



NORTHERN CROSS

NCY WEST CHANCE H-28

END OF WELL REPORT

Latitude: 66° 07' 29.82" N, Longitude: 137° 34' 05.64" W
UTM NAD 83 Zone 8 7336214.66 N, 384033.44 E

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WELL SUMMARY

Well Name: NCY West Chance H-28

Well License: 300H286610137300

Operator: Northern Cross (Yukon) Ltd.

Location: Latitude: 66° 07' 29.82" N, Longitude: 137° 34' 05.64" W
UTM NAD 83 Zone 8 7336214.66 N, 384033.44 E

Permit Number: 1135

Drilling Contractor: Patterson UTI Energy, Inc.

Classification: Wildcat

Well Profile: Vertical

Elevation: 461.8m Ground Level
470.16m Kelly Bushing

Well Spudded: January 11, 2013

Rig Release: April 6, 2013

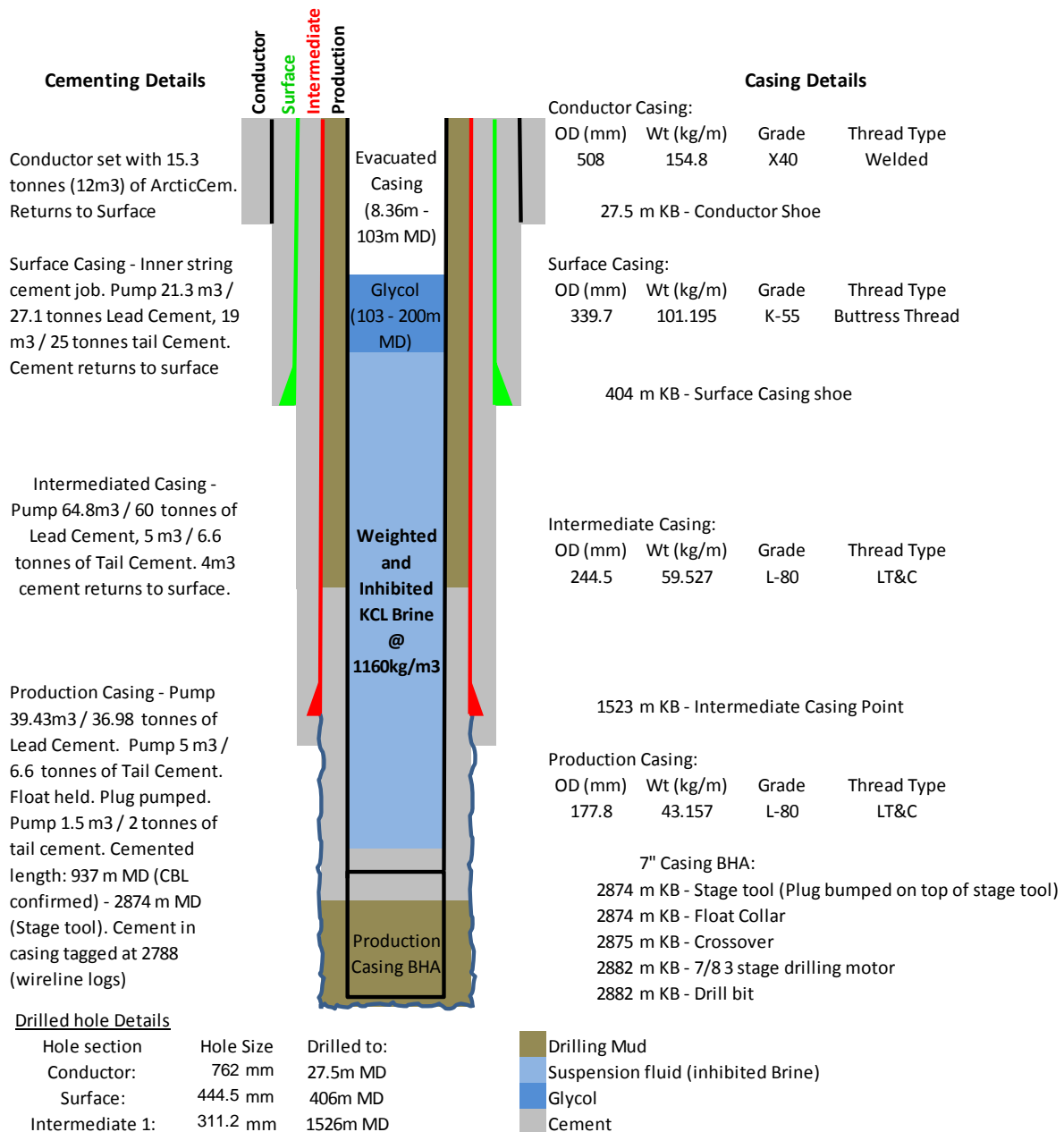
Total Depth: 3024 m MD

Well Status: Suspended

WELL PROFILE AND DIRECTIONAL SURVEY

West Chance H-28 is a vertical well drilled to a total measured depth of 3024m KB. Refer to Appendix VI - Directional Survey Data for deviation graphs and survey data.

CASING AND CEMENT SUMMARY



*Additional Casing information can be found in Appendix II - Casing

*Additional Cementing information can be found in Appendix III - Cement Reports

DRILLING MUD AND SUSPENSION FLUID SUMMARY

NCY West Chance H-28 was spudded using a Gel-chemical water based mud system and used until surface casing point at 406m MD.

An inhibited KCL mud system was used after drilling out of the surface casing shoe. This mud system was used to drill to the total depth of 3024m MD.

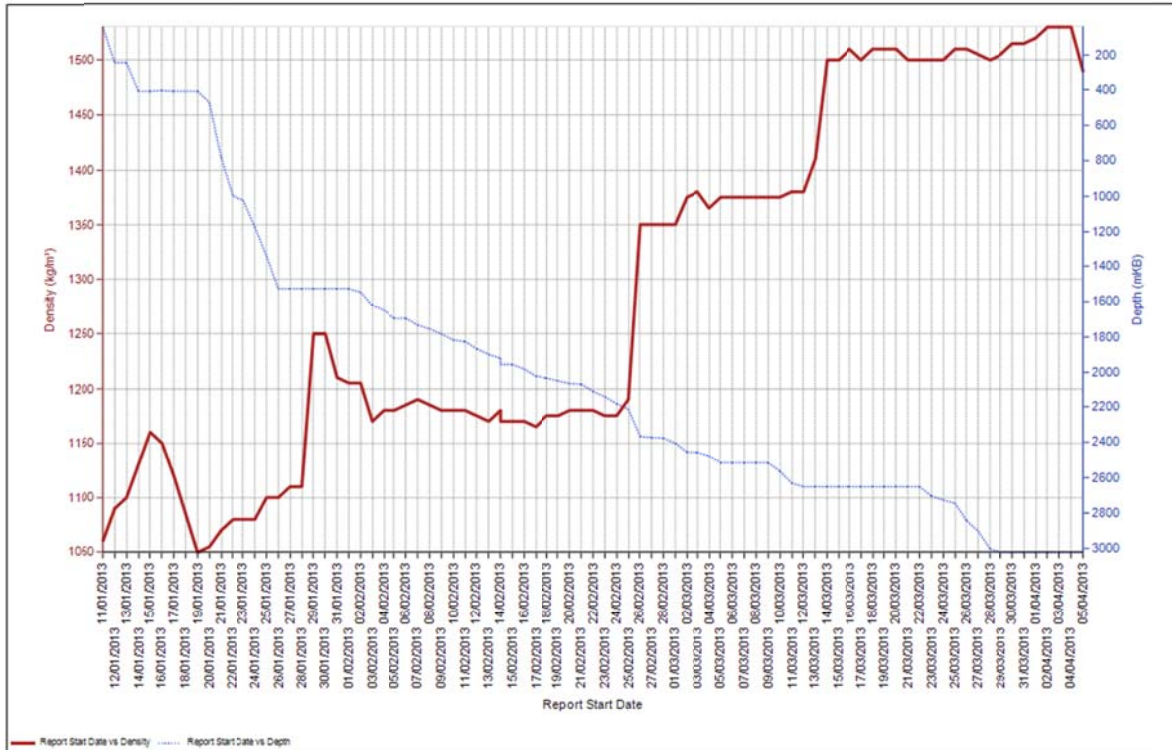


Figure 1: Drilling mud density against depth

The Production casing was displaced to weighted and inhibited KCL brine at 1160kg/m³. The top 200m was displaced to glycol to prevent freezing of suspension fluid in the permafrost zone. 100m of glycol was removed from the well during cased hole logging. The corresponding loss of hydrostatic pressure does not compromise the integrity of the production casing.

DRILLING WASTE SUMMARY

Drill solids were stabilized using sawdust and transported to Tervita's Northern Rockies Landfill in Fort Nelson.

Drilling mud was stored or stripped back to water and re-used on the well NCY Ehnjuu Choo B-73.

TESTING AND ANALYSIS SUMMARY

No Drill stem or flow tests were conducted on NCY West Chance H-28

CONVENTIONAL AND SIDEWALL CORING SUMMARY

One conventional core was cut between 2057m – 2065m MD.

51 sidewall cores were cut between 2216m and 2351m MD. 50 recovered. Sidewall core summary in Appendix VII - Coring Summary

WELLHEAD SUMMARY

NCY West Chance H-28 Wellhead configuration is as follows:



Figure 2: H-28 Wellhead Final Installation - April 16th 2013

Des	Make	Model	Size (mm)	WP Top (kPa)
Casing Head Assembly(Supported by Landing base)	WEATHERFORD	DT-2	346.1	34,500
Casing Spool Assembly	WEATHERFORD	DT-2	346.1 x 279.4	34,500
Tubing Head Assembly	WEATHERFORD	DT-2	279.4 x 179.4	69,000
Tree top Section	WEATHERFORD	DT-2	179.4 x 77.8	69,000

LOG SUMMARY

The following table summarizes the logs run on NCY West Chance H-28:

Run	Title	Depth (TVD)
1.1	Cement Volume Log	406.00m
1.2	Platform Express Array Induction Log	406.00m
1.2	Platform Express Compensated Neutron Lithology Density Log	406.00m
1.2	Platform Express Half Scale Log	406.00m
1.2	Hostile Environment Natural gamma ray spectrometry log	406.00m
1.1	Dipole Shear Sonic Image Log - Calgary processed data	406.00m
2.1	Dipole Shear Sonic Image Log - Calgary processed data	1526.00m
2.1	Cement Volume Log	1526.00m
2.2	Platform Express Half Scale Log	1526.00m
2.2	Platform Express Array Induction Log	1526.00m
2.2	Hostile Environment Natural gamma ray spectrometry log	1526.00m
2.2	Platform Express Compensated Neutron Dual Lithology Density Log	1526.00m
3.1	High Resolution Laterolog	2515.00m
3.1	Platform Express Compensated Neutron Dual Lithology Density Log	2515.00m
3.1	Platform Express Array Induction Log	2515.00m
3.1	Cement Log	2515.00m
3.1	Platform Express Half Scale Log	2515.00m
3.1	Hostile Environment Natural Gamma Ray Spectrometry Log	2515.00m
3.2	Combinable Magnetic Resonance Log	2515.00m
3.4	Casing Evaluation Ultrasonic Imaging Log Drillwear	2515.00m
3.5	Mechanical Sidewall Coring Tool	2515.00m
5.1	Lithology Scanner field LQC log	2788.00m
5.1	Hostile environment natural gamma ray spectrometry log	2788.00m

APPENDIX I - DAILY DRILLING REPORTS



Daily Activity Summary

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Job Category Drilling	Primary Job Type Drilling - original	Secondary Job Type	Status 1
Start Date 26/11/2012	End Date 06/04/2013	AFE Number	Total AFE + Supp Amount (Cost)

Objective

Summary

Contractor PATTERSON-UTI DRILLING CO. CANADA	Rig Number 3	Rig Type
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Rpt #	Report Start Date	Start Depth (mKB)	End Depth (mKB)	Operations Summary
1.0	11/01/2013	22.00	54.00	No accidents, no incidents. Change out grabber die on top drive. Pick up 45 singles of E drill pipe. Make up BHA to spud. Work on top drive (drain gear oil from adding too much). and add short sub on top of drill through sub because drill through sub is too short. Spud well on Jan 11 2013 @ 06:30 pm (18:30 hrs). Drill 445mm hole to 54m. Last survey @39m .25 deg. Cool for conductor averaged 21 deg going dwn and 10-8 deg returning to tank with 40psi pressure.
2.0	12/01/2013	54.00	255.00	No accidents, no incidents.. Drill 445mm hole from 54m-255m (Total -201m). Last survey @251m 1.25 deg. Cooling lines for conductor averaged -18/-15 deg going down and -5/-6 deg returning to tank with 40psi pressure.
3.0	13/01/2013	255.00	379.00	No accidents, no incidents.. Drill 445mm hole from 255m-379 (Total -124m). Last survey @364m 1.5 deg. Cooling lines for conductor averaged -10/-15 deg going down and -5/-4 deg returning to tank with 40psi pressure.
4.0	14/01/2013	379.00	406.00	No accidents, no incidents.. Drill 445mm hole from 379-406M (Total -27m). Last survey @400m 2.0 deg. Wiper trip from 406m-143m. Cooling lines for conductor averaged -8/-10 deg going down and -4 deg returning to tank with 40psi pressure.(Down time for stand pipe, fuel problem and racking collars wrong.)
5.0	15/01/2013	406.00	406.00	No accidents, no incidents.Wiper trip to surface and bought up mud ring. Completed another wiper trip. Started logging open hole with Schlumberger. Wire line made it to 400.9m @40.2deg C. Cooling lines for conductor averaged-6/ -8 deg going down and -2/-3 deg returning to tank with 30psi pressure.
6.0	16/01/2013	406.00	406.00	No accidents, no incidents.Cooling lines for conductor averaged-6/ -8 deg going down and -2/-3 deg returning to tank with 30psi pressure.
7.0	17/01/2013	406.00	406.00	No accidents, no incidents.Cooling lines for conductor averaged-6/ -8 deg going down and -2/-3 deg returning to tank with 30psi pressure. Cement surface casing with Halliburton: Pump 2m3 of water prefush, Pressure test lines, Pump 21.3 m3 / 27.1 tonnes of ArcticCem + 0.278% PFR 1 Cement followed by 19 m3 / 25 tonnes Halcem G + 0.5% Halad 567 + 2% CaCl2 Cement. Drop drill pipe dart. Pump 4m3 displacement. Pop dart. Cement returns to surface - approx. 5 m3 Top up job required. Pump 2.5 m3 / 3.1 tonnes Halcem G + 0.5% Halad 567 + 2% CaCl2. Pump water 0.3 m3. clean mud tanks hook up flare lines to flare tank and manifold pressure test valves in manifold
8.0	18/01/2013	406.00	406.00	No accidents, no incidents.Cooling lines for conductor averaged-11/ -12 deg going down and -9/-10 deg returning to tank with 65 psi pressure at 22 GPM. Nipple down diverter system, cut off conductor bbl, Install base and screw on csg bowl, install speedy spool & torque up. Nipple up BOPs.
9.0	19/01/2013	406.00	406.00	No accidents, no incidents.Cooling lines for conductor averaged-11/ -12 deg going down and -9/-10 deg returning to tank with 65 psi pressure at 22 GPM. Nipple up BOPs. Pressure test BOPs 1500kpa low 34500kpa high held for 10 min each, casing to 15800 kpa, Hydril 17250 kpa high all ok. Install wear bushing, pick up and make up bit #2 & Directional tools trip in hole, unthaw ice plugs in drill collars
10.0	20/01/2013	404.00	471.00	No accidents, no incidents.Cooling lines for conductor averaged-11/ -12 deg going down and -9/-10 deg returning to tank with 65 psi pressure at 22 GPM. Trip in hole, unthaw ice plugs in drill collars, Repair top drive, Trip in hole to 360m, Slip and cut drilling line, Trip in hole tag cement @ 383m cycle pumps drill out cement float & shoe. Drill to 410m circulate hole clean perform fit test 25 kpa/m surface applied 6000 kpa 1060 kg/m3 mud weight. Displace hole to KCL mud Drill 311mm hole to 471m with dir survey's



Daily Activity Summary

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Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Rpt #	Report Start Date	Start Depth (mKB)	End Depth (mKB)	Operations Summary
11.0	21/01/2013	471.00	788.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank with 65 psi pressure at 22 GPM. Drill 311mm hole from 471m to 788m with dir survey's
12.0	22/01/2013	788.00	1,019.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank with 65 psi pressure at 22 GPM. Drill 311mm hole from 788m to 1019m .Total 231m @ 18hr=12.83m/hr average. Last survey 991m .3deg. 153.2 az.
13.0	23/01/2013	1,019.00	1,023.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank with 65 psi pressure at 22 GPM. Drill 311mm hole from 1019m to 1023m . Circulate bottoms up trip out work tight hole @ 965m and 942m, pump out to 750m trip out handle dir tools change Bit, trip in hole with bit #3 to 252m. Repair service loop on top drive
14.0	24/01/2013	1,032.00	1,192.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -12 deg returning to tank with 65 psi pressure at 22 GPM. Finish repairing service loop on top drive. RIH to 651m, wash / ream to bottom. Drill 311mm hole F/ 1032-1192m (160m).
15.0	25/01/2013	1,192.00	1,393.00	No accidents, no incidents. Drill 311mm hole F/1192-1393m (201m).
16.0	26/01/2013	1,393.00	1,526.00	No accidents, no incidents. Drill 311mm hole F/1393-1526m (133m). Circulate hole clean. Start wiper trip and work tight hole at 1515m.
17.0	27/01/2013	1,526.00	1,526.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -12 deg returning to tank. Attempt to regain circulation while working tight hole between 1510m and 1522m. Circulate and condition mud (bring viscosity up to 95 sec/L). On initial bottoms up following breaking circulation, sand came over both shakers for 1/2 hour with some small shale cuttings. Pumped out of the hole to 1060m, circulate bottoms up and attempt to POOH. Work tight hole @ 1060m. Pump out of the hole to 382m (inside surface casing). Attempt to POOH without pump. Work tight hole at 379m. Circulate and work string. POOH to 185m.
18.0	28/01/2013	1,526.00	1,526.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -12 deg returning to tank. Continue POOH, Lay down 8" DC's and directional tools. Change out hydraulic hoses on catwalk. Make up clean out trip BHA and RIH, Slip and cut at shoe. Hit bridges at 424m and 760m, Wash in hole F/760-1200m.
19.0	29/01/2013	1,526.00	1,526.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -12 deg returning to tank. Attempt to RIH without pump, tagged bridge @ 1210m with 6 kdaN, worked stuck pipe free. Circulate hole clean and noted sand followed by 1 cm angular cavings on bottoms up. Continue pumping stands into hole and bring density up to 1200 kg/m3. Circulate hole clean and pump out of the hole to 1284m. Run back in hole with no pump. Bring density up to 1250 kg/m3 and then pumped 6m3 walnut sweep (seen some pieces of filter cake and mud ring with sweep). Pumped out of the hole to 1340m.
20.0	30/01/2013	1,526.00	1,526.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -12 deg returning to tank. Continue pumping out of the hole to surface casing shoe. Circulate bottoms up and pump pill. Unthaw hole fill pump. POOH. Rig up and run wireline logs on intermediate hole. Run #1 DSI-GR-PPC-GPIT, Run #2 AIT-GR. Logs made it to 1519m.
21.0	31/01/2013	1,526.00	1,526.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -12 deg returning to tank. Finish pulling out of the hole with log run #2. Rig out loggers, Rig up to and pull wear bushing. Rig up to and run 9 5/8" Intermediate Casing to 1522.92m. Circulate hole clean and condition mud (bring viscosity down to 51 sec/L, final density - 1210 kg/m3).
22.0	01/02/2013	1,526.00	1,526.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -12 deg returning to tank. Cement intermediate casing with 60 tonnes (64.7 m3) of 1665 kg/m3 HalCem G Lead cement followed by 6.6 tonnes (5.0 m3) of 1895 kg/m3 HalCem G tail. Full returns throughout job with 4m3 returns. Remove landing joint, install and pressure test packoff. Install short wear bushing. Pressure test manifold and BOP's. Lay down 7" DC's. Install 4 1/2" liners and heads in both pumps. Start to pick up BHA.
23.0	02/02/2013	1,526.00	1,566.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -12 deg returning to tank. Trip in hole with new BHA. Pressure test casing to 24.6 MPa. Drill out cement, float collar and shoe. Drill to 1530m. Pull back to casing and perform formation leak test to 25 kPa/m. Drill 222m hole with true trak from 1526m-1566m. Last survey 1542m 0.20 deg 181.50 Azimuth.
24.0	03/02/2013	1,566.00	1,625.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -12 deg returning to tank. Drill 222m hole from 1566m-1625m. Last survey @ 1581m 0.30 deg 315.90 Azimuth.



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Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Rpt #	Report Start Date	Start Depth (mKB)	End Depth (mKB)	Operations Summary
25.0	04/02/2013	1,625.00	1,650.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -12 deg returning to tank. Finish bit trip, pattern bit and Drill 222m hole from 1625m-1650m. Last survey @ 1630m 0.20 deg 321.10 Azimuth.
26.0	05/02/2013	1,661.00	1,695.00	No accidents, no incidents. Cooling lines for conductor averaged -10 deg going down and -10 deg returning to tank. Drill 222mm hole F/1650-1695m. Blew pop valve and then MWD stopped pulsing. POOH and change out TruTrak / MWD.
27.0	06/02/2013	1,695.00	1,717.00	No accidents, no incidents. Cooling lines for conductor averaged -10 deg going down and -10 deg returning to tank. Drill 222mm hole F/1695-1717m. Start getting pressure spikes @ 1712m. While circulating bottoms up (off bottom) pressure spikes. POOH, to inspect Bit & directional tools, change bits RIH to 573m.
28.0	07/02/2013	1,717.00	1,734.00	No accidents, no incidents. Cooling lines for conductor averaged -10 deg going down and -10 deg returning to tank. Drill 222mm hole F/1717-1734m. Trip bit #8 change out bit & Tru Trak Trip in hole to 350m, held Bop drill & man down drill, pulse test Trip in hole fill pipe & pulse test at 851m, Trip in hole to 1225m.
29.0	08/02/2013	1,734.00	1,771.00	No accidents, no incidents. Cooling lines for conductor averaged -10 deg going down and -10 deg returning to tank. Trip in hole from 1225m to 1511m, fill pipe & flow check, Slip & cut drilling line, Trip in hole to 1705m, wash in hole from 1705m to 1734m, Drill 222mm hole from 1734m to 1771m Last survey at 1745m 0.10 deg azimuth 86.30
30.0	09/02/2013	1,771.00	1,804.00	No accidents, no incidents. Cooling lines for conductor averaged -10 deg going down and -8 deg returning to tank. Drill 222mm hole from 1771m to 1804m Last survey at 1783m 0.10 deg azimuth 165.60
31.0	10/02/2013	1,804.00	1,818.00	No accidents, no incidents. Cooling lines for conductor averaged -10 deg going down and -8 deg returning to tank. Drill 222mm hole from 1804m to 1818m Last survey at 1783m .10 deg azimuth 165.60. POOH with flow check to inspect directional equipment and change bit. Trip in hole with Bit #10 to 310m pulse test trip in hole to casing shoe, fill pipe & pulse test trip in hole to 1798m wash to bottom 4m of fill on bottom, Pattern bit #10
32.0	11/02/2013	1,818.00	1,858.00	No accidents, no incidents. Cooling lines for conductor averaged -6 deg going down and -5 deg returning to tank. Drill 222mm hole from 1818m to 1853m, Circulate bottom hole sample. Drill 222mm hole 1853m to 1858m Last survey at 1812m 0.30 deg 249.10 azimuth .
33.0	12/02/2013	1,858.00	1,899.00	No accidents, no incidents. Cooling lines for conductor averaged -6 deg going down and -5 deg returning to tank. Drill 222mm hole from 1853m to 1890m, Circulate bottom hole sample. Drill 222mm hole 1890m to 1899m Last survey at 1850m 0.20 deg 170.60 azimuth .
34.0	13/02/2013	1,899.00	1,918.00	No accidents, no incidents. Cooling lines for conductor averaged -6 deg going down and -5 deg returning to tank. Drill 222mm hole from 1899m to 1918m Circulate bottoms up. Trip out of hole bit #10 change bits check directional tools, Trip in hole to 350m, fill pipe & pulse test, Trip in hole to 1500m fill pipe & pulse test. Slip & cut drilling line Last survey at 1888m 0.40 deg 313.30 azimuth .
35.0	14/02/2013	1,918.00	1,955.00	No accidents, no incidents. Cooling lines for conductor averaged -9 deg going down and -7 deg returning to tank. Trip in hole from 1500m to 1895m wash to bottom, 3m of fill on bottom. Drill 222mm hole F/1918-1955m (37m, 1.9m/hr). Last Survey @ 1926.8m, Inclination - 0.1 degrees.
36.0	15/02/2013	1,955.00	1,982.00	No accidents, no incidents. Cooling lines for conductor averaged -8 deg going down and -7 deg returning to tank. Drill 222mm hole F/1955- 1982m (27m, 1.5m/hr). Trutrak pressuring up and MWD stopped working, POOH to 1070m. Last Survey @ 1965.2m, Inclination - 0.4 degrees.
37.0	16/02/2013	1,982.00	2,002.00	No accidents, no incidents. Cooling lines for conductor averaged -6 deg going down and -6 deg returning to tank. Continue POOH from 1070m to change out Trutrak, MWD, and bit, Trip in hole, pulse test @ 31m, Trip in hole to 1510m. Pulse test @ 1500m, accumulator function test. Trip in hole. Wash to bottom from 1970m, 1m of fill. Drill 222mm hole F/1982-2002m. Last Survey @ 1965.2m, Inclination - 0.4 degrees.
38.0	17/02/2013	2,002.00	2,028.00	No accidents, no incidents. Cooling lines for conductor averaged -10 deg going down and -8 deg returning to tank. Drill 222mm hole F/2002-2028m (26m, 1.14m/hr). Last Survey @ 2002.9m, Inclination - 0.0 degrees.
39.0	18/02/2013	2,028.00	2,037.00	No accidents, no incidents. Cooling lines for conductor averaged -10 deg going down and -8 deg returning to tank. Drill 222mm hole F/2028-2037m (9m, 1m/hr). Circulate hole clean and Trip for bit. Slip and cut @ 995m on way back in hole. RIH to 1941m. Last Survey @ 2002.9m, Inclination - 0.0 degrees.



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Rpt #	Report Start Date	Start Depth (mKB)	End Depth (mKB)	Operations Summary
40.0	19/02/2013	2,037.00	2,057.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Continue RIH to 2027m, Wash to bottom (0.3m of fill) and pattern bit. Trip gas - 28 units. Drill 222mm hole F/2037-2057m (20m, 1.45 m/hr). Circulate hole clean and POOH to pick up core bit and barrels. Last Survey @ 2041.1m, Inclination - 0.1 degrees.
41.0	20/02/2013	2,057.00	2,065.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Make up core barrels and bit. RIH (Slip and cut @ 1040m). Core from 2057 -2065m (8m, 1.78 m/hr). POOH to lay down coring BHA. Last Survey @ 2041.1m, Inclination - 0.1 degrees.
42.0	21/02/2013	2,065.00	2,085.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Finish tripping out of hole with core barrels. Recover 8.5 m of core. Lay down core barrels and make up new BHA and bit. Trip in hole and drill 222mm hole with Tru Tack from 2065m- 2085m. Last Survey @ 2069.7m, Inclination - 0.2 degrees 210.9 azm.
43.0	22/02/2013	2,085.00	2,123.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Drill 222mm hole with TruTrak from 2085m- 2123m. Last Survey @ 2108.20m, Inclination - 0.4 degrees 268.70 azm.
44.0	23/02/2013	2,123.00	2,159.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -13 deg returning to tank. Drill 222mm hole with TruTrak from 2123m- 2159m. Last Survey @ 2146.2m, Inclination - 0.10 degrees 83.9azm.
45.0	24/02/2013	2,159.00	2,206.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -13 deg returning to tank. Drill 222mm hole with TruTrak from 2159m- 2206m. Last Survey @ 2184.4m, Inclination - 0.10 degrees 32.7 azimuth.
46.0	25/02/2013	2,206.00	2,210.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -8 deg returning to tank. Drill 222mm hole with TruTrak from 2206m- 2210m. Circulate hole clean and POOH. Change out TruTrak and bit (Make up bit #16, Smith MDSi613). RIH, fill pipe, pulse test and function TruTrak @ 545m. RIH to 1100m, flow check, slip and cut drilling line (22m) and perform accumulator function test. RIH to 1700m and hit bridge. Wash down to 1770m (several bridges F/1700-1770m). Continue RIH f/1770m-1964m. Wash f/ 1964m to bottom(4m fill), Last Survey @ 2184.4m, Inclination - 0.10 degrees 32.7 azimuth.
47.0	26/02/2013	2,210.00	2,369.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -8 deg returning to tank. Drill 222mm hole with TruTrak from 2210m- 2369m (159m, 10.25m/hr). Last Survey @ 2184.4m, Inclination - 0.10 degrees 32.7 azimuth.
48.0	27/02/2013	2,369.00	2,373.00	No accidents, no incidents. Cooling lines for conductor averaged -14 deg going down and -8 deg returning to tank. Finish trip for bit and TruTrac. Drill 222mm hole with TruTrak from 2369m- 2373m. Last Survey @ 2356.6m, Inclination - 0.10 degrees 55.3 azimuth.
49.0	28/02/2013	2,373.00	2,375.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Drill 222mm hole with TruTrak from 2373m- 2375m. Circulate & pump sweeps, Trip out change bits, Trip in hole with bit #18 to 1499m slip & cut, Trip in hole to 1700m fill pipe & pulse test trouble shoot Tru Trak circulate mix pill & pump. Trip out to change tru track from 1700m to 582m Last Survey @ 2356.6m, Inclination - 0.10 degrees 55.3 azimuth.
50.0	01/03/2013	2,375.00	2,410.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Trip out to change tru track from 582m Change out tru track make up Bit#18 trip in hole fill pipe & pulse test@19,553,1097m 1412,1703,2045m, wash/clean from 2334m 2375m 2m of fill. Drill 222mm hole 2375m to 2410m Last Survey @ 2394.8m, Inclination - 0.30 degrees 53.8 azimuth.
51.0	02/03/2013	2,410.00	2,455.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Drill 222mm hole 2410m to 2455m. Circulate hole clean, Trip Bit #18 Last Survey @ 2431.7m, Inclination - 0.20 degrees 44.2 azimuth.
52.0	03/03/2013	2,455.00	2,456.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Trip Bit #18 Change bits perform shallow pulse test jets plugged change jets trip in hole with bit #19. Fill pipe & pulse test every 500m on way in .Slip & cut @ shoe, trip in hole wash from 2411m to 2455m bridges @ 2429m 2432m 2445m 2.5m of fill. Attempt to drill 2455 to 2456m pump 2 walnut sweeps. trip bit #19 to 688m Last Survey @ 2431.7m, Inclination - 0.20 degrees 44.2 azimuth.
53.0	04/03/2013	2,456.00	2,498.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Trip bit #19 from 688m to surface change bits. Trip in hole with bit#20 fill pipe & pulse test every 500m on way in Wash in from 2412m to 2456m. Drill 222mm hole 2456m to 2498m Last Survey @ 2452.2m, Inclination - 0.10 degrees 68.10 azimuth.



Daily Activity Summary

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Rpt #	Report Start Date	Start Depth (mKB)	End Depth (mKB)	Operations Summary
54.0	05/03/2013	2,498.00	2,515.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Drill 222mm hole 2498m to 2415m Circulate bottoms up do 5 stand wiper trip circulate hole clean do 5 stand wiper trip circulate hole clean spot weighted high vis pill. Trip out to log pull wear bushing rig in loggers & log with Schlumberger Logging Run #1 PEX(AIT,HRLA,CNL, FDT,GR, with Spectral Gamma & PPC-2
55.0	06/03/2013	2,515.00	2,515.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Log with Schlumberger Logging Run #1 PEX(AIT,HRLA,CNL, FDT,GR, with Spectral Gamma & PPC-2 Log #2 ADT (dielectric Scanner Tool) - NEXT(Liitho Scanner Stingray) CMR Log run#3 FMI,Sonic scanner,PPC-2 Loggers total Depth 2432m
56.0	07/03/2013	2,515.00	2,515.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Log with Schlumberger Logging Run #3FMI,Sonic scanner, PPC-2 Loggers total Depth 2432m
57.0	08/03/2013	2,515.00	2,515.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Log with Schlumberger finish Logging Run #4 Side wall cores.Pressure test BOPs 1500 low 34500 high hydril to 17500 held for 10 min each all ok. perform accum fct test Install wear bushing,Make up bit#21 & tru trak trip in hole, fill pipe & pulse test every 500m trip in hole.Ream & clean from 2411m to 2509m
58.0	09/03/2013	2,515.00	2,535.00	No accidents, no incidents. Cooling lines for conductor averaged -8 deg going down and -6 deg returning to tank. Ream & clean 2509m to 2515m, 7m of fill on bottom.Pattern bit. Trouble shoot loss in circulating pressure.Trip out of hole, found wash @ 1362m lay down 2 joints of E pipe. Pulse test MWD and Trip in hole to 1750m. Trouble shoot SCR (SCR #1 overheating). Trip in hole, Ream tight spot F/2430-2440m, Wash to bottom, 3m of fill noted on bottom. Drill 222mm hole F/2515-2535 (20m, 3.8 m/hr).
59.0	10/03/2013	2,535.00	2,609.00	No accidents, no incidents. Cooling lines for conductor averaged -4 deg going down and -2 deg returning to tank. Drill 222mm hole F/2535-2609m (74m, 3.65 m/hr).
60.0	11/03/2013	2,609.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -4 deg going down and -2 deg returning to tank. Drill 222mm hole F/2609-2652m (43m, 2.6 m/hr). Circulate the hole clean. Trip out of hole to 1327m.
61.0	12/03/2013	2,652.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -8 deg going down and -6 deg returning to tank.Trip out of hole from 1327m to 538m. Repair SCR.Trip out of hole, Change outTruTrak & jars, make up bit #22. Trip in hole, fill pipe every 500m, slip & cut @ 1280m. Trip in hole to 2400m wash in to 2430m. Ream F/2430-2515m. Work tight hole and back ream to 2496m. Circulate hole clean.
62.0	13/03/2013	2,652.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank.Wash into hole to 2515m and hole sloughed in. Work stuck pipe free @ 2515m, Circulate hole clean and weight up to 1400 kg/m3. Continue washing / reaming to 2509m and hole sloughed in. Work stuck pipe free (13 hrs) and circulate hole clean. Pump out of the hole to 2400m and circulate bottoms up. POOH to 1789m to lay down directional tools.
63.0	14/03/2013	2,652.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Continue POOH, lay down directional tools. Make up slick assembly and tooth bit. RIH to 2409m. Wash / ream to 2480m. Work pipe between 2470m and 2480m while weighting up to 1500 kg/m3 (no caving's seen at shaker). Wiper trip from 2480m to n2410m. Work though tight areas.
64.0	15/03/2013	2,652.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Work tight hole from 2430m -2446m.POOH to change BHA. Run in hole to clean up and condition hole.
65.0	16/03/2013	2,652.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Continue tripping in hole. Ream / Wash into hole F/2334-2473m. Pump a high vis sweep (13 m3) with 20L of cavings seen at shaker. POOH to 2422m, ream back into hole to 2448m and pump high vis / 1510 kg/m3 sweep (14 m3) with 15L of cavings seen. Wash into hole to 2514m and hole started to packoff. Pump out of hole to 2420m (>1 bucket of cavings seen at shaker ~0.5cm hard, angular shale with sheared sides). Wash / Ream to 2514m.
66.0	17/03/2013	2,652.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Continue tripping in hole.Condition hole working tight spots 2515m - 2525m. pump high vis sweep. Attempt to pull 2525m - 2503m with out pumping or rotating. Wash back to 2525m and pump high vis sweep. POOH from 2525m-356m



Daily Activity Summary

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API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Rpt #	Report Start Date	Start Depth (mKB)	End Depth (mKB)	Operations Summary
67.0	18/03/2013	2,652.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. POOH from 356m-Surface. Make up 6" bit and 15 joints of 4" drill pipe and RIH to 2430m. Wash/ream from 2430m-2525m. Wiper trip from 2525m-2400m. Wash/ream to 2525m pump high vis sweep. Safety meeting before cement job. Pump 3m3 of water prefush, Pressure test lines, Pump 15m3 / 16.3 tonnes of HalCem G Cement (0.94% 150kg Halliburton Gel, 0.5% 81.5 kg Halad567, 0.3% 48.9 kg HR-5) Pump 1m3 of water behind. 3m3 of cement returns. POOH to 2060m with flow checks.
68.0	19/03/2013	2,652.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. POOH from 2060m - surface. Make up new BHA and bit #26 117 tooth bit. RIN and tagged cement @ 2430m. Drill out cement from 2430m-2522m and work tight areas.
69.0	20/03/2013	2,652.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -12 deg going down and -10 deg returning to tank. Drill out cement plug 2522m-2524m. Wash ream 2524m-2543m and pump high vis sweep. Wiper back to 2410mm. Wash / ream 2410m -2652m with high vis sweep @2440m. Circulate and condition hole. POOH to run stabilization plug.
70.0	21/03/2013	2,652.00	2,652.00	No accidents, no incidents. Cooling lines for conductor averaged -10 deg going down and -8 deg returning to tank. Trip out of hole from 2484m. make up 152mm bit & bit sub & 5 stands of 4" drill pipe. Trip in hole with cement stinger to 1315m. Slip & cut drilling line. change of plan. Trip out of hole stand back 4" drill pipe. make up bit#28 & reamer assembly. Trip in hole to 1831m
71.0	22/03/2013	2,652.00	2,655.00	No accidents, no incidents. Cooling lines for conductor averaged -10 deg going down and -8 deg returning to tank. Trip in hole from 1831m to 2406m, wash in ream from 2429m to 2652m 4m of fill on bottom drill 222mm hole F/ 2652m - 2655m
72.0	23/03/2013	2,655.00	2,721.00	No accidents, no incidents. Cooling lines for conductor averaged -4 deg going down and -4 deg returning to tank. Drill 222mm hole F/ 2655m - 2721m 69m 22 3/4 hrs/3.03m/hr
73.0	24/03/2013	2,721.00	2,727.00	No accidents, no incidents. Cooling lines for conductor averaged -4 deg going down and -4 deg returning to tank. Drill 222mm hole F/ 2721m - 2727m Bit #28 75m 24 1/2 hrs/3.06m/hr circulate bottom hole sample. Pump high salt ultrafree pill spot on bottom pump & back ream out to 2308m pump pill trip out lay down reamer assembly. pick up directional tools ultra xl/lis motor set @1.2 deg bend bit #29 Halliburton FX54R perform shallow test. Trip in hole fill pipe & pulse test every 500m on way in to 1005m
74.0	25/03/2013	2,727.00	2,755.00	No accidents, no incidents. Cooling lines for conductor averaged -4 deg going down and -4 deg returning to tank. RIH with FX54 bit #29 and 1.2deg bent XL/LS Baker motor. Start washing in @ 2300m-2600m. Log in hole for gamma @ 30m/hrs with Baker. 5m of fill on btm. Drill 222m hole with FX54 PDC bit from 2727m-2755m. 28m rop 4.48m/hr
75.0	26/03/2013	2,755.00	2,851.00	No accidents, no incidents. Cooling lines for conductor averaged -6 deg going down and -4 deg returning to tank. Drill 222mm hole 2755m-2851m.
76.0	27/03/2013	2,851.00	2,931.00	No accidents, no incidents. Cooling lines for conductor averaged -4 deg going down and -4 deg returning to tank. Drill 222mm hole 2851m-2931m. last survey 2930m 1.60 deg Azimuth 57.10
77.0	28/03/2013	2,931.00	3,023.00	No accidents, no incidents. Cooling lines for conductor averaged -4 deg going down and -2 deg returning to tank. Drill 222mm hole 2931m-3023m (92m, 4.27 m/hr). Last Survey @ 3006.9m 1.80 deg Azimuth 58.8
78.0	29/03/2013	3,023.00	3,024.00	No accidents, no incidents. Drill 222mm hole 3023m-3024m (TD). Last Survey @ 3006.9m 1.80 deg Azimuth 58.8. Circulate bottoms up. POOH (pump out due to tight hole) to 2300m, circulate bottoms up, attempt to RIH (required both pump and rotary to go down past 2430m). Ream and work tight hole (hole packing off) F/2917-2923m. POOH, to change BHA, due to lack of progress reaming. Work tight hole F/2446-2430m (hole packing off). POOH to 2007m.
79.0	30/03/2013	3,024.00	3,024.00	No accidents, no incidents. Continue POOH. Changed BHA (laid down directional tools and picked up reamer assembly and tooth bit). Slipped on new drilling line. RIH, Ream / work tight hole F/2433-2529m (Hole packing off at 2437m and 2528m). Wash in hole to 3013m. Ream F/3013-3017m. Ream to bottom (8m of fill noted)
80.0	31/03/2013	3,024.00	3,024.00	No accidents, no incidents. Continue reaming to bottom, circulate hole clean. Pump out of the hole to 2397m, circulate bottoms up and POOH to run wireline logs. Rig up and run wireline log run #1 (AIT-DSI-GPIT-PPC-HGNS). Hit bridge @ 2401m and broke through. Hit bridge at 2436m. Log out with caliper log. Rig out loggers and make up reaming BHA for clean out trip.



Daily Activity Summary

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Rpt #	Report Start Date	Start Depth (mKB)	End Depth (mKB)	Operations Summary
81.0	01/04/2013	3,024.00	3,024.00	No accidents, no incidents. RIH with reaming BHA for clean out trip. Slip and cut at shoe. Ream F/2406-2662m (work tight hole @ 2434-2460m and 2560-2662m). Pump a high vis sweep and a "Super Sweep" sweep to clean hole. Pump out of the hole to 2374m and circulate bottoms up. POOH to 1025m, run wireline logs.
82.0	02/04/2013	3,024.00	3,024.00	No accidents, no incidents. Continue POOH to run wireline logs. Rig up to and run wireline logs. Hit bridge @ 2436m. Rig out wireline tools and RIH with reaming assembly to 3024m. Circulate bottoms up. Pump out to 2680m.
83.0	03/04/2013	3,024.00	3,024.00	No accidents, no incidents. Continue pumping out of the hole to 2392m. Circulate bottoms up. Lay down drill pipe to 1000m, RIH to 1630m. Lay down drill pipe, HWDP, 7" DC's, roller reamers and bit. Pull wear bushing. Make up tooth bit, motor, float collar, stage tool. Pull wear bushing. Make up 8 1/2" tooth bit, 7/8 3.0 stage motor, float collar, and stage tool. Pump through motor and floats. Run 7" casing to 660m.
84.0	04/04/2013	3,024.00	3,024.00	No accidents, no incidents. Continue running casing. Circulate casing capacity at 1522m. Run 7" casing in hole from 660m- 2379m. Circulate casing in from 2379m- 2790m.
85.0	05/04/2013	3,024.00	3,024.00	No accidents, no incidents. Circulate casing in from 2790m- 2882m. Land out casing. Cement production casing with Haliburton. PUMP 3M3 PREFLUSH. PRESSURE TEST CEMENT LINES AND CEMENT 177.8mm PRODUCTION CASING WITH 37.9 TONNES (39.4M3) HALCEM G LEAD CEMENT W/ 0.5% HALAD 567 + 1.12% GEL +3% HR-5 F/0-228M-2600 FOLLOWED BY 8.6 TONNES (5M3) HALCEM G W/ 0.5% HALAD 567 + 0.3%HR-5.TAIL CEMNT FROM 2882M-2600M. PUMP PLUG AND FOLLOWED WITH 1.5M3 OF TAIL CEMENT. PUMPED 54M3 BRINE WATER BUMPED PLUG AND PRESSURE TEST CASING TO 23MPA FOR 10 MINS. BLEED OFF AND 300L RETURNS.FLOATS HELD OK.
86.0	06/04/2013	3,024.00	3,024.00	No accidents, no incidents. Run in 4" drill pipe to 150m, displace well to glycol. Lay down 4" DP. Nipple down BOP's. Clean mud tanks and change over heads liners to 7". Rig out back end of rig. Rig released @ 23:59 hrs on April 6th, 2013.
87.0	07/04/2013	3,024.00	3,024.00	No accidents, no incidents. Rig out top drive. Rig out tarps and prefabs. Rig out grass hopper. Transfer 4m3 of mud to new location. Haul miscellaneous loads (manifold shack, flare tank, degasser, etc.) to staging area.
88.0	08/04/2013	3,024.00	3,024.00	No accidents, no incidents. Rig out top drive. Rig out tarps and prefabs. Transfer 90m3 of mud to new location. Haul miscellaneous loads to staging area and new location. Lowered sub and derrick.

APPENDIX II - CASING SUMMARY



Casing Summary

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Conductor, 24.00mKB											
Set Depth (mKB) 24.00		Set Tension (daN)		String Nominal OD (mm) 508.0		String Min Drift (mm)		Centralizers		Scratchers	
Jts	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Top Thread	Top (mKB)	Btm (mKB)	Len (m)	P Burst (kPa)	P Collapse (kPa)
2	Casing Joints	508.0	482.6	154.800	X40		12.00	24.00	12.00		

Surface, 404.36mKB											
Set Depth (mKB) 404.36		Set Tension (daN)		String Nominal OD (mm) 339.7		String Min Drift (mm)		Centralizers 12		Scratchers	
Jts	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Top Thread	Top (mKB)	Btm (mKB)	Len (m)	P Burst (kPa)	P Collapse (kPa)
1	Landing jt #1	339.7	315.3	101.195	K-55	Buttress Thread	-0.86	8.33	9.19		13,445
1	Double pin #1	339.7	315.3	101.195	K-55	Buttress Thread	8.33	11.06	2.73		13,445
31	Casing Joints	339.7	315.3	101.195	K-55	Buttress Thread	11.06	391.10	380.04		13,445
1	Float Collar	339.7	315.3	101.195	K-55	Buttress Thread	391.10	391.57	0.47		13,445
1	Back up shoe joint	339.7	315.3	101.195	K-55	Buttress Thread	391.57	403.80	12.23		13,445
1	Float Shoe	339.7	315.3	101.195	K-55	Buttress Thread	403.80	404.36	0.56		13,445

Intermediate, 1,522.92mKB											
Set Depth (mKB) 1,522.92		Set Tension (daN)		String Nominal OD (mm) 244.5		String Min Drift (mm)		Centralizers		Scratchers	
Jts	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Top Thread	Top (mKB)	Btm (mKB)	Len (m)	P Burst (kPa)	P Collapse (kPa)
0	Double Pin	244.5	224.4	59.527	L-80	LT&C	7.70	7.70	0.00		21,305
0	Pup Joint	244.5	224.4	59.527	L-80	LT&C	7.70	7.70	0.00		21,305
0	Landing Joint	244.5	224.4	59.527	L-80	LT&C	7.70	7.70	0.00		21,305
1	Casing Hanger	244.5	224.4	59.527	L-80	LT&C	7.70	9.84	2.14		21,305
10 9	Casing Joints	244.5	224.4	59.527	L-80	LT&C	9.84	1,494.00	1,484.16		21,305
1	Float Collar	244.5	224.4	59.527	L-80	LT&C	1,494.00	1,494.47	0.47		21,305
2	Casing Joints	244.5	224.4	59.527	L-80	LT&C	1,494.47	1,522.38	27.91		21,305
1	Float Shoe	244.5	224.4	59.527	L-80	LT&C	1,522.38	1,522.92	0.54		21,305

Production Casing, 2,882.37mKB											
Set Depth (mKB) 2,882.37		Set Tension (daN)		String Nominal OD (mm) 177.8		String Min Drift (mm)		Centralizers 4		Scratchers	
Jts	Item Des	OD (mm)	ID (mm)	Wt (kg/m)	Grade	Top Thread	Top (mKB)	Btm (mKB)	Len (m)	P Burst (kPa)	P Collapse (kPa)
0	Pup Joint	177.8	157.1	43.157	L-80	LT&C	-1.42	-1.42	0.00		48,401
0	Casing Joints	177.8	157.1	43.157	L-80	LT&C	-1.42	-1.42	0.00		48,401
1	Landing Joint	177.8	157.1	43.157	L-80	LT&C	-1.42	7.50	8.92		48,401
1	Casing Hanger (landing profile = 7.50mRT)	177.8	157.1	43.157	L-80	LT&C	7.50	9.74	2.24		48,401
20 9	Casing Joints	177.8	157.1	43.157	L-80	LT&C	9.74	2,873.31	2,863.57		48,401
0	Shoe Joint	177.8	157.1	43.157	L-80	LT&C	2,873.31	2,873.31	0.00		
1	Stage Tool	177.8	157.1	43.157	L-80	LT&C	2,873.31	2,874.08	0.77		
1	Float Collar	177.8	157.1	43.157	L-80	LT&C	2,874.08	2,874.53	0.45		48,401
1	Crossover	177.8	157.1	43.157	L-80	LT&C	2,874.53	2,875.02	0.49		
1	7/8 3 Stage Drilling Motor	165.1		130.000		4 1/2 IF	2,875.02	2,882.12	7.10		48,401
1	Drill Bit	177.8	157.1	43.157	C-75	4 1/2 REG	2,882.12	2,882.37	0.25		46,402

APPENDIX III - CEMENT REPORTS



Cement

Conductor Cement

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Conductor Cement, Casing, 17/12/2012 14:00

Type Casing	Cementing Start Date 17/12/2012	Cementing End Date 17/12/2012	Wellbore Original Hole	String Conductor, 24.00mKB
Cementing Company Halliburton Energy Services	Evaluation Method Returns to Surface	Cement Evaluation Results Returns to surface.		

Comment
Pump 15.3 tonnes (12m3) of ArcticCem. Returns to Surface. Displace casing with 2.8m3 of water

1, 8.36-28.36mKB

Top Depth (mKB) 8.36	Bottom Depth (mKB) 28.36	Full Return?	Vol Cement Ret (m³)	Top Plug?	Bottom Plug?
Initial Pump Rate (m³/min)	Final Pump Rate (m³/min)	Avg Pump Rate (m³/min)		Final Pump Pressure (kPa)	Plug Bump Pressure (kPa)
Pipe Reciprocated?	Reciprocation Stroke Length (m)	Reciprocation Rate (spm)		Pipe Rotated?	Pipe RPM (rpm)
Tagged Depth (mKB)	Tag Method	Depth Plug Drilled Out To (mKB)		Drill Out Diameter (mm)	Drill Out Date

<typ>

Fluid Type	Fluid Description	Amount (1000kg)	Class	Volume Pumped (m³)
Estimated Top (mKB)	Estimated Bottom Depth (mKB)	Percent Excess Pumped (%)	Yield (m³/tonne)	Mix H2O Ratio (m³/tonne)
Free Water (%)	Density (kg/m³)	Plastic Viscosity (Pa*s)	Thickening Time (hr)	1st Compressive Strength (kPa)

Cement Fluid Additives

Add	Type	Conc



Cement

Surface

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Surface, Casing, 17/01/2013 01:45

Type Casing	Cementing Start Date 17/01/2013	Cementing End Date 17/01/2013	Wellbore Original Hole	String Surface, 404.36mKB
Cementing Company Halliburton Energy Services	Evaluation Method Returns to Surface	Cement Evaluation Results 5m3 cement returns to surface.		

Comment
Pump 2m3 of water prefush, Pressure test lines, Pump 21.3 m3 / 27.1 tonnes of ArcticCem + 0.278% PFR 1 Cement followed by 19 m3 / 25 tonnes Halcem G + 0.5% Halad 567 + 2% CaCl2 Cement. Drop drill pipe dart. Pump 4m3 displacement. Pop dart. Cement returns to surface - approx. 5 m3

Top up job required. Pump 2.5 m3 / 3.1 tonnes Halcem G + 0.5% Halad 567 + 2% CaCl2. Pump water 0.3 m3.

1, 8.33-405.22mKB

Top Depth (mKB) 8.33	Bottom Depth (mKB) 405.22	Full Return? Yes	Vol Cement Ret (m³) 5.00	Top Plug? Yes	Bottom Plug? No
Initial Pump Rate (m³/min) 1.000	Final Pump Rate (m³/min) 0.400	Avg Pump Rate (m³/min) 1.000		Final Pump Pressure (kPa) 3,000	Plug Bump Pressure (kPa) 15,700
Pipe Reciprocated? No	Reciprocation Stroke Length (m)	Reciprocation Rate (spm)		Pipe Rotated? No	Pipe RPM (rpm)
Tagged Depth (mKB) 383.00	Tag Method Drill Bit	Depth Plug Drilled Out To (mKB) 405.00		Drill Out Diameter (mm) 311.0	Drill Out Date

Lead

Fluid Type Lead	Fluid Description ArcticCem + 0.27% PFR-1	Amount (1000kg) 27.0	Class	Volume Pumped (m³) 21.30
Estimated Top (mKB) 8.33	Estimated Bottom Depth (mKB) 220.00	Percent Excess Pumped (%) 30.0	Yield (m³/tonne) 0.790	Mix H2O Ratio (m³/tonne) 0.42
Free Water (%)	Density (kg/m³) 1,870.0	Plastic Viscosity (Pa·s)	Thickening Time (hr) 2.50	1st Compressive Strength (kPa) 3,500

Cement Fluid Additives

Add	Type	Conc

Tail

Fluid Type Tail	Fluid Description HalCem G + 0.5% Halad 567 + 2% CaCl2	Amount (1000kg) 20.0	Class G	Volume Pumped (m³) 15.20
Estimated Top (mKB) 220.00	Estimated Bottom Depth (mKB) 405.22	Percent Excess Pumped (%) 10.0	Yield (m³/tonne) 0.760	Mix H2O Ratio (m³/tonne) 0.44
Free Water (%)	Density (kg/m³) 1,895.0	Plastic Viscosity (Pa·s)	Thickening Time (hr) 3.75	1st Compressive Strength (kPa) 3,500

Cement Fluid Additives

Add	Type	Conc



Cement

Well Name: NCY West Chance H-28

Intermediate Casing Cement

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Intermediate Casing Cement, Casing, 01/02/2013 02:00

Type Casing	Cementing Start Date 01/02/2013	Cementing End Date 01/02/2013	Wellbore Original Hole	String Intermediate, 1,522.92mKB
Cementing Company Halliburton Energy Services	Evaluation Method Returns to Surface	Cement Evaluation Results 4m3 cement returns to surface.		

Comment
Pump 3 m3 spacer, Pressure test lines, Pump 64.8m3 / 60 tonnes of HalCem G + 0.5% Halad 567 +1.15% Halliburton Gel + 1% Econolite. Pump5 m3 / 6.6 tonnes of HalCem G + 0.5% Halad 567 + 0.2% HR-5. Drop Plug. Pump 59.2 m3 of displacement. Bump plug. 4m3 cement returns to surface.

1, 7.70-1,523.00mKB

Top Depth (mKB) 7.70	Bottom Depth (mKB) 1,523.00	Full Return? Yes	Vol Cement Ret (m³) 4.00	Top Plug? Yes	Bottom Plug? Yes
Initial Pump Rate (m³/min) 1.500	Final Pump Rate (m³/min) 1.500	Avg Pump Rate (m³/min) 1.500		Final Pump Pressure (kPa) 13,000	Plug Bump Pressure (kPa) 20,000
Pipe Reciprocated? No	Reciprocation Stroke Length (m)	Reciprocation Rate (spm)		Pipe Rotated? No	Pipe RPM (rpm)
Tagged Depth (mKB)	Tag Method	Depth Plug Drilled Out To (mKB)	Drill Out Diameter (mm) 222.2	Drill Out Date	

Lead

Fluid Type Lead	Fluid Description Lead	Amount (1000kg) 60.0	Class G	Volume Pumped (m³) 64.70
Estimated Top (mKB) 240.00	Estimated Bottom Depth (mKB) 1,330.00	Percent Excess Pumped (%) 25.0	Yield (m³/tonne) 1.080	Mix H2O Ratio (m³/tonne) 0.73
Free Water (%)	Density (kg/m³) 1,665.0	Plastic Viscosity (Pa*s)	Thickening Time (hr) 4.00	1st Compressive Strength (kPa) 3,500

Cement Fluid Additives

Add	Type	Conc
Econolite		1.0
Hal Gel		0.5
Halad 567		1.15

Tail

Fluid Type Tail	Fluid Description Tail	Amount (1000kg) 6.6	Class G	Volume Pumped (m³) 5.00
Estimated Top (mKB) 1,330.00	Estimated Bottom Depth (mKB) 1,526.00	Percent Excess Pumped (%) 25.0	Yield (m³/tonne) 0.760	Mix H2O Ratio (m³/tonne) 0.44
Free Water (%)	Density (kg/m³) 1,895.0	Plastic Viscosity (Pa*s)	Thickening Time (hr) 2.75	1st Compressive Strength (kPa) 3,500

Cement Fluid Additives

Add	Type	Conc
Halad 567		0.5
HR-4		0.2

Displacement

Fluid Type Displacement	Fluid Description Drilling Mud	Amount (1000kg)	Class	Volume Pumped (m³) 59.20
Estimated Top (mKB) 0.00	Estimated Bottom Depth (mKB) 1,494.00	Percent Excess Pumped (%)	Yield (m³/tonne)	Mix H2O Ratio (m³/tonne)
Free Water (%)	Density (kg/m³) 1,210.0	Plastic Viscosity (Pa*s)	Thickening Time (hr)	1st Compressive Strength (kPa)

Cement Fluid Additives

Add	Type	Conc



Cement

Cement Plug

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Cement Plug, Plug, 18/03/2013 19:45

Type Plug	Cementing Start Date 18/03/2013	Cementing End Date 18/03/2013	Wellbore Original Hole	String
Cementing Company Halliburton Energy Services	Evaluation Method Returns to Surface	Cement Evaluation Results 3m3 cement returns to surface		

Comment
Pump 3m3 of water prefush, Pressure test lines, Pump15m3 / 16.3 tonnes of HalCem G Cement (0.94% 150kg Halliburton Gel,0.5% 81.5 kg Halad567, 0.3% 48.9 kg HR-5) Pump 1m3 of water behind.

1, 2,409.00-2,524.00mKB

Top Depth (mKB) 2,409.00	Bottom Depth (mKB) 2,524.00	Full Return? No	Vol Cement Ret (m³) 3.00	Top Plug? Yes	Bottom Plug? Yes
Initial Pump Rate (m³/min) 1.000	Final Pump Rate (m³/min) 1.000	Avg Pump Rate (m³/min) 1.000		Final Pump Pressure (kPa) 12,000	Plug Bump Pressure (kPa)
Pipe Reciprocated? No	Reciprocation Stroke Length (m)	Reciprocation Rate (spm)	Pipe Rotated? Yes	Pipe RPM (rpm) 10	
Tagged Depth (mKB)	Tag Method	Depth Plug Drilled Out To (mKB)	Drill Out Diameter (mm)	Drill Out Date	

Tail

Fluid Type Tail	Fluid Description Pump 3m3 of water prefush, Pressure test lines, Pump15m3 / 16.3 tonnes of HalCem G Cement (0.94% 150kg Halliburton Gel,0.5% 81.5 kg Halad567, 0.3% 48.9 kg HR-5) Pump 1m3 of water behind.	Amount (1000kg) 16.3	Class G	Volume Pumped (m³) 15.00
Estimated Top (mKB) 2,409.00	Estimated Bottom Depth (mKB) 2,524.00	Percent Excess Pumped (%) 50.0	Yield (m³/tonne) 0.920	Mix H2O Ratio (m³/tonne) 0.59
Free Water (%)	Density (kg/m³) 1,750.0	Plastic Viscosity (Pa*s)	Thickening Time (hr) 4.13	1st Compressive Strength (kPa) 3,500

Cement Fluid Additives

Add	Type	Conc
	Halad 567	0.5
	Halliburton Gel	0.94
	HR-5	0.3



Cement

Production

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Production, Casing, 05/04/2013 20:30

Type Casing	Cementing Start Date 05/04/2013	Cementing End Date 05/04/2013	Wellbore Original Hole	String Production Casing, 2,882.37mKB
Cementing Company Halliburton Energy Services	Evaluation Method Cement Bond Log	Cement Evaluation Results Cement to 937m MD		

Comment
 PUMP 3M3 PREFLUSH. PRESSURE TEST CEMENT LINES AND CEMENT 177.8mm PRODUCTION CASING WITH 37.9 TONNES (39.4M3) HALCEM G LEAD CEMENT W/ 0.5% HALAD 567 + 1.12% GEL +3% HR-5 F/0-228M-2600 FOLLOWED BY 6.6 TONNES (5M3) HALCEM G W/ 0.5% HALAD 567 + 0.3% HR-5.TAIL CEMNT FROM 2882M-2600M. PUMP PLUG AND FOLLOWED WITH 2 TONNES (1.5M3) OF TAIL CEMENT. PUMPED 54M3 BRINE WATER BUMPED PLUG AND PRESSURE TEST CASING TO 23MPA FOR 10 MINS. BLEED OFF AND 300L RETURNS.FLOATS HELD OK

1, 937.00-2,874.00mKB

Top Depth (mKB) 937.00	Bottom Depth (mKB) 2,874.00	Full Return? No	Vol Cement Ret (m³) 0.00	Top Plug? No	Bottom Plug? Yes
Initial Pump Rate (m³/min) 0.800	Final Pump Rate (m³/min) 0.300	Avg Pump Rate (m³/min) 0.800		Final Pump Pressure (kPa) 8,000	Plug Bump Pressure (kPa) 13,000
Pipe Reciprocated? No	Reciprocation Stroke Length (m)	Reciprocation Rate (spm)		Pipe Rotated? No	Pipe RPM (rpm)
Tagged Depth (mKB)	Tag Method	Depth Plug Drilled Out To (mKB)		Drill Out Diameter (mm)	Drill Out Date

Preflush

Fluid Type Preflush	Fluid Description	Amount (1000kg)	Class	Volume Pumped (m³)
Estimated Top (mKB) 0.00	Estimated Bottom Depth (mKB) 228.00	Percent Excess Pumped (%)	Yield (m³/tonne)	Mix H2O Ratio (m³/tonne)
Free Water (%)	Density (kg/m³) 1,590.0	Plastic Viscosity (Pa*s)	Thickening Time (hr)	1st Compressive Strength (kPa)

Cement Fluid Additives

Add	Type	Conc

Lead

Fluid Type Lead	Fluid Description	Amount (1000kg) 37,900.0	Class G	Volume Pumped (m³) 39.40
Estimated Top (mKB) 228.00	Estimated Bottom Depth (mKB) 2,600.00	Percent Excess Pumped (%) 30.0	Yield (m³/tonne) 1.040	Mix H2O Ratio (m³/tonne) 0.71
Free Water (%)	Density (kg/m³) 1,665.0	Plastic Viscosity (Pa*s)	Thickening Time (hr) 4.12	1st Compressive Strength (kPa)

Cement Fluid Additives

Add	Type	Conc
	Halad	
	Halliburton Gel	
	HR-5	

Tail

Fluid Type Tail	Fluid Description	Amount (1000kg) 8,600.0	Class G	Volume Pumped (m³) 6.50
Estimated Top (mKB) 2,600.00	Estimated Bottom Depth (mKB) 2,882.00	Percent Excess Pumped (%) 30.0	Yield (m³/tonne) 0.760	Mix H2O Ratio (m³/tonne) 0.44
Free Water (%)	Density (kg/m³) 1,895.0	Plastic Viscosity (Pa*s)	Thickening Time (hr) 3.47	1st Compressive Strength (kPa)

Cement Fluid Additives

Add	Type	Conc

APPENDIX IV - BIT SUMMARY



Bit Summary

Well Name: NCY West Chance H-28

Job Type: Drilling - original

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	License # 1135	Well Configuration Type Vert	Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)
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Bits																		
BHA #	Bit Run	Size (mm)	Make	Model	SN	IADC Codes	TFA (incl Noz) (mm ²)	Nozzles (mm)	Depth In (mKB)	Depth Out (mKB)	Drilled (m)	Drill Time (hr)	BHA ROP (m/hr)	WOB Max (daN)	WOB Min (daN)	Max RPM (rpm)	Min RPM (rpm)	Bit Dull
1	1	444.5	VAREL	HRO4JMRSV	1312056	---	848	17.5/17.5/17.5/12.7	22.00	406.00	384.00	43.75	8.8	10,000	5,000	180	80	0-1-NO-A-E-0-NO-TD
2	2	311.0	HUGHES	GX-18DX0	5202940	447	1,000	20.6/20.6/20.6	404.00	1,023.00	619.00	38.00	16.3	24,000	15,000	117	1	5-8-FC-A-E-10-BT-PR
3	3	311.0	SECURITY	EQH20D2RC	11713193	517W	1,161	22.2/22.2/22.2	1,032.00	1,526.00	494.00	49.50	10.0	29,000	21,000	149	147	3-8-FC-G-F-2-BC-TD
4	RR4	311.0	SECURITY	EQH20D2RC	11713193	517W												-----
6	5	222.0	SECURITY	EQH44D2R	11258084	617W	380	12.7/12.7/12.7	1,526.00	1,625.00	98.50	28.50	3.5	22,000	22,000	196	1	6-8-BT-A-E-0-CT-PR
6	6	222.0	SMITH	FHI450DIPS	PX2256	---	380	12.7/12.7/12.7	1,625.00	1,695.00	59.00	21.00	2.8	22,000	22,000	99	1	2-6-ER-G-E-0-BT-DTF
8	7	222.0	HUGHES	VGD-44GD	5188502	617X	250	10.3/10.3/10.3	1,695.00	1,717.00	22.00	8.75	2.5	22,000	20,000	76	1	6-8-CT-H-E-0-BT-TO
8	8	222.0	SMITH	FHI50	PS6874	627X	250	10.3/10.3/10.3	1,717.00	1,734.00	17.00	9.00	1.9	24,000	18,000	66	1	5-8-CT-A-E--BT-PR
9	9	222.0	SMITH	FHI55ODIPS	PT1243	637X	250	10.3/10.3/10.3	1,734.00	1,818.00	84.00	51.75	1.6	24,000	19,500	66	66	4-5-FC-A-E--BT-HR
10	10	222.0	SMITH	FHI55OD1PS	PT2227	637X	250	10.3/10.3/10.3	1,818.00	1,918.00	100.00	55.00	1.8	22,000	19,500	71	66	5-5-FC-A-E--BT-HR
11	11	222.0	HALLIBURTON	QH55D2R	12093018	637W	239	11.1/9.5/9.5	1,918.00	1,982.00	64.00	38.50	1.7	22,000	20,500	85	85	3-6-BT-G-E-0-ER-DMF
12	12	222.0	HUGHES	EP6676	5160100	637X	250	10.3/10.3/10.3	1,982.00	2,037.00	55.00	42.25	1.3	19,500	18,000	99	86	4-4-BT-A-E--FC-PR
13	13	222.0	SMITH	FHI550D1PS	PT7685	637X	264	10.3/10.3/11.1	2,037.00	2,057.00	20.00	13.75	1.5	18,000	18,000	98	1	2-2-BT-A-E--WT-CP
14	14	222.0	QUEST	DC813	1012	---	667	10.3/10.3/10.3/10.3/10.3/10.3/10.3	2,057.00	2,065.00	8.00	4.50	1.8	4,000	4,000	50	50	0-2-WT-S-X--CT-PR
15	15	222.0	SMITH	FHI50OD1PS	PS6873	627X	263	10.3/10.3/11.1	2,065.00	2,210.00	145.00	77.50	1.9	18,000	18,000	76	76	2-2-WT-A-E--BT-PR
16	16	222.0	SMITH	MDSi613	JG5251	---	294	7.9/7.9/7.9/7.9/7.9/7.9	2,210.00	2,369.00	159.00	15.50	10.3	8,500	7,000	76	1	0-1-NO-S-X--CT-DMF
17	17	222.0	SMITH	MDSi613	JE5040	---	294	7.9/7.9/7.9/7.9/7.9/7.9	2,369.00	2,375.00	6.00	6.78	0.9	20,000	10,000	73	1	0-1-PN-G-X--CT-PR
18	18	222.0	HALLIBURTON	EQH40D2R	11629332	617W	462	14.0/14.0/14.0	2,375.00	2,455.00	80.00	25.75	3.1	24,000	21,000	76	76	6-4-FC-M-E--BT-PR
19	19	222.0	SMITH	MDSi613UBTX	JF2353	---	425	9.5/9.5/9.5/9.5/9.5/9.5	2,455.00	2,456.00	1.00	0.75	1.3	12,000	12,000	82	82	1-1-BU-2-X--PN-PR
20	20	222.0	SMITH	FHI35	PY2777	547X	291	11.1/11.1/11.1	2,456.00	2,515.00	59.00	16.75	3.5	18,000	18,000	76	76	2-2-NO-N-E--CT-DTF
21	21	222.0	HALLIBURTON	EQH22D2R	11269520	517X	264	11.1/11.1/9.5	2,515.00	2,652.00	137.00	41.75	3.3	18,000	18,000	97	97	7-3-JC-M-E--BT-PR
22	22	222.0	HUGHES	GX-35DX	52D1387	---	500	10.3/10.3/10.3/10.3/10.3/10.3										0-0-NO-A-E--NO-BHA
23	RR23	222.0	KINGDREAM	EG1HGLC	ML27997	117X	2,383	31.8/31.8/31.8										1-2-NO-G-E-3-WT-BHA
24	RR24	222.0	KINGDREAM	EG1HGLC	ML27997	117X	2,383	31.8/31.8/31.8										0-0-NO-A-0--NO-BHA
25	RR25	152.0	SMITH	XR50ODPS	RS2788	627X	2,121	30.0/30.0/30.0										0-0-NO-A-0--NO-BHA
26	26	222.0	KINGDREAM	EG1HGLC	L28082	117	380	12.7/12.7/12.7										0-0-NO-A-0--NO-BHA
27	28	222.0	HALLIBURTON	EQH26D2R	11644672	527	250	10.3/10.3/10.3	2,652.00	2,727.00	75.00	24.86	3.0	24,000	19,000	85	70	3-1-CT-M-E--JC-BHA
28	29	222.0	HALLIBURTON	FX54R	11913433	---	496	9.5/9.5/9.5/9.5/9.5/9.5	2,727.00	3,024.00	297.00	66.38	4.5	10,500	4,000	114	84	1-4-PN-S-X--BT-TD
29	RR30	222.0	KINGDREAM	EG1HGLC	L28082	117	449	10.3/10.3/10.3/15.9										-----

APPENDIX V – BHA SUMMARY



BHA Summary

Job Type: Drilling - original

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	License # 1135	Well Configuration Type Vert	Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)
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Bit Run	BHA #	String Name	BHA	Drill Bit	Bit Dull	Depth In (mKB)	Depth Out (mKB)	Drilled (m)	Drill Time (hr)	BHA ROP (m/hr)
1	1	Drilling Assembly	VAREL HRO4JMRSV, BIT SUB, SHOCK SUB, DC (8.00 IN), X/O, DC (7.00 IN), JARS-HYD/MECH, PONY SUB, DC (7.00 IN), X/O, HWDP(5.0 IN)	444.5mm, HRO4JMRSV, 1312056	0-1-NO-A-E-0-NO-TD	22.00	406.00	384.00	43.75	8.8
2	2	Drilling Assembly	HUGHES GX-18DX0, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, DC (8.00 IN), X/O, DC (7.00 IN), JARS-HYD/MECH, PONY SUB, DC (7.00 IN), X/O, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles	311.0mm, GX-18DX0, 5202940	5-8-FC-A-E-10-BT-PR	404.00	1,023.00	619.00	38.00	16.3
3	3	Drilling Assembly	SECURITY EQH20D2RC, DOG SUB, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, DC (8.00 IN), X/O, DC (7.00 IN), JARS-HYD/MECH, PONY SUB, DC (7.00 IN), X/O, HWDP(5.0 IN), Drill pipe - Stands	311.0mm, EQH20D2RC, 11713193	3-8-FC-G-F-2-BC-TD	1,032.00	1,526.00	494.00	49.50	10.0
RR 4	4	Drilling Assembly	SECURITY EQH20D2RC, BIT SUB, BIT SUB X/O, DC (7.00 IN), JARS-HYD/MECH, PONY SUB, DC (7.00 IN), X/O, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles	311.0mm, EQH20D2RC, 11713193	-----					
5	6	Drilling Assembly	SECURITY EQH44D2R, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles, Single Down	222.0mm, EQH44D2R, 11258084	6-8-BT-A-E-0-CT-PR	1,526.00	1,625.00	98.50	28.50	3.5
6	6	Drilling Assembly	SMITH FHI450DIPS, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles, Drill pipe - Singles	222.0mm, FHI450DIPS, PX2256	2-6-ER-G-E-0-BT-DTF	1,625.00	1,695.00	59.00	21.00	2.8
7	8	Drilling Assembly	HUGHES VGD-44GDX, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Stands	222.0mm, VGD-44GDX, 5188502	6-8-CT-H-E-0-BT-TO	1,695.00	1,717.00	22.00	8.75	2.5
8	8	Drilling Assembly	SMITH FHI50, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles	222.0mm, FHI50, PS6874	5-8-CT-A-E--BT-PR	1,717.00	1,734.00	17.00	9.00	1.9
9	9	Drilling Assembly	SMITH FHI55ODIPS, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles	222.0mm, FHI55ODIPS, PT1243	4-5-FC-A-E--BT-HR	1,734.00	1,818.00	84.00	51.75	1.6
10	10	Drilling Assembly	SMITH FHI55OD1PS, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	222.0mm, FHI55OD1PS, PT2227	5-5-FC-A-E--BT-HR	1,818.00	1,918.00	100.00	55.00	1.8
11	11	Drilling Assembly	HALLIBURTON QH55D2R, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles	222.0mm, QH55D2R, 12093018	3-6-BT-G-E-0-ER-DMF	1,918.00	1,982.00	64.00	38.50	1.7



BHA Summary

Job Type: Drilling - original

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	License # 1135	Well Configuration Type Vert	Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)
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Bit Run	BHA #	String Name	BHA	Drill Bit	Bit Dull	Depth In (mKB)	Depth Out (mKB)	Drilled (m)	Drill Time (hr)	BHA ROP (m/hr)
12	12	Drilling Assembly	HUGHES EP6676, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles	222.0mm, EP6676, 5160100	4-4-BT-A-E--FC-PR	1,982.00	2,037.00	55.00	42.25	1.3
13	13	Drilling Assembly	SMITH FHI550D1PS, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	222.0mm, FHI550D1PS, PT7685	2-2-BT-A-E--WT-CP	2,037.00	2,057.00	20.00	13.75	1.5
14	14	Drilling Assembly	QUEST DC813, CORE BBL, CORING JARS, FLOAT SUB, HWDP (5.0 IN), Drill pipe - Stands, Drill pipe - Singles	222.0mm, DC813, 1012	0-2-WT-S-X--CT-PR	2,057.00	2,065.00	8.00	4.50	1.8
15	15	Drilling Assembly	SMITH FHI500D1PS, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles, Kelly Down	222.0mm, FHI500D1PS, PS6873	2-2-WT-A-E--BT-PR	2,065.00	2,210.00	145.00	77.50	1.9
16	16	Drilling Assembly	SMITH MDSi613, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	222.0mm, MDSi613, JG5251	0-1-NO-S-X--CT-DMF	2,210.00	2,369.00	159.00	15.50	10.3
17	17	Drilling Assembly	SMITH MDSi613, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Kelly Down, Drill pipe - Stands	222.0mm, MDSi613, JE5040	0-1-PN-G-X--CT-PR	2,369.00	2,375.00	6.00	6.78	0.9
18	18	Drilling Assembly	HALLIBURTON EQH40D2R, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	222.0mm, EQH40D2R, 11629332	6-4-FC-M-E--BT-PR	2,375.00	2,455.00	80.00	25.75	3.1
19	19	Drilling Assembly	SMITH MDSi613UBTX, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	222.0mm, MDSi613UBTX, JF2353	1-1-BU-2-X--PN-PR	2,455.00	2,456.00	1.00	0.75	1.3
20	20	Drilling Assembly	SMITH FHI35, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	222.0mm, FHI35, PY2777	2-2-NO-N-E--CT-DTF	2,456.00	2,515.00	59.00	16.75	3.5
21	21	Drilling Assembly	HALLIBURTON EQH22D2R, TRU-TRAK, MWD-NaviGamma, NM DRILL COLLAR, NM DRILL COLLAR, SUB- FILTER, SUB FLOAT, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	222.0mm, EQH22D2R, 11269520	7-3-JC-M-E--BT-PR	2,515.00	2,652.00	137.00	41.75	3.3
22	22	Drilling Assembly	HUGHES GX-35DX, BIT SUB, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	222.0mm, GX-35DX, 52D1387	0-0-NO-A-E--NO-BHA					
RR 23	23	Drilling Assembly	KINGDREAM EG1HGLC, BIT SUB, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	222.0mm, EG1HGLC, ML27997	1-2-NO-G-E-3-WT-BHA					
RR 24	24	Drilling Assembly	KINGDREAM EG1HGLC, BIT SUB, 4" DP CET39, X/O, FLOAT SUB, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN)	222.0mm, EG1HGLC, ML27997	0-0-NO-A-0--NO-BHA					



NORTHERN CROSS

BHA Summary

Job Type: Drilling - original

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	License # 1135	Well Configuration Type Vert	Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)
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Bit Run	BHA #	String Name	BHA	Drill Bit	Bit Dull	Depth In (mKB)	Depth Out (mKB)	Drilled (m)	Drill Time (hr)	BHA ROP (m/hr)
RR 25	25	Drilling Assembly	SMITH XR50ODPS, BIT SUB, 4" DP CET39, X/O, FLOAT SUB, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	152.0mm, XR50ODPS, RS2788	0-0-NO-A-0--NO-BHA					
26	26	Drilling Assembly	KINGDREAM EG1HGLC, BIT SUB, DC (7.00 IN), DC (7.00 IN), DC (7.00 IN), X/O, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles	222.0mm, EG1HGLC, L28082	0-0-NO-A-0--NO-BHA					
28	27	Drilling Assembly	HALLIBURTON EQH26D2R, MOTOR LS, STAB-STRING, MWD-NaviGamma, UP-AP, NM DRILL COLLAR, NM DRILL COLLAR, FILTER SUB, X/O, DC (7.00 IN), DC (7.00 IN), DC (7.00 IN), DC (7.00 IN), DC (7.00 IN), X/O, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN)	222.0mm, EQH26D2R, 11644672	3-1-CT-M-E--JC-BHA	2,652.00	2,727.00	75.00	24.86	3.0
29	28	Drilling Assembly	HALLIBURTON FX54R, MOTOR LS, STAB-STRING, MWD-NaviGamma, UP-AP, NM DRILL COLLAR, NM DRILL COLLAR, FILTER SUB, X/O, DC (7.00 IN), DC (7.00 IN), DC (7.00 IN), DC (7.00 IN), DC (7.00 IN), X/O, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands, Drill pipe - Singles	222.0mm, FX54R, 11913433	1-4-PN-S-X--BT-TD	2,727.00	3,024.00	297.00	66.38	4.5
RR 30	29	Packed Hole	KINGDREAM EG1HGLC, NEAR BIT REAMER, X/O, DC (7.00 IN), REAMR-3 PT ROLLR, DC (7.00 IN), REAMR-3 PT ROLLR, DC (7.00 IN), DC (7.00 IN), X/O, HWDP(5.0 IN), JARS-HYD/MECH, PONY SUB, HWDP(5.0 IN), Drill pipe - Stands	222.0mm, EG1HGLC, L28082	-----					

APPENDIX VI - DIRECTIONAL SURVEY DATA

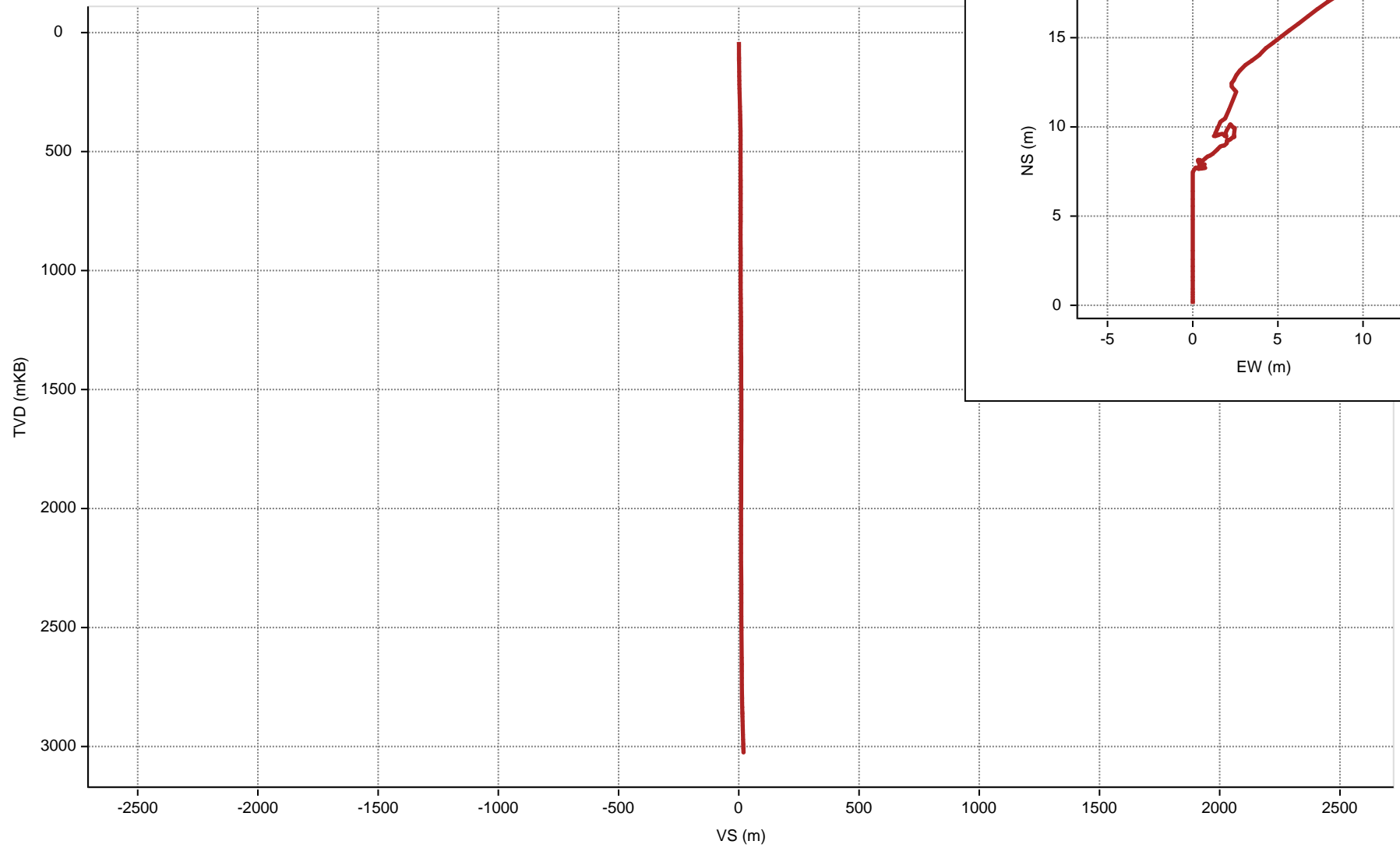


Directional Plot Plan vs Actual

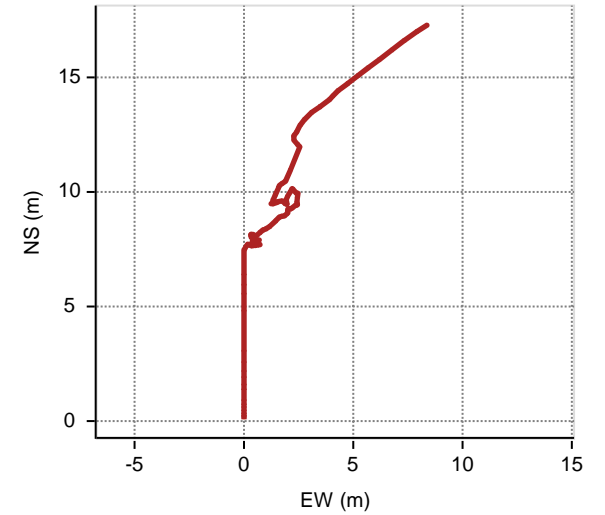
Well Name: **NCY West Chance H-28**

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	License # 1135	Well Configuration Type Vert	Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)
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Vertical Section



Plan





Directional Survey

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Wellbore Name Original Hole	Parent Wellbore	Kick Off Depth (mKB)	Vertical Section Direction (°)
Date 11/01/2013	Definitive? No	Description Directional Survey from Tour Sheet Import	Proposed? No
MD Tie In (mKB)	TVDTie In (mKB)	Inclination Tie In (°)	Azimuth Tie In (°)
			NSTie In (m)
			EW Tie In (m)

Survey Data

Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	VS (m)	NS (m)	EW (m)	DLS (°/30m)	Build (°/30m)	Turn (°/30m)	Unwrap Displace (m)	Method	Survey Company
11/01/2013	39.00	0.25	0.00	39.00	0.08	0.09	0.00	0.19	0.19	0.00	0.09	WIRELI NE	Single shot
	51.28	0.50	0.00	51.28	0.15	0.17	0.00	0.61	0.61	0.00	0.17	WIRELI NE	Single shot
	57.91	0.50	0.00	57.91	0.20	0.22	0.00	0.00	0.00	0.00	0.22	WIRELI NE	Single shot
	68.29	0.50	0.00	68.29	0.28	0.31	0.00	0.00	0.00	0.00	0.31	WIRELI NE	Single shot
	88.00	0.25	0.00	88.00	0.40	0.44	0.00	0.38	-0.38	0.00	0.44	WIRELI NE	Single shot
	105.22	0.75	0.00	105.22	0.53	0.59	0.00	0.87	0.87	0.00	0.59	WIRELI NE	Single shot
12/01/2013	114.13	0.75	0.00	114.13	0.64	0.71	0.00	0.00	0.00	0.00	0.71	WIRELI NE	Single shot
12/01/2013	126.00	1.00	0.00	126.00	0.80	0.89	0.00	0.63	0.63	0.00	0.89	WIRELI NE	Single shot
12/01/2013	162.00	0.50	0.00	161.99	1.22	1.36	0.00	0.42	-0.42	0.00	1.36	WIRELI NE	Single shot
12/01/2013	181.21	0.75	0.00	181.20	1.41	1.57	0.00	0.39	0.39	0.00	1.57	WIRELI NE	Single shot
12/01/2013	199.80	1.25	0.00	199.79	1.71	1.90	0.00	0.81	0.81	0.00	1.90	WIRELI NE	Single shot
12/01/2013	214.99	0.75	0.00	214.98	1.94	2.16	0.00	0.99	-0.99	0.00	2.16	WIRELI NE	Single shot
	232.83	1.75	0.00	232.81	2.29	2.55	0.00	1.68	1.68	0.00	2.55	WIRELI NE	Single shot
	251.70	1.25	0.00	251.68	2.74	3.04	0.00	0.79	-0.79	0.00	3.04	WIRELI NE	Single shot
13/01/2013	309.00	2.25	0.00	308.95	4.31	4.79	0.00	0.52	0.52	0.00	4.79	WIRELI NE	Single shot
13/01/2013	329.00	2.00	0.00	328.93	4.98	5.54	0.00	0.37	-0.38	0.00	5.54	WIRELI NE	Single shot
13/01/2013	344.00	1.00	0.00	343.93	5.33	5.93	0.00	2.00	-2.00	0.00	5.93	WIRELI NE	Single shot
	364.36	1.50	0.00	364.28	5.73	6.37	0.00	0.74	0.74	0.00	6.37	WIRELI NE	Single shot
14/01/2013	400.00	2.00	0.00	399.91	6.71	7.46	0.00	0.42	0.42	0.00	7.46	WIRELI NE	Single shot
20/01/2013	412.10	1.10	96.20	412.00	6.94	7.66	0.12	5.91	-2.23	238.51	7.69	DIRECTI ONA	Baker Hughes
20/01/2013	430.90	0.70	302.60	430.80	7.01	7.70	0.20	2.80	-0.64	329.36	7.78		Baker Hughes
20/01/2013	449.79	0.50	120.70	449.69	7.02	7.72	0.17	1.91	-0.32	-288.88	7.82	DIRECTI ONA	Baker Hughes
20/01/2013	468.60	0.20	71.20	468.50	7.04	7.69	0.27	0.64	-0.48	-78.95	7.92	DIRECTI ONA	Baker Hughes
20/01/2013	487.20	0.30	158.80	487.10	7.02	7.66	0.32	0.57	0.16	141.29	7.98	DIRECTI ONA	Baker Hughes
21/01/2013	506.00	0.50	54.50	505.90	7.06	7.66	0.41	1.03	0.32	-166.44	8.07	DIRECTI ONA	Baker Hughes
21/01/2013	524.90	0.20	90.90	524.80	7.15	7.71	0.51	0.57	-0.48	57.78	8.18	DIRECTI ONA	Baker Hughes
	543.60	0.10	248.40	543.50	7.15	7.70	0.52	0.47	-0.16	252.67	8.20	DIRECTI ONA	Baker Hughes



Directional Survey

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Survey Data

Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	VS (m)	NS (m)	EW (m)	DLS (°/30m)	Build (°/30m)	Turn (°/30m)	Unwrap Displace (m)	Method	Survey Company
	562.60	0.10	235.10	562.50	7.12	7.68	0.49	0.04	0.00	-21.00	8.23	DIRECTI ONA	Baker Hughes
	581.50	0.20	103.70	581.40	7.12	7.67	0.51	0.44	0.16	-208.57	8.26	DIRECTI ONA	Baker Hughes
	600.10	0.50	70.00	600.00	7.18	7.69	0.62	0.57	0.48	-54.35	8.36	DIRECTI ONA	Baker Hughes
	618.90	0.20	108.70	618.80	7.25	7.70	0.73	0.58	-0.48	61.76	8.47	DIRECTI ONA	Baker Hughes
	647.00	0.60	297.20	646.90	7.26	7.75	0.65	0.85	0.43	201.25	8.57	DIRECTI ONA	Baker Hughes
	675.40	0.50	69.60	675.30	7.35	7.87	0.63	1.06	-0.11	-240.42	8.69	DIRECTI ONA	Baker Hughes
	704.50	0.20	260.60	704.40	7.41	7.90	0.70	0.72	-0.31	196.91	8.76	DIRECTI ONA	Baker Hughes
	733.30	0.10	279.20	733.20	7.37	7.90	0.62	0.11	-0.10	19.38	8.84	DIRECTI ONA	Baker Hughes
	762.30	0.40	175.50	762.20	7.28	7.80	0.61	0.45	0.31	-107.28	8.94	DIRECTI ONA	Baker Hughes
22/01/2013	791.45	0.40	336.50	791.35	7.26	7.79	0.57	0.81	0.00	165.69	8.97	DIRECTI ONA	Baker Hughes
22/01/2013	819.24	0.50	221.20	819.14	7.20	7.79	0.46	0.82	0.11	-124.47	9.09	DIRECTI ONA	Baker Hughes
	848.10	0.10	113.30	848.00	7.08	7.69	0.40	0.56	-0.42	-112.16	9.21	DIRECTI ONA	Baker Hughes
	876.80	0.40	321.90	876.70	7.13	7.75	0.36	0.51	0.31	218.05	9.29	DIRECTI ONA	Baker Hughes
	905.00	0.60	48.40	904.90	7.31	7.93	0.41	0.75	0.21	-290.96	9.47	DIRECTI ONA	Baker Hughes
	933.60	0.20	5.87	933.50	7.49	8.08	0.52	0.50	-0.42	-44.61	9.66	DIRECTI ONA	Baker Hughes
	962.40	0.40	279.10	962.30	7.51	8.15	0.43	0.46	0.21	284.61	9.77	DIRECTI ONA	Baker Hughes
22/01/2013	975.75	0.40	279.10	975.65	7.48	8.16	0.34	0.00	0.00	0.00	9.87	DIRECTI ONA	Baker Hughes
22/01/2013	991.00	0.30	153.20	990.90	7.45	8.13	0.30	1.23	-0.20	-247.67	9.91	DIRECTI ONA	Baker Hughes
	1,020.00	0.20	176.90	1,019.90	7.36	8.01	0.34	0.15	-0.10	24.52	10.04	DIRECTI ONA	Baker Hughes
	1,049.00	0.30	60.20	1,048.90	7.37	8.00	0.41	0.44	0.10	-120.72	10.11	DIRECTI ONA	Baker Hughes
	1,078.10	0.50	58.80	1,077.99	7.54	8.11	0.58	0.21	0.21	-1.44	10.31	DIRECTI ONA	Baker Hughes
	1,096.60	0.50	39.40	1,096.49	7.69	8.21	0.70	0.27	0.00	-31.46	10.47	DIRECTI ONA	Baker Hughes
	1,115.30	0.80	58.10	1,115.19	7.88	8.34	0.87	0.58	0.48	30.00	10.68	DIRECTI ONA	Baker Hughes
24/01/2013	1,134.21	0.20	176.90	1,134.10	7.96	8.38	0.98	1.45	-0.95	188.47	10.80	DIRECTI ONA	Baker Hughes
24/01/2013	1,154.60	1.30	51.70	1,154.49	8.14	8.49	1.16	2.10	1.62	-184.21	11.01	DIRECTI ONA	Baker Hughes
	1,172.80	1.00	44.20	1,172.69	8.48	8.73	1.44	0.55	-0.49	-12.36	11.37	DIRECTI ONA	Baker Hughes
25/01/2013	1,191.23	0.50	45.90	1,191.11	8.70	8.90	1.61	0.81	-0.81	2.77	11.62	DIRECTI ONA	Baker Hughes
25/01/2013	1,211.10	0.30	111.02	1,210.98	8.79	8.94	1.72	0.70	-0.30	98.32	11.73	DIRECTI ONA	Baker Hughes
25/01/2013	1,230.20	0.50	67.60	1,230.08	8.86	8.95	1.84	0.55	0.31	-68.20	11.86	DIRECTI ONA	Baker Hughes



Directional Survey

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Survey Data

Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	VS (m)	NS (m)	EW (m)	DLS (°/30m)	Build (°/30m)	Turn (°/30m)	Unwrap Displace (m)	Method	Survey Company
	1,248.60	0.40	33.80	1,248.48	8.98	9.04	1.95	0.45	-0.16	-55.11	12.00	DIRECTI ONA	Baker Hughes
	1,267.50	0.10	101.10	1,267.38	9.05	9.09	2.00	0.59	-0.48	106.83	12.07	DIRECTI ONA	Baker Hughes
	1,286.60	0.40	339.10	1,286.48	9.10	9.15	2.00	0.72	0.47	373.82	12.13	DIRECTI ONA	Baker Hughes
	1,305.40	0.30	38.90	1,305.28	9.19	9.25	2.00	0.57	-0.16	-479.04	12.23	DIRECTI ONA	Baker Hughes
	1,324.50	0.20	110.70	1,324.38	9.24	9.28	2.07	0.48	-0.16	112.77	12.30	DIRECTI ONA	Baker Hughes
	1,343.30	0.10	135.70	1,343.18	9.24	9.25	2.11	0.19	-0.16	39.89	12.35	DIRECTI ONA	Baker Hughes
	1,362.70	0.50	53.00	1,362.58	9.31	9.29	2.19	0.77	0.62	-127.89	12.44	DIRECTI ONA	Baker Hughes
26/01/2013	1,382.20	0.40	49.50	1,382.08	9.45	9.39	2.31	0.16	-0.15	-5.38	12.59	DIRECTI ONA	Baker Hughes
26/01/2013	1,400.90	0.20	87.40	1,400.78	9.53	9.43	2.39	0.44	-0.32	60.80	12.68	DIRECTI ONA	Baker Hughes
26/01/2013	1,420.09	0.20	21.80	1,419.97	9.57	9.46	2.44	0.34	0.00	-102.55	12.74	DIRECTI ONA	Baker Hughes
26/01/2013	1,440.00	0.20	187.90	1,439.88	9.58	9.46	2.44	0.60	0.00	250.28	12.75	DIRECTI ONA	Baker Hughes
26/01/2013	1,459.00	0.10	279.40	1,458.88	9.54	9.43	2.42	0.36	-0.16	144.47	12.78	DIRECTI ONA	Baker Hughes
26/01/2013	1,478.50	0.60	7.90	1,478.38	9.63	9.54	2.42	0.93	0.77	-417.69	12.89	DIRECTI ONA	Baker Hughes
26/01/2013	1,497.00	0.70	5.50	1,496.88	9.83	9.74	2.44	0.17	0.16	-3.89	13.10	DIRECTI ONA	Baker Hughes
02/02/2013	1,542.90	0.20	181.50	1,542.78	10.02	9.94	2.47	0.59	-0.33	115.03	13.30	DIRECTI ONA	Baker Hughes
03/02/2013	1,581.60	0.30	315.90	1,581.48	9.99	9.95	2.40	0.36	0.08	104.19	13.37	DIRECTI ONA	Baker Hughes
04/02/2013	1,630.10	0.20	321.10	1,629.98	10.07	10.10	2.25	0.06	-0.06	3.22	13.58	DIRECTI ONA	Baker Hughes
05/02/2013	1,669.10	0.03	207.10	1,668.98	10.09	10.15	2.21	0.16	-0.13	-87.69	13.65	DIRECTI ONA	Baker Hughes
07/02/2013	1,708.10	0.40	212.70	1,707.98	9.95	10.03	2.13	0.28	0.28	4.31	13.79	DIRECTI ONA	Baker Hughes
08/02/2013	1,742.92	0.40	212.70	1,742.80	9.70	9.82	2.00	0.00	0.00	0.00	14.04		Baker Hughes
09/02/2013	1,783.54	0.10	165.60	1,783.42	9.54	9.67	1.93	0.25	-0.22	-34.79	14.20		Baker Hughes
12/02/2013	1,850.60	0.20	170.60	1,850.48	9.40	9.49	1.96	0.05	0.04	2.24	14.38		Baker Hughes
12/02/2013	1,859.26	0.20	175.00	1,859.14	9.37	9.46	1.97	0.05	0.00	15.24	14.41		Baker Hughes
13/02/2013	1,888.80	0.40	313.30	1,888.68	9.36	9.48	1.90	0.57	0.20	140.45	14.48	DIRECTI ONA	Baker Hughes
14/02/2013	1,932.86	0.10	303.10	1,932.74	9.41	9.61	1.75	0.21	-0.20	-6.95	14.67		Baker Hughes
14/02/2013	1,965.20	0.40	252.20	1,965.08	9.33	9.59	1.62	0.32	0.28	-47.22	14.81		Baker Hughes
17/02/2013	2,002.90	0.00	96.70	2,002.77	9.24	9.55	1.50	0.32	-0.32	-123.74	14.94		Baker Hughes
17/02/2013	2,041.10	0.10	45.90	2,040.97	9.27	9.57	1.52	0.08	0.08	-39.90	14.97		Baker Hughes
21/02/2013	2,069.70	0.20	210.90	2,069.57	9.25	9.55	1.51	0.31	0.10	173.08	15.00	DIRECTI ONA	Baker Hughes
21/02/2013	2,108.20	0.40	268.70	2,108.07	9.12	9.49	1.34	0.26	0.16	45.04	15.18	DIRECTI ONA	Baker Hughes
23/02/2013	2,108.20	0.40	268.70	2,108.07	9.12	9.49	1.34	0.26	0.00	0.00	15.18	DIRECTI ONA	Baker Hughes
24/02/2013	2,146.20	0.10	83.90	2,146.07	9.08	9.49	1.24	0.39	-0.24	-145.89	15.28	DIRECTI ONA	Baker Hughes
24/02/2013	2,184.40	0.10	32.70	2,184.27	9.13	9.52	1.30	0.07	0.00	-40.21	15.34	DIRECTI ONA	Baker Hughes



Directional Survey

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	Field Name Chance	License # 1135	State/Province Yukon	Well Configuration Type Vert
Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)	Spud Date 11/01/2013 18:30	Rig Release Date 06/04/2013 23:59

Survey Data													
Date	MD (mKB)	Incl (°)	Azm (°)	TVD (mKB)	VS (m)	NS (m)	EW (m)	DLS (°/30m)	Build (°/30m)	Turn (°/30m)	Unwrap Displace (m)	Method	Survey Company
26/02/2013	2,221.80	0.30	9.40	2,221.67	9.25	9.64	1.33	0.17	0.16	-18.69	15.47	DIRECTI ONA	Baker Hughes
26/02/2013	2,260.60	0.40	34.80	2,260.47	9.48	9.86	1.42	0.14	0.08	19.64	15.70	DIRECTI ONA	Baker Hughes
26/02/2013	2,318.10	0.30	13.10	2,317.97	9.83	10.17	1.57	0.09	-0.05	-11.32	16.04	DIRECTI ONA	Baker Hughes
27/02/2013	2,356.60	0.10	55.30	2,356.47	9.96	10.28	1.62	0.18	-0.16	32.88	16.17	DIRECTI ONA	Baker Hughes
02/03/2013	2,394.80	0.30	53.80	2,394.67	10.07	10.36	1.73	0.16	0.16	-1.18	16.30	DIRECTI ONA	Baker Hughes
04/03/2013	2,452.20	0.10	68.10	2,452.07	10.24	10.47	1.90	0.11	-0.10	7.47	16.50	DIRECTI ONA	Baker Hughes
09/03/2013	2,509.00	1.00	21.10	2,508.87	10.78	10.95	2.12	0.49	0.48	-24.82	17.03	DIRECTI ONA	Baker Hughes
	2,624.30	0.10	42.90	2,624.16	11.87	11.96	2.55	0.24	-0.23	5.67	18.13	DIRECTI ONA	Baker Hughes
25/03/2013	2,652.20	0.50	306.90	2,652.06	11.92	12.05	2.47	0.56	0.43	283.87	18.25		Baker Hughes
25/03/2013	2,680.90	0.60	326.20	2,680.76	12.02	12.25	2.29	0.22	0.10	20.17	18.53		Baker Hughes
25/03/2013	2,709.50	0.40	45.20	2,709.36	12.19	12.45	2.28	0.69	-0.21	-294.76	18.72		Baker Hughes
25/03/2013	2,738.21	0.40	32.90	2,738.07	12.38	12.60	2.40	0.09	0.00	-12.85	18.92		Baker Hughes
26/03/2013	2,776.40	0.60	24.50	2,776.26	12.72	12.90	2.56	0.17	0.16	-6.60	19.25		Baker Hughes
26/03/2013	2,795.70	1.40	44.70	2,795.55	13.04	13.16	2.76	1.34	1.24	31.40	19.59		Baker Hughes
26/03/2013	2,815.00	1.20	47.20	2,814.85	13.45	13.46	3.08	0.32	-0.31	3.89	20.02		Baker Hughes
27/03/2013	2,833.00	1.60	64.00	2,832.84	13.83	13.70	3.44	0.95	0.67	28.00	20.46		Baker Hughes
26/03/2013	2,833.88	1.60	64.00	2,833.72	13.85	13.71	3.46	0.00	0.00	0.00	20.48		Baker Hughes
27/03/2013	2,853.30	1.70	45.10	2,853.14	14.33	14.03	3.91	0.85	0.15	-29.20	21.03		Baker Hughes
27/03/2013	2,860.06	1.70	41.00	2,859.89	14.52	14.18	4.05	0.54	0.00	-18.20	21.23		Baker Hughes
27/03/2013	2,872.40	1.50	52.70	2,872.23	14.84	14.42	4.30	0.93	-0.49	28.44	21.58		Baker Hughes
27/03/2013	2,891.30	1.70	56.50	2,891.12	15.31	14.72	4.73	0.36	0.32	6.03	22.11		Baker Hughes
27/03/2013	2,910.60	1.80	50.90	2,910.41	15.83	15.07	5.20	0.31	0.16	-8.70	22.69	DIRECTI ONA	Baker Hughes
28/03/2013	2,930.10	1.60	57.10	2,929.90	16.34	15.41	5.67	0.42	-0.31	9.54	23.27	DIRECTI ONA	Baker Hughes
28/03/2013	2,948.90	2.10	53.70	2,948.69	16.87	15.76	6.17	0.82	0.80	-5.43	23.88	DIRECTI ONA	Baker Hughes
	2,968.40	2.10	53.80	2,968.18	17.50	16.18	6.74	0.01	0.00	0.15	24.59	DIRECTI ONA	Baker Hughes
	2,987.60	2.20	53.70	2,987.37	18.14	16.61	7.32	0.16	0.16	-0.16	25.31	DIRECTI ONA	Baker Hughes
	3,006.90	1.80	58.80	3,006.65	18.72	16.98	7.88	0.68	-0.62	7.93	25.99	DIRECTI ONA	Baker Hughes
	3,024.90	1.80	58.80	3,024.65	19.19	17.27	8.37	0.00	0.00	0.00	26.55	DIRECTI ONA	Baker Hughes

APPENDIX VII - CORING SUMMARY



Cores - Bottomhole and Sidewall

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	License # 1135	Well Configuration Type Vert	Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)
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Bottom Hole Cores

Date	Core #	Type	Top Depth (mKB)	Bottom Depth (mKB)	Recovered (m)	% Recov (%)	Core Diameter (mm)	Oriented?	Coring Company	Formation
20/02/2013 10:00	1	Conventional	2,057.00	2,065.00	8.5	106		No	Corpro	

Comment

Sidewall Cores

Date	Run No	Type	Top Depth (mKB)	Bottom Depth (mKB)	Coring Company
08/03/2014		Conventional	1,534.20	2,351.70	Schlumberger
# Samples Planned	# Samples Recovered	# Bullets Fired	# Bullets Misfired	# Samples Empty	# Samples Lost in Hole

Sidewall Core Samples

Sample Depth (mKB)	Sample Depth (TVD) (mKB)	Sample Length (m)	Result	Formation
2,351.70	2,351.57		Recovered	
2,207.70	2,207.57		Recovered	
2,207.60	2,207.47		Recovered	
2,207.50	2,207.37		Recovered	
2,207.50	2,207.37		Recovered	
2,200.10	2,199.97		Recovered	
2,200.00	2,199.87		Recovered	
2,199.90	2,199.77		Recovered	
2,192.70	2,192.57		Recovered	
2,192.60	2,192.47		Recovered	
2,192.50	2,192.37		Recovered	
2,351.60	2,351.47		Recovered	
2,192.40	2,192.27		Recovered	
2,184.60	2,184.47		Recovered	
2,184.50	2,184.37		Recovered	
2,184.40	2,184.27		Recovered	
2,152.10	2,151.97		Recovered	
2,152.00	2,151.87		Recovered	
2,151.90	2,151.77		Recovered	
2,145.20	2,145.07		Recovered	
2,145.10	2,144.97		Recovered	
2,145.00	2,144.87		Recovered	
2,351.50	2,351.37		Recovered	
2,144.90	2,144.77		Recovered	
2,084.70	2,084.57		Recovered	
2,084.60	2,084.47		Recovered	
2,084.50	2,084.37		Recovered	
2,084.40	2,084.27		Recovered	
2,081.70	2,081.57		Lost Core	
2,081.60	2,081.47		Recovered	
2,081.50	2,081.37		Recovered	



NORTHERN CROSS

Cores - Bottomhole and Sidewall

Well Name: NCY West Chance H-28

API/UWI 300H286610137300	Surface Legal Location 66:07' 29.82"N 137:34' 05.64"W	License # 1135	Well Configuration Type Vert	Ground Elevation (m) 461.80	Casing Flange Elevation (m)	KB-Ground Distance (m) 8.36	KB-Casing Flange Distance (m)
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Sidewall Core Samples

Sample Depth (mKB)	Sample Depth (TVD) (mKB)	Sample Length (m)	Result	Formation
2,081.40	2,081.27		Recovered	
2,081.30	2,081.17		Recovered	
2,351.40	2,351.27		Recovered	
1,882.70	1,882.58		Recovered	
1,824.00	1,823.88		Recovered	
1,690.90	1,690.78		Recovered	
1,671.50	1,671.38		Recovered	
1,663.50	1,663.38		Recovered	
1,655.00	1,654.88		Recovered	
1,634.50	1,634.38		Recovered	
1,609.00	1,608.88		Recovered	
1,607.00	1,606.88		Recovered	
1,571.80	1,571.68		Recovered	
2,316.00	2,315.87		Recovered	
1,561.00	1,560.88		Recovered	
1,534.20	1,534.08		Recovered	
2,216.70	2,216.57		Recovered	
2,216.60	2,216.47		Recovered	
2,216.50	2,216.37		Recovered	
2,216.40	2,216.27		Recovered	