Location: 300/H-28-6610-13730/0 **Days from Spud:** K.B. Elevation: 470.16

461.80 **Ground Elevation:** 

Date: Jan 12, 2013 Depth (MD): 127.00 800 hrs Depth (TVD): 126.99 Time: **Rotating Hours:** 9.50 hrs Depth (SSL): 343.17

**Progress:** 

Average R.O.P.:

**Daily Costs:** \$99,908 **Accumulated Cost:** \$7,025,474

Formation: **Upper Cretaceous** 

**Operational Status:** 00:00-08:00Hrs; Jan 12, 2013

Drill & survey 444.5mm hole f/54-127mKB

**Operational Summary:** 00:00-24:00Hrs; Jan 11, 2013

Rig to spud. Pick up 45 its DP and rack stands in derrick. Make up bit and BHA. Pre-spud safety meeting. P/U 2 DCs. Start circulating. Rotate to warm top drive. Adjust elevators. Tag cement @ 22.4m. Trouble shoot pumps (1.75hrs). Spud in @ 18:30Hrs;

Jan 11, 2013. Drill & survey 444.5mm hole f/22-54mKB.

Report From: Trevor Wall; 403-290-7518 Report To: Don Stachiw, Bari McDowell

Drilling is progressing smoothly and relatively quickly. No problems to report. Remarks:

> Lithology is non calcarous shale and argillaceous and silty non porous sandstone. Rocks appear fresh and relatively intact (No regolith or discoloration due to oxidation). Gas detector is a brand new unit and was rigged in and operational just prior to spud. Replaced unit will be sent back for servicing once a spare unit is shipped up. No gas

shows.

-23deg. Light snow overnight (1-2cm).

Location: 300/H-28-6610-13730/0 Days from Spud: 2 K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Jan 13, 2013
 Depth (MD):
 309.00

 Time:
 800 hrs
 Depth (TVD):
 308.99

Rotating Hours: 16.50 hrs Depth (SSL): 161.17
Progress: 182.00

Average R.O.P.: 11.03

Daily Costs: \$93,870 Accumulated Cost: \$7,203,583

Formation: Upper Cretaceous

**Operational Status:** 00:00-08:00Hrs; Jan 13, 2013

Drill & survey 444.5mm hole f/255-309mKB.

**Operational Summary:** 00:00-24:00Hrs; Jan 12, 2013

Drill & survey 444.5mm hole f/127-255mKB.

Report From: Trevor Wall; 403-290-7518
Report To: Don Stachiw, Bari McDowell
Drilling is progressing smoothly.
Last survey @ 288mKB was 2.0deg

Lithology is predominantly shale with interbedded very fine grained argillaceous

sandstone. Rocks are not hard, but sands are abbrasive.

-15deg, Light snow.

Location: 300/H-28-6610-13730/0 Days from Spud: 3 K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Jan 14, 2013
 Depth (MD):
 406.00

 Time:
 800 hrs
 Depth (TVD):
 405.98

 Rotating Hours:
 17.50 hrs
 Depth (SSL):
 64.18

Progress: 97.00 Average R.O.P.: 5.54

Daily Costs: \$204,059 Accumulated Cost: \$7,481,200

Formation: Upper Cretaceous

**Operational Status:** 00:00-08:00Hrs; Jan 14, 2013

Drill 444.5mm hole f/379-386mKB. Rig repairs - change seal in standpipe (1/2hr). Drill

survey 444.5mm hole f/386-406mKB

**Operational Summary:** 00:00-24:00Hrs; Jan 13, 2013

Drill & survey 444.5mm hole f/255-379mKB.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks: TD'd surface hole at 406.0m at 08:00 this morning. Loggers are ready to go. Anticipate

we will commence logging by noon today if the trip out is good.

Lithology: Predominantly medium to dark brown carbonaceous shale, very fine grained

sandstone, siltstone, and an occassional very thin coal stringer. No porosity or

hydrocarbon shows to report.

-12deg.

Location: 300/H-28-6610-13730/0 Days from Spud: 4 K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Jan 15, 2013
 Depth (MD):
 406.00

 Time:
 800 hrs
 Depth (TVD):
 405.98

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 64.18

Depth (SSL): 64.18
Progress: 0.00
Average R.O.P.: 0.00

Daily Costs: \$96,343 Accumulated Cost: \$7,561,443

Formation: Upper Cretaceous - Fishing Branch

**Operational Status:** 00:00-08:00Hrs; Jan 15, 2013

Back ream f/143-86mKB. Level rig (4.5hrs). Continue back reaming f/86-0m. Trip in

hole.

**Operational Summary:** 00:00-24:00Hrs; Jan 14, 2013

Drill 444.5mm hole f/379-386mKB. Rig repairs - change seal in standpipe (1/2hr). Drill survey 444.5mm hole f/386-406mKB. Circulate hole clean. POOH to log - pull tight @ 340mKB. Work tight hole and back ream to 303mKB. Trip in hole. Condition mud and circulate - raise viscosity. Back ream out of hole to 200mKB. Reposition DCs in bird

bath and re-adjust kelly hose. Back ream f/200-143mKB.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks: Next 24Hrs:

Continue to condition hole for logging. Log with Schlumberger. Run and cement

339.7mm casing.

-17deg.

5

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud:

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Jan 16, 2013
 Depth (MD):
 406.00

 Time:
 800 hrs
 Depth (TVD):
 405.98

Rotating Hours: 0.00 hrs Depth (SSL): 64.18
Progress: 0.00

Average R.O.P.: 0.00

Daily Costs: \$149,599 Accumulated Cost: \$7,745,684

Formation: Upper Cretaceous

**Operational Status:** 00:00-08:00Hrs; Jan 16, 2013

Log with Schlumberger. Rig out loggers. Rig to run 339.7mm surface casing.

**Operational Summary:** 00:00-24:00Hrs; Jan 15, 2013

Back ream f/143-86mKB. Level rig (4.5hrs). Continue back reaming f/86-0m. Trip in hole - wash f/370-406mKB. Circulate and condition mud and hole. Trip out of hole to 304m and run back in. Pump out 6 stands HWDP. Circulate hole clean. Trip out of hole

with DCs. Rig in Schlumberger and run open hole logs.

Report From: Trevor Wall; 403-290-7518
Report To: Don Stachiw, Bari McDowell
Remarks: Open hole log data is all reliable.

Next 24Hrs:

Run and cement 339.7mm surface casing. WOC. Nipple up.

-16deg.

Location: 300/H-28-6610-13730/0 Days from Spud: 6 K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Jan 17, 2013
 Depth (MD):
 406.00

 Time:
 800 hrs
 Depth (TVD):
 405.98

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 64.18

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$92,560 Accumulated Cost: \$7,895,156

Formation: Upper Cretaceous

**Operational Status:** 00:00-08:00Hrs; Jan 17, 2013

Mix and pump cement. Rig out cementers. Trip out of hole. WOC.

**Operational Summary:** 00:00-24:00Hrs; Jan 16, 2013

Log with Schlumberger. Rig out loggers. Rig to run 339.7mm surface casing. Cross thread shoe track and second joint. Laydown and P/U new shoe track. Run 33 joints of 339.7mm casing. Rig to and run 5" DP inner string for cementing. Head up and

circulate and condition mud for cement job.

Report From: Trevor Wall; 403-290-7518
Report To: Don Stachiw, Bari McDowell

Remarks: Casing and cement job are completed successfully.

Next 24Hrs:

Nipple down diverter system. Remove landing joint and install casing bowl. Nipple up

BOP system. Pressure test.

-17deg. No new snow.

Location: 300/H-28-6610-13730/0 Days from Spud: 7
K.B. Elevation: 470.16

Ground Elevation: 4/0.16 461.80

 Date:
 Jan 18, 2013
 Depth (MD):
 406.00

 Time:
 800 hrs
 Depth (TVD):
 405.98

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 64.18

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: Accumulated Cost:

Formation: Upper Cretaceous

**Operational Status:** 00:00-08:00Hrs; Jan 18, 2013

Nipple down diverter. Cut conductor. Rig-in Weatherford screw-on bowl. P/T.

Operational Summary: 00:00-24:00Hrs; Jan 17, 2013

Mix and pump cement. Rig out cementers. Trip out of hole. WOC - Clean mud tanks, prepare to nipple down diverter, position manifold shack. P/T manifold valves. Rig-in

flare and degasser lines & HCR line.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks: Drill-out is likely for tomorrow morning.

Next 24Hrs:

Complete N/U and P/T BOPs. Pick up directional BHA. RIH. P/T casing. Drill out. Drill

and survey 222mm hole.

-38deg. Ice crystals.

Location: 300/H-28-6610-13730/0 Days from Spud: 8
K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Jan 19, 2013
 Depth (MD):
 406.00

 Time:
 800 hrs
 Depth (TVD):
 405.98

Rotating Hours: 0.00 hrs Depth (SSL): 64.18 Progress: 0.00

Average R.O.P.: 0.00

Daily Costs: \$312,454 Accumulated Cost: \$8,613,292

Formation: Upper Cretaceous

**Operational Status:** 00:00-08:00Hrs; Jan 19, 2013

Continue to nipple up BOP. P/T

**Operational Summary:** 00:00-24:00Hrs; Jan 18, 2013

Nipple down diverter. Cut conductor. Rig-in Weatherford screw-on bowl. L/D HWDP.

Install speed head. P/U Landing base. Nipple up BOPs.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks: Next 24 Hrs:

Finish P/T'ing. Make up BHA. Trip in Hole. P/T casing.. Drill out. Displace to mud. Drill

to 410m. Perform LOT. Drill and survey 311mm hole.

Cold. -37deg

Location: 300/H-28-6610-13730/0 Days from Spud: 9
K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Jan 20, 2013
 Depth (MD):
 406.00

 Time:
 800 hrs
 Depth (TVD):
 405.98

Rotating Hours: 0.00 hrs Depth (SSL): 64.18
Progress: 0.00
Average R.O.P.: 0.00

Daily Costs: \$293,423 Accumulated Cost: \$8,860,525

Formation: Upper Cretaceous

**Operational Status:** 00:00-08:00Hrs; Jan 20, 2013

Make up BHA. Work on top drive unit (repair hydraulic lines and lube pump lines). Test

tools. Slip & cut. Make up BHA. Trip in hole with HWDP.

**Operational Summary:** 00:00-24:00Hrs; Jan 19, 2013

Continue to nipple up BOP. P/T. Change out IBOP valve on top drive. Set wear

bushing. P/U directional tools. Make up BHA.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks: Next 24Hrs:

Drill out. Perform FLOT. Displace hole to mud. Drill 311mm hole with Tru-Trak system.

Cold. -30deg

Location: 300/H-28-6610-13730/0 Days from Spud: 10 K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Jan 21, 2013
 Depth (MD):
 570.00

 Time:
 800 hrs
 Depth (TVD):
 569.97

 Rotating Hours:
 9.75 hrs
 Depth (SSL):
 -99.81

Progress: 164.00 Average R.O.P.: 16.82

Daily Costs: \$242,037 Accumulated Cost: \$8,929,871

Formation: Upper Cretaceous

**Operational Status:** 00:00-08:00Hrs; Jan 21, 2013

Drill and survey 311mm hole f/472-570mMD.

**Operational Summary:** 00:00-24:00Hrs; Jan 20, 2013

Make up BHA. Work on top drive unit (repair hydraulic lines and lube pump lines). Test tools. Slip & cut. Make up BHA. Trip in hole with HWDP. Drill out float, cement and shoe. Drill 311mm hole f/406-410mMD. Perform FLOT. Drill and survey 311mm hole

f/410-472mMD.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

. Remarks:

Next 24Hrs:

Drill and survey 311mm hole.

-23deg. Snowing. ~8cm snow overnight.

Location: 300/H-28-6610-13730/0 Days from Spud: 11 K.B. Elevation: 470.16

Ground Elevation: 470.10

 Date:
 Jan 22, 2013
 Depth (MD):
 865.00

 Time:
 800 hrs
 Depth (TVD):
 864.97

 Rotating Hours:
 16.25 hrs
 Depth (SSL):
 -394.81

Progress: 295.00 Average R.O.P.: 18.15

Daily Costs: \$129,765 Accumulated Cost: \$9,059,796

Formation: Upper Cretaceous

Operational Status: 00:00-08:00Hrs; Jan 22, 2013

Check pump #2 suction/discharge - clean screens. Transfer mud in active to suction tank to build volume (0.5hrs). Drill and survey 311mm hole f/788-865mMD with Baker

TruTrack.

**Operational Summary:** 00:00-24:00Hrs; Jan 21, 2013

Drill and survey 311mm hole f/472-788mMD.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks: Very rapid progress to this point. Lithology consists predominantly of carbonaceous

shale, with subordinate siltstone and tight silty sandstone, with an occassional blocky

fine grained weakly porous sandstone. No significant gas shows.

Next 24Hrs:

Drill and survey ahead.

Cold. -33deg.

Spud Date: Well Name: West Chance H-28 Jan 11, 2013 @ 18:30 Location: 300/H-28-6610-13730/0

**Days from Spud:** 12 K.B. Elevation: 470.16 Ground Elevation: 461.80

Jan 23, 2013 Depth (MD): 1,023.00 Date: 800 hrs Depth (TVD): 1,022.97 Time: Rotating Hours: 13.50 hrs Depth (SSL): -552.81

> **Progress:** 158.00 Average R.O.P.: 11.70

Jan 23, 2013

**Daily Costs: Accumulated Cost:** \$9,289,747 \$230,360

Formation: Fishing Branch

**Operational Status:** 00:00-08:00Hrs; Jan 23, 2013

Drill and survey 311mm hole f/1019-1023mMD. Circulate bottoms up. Trip out of hole work tight spot @ 980m. Pump sweep. Work tight spot @ 942mMD. Work on top drive.

Trip out of hole - pump out stands.

**Operational Summary:** 00:00-24:00Hrs; Jan 22, 2013

Check pump #2 suction/discharge - clean screens. Transfer mud in active to suction tank to build volume (0.5hrs). Drill and survey 311mm hole f/788-1019mMD with Baker

TruTrack.

Report From: Trevor Wall: 403-290-7518 Report To: Don Stachiw, Bari McDowell

Remarks:

Next 24Hrs:

Trip for bit. Condition hole where required. Drill ahead with TruTrack BHA and Bit #3.

-29deg. No new snow. Cloudy.

# Lithology Summary

**Kelly Bushing Elevation:** 470.16 **Ground Elevation:** 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

865.00 to 931.00 (66.00)

Storage Units: Metric

Predominately medium to dark brown carbonaceous shale, with interbedded carbonaceous siltstone, argillaceous & silty sandstone, and rare thin coal stringers. SANDSTONE: typically medium to dark grayish brown, very fine grained, locally grading to lower fine grained, silty & argillaceous matrix, carbonaceous in part, non to very slightly calcareous, subrounded to subangular, poorly sorted, moderate induration,

predominately tight, thin slightly porous sandstone beds f/907-925mMD

931.00 to 1,023.00 (92.00)

Interbedded sandstone & shale:

SANDSTONE: light yellowish white to tan, quartzose with minor lithics, small trace glauconite, predominately very fine grained, locally grading to lower fine grained, subrounded, moderate to locally well sorted, silica cement, very fine grained

sandstones are typically tight or with very poor porosity, lower fine grained well sorted

sandstone has fair intergranular porosity (8-10%) with trace to minor interstitial

pyrobitumen cement

Location: 300/H-28-6610-13730/0 Days from Spud: 13 K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Jan 24, 2013
 Depth (MD):
 1,023.00

 Time:
 800 hrs
 Depth (TVD):
 1,022.97

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -552.81

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$173,415 Accumulated Cost: \$9,483,393

Formation: Fishing Branch

**Operational Status:** 00:00-08:00Hrs; Jan 24, 2013

Rig repairs (Top Drive Service Loop). RIH to 651m. Blow/check surface equipment. Fill pipe. Test TruTrack tool. Trip in hole - wash in. Re-log lowermost ~20m gamma to

confirm depth.

Operational Summary: 00:00-24:00Hrs; Jan 23, 2013

Drill and survey 311mm hole f/1019-1023mMD. Circulate bottoms up. Trip out of hole -work tight spot @ 965m. Pump sweep. Work tight spot @ 942mMD. Work on top drive. Trip out of hole - pump out stands. Pump pill. POOH. Handle directional tools. Change

bit. Trip in hole to 252m. Rig repairs (Top Drive Service Loop).

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks: It appears we may be ~10m deeper than reported. The pipe tally and strap indicates

that there is one extra heavy weight joint in the string. We will relog the lowermost

section of gamma to confirm.

Next 24Hrs:

Drill and survey 311mm hole with Baker TruTrack BHA.

-30deg, 3cm new snow.

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 14
K.B. Elevation: 470.16

Ground Elevation: 461.80

Jan 25, 2013

 Date:
 Jan 25, 2013
 Depth (MD):
 1,260.00

 Time:
 800 hrs
 Depth (TVD):
 1,259.95

Rotating Hours: 18.00 hrs Depth (SSL): -789.79
Progress: 237.00

Average R.O.P.: 13.17

Daily Costs: \$156,112 Accumulated Cost: \$9,695,625

Formation: Parkin; Orange Marker

**Operational Status:** 00:00-08:00Hrs; Jan 25, 2013

Drill and survey 311mm hole f/1192-1260mMD.

**Operational Summary:** 00:00-24:00Hrs; Jan 24, 2013

Rig repairs (Top Drive Service Loop). RIH to 651m. Blow/check surface equipment. Fill pipe. Test TruTrack tool. Trip in hole - wash in. Confirm depth correction. Pattern bit.

Drill and survey 311mm hole f/1033-1192mMD.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

. Remarks:

Next 24Hrs:

Drill and survey 311mm hole with Baker TruTrack BHA.

-22deg. 1-2cm new snow.

## **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,037.00 to 1,192.00

Storage Units: Metric

**UPPER PARKIN:** 

(155.00)

SHALE: medium to dark brown to locally grayish brown, silty laminae, subfissile, non

calcareous, carbonaceous in part

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 15 K.B. Elevation: 470.16

Ground Elevation: 461.80

Jan 26, 2013

Date: Jan 26, 2013 Depth (MD): 1,445.00 Time: 800 hrs Depth (TVD): 1,444.95 Rotating Hours: 20.00 hrs Depth (SSL): -974.79

Depth (SSL): -974.79 Progress: 185.00

Average R.O.P.: 9.25

Daily Costs: \$183,504 Accumulated Cost: \$9,950,126

Formation: Whitestone River

Operational Status: 00:00-08:00Hrs; Jan 26, 2013

Drill and survey 311mm hole f/1392-1445mMD.

**Operational Summary:** 00:00-24:00Hrs; Jan 25, 2013

Drill and survey 311mm hole f/1192-1392mMD.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

. Remarks:

Storage Units: Metric

Next 24Hrs:

Drill to ICP. Condition hole for logging.

-32 deg. 1-2cm new snow.

#### **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,192.00 to 1,201.00 UPPER PARKIN:

(9.00) SHALE: medium brown, subfissile, non calcareous, carbonaceous in part, trace pyrite

SILTSTONE: medium brown to grayish brown, sandy, non calcareous, carbonaceous

in part, trace pyrite

1,201.00 to 1,206.00 ORANGE MARKER:

(5.00) SANDSTONE: light brown, light to medium gray, very fine to very coarse grained,

conglomeratic in part, abundant dark gray to black & brown chert in a predominately

quartzose matrix with common bright green glauconite grains, subrounded,

predominantly poorly sorted & tightly cemented with silica + minor secondary calcite, thin quartzose bed with weak intergranular porosity (<8%) & light amber hydrocarbon

staining, no visible fluorescence, faint very slow cut, very poor show

1,206.00 to 1,286.00 LOWER PARKIN:

(80.00) SILTSTONE: medium grayish brown, sandy, trace glauconite, pyritic, slightly

calcareous, carbonaceous in part, becoming shaly f/1264-1286mMD.

1,286.00 to 1,440.00 WHITESTONE RIVER:

(154.00) SHALE: medium gray, brownish gray, subfissile, very slightly calcareous in part, silty in

part, slightly carbonaceous, trace pyrite, well compacted, moderately firm, silty laminae

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 16

K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Jan 27, 2013
 Depth (MD):
 1,526.00

 Time:
 800 hrs
 Depth (TVD):
 1,525.95

 Rotating Hours:
 10.75 hrs
 Depth (SSL):
 -1,055.79

Progress: 81.00 Average R.O.P.: 7.53

Jan 27, 2013

Daily Costs: \$179,889 Accumulated Cost: \$10,121,659

Formation: Hart River

Storage Units: Metric

**Operational Status:** 00:00-08:00Hrs; Jan 27, 2013

Drill and survey 311mm hole f/1445-1526mMD. Circulate bottoms up - condition hole. Break off tight working single. Attempt to work pipe free - jar string. Regain circulation,

and free up pipe. Condition mud.

Operational Summary: 00:00-24:00Hrs; Jan 26, 2013

Drill and survey 311mm hole f/1392-1445mMD.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

**Remarks:** Appears we encountered the unconformity at ~1515mMD. No limestones are present.

Sharp contact with shale underlain by chert pebble conglomerate, which in turn is underlain by a weathered sandstone with abundant pyrobitumen cement. Gas shows are seen to occur within the conglomerate and the sandstone. See below and the log

for details.

Drilled to 1526mMD to accommodate casing, and circulated bottoms up. On attempting

to wiper trip, pipe was stuck @1515mMD until 6AM this morning.

NEXT 24Hrs:

POOH. Lay down directional tools. RIH and condition hole for logging.

Very Cold. -48deg. No new snow.

# **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,438.00 to 1,480.00

LOWER CRETACEOUS MARKER:

(42.00)

Predominately siltstone with minor interbedded shale

SILTSTONE: medium gray, sandy, locally grading to very fine grained silty &

argillaceous sandstone, minor to common glauconite, minor to common pyrite, slightly

calcareous, trace carbonaceous matter, silty shale laminae

1,480.00 to 1,515.00

(35.00)

SHALE: medium grayish brown, subfissile, commonly silty, pyritic, common to abundant finely disseminated pyrite throughout, very slightly calcareous, calcareous

laminae, pyritic silty laminae with trace glauconite

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 16
K.B. Elevation: 470.16
Ground Elevation: 461.80

1,515.00 to 1,521.00 (6.00)

Storage Units: Metric

HART RIVER:

GRANULAR SANDSTONE to CHERT PEBBLE CONGLOMERATE: medium to dark brown to grayish brown, predominately medium to dark grayish brown chert pebbles, granules, and very coarse grains in silty to upper fine grained matrix, subrounded to rounded, poorly sorted, silica + pyrite + locally minor pyrobitumen cement, questionable porosity, chert grains are pulverized to shards, matrix commonly has light amber oil staining, spot dull yellow fluorescence, immediate blooming cut, minor streaming cut

1,521.00 to 1,526.00 (5.00)

HART RIVER C-D SANDS

SANDSTONE: medium to dark brown, patchy very dark brown pyrobitumen cement imparts color, very fine to upper medium grained, subrounded to subangular, silica overgrowths, predominately poorly sorted, in part moderately well sorted fine to medium grained, silica + abundant very dark brown to black pyrobitumen cement, poor to locally fair intergranular porosity (3-10%), spotty yellow fluorescence, fair moderately fast blooming cut, abundant rusty red oxidized discoloration in silty to very fine grained sandstone

Jan 27, 2013

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30 Location: 300/H-28-6610-13730/0 Days from Spud: 17

Location: 300/H-28-6610-13730/0 Days from Spud: K.B. Elevation: 47

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Jan 28, 2013
 Depth (MD):
 1,526.00

 Time:
 800 hrs
 Depth (TVD):
 1,525.95

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -1,055.79

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$116,121 Accumulated Cost: \$10,237,781

Formation: Hart River

**Operational Status:** 00:00-08:00Hrs; Jan 28, 2013

Circulate and condition mud - raise viscosity. Hoist - pump out stands to 1060m. Circulate bottoms up. Attempt to pull out without pump. Work tight hole @ 1060m. Trip out - pump out stands to casing shoe. Blow out surface equipment. Fill trip tank. POOH - L/D 8" collars. Rig repairs (Forum Catwalk hydraulics 3.25hrs). Handle directional

tools. Break bit.

**Operational Summary:** 00:00-24:00Hrs; Jan 27, 2013

Drill and survey 311mm hole f/1445-1526mMD. Circulate bottoms up - condition hole. Break off tight working single. Attempt to work pipe free - jar string. Regain circulation,

and free up pipe. Circulate and condition hole and mud.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks:

MUD: Den 1110 Vis 110 FL 5 pH 10

NEXT 24Hrs:

Condition hole for logging.

Cold. -33deg. Calm

Location: 300/H-28-6610-13730/0

Days from Spud: 18
K.B. Elevation: 470.16
Ground Elevation: 461.80

 Date:
 Jan 29, 2013
 Depth (MD):
 1,526.00

 Time:
 800 hrs
 Depth (TVD):
 1,525.95

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -1,055.79

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$179,037 Accumulated Cost: \$10,416,818

Formation: Hart River

**Operational Status:** 00:00-08:00Hrs; Jan 29, 2013

Pull tight hole @1212m - pack-off. Work pipe and regain circulation (4hrs). Condition

mud and circulate hole clean. Trip in hole to 1448m.

**Operational Summary:** 00:00-24:00Hrs; Jan 28, 2013

Circulate and condition mud - raise viscosity. Hoist - pump out stands to 1060m. Circulate bottoms up. Attempt to pull out without pump. Work tight hole @ 1060m. Trip out - pump out stands to casing shoe. Blow out surface equipment. Fill trip tank. POOH - L/D 8" collars. Rig repairs (Forum Catwalk hydraulics 3.25hrs). Handle directional tools. Break bit. Make up new bit. Trip in hole to 389m. Slip & cut 19m drill line. RIH - encounter bridge @ 424m. Wash through and circulate bottoms up. RIH to 760m.

Wash through bridge. Wash stands to 1200m.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks: NEXT 24Hrs:

Continue to condition hole and mud for logging. Raise density to 1200Kg/m3.

MUD:

Den 1110 PV 25 Vis 110 YP 18

FL 5 pH 10

Cold. -36deg. Calm.

Location: 300/H-28-6610-13730/0 Days from Spud: 19 K.B. Elevation: 470.16

Ground Elevation: 470.10

 Date:
 Jan 30, 2013
 Depth (MD):
 1,526.00

 Time:
 800 hrs
 Depth (TVD):
 1,525.95

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -1,055.79

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$121,834 Accumulated Cost: \$10,501,978

Formation: Hart River

**Operational Status:** 00:00-08:00Hrs; Jan 30, 2013

P/U singles & wash to bottom f/1448-1526m. Condition mud and circulate hole clean. W/T f/1526-1284m - ream out - circulate hole clean. Ream to bottom. Condition mud and circulate - raise density to 1220Kg/m3. Trip out of hole - back ream f/1350-398m.

Circulate hole clean. Mix pill, and blow out circulating equipment. POOH.

Operational Summary: 00:00-24:00Hrs; Jan 29, 2013

Pull tight hole @1212m - pack-off. Work pipe and regain circulation (4hrs). Condition

mud and circulate hole clean. Trip in hole - wash to 1448m.

Report From: Trevor Wall; 403-290-7518
Report To: Don Stachiw, Bari McDowell

Remarks:

NEXT 24Hrs:

Finish out of hole. Rig in and log with Schlumberger. RIH to condition hole and mud for

casing.

Cold. -36deg. Calm

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 20 K.B. Elevation: 470.16

**Ground Elevation:** 461.80

Date: Jan 31, 2013 Depth (MD): 1,526.00 800 hrs Depth (TVD): 1,525.95 Time: **Rotating Hours:** 0.00 hrs Depth (SSL): -1,055.79

> **Progress:** 0.00 Average R.O.P.: 0.00

Jan 31, 2013

**Daily Costs: Accumulated Cost:** 

Formation: **Hart River** 

Storage Units: Metric

**Operational Status:** 00:00-08:00Hrs; Jan 31, 2013

Rig out Loggers. Remove wear bushing. Rig to, and run 244.5mm casing.

**Operational Summary:** 00:00-24:00Hrs; Jan 30, 2013

P/U singles & wash to bottom f/1448-1526m. Condition mud and circulate hole clean. W/T f/1526-1284m - ream out - circulate hole clean. Ream to bottom. Condition mud and circulate - raise density to 1250Kg/m3. Trip out of hole - back ream f/1350-398m. Circulate hole clean. Mix pill, and blow out circulating equipment. POOH. Rig in and log

with Schlumberger.

Report From: Trevor Wall; 403-290-7518 Report To: Don Stachiw, Bari McDowell

Remarks:

NEXT 24Hrs:

Run and cement 244.5mm casing. WOC. P/T.

-27deg. Calm

Location: 300/H-28-6610-13730/0

Days from Spud: 21 K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Feb 1, 2013
 Depth (MD):
 1,526.00

 Time:
 800 hrs
 Depth (TVD):
 1,525.95

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -1,055.79

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$500,600 Accumulated Cost: \$11,425,309

Formation: Hart River

Operational Status: 00:00-08:00Hrs; Feb 1, 2013

Circulate casing and condition mud. Rig up Cementers - trouble-shoot Haliburton cement head (1.25hrs). Cement casing. Rig out cementers. Rig in Weatherford

pack-off tool.

**Operational Summary:** 00:00-24:00Hrs; Jan 31, 2013

Rig out Loggers. Remove wear bushing. Rig to, and run 244.5mm casing. M/U landing

joint and mandrel. Wash down casing. Circulate hole clean and condition mud.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks: NEXT 24Hrs:

P/T manifold and BOPs. L/D 7" DCs. Install 4.5" liners in both pumps. P/U BHA.

-21deg. Calm. 2-3cm new snow.

Location: 300/H-28-6610-13730/0 Days from Spud: 22

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Feb 2, 2013
 Depth (MD):
 1,526.00

 Time:
 800 hrs
 Depth (TVD):
 1,525.95

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -1,055.79

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$248,945 Accumulated Cost: \$11,700,860

Formation: Hart River

Operational Status: 00:00-08:00Hrs; Feb 2, 2013

P/U directional tools. M/U BHA. RIH to float @ 1491mMD. Circulate bottoms up. P/T

casing. Drill out float, cement and shoe.

Operational Summary: 00:00-24:00Hrs; Feb 1, 2013

Circulate casing and condition mud - lower vis to 50sec/l. Rig up Cementers - trouble-shoot Haliburton cement head (1.25hrs). Cement casing. Rig out cementers.

Rig in Weatherford pack-off tool. P/T manifold and BOPs. RIH / 7" collars.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks: NEXT 24Hrs:

Drill f/1526-1530mMD. Perform FLOT. Drill ahead and evaluate Hart River C/D sands

for potential DST.

-25deg. Light easterly breeze. 1cm new snow

Location: 300/H-28-6610-13730/0 Days from Spud: 23 K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Feb 3, 2013
 Depth (MD):
 1,596.00

 Time:
 800 hrs
 Depth (TVD):
 1,595.95

 Rotating Hours:
 17.50 hrs
 Depth (SSL):
 -1,125.79

Depth (SSL): -1,125.79 Progress: 70.00

Average R.O.P.: 4.00

Daily Costs: \$159,266 Accumulated Cost: \$11,860,127

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 3, 2013

Drill and survey 222mm hole f/1566-1596mMD

Operational Summary: 00:00-24:00Hrs; Feb 2, 2013

P/U directional tools. M/U BHA. RIH to float @ 1491mMD. Circulate bottoms up. P/T casing. Drill out float, cement and shoe. Drill 222mm hole f/1526-1530mMD. Circulate bottoms up. Pull back into casing. Perform FLOT. Drill and survey 222mm hole

f/1530-1566mMD

Report From: Trevor Wall; 403-290-7518
Report To: Don Stachiw, Bari McDowell

Remarks: See attached striplog and Tops, Lithology and Gas Summary below for details on

geology for last 24hrs.

NEXT 24Hrs:

Drill ahead to Hart River Shale core point. POOH to core or test.

-29deg. Light ESE breeze @ 9 kph. No new snow.

# **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,526.00 to 1,535.00 JUNGLE CREEK

(9.00) Conglomerate and minor Sandstone:

CONGLOMERATE: predominately variously gray chert, minor white & brown chert pebbles granules & very coarse grained clasts, medium brownish gray silty to upper medium grained matrix, minor black pyrite bitumen cement coating grains, patchy massive pyrite, silica cement, subrounded, poorly sorted, occasional moderate to sorted quartzose fine grained SANDSTONE with prominent silica overgrowths and common black pyrobitumen cement occluding porosity (estimated 6-9%), strong petroliferous odor, spotty dull yellow fluorescence, fair streaming cut, dead oil show

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 23 K.B. Elevation: 470.16 Ground Elevation: 461.80

1,535.00 to 1,560.00 HART RIVER

Storage Units: Metric

(25.00) Fossiliferous & Argillaceous Limestone:

LIMESTONE: medium to dark grayish brown, increasingly fossiliferous, creamy white coarsely crystalline calcite preserves brachiopods, crinoids and fossil fragments, dark argillaceous wackestone matrix, predominately tight, locally weak pin point porosity,

spotty dull yellow fluorescence, fair streaming cut

1,560.00 to 1,565.00 "D" SANDS

(5.00) Very Fine Grained Sandstone:

SANDSTONE: predominately medium gray, dark gray in part, predominately very fine grained, 5-7% fine grained, silty & argillaceous matrix, subrounded to subangular, moid

to poorly sorted, calcite cement, no visible show

1,565.00 to 1,570.00 "D" SANDS

(5.00) Fine Grained Sandstone:

SANDSTONE: light amber brown, quartzose with minor chert & common to abundant white siliceous lithics, upper very fine to lower medium grained, 5-7% upper medium grained, subrounded, moderately sorted, silica cement & abundant calcite cement, scattered minor pyrite cement, variable porosity, predominately 3-8%, locally 8-12%, light amber hydrocarbon staining throughout, yellow fluorescence throughout, slow

streaming cut, poor oil show

Feb 3, 2013

Location: 300/H-28-6610-13730/0

Days from Spud: 24 K.B. Elevation: 470.16

Ground Elevation:

470.16 461.80

 Date:
 Feb 4, 2013
 Depth (MD):
 1,625.00

 Time:
 800 hrs
 Depth (TVD):
 1,624.95

Rotating Hours: 11.00 hrs Depth (SSL): -1,154.79
Progress: 29.00

Average R.O.P.: 2.64

Daily Costs: \$151,497 Accumulated Cost: \$12,011,624

Formation: Hart River

Operational Status: 00:00-08:00Hrs; Feb 4, 2013

Finish out of hole. Handle directional tools. Change bit. RIH / Bit #6 - pulse test

directional tools @ 850m.

Operational Summary: 00:00-24:00Hrs; Feb 3, 2013

Drill and survey 222mm hole f/1566-1625mMD. Circulate bottoms up. Pump pill.

POOH.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

**Remarks:** See Geologic Striplog for detailed stratigraphic interpretation.

NEXT 24Hrs:

Drill and survey ahead to Hart River Shale. POOH to core.

-25deg. Light snow. 3cm new snow. Wind ESE @ 4kph.

## **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,580.00 to 1,625.00 (45.00)

HART RIVER "D" SANDS

Interbedded sandstone and minor sandy & argillaceous fossiliferous limestone.

Please see geologic striplog for details.

Location: 300/H-28-6610-13730/0 **Days from Spud:** 25 K.B. Elevation: 470.16

**Ground Elevation:** 461.80

Feb 5, 2013 Depth (MD): 1,680.00 Date: 800 hrs Depth (TVD): 1,679.95 Time: **Rotating Hours:** 18.50 hrs Depth (SSL): -1,209.79

**Progress:** 55.00 Average R.O.P.: 2.97

**Daily Costs: Accumulated Cost:** \$12,215,833

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 5, 2013

Drill and survey 222mm hole f/1661-1680m.

**Operational Summary:** 00:00-24:00Hrs; Feb 4, 2013

Finish out of hole. Handle directional tools. Change bit. RIH / Bit #6 - pulse test directional tools @ 850m. RIH to 1512m. Slip & cut 12m drilling line. RIH & tag bottom -

reduced pump strokes. Circulate bottoms up. Drill and survey 222mm hole

f/1625-1661m.

\$157,609

Report From: Trevor Wall; 403-290-7518 Report To: Don Stachiw, Bari McDowell

**Remarks:** See Geologic striplog for detailed sample descriptions and shows.

NEXT 24Hrs:

Drill 222mm hole to core point in Hart River Shale - possible bit trip.

-25deg. Light snow. ESE wind @ 10kph. 4cm new snow.

## **Lithology Summary**

**Kelly Bushing Elevation:** 470.16 **Ground Elevation:** 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,625.00 to 1,670.00 (45.00)

HART RIVER:

Predominately Sandstone with minor interbedded silty to sandy shale and cherty

siltstone

See log for details.

Spud Date: Well Name: West Chance H-28 Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 **Days from Spud:** 26 K.B. Elevation: 470.16

Ground Elevation: 461.80

Feb 6, 2013 Depth (MD): 1,696.00 Date: 800 hrs Depth (TVD): 1,695.95 Time: **Rotating Hours:** 5.75 hrs Depth (SSL): -1,225.79

> **Progress:** 16.00 Average R.O.P.: 2.78

**Daily Costs: Accumulated Cost:** \$12,354,593 \$138,759

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 6, 2013

RIH with Bit #7 to 841mMD. Slip & cut 12m drilling line. RIH f/841-1695mMD. Pattern

bit. Drill 222mm hole.

**Operational Summary:** 00:00-24:00Hrs; Feb 5, 2013

Drill and survey 222mm hole f/1661-1695m. Trouble shoot directional tools - circulate hole clean. Pump pill. POOH f/1695-611m. Rig repairs - adjust brakes (1hr). Safety Stand Down Mtg (1hr). POOH. L/D directional tools. Change bit. P/U directional tools.

Report From: Trevor Wall; 403-290-7518 Report To: Don Stachiw, Bari McDowell

**Remarks:** Lost telemetry with MWD tools necessitating tripping.

NEXT 24Hrs:

Drill 222mm hole ahead with Baker TruTrack assembly.

-27deg. Light snow. ESE breeze @ 4kph. 6-8cm new snow.

# **Lithology Summary**

**Kelly Bushing Elevation:** 470.16 **Ground Elevation:** 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,670.00 to 1,680.00

HART RIVER:

(10.00)

SANDSTONE: light to medium grayish brown, quartz & abundant gray & occasionally brown chert, very fine to very coarse grained, predominately poorly sorted, interbedded moderate to well sorted fine to lower medium grained sandstone, subrounded to subangular, moderate to well indurated, primary silica cement, common pyrobitumen cement, abundant secondary calcite cement, poor intergranular porosity (~2-6%), patchy yellow fluorescence, moderate streaming dead oil cut

1,680.00 to 1,695.00 (15.00)

HART RIVER:

Cherty Carbonate Facies

Predominately argillaceous Brachiopod Wackestone & Mudstone with interbedded

chert, and minor dark grayish brown carbonaceous shale.

See log for stratigraphic interpretation.

Location: 300/H-28-6610-13730/0 Days from Spud: 27 K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Feb 7, 2013
 Depth (MD):
 1,730.00

 Time:
 800 hrs
 Depth (TVD):
 1,729.95

 Rotating Hours:
 10.25 hrs
 Depth (SSL):
 -1,259.79

Depth (SSL): -1,259.79 Progress: 34.00 Average R.O.P.: 3.32

Daily Costs: \$184,107 Accumulated Cost: \$12,538,701

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 7, 2013

RIH. Pattern bit. Drill and survey 222mm hole f/ 1717-1730mMD.

Operational Summary: 00:00-24:00Hrs; Feb 6, 2013

RIH with Bit #7 to 841mMD. Slip & cut 12m drilling line. RIH f/841-1695mMD. Pattern bit. Drill and survey 222mm hole f/1695-1717mMD. Circulate bottoms up. POOH.

Handle directional tools. Change bit. RIH / Bit #8.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

**Remarks:** Pump pressure spikes & erratic drilling necessitated tripping.

NEXT 24HRs:

Drill and survey 222mmm hole.

-29deg. Light snow. Wind East @ 5kph. 1cm new snow.

# **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,680.50 to 1,717.00 HART RIVER:

(36.50) Cherty Carbonate Facies: Interbedded Limestone & Chert

LIMESTONE: light to medium yellow brown, minor interbedded dark grayish brown,

slightly argillaceous in part, cryptocrystalline to very finely microcrystalline subhedral, silty in part, rare fossil fragments, dense, tight, interbedded massive chert

CHERT: predominately light yellowish brown, minor medium to dark brown, silty &

organic inclusions, massive, bedded, hard, brittle

Location: 300/H-28-6610-13730/0 Days from Spud: 28

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Feb 8, 2013
 Depth (MD):
 1,745.00

 Time:
 800 hrs
 Depth (TVD):
 1,744.95

 Rotating Hours:
 7.25 hrs
 Depth (SSL):
 -1,274.79

Depth (SSL): -1,274.79
Progress: 15.00
Average R.O.P.: 2.07

Daily Costs: \$217,499 Accumulated Cost: \$12,756,200

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 8, 2013

RIH from 1225-1511 m (MD), fill pipe and flow check, slip and cut 14 meters of drill line, RIH from 1511-1705 m (MD), wash from 1705-1734 m (MD), dir drill 222 mm hole

from 1734-1745 m (MD).

Operational Summary: 00:00-24:00Hrs; Feb 7, 2013

RIH from 859-1717 m (MD), dir drill 222mm hole F/1717-1734m. Circ bottoms up, POOH for bit #9 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.

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Good morning. We managed to get back to bottom at 2:40 AM. We are taking it easier

with the bit with reduced WOB and reduced pump strokes. We are still drilling

interbeded chert and limestone.

Next 24 hours: drill ahead with a possible bit trip.

Weather -23.5 degrees C. Light snow fall.

Location: 300/H-28-6610-13730/0 Days from Spud: 29 K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Feb 9, 2013
 Depth (MD):
 1,782.00

 Time:
 800 hrs
 Depth (TVD):
 1,781.95

Rotating Hours: 22.00 hrs Depth (SSL): -1,311.79 Progress: 37.00

Average R.O.P.: 1.68

Daily Costs: \$150,926 Accumulated Cost: \$12,907,126

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 9, 2013

Dir drill 222 mm hole from 1771-1782 m (MD).

Operational Summary: 00:00-24:00Hrs; Feb 8, 2013

RIH from 1225-1511 m (MD), Slip and cut 14 meters of drill line, RIH from 1511-1705 m (MD), wash from 1705-1734 m (MD), dir drill 222 mm hole from 1734-1771 m (MD).

Report From: Harry Gluth; 403-290-7518.
Report To: Don Stachiw, Bari Mc Dowell

**Remarks:** Comments: still drilling interbedded chert and limestone.

Next 24 hours: drill ahead

Weather: -22 degrees C, calm, overcast

#### **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,745.00 to 1,780.00 (35.00)

CHERT: yellow brown, light gray, occasionally off white, dark gray or black, translucent, occasionally with organic or argillaceous inclusions, slightly calcareous, rare spicules, occasional fragments with healed or open fractures, tight.

LIMESTONE: off white, mttled yellow brown, gray brown, cryptocrystalline to very fine crystalline, recrystallized, chalky, friable in part, as mudstone, slightly silty, sandy or argillaceous, tight, rare marlstones or dark brown to black shale stringers.

Location: 300/H-28-6610-13730/0 Days from Spud: 30

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Feb 10, 2013
 Depth (MD):
 1,815.00

 Time:
 800 hrs
 Depth (TVD):
 1,814.95

Rotating Hours: 22.25 hrs Depth (SSL): -1,344.79
Progress: 33.00

Average R.O.P.: 1.48

Daily Costs: \$110,430 Accumulated Cost: \$13,014,706

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 10, 2013

Dir drill 222 mm hole from 1804-1815 m (MD)

**Operational Summary:** 00:00-24:00Hrs; Feb 9, 2013

Dir drill 222 mm hole from 1771-1804 m (MD).

Report From: Harry Gluth; 403-290-7518.
Report To: Don Stachiw, Bari Mc Dowell

Remarks: Comments: good morning. The samples still contain interbedded chert and limestone

but the limestones are more argillaceous and locally there are thin markstones or shales present. These shaller regions appear to show the highest rates of penetration.

Fractures are still present in the cherts and appear less commonly within the

limestones.

Weather: - 16.8 degrees C. Clear and overcast. We managed to get around 10

centimeters of new snow over the last 24 hours...

Location: 300/H-28-6610-13730/0 Days from Spud: 31 K.B. Elevation: 470.16

Ground Elevation: 470.10

Date: Feb 11, 2013 Depth (MD): 1,832.00
Time: 800 hrs Depth (TVD): 1,831.95
Rotating Hours: 9.50 hrs Depth (SSL): -1,361.79

Progress: 17.00 Average R.O.P.: 1.79

Daily Costs: \$122,563 Accumulated Cost: \$13,288,215

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 11, 2013

Dir drill 222 mm hole from 1818-1832 m (MD).

**Operational Summary:** 00:00-24:00Hrs; Feb 10, 2013

Dir drill 222 mm hole from 1804-1818 m (MD), circulate bottoms up, POOH, change

out bit, inspect dir equipment, RIH, pulse test, pattern bit.

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks:

Good morning, We had a change in lithology. We have lost the chert and we have been drilling argillaceous limestone and marlstone. In the 1825 samples I am seeing a

few meters of dark brown, slightly bituminous, calcareous shale.

Weather: -8.9 degrees C, Calm and overcast.

## **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,810.00 to 1,825.00 (15.00)

The interval consists of limestone, marlstone and minor shale.

SHALE: dark brown to black, sub platy, very calcareous & very firm, slightly silty & sandy, micromicaceous, non fissile, slow weak yellow green blooming cut

fluorescence.

LIMESTONE: light to medium brown, occasionally off white, mottled in part, cryptocrystalline to lower fine crystalline, commonly argillaceous & marly, rare white calcite lined fractures, tight, slightly bituminous, trace chert fragments.

Location: 300/H-28-6610-13730/0 Days from Spud: 32 K.B. Elevation: 470.16

Ground Elevation: 461.80

Date: Feb 12, 2013 Depth (MD): 1,871.00
Time: 800 hrs Depth (TVD): 1,870.94
Rotating Hours: 21.00 hrs Depth (SSL): -1,400.78

Depth (SSL): -1,400.78 Progress: 39.00

Average R.O.P.: 1.86

Daily Costs: \$161,216 Accumulated Cost: \$13,452,095

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 12, 2013

Dir drill 222 mm hole from 1858-1871 m (MD).

**Operational Summary:** 00:00-24:00Hrs; Feb 11, 2013

Dir drill 222 mm hole from 1818-1853 m (MD). circ samples up, dir drill 222 mm hole

from 1853-1858 m (MD).

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Good morning,

We are back into limestone and chert again. The chert here appears to have replaced the limestone. Fractures are present but they are rare. Between 1850 and 1860 traces of calcite druse are observable and are attributed to fracture and possibly vug porosity. Liberated gas levels peaked at 43-48 units over a 15 unit background.

Weather: -17.8 degrees C, Overcast, calm with a light snow.

# Lithology Summary

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,832.00 to 1,871.00 (39.00)

Over the last 24 hours we have been drilling limestone and chert. Chert first appears below 1830 and has replaced the limestone. Fractures are rare.

LIMESTONE: off white, light to medium brown gray, mottled, in part medium brown gray, medium brown, cryptocrystalline to occasionally lower fine crystalline, in part recrystallized & chalky, as mudstone, commonly argillaceous, locally cherty and marly, rare calcite filled fractures, slightly bituminous.

CHERT: medium to dark brown, opaque, platy to blocky, calcareous, commonly argillaceous & as replaced limestone, rare medium brown spicular chert fragments.

Location: 300/H-28-6610-13730/0 Days from Spud: 33 K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Feb 13, 2013
 Depth (MD):
 1,912.00

 Time:
 800 hrs
 Depth (TVD):
 1,911.94

Rotating Hours: 21.75 hrs Depth (SSL): -1,441.78 Progress: 41.00

Average R.O.P.: 1.89

Daily Costs: \$180,037 Accumulated Cost: \$13,632,132

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 13, 2013

Dir drill 222 mm hole from 1899-1912 m (MD).

**Operational Summary:** 00:00-24:00Hrs; Feb 12, 2013

Dir drill 222 mm hole from 1858-1890 m (MD). circulate bottoms up, dir drill 222 mm

hole from 1890-1899 m (MD).

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Good morning, Last night we drilled through an argillaceous section between 1873 and

1882 m (MD). Shale content in the drill cuttings did not exceed 40% of the sample but gamma counts of around 200 API units were recorded. Below these shales is chert.

Next 24 hours: drill ahead, POOH for bit. ( > 50 hrs on bit)

Weather: -21.5 degress C, calm & overcast.

## **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,880.00 to 1,885.00 (5.00)

SHALE: medium to dark brown, black, commonly with off white calcareous & sand grain speckling, calcareous, commonly subblocky to blocky, hard, non fissile, commonly silty & sandy, pyritic, with slow, weak yellow green blooming cut

fluorescence, bituminous. Gamma counts greater than 200 API were recorded here. It

overlays a chaky limestone which generated a gas peak of 73 units.

Location: 300/H-28-6610-13730/0 Days from Spud: 34

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Feb 14, 2013
 Depth (MD):
 1,929.00

 Time:
 800 hrs
 Depth (TVD):
 1,928.94

Rotating Hours: 9.25 hrs Depth (SSL): -1,458.78
Progress: 17.00

Average R.O.P.: 1.84

Daily Costs: \$159,934 Accumulated Cost: \$13,792,066

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 14, 2013

Slip and cut, RIH, wash from 1894-1918 m (MD), three meters of fill on bottom of hole, flow check, pulse test, pattern bit, dir drill 222 mm hole from 1918-1929 m (MD).

Operational Summary: 00:00-24:00Hrs; Feb 13, 2013

Dir drill 222 mm hole from 1899-1918 m (MD), circ bottom hole sample, POOH, change out bit, check dir tools, P/U bit 11, RIH, fill pipe and pulse test @ 350 m (MD),

slip and cut.

Report From: Harry Gluth; 403-290-7518.

Report To: Don Stachiw, Bari Mc Dowell

Remarks: Comments: we managed to get back to drilling just before 2 AM. We are drilling

interbedded limestone (40%) and chert (60%).

Next 24 hours: drill ahead find Hart River Shale core point.

Weather: -29.4 degrees C. Clear and calm.

Location: 300/H-28-6610-13730/0 Days from Spud: 35 K.B. Elevation: 470.16

Ground Elevation: 4/0.16 461.80

Date: Feb 15, 2013 Depth (MD): 1,965.00
Time: 800 hrs Depth (TVD): 1,964.94
Rotating Hours: 21.75 hrs Depth (SSL): -1,494.78

Depth (SSL): -1,494.78 Progress: 36.00

Average R.O.P.: 1.66

Daily Costs: \$155,103 Accumulated Cost: \$13,937,293

Formation: HART RIVER

**Operational Status:** 00:00-08:00Hrs; Feb 15, 2013

Dir drill 222 mm hole from 1955-1965 m (MD).

**Operational Summary:** 00:00-24:00Hrs; Feb 14, 2013

Slip and cut, RIH, wash from 1894-1918 m (MD), three meters of fill on bottom of hole,

flow check, pulse test, pattern bit, dir drill 222 mm hole from 1918-1955 m (MD).

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks:

Good Morning,

My apologies for the late reports............I needed to get some rest this morning between samples. We managed to get into sandstone between 1940 m and 1955 m (MD). WE are still drilling limestone and chert and a minor proportion of silty, sandy, calcite

speckled shale.

Currently I am collecting five meter samples.

#### **Geological Morning Report**

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 36

K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Feb 16, 2013
 Depth (MD):
 1,982.00

 Time:
 800 hrs
 Depth (TVD):
 1,981.94

 Rotating Hours:
 11.25 hrs
 Depth (SSL):
 -1,511.78

 Progress:
 17.00

Average R.O.P.: 1.51

Feb 16, 2013

Daily Costs: Accumulated Cost:

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 16, 2013

POOH wet, Lay down directional tools, mud motor, P/U same, scribe motor, check filter

sub and float, RIH pulse test, flow check @ 554 m (MD).

Operational Summary: 00:00-24:00Hrs; Feb 15, 2013

Dir drill 222 mm hole from 1955-1982 m (MD). circ bottoms up, POOH for dir tools and

bit.

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks:

Storage Units: Metric

Good morning: we should be back on bottom at arond 9:30 AM. Both the directional

and MWD tools were not operating properly.

Next 24 hours: drill ahead and find core point.

Weather: -14.3 Degrees C, snowing

# **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

1,940.00 to 1,982.00 (42.00)

I am seeing a change in lithology into one that is turbiditic. The section is much siltier and the base of the sandstone or conglomerate often over-lie thin silty, calcareous shales. Sandstones fine upward into calcareous, argillaceous siltstone, silty argillaceous, limestone and calcareous marlstones and finely silty or sandy shale, Chert is still very abundant

CHERT PEBBLE SANDSTONE: light gray, off white, salt and pepper, friable & in part as unconsolidated grains, fine to very coarse upper grained, rare dark gray chert granules, conglomeratic & matrix supported, with 40-80 % light to dark gray, light brown, rare light yellow brown chert grains, angular & rounded in part & predominately subangular to subrounded, poor to moderately sorted, occasional fragments with silty to very fine lower quartz matrix, calcareous, slightly siliceous & pyritic, patchy brown argillaceous matrix,

Location: 300/H-28-6610-13730/0 Days from Spud: 37 K.B. Elevation: 470.16

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Feb 17, 2013
 Depth (MD):
 2,012.00

 Time:
 800 hrs
 Depth (TVD):
 2,011.94

Rotating Hours: 7.50 hrs Depth (SSL): -1,541.78
Progress: 30.00

Average R.O.P.: 4.00

Daily Costs: \$110,949 Accumulated Cost: \$14,242,592

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 17, 2013

Dir drill 222 mm hole from 1997-2012 m (MD).

Operational Summary: 00:00-24:00Hrs; Feb 16, 2013

POOH wet, Lay down directional tools, mud motor, P/U same, scribe motor, check filter sub and float, RIH, pulse test, flow check @ 554 m (MD), RIH to 1510 M(MD), wash to bottom, pattern bit, dir drill 222 mm hole from 1982-1996 m (MD), circulate samples

up, dir drill 222 mm hole from 1996-1997 m (MD).

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Good morning...it has been a late night...sorry for any errors.

We drilled through a shaller section between 1990 and 2000 last night. Chert is

abundant in this section too and we likely could not retrieve a full core. Gamma counts

are low and suggest that these shales are not what we are looking for.

Weather: -21.2 degrees C, Calm, mild wind from the south.

Location: 300/H-28-6610-13730/0 Days from Spud: 38 K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Feb 18, 2013
 Depth (MD):
 2,036.00

 Time:
 800 hrs
 Depth (TVD):
 2,035.94

 Rotating Hours:
 23.00 hrs
 Depth (SSL):
 -1,565.78

Depth (SSL): -1,565.78 Progress: 24.00

Average R.O.P.: 1.04

Daily Costs: \$205,715 Accumulated Cost: \$14,448,307

Formation: HART RIVER

Operational Status: 00:00-08:00Hrs; Feb 18, 2013

Dir drill 222 mm hole from 2028-2036 m (MD).

**Operational Summary:** 00:00-24:00Hrs; Feb 17, 2013

Dir drill 222 mm hole from 2002-2028 m (MD).

Report From: Harry Gluth; 403-290-7518.

Report To: Don Stachiw, Bari Mc Dowell

Remarks: Good morning: we are drilling chert and argillaceous, marly, slity limestone and rare

shale. So far no sign of the Hart River Shale.

Next 24 hours: change out bit and drill ahead. Weather: -24.4 degrees C, very light snow fall.

Location: 300/H-28-6610-13730/0 Days from Spud: 39 K.B. Elevation: 470.16

Ground Elevation: 470.16 461.80

 Date:
 Feb 19, 2013
 Depth (MD):
 2,047.00

 Time:
 800 hrs
 Depth (TVD):
 2,046.94

Rotating Hours: 8.00 hrs Depth (SSL): -1,576.78 Progress: 11.00

Average R.O.P.: 1.38

Daily Costs: \$142,253 Accumulated Cost: \$14,590,561

Formation: HART RIVER

**Operational Status:** 00:00-08:00Hrs; Feb 19, 2013

RIH to bottom, pattern bit & dir drill 222 mm hole from 2037.5-2047 m (MD).

Operational Summary: 00:00-24:00Hrs; Feb 18, 2013

Dir drill 222 mm hole from 2028-2037.5 m (MD), circ hole clean, POOH for bit, M/U Smith bit, RIH to 190 m (MD), pulse test, RIH to 995 m (MD), slip and cut, RIH to 1941

m (MD).

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Good morning,

We managed to get back to drilling at 1 AM. Currently we are taking 2.5 meter interval samples and cuttings reveal mainly chert and argillaceous limestone and marlstone. Traces of shale (<5%) were observed between 2040 and 2042.5 m (MD). We had no

trip gases.

I have not found the gas sampler as of yet, but should locate it today.

Weather: -20.4 degrees C, cold breeze from the south.

### **Geological Morning Report**

Feb 20, 2013 Storage Units: Metric

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 40 K.B. Elevation: 470.16

461.80 Ground Elevation:

Date: Feb 20, 2013 Depth (MD): 2,057.00 800 hrs Depth (TVD): 2,056.94 Time:

**Rotating Hours:** 7.00 hrs Depth (SSL): -1,586.78 **Progress:** 10.00

Average R.O.P.: 1.43

**Daily Costs: Accumulated Cost:** \$14,701,157 \$110,597

Formation: HART RIVER SHALE

Operational Status: 00:00-08:00Hrs; Feb 20, 2013

M/U core barrels, RIH and slip and cut line at 1040 m (MD), RIH.

**Operational Summary:** 00:00-24:00Hrs; Feb 19, 2013

RIH to bottom, pattern bit & dir drill 222 mm hole from 2037.5- 2057 m (MD). circ hole

clean, POOH for core barrel.

Report From: Harry Gluth; 403-290-7518. Report To: Don Stachiw, Bari Mc Dowell

Good morning. We should be coring later on this morning; I am estimating the top of Remarks:

the Hart River Shale at 2053 m (MD). The Core hand feels that it may take six hours or so to fill the barrel..... I guess we will see. I may have an issue with installing the manifold gas sampler......we do not have any additional polyflow tubing to hook it up to the detector. I will see what is possible with regard to this matter this morning.

Weather: -30 degrees C---trace of snow.

## **Lithology Summary**

**Kelly Bushing Elevation:** 470.16 **Ground Elevation:** 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

## **Geological Morning Report**

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 40
K.B. Elevation: 470.16
Ground Elevation: 461.80

2,052.50 to 2,057.00 (4.50)

Storage Units: Metric

2052.5m to 2055m:

CHERT: (10%) dark brown, medium brown, rare light gray fragments, opaque to rare translucent, cryptocrystalline, rare spicules, occasional fractures, calcareous, tight.

SHALE: (90%) medium to dark brown gray, sub platy to subblocky, dull, trace pyrite, soft to firm, sub fissile, calcareous, occasional calcite lined fractures, slightly marly, silty & sandy, weak, slow (10 mins) yellow green blooming cut fluorescence.

2055m to 2057.0m:

SHALE: medium to dark brown, sub platy to subblocky, calcareous, firm, sub fissile, occasional white calcite lined fractures, slightly silty & sandy, slightly carbonaceous, slow yellow green blooming cut fluorescence, 10-15% as dark brown, black, occasionally light gray, occasionally fractured, calcareous, tight chert fragments.

Gas levels were flat at around 25-30 units at a penetration rate of 1 meter per hour. The 78 unit gas peak at 2053 m (MD) appears to originate from fractures in chert.

Feb 20, 2013

Location: 300/H-28-6610-13730/0 Days from Spud: 41 K.B. Elevation: 470.16

Ground Elevation: 470.16 461.80

 Date:
 Feb 21, 2013
 Depth (MD):
 2,056.80

 Time:
 800 hrs
 Depth (TVD):
 2,056.74

 Rotating Hours:
 4.60 hrs
 Depth (SSL):
 -1,586.58

Depth (SSL): -1,586.58
Progress: -0.20
Average R.O.P.: -0.04

Daily Costs: \$183,324 Accumulated Cost: \$15,002,908

Formation: HART RIVER SHALE

**Operational Status:** 00:00-08:00Hrs; Feb 21, 2013

POOH, L/D core, build BHA, RIH.

Operational Summary: 00:00-24:00Hrs; Feb 20, 2013

M/U core barrels, RIH and slip and cut line at 1040 m (MD), RIH, circ bottoms up, drop

ball and pump to bottom, core from 2057-2065.8 m (MD), circ bottoms up, POOH.

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Good morning....we cut 8.8 meters of core and recovered all of it. The corehand

recorded 9.1 meters recovery and the core likely shifted in the barrel. The core is represented by marlstones & locally limestone at the top and base of the section and bewteen this is maily silty, sandy, more argillaceous marlstones and shale. Shales are typically dark brown, hard and predominatly non fissile, calcareous, silty and sandy. These grade to marlstones also. Cut fluorescence is yellow green, rapid to slow, weak to good blooming. Locally shales grade to argillaceous siltstone and silty quartzose sandstone. Rare vertical fractures were observed. Desorbtion tests were preformed at 2061.5- approximately 2061.8 m (MD) and at 2064.5 to approximately 2064.8 meters (MD). Liberated gas levels peaked at 2059, 2061 and at 2062 m (MD) at 53, 73 and

102 units respectively. Weather: -27 degrees C

Location: 300/H-28-6610-13730/0 Days from Spud: 42 K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Feb 22, 2013
 Depth (MD):
 2,095.00

 Time:
 800 hrs
 Depth (TVD):
 2,094.94

 Rotating Hours:
 17.50 hrs
 Depth (SSL):
 -1,624.78

Depth (SSL): -1,624.78 Progress: 38.20

Average R.O.P.: 2.18

Daily Costs: \$119,146 Accumulated Cost: \$15,137,484

Formation: HART RIVER

**Operational Status:** 00:00-08:00Hrs; Feb 22, 2013

Drill 222mm hole f/2085-2095m.

Operational Summary: 00:00-24:00Hrs; Feb 21, 2013

POOH. Recover Core #1 (100% Rec). L/D core barrels. Make up BHA and Bit #15. RIH

to 554m. F/T TruTrak tools. Blow out surface equipment. RIH. Log gamma from

2045-2054m. Drill and survey 222mm hole f/2066-2085m.

**Report From:** Trevor Wall; 403-290-7518 Don Stachiw, Bari McDowell

Remarks: MFS (Hart River Shale) continues down to ~2092m.

NEXT 24HRs:

Drill 222mm hole. Possible trip for bit.

-34deg. Light ESE wind @ 3kph. Trace new snow.

## **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

2,065.80 to 2,090.00 (24.20)

HART RIVER SHALE (MFS)

Interbedded limestone, sandy limestone, chert & dark carbonaceous shale

LIMESTONE: light to dark grayish brown, cryptocrystalline, argillaceous in part, locally sandy, rare fossil fragments, chert lenses, dense, tight, hard, common white calcite

cementing microfractures

CHERT: medium to dark brown, opaque to semi opaque, organic inclusions, bedded,

very hard

SHALE: dark grayish brown to black, subfissile, firm, brittle, calcareous, bituminous in

part

Storage Units: Metric

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 43 K.B. Elevation: 470.16

Ground Elevation: 461.80

Feb 23, 2013

 Date:
 Feb 23, 2013
 Depth (MD):
 2,133.00

 Time:
 800 hrs
 Depth (TVD):
 2,132.94

Rotating Hours: 20.75 hrs Depth (SSL): -1,662.78 Progress: 38.00

Average R.O.P.: 1.83

Daily Costs: \$111,842 Accumulated Cost: \$15,258,632

Formation: HART RIVER

**Operational Status:** 00:00-08:00Hrs; Feb 23, 2013

Drill 222mm hole f/2123-2133m.

**Operational Summary:** 00:00-24:00Hrs; Feb 22, 2013

Drill and survey 222mm hole f/2085-2123m.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks:

NEXT 24HRs:

Drill 222mm hole. Trip for bit. Drill ahead.

-35deg. Light ESE wind @ 9kph. Trace new snow.

## **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

2,092.00 to 2,095.00

(3.00)

HART RIVER B Sand (?)

SANDSTONE: medium to dark gray, dark brown in part, quartz & common gray chert, predominately lower fine to lower medium grained, occasional upper medium clasts, moderate to poorly sorted, subrounded, primary silica cement, abundant secondary calcite cement occludes porosity completely, well indurated, tight, no visible show,

trace pyrite

2,095.00 to 2,115.00 (20.00)

HART RIVER

Interbedded limestone & chert with an occasional shale parting

LIMESTONE: light to medium grayish brown, cryptocrystalline, silty & argillaceous in part, rare shell fragments, cherty, rare calcite cemented fracture, common fine to

medium grained sand clasts, dense, tight, hard

CHERT: medium to dark grayish brown, opaque to semi opaque, silty inclusions,

organic inclusions, rare silica cemented microfracture, hard, brittle

# **Geological Morning Report**

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 43

K.B. Elevation: 470.16

Ground Elevation: 461.80

2,115.00 to 2,125.00 (10.00)

Storage Units: Metric

HART RIVER

Interbedded argillaceous limestone & calcareous shale. Deminishing chert.

LIMESTONE: medium to dark brownish gray, cryptocrystalline, earthy, argillaceous, locally sandy, scattered fine to upper medium grained floating quartz or chert sand clasts, occasional thin fine bioclastic beds, interbedded calcareous shale, occasional poorly sorted sandstone stringer, tight, rare calcite cemented fracture

SHALE: dark gray to grayish brown, subfissile, calcareous, firm, silty in part, trace pyrite

Feb 23, 2013

Location: 300/H-28-6610-13730/0 Days from Spud: 44
K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Feb 24, 2013
 Depth (MD):
 2,169.00

 Time:
 800 hrs
 Depth (TVD):
 2,168.94

Rotating Hours: 21.25 hrs Depth (SSL): -1,698.78
Progress: 36.00

Average R.O.P.: 1.69

Daily Costs: \$148,807 Accumulated Cost: \$15,291,930

Formation: HART RIVER

**Operational Status:** 00:00-08:00Hrs; Feb 24, 2013

Drill 222mm hole f/2159-2169m.

Operational Summary: 00:00-24:00Hrs; Feb 23, 2013

Drill and survey 222mm hole f/2123-2152m. Trouble shoot travelling blocks (1.25hrs).

Drill ahead f/2152-2159m.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks:

NEXT 24HRs: Drill 222mm hole.

-32deg. Light ESE wind @ 6kph. Snowing lightly.

# **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

2,125.00 to 2,160.00 (35.00)

HART RIVER

Interbedded bituminous shale & limestone. Minor sandstone.

LIMESTONE: medium to dark gray to grayish brown, cryptocrystalline, argillaceous, silty in part, occasional sandy stringer, scattered brachiopods, occasional bioclastic thin bed, slightly bituminous, weak blooming cut, 2-3% scattered chert, dense, tight

SHALE: very dark grayish brown to black, increasingly carbonaceous, bituminous in part, extremely calcareous, subfissile to non fissile, trace pyrite, silty in part, occasional very fine grained sandy laminations, no visible fluorescence, slow blooming dead oil cut

Location: 300/H-28-6610-13730/0 Days from Spud: 45 K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Feb 25, 2013
 Depth (MD):
 2,210.00

 Time:
 800 hrs
 Depth (TVD):
 2,209.94

Rotating Hours: 16.75 hrs Depth (SSL): -1,739.78
Progress: 41.00

Average R.O.P.: 2.45

Daily Costs: \$119,825 Accumulated Cost: \$15,411,756

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Feb 25, 2013

Drill 222mm hole f/2206-2210m. Circulate hole clean. Pump pill POOH.

**Operational Summary:** 00:00-24:00Hrs; Feb 24, 2013

Drill and survey 222mm hole f/2159-2206m.

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks:

NEXT 24HRs:

Finish out of hole. Change bit. RIH and drill ahead with Bit #16.

-30deg. Light ESE wind @ 6kph. Trace new snow yesterday morning.

## **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

2,160.00 to 2,180.00 (20.00)

HART RIVER:

Interbedded argillaceous limestone & anomalously radioactive and bituminous shale

LIMESTONE: light to dark grayish brown, cryptocrystalline, silty & argillaceous, occasional siltstone and sandstone stringers, sandstone stringers grade to very coarse grained & are poorly sorted with abundant dark gray chert & are tightly cemented with calcite, scattered brachiopods, occasional bioclastic beds, interbedded dark carbonaceous shale, locally cherty with 2-4% dark brown chert, slightly bituminous, slow blooming cut, rare calcite filled fracture

SHALE: dark grayish brown to black, subfissile, black shale is increasingly bituminous with greasy lustre & decreasingly calcareous, dark grayish brown shale is silty & poorly fissile & extremely calcareous, slow dead oil cut

## **Geological Morning Report**

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 45

K.B. Elevation: 470.16

Ground Elevation: 461.80

2,180.00 to 2,199.00 FORD LAKE: (19.00)

Storage Units: Metric

Bituminous shale

SHALE: very dark brown to black, subfissile, silty in part, well compacted, moderately soft, moderately ductile, greasy, very slightly to non calcareous, bituminous, no visible

fluorescence, slow hazy cut, trace pyrite

2,199.00 to 2,210.00 IMPERIAL: (11.00)

SHALE: very dark gray to grayish brown, subfissile, moderately soft, rare wispy calcite veinlet, non calcareous with occasional limy argillaceous stringers, silty in part, pyritic,

decreasing bituminous content, slow weak cut

Feb 25, 2013

Location: 300/H-28-6610-13730/0 Days from Spud: 46 K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Feb 26, 2013
 Depth (MD):
 2,270.00

 Time:
 800 hrs
 Depth (TVD):
 2,269.94

 Rotating Hours:
 5.75 hrs
 Depth (SSL):
 -1,799.78

Depth (SSL): -1,799.78 Progress: 60.00

Average R.O.P.: 10.43

Daily Costs: \$222,770 Accumulated Cost: \$15,644,522

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Feb 26, 2013

Drill and survey 222mm hole f/2210-2270m

**Operational Summary:** 00:00-24:00Hrs; Feb 25, 2013

Drill 222mm hole f/2206-2210m. Circulate hole clean. Trip out 5 stands. Pump pill. Blow out surface equipment. POOH. Handle directional tools. Break bit. Change out TruTrac and scribe MWD tools. Trip in hole to 1040m. Pulse test tools. Slip & cut 30m drill line. Continue to trip in hole. Ream f/1677-1770m. Trip in to 1963m. Wash to

bottom. Downlink to Tru-Trak (1.25hrs).

**Report From:** Trevor Wall; 403-290-7518 **Report To:** Don Stachiw, Bari McDowell

Remarks:

NEXT 24HRs:

Drill ahead with Bit #16.

-30deg. Light ESE wind @ 6kph. No new snow.

## **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

2,210.00 to 2,250.00 (40.00)

**IMPERIAL**:

SHALE: dark gray to dark brownish gray, subfissile, non calcareous, occasional silty stringers, carbonaceous in part, rare limy stringers, pyritic, rare slickenside, rare calcite

veinlet, slightly bituminous with slow faint cut to ~2220m

Location: 300/H-28-6610-13730/0

Days from Spud: 47 K.B. Elevation: 470.16

**Ground Elevation:** 461.80

Date: Feb 27, 2013 Depth (MD): 2,369.00 Time: 800 hrs Depth (TVD): 2,368.94 **Rotating Hours:** 9.75 hrs Depth (SSL): -1,898.78

**Progress:** 99.00 Average R.O.P.: 10.15

**Daily Costs:** \$202,502 **Accumulated Cost:** \$15,966,070

Formation: **Imperial** 

Operational Status: 00:00-08:00Hrs; Feb 27, 2013

Continue to POOH. Drain TruTrak. Break bit. P/U new TruTrak and M/U Bit #17. RIH w/

3 stands HWDP and BHA. Fill pipe. Test tools. Blow out surface equipment. RIH.

**Operational Summary:** 00:00-24:00Hrs; Feb 26, 2013

Drill and survey 222mm hole f/2210-2369m. Circulate hole clean. Trip out 5 stands.

Pump pill. Blow out surface equipment. POOH.

Report From: Trevor Wall: 403-290-7518 Report To: Don Stachiw, Bari McDowell

Remarks: See log for detailed lithology and gas over previous drilled section in last 24hrs.

MUD:

Den 1350 Vis

NEXT 24HRs:

RIH. Drill ahead with Bit #17

-31deg. Calm. No new snow.

### **Geological Morning Report**

Feb 28, 2013 Storage Units: Metric

Location: 300/H-28-6610-13730/0 **Days from Spud:** 48 K.B. Elevation: 470.16

**Ground Elevation:** 461.80

Spud Date:

Feb 28, 2013 Depth (MD): 2,375.00 Date: 800 hrs Depth (TVD): 2,374.94 Time: **Rotating Hours:** 9.00 hrs Depth (SSL): -1,904.78

> **Progress:** 6.00 Average R.O.P.: 0.67

Jan 11, 2013 @ 18:30

**Daily Costs: Accumulated Cost:** \$16,106,243 \$138,151

Formation: **Imperial** 

Well Name: West Chance H-28

**Operational Status:** 00:00-08:00Hrs; Feb 28, 2013

Drill ahead f/2374-2375m - slow progress. Work stalled motor, pump sweeps, condition

hole. Trip out 5 stands. Pump pill. Blow out surface equipment. POOH.

**Operational Summary:** 00:00-24:00Hrs; Feb 27, 2013

Continue to POOH. Drain TruTrak. Break bit. P/U new TruTrak and M/U Bit #17. RIH w/ 3 stands HWDP and BHA. Fill pipe. Test tools. Blow out surface equipment. RIH to 1138m. Slip & cut 15m drill line. Trip in hole (ream at 1764, 1794 & 2000m). Wash last stand to bottom (2.7m fill) Pattern bit. Drill 222mm hole f/2369-2371m - very slow progress. Work string & attempt to drill off squat (.75hrs). Drill ahead f/2372-2374m

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

Remarks: Very slow progress once getting back to bottom with Bit #17. Samples were poor

quality, but did contain significant chert and dense limestone, in addition to Imperial

shale (40-60). Waiting on drilling further to make an interpretation.

MUD:

Den 1350 Vis 76

NEXT 24HRs:

POOH. Check bit and motor. RIH. Drill ahead with Bit #18

-28deg. Calm. No new snow.

Location: 300/H-28-6610-13730/0 Days f

Days from Spud: 49 K.B. Elevation: 470.16 Ground Elevation: 461.80

Date: Mar 1, 2013 Depth (MD): 2,375.00
Time: 800 hrs Depth (TVD): 2,374.94
Rotating Hours: 0.00 hrs Depth (SSL): -1,904.78

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$198,638 Accumulated Cost: \$16,306,432

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 1, 2013

POOH. Handle directional tools. Drain motor. Break bit. Change out TruTrak. M/U

Monel and scribe tools. RIH (test tools at 19, 553 & 1097m).

**Operational Summary:** 00:00-24:00Hrs; Feb 28, 2013

Drill ahead f/2374-2375m - slow progress. Work stalled motor, pump sweeps, condition hole. Trip out 5 stands. Pump pill. Blow out surface equipment. POOH. Drain motor. Break bit. M/U Bit #18 and RIH to 1499m (test tools @ surface). Slip & cut 8m drill line. Continue to RIH to 1702m. Break circulation. Trouble shoot directional tool. Circulate

hole clean. Mix and pump pill. Blow out surface equipment. POOH.

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

Remarks: MUD:

Den 1350 Vis 80

NEXT 24HRs:

RIH. Clean to bottom as necessary. Drill ahead with Bit #18

-28deg. Light easterly breeze. No new snow.

Location: 300/H-28-6610-13730/0

Days from Spud: 50 K.B. Elevation: 470.16

Ground Elevation: 461.80

Date: Mar 2, 2013 Depth (MD): 2,435.00 Time: 800 hrs Depth (TVD): 2,434.94 Rotating Hours: 17.75 hrs Depth (SSL): -1,964.78

Progress: 60.00 Average R.O.P.: 3.38

Daily Costs: \$150,043 Accumulated Cost: \$16,476,802

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 2, 2013

Drill and survey 222mm hole f/2410-2435m.

Operational Summary: 00:00-24:00Hrs; Mar 1, 2013

POOH. Handle directional tools. Drain motor. Break bit. Change out TruTrak. M/U Monel and scribe tools. RIH (test tools at 19, 553 & 1097m). Ream and clean

f/2334-2375m (2m fill). Drill and survey 222mm hole f/2375-2410m.

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

Remarks: See Log for detailed lithology and gas.

MUD:

Den 1350 Vis 64

NEXT 24HRs:

Drill ahead with Bit #18 to ~2460m. POOH. M/U PDC bit. RIH & drill ahead.

-22deg. Light ESE wind @ ~10kph. Light snow. (1-2cm new snow).

Location: 300/H-28-6610-13730/0

Days from Spud: 51 K.B. Elevation: 470.16 Ground Elevation: 461.80

Ground Elevation: 401.00

 Date:
 Mar 3, 2013
 Depth (MD):
 2,455.00

 Time:
 800 hrs
 Depth (TVD):
 2,454.94

 Rotating Hours:
 7.50 hrs
 Depth (SSL):
 -1,984.78

 Progress:
 20.00

Average R.O.P.: 2.67

Daily Costs: \$132,635 Accumulated Cost: \$16,649,446

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 3, 2013

Handle directional tools. Drain motor. Change bit. RIH - test tools @ surface. RIH to 544m. Test tools. Blow down surface equipment. Continue to RIH (test tools @ 1003m,

1491m). Slip and cut 14m drill line. RIH

Operational Summary: 00:00-24:00Hrs; Mar 2, 2013

Drill and survey 222mm hole f/2410-2455m. Circulate bottoms up. Pump pill. POOH.

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

Remarks: See Log for detailed lithology and gas.

MUD:

Den 1375 Vis 65

NEXT 24HRs:

RIH. Ream and clean to bottom as necessary. Drill ahead with Bit #19.

-24deg. Calm. Trace new snow yesterday.

Location: 300/H-28-6610-13730/0

Days from Spud: 52 K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Mar 4, 2013
 Depth (MD):
 2,456.00

 Time:
 800 hrs
 Depth (TVD):
 2,455.94

 Rotating Hours:
 0.75 hrs
 Depth (SSL):
 -1,985.78

Progress: 1.00 Average R.O.P.: 1.33

Daily Costs: \$466,615 Accumulated Cost: \$17,110,986

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 4, 2013

Continue to POOH. Handle directional tools. Drain motor. Change bit. Check float and filter sub. Shallow pulse test tool. RIH w/ Bit #20 - flow check, pulse test tool and blow

down @ 544 & 1031m.

Operational Summary: 00:00-24:00Hrs; Mar 3, 2013

Handle directional tools. Drain motor. Change bit. RIH w/ Bit #19 - test tools @ surface. RIH to 544m. Test tools. Blow down surface equipment. Continue to RIH (test tools @ 1003m, 1491 & 1923m). Slip and cut 14m drill line. RIH. Wash f/2411-2455m - bridges @ 2429-32 & 2445m. 2.5m fill. Attempt to drill ahead with PDC bit, pump 2 sweeps - no

progress. Mix and pump pill. POOH.

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

Remarks: MUD:

Den 1380 Vis 77

NEXT 24HRs:

RIH. Ream and clean to bottom as necessary. Drill ahead with Bit #20.

-24deg. Calm. Trace new snow yesterday.

Location: 300/H-28-6610-13730/0

Days from Spud: 53 K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Mar 5, 2013
 Depth (MD):
 2,515.00

 Time:
 800 hrs
 Depth (TVD):
 2,514.94

 Rotating Hours:
 15.25 hrs
 Depth (SSL):
 -2,044.78

Progress: 59.00 Average R.O.P.: 3.87

Daily Costs: \$121,893 Accumulated Cost: \$16,997,533

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 5, 2013

Drill and survey 222mm hole f/2498-2515m. Circulate bottoms up. Perform 5 stand

wiper trip.

Operational Summary: 00:00-24:00Hrs; Mar 4, 2013

Continue to POOH. Handle directional tools. Drain motor. Change bit. Check float and filter sub. Shallow pulse test tool. RIH w/ Bit #20 - flow check, pulse test tool and blow down @ 544, 1031, 1581 & 2122m. Wash f/2412-2456m. Drill and survey 222mm hole

f/2456-2498m.

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

Remarks: See Geologic striplog for detailed lithology and gas.

MUD:

Den 1365 Vis 66

NEXT 24HRs:

Condition hole for logging. POOH. Run Logging Suite and Sidewall Cores.

-24deg. Light east breeze. No new snow yesterday.

Location: 300/H-28-6610-13730/0

Days from Spud: 54 K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Mar 6, 2013
 Depth (MD):
 2,515.00

 Time:
 800 hrs
 Depth (TVD):
 2,514.94

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -2,044.78

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$178,860 Accumulated Cost: \$17,205,608

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 6, 2013

Log with Schlumberger (Run 3.1: PEX w/ HRLA, HNGS, GPIT & PPC-2).

Operational Summary: 00:00-24:00Hrs; Mar 5, 2013

Drill and survey 222mm hole f/2498-2515m. Circulate bottoms up. Perform 5 stand wiper trip. Wash in f/2409-2515m (Ream through bridge f/2431-34m - 1.5m fill on bottom). Perform second wiper trip f/2515-2381m. Wash in f/2430 to bottom (tight @ 2431-36m; 2m fill on bottom). Circulate hole clean. Spot weighted high vis pill on bottom. POOH. Rack monels. Drain motor. Break bit & L/D mud motor. Pull wear

bushing. Rig in Schlumberger.

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

**Remarks:** Logging tools bridged off at ~2432m. Logged up with all tools from that depth.

MUD:

Den 1375 Vis 63

NEXT 24HRs:

Run remaining Logging Suite and cut Sidewall Cores.

-28deg. Light easterly breeze. No new snow yesterday.

Location: 300/H-28-6610-13730/0

Days from Spud: 55 K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Mar 7, 2013
 Depth (MD):
 2,515.00

 Time:
 800 hrs
 Depth (TVD):
 2,514.94

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -2,044.78

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$98,862 Accumulated Cost: \$17,302,580

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 7, 2013

Log with Schlumberger (Run 3.3: FMI-Sonic Scanner- PPC-2)

Operational Summary: 00:00-08:00Hrs; Mar 7, 2013

Log with Schlumberger (Run 3.1: PEX w/ HRLA, HNGS, GPIT & PPC-2; Run 3.2:

ADT-Stringray-CMR)

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

Remarks: As with run #3.1, logging tools bridged at ~2432m

NEXT 24HRs:

Run remaining Logging Suite and cut Sidewall Cores.

-26deg. Easterly breeze @ ~10kph. No new snow yesterday.

Location: 300/H-28-6610-13730/0 Days from Spud:

K.B. Elevation: 470.16 461.80 **Ground Elevation:** 

Mar 8, 2013 Depth (MD): 2,515.00 Date: 800 hrs Depth (TVD): 2,514.94 Time: **Rotating Hours:** 0.00 hrs Depth (SSL): -2,044.78

> **Progress:** 0.00 Average R.O.P.: 0.00

\$18,026,155 **Daily Costs: Accumulated Cost:** \$678,537

Formation: **Imperial** 

Operational Status: 00:00-08:00Hrs; Mar 8, 2013

Continue cutting side wall cores, rig out coring tools and recover cores, pressure test.

**Operational Summary:** 00:00-24:00Hrs; Mar 7, 2013

Log hole with FMI-Sonic scanner PPC-2 tool, P/U tools, and run casing integrity tools,

run side wall tools.

Report From: Harry Gluth; 403-290-7518. Report To: Don Stachiw, Bari Mc Dowell

Remarks: Good morning,

We managed to get all the side wall core recovered earlier this morning and I will be finishing my descriptions on each core later on today. One core was not cut at the correct depth......I will double check this later on today. We did manage to get 10

desorbtion tests going soon after the core was recovered.

Next 24 hours: pressure test, make up tools and RIH, drill ahead.

Thanks;

Harry

Weather: -22 C

Location: 300/H-28-6610-13730/0 Days from Spud: 57 K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Mar 9, 2013
 Depth (MD):
 2,515.00

 Time:
 800 hrs
 Depth (TVD):
 2,514.94

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -2,044.78

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$135,164 Accumulated Cost: \$18,161,318

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 9, 2013

Ream and clean hole from 2509-2515 m (MD), seven meters of fill on bottom, pattern bit, troubleshoot MWD tools, POOH checking for washed out pipe on the way out.

Operational Summary: 00:00-24:00Hrs; Mar 8, 2013

Continue cutting side wall cores, rig out coring tools and recover cores, pressure test. set wear bushing, P/U dir tools, make up bit 21, scribe motor, M/U float and screen subs, shallow test tool, RIH and pulse test @ 545, 1030, 1520 and 2035 m (MD), ream

and clean hole from 2411-2509 m (MD.

Report From: Harry Gluth; 403-290-7518.
Report To: Don Stachiw, Bari Mc Dowell
Good morning Bari & Don,

We are coming out of the hole to check the directional tools. I examined what cuttings were coming over this morning and it consists largely of Imperial Shale. There are the odd fragments with slickensides. As of 7:30 AM we are at a bit depth of 2180 m (MD).

Weather: -26 degrees C, clear as of 7:30 AM the sky in the south is beginning to be lit

up.

### **Geological Morning Report**

Mar 10, 2013 Storage Units: Metric

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 **Days from Spud:** 58 K.B. Elevation: 470.16

**Ground Elevation:** 461.80

Mar 10, 2013 Depth (MD): 2,560.00 Date: 800 hrs Depth (TVD): Time: 2,559.93 **Rotating Hours:** 11.25 hrs Depth (SSL): -2,089.77

> **Progress:** 45.00 Average R.O.P.: 4.00

**Daily Costs:** \$140,800 **Accumulated Cost:** \$18,302,118

Formation: **Imperial** 

**Operational Status:** 00:00-08:00Hrs; Mar 10, 2013

Dir drill 222 mm hole from 2535-2560 m (MD).

**Operational Summary:** 00:00-24:00Hrs; Mar 9, 2013

Ream and clean hole from 2509-2515 m (MD), seven meters of fill on bottom, pattern bit, troubleshoot MWD tools, POOH to 1363 m (MD), checking for washed out pipe on the way out, L/D two washed out pipe joints, RIH, ream and clean from 2363-2515 m (MD), tight at 2430-2440, 2501 and 2511 m (MD), with three meters of fill. Dir drill 222

mm hole from 2515-2535 m (MD).

Report From: Harry Gluth; 403-290-7518. Report To: Don Stachiw, Bari Mc Dowell

Remarks: Comments: we found two joints of washed out drill pipe. Also the shales still look

sheared. Some of the shales soften or slightly split when left in water.

Next 24 hours: Drill ahead.

Weather: -10 degrees C, overcast.

Location: 300/H-28-6610-13730/0 Days from Spud: 59 K.B. Elevation: 470.16

Ground Elevation: 470.16

Date: Mar 11, 2013 Depth (MD): 2,632.00
Time: 800 hrs Depth (TVD): 2,631.93
Rotating Hours: 21.50 hrs Depth (SSL): -2,161.77

Depth (SSL): -2,161.77 Progress: 72.00

Average R.O.P.: 3.35

Daily Costs: \$114,795 Accumulated Cost: \$18,416,913

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 11, 2013

Dir drill 222 mm hole from 2609-2632 m (MD).

**Operational Summary:** 00:00-24:00Hrs; Mar 10, 2013

Dir drill 222 mm hole from 2535-2609 m (MD).

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Good morning;

We had three gas shows over the last 24 hours at 2571, 2611 and at 2619 m (MD), with gas peaks of 182, 131 and 191 units, respectively. We collected isotube samples of these gases. Background gas levels generally range between 50 and 75 units. We are still drilling in shale that is sheared (2-3) and that will occassionally crack or soften

when placed in water.

Weather: -15 degrees C at 7:30 AM.

# **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

2,560.00 to 2,632.00 (72.00)

SHALE: medium to dark gray, dark brown gray, sub platy to subblocky, micromicaceous, dull, locally waxy, soft to hard, sub fissile to brittle, as clay shale, rare pyrite, commonly cracking in water, locally silty & sandy, slightly carbonaceous,

occasional slickenslide surfaces.

Location: 300/H-28-6610-13730/0 Days from Spud: 60 K.B. Elevation: 470.16

Ground Elevation: 461.80

Date: Mar 12, 2013 Depth (MD): 2,652.80
Time: 800 hrs Depth (TVD): 2,652.73
Rotating Hours: 9.00 hrs Depth (SSL): -2,182.57

Progress: 20.80 Average R.O.P.: 2.31

Daily Costs: \$141,217 Accumulated Cost: \$18,558,130

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 12, 2013

Continue to pull out of the hole, flow checks @ 583 and 271 m (MD), switch out SCR,

L/D jars, switch out True track tools.

Operational Summary: 00:00-24:00Hrs; Mar 11, 2013

Dir drill 222 mm hole from 2609-2652.8 m (MD), circ bottoms up, pull nine stands wet, flow check @2397 m (MD), pump pill, blow out surface equipment, and continue to pull

out of the hole to 1327 m (MD).

Report From: Harry Gluth; 403-290-7518.
Report To: Don Stachiw, Bari Mc Dowell

Remarks: Good Morning,

We managed to to drill through a few cherty stringers over the last 24 hours. Some are fractured and generated gas. Shales too are softer and slickenside surfaces are less

common.

Next 24 hours: RIH, drill ahead. Weather: -24 degrees C.

# **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

2,620.00 to 2,652.00 (32.00)

SHALE: medium to dark gray, sub platy to blocky, micromicaceous, dull, commonly soft, subfissile to fissile, with occasional cracks when placed in water, slightly pyritic, as clay shale, 10-40% medium to dark brown, firm, brittle, with occasional slickensides, rare pyrite laminae, rare medium to dark brown, rare black, argillaceous, commonly pyritic, locally silty or sandy, tight chert fragments.

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30 Location: 300/H-28-6610-13730/0 Days from Spud: 61

Location: 300/H-28-6610-13730/0 Days from Spud: K.B. Elevation: 4

K.B. Elevation: 470.16 Ground Elevation: 461.80

Date: Mar 13, 2013 Depth (MD): 2,652.80
Time: 800 hrs Depth (TVD): 2,652.73
Rotating Hours: 0.00 hrs Depth (SSL): -2,182.57

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$223,726 Accumulated Cost: \$18,781,857

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 13, 2013

Work and jar stuck pipe at 2515 m (MD) without circulation, regained ability to circulate at 2510 m (MD), circ and clean hole, hole sloughed in a second time at a bit depth of approximately 1510 m (MD), with loss of ability to circulate, jarred stuck pipe, to 2502

m (MD) with limited ability to circulate hole.

Operational Summary: 00:00-24:00Hrs; Mar 12, 2013

Continue to pull out of the hole, flow checks @ 583 and 271 m (MD), switch out SCR, L/D jars, switch out True track tools, jars, P/U bit 22, RIH, fill pipe every 500 m, slip and cut drill line at 1280 m (MD), RIH to 2400 m (MD), wash to 2430 m (MD), ream from 2430 - 2515, back ream to 2496 m (MD), wash and ream to 2515 m (MD), hole

sloughed in @ around midnight.

Report From: Harry Gluth; 403-290-7518.
Report To: Don Stachiw, Bari Mc Dowell
Good morning Don and Bari,

We managed to get stuck in the hole this morning. The cuttings that were coming over

the shaker were hard, non swelling shales that were sheared. They commonly

displayed the slickenside surfaces.

Thanks;

Harry

Weather: -23 degrees C.

Location: 300/H-28-6610-13730/0 **Days from Spud:** K.B. Elevation:

62 470.16

**Ground Elevation:** 

461.80

Mar 14, 2013 Depth (MD): 2,652.80 Date: 800 hrs Depth (TVD): Time: 2,652.73 **Rotating Hours:** 0.00 hrs Depth (SSL): -2,182.57

> **Progress:** 0.00 Average R.O.P.: 0.00

**Daily Costs:** \$120,094 **Accumulated Cost:** \$18,901,950

Formation: **Imperial** 

Operational Status: 00:00-08:00Hrs; Mar 14, 2013

POOH from 1847-31 m (MD), flow check @ 1348, 546 and 299 m (MD), L/D dir tools &

monels, L/D True Track dir tools, M/U slick BHA, RIH.

**Operational Summary:** 00:00-24:00Hrs; Mar 13, 2013

Work and jar stuck pipe at 2515 m (MD) without circulation, regained ability to circulate at 2510 m (MD), circ and clean hole, hole sloughed in a second time at a bit depth of approximately 1510 m (MD), with loss of ability to circulate, jarred stuck pipe, to 2502 m (MD) with limited ability to circulate hole, continue to jar, establish circulation and

condition hole clean, back ream from 2500-2390 m (MD), POOH.

Report From: Harry Gluth; 403-290-7518. Report To: Don Stachiw, Bari Mc Dowell

Remarks: Good morning.

We are currently running back into the hole slick in order to clean it out. The last mud report taken last night shows the following parameters: Den: 1410 kg/m3, Yield Point:

8.5, Plastic viscosity: 31, pH 9.5, KCL weight percent: 7.1.

Weather: -38 degrees C.

Location: 300/H-28-6610-13730/0 Days from Spud: 63 K.B. Elevation: 470.16

Ground Elevation: 4/0.16 461.80

Date: Mar 15, 2013 Depth (MD): 2,652.80
Time: 800 hrs Depth (TVD): 2,652.73
Rotating Hours: 0.00 hrs Depth (SSL): -2,182.57

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: Accumulated Cost:

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 15, 2013

Ream and clean from 2418-2436 m (MD), POOH.

Operational Summary: 00:00-24:00Hrs; Mar 14, 2013

POOH from 1847-31 m (MD), flow check @ 1348, 546 and 299 m (MD), L/D dir tools & monels, L/D True Track dir tools, M/U slick BHA, RIH, slip and cut drill line, fill pipe and wash into the hole from 2400-2480 m (MD), circulate and condition hole and mud, working pipe between 2470 and 2480 m (MD), bringing up density to 1500 kg/m3. POOH to 2400 m (MD, pulled tight @ 2458, 2449 and 2425 m (MD), ream and clean

from 2400-2428 m (MD), ream bridge at 2425 m (MD) multiple times.

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Good morning,

The crews brought the mud weight up to 1500 kg/m3 and only managed to get back

down as far as 2436 m (MD) on the last wiper up to 2400 m (MD).

Temperature at 7:30 AM: -37 degrees C.

Location: 300/H-28-6610-13730/0 Days from Spud: K.B. Elevation:

ud: 64 on: 470.16

Ground Elevation: 461.80

 Date:
 Mar 16, 2013
 Depth (MD):
 2,652.80

 Time:
 800 hrs
 Depth (TVD):
 2,652.73

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -2,182.57

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$169,684 Accumulated Cost: \$19,198,428

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 16, 2013

RIH, ream and clean from 2334-2477.5 m (MD), with tight spots @ 2338, 2347, 2356, 2432, m (MD) ( within the various Tuttle Sandstones) and between 2450-2457 m (MD) ( in a highly sheared zone) . Pump high viscosity sweep down hole, wiper trip to 2400 m (MD), RIH to 2435 m (MD), hit bridge at 2435 m (MD), ream and clean from

2435-2470 m (MD), wiper.

**Operational Summary:** 00:00-24:00Hrs; Mar 15, 2013

Ream and clean from 2418-2436 m (MD), POOH. with flow checks @ 1352 and 876 m (MD), repair SCR, POOH, with flow checks @ 529, 277 and 0 m (MD), M/U bit sub, P/U five collars, RIH to 681 m (MD), fill pipe, flow check and blow out circulating

equipment.

Report From: Harry Gluth; 403-290-7518.

Report To: Don Stachiw, Bari Mc Dowell

Remarks: Operations over the next 24 hours: clean out faulted zone, run a stabilization plug.

Weather: - 32 degrees C, partially cloudy.

Location: 300/H-28-6610-13730/0 Days from Spud: 65 K.B. Elevation: 470.16

Ground Elevation: 4/0.16 461.80

Date: Mar 17, 2013 Depth (MD): 2,652.80
Time: 800 hrs Depth (TVD): 2,652.73
Rotating Hours: 0.00 hrs Depth (SSL): -2,182.57

Depth (SSL): -2,182.57
Progress: 0.00
Average R.O.P.: 0.00

Daily Costs: \$99,794 Accumulated Cost: \$19,298,223

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 17, 2013

Ream and clean from 2514-2519 m (MD), pump sweep.

Operational Summary: 00:00-24:00Hrs; Mar 16, 2013

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

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Next 24 hours: contnue to clean sheared hole and run a stailization plug.

Weather: -29 degrees C, Clear

Location: 300/H-28-6610-13730/0 Days from Spud: 66

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Mar 18, 2013
 Depth (MD):
 2,652.80

 Time:
 800 hrs
 Depth (TVD):
 2,652.73

Rotating Hours: 0.00 hrs Depth (SSL): -2,182.57 Progress: 0.00

Average R.O.P.: 0.00

Daily Costs: \$120,375 Accumulated Cost: \$19,418,598

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 18, 2013

Continue to POOH, M/U bit, & P/U 15 four inch drill pipe, RIH, to 1506 m (MD), fill pipe

and flow check @1305 m (MD), slip and cut drill line, RIH.

**Operational Summary:** 00:00-24:00Hrs; Mar 17, 2013

Ream and clean from 2514-2525 m (MD), pump sweeps, work pipe and condition hole, attempt to pull from 2525 - 2503 m (MD) without pumping, wash to 2525, pump sweep,

attempt to POOH to 2403 m (MD) without pumping, POOH to 2359 m (MD).

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Next 24 hours: RIH and set cement plug from 2330-2525 m (MD).

Weather: -34 degrees C, clear to slightly overcast.

Location: 300/H-28-6610-13730/0

Days from Spud: 67 K.B. Elevation: 470.16

Ground Elevation: 461.80

Date: Mar 19, 2013 Depth (MD): 2,652.80
Time: 800 hrs Depth (TVD): 2,652.73
Rotating Hours: 0.00 hrs Depth (SSL): -2,182.57

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$173,450 Accumulated Cost: \$19,596,428

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 19, 2013

POOH, M/U bit 26, RIH / 7 inch drill collars, RIH.

Operational Summary: 00:00-24:00Hrs; Mar 18, 2013

Continue to POOH, M/U bit, & P/U 15 four inch drill pipe, RIH, to 1506 m (MD), fill pipe and flow check @1305 m (MD), slip and cut drill line, RIH, wash in from 2430-2525 m (MD), wiper to 2400 m (MD), wash back to 2525 m (MD), condition mud & pump high

vis sweep, pump 15 m3 cement plug, POOH to 2060 m (MD).

**Report From:** Harry Gluth; 403-290-7518. **Report To:** Don Stachiw, Bari Mc Dowell

Remarks: Operation over the next 24 hours: RIH slick, drill out cement plug, wash and ream to

2652.8 m (MD), possibly run a second cement plug.

Weather: -33 degrees C.

Location: 300/H-28-6610-13730/0 Days from Spud: 68

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Mar 20, 2013
 Depth (MD):
 2,652.80

 Time:
 800 hrs
 Depth (TVD):
 2,652.73

Rotating Hours: 0.00 hrs Depth (SSL): -2,182.57
Progress: 0.00

Average R.O.P.: 0.00

Daily Costs: \$178,637 Accumulated Cost: \$19,775,065

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 20, 2013

Drill out cement plug from 2522-2525 m (MD), ream and clean from 2525-2542 m

(MD).

**Operational Summary:** 00:00-24:00Hrs; Mar 19, 2013

POOH, M/U bit 26, RIH / 7 inch drill collars, RIH with flow checks, tag cement @ 2430

m (MD), drill out cement plug from 2430-2522 m (MD).

**Report From:** Harry Gluth; 403-290-7518. Don Stachiw, Bari Mc Dowell

Remarks: Next 24 hours: condition hole, ream and clean to bottom, possibly run a cement plug.

Weather: -34 degrees C

Location: 300/H-28-6610-13730/0 Days from Spud: 69

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Mar 21, 2013
 Depth (MD):
 2,652.80

 Time:
 800 hrs
 Depth (TVD):
 2,652.73

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -2,182.57

Progress: 0.00
Average R.O.P.: 0.00

Daily Costs: \$104,765 Accumulated Cost: \$19,879,830

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 21, 2013

POOH from 2484 / flow checks @ 1325, 543, 197 m (MD), build stinger.

**Operational Summary:** 00:00-24:00Hrs; Mar 20, 2013

Drill out cement plug from 2522-2525 m (MD), ream and clean from 2525-2570 m (MD). pump sweep, circulate and condition hole, wiper trip to 2410 m (MD). wash back into hole pumping high vis sweeps @ 2440 m (MD), ream and clean from 2453-2652 m

(MD), circulate hole clean, POOH.

Report From: Harry Gluth; 403-290-7518.

Report To: Don Stachiw, Bari Mc Dowell

Remarks: Next 24 hours: RIH and set two stabilization plugs.

Weather: -24 degrees C

Location: 300/H-28-6610-13730/0 Days from Spud: 70 K.B. Elevation: 470.16

Ground Elevation: 470.16

Date: Mar 22, 2013 Depth (MD): 2,652.80
Time: 800 hrs Depth (TVD): 2,652.73
Rotating Hours: 0.00 hrs Depth (SSL): -2,182.57

Progress: 0.00 Average R.O.P.: 0.00

Average n.o.F.. 0.00

Daily Costs: \$106,283 Accumulated Cost: \$19,990,643

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Mar 22, 2013

Continue to RIH with reamer assembly. Break circulation @ 2406m. Wash and ream

f/2406-2432m. Work hard ledge at 2429-2432m.

**Operational Summary:** 00:00-24:00Hrs; Mar 21, 2013

Trip out of hole from 2484-2370m. Pump pill and blow out circulating equipment. POOH. Make up cement stinger consisting of: 156mm bit, bit sub, 5 stands 4" DP, X/O and float sub, and trip in hole to 1315m. Slip & cut 24m drill line. POOH. L/D Stinger BHA. Make up Reamer BHA c/w 222mm bit, near bit reamer & 2 string roller reamers

and RIH.

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

Remarks: Coarse fraction coming over shakers consists of shale only. Shales are well

compacted, and dry inside.

Reamer assembly encountered a bridge at the same depth our last logging run

bridged. (2432m).

NEXT 24HRS: Continue to ream and condition hole to bottom.

-22deg. East wind @ 16kph. Wind chill = -32deg. No new snow.

Location: 300/H-28-6610-13730/0 Days from Spud: 71
K.B. Elevation: 470.16

Ground Elevation: 461.80

Date: Mar 23, 2013 Depth (MD): 2,677.00
Time: 800 hrs Depth (TVD): 2,676.93
Rotating Hours: 7.00 hrs Depth (SSL): -2,206.77

Progress: 24.20 Average R.O.P.: 3.46

Daily Costs: \$105,656 Accumulated Cost: \$20,096,300

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 23, 2013

Drill 222mm hole f/2655-2677m.

**Operational Summary:** 00:00-24:00Hrs; Mar 22, 2013

Continue to RIH with reamer assembly. Break circulation @ 2406m. Wash and ream f/2406-2432m. Work hard ledge at 2429-2432m. Ream and clean to bottom (4m fill).

Drill 222mm hole f/2652-2655m.

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

Remarks:

NEXT 24HRS: Drill 222mm hole with stiff reamer assembly. POOH for PDC bit.

-15deg. East wind @ 15kph. Wind chill = -23deg. No new snow.

## **Lithology Summary**

Kelly Bushing Elevation: 470.16 Ground Elevation: 461.80

\*\* All Depths measured from Kelly Bushing Elevation \*\*

2,652.00 to 2,665.00 (13.00)

**IMPERIAL**:

SHALE: very dark gray to brownish gray, subfissile, non calcareous, soft, fragile, delaminates in water, minor scattered pyrite, carbonaceous in part, occasional silty

stringer, common slickenside

Location: 300/H-28-6610-13730/0 Days from Spud: 72 K.B. Elevation: 470.16

Ground Elevation: 470.16

Date: Mar 24, 2013 Depth (MD): 2,727.00
Time: 800 hrs Depth (TVD): 2,726.93
Rotating Hours: 17.00 hrs Depth (SSL): -2,256.77

Progress: 50.00 Average R.O.P.: 2.94

Daily Costs: \$122,660 Accumulated Cost: \$20,218,961

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 24, 2013

Drill 222mm hole f/2721-2727m. Circulate bottoms up. Spot slug on bottom. Trip out of

hole. Pump sweep @ ~2500m.

**Operational Summary:** 00:00-24:00Hrs; Mar 23, 2013

Drill 222mm hole f/2655-2721m.

Report From: Trevor Wall; 403-290-7518

Report To: Don Stachiw

**Remarks:** See Geologic striplog for lithology and gas data.

NEXT 24HRS: Trip out of hole. M/U PDC Bit, motor and MWD BHA and trip in hole.

-17deg. Calm. 6-8cm new snow.

Location: 300/H-28-6610-13730/0 Days from Spud:

Days from Spud: 73 K.B. Elevation: 470.16 Ground Elevation: 461.80

Date: Mar 25, 2013 Depth (MD): 2,727.00
Time: 800 hrs Depth (TVD): 2,726.93
Rotating Hours: 0.00 hrs Depth (SSL): -2,256.77

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$164,787 Accumulated Cost: \$20,386,622

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 25, 2013

Rig repairs (Doghouse power, 0.5hrs). RIH f/1005-1520m. Slip & cut 19m drill line. RIH

f/1520-2300m. Wash in hole f/2300-2440m.

**Operational Summary:** 00:00-24:00Hrs; Mar 24, 2013

Drill 222mm hole f/2721-2727m. Circulate bottoms up. Spot slug on bottom. Trip out of hole - pump out to 2308m. Pump sweep @ ~2500m. Pump pill, blow out surface equipment. POOH. L/D reamers. P/U and M/U directional BHA and Bit #29. RIH - pulse

test tool.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell

Remarks:

NEXT 24HRS: Clean to bottom. Drill ahead with Bit #29.

-15deg. Slight ESE breeze. No new snow.

Location: 300/H-28-6610-13730/0 Days from Spud: 74 K.B. Elevation: 470.16

Ground Elevation: 470.16

Date: Mar 26, 2013 Depth (MD): 2,794.00
Time: 800 hrs Depth (TVD): 2,793.93
Rotating Hours: 11.25 hrs Depth (SSL): -2,323.77

Progress: 67.00 Average R.O.P.: 5.96

Daily Costs: \$80,248 Accumulated Cost: \$20,328,080

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 26, 2013

Change head in Pump #1. Drill and survey 222mm hole f/2755-2792m.

**Operational Summary:** 00:00-24:00Hrs; Mar 25, 2013

Rig repairs (Doghouse power, 0.5hrs). RIH f/1005-1520m. Slip & cut 19m drill line. RIH f/1520-2300m. Wash in hole f/2300-2440m. Wash and ream to bottom (log Gamma

f/2600-TD @ 30m/hr; 5m fill). Drill and survey 222mm f/2727-2755m.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell

Remarks: See log for lithology and gas detail.

-16deg, Slight ESE breeze. No new snow.

Location: 300/H-28-6610-13730/0 Days from Spud:

Days from Spud: 75 K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Mar 27, 2013
 Depth (MD):
 2,865.00

 Time:
 800 hrs
 Depth (TVD):
 2,864.90

Rotating Hours: 18.50 hrs Depth (SSL): -2,394.74
Progress: 71.00

Average R.O.P.: 3.84

Daily Costs: \$161,237 Accumulated Cost: \$20,500,760

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 27, 2013

Drill 222mm hole f/2851-2865m

**Operational Summary:** 00:00-24:00Hrs; Mar 26, 2013

Change head in Pump #1. Drill and survey 222mm hole f/2755-2851m.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell

Remarks: See log for lithology and gas detail.

-20deg, calm. Small trace new snow.

Location: 300/H-28-6610-13730/0 Days from Spud: 76

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Mar 28, 2013
 Depth (MD):
 2,967.00

 Time:
 800 hrs
 Depth (TVD):
 2,966.85

Rotating Hours: 21.25 hrs Depth (SSL): -2,496.69 Progress: 102.00

Average R.O.P.: 4.80

Daily Costs: \$122,041 Accumulated Cost: \$20,677,611

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 28, 2013

Drill and survey 222mm hole f/2931-2967m.

**Operational Summary:** 00:00-24:00Hrs; Mar 27, 2013

Drill and survey 222mm hole f/2851-2931m.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell

Remarks: Gas Analyzer is malfunctioning - no working spare. Will attempt to fix shorted out units

that were due to be shipped today. I have 2 complete systems coming up with the Schlumberger sidewall coring truck, and I managed to arrange to get a spare analyzer

on the plane that leaves Edmonton this morning.

See log for lithology and gas detail.

-21deg. Light easterly breeze. No new snow.

Location: 300/H-28-6610-13730/0 Days from Spud: 77 K.B. Elevation: 470.16

Ground Elevation: 470.16

 Date:
 Mar 29, 2013
 Depth (MD):
 3,024.00

 Time:
 800 hrs
 Depth (TVD):
 3,023.82

Rotating Hours: 14.25 hrs Depth (SSL): -2,553.66
Progress: 57.00

Average R.O.P.: 4.00

Daily Costs: \$137,081 Accumulated Cost: \$20,804,942

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 29, 2013

Drill 222mm hole f/3023-3024m. Circulate bottoms up and condition hole. Wiper trip 26

stands to 2300m.

**Operational Summary:** 00:00-24:00Hrs; Mar 28, 2013

Drill and survey 222mm hole f/2931-3023m.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell

Remarks:

NEXT 24Hrs:

Condition hole for logging and sidewall coring.

-22deg. Wind ESE @ ~10-15kph. No new snow.

Location: 300/H-28-6610-13730/0 Days from Spud: 78 K.B. Elevation: 470.16

Ground Elevation: 470.16 461.80

 Date:
 Mar 30, 2013
 Depth (MD):
 3,024.00

 Time:
 800 hrs
 Depth (TVD):
 3,023.82

Rotating Hours: 0.00 hrs Depth (SSL): -2,553.66 Progress: 0.00

Average R.O.P.: 0.00

Daily Costs: \$129,817 Accumulated Cost: \$20,934,760

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 30, 2013

Continue to POOH. L/D Monels, directional tools and mud motor. Break Bit. Change

drilling line - prepare and slip new spool of drill line onto drum.

**Operational Summary:** 00:00-24:00Hrs; Mar 29, 2013

Drill 222mm hole f/3023-3024m. Circulate bottoms up and condition hole. Wiper trip 26

stands to 2300m. Circulate bottoms up. Wash in the hole f/2300m. Ream f/2917-2928m. Pump out of the hole f/2928-2418m. Pump pill. Blow out surface

equipment. POOH.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell

Remarks:

NEXT 24Hrs:

Run in hole with reamer assembly.

Condition hole for logging and sidewall coring.

-10deg. Slight SSE breeze. No new snow.

Location: 300/H-28-6610-13730/0

Days from Spud: 79 K.B. Elevation: 470.16 Ground Elevation: 461.80

Date: Mar 31, 2013 Depth (MD): 3,024.00

Time: 800 hrs Depth (TVD): 3,023.82
Rotating Hours: 0.00 hrs Depth (SSL): -2,553.66
Progress: 0.00

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$161,783 Accumulated Cost: \$21,096,543

Formation: Imperial

**Operational Status:** 00:00-08:00Hrs; Mar 31, 2013

Ream and cleam hole f/3023-3024m (.25hrs). Circulate and condition hole. Trip out of hole - pump out f/3024-2397m. Pump pill. Blow out surface equipment. L/D 2 singles.

POOH.

**Operational Summary:** 00:00-24:00Hrs; Mar 30, 2013

Continue to POOH. L/D Monels, directional tools and mud motor. Break Bit. Change drilling line - prepare and slip new spool of drill line onto drum. P/U and M/U reamer

assembly. RIH to 2397m. Ream and cleam hole f/2397-3023m.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell

Remarks:

NEXT 24Hrs:

Finish out of hole. Rig in and log and sidewall core with Schlumberger.

-10deg (rig); -5deg (camp). Slight NW breeze. No new snow.

Location: 300/H-28-6610-13730/0 Days from Spud:

Days from Spud: 80 K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Apr 1, 2013
 Depth (MD):
 3,024.00

 Time:
 800 hrs
 Depth (TVD):
 3,023.82

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -2,553.66

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$96,604 Accumulated Cost: \$21,195,047

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Apr 1, 2013

P/U and M/U reamer assembly and RIH to 1544m. Slip and cut 16m drill line. RIH to

2403m. Break circulation. Ream and wash in.

**Operational Summary:** 00:00-24:00Hrs; Mar 31, 2013

Ream and cleam hole f/3023-3024m (.25hrs). Circulate and condition hole. Trip out of hole - pump out f/3024-2397m. Pump pill. Blow out surface equipment. L/D 2 singles. POOH. Rig in Schlumberger. Bridge at 2401m - work bridge. Tools passed through after ~3/4hr then bridged @ 2436m. Attempt to work through that bridge - no progress. Log out with GPIT and PPC-2 to obtain cement volume since logging run 3. Rig out

loggers.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell

Remarks:

NEXT 24Hrs:

Ream and clean hole to ~2600m. POOH to log. Rig in Schlumberger. Run logging

tools.

-12deg (camp). Light east wind. No new snow.

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Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud:

K.B. Elevation: 470.16 Ground Elevation: 461.80

 Date:
 Apr 2, 2013
 Depth (MD):
 3,024.00

 Time:
 800 hrs
 Depth (TVD):
 3,023.82

Rotating Hours: 0.00 hrs Depth (SSL): -2,553.66 Progress: 0.00

Average R.O.P.: 0.00

Daily Costs: \$101,329 Accumulated Cost: \$21,296,377

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Apr 2, 2013

Continue to POOH. Rig up Schlumberger. Run AIT-HGNS-DSI-GPIT-PPC-2 into hole. Bridge @ 2436m. Hoist tool string and L/D same. Rig out Schlumberger. RIH with

reamer assembly.

**Operational Summary:** 00:00-24:00Hrs; Apr 1, 2013

P/U and M/U reamer assembly and RIH to 1544m. Slip and cut 16m drill line. RIH to 2403m. Break circulation. Ream and wash in f/2405-2662m. Taking weight 2434-2460 & 2560-2662m. Ream and pump sweeps to clean hole. Trip out of hole with pumps @

1.5m3/min f/2662-2374m. Circulate hole clean. POOH.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell

Remarks:

NEXT 24Hrs:

RIH with reamer assembly. Circulate and condition hole and mud for casing.

-23deg (camp). Wind ESE @ 10kph. Trace new snow.

Location: 300/H-28-6610-13730/0

Days from Spud: 82
K.B. Elevation: 470.16

Ground Elevation: 461.80

 Date:
 Apr 3, 2013
 Depth (MD):
 3,024.00

 Time:
 800 hrs
 Depth (TVD):
 3,023.82

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -2,553.66

Progress: 0.00 Average R.O.P.: 0.00

Daily Costs: \$159,772 Accumulated Cost: \$21,465,630

Formation: Imperial

Operational Status: 00:00-08:00Hrs; Apr 3, 2013

Pump out stands f/2680-2393m. Circulate bottoms up. Pump pill. Blow out top drive.

POOH. L/D D/P.

Operational Summary: 00:00-24:00Hrs; Apr 2, 2013

Continue to POOH. Rig up Schlumberger. Run AIT-HGNS-DSI-GPIT-PPC-2 into hole. Bridge @ 2436m. Hoist tool string and L/D same. Rig out Schlumberger. RIH with reamer assembly. Ream and clean f/2406-3024m. Work through bridge @ 2440m.

Wash through 12.5m fill on bottom. Circulate hole clean. Pump out stands

f/3024-2680m.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell

Remarks:

NEXT 24Hrs:

Pull out of hole laying down D/P to 1000m. RIH to 1630m. POOH and L/D D/P, HWDP and BHA. Pull wear bushing. Rig to and run 177.8mm casing with bit and sacrificial

mud motor.

-25deg (camp). Wind E @ ~10kph. No new snow.

## **Geological Morning Report**

Well Name: West Chance H-28 Spud Date: Jan 11, 2013 @ 18:30

Location: 300/H-28-6610-13730/0 Days from Spud: 83 K.B. Elevation: 470.16

Ground Elevation: 470.16 461.80

 Date:
 Apr 4, 2013
 Depth (MD):
 3,024.00

 Time:
 800 hrs
 Depth (TVD):
 3,023.82

 Rotating Hours:
 0.00 hrs
 Depth (SSL):
 -2,553.66

Progress: 0.00 Average R.O.P.: 0.00

Apr 4, 2013

Daily Costs: Accumulated Cost:

Formation: Imperial

Storage Units: Metric

Operational Status: 00:00-08:00Hrs; Apr 4, 2013

Run 177.8mm casing.

**Operational Summary:** 00:00-24:00Hrs; Apr 3, 2013

Pump out stands f/2680-2393m. Circulate bottoms up. Pump pill. Blow out top drive. POOH. L/D D/P. Pull out of hole laying down D/P to 1002m. RIH to 1635m. Slip and cut 16m drill line. POOH and L/D D/P, HWDP and BHA. Pull wear bushing. Rig to and run

177.8mm casing with bit and sacrificial mud motor. Run 177.8mm casing.

Report From: Trevor Wall; 403-290-7518

Report To: Bari McDowell Remarks:

NEXT 24Hrs:

Continue to run 177.8mm casing. Rig to, and cement casing.

-28deg (rig). -23deg (camp). Calm. No new snow.