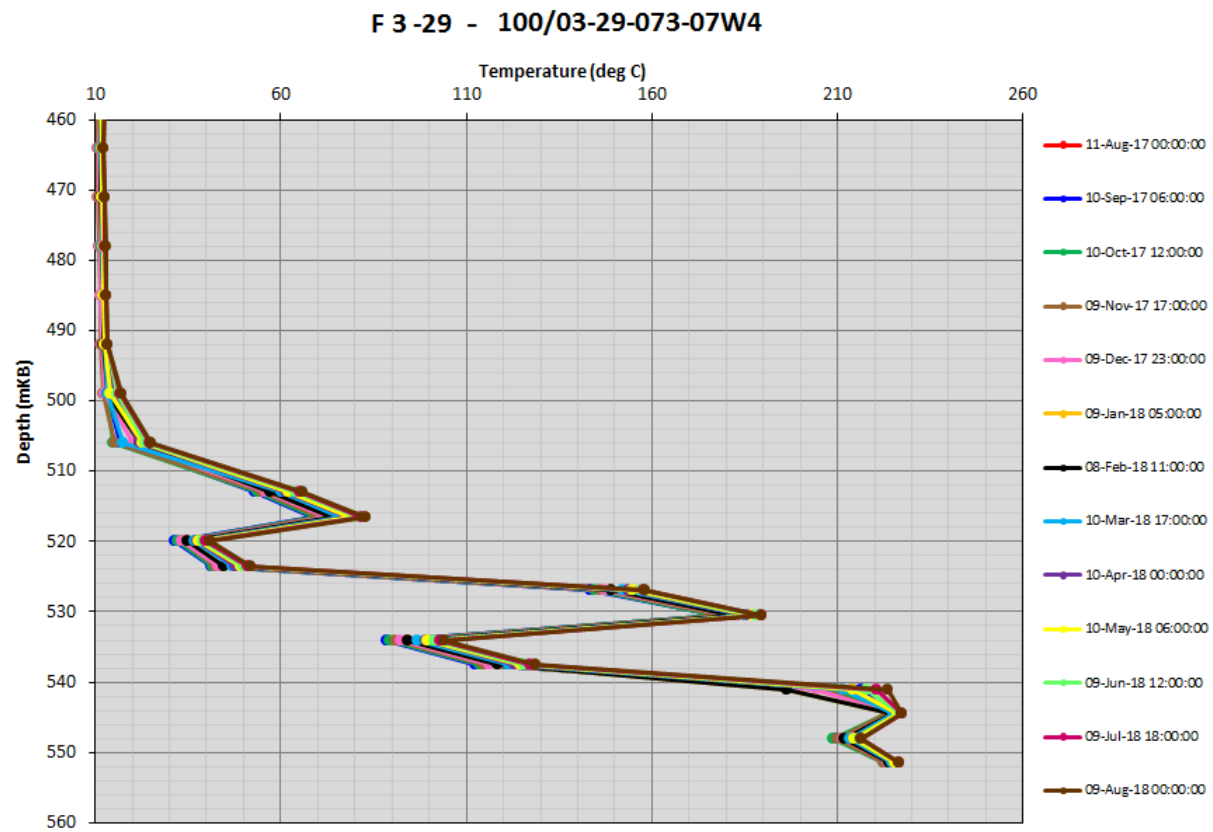


Note: Schematic for 2011-2013 drilled observation wells, as previous wells don't have external casing transmitters

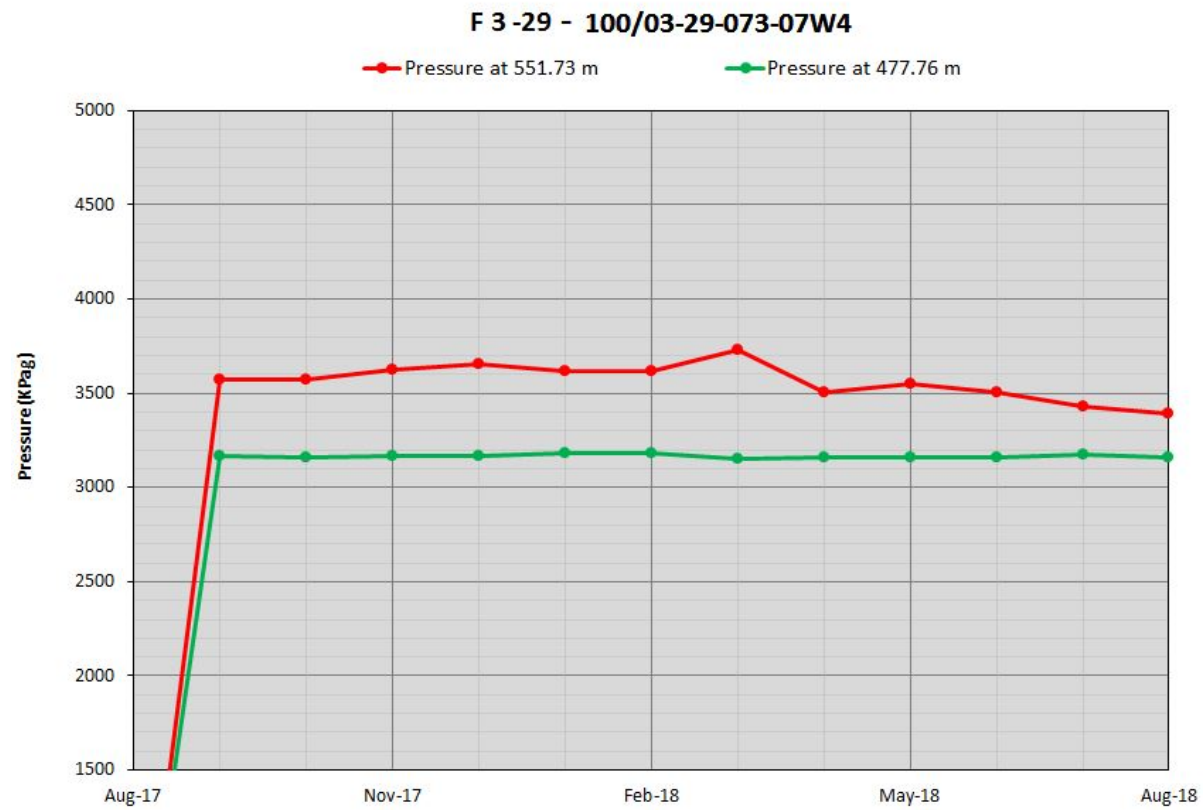
100/03-29-073-07W4/00 (CNRL 1AC OBS KIRBY 3-29-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	PZ pressure @551.73m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	PZ pressure @540.83m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	PZ pressure @477.76m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	PZ Temperature @551.73m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	PZ Temperature @540.83m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	PZ Temperature @477.76m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 551.5m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 548m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 544.5m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @541m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 537.5m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 534m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 530.5m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 527m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 523.5m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 520m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 516.5m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 513m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 506m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 499m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 429m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 485m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 478m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @471m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 464m	F3	5	895	865
100/03-29-073-07W4/00	CNRL 1AC OBS KIRBY 3-29-73-7	TC @ 457m	F3	5	895	865

100/03-29-073-07W4 – 5m from F3



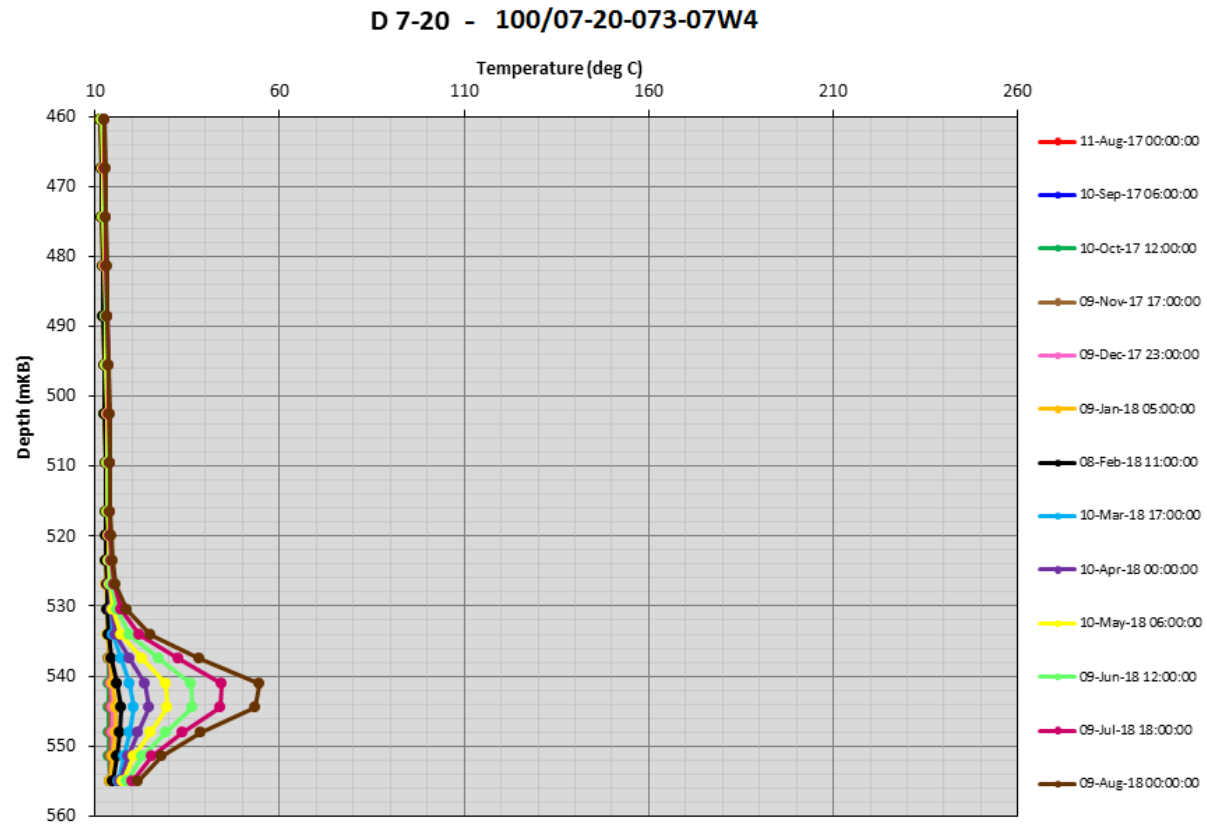
100/03-29-073-07W4 – 5m from F3



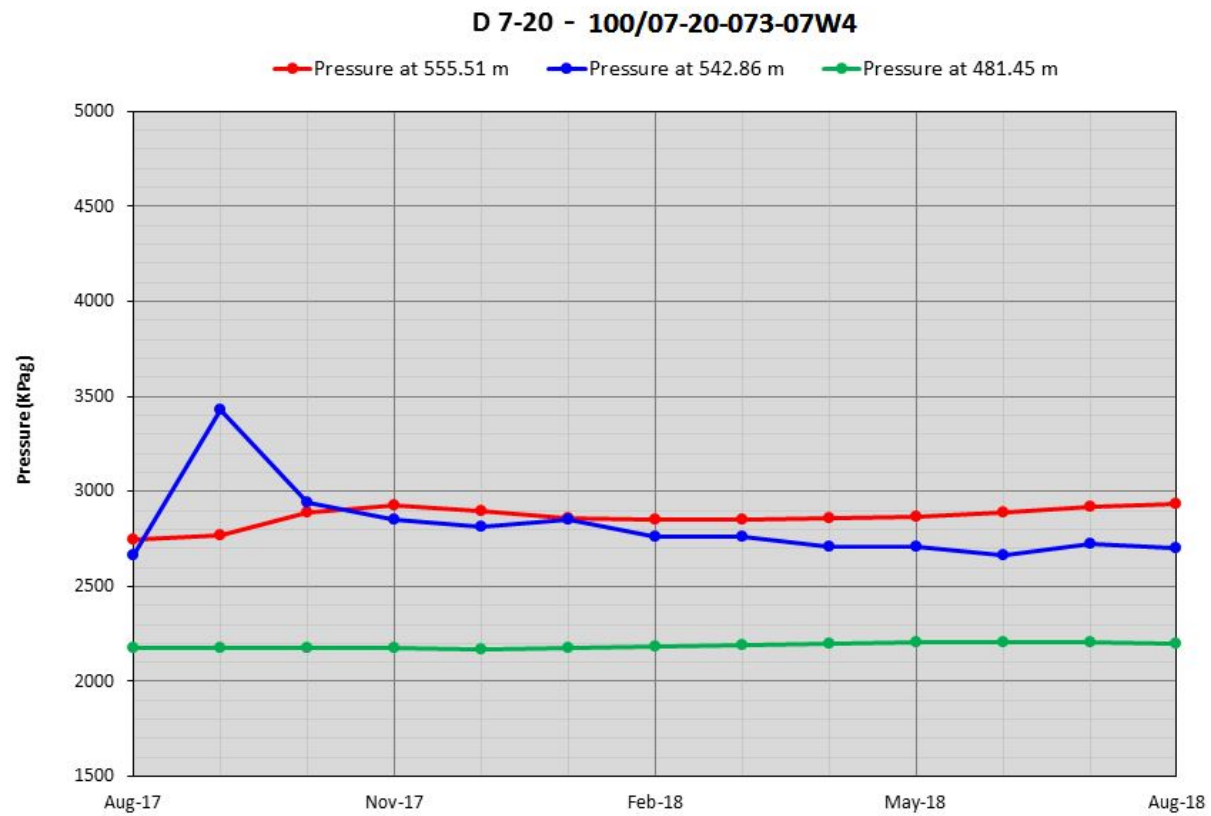
100/07-20-073-07W4/00 (CNRL OBS KIRBY 7-20-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	PZ pressure @551.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	PZ pressure @542.86m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	PZ pressure @481.45m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	PZ Temperature @551.51m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	PZ Temperature @542.86m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	PZ Temperature @481.45m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 555m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 551.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 548m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @544.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 541m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 537.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 534m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 530.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 527m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 523.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 520m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 516.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 509.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 502.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 495.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 488.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 481.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @474.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 467.5m	D8	122	1150	1120
100/07-20-073-07W4/00	CNRL OBS KIRBY 7-20-73-7	TC @ 460.5m	D8	122	1150	1120

100/07-20-073-07W4 – 122m from D8



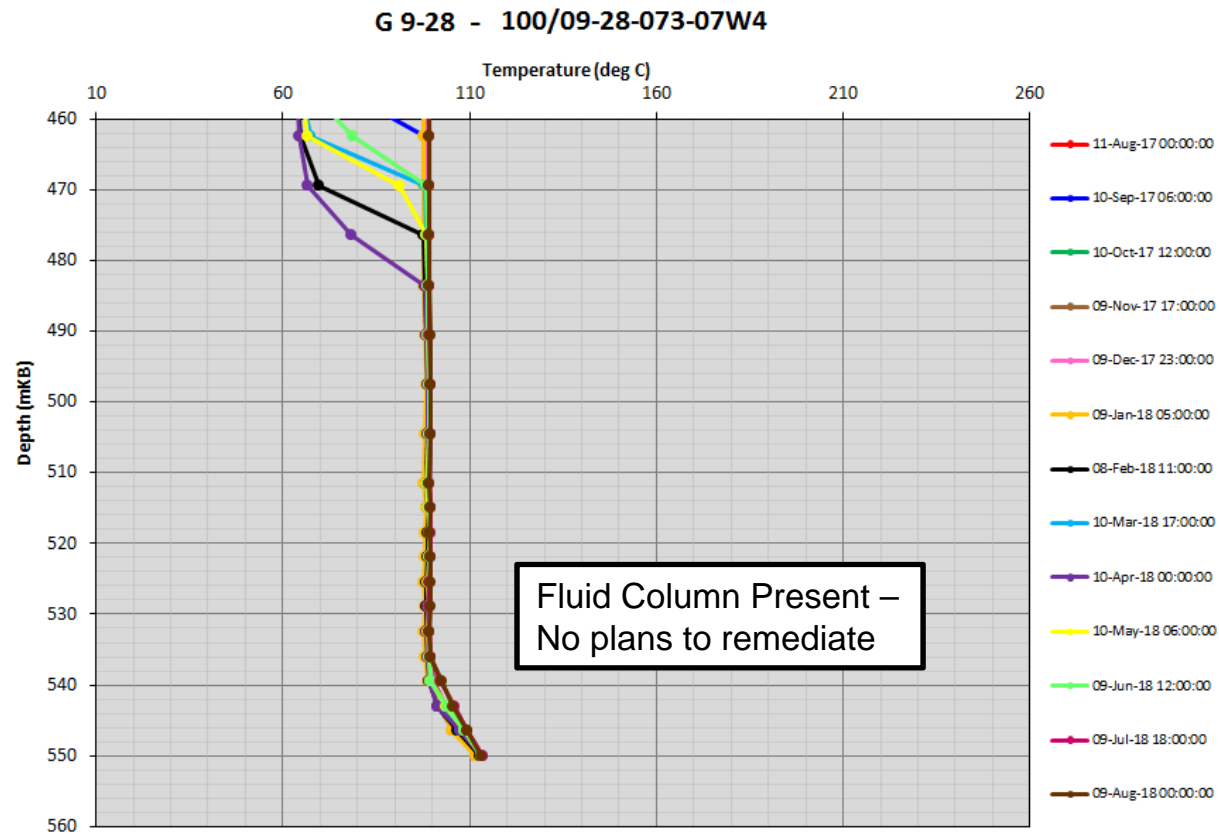
100/07-20-073-07W4 – 122m from D8



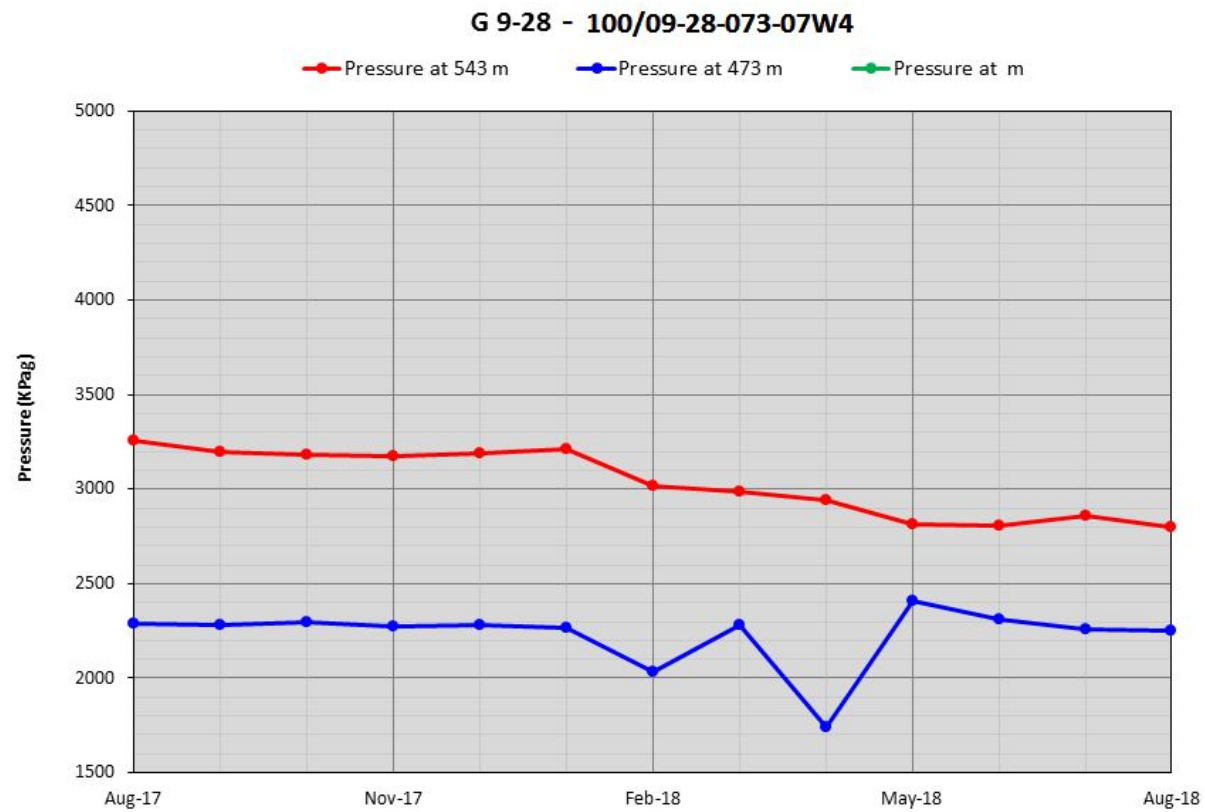
100/09-28-073-07W4/00 (CNRL OBS KIRBY 9-28-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	PZ pressure @543m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	PZ pressure @473m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	PZ Temperature @543m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	PZ Temperature @473m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 550.2m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 546.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 543.2m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 539.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 536.2m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 532.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 529.2m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 525.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 522.2m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 518.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 515.2m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 511.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 504.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 497.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 490.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 483.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 476.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @469.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 462.7m	G5	7	1515	1480
100/09-28-073-07W4/00	CNRL OBS KIRBY 9-28-73-7	TC @ 455.7m	G5	7	1515	1480

100/09-28-073-07W4 – 7m from G5



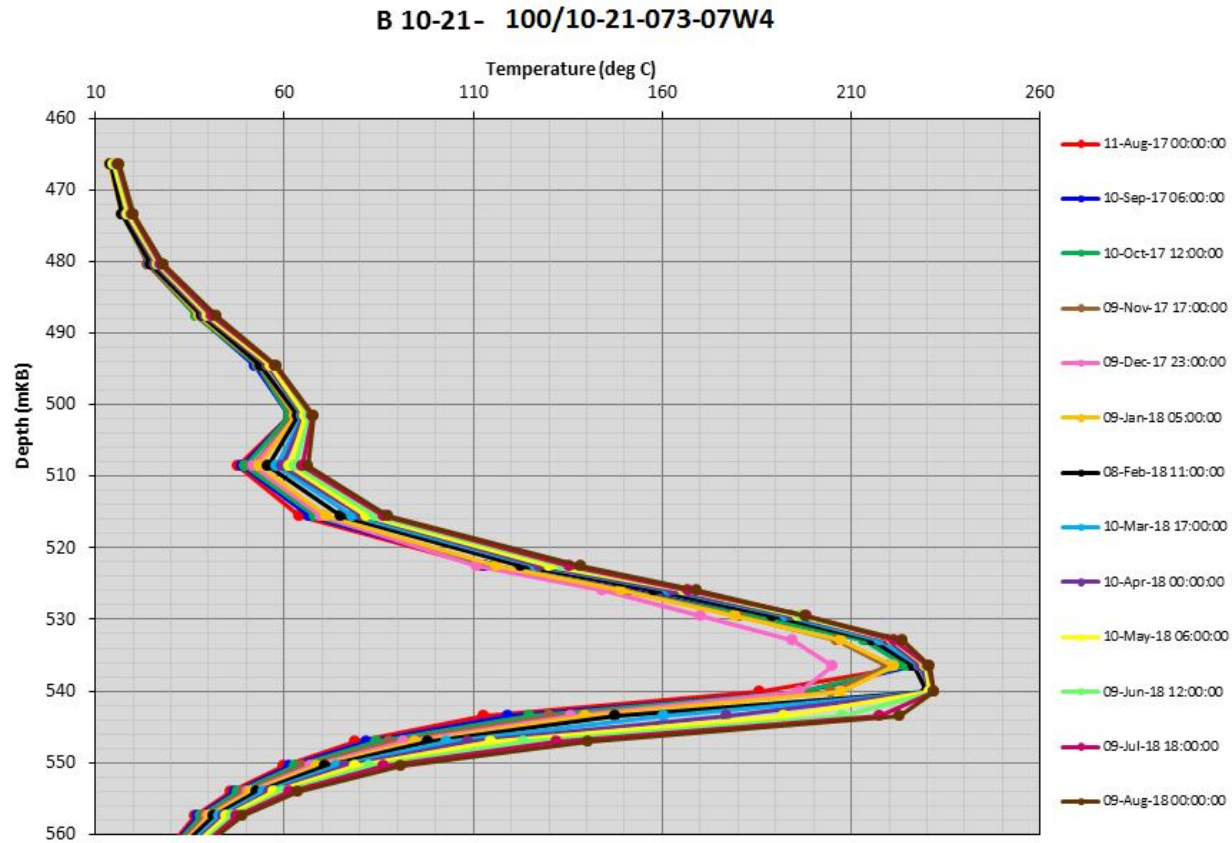
100/09-28-073-07W4 – 7m from G5



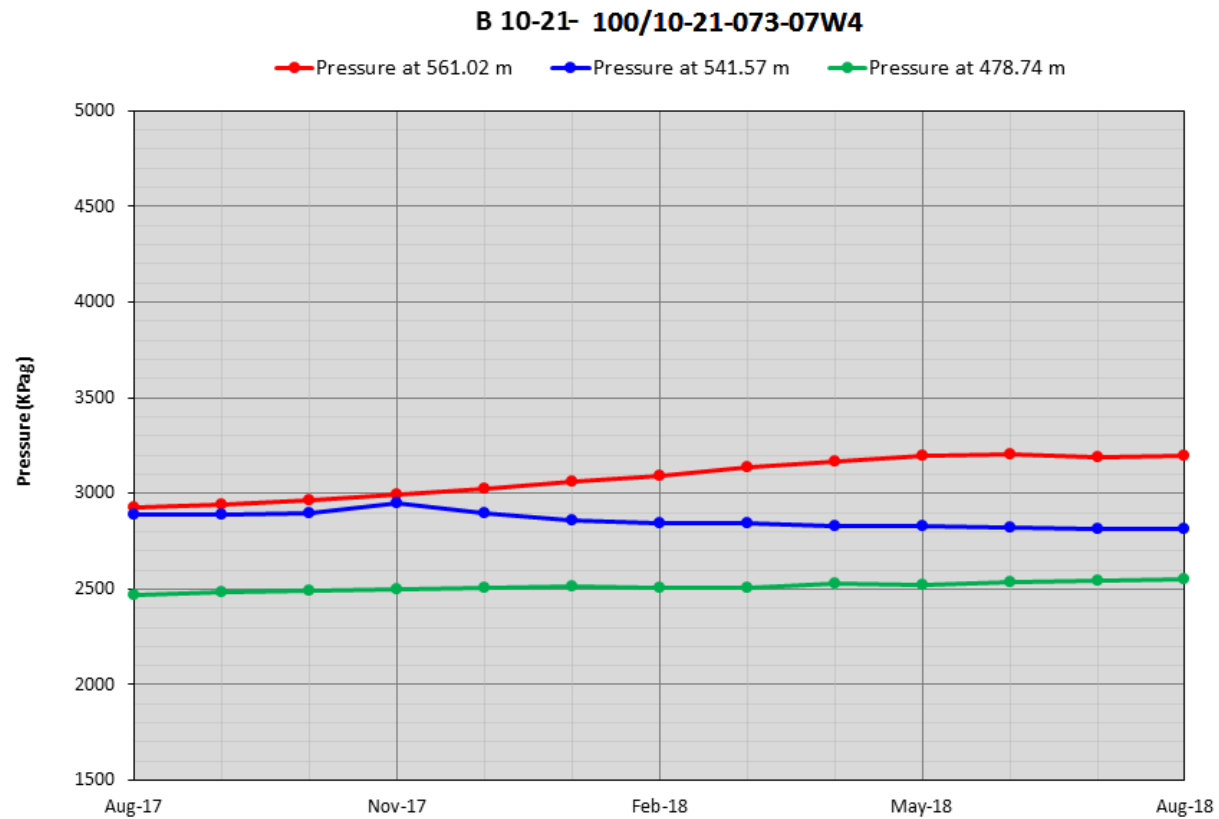
100/10-21-073-07W4/00 (CNRL OBS KIRBY 10-21-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	PZ pressure @561.02m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	PZ pressure @541.57m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	PZ pressure @478.74m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	PZ Temperature @561.02m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	PZ Temperature @541.57m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	PZ Temperature @478.74m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 561.1m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 557.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 554.1m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 550.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 547.1m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 543.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 540.1m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 536.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 533.1m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 529.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 526.1m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 522.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 515.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 508.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 501.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 494.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 487.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 480.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @473.6m	B5	32	1634	1596
100/10-21-073-07W4/00	CNRL OBS KIRBY 10-21-73-7	TC @ 466.6m	B5	32	1634	1596

100/10-21-073-07W4 – 32m from B5



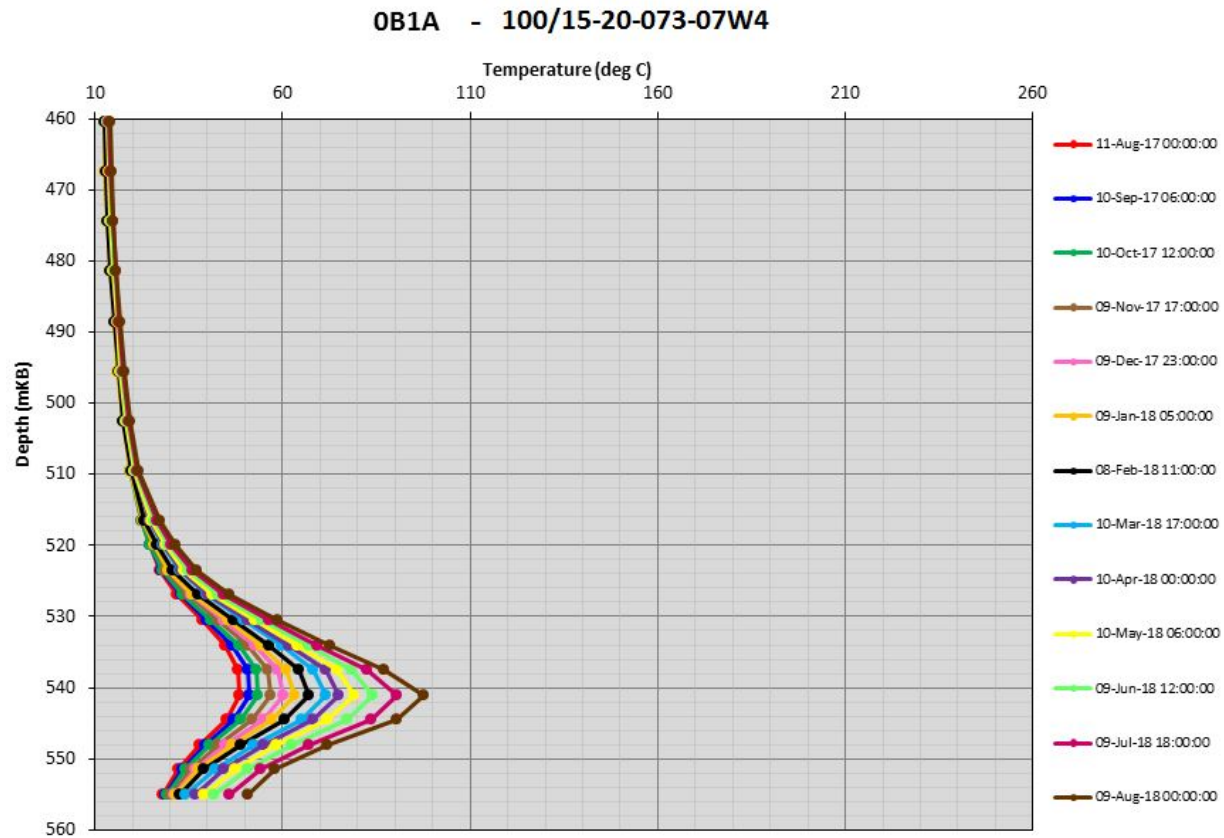
100/10-21-073-07W4 – 32m from B5



100/15-20-073-07W4/00 (RAX OB1A KIRBY 15-20-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 555m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 551.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 548m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 544.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 541m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 537.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 534m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 530.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 527m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 523.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 520m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 516.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 509.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 502.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 495.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 488.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 481.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 474.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 467.5m	C2	36	1610	1575
100/15-20-073-07W4/00	RAX OB1A KIRBY 15-20-73-7	TC @ 460.5m	C2	36	1610	1575

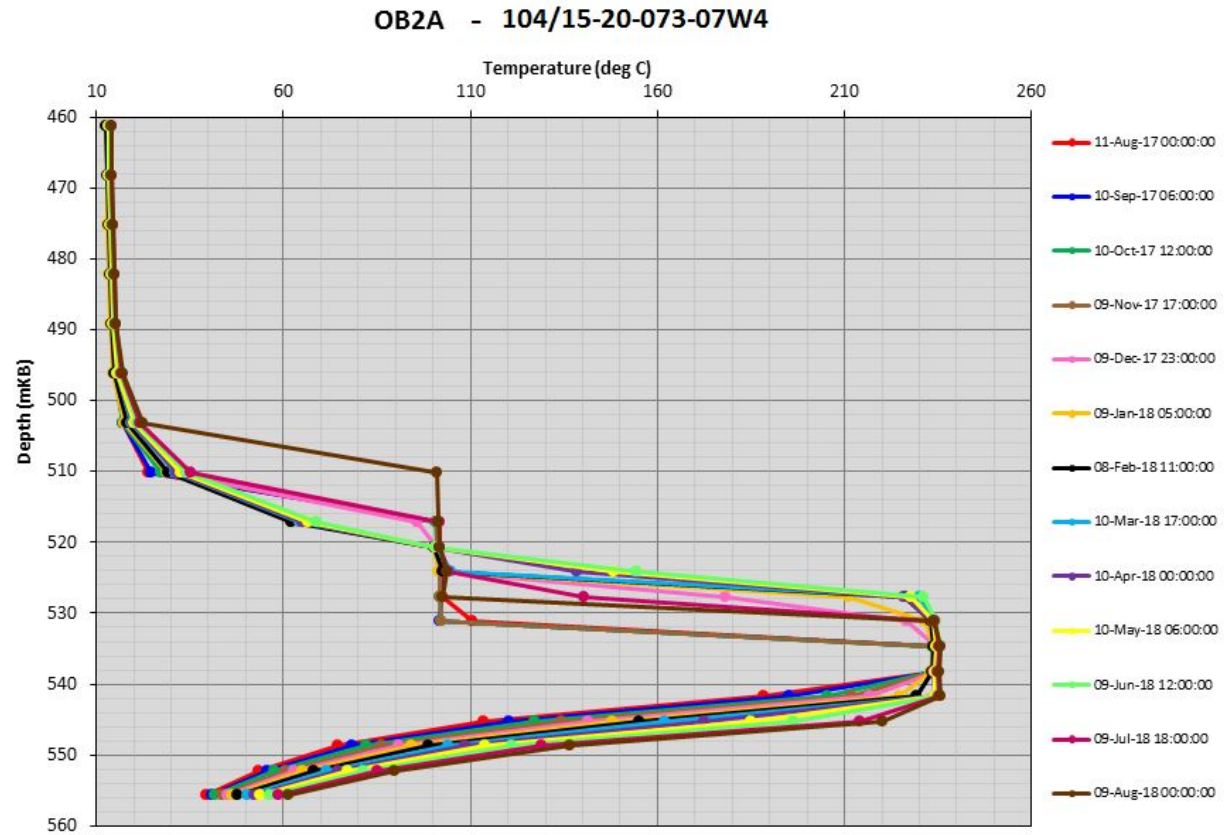
100/15-20-073-07W4 – 36m from C2



102/10-20-073-07W4/00 (RAX OB2B KIRBY 10-20-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 555.8m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 552.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 548.8m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 545.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 541.8m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 538.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 534.8m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 531.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 527.8m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 524.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 520.8m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 517.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 510.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 503.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 496.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 489.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 482.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 475.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 468.3m	D2	5.5	1425	1390
102/10-20-073-07W4/00	RAX OB2B KIRBY 10-20-73-7	TC @ 461.3m	D2	5.5	1425	1390

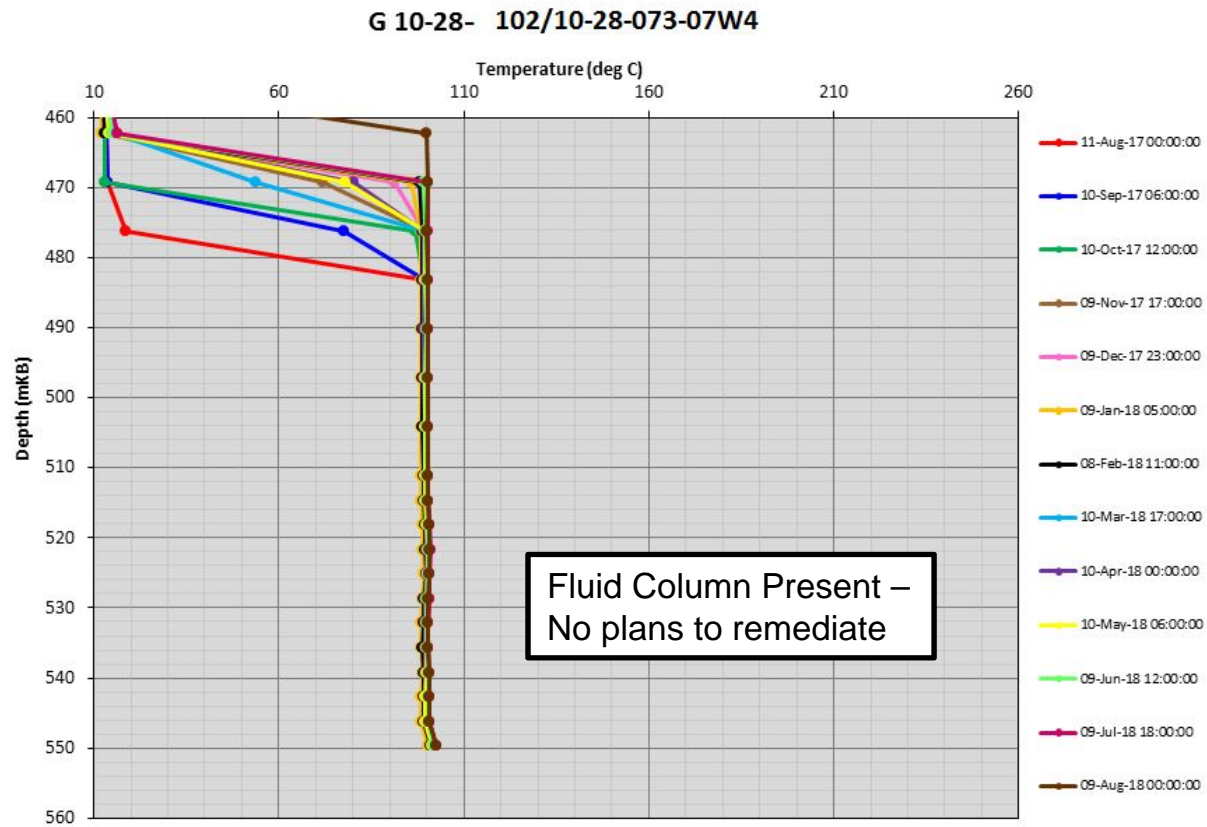
102/10-20-073-07W4 – 5.5m from D2



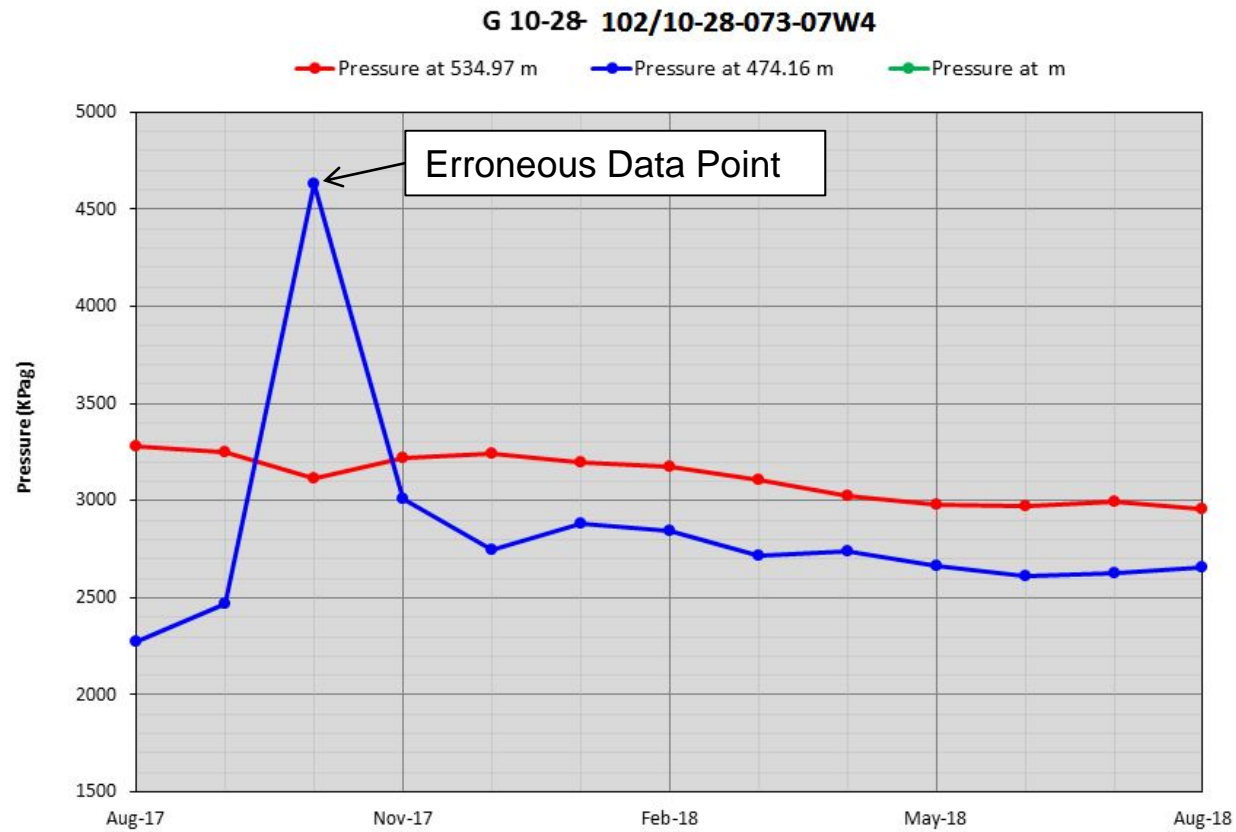
102/10-28-073-07W4/00 (CNRL OBS KIRBY 10-28-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	PZ pressure @ 534.97m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	PZ pressure @ 474.16m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	PZ Temperature @ 534.97m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	PZ Temperature @ 474.16m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 549.9m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 546.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 542.9m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 539.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 535.9m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 532.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 528.9m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 525.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 521.9m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 518.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 514.9m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 511.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 504.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 497.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 490.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 483.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 476.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 469.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 462.4m	G2	36	1325	1295
102/10-28-073-07W4/00	CNRL OBS KIRBY 10-28-73-7	TC @ 455.4m	G2	36	1325	1295

102/10-28-073-07W4 – 36m from G2



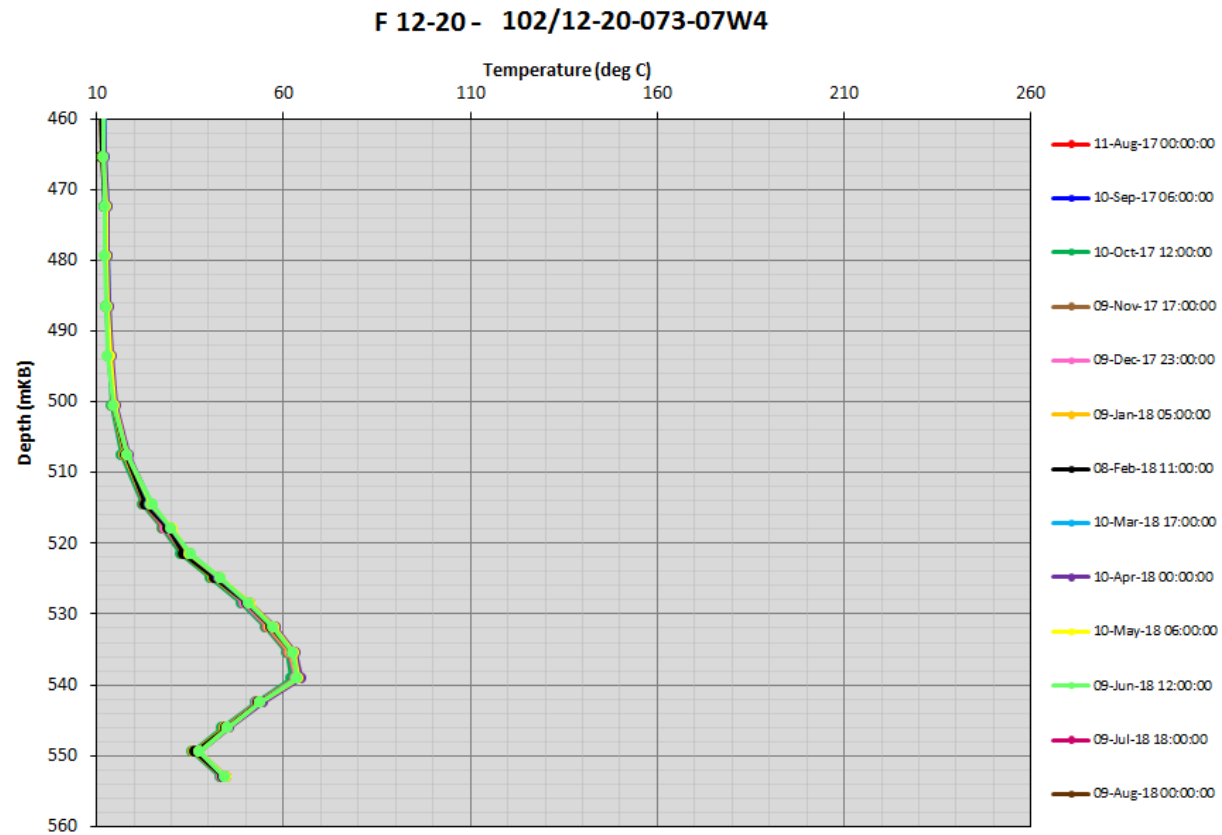
102/10-28-073-07W4 – 36m from G2



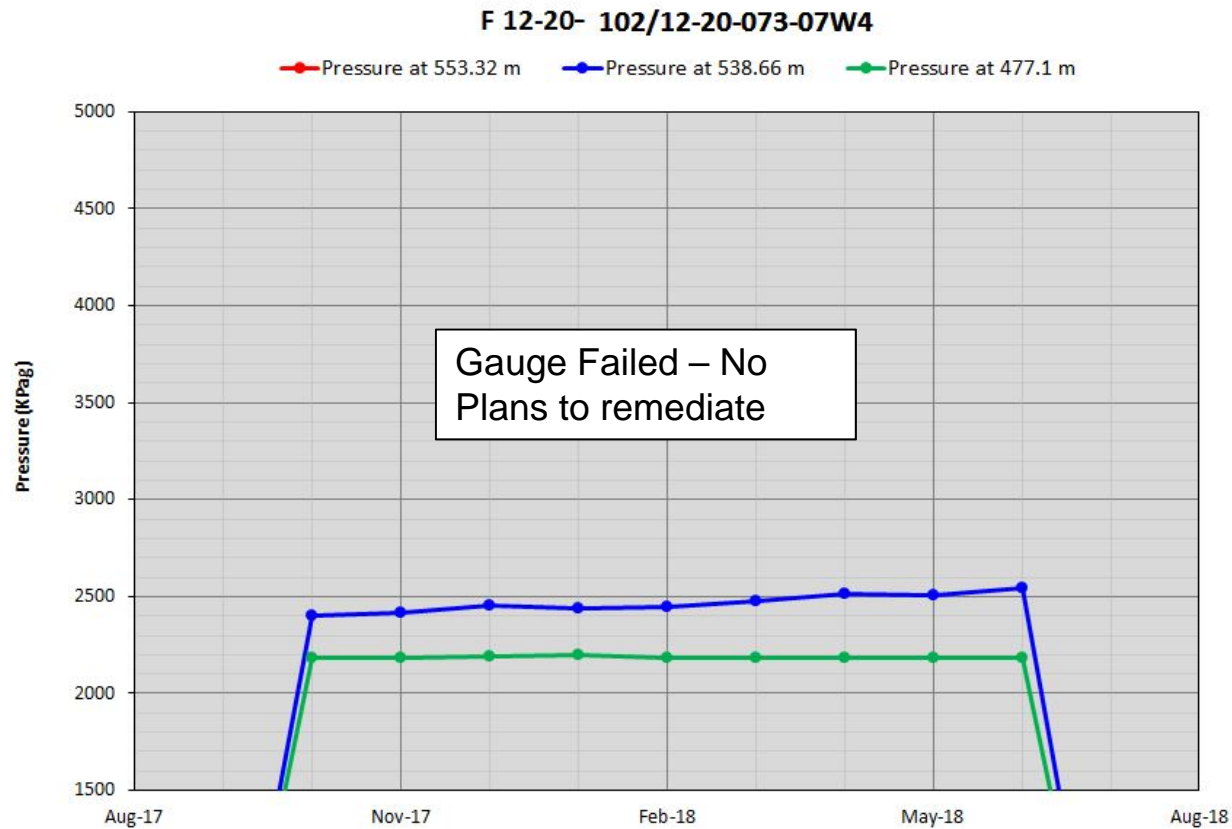
102/12-20-073-07W4/00 (CNRL OBS KIRBY 12-20-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	PZ pressure @ 553.32m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	PZ pressure @ 538.66m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	PZ pressure @ 477.1m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	PZ Temperature @ 553.32m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	PZ Temperature @ 538.66m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	PZ Temperature @ 477.1m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 553.2m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 549.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 546.2m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 542.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 539.2m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 535.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 532.2m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 528.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 525.2m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 521.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 518.2m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 514.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 507.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 500.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 493.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 486.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 479.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 472.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 465.7m	F3	9	1585	1555
102/12-20-073-07W4/00	CNRL OBS KIRBY 12-20-73-7	TC @ 458.7m	F3	9	1585	1555

102/12-20-073-07W4 – 9m from F3



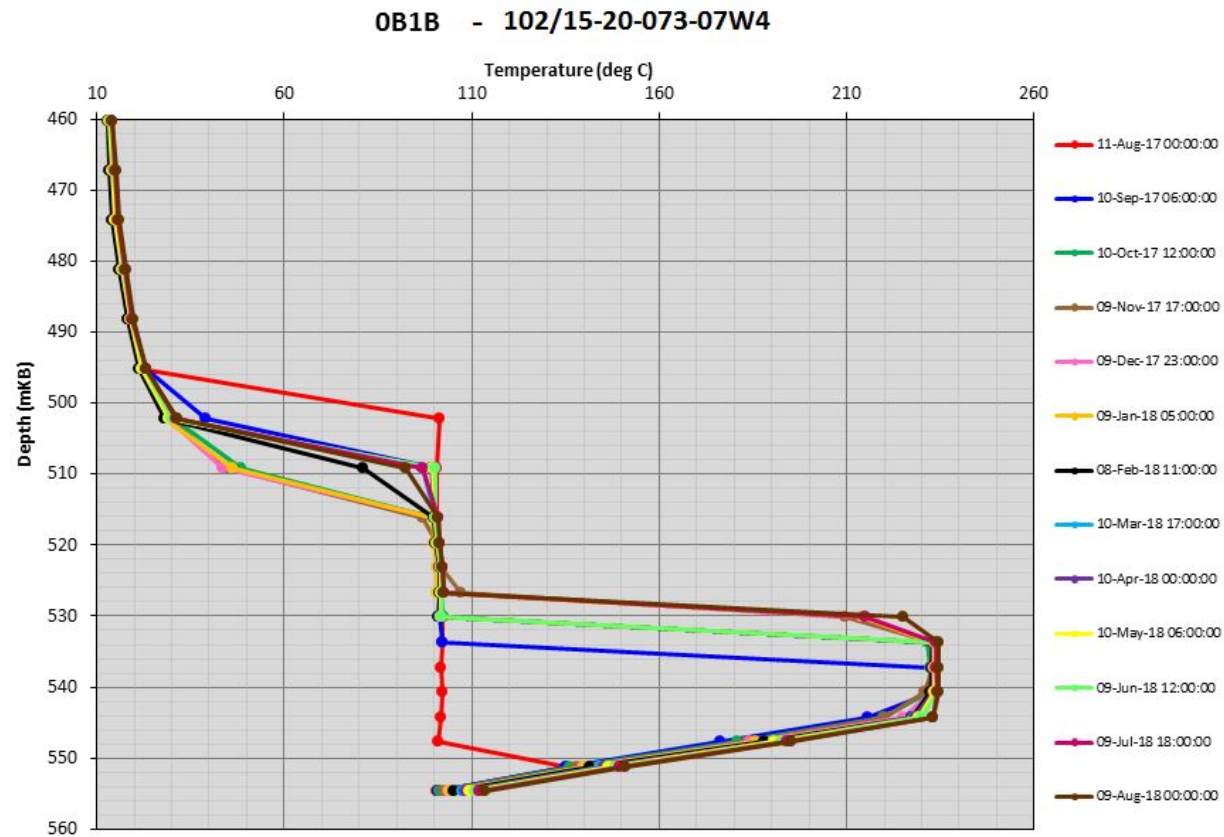
102/12-20-073-07W4 – 9m from F3



102/15-20-073-07W4/00 (RAX OB1B KIRBY 15-20-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 554.7m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 551.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 547.7m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 544.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 540.7m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 537.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 533.7m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 530.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 526.7m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 523.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 519.7m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 516.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 509.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 502.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 495.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 488.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 481.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 474.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 467.2m	D2	5	1530	1495
102/15-20-073-07W4/00	RAXOB1B KIRBY 15-20-73-7	TC @ 460.2m	D2	5	1530	1495

102/15-20-073-07W4 – 5m from D2

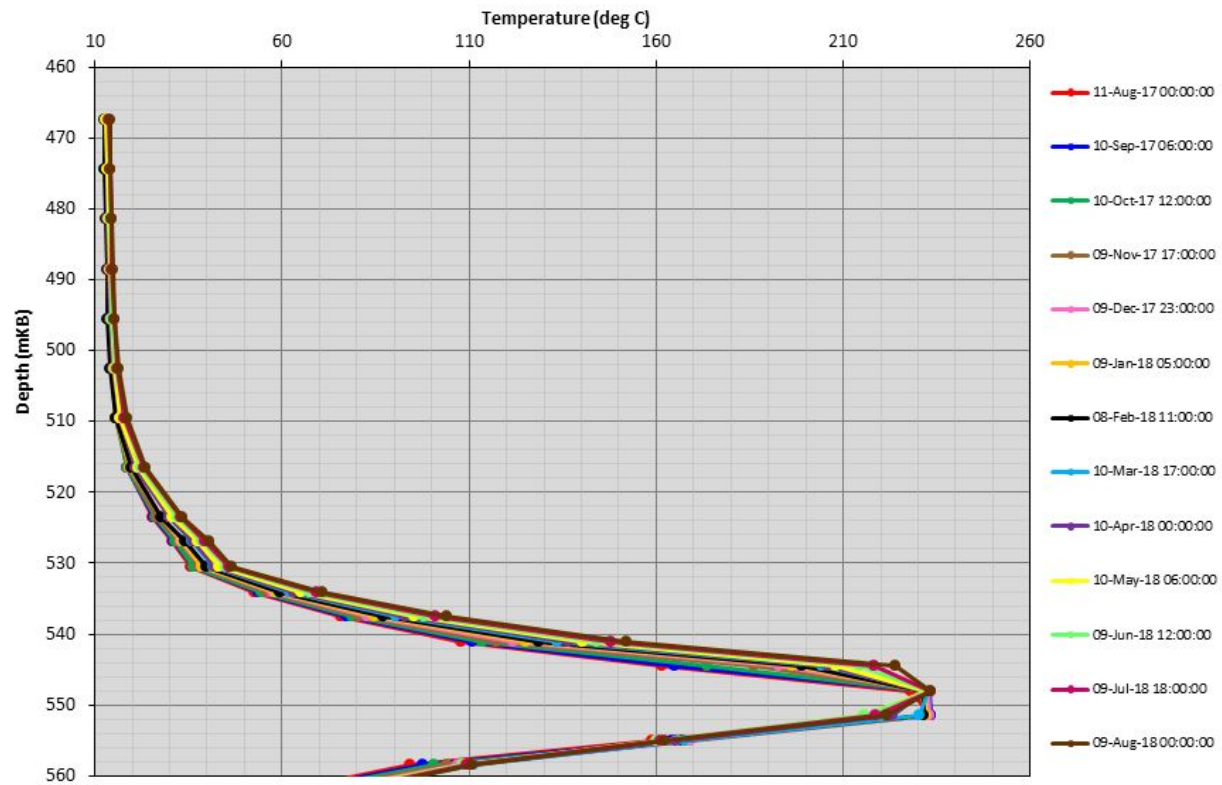


104/09-21-073-07W4/00 (CNRL OBS KIRBY 9-21-73-7)

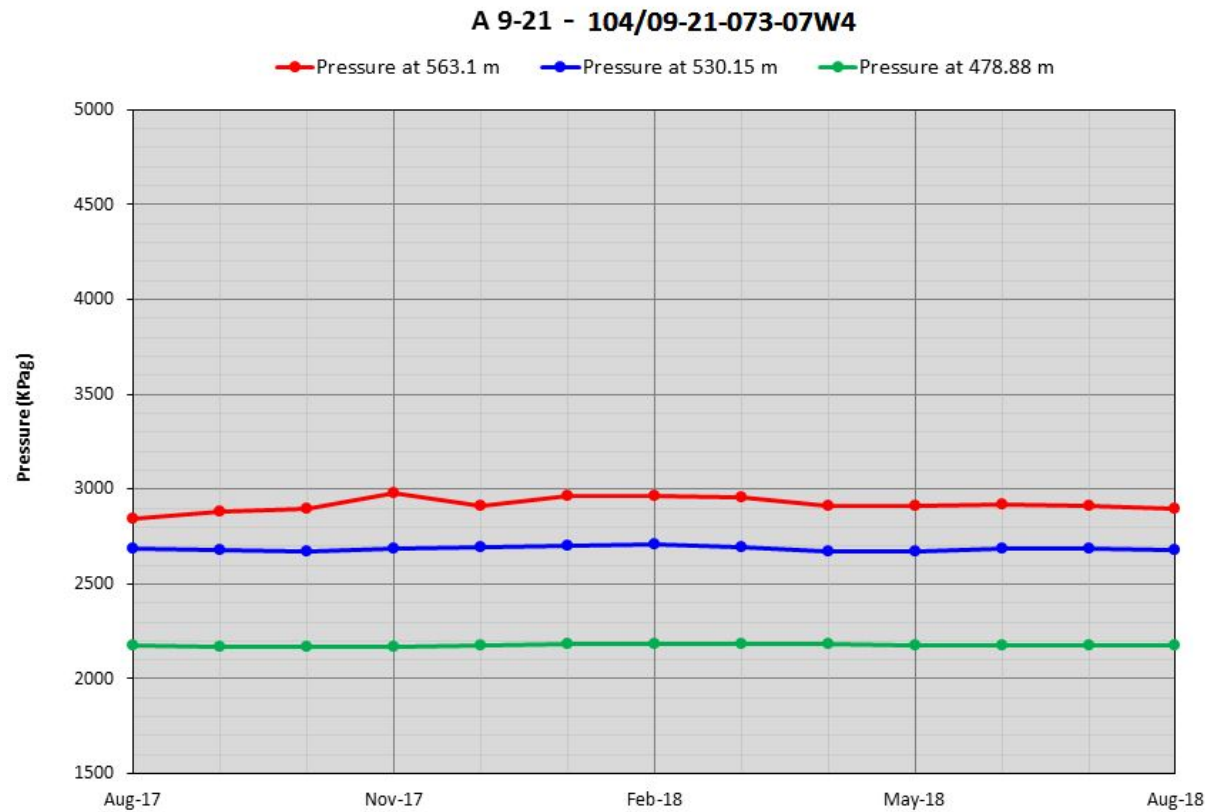
UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	PZ pressure @ 563.1m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	PZ pressure @ 530.15m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	PZ pressure @ 478.88m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	PZ Temperature @ 563.1m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	PZ Temperature @ 530.15m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	PZ Temperature @ 478.88m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 562.2m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 558.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 555.2m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 551.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 548.2m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 544.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 541.2m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 537.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 534.2m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 530.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 527.2m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 523.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 516.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 509.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 502.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 495.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 488.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 481.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 474.7m	A4	26	1040	1010
104/09-21-073-07W4/00	CNRL OBS KIRBY 9-21-73-7	TC @ 467.7m	A4	26	1040	1010

104/09-21-073-07W4 – 26m from A4

A 9-21 - 104/09-21-073-07W4



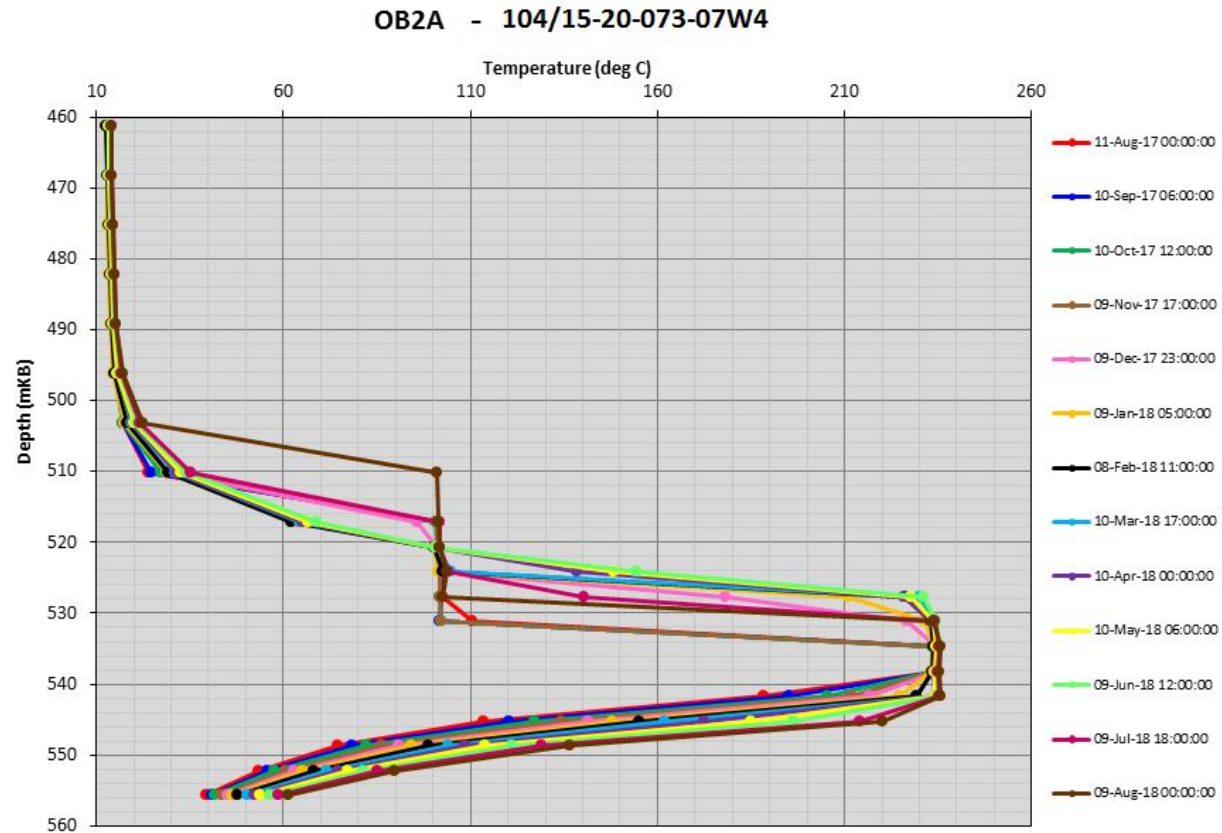
104/09-21-073-07W4 – 26m from A4



104/15-20-073-07W4/00 (RAX OB2A 15-20-73-7W4)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 555.7m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 552.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 548.7m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 545.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 541.7m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 538.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 534.7m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 531.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 527.7m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 524.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 520.7m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 517.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 510.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 503.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 496.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 489.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 482.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 475.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 468.2m	C2	27	1510	1475
104/15-20-073-07W4/00	RAX OB2A 15-20-73-7W4	TC @ 461.2m	C2	27	1510	1475

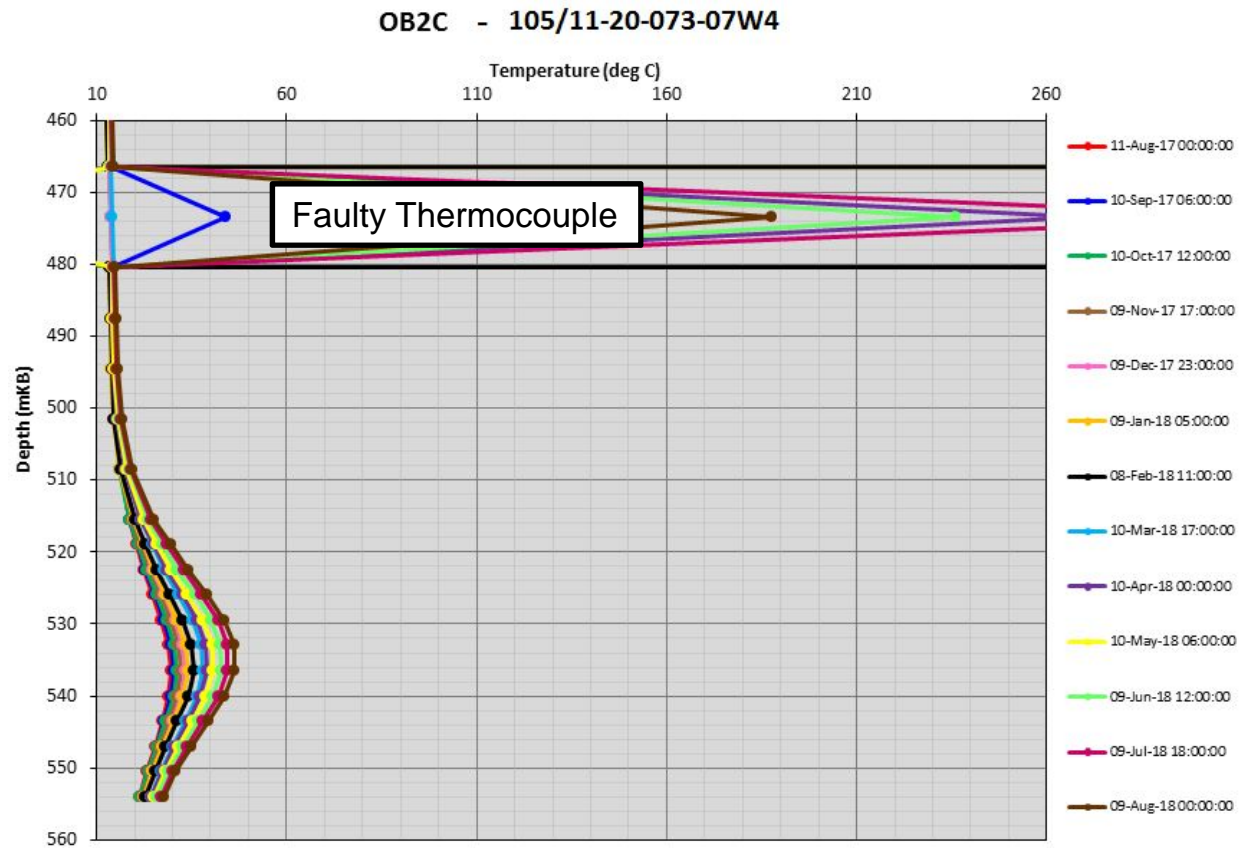
104/15-20-073-07W4 – 27m from C2



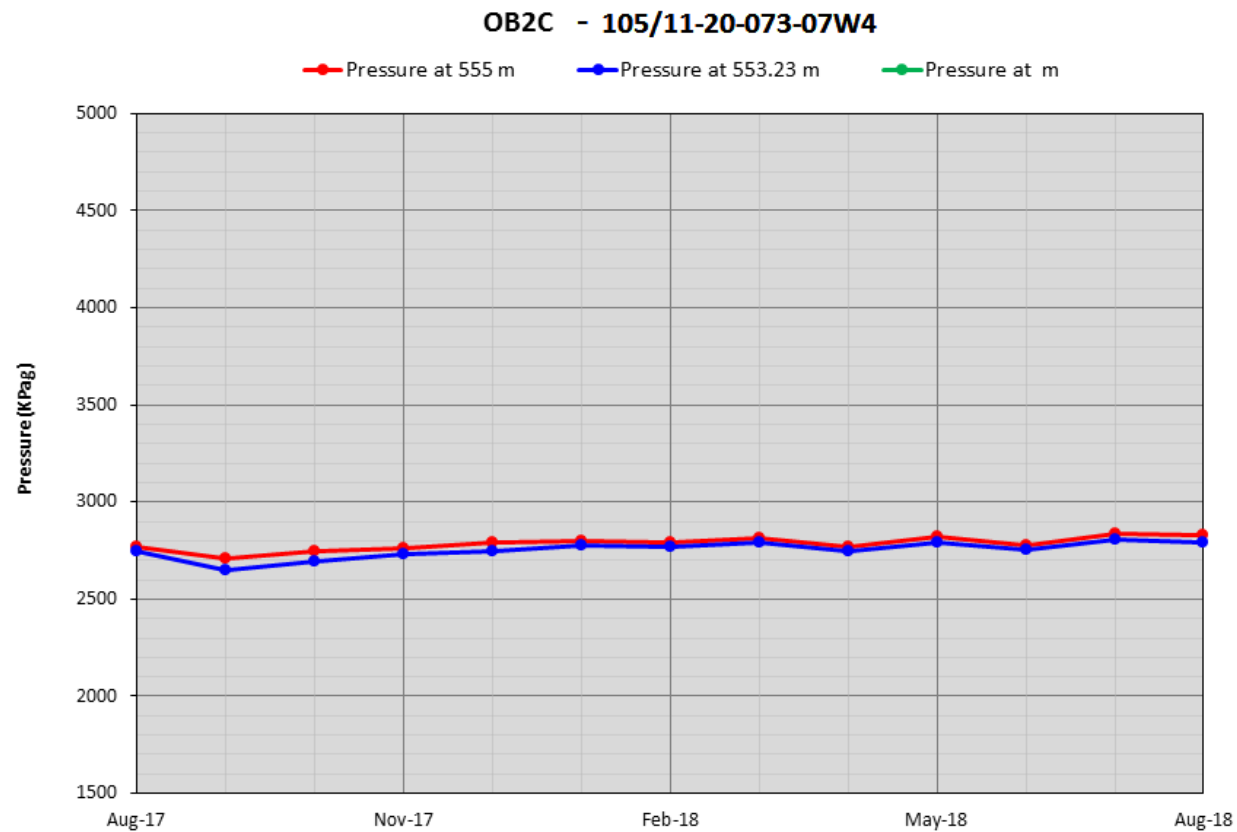
105/11-20-073-07W4/00 (RAX OB2C KIRBY 11-20-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	PZ pressure @ 555m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	PZ pressure @ 553.23m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	PZ Temperature @ 495m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	PZ Temperature @ 493.23m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 554m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 550.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 547m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 543.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 540m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 536.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 533m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 529.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 526m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 522.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 519m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 515.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 508.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 501.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 494.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 487.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 480.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 473.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 466.5m	D6	37	1480	1455
105/11-20-073-07W4/00	RAX OB2C KIRBY 11-20-73-7	TC @ 459.5m	D6	37	1480	1455

105/11-20-073-07W4 – 37m from D6



105/11-20-073-07W4 – 37m from D6

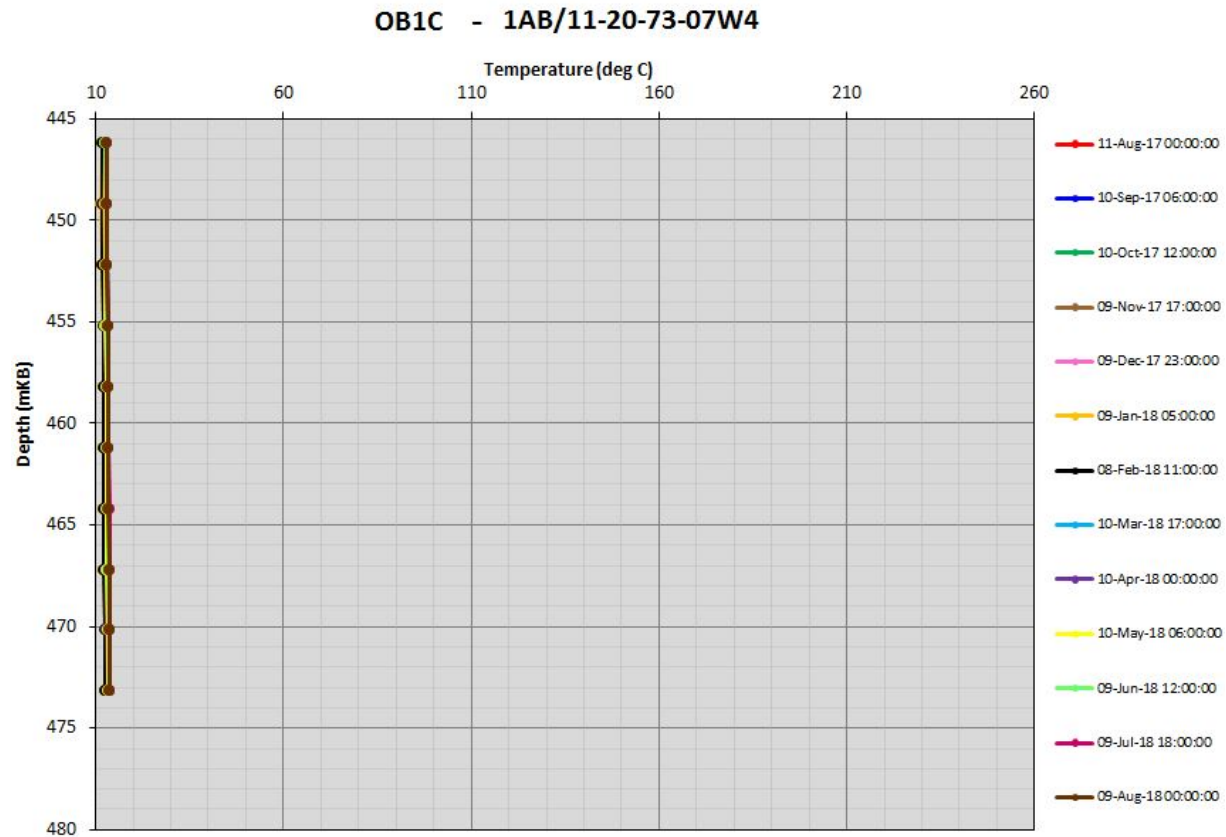


1AB/11-20-073-07W4/00 (RAX OB1C KIRBY 11-20-73-7)

UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
1A B/11-20-073-07W4/00	RAX OB1C KIRBY 11-20-73-7	TC @ 473.2m	D6	7.5	1575	1550
1A B/11-20-073-07W4/00	RAX OB1C KIRBY 11-20-73-7	TC @ 470.2m	D6	7.5	1575	1550
1A B/11-20-073-07W4/00	RAX OB1C KIRBY 11-20-73-7	TC @ 467.2m	D6	7.5	1575	1550
1A B/11-20-073-07W4/00	RAX OB1C KIRBY 11-20-73-7	TC @ 464.2m	D6	7.5	1575	1550
1A B/11-20-073-07W4/00	RAX OB1C KIRBY 11-20-73-7	TC @ 461.2m	D6	7.5	1575	1550
1A B/11-20-073-07W4/00	RAX OB1C KIRBY 11-20-73-7	IC @ 458.2m	D6	7.5	1575	1550
1A B/11-20-073-07W4/00	RAX OB1C KIRBY 11-20-73-7	TC @ 455.2m	D6	7.5	1575	1550
1A B/11-20-073-07W4/00	RAX OB1C KIRBY 11-20-73-7	TC @ 452.2m	D6	7.5	1575	1550
1A B/11-20-073-07W4/00	RAX OB1C KIRBY 11-20-73-7	TC @ 449.2m	D6	7.5	1575	1550
1A B/11-20-073-07W4/00	RAX OB1C KIRBY 11-20-73-7	TC @ 446.2m	D6	7.5	1575	1550

- Well is cased to 498.0 mKB and has an estimated cement top within the casing of 475.0 mKB
- A 10 point thermocouple string is landed from 446.0 – 473.0 mKB across the Clearwater cap rock
- There are no plans to enter this well

1AB/11-20-73-07W4 – 7.5m from D6

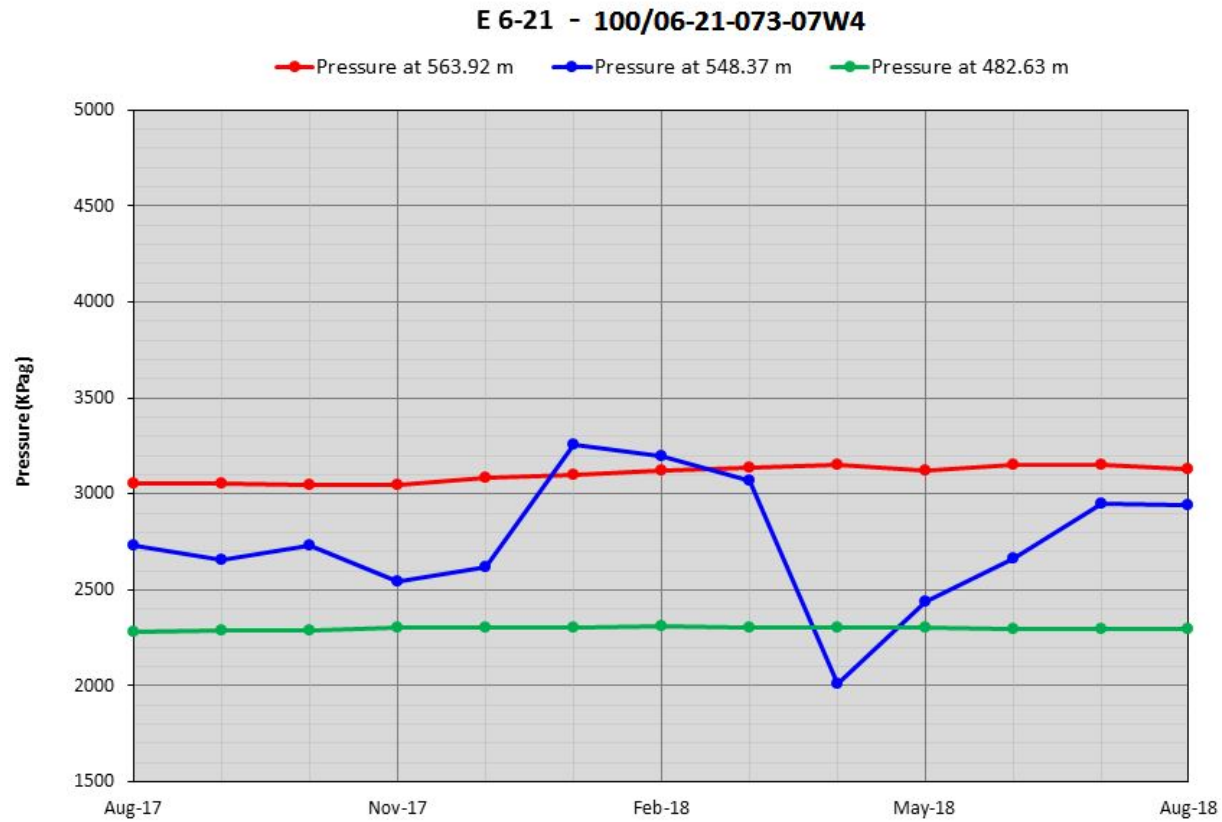


100/06-21-073-07W4/00 (CNRL OBS KIRBY 6-21-73-7)

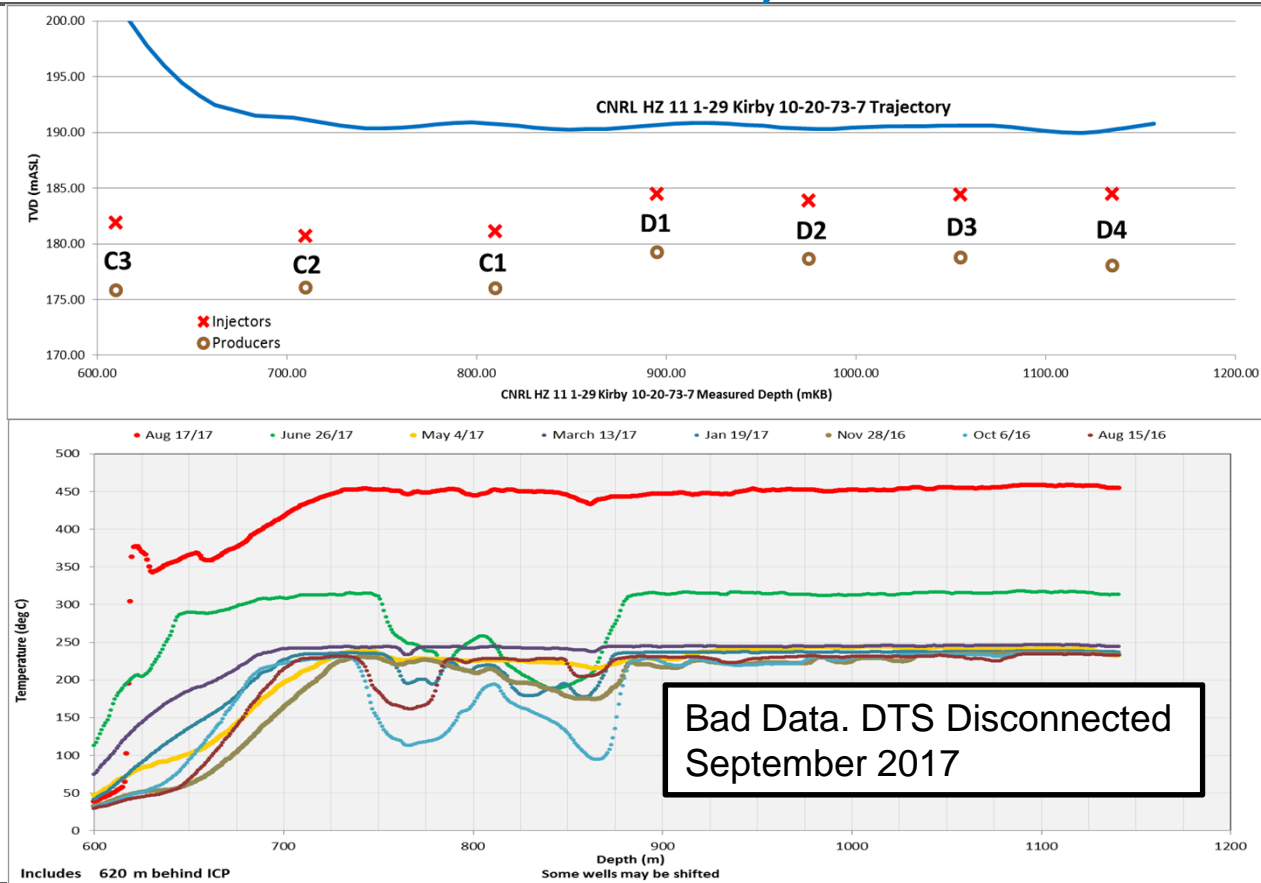
UWI	Well Name	Measuring Instrument/Depth	Associated Well Pair	Distance to Associated Well Pair	Location on SAGD producer well where obs well projects on (mKB MD)	Location on SAGD injector well where obs well projects on (mKB MD)
100/06-21-073-07W4/00	CNRL OBS KIRBY 6-21-73-7	PZ pressure @563.9m	E1	6	850	800
100/06-21-073-07W4/00	CNRL OBS KIRBY 6-21-73-7	PZ pressure @548.37m	E1	6	850	800
100/06-21-073-07W4/00	CNRL OBS KIRBY 6-21-73-7	PZ pressure @482.63m	E1	6	850	800

- Thermocouple string pulled March 2014
- McMurray bottom water was perforated because the external pressure gauge was not providing accurate data
- An internal pressure gauge was run and the thermocouple string was **not** re-run
- There are no plans to enter this well

100/06-21-073-07W4 – 6m from E1



100/01-29-073-07W4/00 – Hz Obs Well with DTS (CNRL HZ 11 1-29 KIRBY 10-20-73-7)





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