

697792
V8



Daily Drilling

COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2

Report Date: 2/28/2013
Report #: 8
Depth Progress: 174.00 m
Depth End: 474.00 mKB
Rig Release Date:

API / UWI 200/C-011-L/094-P-16/99		Surface Legal Location C-011-L/94-P-16		MaxWell Job Number JOB01@2006		License No. EL470					
Ground Elevation (m) 281.30		Original KB/RT Elevation (m) 286.50		Casing Flange Elevation (m)		Original Spud Date 2/25/2013		Days From Spud (days) 3.29			
Daily Cost Total 94,907.85		Cumulative Cost 651,644.35		Total Job AFE Amount 10,274,600.00		Total AFE+Sup 10,274,600.00		AFE / RFE / Maint.# 10343209		Estimated Days 36.29	
Planned Depth (TMD) (mKB) 2,156.00		Override TVD (mKB)		Head Count 39.0		Personnel Total Hours (hrs) 534.00			Cum Personnel Total Hours (hrs) 3,408.00		
Avg Connection Gas 80		Avg Background Gas 80		Avg Trip Gas 99			Max H2S (ppm) 0				
Road Condition Good		Weather Clear		Temperature (°C) -25			Wind West 5km/hr				
Ops and Depth @ Morning Report Drill 311mm surface hole at 530m									Wellbore Original Hole		

Last 24hr Summary

No accidents or incidents 4 Hazard ID's: 0 Job observations :Drill 311mm surface hole F/300- 444m with Varel Tri cone insert bit and slick rotary assembly.Pumping at 2.6m3/min. WOB 10-12dan,RPM 50 -120,Average ROP 13m/hr. Minor loss (10m3 24hrs.) with accumulated wire line surveys and rig services.

24hr Forecast

Drill 311mm surface hole to casing point.

Daily Contacts

WS Supervisor, Mike Hobmaier, 403-844-3210; Command, Center, 587-794-4599; WS Supervisor, Dave Forsberg, 780-361-6417; Drilling Superintend, Sheldon Vamplew, 403-999-1302; Drilling Engineer, Mike Greener, 403-771-5039; Rig Manager, Tony Hiemstra

Last Casing String

Time Log

Start Time	End Time	Dur (hrs)	Phase	Op Code	Activity Code	Time P-T-X	Operation
00:00	00:45	0.75	SURFAC	DRILL	REAM	P	Ream & clean from 281 m to 300 m
00:45	01:00	0.25	SURFAC	RIGMNT	SVRG	P	Rig service function test hydril 55 sec & crown saver
01:00	07:15	6.25	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 300 m to 387 m with varel tri cone insert bit & slick rotary asseembly,Pumping at 2.6m3/min.Average ROP 13.9m/hr ,WOB 10dan RPM 115
07:15	07:45	0.50	SURFAC	DRILL	SRVY	P	Accumulated time for surveys
07:45	08:00	0.25	SURFAC	DRILL	SFTY	P	Crew hand over meeting
08:00	08:15	0.25	SURFAC	RIGMNT	SVRG	P	Rig service function hydrill 55 sec crown saver operating properly
08:15	12:15	4.00	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 387m to 444m with varel tri cone insert bit & slick rotary asseembly.Pumping at 2.6m3/min.Average ROP 14.25m/hr ,WOB 10dan RPM 115
12:15	12:45	0.50	SURFAC	DRILL	SRVY	P	Accumilated wireline surveys
12:45	14:00	1.25	SURFAC	DRILL	CIRC	P	Circulate hole clean
14:00	16:00	2.00	SURFAC	DRILL	WPRT	P	Wiper trip out of hole flow check@412m/134m
16:00	17:15	1.25	SURFAC	DRILL	WPRT	P	Wiper trip out of hole flow check
17:15	18:15	1.00	SURFAC	RIGMNT	SVRG	P	Rig service crown saver operating properly/change out kelly spinner/clean and prepare floor to RIH
18:15	19:30	1.25	SURFAC	DRILL	WPRT	P	Wiper trip in the hole
19:30	20:30	1.00	SURFAC	DRILL	REAM	P	Pick up kelly & clean up hole @ 267 m TO 301 m
20:30	21:15	0.75	SURFAC	DRILL	TRIP	P	Run in hole
21:15	00:00	2.75	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 444m to 474m with varel tri cone insert bit & slick rotary asseembly < Pumping at 2.6m3/min.Average ROP 10.9m/hr ,WOB 10dan RPM 115

Fluid / Mud Checks: Mud Engineer: Tri Pham

Time 19:30	Depth (mKB) 444.00	Density (kg/m³) 1100.0	Funnel Viscosity (s/L) 66	pH 8.0	PV Override (cp) 15.0	YP Override (Pa) 9.5
Low Gravity Solids (%) 4.7	MBT (kg/m³) 45	Oil Water Ratio	Chlorides (mg/L) 600	Calcium (mg/L) 80	Lime (kg/m³)	Potassium (mg/L)
Electric Stab (V)	ECD - Manual Entry (...) 1140.0	Sand (%)	Solids, Corr. (%) 4.8	T (fl) (°C) 24	HTHP Pressure (kPa)	HTHP Filtr (mL/30min)

Mud Lost to Surface (m³)	Mud Lost to Hole (m³)	Daily Mud Cost 4,381.29
Cum Mud Lost to Surface (m³) 7.00	Cum Mud Lost to Hole (m³)	Cumulative Mud Cost 14,840.41

Hazard IDs, Near Misses & PJHAs

Days Since Lost Time Incident (days) 385.00	Days Since Recordable Incident (days) 385.00
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Comment

"OBSERVATION: Observed hand handling handover from underneath. Hand was told to keep hands away from pinch points.

No. Rpts
12,000

OBSERVER: driller DATE NOTED: 02/28/13"



Daily Drilling

COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2Report Date: 2/28/2013
Report #: 8
Depth Progress: 174.00 m
Depth End: 4.00 mKB
Rig Release Date:

Last BOP Drill

Type	Days Since Last Check (days)	Last Date	Days Until Next Check (days)	Next Date

Safety Incidents

Time	Comment	Type

Drill Strings: BHA # 1

Bit Run	Drill Bit	Length (m)	IADC Bit Dull	TFA (incl Noz) (mm ²)	BHA ROP (m/hr)
1A	311.0mm, VAREL, HE04JMRSV, 1284043	0.50	-----	892	12.8
Nozzles (mm)	String Length (m)	OD (mm)	Rotating Hook Load (maximum) (daN)		
12.7/15.9/19.0/19.0	474.72	233.0	34,000		
Depth In (mKB)	Depth Out (mKB)	Avg ROP (m/hr)	Depth This Job (m)	Total Depth Drilled ...	Job Drill Hrs (hrs)
15.00	474.00	12.8	584.00	599.00	45.75
					Total Drill Hrs (hrs)
					45.75

Comment

Drill String Components

Item Description	ID (mm)	OD (mm)	Jts	Len (m)	Cum Len (m)
Kelly	70.0	110.0	1	11.50	474.72
Drill Pipe	101.6	127.0	17	327.30	463.22
X/O SUB	59.0	123.0	1	0.61	135.92
X/O 4 H-90	62.0	162.0	1	0.31	135.31
X/O Sub	58.0	134.0	1	0.51	135.00
BELL SUB	59.0	130.0	1	0.66	134.49
6 D.C	60.0	160.0	12	112.00	133.83
Bit sub	70.0	232.0	1	0.93	21.83
X/O 4 H-90	62.0	162.0	1	0.31	20.90
BELL SUB	59.0	130.0	1	0.66	20.59
9 D.C	71.0	233.0	2	18.50	19.93
Bit sub	70.0	232.0	1	0.93	1.43

Drilling Parameters: 444.00 - 474.00 mKB

Cum Depth (m)	Cum Drill...	Int ROP (...)	Flow Rat...	WOB (daN)	RPM (r...	SPP (kPa)	Drill Str Wt (d...	SO Str Wt (da...	PU Str Wt (da...	Off-Btm Str ...	Drill Tq
584.00	45.75	10.9		10,000.0	120	5,800	34,000	34,000	34,000	34,000	1,600.0

Hydraulic Calculations

Bit Hydraulic Pow...	HP/Area (kW/mm²)	% P @ bit (%)	Jet Vel (m/s)	Bit dP (kPa)	Ann. dP (kPa)	Mud Density (kg/m³)	ECD End (kg/m³)
	0.00079	24				1050.0	
Drill String Volume (...)	Bit to Shoe Volume (...)	Shoe to Top of Casin...	Min Casing AV (m/min)	Max Casing AV (m/min)	Min Open Hole AV (m...	Max Open Hole AV (...)	
			0.0	0.0	0.0	0.0	

Error

Unable to calculate annular pressure drop because pressure drop data is missing from AV calc

Mud Pumps: 1, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
1	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m ³ /min)	Pres (kPa)	Strokes (spm)
2/26/2013 23:45	300.00	1.320	4,700	135
2/28/2013 23:45	474.00	1.271	5,800	130

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m ³ /stk)
1/29/2013		140.0		

Mud Pumps: 2, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
2	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m ³ /min)	Pres (kPa)	Strokes (spm)
2/26/2013 23:45	300.00	1.320	4,700	135
2/28/2013 23:45	474.00	1.271	5,800	130

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m ³ /stk)
1/29/2013		140.0		
2/5/2013		140.0		

Shaker Screens

Description	Make	Model	Deck No.	Start Date	End Date	Screen No.	Scr Sz X	Scr Sz Y
1	NOV	KING COBRA	2	2/25/2013		1	84	84

Centrifuges/Cyclones: HGS Centrifuge, Brandt, 4000

Number	Make	Model	Diameter (mm)
1	Brandt	4000	



Daily Drilling

COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2

Report Date: 2/28/2013
Report #: 8
Depth Progress: 174.00 m
Depth End: 474.00 mKB
Rig Release Date:

Centrifuge/Cyclone Checks

Date	Hrs (hrs)	RPM (rpm)	Dens OF (kg/m³)	Q (ovrflw) (L/min)	Dens UF (kg/m³)	Q (undrflw) (L/min)

Fluid / Mud Additive Amounts

Description	Consumed	Cost	Size	Units
XCD POLYMER - 25KG	8.0	365.740		sks
FED PAC R - 22.68KG	1.0	139.450		sks
CAUSTIC SODA - 50LB	2.0	26.800		sks
FED SEAL - 18.14 KG	18.0	22.640		sks
FEDERAL GEL - 40KG	51.0	10.890		sks
SAWDUST - 7.3KG	79.0	3.790		sks

Survey Data

Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	Depart (m)	NS (m)	EW (m)	VS (m)	DLS (°/30m)
2/28/2013	326.00	0.20		325.99	2.24				
2/28/2013	355.00	0.90		354.99	2.52				
2/28/2013	393.00	1.20		392.98	3.22				
2/28/2013	431.00	0.00		430.98	3.61				
2/28/2013	474.00	0.00		473.98	3.61				

Formations

Formation Name	Drill Top MD (mKB)
Little Bear	20.00

697792
V7



Daily Drilling

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

Rig: Beaver Drilling Ltd. 2

Report Date: 2/27/2013
Report #: 7
Depth Progress: 0.00 m
Depth End: 300.00 mKB
Rig Release Date:

API / UWI 200/C-011-L/094-P-16/99		Surface Legal Location C-011-L/94-P-16		MaxWell Job Number JOB01@2006		License No. EL470	
Ground Elevation (m) 281.30		Original KB/RT Elevation (m) 286.50		Casing Flange Elevation (m)		Original Spud Date 2/25/2013	
Daily Cost Total 78,744.36		Cumulative Cost 556,736.50		Total Job AFE Amount 10,274,600.00		Total AFE+Sup 10,274,600.00	
Planned Depth (TMD) (mKB)		Override TVD (mKB)		Head Count 28.0		Personnel Total Hours (hrs) 318.00	
Avg Connection Gas		Avg Background Gas		Avg Trip Gas		Max H2S (ppm)	
Road Condition Good		Weather Clear		Temperature (°C) -25		Wind Calm	
Ops and Depth @ Morning Report Drill 311mm surface hole at 370m							Wellbore
Last 24hr Summary No accidents or incidents 4 Hazard ID's: 0 Job observations :Wiper trip condition hole encounter tight hole from 260m to 153m,Work tight hole and stuck pipe at 153m, Pull loose ,pull to 112m work tight hole ,stick pipe with Surface Jars came loose back ream to 60m ,pull out check bit ,Build volume run in hole to 150m wash and ream to 300m.							
24hr Forecast Drill 311mm surface hole							
Daily Contacts Drilling Engineer, Mike Greener, 403-771-5039; Drilling Superintendent, Sheldon Vamplew, 403-999-1302; Rig Manager, Tony Hiemstra; WS Supervisor, Mike Hobmaier, 403-844-3210; WS Supervisor, Dave Forsberg, 780-361-6417; Command, Center, 587-794-4599							
Last Casing String							

Time Log

Start Time	End Time	Dur (hrs)	Phase	Op Code	Activity Code	Time P-T-X	Operation
00:00	00:15	0.25	SURFAC	RIGMNT	SVRG	P	Rig service function test hydril 56 sec
00:15	00:30	0.25	SURFAC	DRILL	SFTY	P	Safety meeting on tripping
00:30	02:00	1.50	SURFAC	DRILL	WPRT	T	Wiper trip from 300 m to 260m, Wash and back ream to 153m. Likely filter cake build up on seepage zones
02:00	06:45	4.75	SURFAC	DRILL	JAR	T	Work tight hole and stuck pipe @ 153 m with full circulation
06:45	07:45	1.00	SURFAC	DRILL	TRIP	P	Pulled loose from 153m Trip out of hole to 120m
07:45	08:00	0.25	SURFAC	DRILL	SFTY	P	Crew hand over meeting
08:00	08:15	0.25	SURFAC	RIGMNT	SVRG	P	Rig service function hydrill 55 sec crown saver operating properly
08:15	09:00	0.75	SURFAC	DRILL	WPRT	T	Wiper trip up to 112m work tight hole @ 112M
09:00	10:00	1.00	SURFAC	DRILL	JAR	T	Pick up surface jars to jar stuck pipe @112m
10:00	10:15	0.25	SURFAC	DRILL	SFTY	T	Safety meeting on surface jarring reviewed jsa#133 jarring
10:15	14:30	4.25	SURFAC	DRILL	JAR	T	Surface jarring @112m, Jarred free
14:30	16:00	1.50	SURFAC	DRILL	REAM	T	Back ream pull tight hole from 112m to 95m, Partial lost circulation (6m3)
16:00	16:15	0.25	SURFAC	RIGMNT	SVRG	T	Rig service function hydrill 55 sec crown saver operating properly
16:15	17:30	1.25	SURFAC	DRILL	REAM	T	Back ream and pull tight hole from 95m to 60m, Partial lost circulation - 10-15% while circulating
17:30	18:15	0.75	SURFAC	DRILL	WPRT	P	Wiper trip out of hole from 60m to OOH/Clean and inspect bit
18:15	19:00	0.75	SURFAC	DRILL	WPRT	P	Run in hole 1 STD/brake down surface jars and laydown
19:00	19:15	0.25	SURFAC	RIGMNT	SVRG	P	Rig service function test hydril 55 sec & crown saver
19:15	20:15	1.00	SURFAC	DRILL	CIRC	P	Build volume bring vis up to 80, clean and organize floor
20:15	21:15	1.00	SURFAC	DRILL	TRIP	P	Run in hole to 151 m
21:15	00:00	2.75	SURFAC	DRILL	REAM	P	Ream & clean from 151 m to 281 m

Fluid / Mud Checks: Mud Engineer: Tri Pham

Time 17:15	Depth (mKB) 300.00	Density (kg/m³) 1050.0	Funnel Viscosity (s/L) 53	pH 8.0	PV Override (cp) 6.0	YP Override (Pa) 6.0
Low Gravity Solids (%) 2.2	MBT (kg/m³) 8	Oil Water Ratio	Chlorides (mg/L) 550	Calcium (mg/L) 100	Lime (kg/m³)	Potassium (mg/L)
Electric Stab (V)	ECD - Manual Entry (...) 1140.0	Sand (%)	Solids, Corr. (%) 2.8	T (fl) (°C) 22	HTHP Pressure (kPa)	HTHP Filt (mL/30min)

Mud Lost to Surface (m³)	Mud Lost to Hole (m³)	Daily Mud Cost 4,253.46
Cum Mud Lost to Surface (m³)	Cum Mud Lost to Hole (m³)	Cumulative Mud Cost 10,459.12

Hazard IDs, Near Misses & PJHAs

Days Since Lost Time Incident (days) 384.00	Days Since Recordable Incident (days) 384.00
Comment "OBSERVATION: Observed hand using proper lock out procedures when required. Told hand good job. OBSERVER: Assistant Driller DATE NOTED: 02/27/13"	No. Rpts 12,000



Daily Drilling
COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2

Report Date: 2/27/2013
Report #: 7
Depth Progress: 0.00 m
Depth Error: 0.00 mKB
Rig Release Date:

Last BOP Drill

Type	Days Since Last Check (days)	Last Date	Days Until Next Check (days)	Next Date

Safety Incidents

Time	Comment	Type

Drill Strings: BHA # <BHA No.??>

Bit Run	Drill Bit	Length (m)	IADC Bit Dull	TFA (incl Noz) (mm²)	BHA ROP (m/hr)
Nozzles (mm)		String Length (m)	OD (mm)	Rotating Hook Load (maximum) (daN)	
Depth In (mKB)	Depth Out (mKB)	Avg ROP (m/hr)	Depth This Job (m)	Total Depth Drilled ...	Job Drill Hrs (hrs)
Total Drill Hrs (hrs)					

Comment

Drill String Components

Item Description	ID (mm)	OD (mm)	Jts	Len (m)	Cum Len (m)

Drilling Parameters:

Cum Depth (m)	Cum Drill...	Int ROP (...)	Flow Rat...	WOB (daN)	RPM (r...	SPP (kPa)	Drill Str Wt (d...	SO Str Wt (da...	PU Str Wt (da...	Off-Btm Str ...	Drill Tq

Hydraulic Calculations

Bit Hydraulic Pow...	HP/Area (kW/mm²)	% P @ bit (%)	Jet Vel (m/s)	Bit dP (kPa)	Ann. dP (kPa)	Mud Density (kg/m³)	ECD End (kg/m³)
Drill String Volume (...)	Bit to Shoe Volume (...)	Shoe to Top of Casin...	Min Casing AV (m/min)	Max Casing AV (m/min)	Min Open Hole AV (m...	Max Open Hole AV (...)	

Error

Mud Pumps: 1, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
1	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/27/2013 08:00				100
2/27/2013 16:00				135

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		

Mud Pumps: 2, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
2	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/27/2013 08:00				100
2/27/2013 16:00				135

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		
2/5/2013		140.0		

Shaker Screens

Description	Make	Model	Deck No.	Start Date	End Date	Screen No.	Scr Sz X	Scr Sz Y
1	NOV	KING COBRA	2	2/25/2013		1	84	84

Centrifuges/Cyclones: HGS Centrifuge, Brandt, 4000

Number	Make	Model	Diameter (mm)
1	Brandt	4000	

Centrifuge/Cyclone Checks

Date	Hrs (hrs)	RPM (rpm)	Dens OF (kg/m³)	Q (ovrflw) (L/min)	Dens UF (kg/m³)	Q (undrflw) (L/min)

Fluid / Mud Additive Amounts

Description	Consumed	Cost	Size	Units
CAUSTIC SODA - 50LB	1.0	26.800		sks
FED SEAL - 18.14 KG	5.0	22.640		sks
XCD POLYMER - 25KG	8.0	365.740		sks
SAWDUST - 7.3KG	26.0	3.790		sks
FEDERAL GEL - 40KG	100.0	10.890		sks

Survey Data

Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	Depart (m)	NS (m)	EW (m)	VS (m)	DLS (°/30m)



Daily Drilling

COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2

Report Date: 2/27/2013
Report #: 7
Depth Progress: 0.00 m
Depth End: 300.00 mKB
Rig Release Date:

Formations

Formation Name	Drill Top MD (mKB)
Little Bear	20.00



Daily Drilling

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

Rig: Beaver Drilling Ltd. 2

Report Date: 2/26/2013

Report #: 6

Depth Progress: 211.00 m

Depth End: 300.00 mKB

Rig Release Date:

API / UWI 200/C-011-L/094-P-16/99			Surface Legal Location C-011-L/94-P-16			MaxWell Job Number JOB01@2006			License No. EL470								
Ground Elevation (m) 281.30			Original KB/RT Elevation (m) 286.50			Casing Flange Elevation (m)			Original Spud Date 2/25/2013			Days From Spud (days) 1.29					
Daily Cost Total 65,223.71			Cumulative Cost 469,868.74			Total Job AFE Amount 10,274,600.00			Total AFE+Sup 10,274,600.00			AFE / RFE / Maint.# 10343209			Estimated Days		
Planned Depth (TMD) (mKB)			Override TVD (mKB)			Head Count 28.0			Personnel Total Hours (hrs) 318.00			Cum Personnel Total Hours (hrs) 2,532.00					
Avg Connection Gas 46			Avg Background Gas 42			Avg Trip Gas			Max H2S (ppm) 0								
Road Condition Good			Weather Clear			Temperature (°C) -28			Wind East 30km/hr								
Ops and Depth @ Morning Report Work stuck pipe at 153m									Wellbore Original Hole								

Last 24hr Summary

No accidents or incidents 4 Hazard ID's: 0 Job observations :Drill 311mm surface hole F/84- 300m with Varel Tri cone insert bit and slick rotary assembly.
Minor losses @ 146m (7m3) with accumulated wire line surveys and rig services.

24hr Forecast

Drill 311mm surface hole

Daily Contacts

Command, Center, 587-794-4599; WS Supervisor, Mike Hobmaier, 403-844-3210; Rig Manager, Rick Yavis; Drilling Engineer, Mike Greener, 403-771-5039;
Drilling Superintend, Sheldon Vamplew, 403-999-1302; WS Supervisor, Dave Forsberg, 780-361-6417

Last Casing String

Time Log

Start Time	End Time	Dur (hrs)	Phase	Op Code	Activity Code	Time P-T-X	Operation
00:00	01:00	1.00	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 84m to 89m with Varel tri cone Insert bit and slick rotary asseembly.
01:00	01:15	0.25	SURFAC	RIGMNT	SVRG	P	Rig service function test annular 19 seconds to close function test crown saver
01:15	07:45	6.50	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 89m to 145m with Varel tri cone Insert bit and slick rotary asseembly.
07:45	08:00	0.25	SURFAC	DRILL	SFTY	P	Crew handover meeting
08:00	08:15	0.25	SURFAC	RIGMNT	SVRG	P	Rig service function test hydril 55 seconds to close function test crown saver
08:15	15:15	7.00	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 145m to 218m with Varel tri cone Insert bit and slick rotary asseembly.Minor losses at 146m 7m3
15:15	15:45	0.50	SURFAC	DRILL	SRVY	P	Accumulated time for surveys
15:45	16:00	0.25	SURFAC	DRILL	SFTY	P	Crew hand over meeting
16:00	16:15	0.25	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 218m to 222m with Varel tri cone Insert bit and slick rotary asseembly.
16:15	16:30	0.25	SURFAC	RIGMNT	SVRG	P	Rig service function hydrill 55 sec crown saver operating properly
16:30	21:15	4.75	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 222m to 280m with Varel tri cone Insert bit and slick rotary asseembly.
21:15	21:30	0.25	SURFAC	DRILL	SFTY	P	Diverter drill crew in position well secure in 90 sec
21:30	23:15	1.75	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 280m to 300m with Varel tri cone Insert bit and slick rotary asseembly.
23:15	23:45	0.50	SURFAC	DRILL	SRVY	P	Accumulated wire line surveys
23:45	00:00	0.25	SURFAC	DRILL	CIRC	P	Circulate hole clean

Fluid / Mud Checks: Mud Engineer: Tri Pham

Time 10:00	Depth (mKB) 172.00	Density (kg/m³) 1045.0	Funnel Viscosity (s/L) 42	pH 8.0	PV Override (cp) 7.0	YP Override (Pa) 7.0
Low Gravity Solids (%) 3.4	MBT (kg/m³) 8	Oil Water Ratio	Chlorides (mg/L) 600	Calcium (mg/L) 120	Lime (kg/m³)	Potassium (mg/L)
Electric Stab (V)	ECD - Manual Entry (...) 1140.0	Sand (%)	Solids, Corr. (%) 3.5	T (fl) (°C) 17	HTHP Pressure (kPa)	HTHP Filt (mL/30min)

Mud Lost to Surface (m³)	Mud Lost to Hole (m³)	Daily Mud Cost 4,598.21
Cum Mud Lost to Surface (m³)	Cum Mud Lost to Hole (m³)	Cumulative Mud Cost 6,205.66

Hazard IDs, Near Misses & PJHAs

Days Since Lost Time Incident (days) 383.00	Days Since Recordable Incident (days) 383.00
--	---

Comment

"DESCRIPTION: Picker sling had a few broken strands in it.

No. Rpts

11,220

ACTION TAKEN: Changed out sling

REPORTED BY: Asistant Driller

CORRECTED: YES LIKELYHOOD: 2 SEVERITY: 2

DATE NOTED: 02/26/13 DATE CORRECTED: 02/26/13"

Last BOP Drill

Type	Days Since Last Check (days)	Last Date	Days Until Next Check (days)	Next Date

Safety Incidents

Time	Comment	Type

Drill Strings: BHA # 1

Bit Run	Drill Bit	Length (m)	IADC Bit Dull	TFA (incl Noz) (mm²)	BHA ROP (m/hr)	
1A	311.0mm, VAREL, HE04JMRSV, 1284043		-----	892	10.0	
Nozzles (mm)	String Length (m)	OD (mm)	Rotating Hook Load (maximum) (daN)			
12.7/15.9/19.0/19.0	300.18	233.0	31,000			
Depth In (mKB)	Depth Out (mKB)	Avg ROP (m/hr)	Depth This Job (m)	Total Depth Drilled ...	Job Drill Hrs (hrs)	Total Drill Hrs (hrs)
15.00	300.00	10.0	280.00	295.00	28.00	28.00

Comment

Drill String Components

Item Description	ID (mm)	OD (mm)	Jts	Len (m)	Cum Len (m)
Kelly	70.0	110.0	1	12.50	300.18
Drill Pipe	101.6	127.0	8	152.26	287.68
X/O SUB	59.0	123.0	1	0.61	135.42
X/O 4 H-90	62.0	162.0	1	0.31	134.81
X/O Sub	58.0	134.0	1	0.51	134.50
BELL SUB	59.0	130.0	1	0.66	133.99
6 D.C	60.0	160.0	12	112.00	133.33
Bit sub	70.0	232.0	1	0.93	21.33
X/O 4 H-90	62.0	162.0	1	0.31	20.40
BELL SUB	59.0	130.0	1	0.66	20.09
9 D.C	71.0	233.0	2	18.50	19.43
Bit sub	70.0	232.0	1	0.93	0.93

Drilling Parameters: 218.00 - 300.00 mKB

Cum Depth (m)	Cum Drill...	Int ROP (...)	Flow Rat...	WOB (daN)	RPM (r...	SPP (kPa)	Drill Str Wt (d...	SO Str Wt (da...	PU Str Wt (da...	Off-Btm Str ...	Drill Tq
280.00	28.00	12.1	2.650	10,500.0	120	4,700	31,000	31,000	31,000	31,000	1,500.0

Hydraulic Calculations

Hydraulic Calculations							
Bit Hydraulic Pow...	HP/Area (kW/mm²)	% P @ bit (%)	Jet Vel (m/s)	Bit dP (kPa)	Ann. dP (kPa)	Mud Density (kg/m³)	ECD End (kg/m³)
63.4	0.00084	31	49.5	1,436.4	44.2	1045.0	
Drill String Volume (...)	Bit to Shoe Volume (...)	Shoe to Top of Casin...	Min Casing AV (m/min)	Max Casing AV (m/min)	Min Open Hole AV (m...	Max Open Hole AV (...)	
1.69			0.0	0.0	39.9	79.5	

Error

Unable to calculate ECD because unable to interpolate TVD

Mud Pumps: 1, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
1	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/25/2013 23:45	84.00	1.369	1,000	140
2/26/2013 23:45	300.00	1.320	4,700	135

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		

Mud Pumps: 2, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
2	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/26/2013 23:45	300.00	1.320	4,700	135

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		
2/5/2013		140.0		

Shaker Screens

Description	Make	Model	Deck No.	Start Date	End Date	Screen No.	Scr Sz X	Scr Sz Y
1	NOV	KING COBRA	2	2/25/2013		1	84	84

Centrifuges/Cyclones: HGS Centrifuge, Brandt, 4000

Number	Make	Model	Diameter (mm)
1	Brandt	4000	



Daily Drilling

COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2

Report Date: 2/26/2013
Report #: 6
Depth Progress: 211.00 m
Depth End: 300.00 mKB
Rig Release Date:

Centrifuge/Cyclone Checks

Date	Hrs (hrs)	RPM (rpm)	Dens OF (kg/m³)	Q (ovrflw) (L/min)	Dens UF (kg/m³)	Q (undrflw) (L/min)

Fluid / Mud Additive Amounts

Description	Consumed	Cost	Size	Units
SAWDUST - 7.3KG	2.0	3.790		sks
CAUSTIC SODA - 50LB	1.0	26.800		sks
KI-3908 - 20L	4.0	310.000		pail
XCD POLYMER - 25KG	5.0	365.740		sks
FED SEAL - 18.14 KG	11.0	22.640		sks
BARITE - 40KG	20.0	19.850		sks
FEDERAL GEL - 40KG	55.0	10.890		sks
SAWDUST - 7.3KG	66.0	3.790		sks

Survey Data

Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	Depart (m)	NS (m)	EW (m)	VS (m)	DLS (°/30m)
2/26/2013	92.00	0.40	0.00	92.00					
2/26/2013	121.00	0.50	0.00	120.99					
2/26/2013	143.00	0.20	0.00	142.99					
2/26/2013	181.00	0.50	0.00	180.99					
2/26/2013	219.00	0.10	0.00	218.99					
2/26/2013	257.00	0.90	0.00	256.99					
2/26/2013	287.00	0.10	0.00	286.99					

Formations

Formation Name	Drill Top MD (mKB)



Daily Drilling

COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2Report Date: 2/25/2013
Report #: 5
Depth Progress: 69.00 m
Depth End: 84.00 mKB
Rig Release Date:

API / UWI 200/C-011-L/094-P-16/99			Surface Legal Location C-011-L/94-P-16			MaxWell Job Number JOB01@2006			License No. EL470								
Ground Elevation (m) 281.30			Original KB/RT Elevation (m) 286.50			Casing Flange Elevation (m)			Original Spud Date 2/25/2013			Days From Spud (days) 0.29					
Daily Cost Total 122,061.95			Cumulative Cost 401,068.44			Total Job AFE Amount 10,274,600.00			Total AFE+Sup 10,274,600.00			AFE / RFE / Maint.# 10343209			Estimated Days		
Planned Depth (TMD) (mKB)			Override TVD (mKB)			Head Count 34.0			Personnel Total Hours (hrs) 390.00			Cum Personnel Total Hours (hrs) 2,214.00					
Avg Connection Gas 34			Avg Background Gas 34			Avg Trip Gas 34			Max H2S (ppm) 0								
Road Condition Good			Weather Partly Cloudy			Temperature (°C) -23			Wind Calm								
Ops and Depth @ Morning Report Drill 311mm surface hole at 140m											Wellbore Original Hole						

Last 24hr Summary

No accidents or incidents 4 Hazard ID's: 2 Job observations: Nipple up diverter, Fill mud tanks, Prepare BHA, Rig to spud, Move invert and tank farm, Perform pre-spud inspection and hold diverter drills and safety meeting. Spud well @ 17:00 hours and drill 311mm surface hole F/O- 84m with Varel Tri cone insert bit and slick rotary assembly.

24hr Forecast

Drill 311mm surface hole

Daily Contacts

Drilling Engineer, Mike Greener, 403-771-5039; Drilling Superintendent, Sheldon Vamplew, 403-999-1302; WS Supervisor, Mike Hobmaier, 403-844-3210; WS Supervisor, Dave Forsberg, 780-361-6417; Rig Manager, Rick Yavis; Command, Center, 587-794-4599

Last Casing String

Time Log

Start Time	End Time	Dur (hrs)	Phase	Op Code	Activity Code	Time P-T-X	Operation
00:00	05:00	5.00	MIRU	WHDBOP	NUND	P	Nipple up diverter, rig up flare lines
05:00	08:00	3.00	MIRU	MOVE	RURD	P	Rig up swivel and floor
08:00	08:15	0.25	MIRU	RIGMNT	SVRG	P	Rig service function test crown saver/ function test diverter
08:15	14:15	6.00	MIRU	MOVE	RURD	P	Rig to spud
14:15	14:45	0.50	MIRU	MOVE	SFTY	P	Pre spud rig inspection
14:45	16:00	1.25	MIRU	MOVE	PULD	P	Pick up and make up BHA
16:00	16:15	0.25	MIRU	RIGMNT	SVRG	P	Rig Service function test hydri 48 seconds check & motor kills
16:15	17:00	0.75	MIRU	MOVE	SFTY	P	Pre spud safety meeting & diverter drill with consultant and toolpush
17:00	22:00	5.00	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 20m to 70m with Varel tri cone Insert bit and slick rotary assembly.
22:00	22:15	0.25	SURFAC	DRILL	SFTY	P	Diverter drill crews in positions
22:15	00:00	1.75	SURFAC	DRILL	DRLG	P	Drill 311 mm hole from 70m to 84m with Varel tri cone Insert bit and slick rotary assembly.

Fluid / Mud Checks: Mud Engineer: Tri Pham

Time 17:00	Depth (mKB) 20.00	Density (kg/m³) 1020.0	Funnel Viscosity (s/L) 44	pH 8.5	PV Override (cp) 8.0	YP Override (Pa) 5.0
Low Gravity Solids (%) 2.4	MBT (kg/m³) 21	Oil Water Ratio	Chlorides (mg/L) 600	Calcium (mg/L) 60	Lime (kg/m³)	Potassium (mg/L)
Electric Stab (V)	ECD - Manual Entry (...) 1229.0	Sand (%)	Solids, Corr. (%) 1.8	T (fl) (°C) 18	HTHP Pressure (kPa)	HTHP Filt (mL/30min)

Mud Lost to Surface (m³)	Mud Lost to Hole (m³)	Daily Mud Cost 1,607.45
Cum Mud Lost to Surface (m³)	Cum Mud Lost to Hole (m³)	Cumulative Mud Cost 1,607.45

Hazard IDs, Near Misses & PJHAs

Days Since Lost Time Incident (days) 382.00	Days Since Recordable Incident (days) 382.00
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Comment

"DESCRIPTION: I noticed the steam hose union was positioned in the wrong spot.

ACTION TAKEN: I started to rebuild it, however was interrupted by crew change, so I passed the task onto the oncoming crew to finish.

REPORTED BY: Leasehand

CORRECTED: YES LIKELYHOOD: 2 SEVERITY: 2

DATE NOTED: 02/25/13 DATE CORRECTED: 02/25/13"

No. Rpts
11,220

Last BOP Drill

Type	Days Since Last Check (days)	Last Date	Days Until Next Check (days)	Next Date

Safety Incidents

Time	Comment	Type

Drill Strings: BHA # 1

Bit Run	Drill Bit	Length (m)	IADC Bit Dull	TFA (incl Noz) (mm²)	BHA ROP (m/hr)
1A	311.0mm, VAREL, HE04JMRSV, 1284043		-----	892	10.2
Nozzles (mm)	String Length (m)	OD (mm)	Rotating Hook Load (maximum) (daN)		
12.7/15.9/19.0/19.0	70.25	233.0	21,000		
Depth In (mKB)	Depth Out (mKB)	Avg ROP (m/hr)	Depth This Job (m)	Total Depth Drilled ...	Job Drill Hrs (hrs)
15.00	84.00	10.2	69.00	84.00	6.75
Total Drill Hrs (hrs)					
6.75					

Comment

Drill String Components

Item Description	ID (mm)	OD (mm)	Jts	Len (m)	Cum Len (m)
Kelly	70.0	110.0	1	12.50	70.25
6 D.C	60.0	160.0	4	37.35	57.75
X/O 4 H-90	62.0	162.0	1	0.31	20.40
BELL SUB	59.0	130.0	1	0.66	20.09
9 D.C	71.0	233.0	2	18.50	19.43
Bit sub	70.0	232.0	1	0.93	0.93

Drilling Parameters: 15.00 - 84.00 mKB

Cum Depth (m)	Cum Drill...	Int ROP (...)	Flow Rat...	WOB (daN)	RPM (r...	SPP (kPa)	Drill Str Wt (d...	SO Str Wt (da...	PU Str Wt (da...	Off-Btm Str ...	Drill Tq
69.00	6.75	10.2	1.300	5,000.0	120	1,000	21,000	21,000	21,000	21,000	500.0

Hydraulic Calculations

Hydraulic Calculations							
Bit Hydraulic Pow...	HP/Area (kW/mm²)	% P @ bit (%)	Jet Vel (m/s)	Bit dP (kPa)	Ann. dP (kPa)	Mud Density (kg/m³)	ECD End (kg/m³)
7.3	0.00010	34	24.3	337.4	10.5	1020.0	1032.8
Drill String Volume (...)	Bit to Shoe Volume (...)	Shoe to Top of Casin...	Min Casing AV (m/min)	Max Casing AV (m/min)	Min Open Hole AV (m...	Max Open Hole AV (...)	
0.29			0.0	0.0	19.6	39.0	

Error

Mud Pumps: 1, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
1	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/25/2013 23:45	84.00	1.369	1,000	140

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		

Mud Pumps: 2, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
2	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		
2/5/2013		140.0		

Shaker Screens

Description	Make	Model	Deck No.	Start Date	End Date	Screen No.	Scr Sz X	Scr Sz Y
1	NOV	KING COBRA	2	2/25/2013		1	84	84

Centrifuges/Cyclones:

Number	Make	Model	Diameter (mm)

Centrifuge/Cyclone Checks

Date	Hrs (hrs)	RPM (rpm)	Dens OF (kg/m³)	Q (ovrflw) (L/min)	Dens UF (kg/m³)	Q (undrflw) (L/min)

Fluid / Mud Additive Amounts

Description	Consumed	Cost	Size	Units
SULFAMIC ACID - 25KG	1.0	74.630		sks
XCD POLYMER - 25KG	3.0	365.740		sks
FEDERAL GEL - 40KG	40.0	10.890		sks

Survey Data

Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	Depart (m)	NS (m)	EW (m)	VS (m)	DLS (°/30m)
2/25/2013	30.00	0.50		30.00	0.13				
2/25/2013	61.00	0.70		61.00	0.46				
2/25/2013	84.00	0.70		84.00	0.74				

Formations

Formation Name	Drill Top MD (mKB)

697792

V4



Daily Drilling

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

Rig: Beaver Drilling Ltd. 2

Report Date: 2/24/2013

Report #: 4

Depth Progress: m

Depth End: 0.00 mKB

Rig Release Date:

API / UWI 200/C-011-L/094-P-16/99		Surface Legal Location C-011-L/94-P-16		MaxWell Job Number JOB01@2006		License No. EL470	
Ground Elevation (m) 281.30		Original KB/RT Elevation (m) 286.50		Casing Flange Elevation (m)		Original Spud Date	
Daily Cost Total 98,820.99		Cumulative Cost 282,066.49		Total Job AFE Amount 10,274,600.00		Total AFE+Sup 10,274,600.00	
Planned Depth (TMD) (mKB)		Override TVD (mKB)		Head Count 44.0		Personnel Total Hours (hrs) 510.00	
Avg Connection Gas		Avg Background Gas		Avg Trip Gas		Max H2S (ppm)	
Road Condition Good		Weather Cloudy		Temperature (°C) -30		Wind North 5km/hr	
Ops and Depth @ Morning Report Rig to Spud							Wellbore
Last 24hr Summary No accidents or incidents 5 Hazard ID's: 0 Job observations : Continue to move tubulars, Drilling tools and support equipment, Spot remaining rig components, Prepare to and raise derrick, Rig to spud, weld on Diverter Flange.							
24hr Forecast Rig to Spud , Drill 311mm Surface hole							
Daily Contacts Drilling Engineer, Mike Greener, 403-771-5039; WS Supervisor, Mike Hobmaier, 403-844-3210; Command, Center, 587-794-4599; Drilling Superintend, Sheldon Vamplew, 403-999-1302; Rig Manager, Rick Yavis; WS Supervisor, Dave Forsberg, 780-361-6417							
Last Casing String							

Time Log

Start Time	End Time	Dur (hrs)	Phase	Op Code	Activity Code	Time P-T-X	Operation
00:00	08:00	8.00	MIRU	MOVE	WODL	P	Wait on daylight watch boilers
08:00	08:15	0.25	MIRU	MOVE	SFTY	P	Safety meeting with Beaver Crews, Mullens trucking and Conoco Reps.
08:15	14:00	5.75	MIRU	MOVE	RURD	P	Spot rig & rentals
14:00	16:00	2.00	MIRU	MOVE	RURD	P	Rig up steam water & power lines
16:00	17:45	1.75	MIRU	MOVE	RURD	P	Rig to raise derrick
17:45	18:00	0.25	MIRU	MOVE	SFTY	P	Inspect derrick prior to raising RY, BB, CD, NA
18:00	19:00	1.00	MIRU	MOVE	RURD	P	Bridle down & rig monkey board
19:00	19:15	0.25	MIRU	MOVE	SFTY	P	Crew change safety meeting
19:15	21:15	2.00	MIRU	MOVE	RURD	P	Pick up prefabs
21:15	00:00	2.75	MIRU	WHDBOP	NUND	P	Weld diverter flange & drain on conductor Nipple up diverter

Fluid / Mud Checks: Mud Engineer: <Mud Engineer?>

Time	Depth (mKB)	Density (kg/m³)	Funnel Viscosity (s/L)	pH	PV Override (cp)	YP Override (Pa)
Low Gravity Solids (%)	MBT (kg/m³)	Oil Water Ratio	Chlorides (mg/L)	Calcium (mg/L)	Lime (kg/m³)	Potassium (mg/L)
Electric Stab (V)	ECD - Manual Entry (...)	Sand (%)	Solids, Corr. (%)	T (fl) (°C)	HTHP Pressure (kPa)	HTHP Filtr (mL/30min)
Mud Lost to Surface (m³)		Mud Lost to Hole (m³)		Daily Mud Cost		
Cum Mud Lost to Surface (m³)		Cum Mud Lost to Hole (m³)		Cumulative Mud Cost		

Hazard IDs, Near Misses & PJHAs

Days Since Lost Time Incident (days)	Days Since Recordable Incident (days)
381.00	381.00
Comment "OBSERVATION: While rigging up, the hands were using all the proper fall arrest. I advised them that they were doing a great job at keeping themselves safe while working at heights. OBSERVER: Derrickhand DATE NOTED: 02/24/13"	
No. Rpts 12,000	

Last BOP Drill

Type	Days Since Last Check (days)	Last Date	Days Until Next Check (days)	Next Date

Safety Incidents

Time	Comment	Type

Drill Strings: BHA # <BHA No. ?>											
Bit Run	Drill Bit	Length (m)	IADC Bit Dull	TFA (incl Noz) (mm ²)	BHA ROP (m/hr)						
Nozzles (mm)	String Length (m)	OD (mm)	Rotating Hook Load (maximum) (daN)								
Depth In (mKB)	Depth Out (mKB)	Avg ROP (m/hr)	Depth This Job (m)	Total Depth Drilled ...	Job Drill Hrs (hrs)	Total Drill Hrs (hrs)					
Comment											
Drill String Components											
Item Description		ID (mm)	OD (mm)	Jts	Len (m)	Cum Len (m)					
Drilling Parameters:											
Cum Depth (m)	Cum Drill...	Int ROP (...)	Flow Rat...	WOB (daN)	RPM (r...	SPP (kPa)	Drill Str Wt (d...	SO Str Wt (da...	PU Str Wt (da...	Off-Btm Str ...	Drill Tq
Hydraulic Calculations											
Bit Hydraulic Pow...	HP/Area (kW/mm ²)	% P @ bit (%)	Jet Vel (m/s)	Bit dP (kPa)	Ann. dP (kPa)	Mud Density (kg/m ³)	ECD End (kg/m ³)				
Drill String Volume (...)	Bit to Shoe Volume (...)	Shoe to Top of Casin...	Min Casing AV (m/min)	Max Casing AV (m/min)	Min Open Hole AV (m...	Max Open Hole AV (...)					
Error											
Mud Pumps: 1, NATIONAL, 8-P-80											
Pump Number	1	Make	NATIONAL	Model	8-P-80	Rod Diameter (mm)	Stroke Length (mm)				
							216.0				
Pump Checks											
Date	Depth (mKB)	Q (m ³ /min)	Pres (kPa)	Strokes (spm)							
2/19/2013 00:00	1,855.00		686	59							
2/20/2013 00:00				115							
Pump Operations											
Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m ³ /stk)							
1/29/2013		140.0									
Mud Pumps: 2, NATIONAL, 8-P-80											
Pump Number	2	Make	NATIONAL	Model	8-P-80	Rod Diameter (mm)	Stroke Length (mm)				
							216.0				
Pump Checks											
Date	Depth (mKB)	Q (m ³ /min)	Pres (kPa)	Strokes (spm)							
2/10/2013 08:00	1,724.00	0.587	357	60							
2/10/2013 18:00	1,747.00	1.232	5,300	126							
Pump Operations											
Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m ³ /stk)							
1/29/2013		140.0									
2/5/2013		140.0									
Shaker Screens											
Description	Make	Model	Deck No.	Start Date	End Date	Screen No.	Scr Sz X	Scr Sz Y			
1	NOV	KING COBRA	2	1/23/2013		1	84	84			
Centrifuges/Cyclones:											
Number	Make	Model				Diameter (mm)					
Centrifuge/Cyclone Checks											
Date	Hrs (hrs)	RPM (rpm)	Dens OF (kg/m ³)	Q (ovrflw) (L/min)	Dens UF (kg/m ³)	Q (undrflw) (L/min)					
Fluid / Mud Additive Amounts											
Description	Consumed	Cost	Size	Units							
Survey Data											
Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	Depart (m)	NS (m)	EW (m)	VS (m)	DLS (°/30m)		
Formations											
Formation Name						Drill Top MD (mKB)					



Daily Drilling

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

Rig: Beaver Drilling Ltd. 2

Report Date: 2/23/2013

Report #: 3

Depth Progress: m

Depth End: 0.00 mKB

Rig Release Date:

API / UWI 200/C-011-L/094-P-16/99		Surface Legal Location C-011-L/94-P-16		MaxWell Job Number JOB01@2006		License No. EL470	
Ground Elevation (m) 281.30		Original KB/RT Elevation (m) 286.50		Casing Flange Elevation (m)		Original Spud Date	
Daily Cost Total 83,901.50		Cumulative Cost 261,649.50		Total Job AFE Amount 10,274,600.00		Total AFE+Sup 10,274,600.00	
Planned Depth (TMD) (mKB)		Override TVD (mKB)		Head Count 37.0		Personnel Total Hours (hrs) 426.00	
Avg Connection Gas		Avg Background Gas		Avg Trip Gas		Max H2S (ppm)	
Road Condition Good		Weather Cloudy		Temperature (°C) 30		Wind West 10km/hr	
Ops and Depth @ Morning Report Wait on daylight finish spotting rig and rentals						Wellbore Original Hole	
Last 24hr Summary No accidents or incidents 5 Hazard ID's: 0 Job observations :Tear out rig components and Matting move to Mirror Lake location ,Lay rig foot print liner,Spot Matting and Sub.							
24hr Forecast Finish spotting rig and third party equipment,Rig up							
Daily Contacts Drilling Engineer, Mike Greener, 403-771-5039; WS Supervisor, Dave Forsberg, 780-361-6417; Rig Manager, Rick Yavis; Drilling Superintend, Sheldon Vamplew, 403-999-1302; WS Supervisor, Mike Hobmaier, 403-844-3210							
Last Casing String							

Time Log

Start Time	End Time	Dur (hrs)	Phase	Op Code	Activity Code	Time P-T-X	Operation
00:00	08:00	8.00	DEMOB	MOVE	DMOB	P	Rest Crews and Wait on daylight
08:00	20:00	12.00	DEMOB	MOVE	DMOB	P	Move to Mirror Lake location N-20 ,Spot Draw Works, Derrick,Mud tank,water tank. Spot and rig up well site shacks.

Fluid / Mud Checks: Mud Engineer: <Mud Engineer?>

Time	Depth (mKB)	Density (kg/m³)	Funnel Viscosity (s/L)	pH	PV Override (cp)	YP Override (Pa)
Low Gravity Solids (%)	MBT (kg/m³)	Oil Water Ratio	Chlorides (mg/L)	Calcium (mg/L)	Lime (kg/m³)	Potassium (mg/L)
Electric Stab (V)	ECD - Manual Entry (...)	Sand (%)	Solids, Corr. (%)	T (fl) (°C)	HTHP Pressure (kPa)	HTHP Filt (mL/30min)
Mud Lost to Surface (m³)	Mud Lost to Hole (m³)	Daily Mud Cost				
Cum Mud Lost to Surface (m³)	Cum Mud Lost to Hole (m³)	Cumulative Mud Cost				

Hazard IDs, Near Misses & PJHAs

Days Since Lost Time Incident (days)	Days Since Recordable Incident (days)
380.00	380.00
Comment "DESCRIPTION: Observed chunks of ice and large frozen iced up sticks on location prior to rig move. ACTION TAKEN: Took the time to clear tese hazards from location. REPORTED BY: Derrick Hand CORRECTED: YES LIKELYHOOD: 2 SEVERITY: 3 DATE NOTED: 02/23/13 DATE CORRECTED: 02/23/13"	
No. Rpts 11,230	

Last BOP Drill

Type	Days Since Last Check (days)	Last Date	Days Until Next Check (days)	Next Date

Safety Incidents

Time	Comment	Type

Drill Strings: BHA # <BHA No.??>

Bit Run	Drill Bit	Length (m)	IADC Bit Dull	TFA (incl Noz) (mm²)	BHA ROP (m/hr)
Nozzles (mm)	String Length (m)	OD (mm)	Rotating Hook Load (maximum) (daN)		
Depth In (mKB)	Depth Out (mKB)	Avg ROP (m/hr)	Depth This Job (m)	Total Depth Drilled ...	Job Drill Hrs (hrs)
					Total Drill Hrs (hrs)

Comment



Daily Drilling

COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2Report Date: 2/23/2013
Report #: 3
Depth Progress: m
Depth E 0.00 mKB
Rig Release Date:

Drill String Components

Item Description	ID (mm)	OD (mm)	Jts	Len (m)	Cum Len (m)
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Drilling Parameters:

Cum Depth (m)	Cum Drill...	Int ROP (...)	Flow Rat...	WOB (daN)	RPM (r...	SPP (kPa)	Drill Str Wt (d...	SO Str Wt (da...	PU Str Wt (da...	Off-Btm Str ...	Drill Tq
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Hydraulic Calculations

Bit Hydraulic Pow...	HP/Area (kW/mm²)	% P @ bit (%)	Jet Vel (m/s)	Bit dP (kPa)	Ann. dP (kPa)	Mud Density (kg/m³)	ECD End (kg/m³)
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Drill String Volume (...)	Bit to Shoe Volume (...)	Shoe to Top of Casin...	Min Casing AV (m/min)	Max Casing AV (m/min)	Min Open Hole AV (m...	Max Open Hole AV (...)
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Error

Mud Pumps: 1, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
1	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/19/2013 00:00		1,855.00		59
2/20/2013 00:00			686	115

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		

Mud Pumps: 2, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
2	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/10/2013 08:00		1,724.00	0.587	60
2/10/2013 18:00		1,747.00	1.232	126

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		
2/5/2013		140.0		

Shaker Screens

Description	Make	Model	Deck No.	Start Date	End Date	Screen No.	Scr Sz X	Scr Sz Y
1	NOV	KING COBRA	2	1/23/2013		1	84	84

Centrifuges/Cyclones:

Number	Make	Model	Diameter (mm)
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Centrifuge/Cyclone Checks

Date	Hrs (hrs)	RPM (rpm)	Dens OF (kg/m³)	Q (ovrflw) (L/min)	Dens UF (kg/m³)	Q (undrflw) (L/min)
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Fluid / Mud Additive Amounts

Description	Consumed	Cost	Size	Units
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Survey Data

Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	Depart (m)	NS (m)	EW (m)	VS (m)	DLS (°/30m)
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Formations

Formation Name	Drill Top MD (mKB)
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Daily Drilling

COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2Report Date: 2/22/2013
Report #: 2
Depth Progress: m
Depth End: 0.00 mKB
Rig Release Date:697792
v2

API / UWI 200/C-011-L/094-P-16/99		Surface Legal Location C-011-L/94-P-16		MaxWell Job Number JOB01@2006		License No. EL470					
Ground Elevation (m) 281.30		Original KB/RT Elevation (m) 286.50		Casing Flange Elevation (m)		Original Spud Date		Days From Spud (days)			
Daily Cost Total 83,901.50		Cumulative Cost 171,873.00		Total Job AFE Amount 10,274,600.00		Total AFE+Sup 10,274,600.00		AFE / RFE / Maint.# 10343209		Estimated Days	
Planned Depth (TMD) (mKB)		Override TVD (mKB)		Head Count 37.0		Personnel Total Hours (hrs) 426.00		Cum Personnel Total Hours (hrs) 888.00			
Avg Connection Gas			Avg Background Gas			Avg Trip Gas			Max H2S (ppm)		
Road Condition Good			Weather Clear			Temperature (°C) -33			Wind West 10km/hr.		
Ops and Depth @ Morning Report Wait on day light to continue load rig and move.									Wellbore Original Hole		

24hr Forecast
Load out rig and well site shacks move to Mirror Lake location

Daily Contacts
WS Supervisor, Mike Hobmaier, 403-844-3210; Drilling Superintend, Sheldon Vamplew, 403-999-1302; Drilling Engineer, Mike Greener, 403-771-5039; Rig Manager, Rick Yavis; WS Supervisor, Dave Forsberg, 780-361-6417

Last Casing String

Time Log

Start Time	End Time	Dur (hrs)	Phase	Op Code	Activity Code	Time P-T-X	Operation
00:00	08:00	8.00	DEMOB	MOVE	DMOB	P	Rest Crews and Wait on daylight
08:00	20:00	12.00	DEMOB	MOVE	DMOB	P	Tear out rig components and Matting move to Mirror Lake location ,Lay rig foot print liner,Spot Matting and Sub.

Fluid / Mud Checks: Mud Engineer: <Mud Engineer?>

Time	Depth (mKB)	Density (kg/m³)	Funnel Viscosity (s/L)	pH	PV Override (cp)	YP Override (Pa)
Low Gravity Solids (%)	MBT (kg/m³)	Oil Water Ratio	Chlorides (mg/L)	Calcium (mg/L)	Lime (kg/m³)	Potassium (mg/L)
Electric Stab (V)	ECD - Manual Entry (...)	Sand (%)	Solids, Corr. (%)	T (fl) (°C)	HTHP Pressure (kPa)	HTHP Filt (mL/30min)
Mud Lost to Surface (m³)		Mud Lost to Hole (m³)		Daily Mud Cost		
Cum Mud Lost to Surface (m³)		Cum Mud Lost to Hole (m³)		Cumulative Mud Cost		

Hazard IDs, Near Misses & PJHAs

Days Since Lost Time Incident (days)	Days Since Recordable Incident (days)
379.00	379.00
Comment "OBSERVATION: There are lots of trucks along the yard for the move. Make sure you are always in the line of sight of the driver, and not standing anywhere near the trucks where you could be ran over or knocked down. OBSERVER: Floorhand DATE NOTED: 02/22/13"	
No. Rpts 12,000	

Last BOP Drill

Type	Days Since Last Check (days)	Last Date	Days Until Next Check (days)	Next Date

Safety Incidents

Time	Comment	Type

Drill Strings: BHA # <BHA No.??>

Bit Run	Drill Bit	Length (m)	IADC Bit Dull	TFA (incl Noz) (mm²)	BHA ROP (m/hr)
Nozzles (mm)	String Length (m)	OD (mm)	Rotating Hook Load (maximum) (daN)		
Depth In (mKB)	Depth Out (mKB)	Avg ROP (m/hr)	Depth This Job (m)	Total Depth Drilled ...	Job Drill Hrs (hrs)
Total Drill Hrs (hrs)					
Comment					

Drill String Components

Item Description	ID (mm)	OD (mm)	Jts	Len (m)	Cum Len (m)



Daily Drilling

COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2

Report Date: 2/22/2013

Report #: 2

Depth Progress: m

Depth: 0.00 mKB

Rig Release Date:

Drilling Parameters:

Cum Depth (m)	Cum Drill...	Int ROP (...)	Flow Rat...	WOB (daN)	RPM (r...	SPP (kPa)	Drill Str Wt (d...	SO Str Wt (da...	PU Str Wt (da...	Off-Btm Str ...	Drill Tq
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Hydraulic Calculations

Bit Hydraulic Pow...	HP/Area (kW/mm²)	% P @ bit (%)	Jet Vel (m/s)	Bit dP (kPa)	Ann. dP (kPa)	Mud Density (kg/m³)	ECD End (kg/m³)
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Drill String Volume (...)	Bit to Shoe Volume (...)	Shoe to Top of Casin...	Min Casing AV (m/min)	Max Casing AV (m/min)	Min Open Hole AV (m...	Max Open Hole AV (...)
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Error

Mud Pumps: 1, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
1	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/19/2013 00:00	1,855.00		686	59
2/20/2013 00:00				115

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		

Mud Pumps: 2, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
2	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/10/2013 08:00	1,724.00	0.587	357	60
2/10/2013 18:00	1,747.00	1.232	5,300	126

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		
2/5/2013		140.0		

Shaker Screens

Description	Make	Model	Deck No.	Start Date	End Date	Screen No.	Scr Sz X	Scr Sz Y
1	NOV	KING COBRA	2	1/23/2013		1	84	84

Centrifuges/Cyclones:

Number	Make	Model	Diameter (mm)
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Centrifuge/Cyclone Checks

Date	Hrs (hrs)	RPM (rpm)	Dens OF (kg/m³)	Q (ovrflw) (L/min)	Dens UF (kg/m³)	Q (undrflw) (L/min)
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Fluid / Mud Additive Amounts

Description	Consumed	Cost	Size	Units
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Survey Data

Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	Depart (m)	NS (m)	EW (m)	VS (m)	DLS (°/30m)
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Formations

Formation Name	Drill Top MD (mKB)
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Daily Drilling

COPRC MIRROR LAKE N-20 65-00 126-45
Rig: Beaver Drilling Ltd. 2Report Date: 2/21/2013
Report #: 1
Depth Progress: m
Depth End: 0.00 mKB
Rig Release Date:DM 697792
WID 2079

API / UWI 200/C-011-L/094-P-16/99		Surface Legal Location C-011-L/94-P-16		MaxWell Job Number JOB01@2006		License No.					
Ground Elevation (m)		Original KB/RT Elevation (m)		Casing Flange Elevation (m)		Original Spud Date		Days From Spud (days)			
Daily Cost Total 87,596.50		Cumulative Cost 87,596.50		Total Job AFE Amount 9,549,300.00		Total AFE+Sup 9,549,300.00		AFE / RFE / Maint.# 10343209		Estimated Days	
Planned Depth (TMD) (mKB)		Override TVD (mKB)		Head Count 40.0		Personnel 462.00		Total Hours (hrs) 462.00		Cum Personnel Total Hours (hrs) 462.00	
Avg Connection Gas				Avg Background Gas		Avg Trip Gas				Max H2S (ppm)	
Road Condition Good				Weather Clear		Temperature (°C) -30				Wind West 5km/hr.	
Ops and Depth @ Morning Report Wait on day light to continue tear out and move.										Wellbore Original Hole	

Last 24hr Summary

No accidents or incidents 4 Hazard ID's: 2 Job observations : General tear out of rig ,Lay down Derrick ,move Drill pipe and other tubulars to Mirror Lake location.

24hr Forecast

Tear out and move to Mirror Lake location

Daily Contacts

Drilling Superintend, Sheldon Vamplew, 403-999-1302; WS Supervisor, Dave Forsberg, 780-361-6417; Rig Manager, Rick Yavis; Drilling Engineer, Mike Greener, 403-771-5039; WS Supervisor, Mike Hobmaier, 403-844-3210

Last Casing String

Time Log

Start Time	End Time	Dur (hrs)	Phase	Op Code	Activity Code	Time P-T-X	Operation
00:00	07:00	7.00	MIRU	MOVE	DMOB	P	Tear out rig, Lay down pre fabs, Bridle up to lay down Derrick.
07:00	07:15	0.25	MIRU	MOVE	DMOB	P	Crew change hand over meeting.
07:15	08:00	0.75	MIRU	MOVE	DMOB	P	Pre job inspection and safety meeting prior to laying down Derrick.
08:00	19:00	11.00	MIRU	MOVE	DMOB	P	Lay down Derrick ,General tear out of rig. Move Drill pipe and third party rentals to Mirror Lake location.

Fluid / Mud Checks: Mud Engineer: <Mud Engineer?>

Time	Depth (mKB)	Density (kg/m³)	Funnel Viscosity (s/L)	pH	PV Override (cp)	YP Override (Pa)
Low Gravity Solids (%)	MBT (kg/m³)	Oil Water Ratio	Chlorides (mg/L)	Calcium (mg/L)	Lime (kg/m³)	Potassium (mg/L)
Electric Stab (V)	ECD - Manual Entry (...)	Sand (%)	Solids, Corr. (%)	T (fi) (°C)	HTHP Pressure (kPa)	HTHP Filt (mL/30min)
Mud Lost to Surface (m³)		Mud Lost to Hole (m³)		Daily Mud Cost		
Cum Mud Lost to Surface (m³)		Cum Mud Lost to Hole (m³)		Cumulative Mud Cost		

Hazard IDs, Near Misses & PJHAs

Days Since Lost Time Incident (days)		Days Since Recordable Incident (days)	
378.00		378.00	
Comment			No. Rpts
"OBSERVATION: I watched a green hand slip on an icy walkway. Without being told to, he de-iced the spot and laid down sawdust for traction. I told him he was catching on really quick, and doing an excellent job.			12,000
OBSERVER: Driller DATE NOTED: 02/21/13"			

Last BOP Drill

Type	Days Since Last Check (days)	Last Date	Days Until Next Check (days)	Next Date
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Safety Incidents

Time	Comment	Type
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Drill Strings: BHA # <BHA No.??>

Bit Run	Drill Bit	Length (m)	IADC Bit Dull	TFA (incl Noz) (mm²)	BHA ROP (m/hr)	
Nozzles (mm)		String Length (m)	OD (mm)	Rotating Hook Load (maximum) (daN)		
Depth In (mKB)	Depth Out (mKB)	Avg ROP (m/hr)	Depth This Job (m)	Total Depth Drilled ...	Job Drill Hrs (hrs)	Total Drill Hrs (hrs)

Comment

Drill String Components

Item Description	ID (mm)	OD (mm)	Jts	Len (m)	Cum Len (m)
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Drilling Parameters:

Cum Depth (m)	Cum Drill...	Int ROP (...)	Flow Rat...	WOB (daN)	RPM (r...	SPP (kPa)	Drill Str Wt (d...	SO Str Wt (da...	PU Str Wt (da...	Off-Btm Str ...	Drill Tq
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Hydraulic Calculations

Bit Hydraulic Pow...	HP/Area (kW/mm²)	% P @ bit (%)	Jet Vel (m/s)	Bit dP (kPa)	Ann. dP (kPa)	Mud Density (kg/m³)	ECD End (kg/m³)
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Drill String Volume (...)	Bit to Shoe Volume (...)	Shoe to Top of Casin...	Min Casing AV (m/min)	Max Casing AV (m/min)	Min Open Hole AV (m...	Max Open Hole AV (...)
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Error

Mud Pumps: 1, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
1	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/19/2013 00:00		1,855.00		59
2/20/2013 00:00				115

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		

Mud Pumps: 2, NATIONAL, 8-P-80

Pump Number	Make	Model	Rod Diameter (mm)	Stroke Length (mm)
2	NATIONAL	8-P-80		216.0

Pump Checks

Date	Depth (mKB)	Q (m³/min)	Pres (kPa)	Strokes (spm)
2/10/2013 08:00		1,724.00	0.587	60
2/10/2013 18:00		1,747.00	1.232	126

Pump Operations

Start Date	End Date	Liner Size (mm)	P (max) (kPa)	Vol/Stk OR (m³/stk)
1/29/2013		140.0		
2/5/2013		140.0		

Shaker Screens

Description	Make	Model	Deck No.	Start Date	End Date	Screen No.	Scr Sz X	Scr Sz Y
1	NOV	KING COBRA	2	1/23/2013		1	84	84

Centrifuges/Cyclones:

Number	Make	Model	Diameter (mm)
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Centrifuge/Cyclone Checks

Date	Hrs (hrs)	RPM (rpm)	Dens OF (kg/m³)	Q (ovrflw) (L/min)	Dens UF (kg/m³)	Q (undrflw) (L/min)
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Fluid / Mud Additive Amounts

Description	Consumed	Cost	Size	Units
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Survey Data

Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	Depart (m)	NS (m)	EW (m)	VS (m)	DLS (°/30m)
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Formations

Formation Name	Drill Top MD (mKB)
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