

End Of Job QC Summary

COPRC MIRROR LAKE P-20 65-00 126-45

HORIZONTAL - Original Hole, 4/11/2014 6:00:00 AM

PERFORATIONS

Date	Top (mKB)	Btm (mKB)	Zone	Type	Current Status
3/8/2014	2,769.00	2,770.00	CANOL, Original...	Perforated	Open - Flowing
3/8/2014	2,788.00	2,789.00	CANOL, Original...	Perforated	Open - Flowing
3/8/2014	2,807.00	2,808.00	CANOL, Original...	Perforated	Open - Flowing
3/8/2014	2,827.00	2,828.00	CANOL, Original...	Perforated	Open - Flowing
3/8/2014	2,846.00	2,847.00	CANOL, Original...	Perforated	Open - Flowing
3/8/2014	2,866.00	2,867.00	CANOL, Original...	Perforated	Open - Flowing
3/8/2014	2,885.00	2,886.00	CANOL, Original...	Perforated	Open - Flowing
3/8/2014	2,904.00	2,905.00	CANOL, Original...	Perforated	Open - Flowing
3/7/2014	2,924.00	2,925.00	CANOL, Original...	Perforated	Open - Flowing
3/7/2014	2,943.00	2,944.00	CANOL, Original...	Perforated	Open - Flowing
3/7/2014	2,962.00	2,963.00	CANOL, Original...	Perforated	Open - Flowing
3/7/2014	2,982.00	2,983.00	CANOL, Original...	Perforated	Open - Flowing
3/7/2014	3,001.00	3,002.00	CANOL, Original...	Perforated	Open - Flowing
3/7/2014	3,021.00	3,022.00	CANOL, Original...	Perforated	Open - Flowing
3/4/2014	3,040.00	3,041.00	CANOL, Original...	Perforated	Open - Flowing
3/4/2014	3,059.00	3,060.00	CANOL, Original...	Perforated	Open - Flowing
3/4/2014	3,079.00	3,080.00	CANOL, Original...	Perforated	Open - Flowing
3/4/2014	3,098.00	3,099.00	CANOL, Original...	Perforated	Open - Flowing
3/4/2014	3,118.00	3,119.00	CANOL, Original...	Perforated	Open - Flowing

STIMULATION AND TREATMENTS

Date	Stim Treat Co	Type	Proppant Design (kg)	Proppant Frm (kg)	Zone
3/10/2014			100,000.0	108,526.0	CANOL, Original Hole
3/10/2014	Schlumberger	X-Link	100,000.0	102,853.0	CANOL, Original Hole
3/10/2014	Schlumberger	X-Link	100,000.0	106,505.0	CANOL, Original Hole
3/10/2014	Schlumberger	X-Link	100,000.0	106,992.0	CANOL, Original Hole
3/9/2014	Schlumberger	X-Link	100,000.0	104,701.0	CANOL, Original Hole
3/9/2014	Schlumberger	X-Link	100,000.0	113,824.0	CANOL, Original Hole
3/8/2014	Schlumberger	X-Link	100,000.0	107,699.0	CANOL, Original Hole
3/8/2014	Schlumberger	X-Link	100,000.0	100,000.0	CANOL, Original Hole
3/7/2014	Schlumberger	X-Link	100,000.0	101,046.0	CANOL, Original Hole
3/7/2014	Schlumberger	X-Link	100,000.0	92,100.0	CANOL, Original Hole
3/6/2014	Schlumberger	X-Link	100,000.0	7,840.0	CANOL, Original Hole

TUBING STRING

Tubing Description	Run Date	Pull Date	String Length (m)	Set Depth (mKB)
Tubing - Production	3/12/2014 22:00		5.10	2,030.23

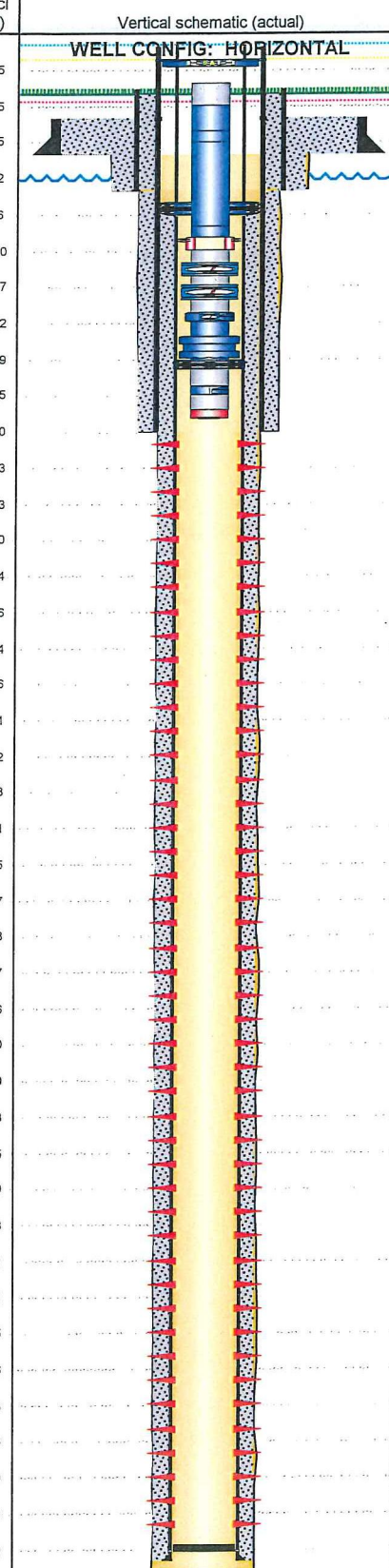
Comment

- 60.3mm PPMP Pump out plug (Dressed for 21.0MPa differential)
- 60.3mm J-55 6.99 kg/m EUE Pup Jt - 0.65m (2')
- 47.63mm XN - No-Go Profile Nipple. 45.49mm No-Go.
- 60.3mm J-55 6.99 kg/m EUE Pup Jt - 2.46m (8')
- WDH 114mm WL Set Packer Retrievable Double Grip Packer. 69.0MPa. O.D = 95.3mm (3.771")
- 47.63mm Extended Slick Joint

Jts	Item Des	OD Nominal (mm)	Nominal ID (mm)	Wt (kg/m)	Grade	Make	Model	Len (m)	Top (mKB)
1	Slick Joint c/w 47.63mm x profile	60.3	47.6	6.994	J-55		T&C Upset	0.17	2,025.13
1	Weatherford WDH double grip packer (69MPa rated)	114.3	50.7			Weatherford WDH114 WL	T&C Upset	1.38	2,025.30
1	Tubing Pup Joint	60.3	50.7	6.994	J-55		T&C Upset	2.46	2,026.66
1	XN no-go profile nipple 45.49mm no go	60.3	45.5		L-80		T&C Upset	0.32	2,029.14
1	Tubing Pup Joint	60.3	50.7	6.994	J-55		T&C Upset	0.65	2,029.46

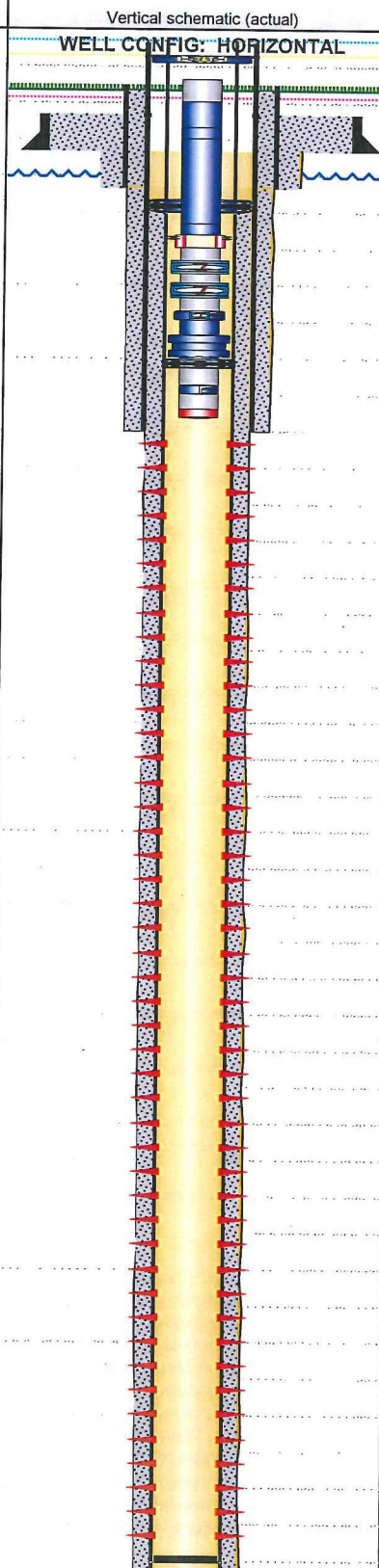
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HORIZONTAL - Original Hole, 4/11/2014 6:00:00 AM													
MD (mKB)	Incl (°)	Vertical schematic (actual)	Jts	Item Des	OD Nominal (mm)	Nominal ID (mm)	Wt (kg/m)	Grade	Make	Model	Len (m)	Top (mKB)	
			1	PPMP Pump out plug	60.3	50.7		L-80		T&C Upset	0.12	2,030.11	
4.3	0.5		Tubing Description		Run Date		Pull Date		String Length (m)		Set Depth (mKB)		
5.5	0.5		Tubing - Production		3/14/2014 06:00				2,021.20		2,025.30		
16.4	0.5		Comment										
258.0	0.2		Jts	Item Des	OD Nominal (mm)	Nominal ID (mm)	Wt (kg/m)	Grade	Make	Model	Len (m)	Top (mKB)	
1,728.6	1.6		1	Extended neckTubing Hanger c/w 2-1/2" ports	179.0	50.7			streamfl o	PSL-2	0.16	4.10	
2,002.5	53.0		1	Depth Correction - compression	60.3						-0.82	4.26	
2,010.3	55.7		1	Depth Correction	60.3						1.66	3.44	
2,014.6	57.2		2	Tubing Pup Joint (spacer nipple)	60.3	50.7	6.994	J-55		T&C Upset	0.38	5.10	
2,025.3	60.9		1	Tubing	60.3	50.7	6.994	J-55		T&C Upset	9.65	5.48	
2,029.5	62.5		1	Tubing Pup Joint (4')	60.3	50.7	6.994	J-55		T&C Upset	1.23	15.13	
2,152.0	89.0		20	Tubing	60.3	50.7	6.994	J-55		T&C Upset	1,984.06	16.36	
2,284.0	88.3		1	Tubing	60.3	50.7	6.994	J-55		T&C Upset	1.24	2,000.42	
2,285.0	89.3		1	Sliding Sleeve	79.2	47.6					0.86	2,001.66	
2,322.0	90.0		1	Tubing Pup Joint	60.3	50.7	6.994	J-55		T&C Upset	3.11	2,002.52	
2,343.0	90.4		1	Pressure / Temperature Sensor	90.7	50.7					1.56	2,005.63	
2,381.0	90.6		1	Tubing Pup Joint	60.3	50.7	6.994	J-55		T&C Upset	3.07	2,007.19	
2,410.0	89.4		1	Gauge Carrier	90.7	50.7					1.56	2,010.26	
2,439.0	89.6		1	Tubing Pup Joint	60.3	50.7	6.994	J-55		T&C Upset	2.47	2,011.82	
2,459.0	89.1		1	47.63mm X Profile Nipple	77.7	47.6					0.29	2,014.29	
2,497.0	88.2		1	Tubing	60.3	50.7	6.994	J-55		T&C Upset	9.61	2,014.58	
2,517.0	87.8		1	Extended no-jay NFT on/ off tool	95.3	50.7					1.11	2,024.19	
2,555.0	88.1		OTHER IN HOLE										
2,576.0	88.5		Run Date		Description		Top Depth (mKB)		Bottom Depth (mKB)				
2,613.0	89.7		2/21/2014		Barrier - Packer		1,727.49		1,728.60				
2,634.0	89.8		OD (mm)		ID (mm)		Make		Model				
2,672.0	89.7		153.7		120.7		Weatherford		'NTD' Liner Top Packer				
2,692.0	89.6		Comment										
2,730.0	89.0		Rig up Hallmark power tongs, make up 1-114.3mm float shoe, 1-joint of 114.3mm, 17.26kg/m, P-110, LTC production liner and 1-114.3mm float collar and then run 100-joints of 114.3mm, 17.26kg/m, P-110, LTC production liner from 3148.70m to 1727.49m. Run 101 x Volant Hydroform centralizers from 1729m to 3148m, fill every 20 joints and break circulation every 600m, tag bottom at 3152mMD, circulate bottoms up and clean hole, rig up cementers, cement liner at 3148.70mMD up to liner top, drop dart and displace with fresh water, bump plug 3,500kPA over final circulating pressure, bleed off, check floats, pressure up to 28,000kPA and set liner with liner top packer at 1727.49, circulate out pre-flush and 2m3 of excess cement out, displace hole with fresh water, rig out cementers, flowcheck, rig up laydown truck, laydown drill pipe and heavy weight drill pipe, run in the rest of the drill pipe in the derrick, laydown drill pipe, rig up and run USIT log and pressure pass USIT log, rig up power tongs, run 114.3mm tie-back liner, space out, land liner hanger seal assembly with 19,000dan compression and tie into top of liner top packer, remove landing joint, pressure test packoff seal assembly, pressure test 114.3mm x 177.8mm annulus to 15,000kPA with Schlumberger cementers.										
2,750.0	89.0												
2,788.0	89.3												
2,808.0	89.5												
2,846.0	89.9												
2,867.0	89.3												
2,904.0	89.1												
2,925.0	89.1												
2,962.0	89.5												
2,983.0	89.6												
3,010.0	89.8												
3,079.0	89.9												
3,099.0	89.9												
3,128.8	89.9												

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COPRC MIRROR LAKE P-20 65-00 126-45

HORIZONTAL - Original Hole, 4/11/2014 6:00:00 AM			OTHER IN HOLE			
MD (mKB)	Incl (°)	Vertical schematic (actual)	Run Date	Description	Top Depth (mKB)	Bottom Depth (mKB)
			3/16/2014	Pressure / Temperatur...	2,014.29	2,014.58
		WELL CONFIG: HORIZONTAL	OD (mm)	ID (mm)	Make	Model
			31.8		Weatherford	SN 8954 (Top gauge)
4.3	0.5		Comment			
5.5	0.5		Weatherford 10,000PSI Secondary Memory Gauge			
16.4	0.5		Primary gauge SN# 8954			
256.0	0.2		Approximate Start Time programmed to tool - 03/14/14 - 11:56:43 a.m.			
1,728.6	1.6		Calibration Date - 03/03/14			
2,002.5	53.0		Battery - M22091 - Load 3.43			
2,010.3	55.7		Start: 12:00 P.M 3/14/14			
2,014.6	57.2		Run Date	Description	Top Depth (mKB)	Bottom Depth (mKB)
2,023.3	60.9		3/16/2014	Pressure / Temperatur...	2,014.29	2,014.59
2,029.5	62.5		OD (mm)	ID (mm)	Make	Model
2,152.0	89.0		31.8		Weatherford	SN 8955 (bottom gauge)
2,264.0	88.3		Comment			
2,265.0	89.3		Weatherford 10,000PSI Primary Memory Gauge			
2,322.0	90.0		Primary gauge SN# 8955			
2,343.0	90.4		Approximate Start Time programmed to tool - 03/14/14 - 11:52:10 a.m.			
2,381.0	90.6		Calibration Date - 03/03/14			
2,401.0	89.4		Battery - M22090 - Load 3.45			
2,439.0	89.6		Start: 12:00 P.M 3/14/14			
2,459.0	89.1					
2,497.0	88.2					
2,517.0	87.8					
2,555.0	88.1					
2,576.0	88.5					
2,613.0	89.7					
2,634.0	89.8					
2,672.0	89.7					
2,692.0	89.6					
2,730.0	89.0					
2,750.0	89.0					
2,788.0	89.3					
2,808.0	89.5					
2,846.0	89.9					
2,867.0	89.3					
2,904.0	89.1					
2,925.0	89.1					
2,962.0	89.5					
2,983.0	89.6					
3,021.0	89.8					
3,041.0	89.8					
3,079.0	89.9					
3,099.0	89.9					
3,129.6	89.9					

COPRC Mirror Lake P-20

XVII Electric Logs

