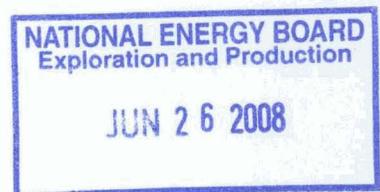


**END OF WELL REPORT
HUSKY ET AL
KEELE RIVER L-52**

Latitude: 64° 01' 30.159" N (NAD 27)
Longitude: 124° 56' 07.308" W (NAD 27)

**NWT- NEW FIELD WILDCAT
TIGHT HOLE**



FILE COPY

N E B COPY

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MAIL ROOM
SALLE DE COURIER

June 23, 2008

2008 JUN 24 P 1:53

Chief conservation Officer
National Energy Board
411 Seven Avenue SW
Calgary, Alberta T2P 0X8

NEB/ONE

RE: Final Well Report
Husky et al Keele River L-52

Dear Sir

Attached please find Final Well Report for well Husky et al Keele River L-52 prepared as per requirement of Canada Oil and Gas Drilling Regulations.

Following documents are submitted:

Husky et al Keele River L-52 Final Well Report includes well drilling operations summary, directional survey, Time analysis, final well status, daily drilling report, daily drilling fluid report and relevant information.

Well Geology report (attachment E-8 to the Final Well Report)
Well Strip log
Mud logging Log
Digital copy of the Final Well Report and Strip log.

For any clarification or information please contact myself or Goly Zilabi.

Yours truly,
HUSKY OIL OPERATIONS LTD



Kim Richardson
Drilling Superintendent NWT

HUSKY ET AL KEELE RIVER L-52 FINAL WELL REPORT

NWT- NEW FIELD WILDCAT TIGHT HOLE

JUNE 2008

ABSTRACT

This final well report covers drilling operations, Geology, evaluation and abandonment of the Husky et al Keele River L-52 Exploration well drilled in NWT during winter of 2008.

Prepared by Senior Drilling Engineer

G. Zilabi, P.Eng. *Zilabi*

AMENDMENTS AND REVISIONS

Revision	Description	Date	Originator	Reviewed by
Initial Draft	Issue for Approval			

DISTRIBUTION LIST

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1	Calgary office central file	Hard copy
1	International Frontier	Hard copy
1	Pacific Roderia	Hard copy
2	The NEB	2 hard copy+ pdf

LIST OF REFERENCES

This document is prepared with reference to the following documents:

- Canada Oil and Gas Drilling Regulations (SOR/79-82)
- Keele River L-52 Geology report
- Keele River L-52 well file (Drilling reports)

TABLE OF CONTENTS

ABSTRACT..... 1

AMENDMENTS AND REVISIONS..... 2

LIST OF REFERENCES..... 2

A WELL INFORMATION..... 5

A.1 WELL SUMMARY 5

A.1.1 WELL SUMMARY DATA..... 6

A.2 PROJECT SET UP & GENERAL OVERVIEW 7

A.2.1 SUPERVISION AND PERSONNEL..... 7

A.2.2 SERVICE PROVIDERS..... 8

A.2.3 PROJECT MOBILIZATION..... 9

A.2.4 ACCESS ROAD..... 9

A.2.5 WELL SITE 9

A.2.6 DRILLING RIG..... 9

A.2.7 CAMP 9

A.2.8 WATER SUPPLY 10

A.2.9 WASTE DISPOSAL..... 10

A.2.10 SAFETY AND INSPECTION 10

B WELL RESULTS..... 11

B.1 WELL RESULT 11

B.1.1 WELL OBJECTIVE..... 11

B.1.2 GEOLOGY..... 11

B.1.3 EVALUATION..... 11

B.1.4 RESERVOIR FLUIDS, PRESSURE & TEMPERATURE..... 12

B.2 FINAL WELL STATUS 13

B.3 TIME VS DEPTH CURVE..... 14

C WELL CONSTRUCTION..... 15

C.1 WELL SITE 15

C.2 CONDUCTOR PIPE 508 MM..... 15

C.2.1 INSTALLATION..... 15

C.3 SURFACE HOLE 311 MM SECTION (30-252M)..... 16

C.3.1 SECTION OVERVIEW..... 16

C.3.2 SURFACE SECTION SUMMARY..... 16

C.3.3 LESSON LEARNED..... 17

C.3.4 DRILLING FLUID..... 17

C.3.5 DIRECTIOANL SURVEY..... 17

C.3.6 DRILLING PARAMETERS & BIT & BHA (311MM SURFACE HOLE SECTION)..... 18

C.3.7 SURFACE CASING SPECIFICATION..... 19

C.3.8 SURFACE CASING CEMENT DESIGN..... 19

C.3.9 CASING BOWL & BOP..... 20

C.4 MAIN HOLE 215.9 MM SECTION (252-895M) 21

C.4.1 SECTION OVERVIEW..... 21

C.4.2 MAIN HOLE SECTION SUMMARY..... 21

C.4.3 LESSON LEARNED..... 22

C.4.4 DRILLING FLUID..... 22

C.4.5 DRILLING PARAMETERS & BIT & BHA (216MM HOLE SECTION)..... 23

C.4.6 DIRECTIOANL DRILLING & SURVEY..... 25

C.4.7 MAIN HOLE CASING SPECIFICATION..... 26

C.4.8 MAIN HOLE CASING CEMENT..... 26

C.4.9 ABANDONMENT..... 27

D TIME AND NPT ANALYSIS..... 28

D.1	TIME BREAKDOWN.....	29
D.2	PRODUCTIVE & NON-PRODUCTIVE TIME.....	30
E	ATTACHMENTS	31
E.1	FORMATION INTEGRITY TEST	32
E.2	DIRECTIONAL SURVEY.....	33
E.3	WELL CONTROL SET UP	35
E.4	RIG SPECIFICATIONS & LAYOUT	38
E.5	ACCESS ROAD MAP	41
E.6	DRILLING WASTE DISPOSAL REPORT.....	43
E.7	NEB INSPECTION REPORTS.....	47
E.8	GEOLOGICAL REPORT	53
E.9	WELL KEELE RIVER L-52 PLANNED STICK DIAGRAM.....	93
E.10	DAILY DRILLING REPORTS.....	94
E.11	DAILY DRILLING FLUID REPORTS	95
E.12	WELL ABANDONMENT SIGN	96

A WELL INFORMATION

A.1 WELL SUMMARY

Husky et al Keele River L-52 was drilled by Husky Oil Operations Limited in Sahtu region of NWT on Crown Land, within Exploration Licence 423 (EL423). Access to the project area crossed EL423, EL443 and a combination of Crown land and First Nations land with surface and/or subsurface rights during the winter of 2008. Working interest of the project partners is as follows:

Husky Oil Operations Limited: 75%

International Frontier Resources Corp.: 15%

Pacific Roder Energy Inc: 10%

The program area was located approximately 120km SSW of the Hamlet of Tulita within the foothills and eastern slopes of the Mackenzie Mountains. The locations have been selected based upon a review of the Summit-Redstone 06-1 Seismic Program that was acquired during the summer of 2006.

Well Keele River L-52 is located at the surface coordinates of:

Latitude: 64°01'30.159"N , Longitude: 124°56' 07.308"W (NAD 27)

Overland travel to the program area utilized the Government of the Northwest Territories (GNWT) winter road to an access point approximately 14km north of the Blackwater River. From there access to the locations was via 9 km winter ice road to the eastern bank of the Mackenzie River, an ice bridge across the Mackenzie River downstream from the confluence of the Dahadinni River, 41 km winter access road from the western bank of the Mackenzie River to the Redstone River, and 5 km From the Redstone River to L-52 drilling location

Well site & ice pad was built as per program. 339.72mm conductor pipe was installed and cemented at 26m below the ground level (30m KB) in East Fork formation. Rat hole rig was used for setting the conductor pipe and cemented by Schlumberger cementing.

Rig Akita 14 was mobilized to the well site and spud on 16:00 March 6th, 2008

311mm surface hole was drilled to 252m across East Fork formation with Gel/Chem. mud. 244.5mm casing was run to section TD and cemented with return to surface.

215.9 mm main hole was drilled to 531m in Little Bear formation. Cut core from 531 to 540.5m. Drilled to well TD at 895m in Slater River formation. Well was drilled vertically. Inclination at 884m was 1.5 degree.

Water based polymer mud was used to drill main hole. Mud weight was 1100 kg/m³ at well TD.

At well TD, ran wireline Logs. Due to lack of hydrocarbon evidence testing program was cancelled.

177.8mm casing was ran to well TD and cemented with return to surface. A permanent bridge plug was set at 50m and cement plug was set across top 50m of 177.8mm casing. Casing Bowl was removed and well was abandoned as per Canada Oil and Gas Drilling Regulations. Well operations completed at 24:00 March 21st, 2008 and rig was released. Rig was completely out of area on March 22nd 2008,

Drilling operations was performed as per Canada Oil and Gas Drilling Regulations (SOR/79-82) with very good safety performance. Drilling and environmental inspections was performed by the NEB and rated satisfactory.

A.1.1 WELL SUMMARY DATA

Well name	Husky et al Keele River L-52
Province /Territories	North West Territories
Operator	Husky Oil Operations Limited
AFE number	US-28423
Well Classification	New Field Wildcat
Block /Prospect	EL423 /North Haywood
WID	2052
UWI	300L526410124450
Proposed Final Depth (Meas./TVD)	830m
Well Profile	Vertical
Surface Coordinates NAD 27, UTM zone 10	Lat. 64°01'30.159"N Long. 124°56' 07.308"W Seismic Line: H06-268, Trace: 259
Ground Elevation	309.7 m
KB Elevation	313 m
Drilling Unit	Rig Akita 14
Spud date	March 6, 2008
Rig Release date	March 21, 2008
Well Total Depth	895m MD (895m TVD)
Planned Days /Actual Days	15 days /15 days
AFE amount /Actual	\$ 9,000,000 +/- 10,000,000
Final Well Status	Abandoned

A.2 PROJECT SET UP & GENERAL OVERVIEW

A.2.1 SUPERVISION AND PERSONNEL

- Calgary office multi disciplinary project team including a drilling superintendent, a drilling engineer, a geologist, a geophysicist, Testing superintendent, construction supervisor, procurement advisor and administrator was dedicated to the project from the conceptual design to the end of project execution.
- Onsite supervision was under the direction of a Senior Drilling Supervisor reporting to Husky Oil Operations Limited head office in Calgary. There was also a Night Drilling Supervisor to allow 24 hour direct supervision of all drilling operations...
- Husky construction & logistics project manager managed logistics, access road maintenance, base camps operations, transportations and related services.
- There was a full time safety advisor and medic on the site.
- A geologist was onsite from spud to rig release with support from a full operational mud logging team...
- Full time drilling fluids engineer was on the project site, providing service to well Dahadinni B-20 and well Keele River L-52 drilling fluid.
- Drilling waste supervision was implemented by full time technician on the project site. Providing service to well Dahadinni B-20 and well Keele River L-52 drilling fluid.
- Full time mud logging team was on the site
- H2S service including full time technician was on the site from spud to the end of the well.
- Drilling contractor, Akita/Sahtu, provided a full time rig Manager onsite Rig crew of minimum 6 will be kept on the site.
- Specialized services personnel mobilized as required.

A.2.2 SERVICE PROVIDERS

SERVICE	Supplier	TELEPHONE
Drilling Contractor Rig Akita- 14	Akita/Sahtu Drilling Ltd - Nisku	(780) 955-8746 (403) 292-7966
Onsite Medical	EMS-Sahtu	(403) 291-3184
Camps	Caribou Camps	(403) 266-5647
Catering	Bushmaster	(867) 588-3503
Environmental / Drilling waste management	Northern EnviroSearch Ltd.	(403) 543-5353
Lease/Field Survey	Challenger Geomatics	(403) 660-6661
Lease and Road Construction	Hodgson Contracting	(867) 587-491
Rig Moving	Transco Energy Services / Red Dog Mountain Contracting	
Helicopter Support	Sahtu Helicopters Canadian Helicopters	(867) 588-4988 (867) 777-2424
Fixed Wing Aviation	North-Wright Airways Ltd.	(867) 587-2333
Communications (Rig Phones, Satellite)	Aurora Communications	(867) 587-2634
Fuel	NTCL – Hay River	(867) 874-5125
Rathole Rig	Cancor	(250)-787-5555
Casing Bowl & Wellhead	Stream-Flo Industries	(780) 468-8520
Drilling Fluids	Newpark Drilling Fluids	(403) 266-7383
Cementing	Schlumberger Norman Wells	(867) 587-2645
Mud Logging (Mud Gas Logging)	Continental Laboratories	(403) 250-5125
Openhole Logging	Schlumberger	(403) 509-4000
Casing	TSS	1-800-340-1176
Float Equipment /Stage tool	Import Tools	(403) 261-3032
Power Tongs	FI Canada	1-888-300-1996
Pressure Testing	Big Eagle	(250) 787-7149
Drill Bits	Smith Bits /Hughes	(403) 264-6077
Coring	Baker Hughes Inteq	(403)537-3461
Centrifuges	APEX	(403) 257-5152
Jars/Shock Subs	Baker Hughes Inteq	
Vertical drilling	Baker Inteq	(403)537-3461
Fishing Services	Weatherford	(403) 269-7788
Production Testing Surface Equipment	Weatherford-	(403) 264-9700
Drill Stem Testing Down hole	Baker Oil Tools	(403) 537-3400

A.2.3 PROJECT MOBILIZATION

Project mobilization started in October 2007 by barging access road construction machinery, and access road construction commenced Mid November 2007. Project plan was to have the access ice road west of Mackenzie river and well site pad ready mid January 2008.

Reference to previous years record of Government of North West Territories winter access road from South, it was planned to move the rig during second week of February 2008 and spud the well L-52 on February 15th 2008 to maximize the time window available to drill, evaluate well L-52 and demobilize the rig and project.

Due to warm winter, main project access road construction was delayed, As the well B-20 was deeper well, priority was give to well B-20 access road and well site construction, In addition to this, difficulty was experienced in L-52 access road route construction. As the result Keele River L-52 access road and well site construction was completed end of the February, Rig Akita 14 was moved to the project and Spud the rig on March 6th 2008.

A.2.4 ACCESS ROAD

- Refer to [attachment E 5 Access road map](#)
- Machinery for access road construction was barged to the Birch Island staging area at West side of Mackenzie River before the ice season. Helicopter service out of Norman Wells was used to access the project.
- Overland travel to the program area utilized the Government of the Northwest Territories (GNWT) winter road to an access point approximately 14km north of the Blackwater River. From there access to the locations was via 9 km winter ice road to the eastern bank of the Mackenzie River, an ice bridge across the Mackenzie River downstream from the confluence of the Dahadinni River, 41 km winter access road from the western bank of the Mackenzie River to the Redstone River, and 5 km From the Redstone River to L-52 drilling location.
- Air transport to the program area was by plane from Norman Wells to airstrip on the Cloverleaf Lake. At the start of the project helicopter service out of Norman Wells was used to access the project.

A.2.5 WELL SITE

- 135 m x 135 m. ice pad (0.2 m thickness) was made at the well site to support the drilling rig.
- A 2.4 m diameter corrugated steel cellar was dug into the ice pad and frozen permafrost below the natural ground level and grouted in place.

A.2.6 DRILLING RIG

Rig Akita 14 was mobilized to drill this well. Rig performed as per well program requirement. Rig 14 was equipped with second mud pump for this project.

Refer to [attachment E 4 rig specifications & layout](#)

A.2.7 CAMP

The L-52 drilling location was equipped with a 30-person camp sited at project staging area.

5 well site trailers were stationed at the well site to accommodate personnel on-site during the drilling operations.

A.2.8 WATER SUPPLY

Water required for ice bridge construction, road and lease construction, camps and drilling operations. Mackenzie River, the Redstone River and Cloverleaf Lake have been approved for implementation of this program. Water intakes were as per the current Department of Fisheries and Oceans (DFO) Protocol.

Drinking water was transported to the project area. Domestic water supply (camp wash water, showers, and toilets) was treated prior to use.

A.2.9 WASTE DISPOSAL

- Freshwater based gel-slurry and polymer water systems and rock cuttings was mixed, buried and covered in L-52 drilling sump. Environmental liners were utilized to ensure containment of the drilling wastes. Total of 517 m³ of water based, drilling waste deposited in the sump for mix, bury and cover disposal
- Cement return from surface casing buried in cement sump besides drilling fluid sump,
- Black water and grey water: on-site (camp) portable waste treatment units discharging treated effluent to the land surface.
- Northern EnviroSearch Ltd (NESL) provided drilling waste management service supervision for this project. Full time technician was at the full site during. Refer to [attachment E 6 drilling waste disposal report](#) for detailed drilling waste disposal report.

A.2.10 SAFETY AND INSPECTION

- Husky North Haywood project had site specific emergency response plan.
- NEB performed drilling and environmental inspection of the drilling facility on well L-52 on March 12, 2008. Inspection was rated satisfactory. Husky implemented corrections recommended by the NEB. Refer to [attachment E 7 neb inspection reports](#)
- Incidents were reported as per regulatory requirement.

B WELL RESULTS

B.1 WELL RESULT

B.1.1 WELL OBJECTIVE

Well Keele River L-52 was planned to drill entire Little Bear formation into the Slate River formation. Well objective was to evaluate Little Bear formation.

Well L-52 location drilled into East Fork, Little Bear and Slater River as per prognosis.

Core was cut in the Little Bear sandstone from 51m to 540.5m. Drilled to 895m well TD and performed reservoir evaluation logging and wireline pressure and sampling which proved water bearing layers Due to lack of hydrocarbon, Testing program was cancelled.

Refer to [E_9 well Keele River L-52 planned stick diagram](#) for well objectives and well design.

B.1.2 GEOLOGY

Refer to Geology report [E_8 geological report](#)

B.1.3 EVALUATION

Refer to [E_8 geological report](#) for detailed Geological report.

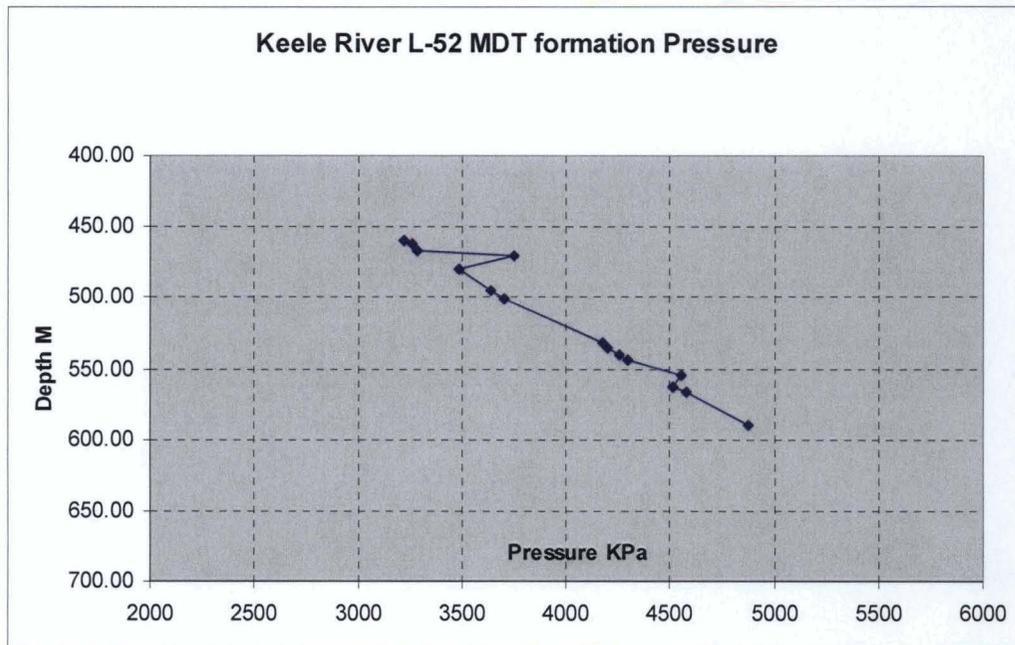
Cutting Sample	Husky NEB GSC	➤ 1 set: 5 m intervals from 30m to section TD, washed & viald
	NEB	➤ 1 set: 5 m intervals from 30m to TD, unwashed & bagged (500g)
Mud Log		Full Spectrum Gas Chromatograph From 30m to 895m well TD
Log	Main hole 252-895m	<ul style="list-style-type: none"> ➤ Log 1 : FMI DSI PPC HNGS ➤ AIT TLD HGNS CMR+ ECS TLD2 GR ➤ TLD HGNS CMR+ PPC (fluid typing) ➤ MDT/ GR ➤ Water sample was recovered by MDT ➤ No evidence of hydrocarbon.
Core		Core was cut from 531 to 540.5m (100% recovery)
DST		Testing service was planned and mobilized to the wellsite. Due to no evidence of hydrocarbon, no test was performed.

B.1.4 RESERVOIR FLUIDS, PRESSURE & TEMPERATURE

Reservoir evaluation was performed by wireline logging. Wireline Modular Dynamic Tester (Schlumberger MDT), pressure and sample proved presence of water in the main hole. There was no evidence of hydrocarbon, thus no DST was performed.

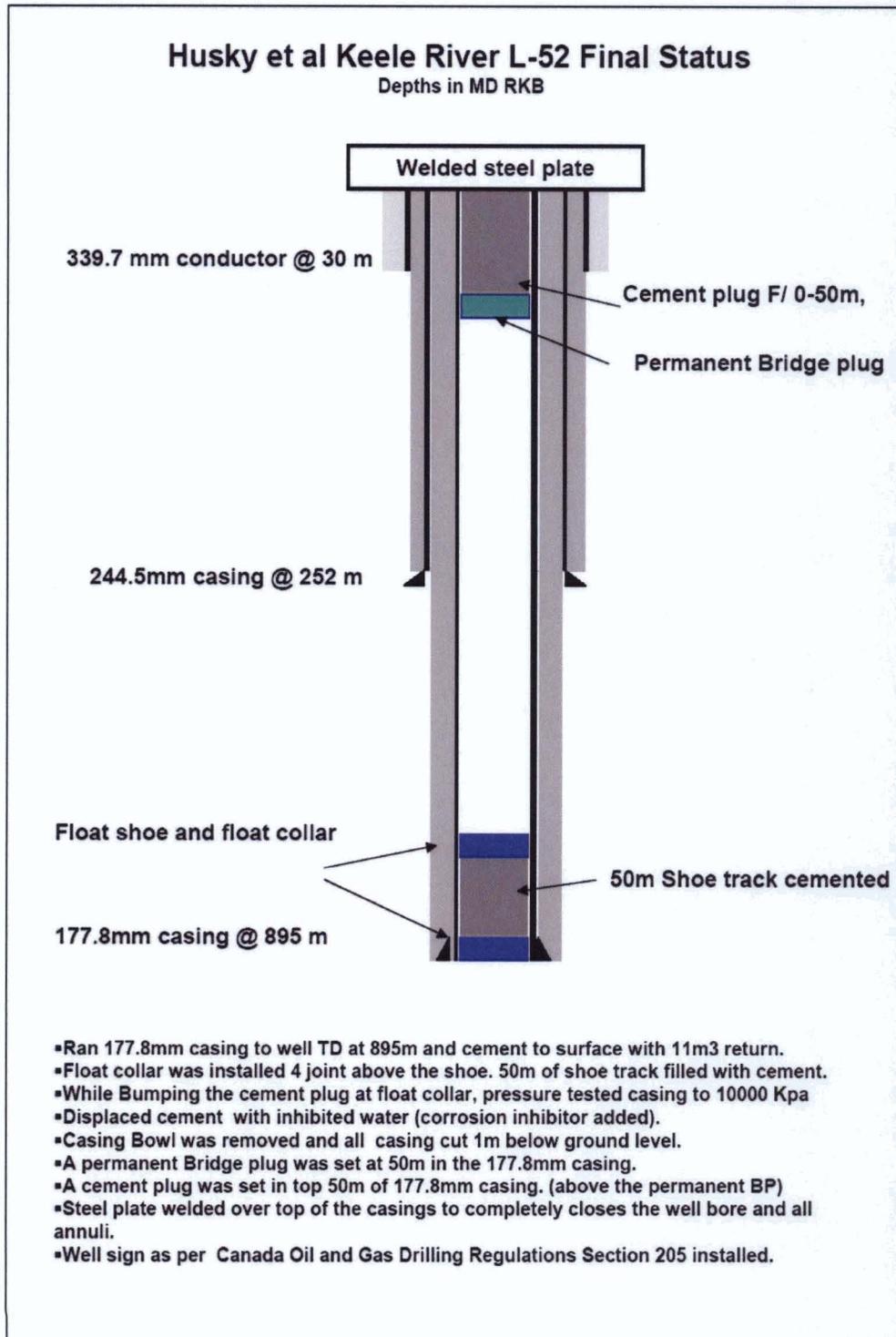
Following graph shows the pressure gradient reading across Little Bear formation. Maximum pressure reading was 4874 KPa at 589m.

Maximum bottom hole temperature recorded while logging was 32 degree C at 885m



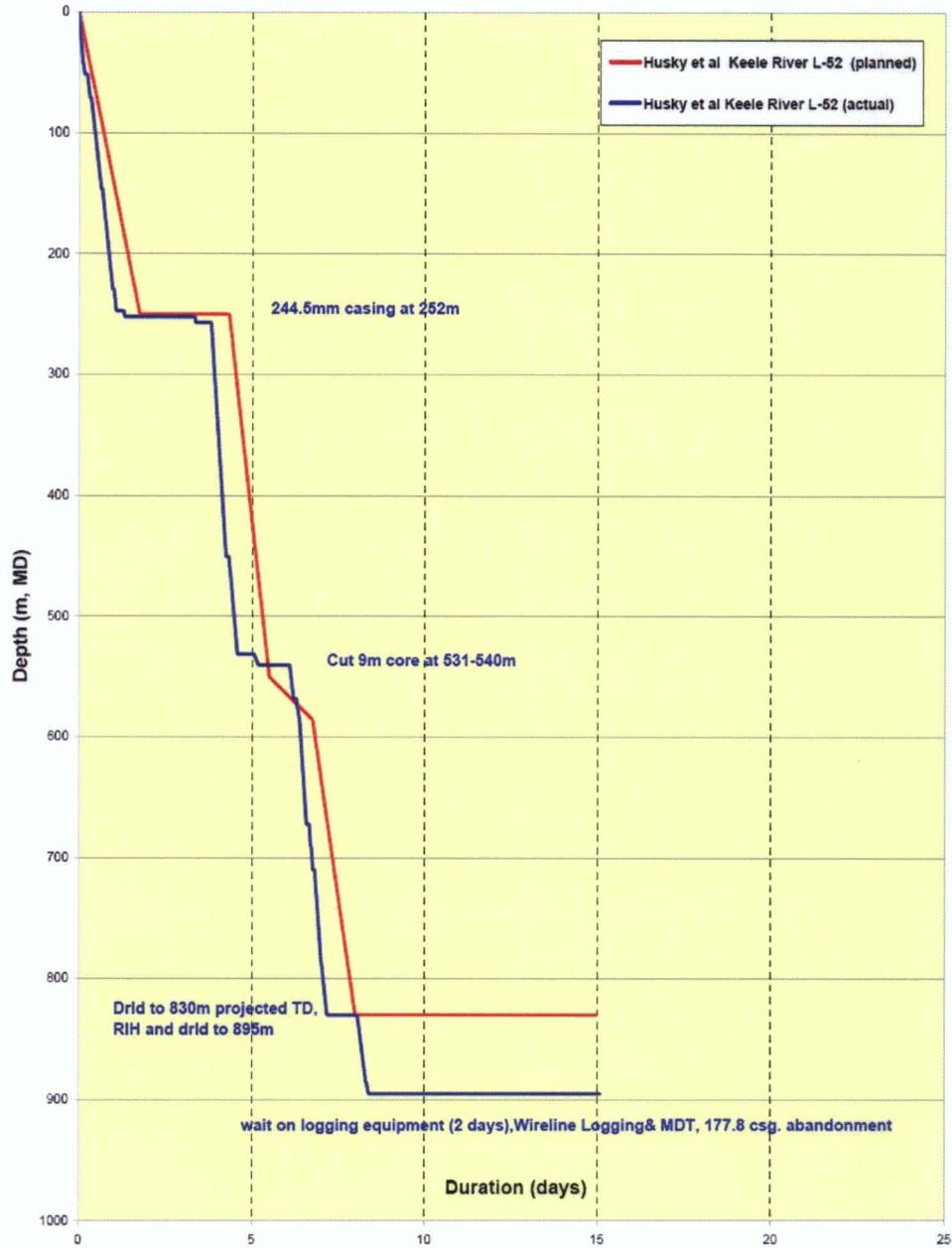
B.2 FINAL WELL STATUS

For detail abandonment operations refer to [section C.4.10 abandonment](#)



B.3 TIME VS DEPTH CURVE

Husky et al Keele River L-52 Progress Chart



c WELL CONSTRUCTION

C.1 WELL SITE

- Size of the well site is 135 m x 135 m. ice pad (0.2 m thickness) was made at the well site to support the drilling rig
- A 2.4 m (8 ft) diameter corrugated steel cellar dug into the ice pad and frozen permafrost, one meter below the natural ground level and grouted in place.

C.2 CONDUCTOR PIPE 508 MM

C.2.1 INSTALLATION

- Conductor was set by Rat Hole Rig provided by Cancor Rathole.
- Permafrost thickness was 5m at this location.
- 411 mm vertical hole drilled to 26m below the ground level. Ran 339.72mm 90.76 kg/m , K-55 casing was installed.
- Pressure cemented with 8 m³ (10.24 tons) of Arctic Set cement with returns to surface.
- Top of the 339.72mm conductor pipe was cut above the level of the ice pad and 346mm, 21,000 Kpa Diverter was installed. Refer to [attachment E 3 well control set up](#)

C.3 SURFACE HOLE 311 MM SECTION (30-252m)

C.3.1 SECTION OVERVIEW

311mm Surface hole was drilled vertically with pendulum assembly to 252m in East Fork formation using a Gel/Chem drilling fluid. 244.5 mm surface casing set at 252m and cemented with cement return to surface .

No Logs was run in this section.

No hydrocarbon bearing zone encountered in this section. Diverter system was installed for drilling this section.

C.3.2 SURFACE SECTION SUMMARY

	Remarks
Well Control	346 mm, 21,000 Kpa Diverter was installed. Refer to attachment E 3 well control set up
H2S Service	As the well was exploration H2S service including H2S detector and air package and full time technician was operational from spud to the end of the well.
Drilling	Drilled 311mm section with Pendulum assembly to 252m
Drilling fluid	Water based Gel/Chem mud. MW increased while drilling to 1120 kg/m3 at section TD. Refer to C.3.4 surface hole drilling fluid and attachment E 11 daily drilling fluid reports
Bit& BHA	Refer to C.3.6 Drilling parameters& Bit &BHA (311mm surface hole section) for detailed bit & BHA and drilling parameters.
Formation	Permafrost and East Fork at surface Refer to E 8 geological report
Mud Logging	Mud logging service was utilized from surface to well TD.
Hydrocarbon show	No Hydrocarbon show
Hole stability	No Hole stability issue
Hole deviation	Well drilled with vertically and surveyed by Totco. Inclination was 0.5 deg at 237m. for detailed directional drilling and well surveys refer to attachment E 2 directional survey
Lost of Circulation	No Losses
Casing	244.5mm casing ran to 252m and cemented with return to surface. 100% excess cement was used on the gauge hole size and 8m3 cement returned to surface. Refer to C.3.7 and C.3.8 for casing and cement detail

C.3.3 LESSON LEARNED

Operations	Remarks
Vertical Drilling	Seismic showed no dipping formation at this site, to control deviation while drilling 311mm surface hole with 177.8mm & 152 mm DC, 308mm stabilizer was installed two joints from bit. Inclination at 237 m was 0.5 degree. and E 2 directional survey

C.3.4 DRILLING FLUID

Refer to [attachment E 11 daily drilling fluid reports](#) for detailed mud properties and chemical consumption..

Spud the 311 mm hole section with water treated with Soda Ash. Increased viscosity with Gel. MW increased during drilling to 1100 Kg/m³ at section TD. Pumped sweeps for hole cleaning and controlled MW and solids by running centrifuge.

The following are the mud parameters:

Mud Parameter	
Mud Type	Gel /Chem
Density (kg/m ³)	1020 – 1120
Viscosity (sec/liter)	40-75
PV (mPa-sec)	7
YP (Pa)	3.5
Gel Strengths 10sec / 10min	3/5
Fluid loss (cc)	12
pH	8

C.3.5 DIRECTIOANL SURVEY

- Drilled from 30m to 252m with pendulum BHA and survey the well with Totco
- Entire section was drilled with inclination less than 1.25 deg. Inclination at 237m was 0.5 degree. Refer to [E 2 directional survey](#) for well survey.

C.3.6 DRILLING PARAMETERS & BIT & BHA (311MM SURFACE HOLE SECTION)

Bit No/ Run	Size (mm)	Make/ Type	IADC Code	TFA (in ²) Nozzle (mm)	MD In/ Out (m)	Total Drilled (m)	Rot Hours	ROP m/hr	WOB KdaN	RPM	Pump output (m ³)	Pump press (KPa)	Mud Wt Kg/m ³	Bit condition	Remark
1	311	Hughes GTCS1	117	/19.1/19.1/19.1	30/252	222	22.25	10	2-6	120- 180	2	4000	1120	4-3-FC-A-E-1-BT-TD	Drilled out Conductor and entire surface hole to 252m
BHA: 311mm Bit+Bit sub (w/float)+2 x 177.8mm DC+308mm stabilizer+ 1x177mm DC +X-over+5x 152mm DC+152mm Jar+3x 152mm DC+x-over+4x 121mm DC+ 101.6mm DP, Drilled with low WOB and high RPM to keep the well vertical. Deviation at 237m 0.5 deg.															

C.3.7 SURFACE CASING SPECIFICATION

Interval (m)		Size (mm)	Weight (kg/m)	Tubular Grade	Thread Type	Pipe ID (mm)	Drift (mm)	Coupling OD (mm)
From	To							
0	252	244.5	69.94 kg/m	L-80	LT&C	220.50	216.53	269.87
Casing Performance Properties								
Burst KPa	Collapse KPa	Pipe body yield strength daN	Joint strength daN	Make up Torque N-m				
				Min	Optimum	Max		
47,350	32,750	483,000	397000	9200 N-m 6800 ft-lb	12250 N-m 9000 ft-lb	15300 N-m 11300 ft-lb		

C.3.7.1 SURFACE CASING STRING DETAILS

Qt.	Length	Description	Centralization
1	0.54	244.5 mm Float shoe PDC drillable	
1	13.8	244.5mm Csg Joint	C-1 One Bow spring at 3m above the shoe (on stop collar)
1	0.49	244.5 mm Float shoe PDC drillable	
17	237m	244.5mm Csg Joint	C-1 One Bow spring per joint on the 2 joints above Float collar C-4 One every 4jts (50m) up to conductor (on the coupling)

C.3.8 SURFACE CASING CEMENT DESIGN

Type	Composition	Density/ thickening time	Volume	Remarks
Pre flush	Water	1000+ Kg/m ³	3 m ³	
Cement	Surface cement RFC 2% S001 Ca Cl ₂ 0.2% D 46 De-foamer	1740 Kg/m ³ Thickening time: 3 hrs	16.4 m ³ 17.8tonnes 100% over gauge size	
NOTE: Mixed and pumped cement. Displaced with water at 1 m ³ . Full return during pumping cement and displacement. 8 m ³ cement return to surface. Bumped the cement plug with 8000 KPa.				

C.3.9 CASING BOWL & BOP

After cementing 244.5mm casing. Waited on cement for 6 hours.

Nipple down diverter, cut the conductor and installed the Casing Bowl

Installed Streamflo casing bowl 11" (279.4mm) 3000 psi (21 MPa) x 9 5/8" (244.5mm) slip-on bowl c/w two 2-1/16" 3000 psi (21 MPa) SSO and two lockdowns (PSL-2).

Tested casing Bowl weld to casing at 7000 KPa.

Installed 229mm, 21 MPa (9"-3000) BOP stack (Annular preventer, blind ram, 101.6 mm pipe ram, Kill lines, Choke line, choke manifold,).

Pressure test BOP, and related lines and equipment with 1500 KPa low and 21000 KPa high. Tested annular preventer to 1500 KPa low and 10000 KPa high.

Tested Blind ram against surface casing to 1500 KPa low and 14000 KPa high. This was casing pressure test as well.

Pressure test stabbing valves, top drive valve as per program.

Big Eagle pressure tester provided the BOP pressure test service,.

C.4 MAIN HOLE 215.9 MM SECTION (252-895m)

C.4.1 SECTION OVERVIEW

Ran in hole with 216mm insert bit& slick BHA. Drilled out 244.5mm casing shoe track and drilled new formation from 252m to 257m.

Circulate hole, pulled to casing shoe and performed formation integrity test to 14.6 KPa/m gradient. Hold 1200 KPa for 10 minutes. Refer to [attachment E 1 Formation integrity test](#)

Displaced hole with water/polymer mud, pulled out and ran 215.9mm insert bit& Baker Vertitrack. Drilled with 216mm section with Vertitrack to 531m coring point.

Core #1 was cut from 531 to 540m and recovered 8.8m core from Little Bear sandstone. Core#2 jammed after 0.5m due to incorrect alignment of inner plastic liner. Recovered 0.5m core.

Drilled with PDC bit& Baker Vertitrack. Drilled with 216mm section from 541.5 to 830m projected well TD in Slater River formation.

Decided to drill deeper in Slater River formation, drilled to 895m well TD.

Performed wireline logs and pressures&sample by Schlumberger MDT which proved water bearing.

Reached well TD with MW of 1095 kg/m³. It was increased to 1095 kg/m³ due to hole bridge while logging.

Due to no evidence of hydrocarbon presence decision was made to abandon the well, 177.8mm casing was ran to well TD and cemented to surface with good cement return. Installed a permanent bridge plug at 50m and set cement plug across top 50m of casing. Casing bowl was removed, conductor and casings were cut 1m below the ground level and well was abandoned.

C.4.2 MAIN HOLE SECTION SUMMARY

	Remarks
Well control	229mm, 21 MPa (9"-3000) BOP stack (Annular preventer, blind ram, 101.6 mm pipe ram,) Refer to attachment E 3 well control set up
H2S Service	As the well was exploration H2S service and air package and full time technician was operational from spud to the end of the well.
Drilling	<ul style="list-style-type: none"> ➤ Drilled 216mm section with Vertitrack from 257m to 830m ➤ Drilled with conventional assembly from 830m to 895 well TD
Drilling fluid	Water polymer. MW 1095 kg/m ³ at section TD. Refer to C.4.4 215.9mm section drilling fluid and attachment E 11 daily drilling fluid reports
Bit& BHA	Refer to C.4.5 Drilling parameters& Bit &BHA (216mm hole section) for detailed Bit& BHA report and drilling parameters.
Mud Logging	Mud logging service was utilized from surface to well TD.
Formations	Refer to E 8 geological report
Hydrocarbon show	No Hydrocarbon show .
Hole stability	<p>No hole stability problem while drilling. During logging , tagged bridge at 780m top of Slater River formation, performed wiper trip and increased MW to 1095 kg/m³</p> <p>While waiting for logging it was reported slight flow at 12 liters per hour . Tripped in and wash the bridge at 780m No influx was detected at</p>

	bottoms up
Hole deviation	No deviation problem. Vertitrack kept the deviation very low. . Refer to C.4.6 , and E 2 directional survey
Lost of Circulation	No Losses
Logging /coring /DST	<ul style="list-style-type: none"> ➤ Total of 9.3m core was cut. ➤ Performed wireline logs and pressures&sample by Schlumberger MDT which proved water bearing. ➤ Due to no evidence of hydrocarbon DST was cancelled.
Casing	177.8mm casing ran to 895m and cemented with 11m3 returns to surface.. Refer to C.4.8 and C.4.9 for casing & cementing.

C.4.3 LESSON LEARNED

Operations	Remarks
Coring operations	Core#2 jammed after 0.5m, It was resulted from incorrect handling of plastic inner barrel by core technician, and Overheated the plastic liner while cutting it resulted to shrinkage after cooling down.

C.4.4 DRILLING FLUID

Refer to Drilling Fluid reports [attachment E 11 daily drilling fluid reports](#) for detailed mud properties and chemical consumption..

Water /polymer mud was used to drill this section, Reached well TD with MW of 1095 kg/m³ It was increased to 1095 kg/m³ due to hole bridge while logging.

Caliper log showed wash out across East Fork formation. Cement volume log showed 25% excess volume over the gauge size hole.

The following are the mud parameters range.

Mud Parameter	
Mud Type	Water/Polymer
Density (kg/m ³)	1020-1095
Viscosity (sec/liter)	45-70
PV (mPa-sec)	10-21
YP (Pa)	10-18
Gel Strengths 10sec / 10min	7/15
Fluid loss (cc)	6-8

C.4.5 DRILLING PARAMETERS & BIT & BHA (216MM HOLE SECTION)

Bit No/ Run	Size (mm)	Make/ Type	IADC Code	TFA (in ²) Nozzle (mm)	MD In/ Out (m)	Total Drilled (m)	Rot Hours	ROP m/hr	WOB KdaN	RPM	Pump output (m ³)	Pump press (KPa)	Mud Wt Kg/m ³	Bit condition	Remark
1	216	Hughes GX-18	447	15.9/15.9/15.9	252/257	5	0.5	10	8	80	1.5	8000	1020	No grading. Very good	Drilled out surface casing and 5m of new formation
BHA: 216mm Bit+Bit sub +8 x 152mm DC + x-over+4 x 121mm DC. Drilled out 244.5mm casing shoe track. Drilled F/252 to 257m. Performed FIT, displaced with water/polymer mud															
1RR#1	216	Hughes GX-18	447	15.9/15.9/15.9	257/531	274	16	17.1	8-11	Slide 120	1.5	8500	1030	-2-NO-A-E-I-NO-CP	Drilled East Fork (sandstone&Shale) and Little Bear Sandstone from 450m
BHA:216mm PDC bit+ 171mm VertiTrak+Filter sub+Float sub+216mm Reamer+1x 152mm DC+PBL+7 x 159mm DC+152mm Jar+ 2X152mm DC + x-over+4 x 121mm DC+ + 101.6mm DP Drilled with Vertitrack to coring point at 531m. Very low deviation, less than 0.3 entire intervals . 0.05 degree at 527m															
2	171	Hughes C-22 core head			531/540	9	3.25	2.8	4	50	0.725	3000	1030		Recovered 8.8m core Plastic lined core barrel was used.
BHA: 171mm Core Head+ 9 m core barrel+152mm Jar+ X-over +10 x 152mm DC + x-over+4 x 121mm DC.															
2RR#1	171	Hughes C-22 core head			540/540.5	0.5									Core barrel jammed. Recovered 0.5m of core Failure was due to not correct installation of plastic inner barrel.
BHA: 171mm Core Head+ 9 m core barrel+152mm Jar+ X-over +10 x 152mm DC + x-over+4 x 121mm DC.															
3	216	M516 BHVPX	M223	5x16	540/830	290	20	14.5	4	Slide 120	1.5	9000	1050	2-2-NO-A-X-I-NO-TD	Drilled Little Bear sand and shale to 780m top of Slater River. Drilled to 830m projected TD,
BHA:216mm PDC bit+ 171mm VertiTrak+Filter sub+Float sub+216mm Reamer+1x 152mm DC+PBL+7 x 159mm DC+152mm Jar+ 2X152mm DC + x-over+4 x 121mm DC+ + 101.6mm DP Drilled with Vertitrack to 830m planned well TD.. 0.12 degree at 830m															

3RR#1	216	M516 BHVPX	M223	5x16	830/895	65	8.5	7.5	2	100	1.56	5000	1060		Geology decided to drill deeper, ran same bit with slick BHA and drilled Slater River shale to 895,
BHA:216mm PDC bit+ bit sub (Float) +4x 152mm DC+PBL+152mm Jar+ 2X152mm DC + x-over+4 x 121mm DC+ + 101.6mm DP															
1RR#2	216	Hughes GX-18	447	15.9/15.9/15.9							1.4	4500	1095		Condition trip between logs Reamed 770-830m Increased MW to 1095 d Kg/m ³ due to tight hole
216mm Insert bit+ Bit sub (Float) +4x 152mm DC+PBL+152mm Jar+ 2X152mm DC + x-over+4 x 121mm DC+ + 101.6mm DP															
1RR#3	216	Hughes GX-18	447	15.9/15.9/15.9							1.4	4500	1095		Clean out trip before casing Washed bridge at 645m and 9m fill at well TD
216mm Insert bit+ Bit sub (Float) +4x 152mm DC+PBL+152mm Jar+ 2X152mm DC + x-over+4 x 121mm DC+ + 101.6mm DP															

C.4.6 DIRECTIOANL DRILLING & SURVEY

Refer to [E 2 directional survey](#) for well survey.

- **Main hole was drilled vertically to 895m.**
 - Drilled with Vertitrack from 257 to 531 m . Inclinaton less than 1 degree
 - Cored from 531 to 540.5m
 - Drilled with Vertitrack from 540 to 830 m. Inclinaton less than 1 degree
 - Drilled with slick BHA from 830m to 895m well TD . Inclinaton 1.5 degree at 884m

C.4.7 MAIN HOLE CASING SPECIFICATION

Interval (m)		Size (mm)	Weight (kg/m)	Tubular Grade	Thread Type	Pipe ID (mm)	Drift (mm)	Coupling OD (mm)
From	To							
0	2420	177.8	38.69	L-80	LT&C	159.41	156.24	194.46
Casing Performance Properties								
Burst KPa	Collapse KPa	body yield strength daN	Joint strength daN	Make up Torque N-m				
				Min	Optimum	Max		
49,900	37,300	268,000	227,000	5300 N-m (3900 ft-lb)	7000 N-m (5200 ft-lb)	8800 N-m (6500 ft-lb)		

C.4.7.1 MAIN HOLE CASING STRING DETAILS

Qt.	Length	Description	Centralization
1	0.71m	177.8 mm Float shoe PDC drillable	
4	52m	177.85mm Csg Joint	C-1 One Bow spring at 3m above the shoe (on stop collar)
1	0.46m	177.8 mm Float shoe PDC drillable	C-1 One Bow spring per joint
62	842m	244.5mm Csg Joint	C-4 One every 4jts (50m) up to 50m from surface. (on the coupling)
Note: 4 joint shoe track was used to have 50m filled with cement at the bottom of casing as abandonment plug.			

C.4.8 MAIN HOLE CASING CEMENT

Type	Composition	Density/ thickening time	Volume	Remarks
Pre flush	Chemical wash	1000+ Kg/m ³	4 m ³	
Cement	Lead RFC lite 0.2% D13+ 0.2% D46	1530 Kg/m ³	24.2 m ³ 18.4 tonne	100% excess over Caliper volume on lead and tail
	Tail G	1900 Kg/m ³	4.6m ³ 8.4 tonnes	
➤ Mixed and pumped cement. Displaced with water treated with corrosion inhibitor Safe Cote (0.15%) at 1 m ³ /min with. Full return during pumping cement and displacement. 11 m ³ cement return to surface. Bumped the plug. Tested casing to 10000 KPa				

C.4.9 ABANDONMENT

After cementing 177.8mm casing. Pressure test the casing to 10000 KPa for 10 minutes.

Set 177.8mm casing drillable Bridge plug by Weatherford wireline at 50m.

Lift BOP stack, cut the casing, set BOP back, Ran in hole with 101mm DP to 50m and set cement plug from 50m to top of casing. Rigged down BOP and released the rig.

Mean while removed casing Bowl, cut all casings and conductor pipe, welded plate over casing stubs. Installed well sign.

Refer to [B.2 final well status](#) for well schematics after release and [E. 12 Well abandonment sign](#) for well sign.

D TIME AND NPT ANALYSIS

Following charts [D1](#) and [D2](#) and tables show detail time breakdown from spud to rig release. It is prepared by the category of operations and services.

Total of 368 hours (15.3 days) duration of the operations is as per plan time (15 days AFE). Projected TD was 830m. Actual TD was 895m

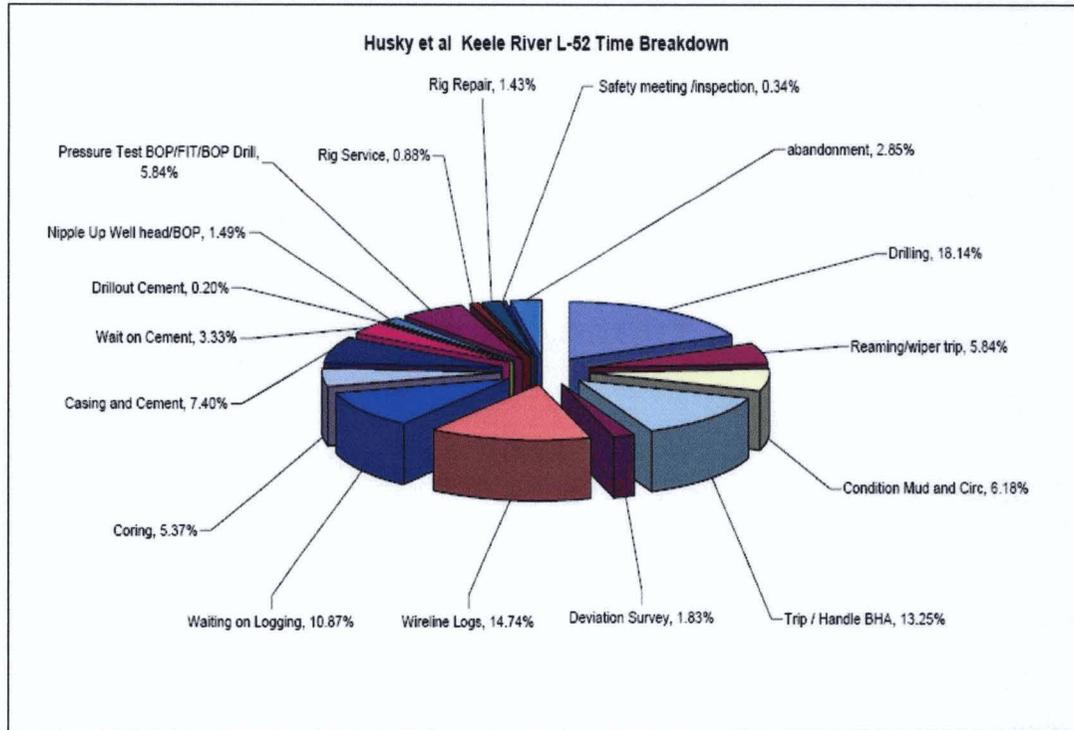
Total logging program was 54 hours, plus 40 hours waiting on logging unit

Timing of logging on well L-52 coincided with well Husky Dahadinni B-20 sidetrack operations, Priority was given to well B-20 and logging unit was moved to well B-20 to perform logging before the sidetrack operations. As the result operations of well L-52 was delayed for total of 40 hours.

Total evaluation time planned for this well was 120 hours to perform coring, logging and DST. Actual time spent for evaluation to core and log including NPT was 122 hrs.

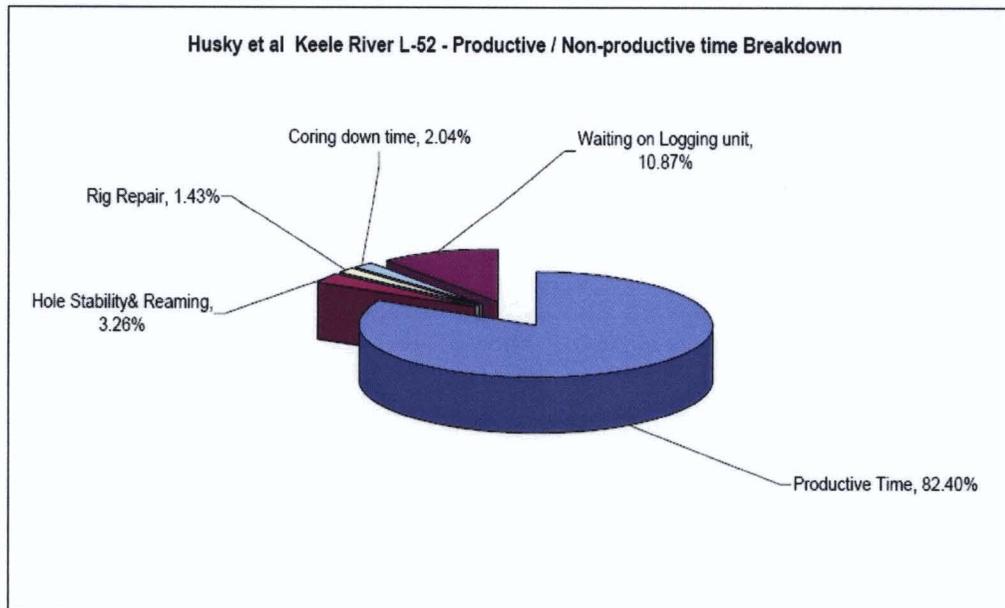
Due to no presence of hydrocarbon DST was not performed on this well

D.1 TIME BREAKDOWN



Description	311 mm Surface Hole 252m		215.9 mm Main Hole (252- 895m)		TOTAL WELL	
	Hours	%	Hours	%	Hours	%
Drilling	22.25	28.71%	44.5	15.32%	66.75	18.14%
Reaming/wiper trip	4.5	5.81%	17	5.85%	21.5	5.84%
Condition Mud and Circ	1.75	2.26%	21	7.23%	22.75	6.18%
Trip / Handle BHA	4	5.16%	44.75	15.40%	48.75	13.25%
Deviation Survey	2.5	3.23%	4.25	1.46%	6.75	1.83%
Wireline Logs			54.25	18.67%	54.25	14.74%
Waiting on Logging			40	13.77%	40	10.87%
Coring			19.75	6.80%	19.75	5.37%
Casing and Cement	9.5	12.26%	17.75	6.11%	27.25	7.40%
Wait on Cement	6.25	8.06%	6	2.07%	12.25	3.33%
Drillout Cement			0.75	0.26%	0.75	0.20%
Nipple Up Well head/BOP	5.5	7.10%		0.00%	5.5	1.49%
Pressure Test BOP/FIT/BOP Drill	19.75	25.48%	1.75	0.60%	21.5	5.84%
Rig Service	1	1.29%	2.25	0.77%	3.25	0.88%
Rig Repair		0.00%	5.25	1.81%	5.25	1.43%
Safety meeting /inspection	0.5	0.65%	0.75	0.26%	1.25	0.34%
abandonment			10.5	3.61%	10.5	2.85%
TOTAL	77.5 hrs		290.5 hrs		368 hrs	100.00%
	3.23 days		12.10 days		15.33 days	

D.2 PRODUCTIVE & NON-PRODUCTIVE TIME



Description	311 mm Surface Hole 252m		216 mm Main Hole (252- 895m)		TOTAL WELL	
	Hours	%	Hours	%	Hours	%
Productive Time	77.5	100.00%	225.75	77.71%	303.25	82.40%
Hole Stability & Reaming			12	4.13%	12	3.26%
Rig Repair			5.25	1.81%	5.25	1.43%
Coring down time			7.5	2.58%	7.5	2.04%
Waiting on Logging unit			40	13.77%	40	10.87%
	77.5 hrs 3.23 days	100.00%	290.5 hrs 12.1 days	100.00%	368 hrs 15.33 days	100.00%

E ATTACHMENTS

E.2 DIRECTIONAL SURVEY

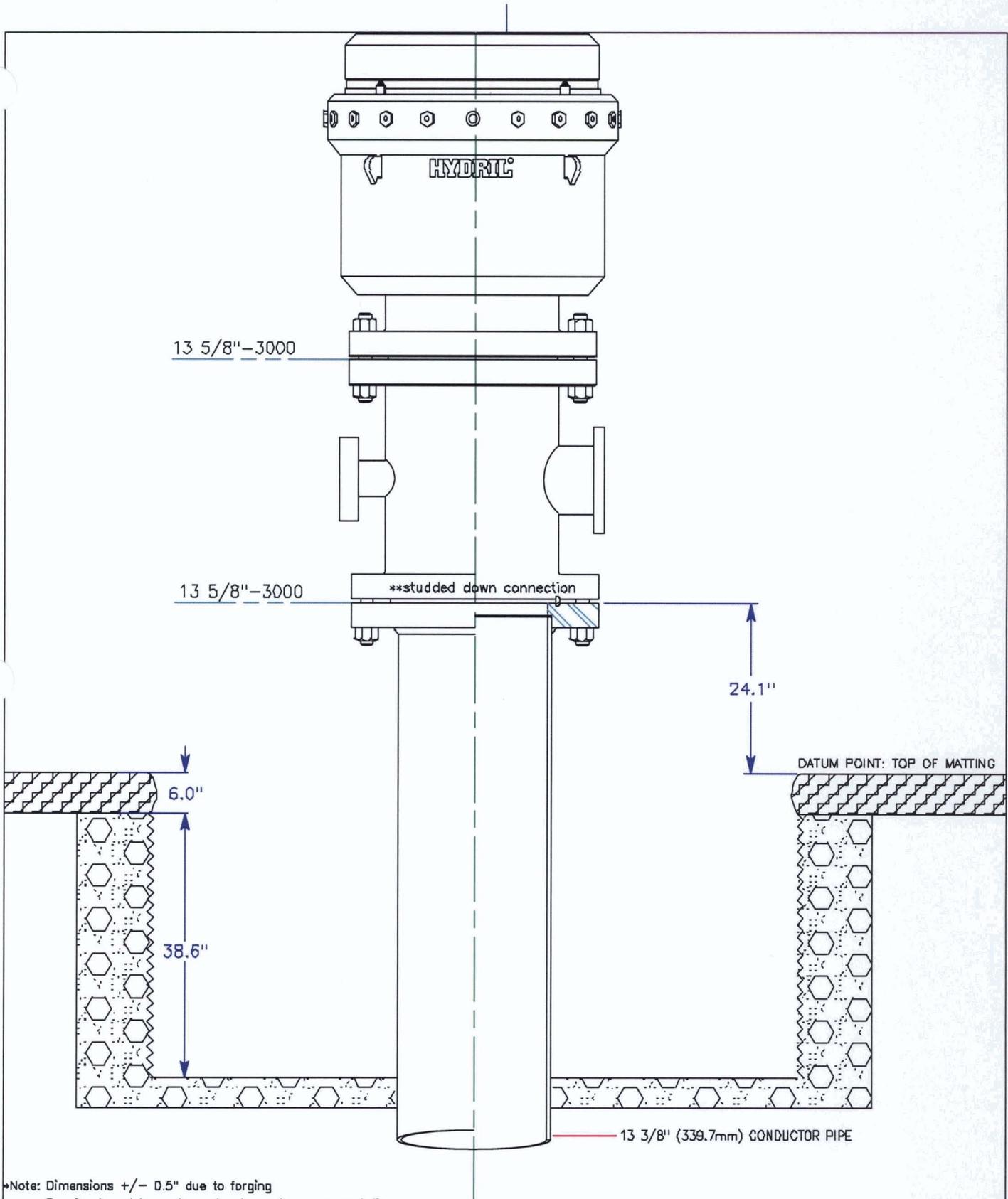
Following table shows the survey across the L-52 well bore. Surface hole Interval (0-250m) was surveyed by Totco deviation survey. Main hole interval (252-895m) was survey by dip meter directional log. Azimuth of following survey point in main hole from dip meter directional log was assumed for surface section.

Survey calculation shows the departure of 2 meters from vertical in South direction

Measured Depth	Inclination	Azimuth
0	0	0
42	0.75	206.9
61	0.75	206.9
94	0.25	206.9
123	1	206.9
180	1.25	206.9
208	0.75	206.9
237	0.5	206.9
264.11	0.7	206.9
274.11	0.1	329.5
284.11	1	56.9
294.11	0.2	65.3
304.11	0.4	140.3
314.11	0.5	321.9
324.11	0.7	140.1
334.11	0.6	317.9
344.11	0.4	295
354.11	0.4	62.9
364.11	0.4	190.9
374.11	0.3	32.3
384.11	0.9	124.8
394.11	0.3	298.3
404.11	0.7	55.2
414.11	0.6	106.7
424.11	0.6	313.6
434.11	0.3	34.3
444.11	0.3	159.4
454.11	0.1	15.8
464.11	0.1	239.2
474.11	0.1	261.8
484.11	0.1	127.7
494.11	0.1	240.9
504.11	0.6	295.9
514.11	0.4	123.5
524.11	0.4	25.7
534.11	0.2	69.9
544.11	0	52.9
554.11	0.1	237.4
564.11	0.2	3.3
574.11	0	262.5
584.11	0.3	70.1
594.11	0.6	252.6
604.11	0.5	50.7
614.11	0.5	236.6

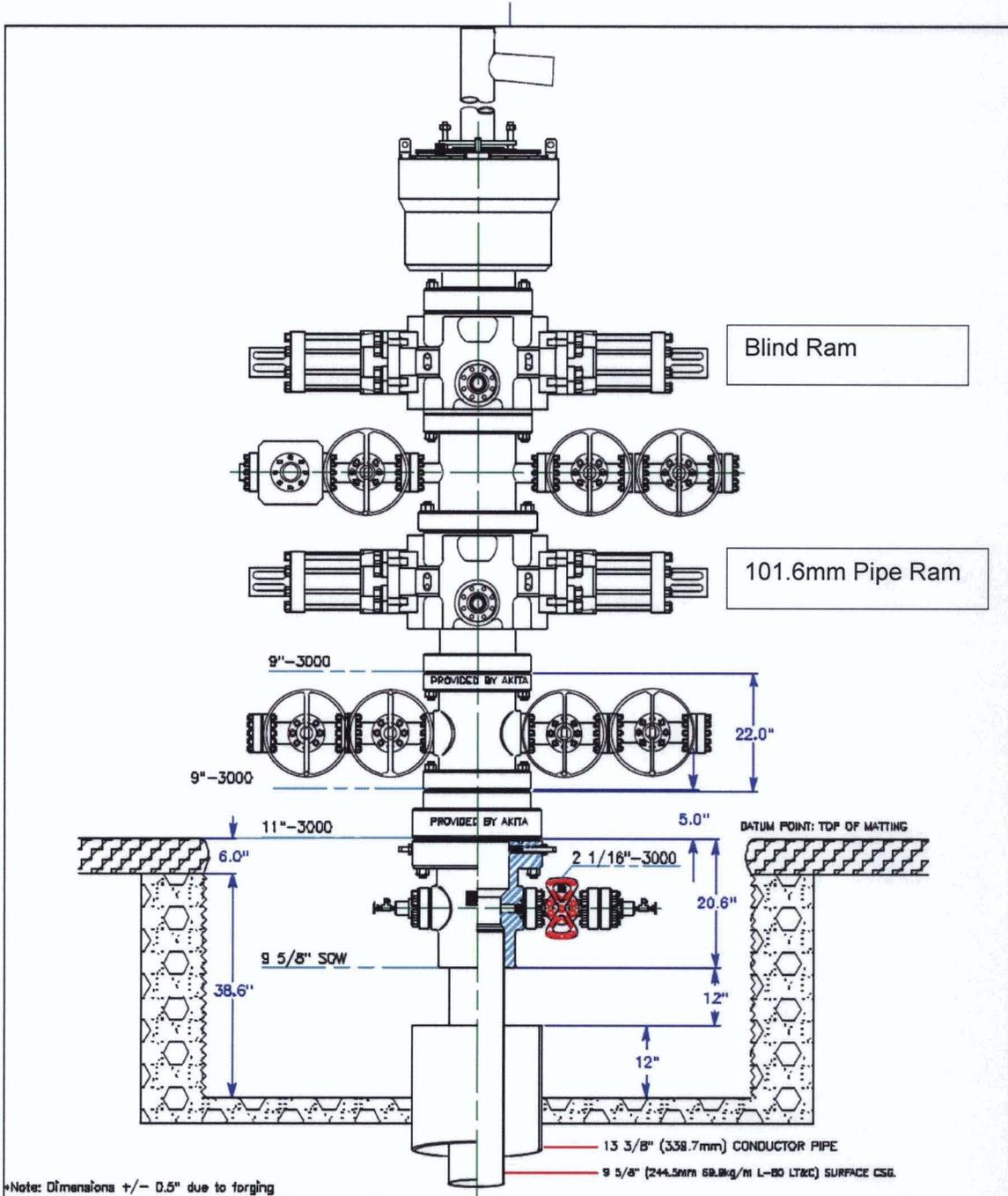
624.11	0.2	22.9
634.11	0.1	174
644.11	0.3	325.9
654.11	0.3	104.5
664.11	0.4	272.5
674.11	0.3	198.5
684.11	0.4	309.8
694.11	0.5	10.3
704.11	0.8	13.8
714.11	0.9	38.6
724.11	0.8	23.4
734.11	0.9	2.5
744.11	0.9	0.1
754.11	0.6	359.9
764.11	0.7	41.2
774.11	0.6	27.8
784.11	0.5	48.7
794.11	0.2	121.9
804.11	0.4	161.1
814.11	0.5	153.6
824.11	0.3	274.5
834.11	0.3	61.2
844.11	0.6	105.4
854.11	0.8	91.6
864.11	1.2	92.4
874.11	1.5	102.3
884.11	1.8	104.4

E.3 WELL CONTROL SET UP



*Note: Dimensions +/- 0.5" due to forging
 Drawing is not to scale, and only used as representation

HUSKY et al Keele River L-52 AKITA 14	DWN.			 EDMONTON, AB. CANADA	DRAWING No. C2040 PAGE 3 of 8 REV 2
	CHK.				
	APPR.				
	BY:		DATE		



*Note: Dimensions +/- 0.5" due to forging
 Drawing is not to scale, and only used as representation

HUSKY et al Keele River L-52 AKITA 14	DWN.				EDMONTON, AB. CANADA	DRAWING No. C2040 PAGE 6 of 8 REV 2
	CHK.					
	APPR.					
	BY:		DATE			

E.4 RIG SPECIFICATIONS & LAYOUT



RIG 14

<u>CAPACITY</u> -	1400 m, 4.1 m KB, Floor Height 3.81 m.
<u>DRAWWORKS</u> -	P300 RigMaster Single Drum, grooved for 25.4 mm drill line and a 24" double Eaton 224 WCB disc brake.
<u>RIG POWER</u> -	Caterpillar 3306 rated at 242 kW with an Allison HT750 DR five speed automatic transmission.
<u>SUBSTRUCTURE</u> -	RigMaster 16 wheel HiBoy with integrated drawworks, rotary table, cantilevered raised drilling floor, and hydraulic sub leveling system. Casing capacity 66,700 daN irrespective of set back. Clear height 3.3 m.
<u>MAST</u> -	RigMaster 20.7 m clear height, static hook load with six lines rated at 72,000 daN.
<u>BLOCK-HOOK</u> -	IDECO UTB 75 unitized shortly, SHL rated at 66,700 daN.
<u>SWIVEL</u> -	King 75 WP, static rated at 110,400 daN.
<u>ROTARY TABLE</u> -	Howard Turner RT-18.
<u>MUD PUMP</u> -	Continental Emsco F 500 triplex powered by Caterpillar 3406 rated at 343 kW. 152 mm liners - 11,720 kPa at 110 SPM.
<u>MUD SYSTEM</u> -	38.9 m ³ single tank comprised of 4 compartments including pill tank. 5.0 m ³ trip tank, mix building, and choke manifold building. Equipped with 610 mm poor boy degasser, two 127 mm x 152 mm centrifugal pump, and low pressure mix system.
<u>DESILTER</u> -	Chimo 10 cone desilter
<u>SHAKER</u> -	Double Life Shaker
<u>B.O.P. EQUIPMENT</u> -	Shaffer 229 mm 21,000 kPa Annular preventer. 1 - Shaffer LWP 229 mm 21,000 kPa single gate ram preventer. 1 - Shaffer 229mm 21,000 kPa single gate ram preventer. 5 station, 300 litres Neutron PLC controlled accumulator.
<u>LIGHT PLANTS</u> -	Two Caterpillar 3306 - 225 kW 480/208 volt AC generator.
<u>FUEL & WATER TANK</u> -	Fuel storage 10,000 litres. Water storage 51 m ³ .
<u>BOILER</u> -	Volcano 80 hp
<u>DRILL STRING</u> -	As per Contract.
<u>RIG MANAGERS QUARTERS</u> -	ATCO skid unit (Electrical).
<u>PIPE TUBS</u> -	2 hydraulic pipe tubs.
<u>WINTER LOADS</u> -	12

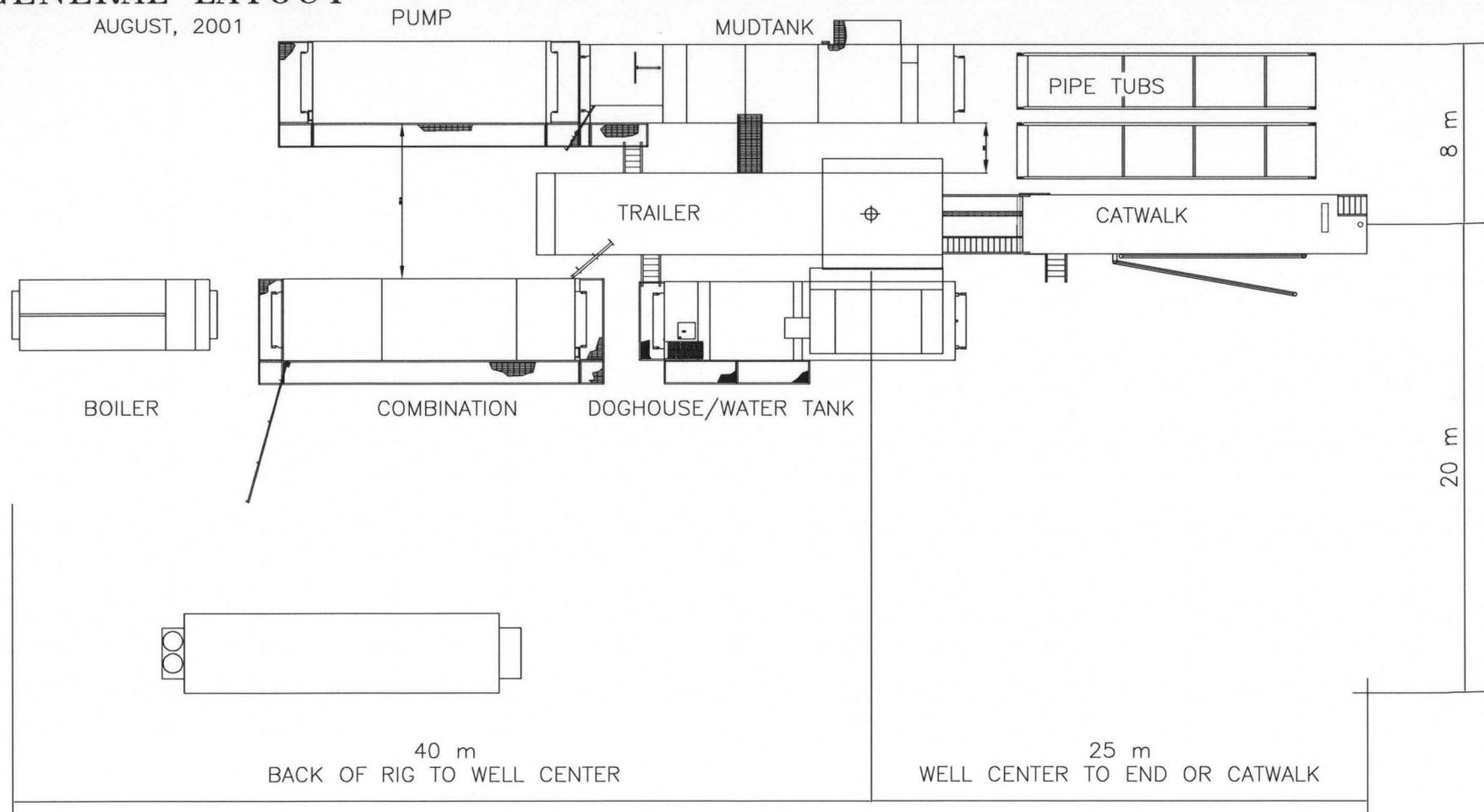
All ratings quoted herein are manufacture specifications. AKITA's normal operating parameters are 90% of manufacturers mast rating and 80% of mud pump manufacturer pressure rating. Operation of rig equipment beyond these parameters requires approval from AKITA field office management.



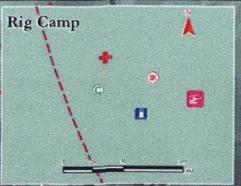
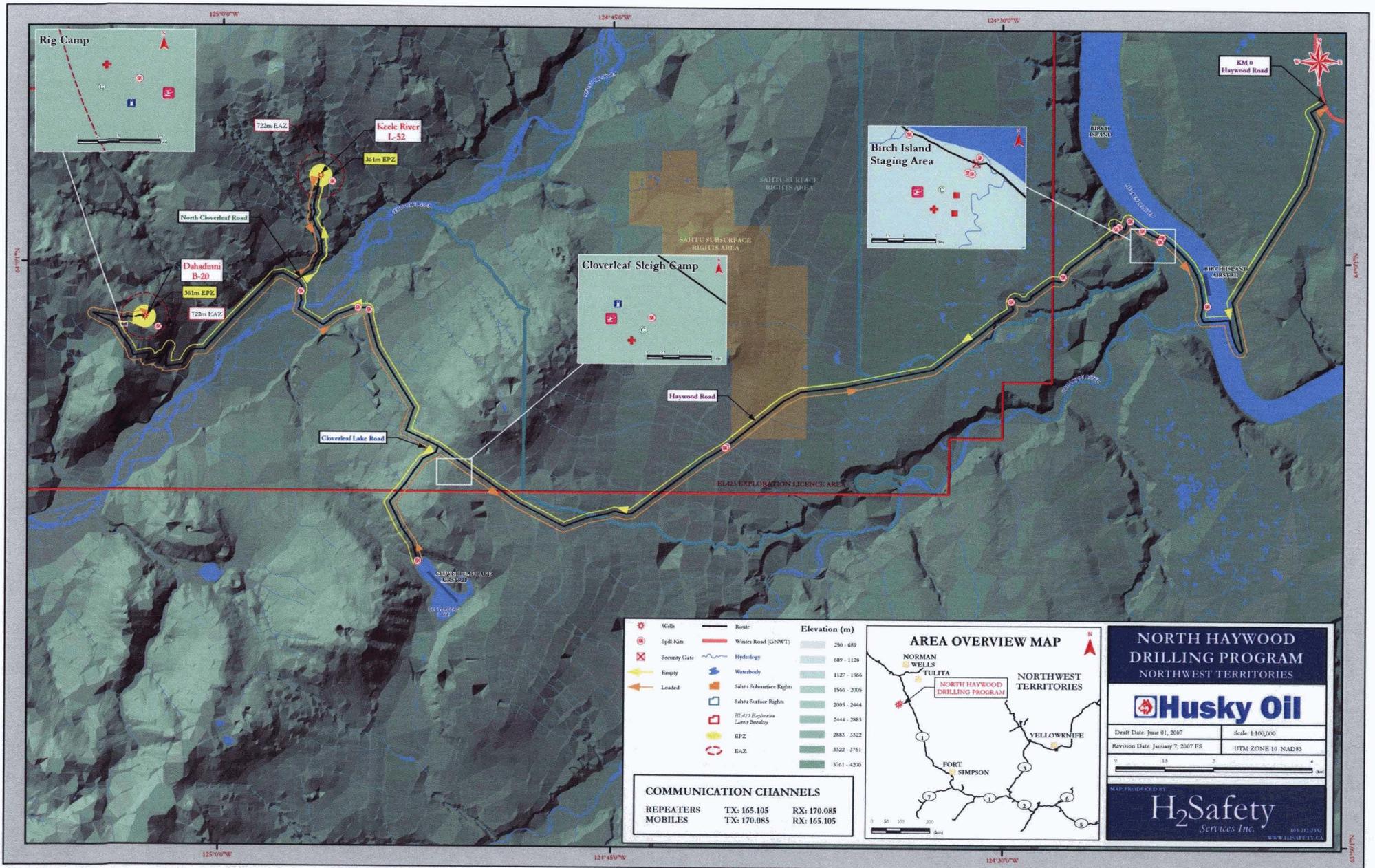
RIG 14

GENERAL LAYOUT

AUGUST, 2001



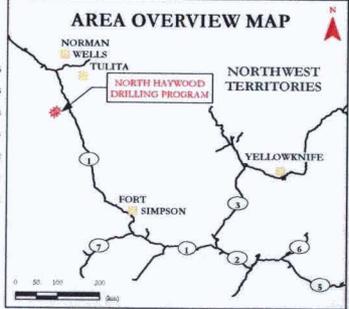
E.5 ACCESS ROAD MAP



	Well		Route		Elevation (m)
	Spill Kit		Water Road (GNWT)		250 - 689
	Security Gate		Hydrology		689 - 1128
	Empty		Waterbody		1127 - 1566
	Loaded		Saltu Surface Rights		1566 - 2005
			Saltu Surface Rights		2005 - 2444
			ELIAS Exploration Licence Boundary		2444 - 2883
			EPZ		2883 - 3322
			EAZ		3322 - 3761
					3761 - 4200

COMMUNICATION CHANNELS

REPEATERS	TX: 165.105	RX: 170.085
MOBILES	TX: 170.085	RX: 165.105



NORTH HAYWOOD DRILLING PROGRAM
NORTHWEST TERRITORIES

Husky Oil

Draft Date: June 01, 2007 Scale: 1:100,000
 Revision Date: January 7, 2007 FS UTM ZONE 10 NAD83

MAP PRODUCED BY
H₂Safety
 Services Inc.

E.6 DRILLING WASTE DISPOSAL REPORT



Northern EnviroSearch Ltd.
A wholly owned subsidiary of MWH Canada, Inc.



BUILDING A BETTER WORLD

Husky Northwest Territories 2008 Project Summary – Husky Keele River L-52

Northern Envirosearch's Role

Northern EnviroSearch Ltd. (NESL) was retained by Husky Oil Operations Ltd. (Husky) Northwest Territories (NT) Drilling Program with the goal to provide Husky with a 'risk minimizing' disposal program. This included screening and sampling of water based drilling waste prior to sump deposition (surface hole and main hole). This also included disposal of contaminated snow from the drilling pads to CCS in Rainbow Lake and also to Northern Transportation Company Ltd. (NTCL) de-watering plant in Hay River, NT. NESL had an active role in working with the construction supervisors to help ensure that the sumps were constructed properly, and stabilized properly to meet the criteria listed in the SAHTU Land and Water Board's water licence and achievement of sump closure approval was obtained. Upon closure of the sumps, NESL installed thermal monitoring stations for active monitoring of sub-surface ground temperatures and will continue to have a leading role in data interpretation and reporting duties over the next fifteen years as set out in the water licence.

Surface hole drilling was set for the first 244 meters of the hole and the remaining main hole drilling to total depth (890m) used water based drilling fluids. This allowed for the subsequent drilling waste to be deposited into a sump located on the L-52 drilling location. In order to achieve minimal risk of sump contamination and to ensure that Husky would remain in compliance with environmental guidelines set forth by the SAHTU Land and Water Board, real time field salinity testing was performed on site by a NESL environmental supervisor.

In regards to the sump, real time mix, bury and cover methods were implemented. It was the duty of the NESL environmental supervisor to perform periodic field sampling of the waste being deposited into the sumps, and to collect an overall composite sample that was representative of the entire waste stream deposited into the sump. This sample, along with three other random samples during drilling operations, was analyzed by a third party laboratory to assess toxicity and loading rates as per the SAHTU Land and Water Board Licence Guidelines. Furthermore, the environmental supervisor also spent time working with equipment operators that were performing the mix, bury and cover duties. During this interaction, proper sump mixing techniques and soil to waste ratios were managed. A total of 390 cubic meters of water-based drilling waste was deposited into the sump.

The environmental supervisor also worked actively with the rig crew and drilling consultants to help identify and clean-up spills, and to address and advise solutions in problematic areas. This was achieved by constantly monitoring the lease activities and performing regular site inspections.

Project Breakdown – Successes

Remote Sump Integrity and Stabilization

Maintaining the integrity of the remote sump was vital to the overall success of this drilling project from the standpoint of waste management. In order to make this a possibility, having a full time on-site environmental supervisor maintaining the compliance of the sump, and monitoring all waste being deposited, is very important. The environmental supervisor could

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periodically obtain real time waste samples and test them to accurately profile the analytes of the waste stream. Also, in working closely with the mud engineers and rig crew, mud additive product usage could be actively monitored and project goals in relation to sump integrity could be relayed and re-enforced actively to promote a sense of teamwork and compliance in the area of waste management.

The sump was stabilized with minimal effort. This was made possible by implementing a the use of a mixing tank at the sump, where much of the raw drilling waste was mixed with soil prior to sump deposition. Not all of the drilling waste was pre-mixed, as the amount of waste that could be mixed was largely dependant on the Hoe Operator's ability to keep up with the waste stream volume. However, this created a situation where the amount of mixing within the sump was reduced and stabilization was achieved quickly and with time to spare. Furthermore, the L-52 sump was dug with the sides and floor squared out. Therefore, the full capacity of the proposed size was allowed for supplemental volume from the B20 sump to be deposited in L52 with room to spare.

Contaminated Fluids

An on-site evaporation tank was utilized for the reduction and storage of contaminated fluids. The evaporation tank was hooked up properly and was a huge success in the reduction of contaminated snow, and waste water. In contrast to the Summit Keele drilling program of 2006 where waste water volumes were actually increased throughout the project by having a waste tank that was not hooked up to the boiler properly, the 2008 North Haywood drilling program saw a huge improvement in the ability to reduce and deal with waste fluids on location.

Communication

Wireless Internet was available at the main construction camp. This allowed for internet based communication with support staff back in Calgary, Alberta. The internet was somewhat slow for uploading files, mainly in the evenings when the majority of people were online. However, even when it was slow, it was good enough to receive and relay important information over programs such as MSN Messenger.

Transportation

NESL provided a work truck that was driven to the project from Calgary. This allowed for all of the equipment needed throughout the project to be driven north by the environmental supervisor and eliminated problems caused by depending on un-reliable cargo services to the north. Also, a vast amount of trouble was experienced on this project with rental trucks breaking down. Due to this unforeseen circumstance, a fair number of personal were left without transportation on the project. The environmental supervisor was able to use the vehicle provided to transport personal as needed to locations on the project.

Project Improvements / Recommendations

Surface Waste (Water Based)

During the surface hole drilling, progress was extremely fast. This created a situation where drilling mud was coming over the shakers, regardless of the screen size or the elevation of the



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BUILDING A BETTER WORLD

shakers. This resulted in a problem where solids were settling out in the back of the tank while the fluids were running out of the top and migrating towards the front of the tank. This was not an issue in regards to general waste management because the cuttings were all getting deposited into the remote sump. In the beginning the loader was being used to transport the cuttings to the sump. However, the tires on the loader were getting coated with the drilling fluids and after a few return trips to the sump, the disposal path was being tracked with drilling waste. Also, the shale sloop off of the rig was too far into the cuttings bin and prevented the loader from cleaning to the back of the bin. This did not allow him to adequately fill his bucket and prevented the back of the bin from being cleaned until the end of the hole.

The Drilling Consultants wanted the vacuum truck to be utilized for the transport of the waste to the sump. However aside from the small amount of fluids migrating to the entrance of the bin, the cuttings were quite heavy and could not be removed by vacuum truck. This created a situation where the vacuum truck had to be implemented to remove the fluids from the entrance to the bin before the loader could remove the solids near the rear of the bin. Because there was only one vacuum truck driver and the waste flow was constant, the result was a potential safety hazard when the vacuum truck driver was on location for extended periods of time. This situation was resolved by working with the rig crew to formulate a plan where minimal tracking would occur while performing the waste transfer with the loader. On occasion the vacuum truck was utilized to remove drilling fluids that were building up near the entrance.

Recommendation: Regardless on whether a vacuum truck needs to be implemented for waste transport to the sump, two drivers should be assigned to the rig. This will allow the truck to be fully utilized during situations of high waste volumes and will promote safe work practices on the job-site.

Conclusion

The 2008 Keele River L-52 project was a success from the standpoint of waste management. The project was completed with compliance and approval to close the sump. This was made possible by Husky's continuing commitment to invest in a full time environmental supervisor. An investment of this kind is very important in a regulatory sensitive area such as the NT and in consideration of the vast scope of responsibilities present on drilling programs in the north. In addition, many improvements and innovations implemented on this project were built upon from the previous 2006 Summit Keele drilling program. This is extremely important, as it is vital to always be looking for ways to improve upcoming projects by building upon practices set forth in the past.

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Calgary, AB
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FAX 403 233 2513
www.mwhglobal.com

E.7 NEB INSPECTION REPORTS

National Energy
Board



Office national
de l'énergie

File: WID# 2051, 2052
16 January 2008

Mr. Kim Richardson
Drilling Superintendent
Husky Oil Operations Ltd.
Box 6525, Station D
707 - 8th Avenue SW
Calgary, AB T2P 3G7
Facsimile (403) 298-6378

Dear Mr. Richardson:

Approval to Drill a Well for Husky et al Dahadinni B-20 & Husky et al Keele River L-52

The application for an Authority to Drill a Well, pursuant to section 83 of the *Canada Oil and Gas Drilling Regulations*, is approved for Husky et al Dahadinni B-20 and Husky et al Keele River L-52.

Husky Oil Operations Limited is given waiver of paragraphs 70(1)(b) and 60(7)(e) for B-20 and L-52, respectively, of the *Canada Oil and Gas Drilling Regulations* for the proposed casing and testing programs. Attached please find the Authority to Drill a Well forms which are to be posted in a conspicuous place on location during oil and gas operations.

Any changes or deviation from the approved programs will require the additional specific approval of the Chief Conservation Officer. Please be reminded that all oil and gas activities are, at minimum, to meet the requirements of the *Canada Oil and Gas Drilling Regulations*, the *Oil and Gas Occupational Safety and Health Regulations* and the *Canada Labour Code, Part II*. Conditions of approval are attached.

If you have any questions, please do not hesitate to contact the undersigned at 299-2792.

Yours truly,

Bharat C. Dixit
Chief Conservation Officer

cc: G. Morrell - INAC

444 Seventh Avenue SW
Calgary, Alberta T2P 0X8

444, Septième Avenue S.-O.
Calgary (Alberta) T2P 0X8

Canada

Telephone/Téléphone : (403) 292-4800
Facsimile/Télécopieur : (403) 292-5503
<http://www.neb-one.gc.ca>
Telephone/Téléphone : 1-800-899-1265
Facsimile/Télécopieur : 1-877-288-8803



Exploratory Delineation
 Development Other: (N/A) Service

APPROVAL TO DRILL A WELL

This application is submitted under Section 82.(1) of the *Canada Oil and Gas Drilling Regulations (SOR/79-82)*. When approved under Section 83 of the Regulations it is the requisite approval for the commencement of drilling operations.

Well Name: Husky et al Keele River L-52
 Operator: Husky Oil Operations Limited
 Operating License No.: 1171 Drilling Program No.: _____
 Contractor: Akita Sahtu Drilling Ltd Interest Identifier: Exploration Licence 423
 Drilling Rig or Unit: Rig # 14 Estimated Well Cost: \$900000.00
 Land Use Permit No.: S07A-015 Water Licence No.: S07L1-004
 Location: Unit: L Section: 52 Grid: 64-10-124-45
 Coordinates: Surface: Lat.: 64°1'30.2" Long.: 124°56'07.3"
 (NAD 27) Bottom Hole: Lat.: 64°1'30.2" Long.: 124°56'07.3"
 Region: MacKenzie Valley- Central Field / Pool: North Cloverleaf
 Elevation KB/RT: 300.30m GL / Seafloor: 304.0m
 Approximate Spud Date: 1/10/2008 Est. Days on Location: 22
 Anticipated Total Depth: 830.00m Target Formation: Little Bear formation

EVALUATION PROGRAM

Interval (m KB)	Comments
Ten-metre samples:
Five-metre samples: <u>0.00 - 830.00</u>	<u>3 sets, 5 m interval from surface to well total depth</u>
Canned sample intervals: <u>0.00 - 830.00</u>	<u>1 set 5 m interval, unwashed - bagged (500mg)</u>
Conventional cores at: <u>540.00 - 576.00</u>	<u>Conventional core in Little Bear Formation (Optional)</u> <u>Array Induction Resistivity, Di-Pole Sonic, Gamma (250-TD), Dual CNL-Density Gamma (250-TD) (Neutron/GR will be extended to surface across surface casing), Temperature Log (250-TD), UBI Formation Imager (250-TD), MDT, Sample & Pressure (optional), Side wall Core (optional), Open hole DST (optional)</u>
Logs and Tests: <u>250.00 - 830.00</u>	

CASING AND CEMENTING PROGRAM

O.D. (mm)	Weight (kg/m)	Grade	Setting Depth (m KB)	Cementing (m³)
<u>339.72</u>	<u>90.76</u>	<u>K-55</u>	<u>30.00</u>	<u>2.00</u>
<u>244.50</u>	<u>69.94</u>	<u>L-80</u>	<u>250.00</u>	<u>14.30</u>
<u>177.80</u>	<u>34.23</u>	<u>L-80</u>	<u>830.00</u>	<u>18.4</u>
.....

B.O.P. Equipment: See attached

Other Information: Well Program Attached

Signed: Kim Richardson Date: December 3, 2007
 Responsible Officer

Name: Kim Richardson Operator: Husky Oil Operations Ltd
 Title: Drilling Superintendent Phone: (403)298-7273

NEB USE ONLY

An approved copy of this notice is to be posted at each drillsite. This operation is authorized under Section 5.(1)(b) of the *Canada Oil and Gas Operations Act (O-7)* and is subject to the terms and conditions attached to this authorization.

Date: 17 JAN 08
 File: 9200
 WID: 2052
 UWJ: 300L526410124450

Signed: [Signature]
 Chief Conservation Officer

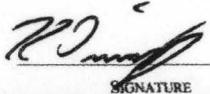


Inspection Report / Rapport d'inspection

National Energy Board Act / Loi sur l'Office national de l'énergie	
<input type="checkbox"/> Onshore Pipeline Regulations, 1999 Règlement de 1999 sur les pipelines terrestres	<input type="checkbox"/> Processing Plant Regulations Règlement sur les usines de traitement
<input type="checkbox"/> National Energy Board Pipeline Crossing Regulations Règlement de l'Office national de l'énergie sur le croisement de pipe-lines	<input checked="" type="checkbox"/> Other Autre <i>Canada Oil & Gas Operations Act</i>
Canada Labour Code, Part II / Code canadien du travail, Partie II	
<input type="checkbox"/> Canada Occupational Safety and Health Regulations Règlement sur la sécurité et la santé au travail	

COMPANY / SOCIÉTÉ <u>Husky Oil Operations Limited (Husky)</u>
LOCATION / EMPLACEMENT <u>Approximately 120 km SSW of the Hamlet of Tulita, NWT</u>
FACILITY / INSTALLATION <u>Husky et al Keele River L-52 wellsite</u>

Activity # / Activité n° : 2008-045
DATE OF INSPECTION (DD/MM/YYYY) / DATE DE L'INSPECTION (JJ/MM/AAAA) 2008-03-12

COMPANY REPRESENTATIVE / REPRÉSENTANT(E) DE LA SOCIÉTÉ	<u>Keith Tichowsky</u> PRINT (NAME, TITLE) / EN MAJUSCULES (NOM, TITRE)	<u>(403) 536-0820</u> PHONE / TÉLÉPHONE
	 SIGNATURE	<u>(403) 537-2591</u> FAX
		<u>2008-03-12</u> DATE

NEB INSPECTOR / INSPECTEUR DE L'ONÉ	<u>Pamela Romanchuk</u> PRINT / EN MAJUSCULES	<u>(403) 299-3906</u> PHONE / TÉLÉPHONE
	 SIGNATURE	<u>(403) 292-5876</u> FAX
		<u>2008-03-12</u> DATE

**REMARKS / COMMENTAIRES:**

- An Environment Inspection was conducted by Pamela Romanchuk, Environmental Specialist and Conservation Officer with the National Energy Board.
- Lori Reimer, Husky Health and Safety Representative, Sam Machnee, Drilling Supervisor, Keith Tichowsky, Drilling Supervisor, Randy Ambler, Lease Superintendent, and Justin Masley, Northern EnviroSearch, addressed questions during the environment inspection with the NEB.
- Drug test was conducted by HSE personnel and this testing is conducted for all personnel who show up at the Husky site.
- Personnel follow the Husky Energy Corporate Incident Report and enter on the Omni-Safe tracking system.
- Workers on site have stop and go cards for recording.
- All incidents and near-misses are recorded, tracked and investigated where necessary.
- Lori ensures all reports are followed up as appropriate.
- Spills require an immediate response.
- Observed spill kits along the access road and at the camps. Looked in several and they were properly stocked.
- **Recommend that a spill kit be added on L-52 road in area of hill in case of an incident. Please send an email to confirm this has been completed.**
- A copy of the Approval to Drill a Well (ADW), Environmental Protection Plan (EPP), Land Use Permit, drilling waste fluids report, and Water Licence were posted.
- Randy Ambler is keeping track of all water withdrawal for the program to ensure commitments of the Water Licence are met. This is submitted to INAC on Mondays.
- Using potassium chloride and gel-chem for drilling.
- Any mud that is left after program completion will be trucked south to an approved landfill site.
- Water withdrawal from the Redstone River was observed during the inspection.
- **Observed three water truck haulers that were using water screens as outlined by DFO requirements (screen mesh size of 2.54 mm) and indicated in the Preliminary Screening and Water Licence. This has been corrected since the last inspection. There will be a dedicated person who will monitor and ensure water screens are being used for water withdrawal - Steve Orcott will ensure this continues to be carried out for the remainder.**
- Justin indicated he conducts lease inspections to observe operations and note any issues for the drilling lease operations.
- Keith Tichowsky conducted the lease inspection with the NEB. He also conducts daily lease inspections.
- New-sorb is added to cuttings as an absorbent to reduce volumes.
- The lease is built up from ice and the rig and mud area has ice, matting, a liner and then a wood fibre pad at the mud bins.
- Dedicated vac truck on site for clean-up of any spills on the rig lease.
- Observed a bin with HC contaminated water. This is stored on lease until it is full and then loaded into a vacuum truck and hauled off site.
- All tanks with drilling additives are contained in bermed area with impermeable liner.
- Observed spill reporting documentation – some trackable spills and reportable spills.
- Drip trays are used during re-fuelling.
- Observed use of drip trays at the drill rig and both camp.
- There was an amendment to the Land Use Permit to add a cement pit to the program. This is 25 m³ and HC free. The area will be fenced. Solid clay materials.
- Sump is approximately 34 m length x 5 m depth x 10 m width.

INSPECTOR INITIALS / INITIALES DE L'INSPECTEUR

REPRESENTATIVE INITIALS / INITIALES DU REPRESENTANT

Activity # / Activité n°:

Canada

Date of Inspection / Date de l'inspection
2008-01-15/17

**REMARKS / COMMENTAIRES:**

- Sump is lined with an impermeable liner and fenced.
- Incinerators are forced air and run on diesel and used for burnable camp waste.
- Camp waste is burned daily.
- CSA approved from Westland in Edmonton.
- Waste is separated out before being burned.
- All hazardous materials go into a separate bin and this is transported to Rainbow Lake.
- Kitchen grease is hauled to Rainbow Lake.
- Waste oil materials are stored in bins and will then be hauled out.
- Ashes are contained in a metal bin and will be hauled off site to Tulita after program completion.
- No hazardous material is burned in the incinerators.
- Observed sewage treatment plants which are being run by Wellco and spoke with Glen Robinson who is in charge of this.
- There is a wet shack for laundry and showers.
- Wastewater goes to a waste treatment system for grey and black water. There are two inflows, one for effluent and one for influent.
- The system has a membrane and aeration.
- Solids are hauled to Fort St. John for disposal once program is completed. Liquids are deposited to land and are periodically tested.
- Observed overflow on the floor and frozen material outside the trailer from last inspection. This has been cleaned up and verification sent to the NEB.
- The lease was built by building up a snow pack and using water to build layers of ice to create a stable working surface for rig equipment. There was no soil excavation on this lease except for the sump and cement pit.
- Husky shall meet the Guideline for Ambient Air Quality standards in the NWT when conducting any flaring associated with the drilling program – flaring observed during inspection.
- They are not flaring very high volumes.
- Flare stack is 120 feet high. Reflective shield & breathing space between this and the ice pad.
- Fuel containment for the lease is lined and bermed.
- Spot spills are chipped up and put in the evaporator and then solids are hauled out.
- **Observed a spill in the accumulator (~ 50 gallons) and it was cleaned up and materials will be put in an appropriate container. Lori will send a report by email outlining details.**
- **Also request that spill kit be replenished and confirmation sent by email.**
- Drill rig sewage goes into holding tanks and is then taken to the main camp where it is treated and discharged to land.
- Husky has wildlife (Derek Widow) and environment (Terence Andrew) monitors to look at lease housekeeping, spills, sump, fuel tanks, water holes, drip trays, and wildlife sightings.
- They met with the monitors from the B-20 site to get an overview and talk with Keith about any issues that are identified.
- Findings are documented in reports which are being kept at the safety office.
- **It is important to ensure that there is a dedicated person in the field who can ensure that commitments from the application and all program conditions are being carried out in the field and communicated to personnel who need to know.**
- a couple of issues noted during the inspection and these are being followed up by 13 March 2008.

NEB would like to thank Husky representatives for their cooperation and the time they took to address questions and explain site facilities and operations.

INSPECTOR INITIALS / INITIALES DE L'INSPECTEUR

REPRESENTATIVE INITIALS / INITIALES DU REPRESENTANT

Activity # / Activité n°:

Canada

Date of Inspection / Date de l'inspection
2008-01-15/17

E.8 GEOLOGICAL REPORT

Husky *et al* Keele River L-52

Geology

The Husky *et al* Keele River new field wildcat was drilled in the Tulita District of the Sahtu Region, Central Mackenzie Valley, N.W.T. The purpose of this well was to evaluate the hydrocarbon potential of the Upper Cretaceous Little Bear Formation. The location of the well is 64 degrees, 1 minute 30.2 seconds North and 124 degrees 56 minutes and 07.3 seconds West (NAD27). The UWI is 300L526410124450.

The Keele River L-52 well is located SSW of the Hamlet of Tulita about 110 km. The closest offset wells are Decalta Keele South A-28 (12.3) and South Keele E-19 (14.3 km to southeast).

Akita/Sahtu Rig #14 spud the Keele River L-52 well on March 06, 2008 and drilled to a final total depth of 895 metres measured depth on March 14, 2008.

The well spud in the East Forks Formation; the oldest formation penetrated was the Slater River Formation. The surface hole (0-252 metres) was drilled with water-based polymer mud system and the main hole (252 to 895 metres) was drilled with water based polymer system.

Well site geological supervision was provided by McGrath Resource Consulting Ltd., hydrocarbon mud logging services were provided by Continental Laboratories Ltd. and Schlumberger Canada performed the wireline logging.

Conventional core was cut from 531.2 m to 540.7 m; a total of 9.5 meters of core was recovered.

There were no indications of hydrocarbon in the well. There were no significant lost circulation zones and no over pressures were encountered.

No Drill Stem Tests were run. Water was recovered from 4 MDT stations.

The well bore was cased to the total depth (895 m) and abandoned. On March 21, 2008 the well was rig released. All drilling equipment and materials were de-mobilized south to Alberta via the GNWT winter road.

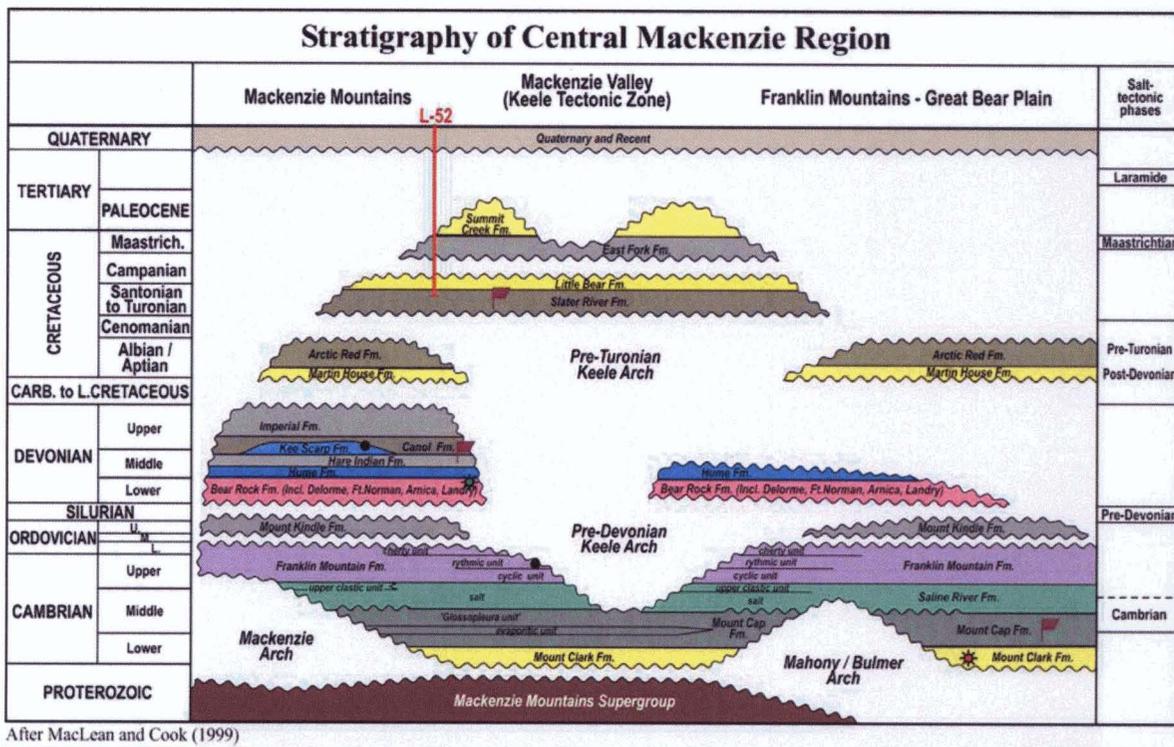
Stratigraphy

The Keele River L-52 well tested the Upper Cretaceous Little Bear Formation in a gently folded anticlinal structure.

The Upper Cretaceous stratigraphy consists primarily of interbedded shales and sandstones with rare coal beds. The depositional environments of the East Forks and Little Bear Formations may include fluvial, delta plain and shallow marine facies. The shale in the Slater River Formation suggests a deeper, basinal depositional environment.

The stratigraphy of the Mackenzie Plain Basin has been described by a number of authors; the stratigraphic chart published by MacLean and Cook (1999) illustrates the stratigraphic relationships for the region. The stratigraphic section encountered at Keele River L-52 is indicated on the attached modified version of the MacLean and Cook chart.

The Cretaceous strata encountered in the well were folded during the Laramide deformation.



Summary of Major Lithologies

Cutting samples were collected every 5 m from the base of the Conductor Pipe at 25 m to the T D at 895m.

The major lithology intervals: (units are Measured Depth relative to the Kelly Bushing):

Cretaceous

East Fork Formation

35 – 252 metres

SANDSTONE (60-90%). Clear, black, pink, quartz and chert grains, very fine to coarse grained, large floating grains, sub angular to sub rounded, generally poorly to moderately sorted. No porosity. No shows

SHALE (40 to 10 %) light to medium grey, light brown, medium hard, occasionally silty and sandy, trace pyrite, trace carbonaceous matter (see detailed sample descriptions for exact zones).

East Fork Formation

252 – 382 metres

SANDSTONE (70-50 %). Light to medium grey, quartz and chert grains, fine to medium grained, sub angular to sub rounded, moderately sorted, siliceous cement, tight to poor intergranular porosity (3%). Poor porosity. No shows.

SHALE (30-50 %) medium grey to grey brown, medium hard, silty and sandy to very silty and sandy, trace pyrite, trace carbonaceous matter (see detailed sample descriptions for exact carbonaceous zones).

East Fork Shale

382- 415 metres

SHALE (60-80 %) medium grey, medium hard, silty and sandy to very silty and sandy, trace pyrite, trace carbonaceous matter (see detailed sample descriptions for exact zones).

SANDSTONE (40-20%) clear to light grey quartz and chert grains, unconsolidated, fine to coarse grained, angular to sub rounded, poorly to moderately sorted.

East Fork Shale

415 – 450 metres

SHALE (80-90 %) medium grey to dark grey, medium hard, silty and sandy, carbonaceous matter from trace to common, trace pyrite, (see detailed sample descriptions for exact zones), blocky.

SANDSTONE (20-10%) clear to light grey quartz and chert grains, medium to coarse grained, subangular, poorly to moderately sorted, unconsolidated.

Upper Little Bear Formation
450 - 515 metres

CHERT CONGLOMERATE (10-30%) varicoloured, white to grey and black, very coarse grained, angular, moderately sorted, trace pyrite

SHALE (10-30%) medium grey, medium hard, silty and sandy, trace carbonaceous matter, trace pyrite.

515 - 565 metres

SANDSTONE (50-80%) clear to light grey, brown and black quartz and chert, very fine to medium grained, subangular to subrounded, moderately sorted, siliceous cement, fair intergranular porosity (8 - 10%), trace carbonaceous material, slightly silty or argillaceous.

SHALE (30-50%) medium grey to light brown, medium hard, silty, trace carbonaceous matter (coal above 535m), blocky

565 - 625 metres

ALTERNATING SANDSTONE AND SHALE INTERBEDS WITH SANDSTONE GENERALLY DOMINATING OVER INTERVAL

SANDSTONE (20-80%) light grey, grey brown, salt and pepper quartz and chert, very fine to fine grained, subangular to subrounded, moderately sorted, siliceous cement, hard, fair intergranular porosity (5%), slightly silty or argillaceous.

SHALE (20-80%) medium grey to light brown, medium hard, silty, trace carbonaceous matter, blocky

Lower Little Bear Formation
625 - 780 metres

ALTERNATING SANDSTONE AND SHALE INTERBEDS WITH SANDSTONE GENERALLY DOMINATING OVER INTERVAL

SANDSTONE (20-80%) light to medium grey, salt and pepper quartz grains, very fine to fine grained, subangular to subrounded, moderately sorted, siliceous cement, hard, fair intergranular porosity (5%), slightly silty or argillaceous, trace pyrite.

SHALE (20-80%) light brown to medium grey, medium hard, silty, trace carbonaceous matter, blocky

715 - 780 metres

ALTERNATING SHALE AND SANDSTONE INTERBEDS WITH SHALE DOMINATING, (BECOMING 100% SHALE OVER LAST 30M OF INTERVAL)

SHALE (20 - 80%) medium grey, medium hard, silty, trace carbonaceous matter, also minor interbeds of light brown sideritic shale, hard.

SANDSTONE (20-80%) light to medium grey, salt & pepper very fine to fine grained quartz grains, hard, silty, trace pyrite.

Slater River Formation
780 - 895 metres

SHALE (100%) medium grey, silty, hard, dolomitic.
NOTE: Sandstone and coal described in sample descriptions are thought to be cavings as geophysical logs do not indicate any lithology other than shale or silty shale in this interval.

**GEOLOGICAL FORMATION
TOPS
FORMATION**

	Prog Depth	Sample MKB	Log Depth	Sub Sea.Elev	ISOPACH
East Fork					66.53
East Fork Shale	450	382	381.10	-66.58	69.20
Little Bear	550	450.5	450.20	-135.78	177.00
Lower Little Bear	780	625	627.20	-312.78	151.80
Slater River	820	782.5	779.00	-464.58	109.30
Total Depth	830	895	888.30	-573.88	

Well Evaluation Program

Wireline Logging

The wireline logging program consisted of one run with five descents. The logs were run across the open main hole. The main suite of logs were run from TD (895 m) to surface casing (252 m) Schlumberger provided all logging services and equipment for the well logging program.

- 1) The first descent tool combination was: FMI DSI PPC HNGS

Formation Micro Imager Gamma Ray	FMI
Di-Pole Sonic Imager Gamma Ray SP	DSI
Hostile Natural Gamma	HNGS
X-Y Caliper	PPC

- 2) The second and third descents (due to bridge during logging operations) were with the tool combination:

AIT TLD HGNS CMR+ ECS TLD2 GR

Array Induction Resistivity	AIT
Combinable Magnetic Resonance	CMR+
X-Y Caliper	PPC
Elemental Capture Spectroscopy	ECS
Dual Density	TLD, TLD2, GR
High Gamma Neutron Sonde	HGNS

- 3) The fourth descent tool combination was the TLD HGNS CMR+ PPC (fluid typing)

Density	TLD
High Gamma Ray Neutron Sonde	HGNS
Combinable Magnetic Resonance\Calipers	CMR+ PPC

- 4) The fifth descent tool combination was MDT/GR

Modular Dynamic Tester\ Gamma Ray

Six stations were tested: 6 fluid samples and 5 successful pressure tests were completed.

Mud Hydrocarbon Logging

Continental Laboratories Ltd. ran Full Spectrum Gas Chromatograph with H2S detection from the base conductor pipe at 25 metres to TD at 895 metres.

Drill Cuttings Sampling

Cuttings samples were obtained and distributed as listed below:

<u>Container</u>	<u>Sampling Interval</u>	<u>Drilling Interval (MD)</u>	<u>Distribution</u>
Washed & dried in clear plastic vials	5 metres	Surface to TD (25 m to 895)	Husky NEB
Washed & air dried in 500 g plastic lined bags	5 metres	Surface to TD (25 m to 895)	Husky NEB

Coring

Two conventional cores were cut. Core #1 was from 531.2 to 540.01 mKB and Core #2 was from 540.01 to 540.7 mKB (jammed off).

Well Testing

No Drill Stem Tests were completed.

Sample Descriptions

Storage Units: Metric

25.00 to 30.00 (5.00)	40%	CEMENT	
	30%	SHALE	medium to dark gray, medium hard, silty, trace carbonaceous, trace micro pyrite, blocky.
	30%	SANDSTONE	clear, pink, quartz, chert, feldspar, unconsolidated, coarse to very coarse grained, subrounded to angular, moderately sorted, siliceous with clay cement, tight to poor intergranular porosity (5-10%).
30.00 to 35.00 (5.00)	60%	SANDSTONE	clear, black, pink, quartz, chert, feldspar, unconsolidated, medium to very coarse grained, subrounded to angular, poorly sorted, siliceous with clay cement, tight to poor intergranular porosity (5-10%).
	20%	CEMENT	
	20%	SHALE	medium to dark gray, medium hard, silty, as above.
35.00 to 40.00 (5.00)	80%	SANDSTONE	clear black, pink, quartz, chert feldspar, unconsolidated, medium to coarse grained, subrounded to angular, poorly sorted, siliceous with calcareous cement, tight to poor internal granular porosity (5-10%).
	20%	SHALE	medium to dark gray, medium hard, silty, as above.
40.00 to 45.00 (5.00)	70%	SANDSTONE	clear, black, pink, quartz, chert, feldspar, unconsolidated, medium to very coarse grained, as above.
	30%	SHALE	medium to dark gray, medium hard, silty, as above.
45.00 to 50.00 (5.00)	70%	SANDSTONE	clear, red brown, quartz, chert, unconsolidated, very fine to coarse grained, subangular to angular, poorly sorted, argillaceous cement, tight to poor intergranular porosity (3-5%), argillaceous.
	30%	SHALE	gray brown, red brown, medium gray, medium hard, silty, trace micro pyrite, blocky.
50.00 to 55.00 (5.00)	60%	SANDSTONE	clear, black, white, pink, quartz, chert, feldspar, mica, unconsolidated, fine to very coarse grained, subrounded to angular, poorly sorted, siliceous cement, tight to poor intergranular porosity (3-5%).

Sample Descriptions

Storage Units: Metric

50.00 to 55.00 (5.00)	40%	SHALE medium gray, red brown, gray brown, medium hard, silty, trace micro pyrite, blocky.
55.00 to 60.00 (5.00)	80%	SANDSTONE clear, black, pink, quartz, chert, unconsolidated, very fine to medium grained, subangular, moderately sorted, siliceous cement, tight to trace intergranular porosity (3%), argillaceous, trace micro pyrite.
	20%	SHALE medium gray, red brown, brown, medium hard, silty, as above.
60.00 to 65.00 (5.00)	90%	SANDSTONE clear, black, pink, quartz, chert, unconsolidated, very fine to medium grained, as above.
	10%	SHALE medium gray, red brown, brown, medium hard, silty, trace micro pyrite, blocky.
65.00 to 70.00 (5.00)	80%	SANDSTONE clear, black, pink, quartz, chert, unconsolidated, very fine to coarse grained, subrounded angular, poorly sorted, siliceous cement, tight to trace intergranular porosity (3%), trace pyrite.
	20%	SHALE medium gray, red brown, brown, medium hard, as above.
70.00 to 75.00 (5.00)	80%	SANDSTONE clear, black, pink, quartz, chert, unconsolidated, very fine to coarse grained, as above.
	20%	SHALE medium gray, red brown, brown, medium hard, as above.
75.00 to 80.00 (5.00)	80%	SANDSTONE clear, black, pink, quartz, chert, unconsolidated, very fine to fine grained, with large floating grains, subangular, moderately sorted, siliceous cement, tight to trace intergranular porosity (3%), trace pyrite.
	20%	SHALE medium gray, red brown, brown medium hard, as above.
80.00 to 85.00 (5.00)	80%	SANDSTONE clear, black, pink, quartz, chert, unconsolidated, very fine to fine grained, with large floating grains, as above.
	20%	SHALE medium gray, red brown, brown, medium hard, as above.
85.00 to 90.00 (5.00)	70%	SANDSTONE clear, black, slightly pink, unconsolidated, very fine to fine grained, with large floating grains, as above.

Sample Descriptions

Storage Units: Metric

85.00 to 90.00 (5.00)	30%	<p>SHALE medium gray, red brown, brown, medium hard, silty, sandy, blocky.</p>
90.00 to 95.00 (5.00)	95%	<p>SANDSTONE clear, black, slightly pink, unconsolidated, very fine to fine grained, with large floating grains, subangular, moderately sorted, siliceous cement, tight to trace intergranular porosity (3%), trace pyrite.</p>
	5%	<p>SHALE medium gray, red brown, brown, medium hard, as above.</p>
95.00 to 100.00 (5.00)	80%	<p>SANDSTONE clear, black, slightly pink, unconsolidated, very fine to fine grained, moderately sorted, as above.</p>
	20%	<p>SHALE medium gray, brown, medium hard, as above.</p>
100.00 to 105.00 (5.00)	50%	<p>SHALE medium gray, light brown, medium hard, very silty, sandy, trace micro pyrite, trace carbonaceous matter, blocky.</p>
	50%	<p>SANDSTONE clear, light gray, quartz, chert, friable to unconsolidated, very fine to fine grained, occasionally large floating grains, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (3-5%), trace carbonaceous matter, argillaceous, trace pyrite, slightly calcareous in part.</p>
105.00 to 110.00 (5.00)	60%	<p>SANDSTONE clear, light gray, quartz, chert, friable to unconsolidated, very fine to fine grained, occasionally lower floating grains, as above.</p>
	40%	<p>SHALE medium gray, light brown, medium hard, as above.</p>
110.00 to 115.00 (5.00)	70%	<p>SANDSTONE light gray, clear, friable to unconsolidated, fine to coarse grained, subrounded to subangular, poorly sorted, siliceous with clay cement, tight to poor intergranular porosity (3-5%), trace carbonaceous matter, argillaceous, trace pyrite.</p>
	30%	<p>SHALE medium gray, light brown, medium hard, as above.</p>
115.00 to 120.00 (5.00)	50%	<p>SHALE medium gray, light brown, medium hard, as above.</p>
	50%	<p>SANDSTONE light gray, clear, friable to unconsolidated, fine to coarse grained, as above.</p>
120.00 to 125.00 (5.00)	70%	<p>SHALE light brown, light gray, medium hard, very silty, sandy, trace micro pyrite, trace carbonaceous matter, blocky.</p>

Sample Descriptions

Storage Units: Metric

120.00 to 125.00 (5.00)	30%	<p>SANDSTONE clear, light gray, black, unconsolidated, fine to coarse grained, subangular to subrounded, poorly sorted, siliceous with clay cement, tight to poor intergranular porosity, (3-5%), trace carbonaceous matter, argillaceous, trace pyrite.</p>
125.00 to 130.00 (5.00)	80%	<p>SANDSTONE clear, black, light gray, quartz, chert, unconsolidated, fine to medium grained, with large floating grains, subangular, moderately sorted, siliceous with clay cement, tight to poor intergranular porosity (3-5%), trace carbonaceous matter, argillaceous, trace pyrite.</p>
	20%	<p>SHALE light to medium gray, medium hard, very silty, trace micro pyrite, trace carbonaceous matter, blocky.</p>
130.00 to 135.00 (5.00)	70%	<p>SHALE light to medium gray, medium hard, very silty, as above.</p>
	30%	<p>SANDSTONE clear, black, light gray, quartz, chert, unconsolidated, fine to medium grained, with large floating grains, as above.</p>
135.00 to 140.00 (5.00)	70%	<p>SHALE light to medium gray, medium hard, very silty, as above.</p>
	30%	<p>SANDSTONE clear, black, light gray, quartz, chert, unconsolidated, as above.</p>
140.00 to 145.00 (5.00)	70%	<p>SANDSTONE light gray, clear, quartz, chert, friable to unconsolidated, with large floating grains, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (3-5%), trace carbonaceous matter, argillaceous, silty, trace pyrite.</p>
	30%	<p>SHALE medium gray, light brown, medium hard, silty, trace micro pyrite, trace carbonaceous matter, blocky.</p>
145.00 to 150.00 (5.00)	70%	<p>SANDSTONE light gray, clear, quartz, chert, friable to unconsolidated, fine to medium grained, with large floating grains, as above.</p>
	30%	<p>SHALE medium gray, light brown, medium hard, as above.</p>
150.00 to 155.00 (5.00)	70%	<p>SANDSTONE light gray, clear, quartz, chert, friable to unconsolidated, fine to medium grained, with large floating grains, as above.</p>
	30%	<p>SHALE medium gray, light brown, medium hard, silty, as above.</p>

Sample Descriptions

Storage Units: Metric

155.00 to 160.00 (5.00)	70%	SANDSTONE light gray, clear, chert, friable to unconsolidated, fine to medium grained, with large floating grains,
	30%	SHALE medium gray, light brown, medium hard, silty, as above.
160.00 to 165.00 (5.00)	60%	SANDSTONE light gray, clear, quartz, chert, friable to unconsolidated, fine to medium grained, with large floating grains, as above.
	40%	SHALE medium gray, light brown, medium hard, silty, as above.
165.00 to 170.00 (5.00)	60%	SANDSTONE light gray, clear, quartz, chert, friable to unconsolidated, fine to medium grained, with large floating grsw, as above.
	40%	SHALE medium gray, light brown, medium hard, very silty, sandy, trace carbonaceous matter, trace micro pyrite, blocky.
170.00 to 175.00 (5.00)	70%	SANDSTONE light gray, clear, quartz, chert, friable to unconsolidated, fine to medium grained, with large floating grains, as above.
	30%	SHALE medium gray, light brown, medium hard, very silty, as above.
175.00 to 180.00 (5.00)	70%	SANDSTONE clear, black, light gray, quartz, chert, friable to unconsolidated, fine to medium grained, with large floating grains, as above.
	30%	SHALE medium gray, medium hard, silty, as above.
180.00 to 185.00 (5.00)	70%	SANDSTONE clear, black, light gray, quartz, chert, unconsolidated, fine to medium grained, with large floating grains, as above.
	30%	SHALE medium gray, medium hard, silty, as above.
185.00 to 190.00 (5.00)	70%	SANDSTONE light gray, quartz, medium hard, very fine to fine grained, subangular, moderately sorted, siliceous with clay cement, tight to trace intergranular porosity (3%), trace carbonaceous material, argillaceous, silty, trace micro pyrite.
	30%	SHALE medium gray, medium hard, silty, as above.
190.00 to 195.00 (5.00)	60%	SANDSTONE light gray, quartz, medium hard, very fine to fine grained, as above.

Sample Descriptions

Storage Units: Metric

190.00 to 195.00 (5.00)	40%	SHALE medium gray, medium hard, silty, sandy, trace micro pyrite, trace carbonaceous matter, blocky.
195.00 to 200.00 (5.00)	70%	SANDSTONE light gray, clear, quartz, chert, very fine to medium grained, with large floating grains, subangular, moderately sorted, siliceous with clay cement, tight to trace intergranular porosity (3%), trace carbonaceous matter, argillaceous, silty, trace micro pyrite.
	30%	SHALE medium gray, medium hard, silty, as above.
200.00 to 205.00 (5.00)	60%	SANDSTONE light to medium gray, quartz, chert, medium hard, very fine to medium grained, with large floating grains, subangular, moderately sorted, siliceous with clay cement, tight to trace intergranular porosity (3%), trace carbonaceous matter, very argillaceous, very silty, trace pyrite.
	40%	SHALE medium gray, medium hard, very silty, sandy, trace micro pyrite, trace carbonaceous matter, blocky.
205.00 to 210.00 (5.00)	60%	SANDSTONE light to medium gray, quartz, chert, medium hard, very fine to medium grained, with large floating grains, as above.
	40%	SHALE medium gray, medium hard, very silty, as above.
210.00 to 215.00 (5.00)	60%	SANDSTONE light gray, quartz, chert, medium hard to unconsolidated, fine to medium grained, with large floating grains, subangular, moderately sorted, siliceous with clay cement, tight to trace intergranular porosity (3%), trace carbonaceous matter, very argillaceous, very silty, trace pyrite.
	40%	SHALE medium gray, light brown, medium hard, very silty, sandy, trace carbonaceous matter, trace micro pyrite, blocky.
215.00 to 220.00 (5.00)	80%	SANDSTONE light gray, quartz, chert, medium hard to unconsolidated, fine to medium grained, with large floating grains, subangular, moderately sorted, siliceous with clay cement, tight to trace intergranular porosity (3%), trace carbonaceous matter, very argillaceous, very silty, calcareous, trace pyrite.
	20%	SHALE medium gray, light brown, medium hard, very silty, sandy, trace micro pyrite, blocky.
220.00 to 225.00 (5.00)	50%	SHALE medium gray, light brown, medium hard, as above.

Sample Descriptions

Storage Units: Metric

220.00 to 225.00 (5.00)	50%	SANDSTONE light gray, quartz, chert, medium hard to unconsolidated, fine to medium grained, with large floating grains, as above.
225.00 to 230.00 (5.00)	70%	SANDSTONE light gray, quartz, chert, medium hard, fine to medium grained, with large floating grains, as above.
	30%	SHALE medium gray, light brown, medium hard, very silty, very sandy, trace carbonaceous matter, trace micro pyrite, blocky.
230.00 to 235.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, medium hard to unconsolidated, fine to medium grained, with large floating grains, subangular, moderately sorted, siliceous with clay cement, tight, trace carbonaceous matter, very argillaceous, very silty, trace pyrite.
	30%	SHALE medium gray, medium hard, very silty, sandy, trace carbonaceous matter, trace micro pyrite, blocky.
235.00 to 240.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, medium hard unconsolidated, fine to medium grained, with large floating grains, as above.
	30%	SHALE medium gray, light brown, medium hard, as above.
240.00 to 245.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, medium hard unconsolidated, fine to medium grained, with floating grains, as above.
	30%	SHALE medium gray, light brown, medium hard, as above.
245.00 to 250.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, medium hard, fine to medium grained, with large floating grains, subangular, moderately sorted, siliceous with clay cement, tight, trace carbonaceous matter, very argillaceous, very silty, trace pyrite.
	30%	SHALE medium gray, light brown, medium hard, very silty, sandy, trace micro pyrite, blocky.
250.00 to 255.00 (5.00)	40%	CEMENT
	30%	SHALE medium gray, medium hard, silty, sandy, trace carbonaceous matter, trace micro pyrite, blocky.

Sample Descriptions

Storage Units: Metric

250.00 to 255.00 (5.00)	30%	SANDSTONE light gray, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, argillaceous, silty, trace pyrite, abundant large floating quartz & chert grains.
255.00 to 260.00 (5.00)	50%	SHALE medium gray, medium hard, very silty, very sandy, trace carbonaceous matter, trace micro pyrite, blocky.
	50%	SANDSTONE light to medium gray, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, very silty.
260.00 to 265.00 (5.00)	60%	SANDSTONE light to medium gray, quartz, hard, very fine to fine grained, as above.
	40%	SHALE medium gray, medium hard, very silty, very sandy, as above.
265.00 to 270.00 (5.00)		No Sample
270.00 to 275.00 (5.00)	70%	SHALE medium gray, medium hard, very silty, very sandy, trace carbonaceous matter, trace micro pyrite, blocky.
	30%	SANDSTONE light to medium gray, quartz, chert, fine to medium grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, very silty, trace micro pyrite.
275.00 to 280.00 (5.00)	60%	SHALE medium gray, medium hard, very silty, as above.
	40%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, as above.
280.00 to 285.00 (5.00)	50%	SHALE medium gray, medium hard, very silty, very sandy, as above.
	50%	SANDSTONE gray brown, light gray, quartz, chert, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, very silty, trace micro pyrite.
285.00 to 290.00 (5.00)	60%	SANDSTONE gray brown, light gray, quartz, chert, hard, fine to medium grained, as above.
	40%	SHALE medium gray, medium hard, very silty, sandy, as above.

Sample Descriptions

Storage Units: Metric

290.00 to 295.00 (5.00)	60%	SANDSTONE gray brown, light gray, quartz, chert, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, very silty, trace micro pyrite.
	40%	SHALE medium gray, medium hard, very silty, very silty, as above.
295.00 to 300.00 (5.00)	50%	SHALE medium gray medium hard, very silty, very sandy, trace carbonaceous matter, trace micro pyrite, blocky.
	50%	SANDSTONE light to medium gray, gray brown, quartz, chert, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, very silty, trace micro pyrite.
300.00 to 305.00 (5.00)	50%	SANDSTONE gray brown, light to medium gray, quartz, chert, hard, fine to medium grained, as above.
	50%	SHALE medium gray, medium hard, very silty, very sandy, as above.
305.00 to 310.00 (5.00)	60%	SHALE medium gray, medium hard, very silty, very sandy, trace carbonaceous matter, trace micro pyrite, blocky.
	40%	SANDSTONE gray brown, light to medium gray, quartz, chert, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, very silty, trace pyrite.
310.00 to 315.00 (5.00)	50%	SHALE medium gray, medium hard, very silty, very sandy, as above.
	50%	SANDSTONE gray brown, light to medium gray, quartz, chert, hard, fine to medium grained, as above.
315.00 to 320.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, very silty, trace pyrite.
	30%	SHALE medium gray, gray brown, very silty, sandy, trace carbonaceous matter, trace micro pyrite, blocky with SHALE gray green, soft, silty, waxy, smooth, blocky.

Sample Descriptions

Storage Units: Metric

320.00 to 325.00 (5.00)	70%	SANDSTONE light gray, clear, medium gray, quartz, chert, unconsolidated, medium to coarse grained, subangular to subrounded, moderately sorted, siliceous cement, tight to poor intergranular porosity (3%), trace carbonaceous matter, argillaceous, trace pyrite.
	30%	SHALE medium gray, medium hard, very silty, sandy, trace carbonaceous matter, trace micro pyrite, blocky, with SHALE white, soft, smooth, waxy, blocky.
325.00 to 330.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, subangular, moderate sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, silty, trace pyrite.
	30%	SHALE medium gray, medium hard, very silty, sandy, as above.
330.00 to 335.00 (5.00)	70%	SANDSTONE light gray, clear, white, quartz, chert, hard to unconsolidated, fine to coarse grained, subangular to subrounded, poorly sorted, siliceous cement, tight to poor intergranular porosity (3%), trace carbonaceous matter, argillaceous, silty, trace pyrite.
	30%	SHALE medium gray, medium hard, very silty, sandy, as above.
335.00 to 340.00 (5.00)	60%	SANDSTONE gray brown, light to medium gray, quartz, chert, fine to medium grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, very silty, trace pyrite.
	40%	SHALE medium gray, medium hard, very silty, sandy, as above.
340.00 to 345.00 (5.00)	80%	SHALE medium gray, medium hard, very silty, very sandy, trace micro pyrite, trace carbonaceous matter, blocky.
	20%	SANDSTONE gray brown, quartz, chert, hard, fine to medium grained, as above.
345.00 to 350.00 (5.00)	70%	SHALE medium gray, medium hard, very silty, very sandy, as above.
	30%	SANDSTONE gray brown, light to medium gray, quartz, chert, hard, fine to medium grained, as above.
350.00 to 355.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, silty, trace pyrite.

Sample Descriptions

Storage Units: Metric

350.00 to 355.00 (5.00)	30%	SHALE medium gray, medium hard, very silty, very sandy, trace micro pyrite, trace carbonaceous matter, blocky.
355.00 to 360.00 (5.00)	60%	SHALE medium gray, medium hard, very silty, very sandy, as above.
	40%	SANDSTONE light to medium gray, gray brown, quartz, chert, hard, fine to medium grained, as above.
360.00 to 365.00 (5.00)	60%	SHALE medium gray, gray brown, medium hard, very silty, very sandy, trace carbonaceous matter, trace micro pyrite, blocky
	40%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, as above.
365.00 to 370.00 (5.00)	70%	SHALE medium gray, gray brown, medium hard, very silty, very sandy, trace pyrite, trace carbonaceous matter, blocky.
	30%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, as above.
370.00 to 375.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, with large floating grains, as above.
	30%	SHALE medium gray, medium hard, very silty, very sandy, as above.
375.00 to 380.00 (5.00)	60%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, with large floating grains, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, silty, trace pyrite.
	40%	SHALE medium gray, medium hard, very silty, very sandy, as above.

East Fork Shale: 382.00 MD, 381.98 TVD, -67.56 SSL

380.00 to 385.00 (5.00)	70%	SHALE medium gray, medium hard, very silty, very sandy, as above.
	30%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, with large floating grains, as above.
385.00 to 390.00 (5.00)	70%	SHALE medium gray, medium hard, very silty, very sandy, as above.

Sample Descriptions

Storage Units: Metric

385.00 to 390.00 (5.00)	30%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, as above.
390.00 to 395.00 (5.00)	60%	SHALE medium gray, medium hard, very silty, very sandy, trace carbonaceous matter, trace micro pyrite, blocky.
	40%	SANDSTONE light to medium gray, quartz, chert, fine to medium grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous to shaly, silty, trace pyrite.
395.00 to 400.00 (5.00)	70%	SHALE medium gray, medium hard, very silty, very sandy, as above.
	30%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, as above.
400.00 to 405.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, hard to unconsolidated, fine to coarse grained, angular to subangular, poorly sorted, siliceous cement, tight to poor intergranular porosity (3%), trace carbonaceous, very argillaceous to shaly, silty, trace pyrite.
	30%	SHALE medium gray, medium hard, very silty, sandy, common large scattered carbonaceous grains, as above.
405.00 to 410.00 (5.00)	70%	SHALE medium gray, medium hard, very silty, very sandy, common scattered large carbonaceous grains, as above.
	30%	SANDSTONE light to medium gray, quartz, chert, hard to unconsolidated, fine to coarse grained, poorly sorted, as above.
410.00 to 415.00 (5.00)	60%	SHALE medium gray, medium hard, very silty, very sandy, common large scattered carbonaceous grains, trace micro pyrite, blocky.
	40%	SANDSTONE light to medium gray, quartz, chert, hard, fine to coarse grained, angular to subangular, poorly sorted, as above.
415.00 to 420.00 (5.00)	80%	SHALE medium gray, medium hard, very silty, very sandy, common large scattered carbonaceous grains, trace micro pyrite, blocky.
	20%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, moderately sorted, subangular, siliceous cement, tight, trace carbonaceous matter, very argillaceous shaly, silty, trace pyrite.

Sample Descriptions

Storage Units: Metric

420.00 to 425.00 (5.00)	90%	SHALE medium gray, medium hard, silty, sandy, common large scattered carbonaceous grains, trace micro pyrite, blocky.
	10%	SANDSTONE light to medium gray, quartz, chert, fine to medium grained, as above.
425.00 to 430.00 (5.00)	90%	SHALE medium gray, medium hard, silty, sandy, trace large scattered carbonaceous grains, trace micro pyrite, blocky.
	10%	SANDSTONE light to medium gray, quartz, chert, hard, as above.
430.00 to 435.00 (5.00)	80%	SHALE medium gray, medium hard, silty, sandy, common large scattered carbonaceous grains, trace pyrite blocky, with SHALE white, medium hard, silty, blocky.
	20%	SANDSTONE clear, light gray, quartz, chert, unconsolidated, medium grained, occasionally coarse, subangular, moderately sorted, siliceous cement, tight.
435.00 to 440.00 (5.00)	90%	SHALE medium to dark gray, medium hard, silty, sandy, as above with SHALE medium hard, silty, blocky.
	10%	SANDSTONE light gray, clear, quartz, chert, unconsolidated, medium grained, as above.
440.00 to 445.00 (5.00)	90%	SHALE medium to dark gray, medium hard, silty, sandy, common large scattered carbonaceous grains, trace pyrite, blocky, with SHALE white, silty, blocky.
	10%	SANDSTONE light gray, clear, quartz, chert, unconsolidated, medium grained, as above.
445.00 to 450.00 (5.00)	90%	SHALE medium gray, medium hard, silty, sandy, as above.
	10%	SANDSTONE light gray, clear, quartz, chert, unconsolidated, medium grained, as above.

Little Bear: 450.50 MD, 450.48 TVD, -136.06 SSL

450.00 to 455.00 (5.00)	90%	SANDSTONE brown, clear, black, light gray, unconsolidated to friable, quartz, chert, medium to very coarse grained, angular to subrounded, poorly sorted, siderite cement, fair intergranular porosity, (10%), argillaceous, silty.
	10%	SHALE medium gray, medium hard, silty, sandy, as above.

Sample Descriptions

Storage Units: Metric

455.00 to 460.00 (5.00)	70%	SANDSTONE brown, light gray, clear, hard to unconsolidated, fine to very coarse grained, angular to subrounded, poorly sorted, siderite with siliceous cement, fair intergranular porosity, (10%), argillaceous, silty.
	30%	SHALE medium gray, brown, silty, sandy, trace carbonaceous matter, trace micro pyrite, blocky.
460.00 to 465.00 (5.00)	60%	SANDSTONE light brown, light gray, clear, quartz, chert, hard to unconsolidated, fine to medium grained, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (5%), trace carbonaceous matter, argillaceous, silty, trace pyrite.
	30%	CHERT varicolored white, black, light gray, brown, orange, hard, very coarse grained, angular, moderately sorted, tight, pyritic.
	10%	SHALE medium gray, light brown, medium hard, as above.
465.00 to 470.00 (5.00)	50%	SANDSTONE light gray, quartz, chert, medium hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (5-8%), trace carbonaceous matter, argillaceous, silty.
	30%	SHALE medium gray, medium hard, silty, sandy, trace carbonaceous matter, trace micro pyrite, blocky.
	20%	CHERT varicolored, light gray, white, black, hard, very coarse grained, angular, moderately sorted, tight, pyritic.
470.00 to 475.00 (5.00)	80%	SANDSTONE light gray, light brown, quartz, chert, medium hard, fine to medium grained, subangular, moderately sorted, siliceous with clay cement, tight to poor intergranular porosity (5-8%), trace carbonaceous matter, argillaceous, silty, trace pyrite.
	10%	CHERT varicolored, black, white, gray, hard, very coarse grained, as above.
	10%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky.
475.00 to 480.00 (5.00)	80%	SANDSTONE light gray, quartz, chert, medium hard, fine to medium grained, subangular, moderately sorted, siliceous with clay cement, tight to poor intergranular porosity (5-8%), trace carbonaceous matter, argillaceous, silty, trace pyrite.

Sample Descriptions

Storage Units: Metric

475.00 to 480.00 (5.00)	10%	CHERT varicolored, white, black, gray, hard, as above.
	10%	SHALE medium gray, medium hard, silty, as above.
480.00 to 485.00 (5.00)	80%	SANDSTONE light gray, quartz, chert, medium hard, fine to medium grained, as above.
	20%	SHALE medium gray, medium hard, silty, as above.
		CHERT Trace, as above.
485.00 to 490.00 (5.00)	50%	SANDSTONE light gray, quartz, chert, medium hard, fine to medium grained, as above.
	30%	CHERT varicolored, white, light gray, black, hard, very coarse grained, angular, moderately sorted, tight pyritic.
	20%	SHALE medium gray, medium hard, silty, as above.
490.00 to 495.00 (5.00)	90%	CONGLOMERATE light gray, clear, black, quartz, chert, unconsolidated to friable, coarse to very coarse grained, subrounded to angular, moderately sorted, siliceous cement, tight to fair intergranular porosity (10-12%), slightly argillaceous, trace pyrite.
	10%	SHALE medium gray, medium hard, silty, as above.
495.00 to 500.00 (5.00)	60%	CHERT white, light gray, black, hard, very coarse grained, angular, moderately sorted, tight, trace pyrite.
	30%	SANDSTONE light gray, clear, quartz, chert, friable to unconsolidated, fine to medium grained, subangular, moderately sorted, siliceous cement, tight to fair intergranular porosity (12%), trace carbonaceous matter, slightly argillaceous, trace pyrite.
	10%	SHALE medium gray, medium hard, as above.
500.00 to 505.00 (5.00)	60%	CHERT varicolored, white, light gray, black, hard, as above.
	40%	SANDSTONE light gray, clear, quartz, chert, fine to medium grained, as above.

Sample Descriptions

Storage Units: Metric

505.00 to 510.00 (5.00)	50%	SANDSTONE light gray, clear, quartz, chert, friable to unconsolidated, fine to medium grained, as above.
	30%	SHALE medium gray, medium hard, silty, as above.
	20%	CHERT varicolored, white, light gray, black, hard, as above.
510.00 to 515.00 (5.00)	70%	SANDSTONE light gray, salt and pepper, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, argillaceous, silty, trace pyrite.
	20%	CHERT varicolored, white, light gray, black, hard, as above.
	10%	SHALE medium gray, light brown, medium hard, silty, as above.
515.00 to 520.00 (5.00)	50%	SHALE medium gray, light brown, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky.
	50%	SANDSTONE light gray, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous, very silty, trace pyrite.
520.00 to 525.00 (5.00)	60%	SANDSTONE light gray, light brown, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, very argillaceous, very silty, trace pyrite.
	40%	SHALE medium gray, light brown, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky.
525.00 to 530.00 (5.00)	70%	SANDSTONE light gray, quartz, medium hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (3%), trace carbonaceous matter, trace coal grains, argillaceous, silty, trace pyrite.
	30%	SHALE medium gray, light brown, medium hard, as above.
530.00 to 531.00 (1.00)	80%	SANDSTONE light gray, white, clear, quartz, friable to unconsolidated, fine to medium grained, subangular, moderately sorted, siliceous cement, tight to fair intergranular porosity (12-15%), trace carbonaceous matter, trace coal grains, slightly argillaceous, trace pyrite.

Sample Descriptions

Storage Units: Metric

530.00 to 531.00 (1.00)	20%	SHALE medium gray, medium hard, as above.
531.00 to 535.00 (4.00)	50%	SANDSTONE light gray, white, clear, quartz, chert, friable to unconsolidated, fine to medium grained, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (5-8%), trace carbonaceous matter, slightly argillaceous, trace pyrite.
	30%	SHALE medium gray, medium hard, as above.
	20%	COAL
535.00 to 540.00 (5.00)	70%	SHALE medium gray, light brown, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky.
	30%	SANDSTONE light to medium gray, quartz, chert, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (5-10%), trace carbonaceous matter, slightly argillaceous, slightly silty, trace pyrite.
540.00 to 545.00 (5.00)	50%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky.
	50%	SANDSTONE light gray, gray brown, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, argillaceous, silty, trace pyrite.
545.00 to 550.00 (5.00)	60%	SHALE medium gray, medium hard, silty, as above.
	40%	SANDSTONE light brown, light gray, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight to fair intergranular porosity (8-10%), trace carbonaceous matter, argillaceous, silty, trace pyrite.
550.00 to 555.00 (5.00)	70%	SANDSTONE light gray, salt and pepper, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight to fair intergranular porosity (8-10%), slightly argillaceous, silty, trace micro pyrite.
	30%	SHALE medium gray, medium hard, silty, as above.
555.00 to 560.00 (5.00)	60%	SHALE medium gray, medium hard, silty, as above.

Sample Descriptions

Storage Units: Metric

555.00 to 560.00 (5.00)	40%	<p>SANDSTONE light gray, white, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (3-5%), trace carbonaceous matter, slightly argillaceous, silty, trace micro pyrite.</p>
560.00 to 565.00 (5.00)	60%	<p>SANDSTONE gray brown, light gray, quartz, large floating chert & quartz, hard, very fine to fine grained, subangular, poorly sorted, siliceous cement, tight to poor intergranular porosity (8-10%), trace carbonaceous matter, argillaceous, silty, trace micro pyrite.</p>
	40%	<p>SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky.</p>
565.00 to 570.00 (5.00)	80%	<p>SHALE medium gray, medium hard, silty, as above.</p>
	20%	<p>SANDSTONE light to medium gray, salt and pepper, quartz, medium hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, very argillaceous, silty, trace micro pyrite.</p>
570.00 to 575.00 (5.00)	70%	<p>SHALE medium gray, medium hard, silty, as above.</p>
	30%	<p>SANDSTONE light gray, salt and pepper, quartz, hard very fine to fine grained, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (5%), argillaceous, silty, trace pyrite, rare kaolinitic.</p>
575.00 to 580.00 (5.00)	70%	<p>SANDSTONE light gray, salt and pepper, quartz, hard, very fine to fine grained, as above.</p>
	30%	<p>SHALE medium gray, light brown, medium hard, silty, as above.</p>
580.00 to 585.00 (5.00)	90%	<p>SANDSTONE light gray, light brown, salt and pepper, quartz, hard, very fine to fine grained, as above.</p>
	10%	<p>SHALE medium gray, medium hard, silty, as above.</p>
585.00 to 590.00 (5.00)	90%	<p>SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.</p>
	10%	<p>SHALE medium gray, medium hard, silty, as above.</p>

Sample Descriptions

Storage Units: Metric

590.00 to 595.00 (5.00)	80%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
	20%	SHALE medium gray, medium hard, silty, as above.
595.00 to 600.00 (5.00)	80%	SHALE medium gray, medium hard, very silty, trace carbonaceous matter, trace micro pyrite, blocky.
	20%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, very argillaceous, silty, trace pyrite.
600.00 to 605.00 (5.00)	100%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky.
605.00 to 610.00 (5.00)	80%	SANDSTONE light gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
	20%	SHALE medium gray, light brown, medium hard, as above.
610.00 to 615.00 (5.00)	80%	SANDSTONE light gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
	20%	SHALE medium gray, light brown, medium hard, silty, as above.
615.00 to 620.00 (5.00)	70%	SHALE medium gray, medium hard, silty, as above.
	30%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
620.00 to 625.00 (5.00)	80%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
	20%	SHALE medium gray, light brown, medium hard, silty, as above.

Lower Little Bear: 625.00 MD, 624.98 TVD, -310.56 SSL

625.00 to 630.00 (5.00)	95%	SHALE medium gray, medium hard, very silty, sandy, trace carbonaceous matter, trace micro pyrite, blocky.
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Sample Descriptions

Storage Units: Metric

625.00 to 630.00 (5.00)	5%	SANDSTONE light to medium gray, as above.
630.00 to 635.00 (5.00)	90%	SHALE medium gray, medium hard, very silty, sandy, as above.
	10%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine, as above.
635.00 to 640.00 (5.00)	90%	SANDSTONE light to medium gray, salt and pepper, quartz, chert, friable to unconsolidated, fine to medium grained, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (5%), argillaceous, silty, trace pyrite.
	10%	SHALE medium gray, medium hard, as above.
640.00 to 645.00 (5.00)	80%	SHALE medium gray, light brown, medium hard, silty, sandy, trace carbonaceous matter, trace micro pyrite, blocky.
	20%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, argillaceous, silty, trace pyrite.
645.00 to 650.00 (5.00)	80%	SANDSTONE light to medium gray, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, argillaceous, silty, trace pyrite.
	20%	SHALE medium gray, light brown, medium hard, silty, as above.
650.00 to 655.00 (5.00)	90%	SANDSTONE light to medium gray, quartz, hard, very fine to fine grained, as above.
	10%	SHALE medium gray, light brown, medium hard, as above.
655.00 to 660.00 (5.00)	60%	SANDSTONE light to medium gray, quartz, hard, very fine to fine grained, as above.
	40%	SHALE medium gray, light brown, medium hard, as above.
660.00 to 665.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, medium hard, very fine to fine grained, as above.
	30%	SHALE medium gray, light brown, medium hard, silty, as above.
665.00 to 670.00 (5.00)	80%	SHALE medium gray, light brown, medium hard, silty, as above.

Sample Descriptions

Storage Units: Metric

665.00 to 670.00 (5.00)	20%	SANDSTONE light to medium gray, quartz, hard, very fine to fine grained, as above.
670.00 to 675.00 (5.00)	70%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, argillaceous, silty, trace pyrite.
	30%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace pyrite, blocky, with SHALE light brown, hard, dolomitic, silty, blocky.
675.00 to 680.00 (5.00)	70%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, dolomitic, as above.
	30%	SANDSTONE light to medium gray, quartz, chert, friable to unconsolidated, fine to coarse grained, poorly sorted, subangular to subrounded, siliceous cement, tight to fair intergranular porosity (10%), slightly argillaceous, trace pyrite.
680.00 to 685.00 (5.00)	70%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, argillaceous, silty, trace pyrite.
	30%	SHALE medium gray, medium hard, silty, trace micro pyrite, trace carbonaceous matter, blocky with SHALE light brown, hard, dolomitic, silty, trace micro pyrite, blocky.
685.00 to 690.00 (5.00)	80%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, very sideritic, as above.
	20%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
690.00 to 695.00 (5.00)	80%	SANDSTONE medium gray, gray brown, salt and pepper, quartz, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, very argillaceous, silty, trace pyrite.
	20%	SHALE medium gray, medium hard, silty, as above, SHALE light brown, medium hard, dolomitic, as above.
695.00 to 700.00 (5.00)	80%	SHALE medium gray, medium hard, silty, as above, minor SHALE light brown, as above.

Sample Descriptions

Storage Units: Metric

695.00 to 700.00 (5.00)	20%	SANDSTONE medium gray, gray brown, quartz, medium hard, very fine to fine grained, as above.
700.00 to 705.00 (5.00)	70%	SHALE medium gray, medium hard, silty, as above, with minor SHALE light brown, as above.
	30%	SANDSTONE medium gray, medium hard, quartz, hard, very fine to fine grained, as above.
705.00 to 710.00 (5.00)	70%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, argillaceous, silty, trace pyrite.
	30%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, massive, blocky, with SHALE light brown, hard, very sideritic, silty, blocky.
710.00 to 715.00 (5.00)	80%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, very fine to fine grained, as above.
	20%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, as above.
715.00 to 720.00 (5.00)	70%	SHALE medium gray, medium hard, as above, with SHALE light brown, hard, as above.
	30%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
720.00 to 725.00 (5.00)	80%	SHALE medium gray, medium hard, as above, with SHALE light brown, hard, as above.
	20%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
725.00 to 730.00 (5.00)	70%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky, with SHALE light brown, as above.
	30%	SANDSTONE light to medium gray, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, argillaceous, silty, trace pyrite.

Sample Descriptions

Storage Units: Metric

730.00 to 735.00 (5.00)	95%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky, with minor SHALE light brown, as above.
	5%	SANDSTONE light to medium gray, quartz, hard, very fine grained, as above.
735.00 to 740.00 (5.00)	100%	SHALE medium gray, medium hard, as above, with trace SHALE light brown, hard, as above.
		SANDSTONE Trace, as above.
740.00 to 745.00 (5.00)	90%	SHALE medium gray, medium hard, as above, with minor SHALE light brown, hard, as above.
	10%	SANDSTONE light to medium gray, quartz, hard, as above.
745.00 to 750.00 (5.00)	95%	SHALE medium gray, hard, silty, as above, with minor SHALE light brown, hard, as above.
	5%	SANDSTONE light to medium gray, quartz, hard, as above.
750.00 to 755.00 (5.00)	100%	SHALE medium gray, medium hard, silty, as above, with minor SHALE light brown, hard, as above.
755.00 to 760.00 (5.00)	100%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.
760.00 to 765.00 (5.00)	100%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky.
765.00 to 770.00 (5.00)	100%	SHALE medium gray, medium hard, silty, as above.
770.00 to 775.00 (5.00)	100%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky.
775.00 to 780.00 (5.00)	100%	SHALE medium gray, medium hard, silty, as above.

Sample Descriptions

Storage Units: Metric

Slater River: 782.50 MD, 782.47 TVD, -468.05 SSL

780.00 to 785.00 (5.00)	60%	SANDSTONE light to medium gray, quartz, chert, hard to slightly unconsolidated, fine to medium grained, occasionally coarse, moderately sorted, subangular, siliceous cement, tight to poor intergranular porosity (5-8%), argillaceous, silty, slightly calcareous in part, trace pyrite.
	40%	SHALE medium gray, silty, as above, with SHALE light brown, hard, as above.
785.00 to 790.00 (5.00)	70%	SANDSTONE light gray, quartz, chert, medium hard to unconsolidated, fine to medium grained, occasionally coarse, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (8%), trace carbonaceous matter, argillaceous, silty, trace pyrite.
	30%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.
790.00 to 795.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (3%), trace carbonaceous matter, argillaceous, silty, trace pyrite.
	30%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.
795.00 to 800.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, very fine to medium grained, subangular, poorly sorted, siliceous cement, tight to trace intergranular porosity (3%), argillaceous, silty, trace pyrite.
	30%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.
800.00 to 805.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, chert, very fine to medium grained, as above.
	30%	SHALE medium gray, medium hard, silty, as above, with trace SHALE light brown, hard, as above.
805.00 to 810.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, argillaceous, silty, trace pyrite.

Sample Descriptions

Storage Units: Metric

805.00 to 810.00 (5.00)	30%	SHALE medium gray, medium hard, silty, as above, with trace SHALE light brown, hard, as above.
810.00 to 815.00 (5.00)	70%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, argillaceous, silty, trace pyrite.
	30%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky, with SHALE light brown, hard, as above.
815.00 to 820.00 (5.00)	70%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
	30%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.
820.00 to 825.00 (5.00)	70%	SANDSTONE light to medium gray, quartz, hard, very fine to fine grained, as above.
	30%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.
825.00 to 830.00 (5.00)	60%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
	40%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.
830.00 to 835.00 (5.00)	50%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky, with SHALE light brown, hard, silty, dolomitic, blocky.
	45%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight, trace carbonaceous matter, argillaceous, silty, trace pyrite.
	5%	COAL
835.00 to 840.00 (5.00)	50%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.

Sample Descriptions

Storage Units: Metric

835.00 to 840.00 (5.00)	40%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
	10%	COAL
840.00 to 845.00 (5.00)	75%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, dolomitic, as above.
	20%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
	5%	COAL
845.00 to 850.00 (5.00)	75%	SHALE medium gray, medium hard, silty, trace micro pyrite, trace carbonaceous matter, blocky, with SHALE light brown, hard, dolomitic, silty, blocky.
	20%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above, rare glauconite, tight to poor intergranular porosity (3%).
	5%	COAL
850.00 to 855.00 (5.00)	90%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, dolomitic, as above.
	10%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above, tight.
855.00 to 860.00 (5.00)	90%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, dolomitic, as above.
	10%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above.
		COAL Trace.
860.00 to 865.00 (5.00)	80%	SHALE medium gray, medium hard, silty, as above. with SHALE light brown, medium hard, as above.

Sample Descriptions

Storage Units: Metric

860.00 to 865.00 (5.00)	20%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, subangular, moderately sorted, siliceous cement, tight to poor intergranular porosity (3%), trace carbonaceous matter, silty, argillaceous, very pyritic.
		COAL Trace.
865.00 to 870.00 (5.00)	85%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.
	10%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, as above.
	5%	COAL
870.00 to 875.00 (5.00)	85%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.
	10%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above, tight.
	5%	COAL Trace.
875.00 to 880.00 (5.00)	85%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky, with SHALE light brown, hard, dolomitic, silty, blocky.
	15%	SANDSTONE light to medium gray, salt and pepper, quartzose, hard, very fine to fine grained, as above, tight.
		COAL Trace.
880.00 to 885.00 (5.00)	85%	SHALE medium gray, medium hard, silty, as above, with SHALE light brown, hard, as above.
	10%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above, tight.
	5%	COAL Trace.

Sample Descriptions

Storage Units: Metric

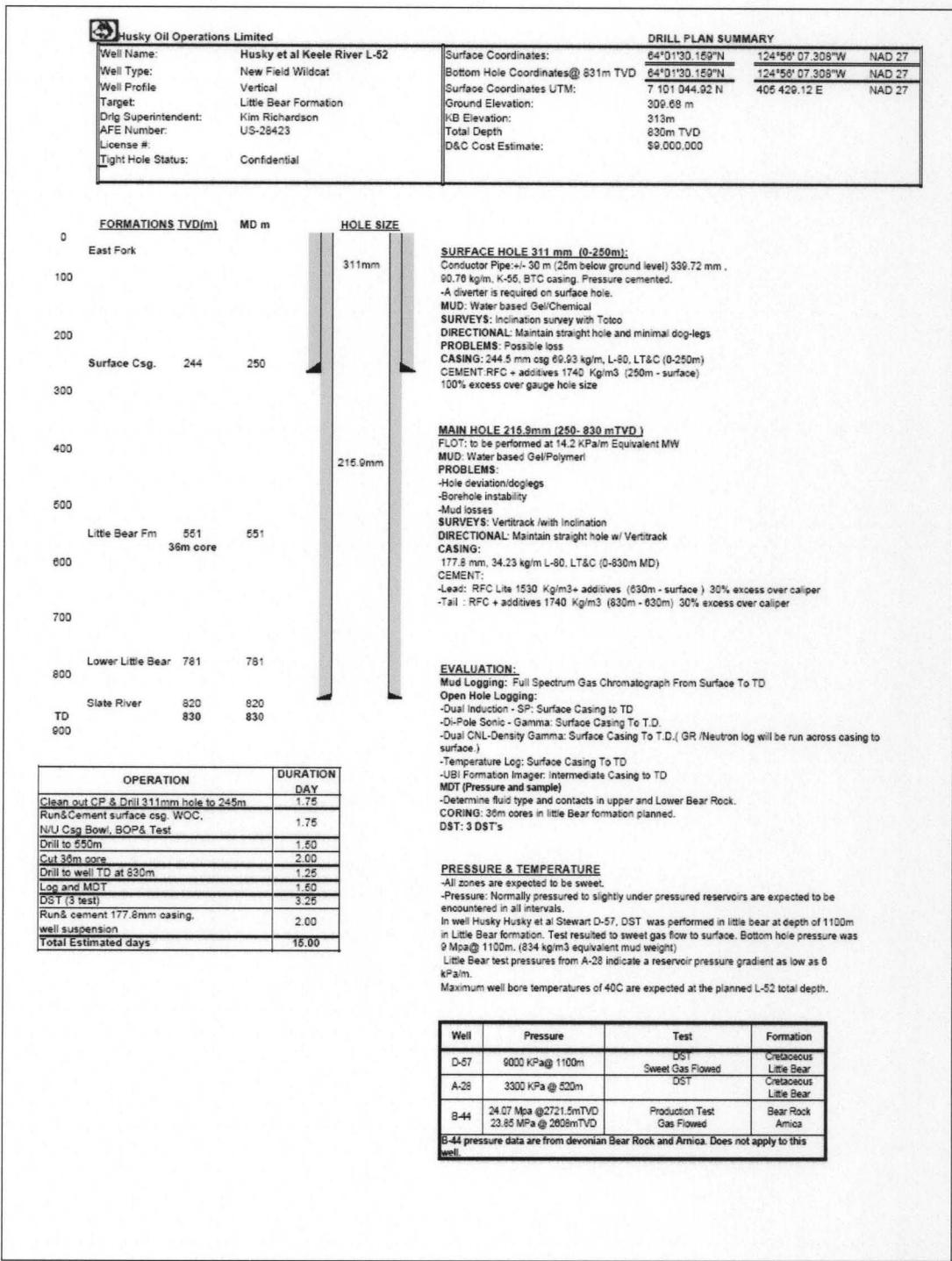
885.00 to 890.00 (5.00)	95%	SHALE medium gray, medium hard, silty, as above, SHALE light brown, hard, as above.
	5%	SANDSTONE light to medium gray, salt and pepper, quartz, hard, very fine to fine grained, as above, tight.
		COAL Trace.
890.00 to 895.00 (5.00)	100%	SHALE medium gray, medium hard, silty, trace carbonaceous matter, trace micro pyrite, blocky, with trace SHALE light brown, hard, as above.

Core Descriptions

Storage Units: Metric

531.20 to 531.21 (0.01)	SANDSTONE white, light gray, clear, quartz, chert, salt and pepper, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, fair intergranular porosity (10-12%), trace kaolinitic, trace micro pyrite.
532.20 to 532.21 (0.01)	SANDSTONE white, light gray, clear, quartz, chert, salt and pepper, hard, fine to medium grained, as above.
533.70 to 533.71 (0.01)	SANDSTONE white, light gray, clear, quartz, chert, salt and pepper, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, fair intergranular porosity (10-12%), carbonaceous matter, slightly kaolinitic, trace micro pyrite.
535.20 to 535.21 (0.01)	SANDSTONE white, light gray, clear, salt and pepper, quartz, chert, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, fair intergranular porosity (10-12%), slightly kaolinitic, trace micro pyrite.
536.70 to 536.71 (0.01)	SANDSTONE white, light gray, clear, salt and pepper, quartz, chert, hard, fine to medium grained, as above.
538.20 to 538.21 (0.01)	SANDSTONE white, light gray, clear, quartz, chert, salt and pepper, hard, fine to medium grained, as above.
540.00 to 540.01 (0.01)	SANDSTONE white, light gray, clear, salt and pepper, quartz, chert, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, fair intergranular porosity (10-12%), slightly kaolinitic, trace micro pyrite.
540.01 to 540.70 (0.69)	SANDSTONE white, light gray, clear, salt and pepper, quartz, chert, hard, fine to medium grained, subangular, moderately sorted, siliceous cement, poor intergranular porosity (8-10%), slightly kaolinitic, trace pyrite.

E.9 WELL KEELE RIVER L-52 PLANNED STICK DIAGRAM



E.10 DAILY DRILLING REPORTS

Daily drilling reports are in separate file.

E.11 DAILY DRILLING FLUID REPORTS

Daily drilling fluid reports are in separate file.

Date 3/6/2008

Husky Oil Operations Limited

Page 2 of 3

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	0
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	6
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	71.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 5 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$94,455.00
Operations @ 00:00	Drill 311 mm surface hole at 71 m.		311.00	Cumulative Costs	\$1,019,575.00
Operations @ 06:00	Drill 311 mm surface hole at 125 m at .25 deg.			Cumulative AFE	\$1,019,575.00

Casing

Item Description	Item Type	Make	Landed Depth			Well Depth			Hole Size			Top Depth (m)
			Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	

Casing Remarks

Cementing

Cementing Description							Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type	

Cementing Remarks

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office		Person							Date	
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	1
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	7
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	252.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	181.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 5 C Clear.			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$103,417.00
Operations @ 00:00	Circ/proir to run 244.5 csg. 252 m.		311.00	Cumulative Costs	\$1,122,992.00
Operations @ 06:00	Run 244.5 mm csg.			Cumulative AFE	\$1,122,992.00

Key Personnel

Drilling Supervisor Sam Machnee	(403)537-2591	Geologist	CLARANCE KENNEDY	(403)850-8180	Company	3
Drilling Supervisor Keith Tichkowsky.	(403)537-2591	Office Contact	Richardson, Kim	(403)298-7273	Service	8
Rig Manager					Rig	12
					Total	23

Personnel on Site

Brief Summary of Day's Activities

Drilled 311 mm surface hole from 71 m - 247 m, wiper tripped, and drilled to 252 m. Circulated prior to tripping out to run 244.5 mm csg.

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
1A	311.00	Hughes	GTCS1	6022344	20.0 / 20.0 / 20.0 / .0	.00	252.00	252.00	22.25	11.3	4-3-FC-A-3-I-BT-TD
					/ / /						

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
1A	19000	120/190	20000		18000		4/7	.00 / .00	40.54 / 36.01	36.8
								/ /	/ /	

Activities

Pump

Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
RIGSER	00:00	00:15	0.25	Service rig.					
DRILL	00:15	07:15	7.00	Drilled 311 mm hole from 71 m - 146 m.	.0104	80		.832	6800
SURVEY	07:15	08:00	0.75	Surveys.	.0125	100		1.250	6800
DRILL	08:00	15:15	7.25	Drilled 311 mm hole from 146 m - 229 m.					
SURVEY	15:15	16:00	0.75	Surveys.					
DRILL	16:00	16:45	0.75	Drilled 311 mm hole from 229 m - 237 m.					
SURVEY	16:45	17:00	0.25	Survey					
DRILL	17:00	17:45	0.75	Drilled 311 mm hole from 237 m - 247 m.					
CIRC	17:45	18:15	0.50	Circulate prior to wiper trip.					
TRIP	18:15	22:45	4.50	Wiper tripped prior to running 244.5 mm casing.					
DRILL	22:45	23:45	1.00	Drilled 311 mm hole from 247 m - 252 m.	208.00	.750			14.0 m3
CIRC	23:45	00:00	0.25	Circ. prior to tripping out to run csg.	237.00	.500			.0 m3

Survey

Well Control

Depth(m)	Incl.	Azim.	MACP	Hydrostatic
94.00	.250			.00 kPa
123.00	.250			.00 kPa
151.00	1.000			
180.00	1.250			
208.00	.750			
237.00	.500			

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)
Surface Hole							
Bit	1	311.000	.000	.000	.30	Regular threads	140.000
Sub - bit	1	177.800	.900	.000	1.00	H-90	140.000
Drill collar - standard	2	177.800	.900	.000	18.69	H-90	140.000
Stabilizer - non rotating	1	308.000	.850	.000	1.30	H-90	140.000
Drill collar - standard	1	177.800	.850	.000	9.46	H-90	140.000
Sub - cross over	1	177.800	.850	.000	.75	Extra hole	114.000
Drill collar - standard	5	152.000	.620	.000	46.83	Extra hole	114.000
Jars - mechanical	1	152.000	.600	.000	4.76	Extra hole	114.000
Drill collar - standard	3	152.000	.600	.000	28.38	Extra hole	114.000
Sub - cross over	1	121.000	.580	.000	.26	Internal flush	88.000
Drill collar - standard	4	121.000	.580	.000	38.09	Internal flush	88.000

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours
Centrifuge	1620	1060	80.0	24.0

Mud Additives

Mud Properties

Mud Additives	#	Mud Properties
Sawdust (1.0sack)	32.00	Density(kg/m3) 1120.0
Newlig / Lignite (50.0lb)	2.00	Viscosity(sec/L) 54.0
Soda Ash (50.0lb)	2.00	pH 8.0
Bentonite Wyo (40.0kg)	54.00	

Shale Shaker

Shale Shaker	(mesh/sq.in)
14 Double Decker	80 80 (mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	1
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	7
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	252.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	181.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 5 C Clear.			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$103,417.00
Operations @ 00:00	Circ/proir to run 244.5 csg. 252 m.		311.00	Cumulative Costs	\$1,122,992.00
Operations @ 06:00	Run 244.5 mm csg.			Cumulative AFE	\$1,122,992.00

Casing

Item Description	Item Type	Make	Landed Depth		Well Depth			Hole Size		
			Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)

Casing Remarks

Cementing

Cementing Description							Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type	

Cementing Remarks

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office		Person						Date		
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	1
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	7
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	252.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	181.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 5 C Clear.			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$103,417.00
Operations @ 00:00	Circ/proir to run 244.5 csg. 252 m.		311.00	Cumulative Costs	\$1,122,992.00
Operations @ 06:00	Run 244.5 mm csg.			Cumulative AFE	\$1,122,992.00

Detailed Remarks

No incidents to report.

- Drilled 311 mm surface hole from 71 m - 247 m.
- Wiper tripped to 24 m, no tight hole , no fill on bottom.
- Drilled 311 mm surface hole from 247 m - 252 m, Surface TD. Final survey, .5 deg.
- Circ. prior to running 244.5 mm surface casing.

Well Project UWI Licence	KEELE RIVER L-52 Initial Drilling 300L026401124560 2052	Ground Elevation KB Elevation Projected Depth Present Depth Daily Progress Accident	310.17 m 314.42 m 830.0 m 252.0 m .0 m No	Days From Spud Days on Location Spud Date Rig Release Date AFE Number AFE Amount Budget Amount Daily Costs Cumulative Costs Cumulative AFE	2 8 3/6/2008 16:00 3/21/2008 00:00 US-28423 \$9,000,000.00 \$5,829,000.00 \$62,959.00 \$1,185,951.00 \$1,185,951.00
Rig Name / Model Final Status Code Weather Formation Operations @ 00:00 Operations @ 06:00	Akita #14 / Single Drilled & Abandoned -10 C Clear Surface (top hole) Nipple up BOP. 252 m. Press test BOP.	Hole Size (mm) 311.00			

Key Personnel

Personnel on Site

Drilling Supervisor Sam Machnee (403)537-2591	Geologist CLARANCE KENNEDY (403)850-8180	Company	3
Drilling Supervisor Keith Tichkowsky (403)537-2591	Office Contact Richardson, Kim (403)298-7273	Service	12
Rig Manager		Rig	12
		Total	27

Brief Summary of Day's Activities

Circulated and and tripped out to run 18 jts of 244.5 mm surface csg, landed at 252 m. Cemented with 20.5 tonne of RFC Fillup with 8 m3 of good cement returns. WOC and nipped down diverter. Welded 279 mm, 21,000 kps bowl.

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
/	/	/	/	/	/	/	/	/	/	/	/

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
/	/	/	/	/	/	/	/	/	/	/

Activities

Pump

Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
CIRC	00:00	00:45	0.75	Circ prior to running 244.5 mm surface csg.	.0104	80		.832	600
RIGSER	00:45	01:00	0.25	Service rig.	.0125			.000	
TRIP	01:00	03:45	2.75	Tripped out to run csg.					
SAFETY	03:45	04:00	0.25	Safety meeting with FI Canada.					
CASE	04:00	09:30	5.50	Ran 18 jts of 244.5 mm surface csg. Landed at 252 m.					
RIGSER	09:30	09:45	0.25	Rig service.					
CIRC	09:45	11:00	1.25	Circulated casing.					
SAFETY	11:00	11:15	0.25	Safety meeting with Schlumberger.					
CEMENT	11:15	13:45	2.50	Cemented 244.5 mm csg. 8 m3 cement returns.					
WOC	13:45	20:00	6.25	WOC					
NUBOP	20:00	20:45	0.75	Nipped down diverter.					
NUBOP	20:45	00:00	3.25	Weld casing bowl.					

Survey

Well Control

Depth(m)	Incl.	Azim.	MACP	Hydrostatic	BOP Last Tested	Last Casing Size	Casing Shoe	Surface Tank	Premix Tank	String	Annular	Total Mud	Mud Loss	Cum. Mud Loss	Bottom Up Time	Circulating Time	Sump Volume	Sump Freeboard
				.00 kPa	.00 kPa	244.500 mm	252.00 m	14.0 m3	.0 m3	2.0 m3	5.0 m3	21.0 m3	.5 m3	3.5 m3	4.00 min	14.00 min	.0 m3	.0 m

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)

Mud Additives

Mud Properties

Mud Additives	#	Mud Properties
Desco CF (25.0lb)	1.00	Density(kg/m3) 1120.0
Newlig / Lignite (50.0lb)	1.00	Viscosity(sec/L) 65.0
Bentonite Wyo (40.0kg)	15.00	pH 9.0

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours
Centrifuge	1450	1050	60.0	12.0

Shale Shaker

Shale Shaker	Flow (L/min)	Hours	Mesh (mesh/sq.in)
13 Double Decker	80	80	(mesh/sq.in)

Date 3/8/2008

Husky Oil Operations Limited

Page 2 of 3

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	2
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	8
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	252.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	-10 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)			Daily Costs	\$62,959.00
Operations @ 00:00	Nipple up BOP. 252 m.			Cumulative Costs	\$1,185,951.00
Operations @ 06:00	Press test BOP.			Cumulative AFE	\$1,185,951.00

Casing

Item Description	Item Type	Make	Landed Depth		Grade	Well Depth			Hole Size		Top Depth (m)
			Size (mm)	Weight (kg/m)		Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	

Casing Remarks

Cementing

Cementing Description Surface #1						Stage # 1				
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type	
Lead #1	RFC Fillup	3% Cacl2	20.50	1740.00	16.30	.0	252.0	8.0	Cement slurry	

Cementing Remarks

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office	Person	Date								
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Husky Oil Operations Limited

Date 3/8/2008

Page 3 of 3

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	2
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	8
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	252.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	-10 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$62,959.00
Operations @ 00:00	Nipple up BOP. 252 m.		311.00	Cumulative Costs	\$1,185,951.00
Operations @ 06:00	Press test BOP.			Cumulative AFE	\$1,185,951.00

Detailed Remarks

No incidents to report.

- Circulated prior to running csg.
- Tripped out of well, lay 177.8 mm collars.
- Ran 18 jts of 244.5 mm, 69.94 kg/m, L-80 surface csg. Landed at 252 m.
- Circulated and cemented with 20.5 tonne of RFC Fillup Schlumberger cement. 8 m3 of good cement returns. Plug held and down at 13;15 hrs. Mar.8/08.
- WOC for 6 hrs.
- Nipped down diverter.
- Welded on 279 mm , 21000 kpa streamflo casing bowl.

Well Control		Survey		Bottom Hole Assembly		Casing	
Depth (m)	Pressure (kPa)	Depth (m)	Pressure (kPa)	ID (mm)	OD (mm)	Length (m)	Weight (kg/m)
0	0	0	0	279	311	0	0
10	1000	10	1000	279	311	10	1000
20	2000	20	2000	279	311	20	2000
30	3000	30	3000	279	311	30	3000
40	4000	40	4000	279	311	40	4000
50	5000	50	5000	279	311	50	5000
60	6000	60	6000	279	311	60	6000
70	7000	70	7000	279	311	70	7000
80	8000	80	8000	279	311	80	8000
90	9000	90	9000	279	311	90	9000
100	10000	100	10000	279	311	100	10000
110	11000	110	11000	279	311	110	11000
120	12000	120	12000	279	311	120	12000
130	13000	130	13000	279	311	130	13000
140	14000	140	14000	279	311	140	14000
150	15000	150	15000	279	311	150	15000
160	16000	160	16000	279	311	160	16000
170	17000	170	17000	279	311	170	17000
180	18000	180	18000	279	311	180	18000
190	19000	190	19000	279	311	190	19000
200	20000	200	20000	279	311	200	20000
210	21000	210	21000	279	311	210	21000
220	22000	220	22000	279	311	220	22000
230	23000	230	23000	279	311	230	23000
240	24000	240	24000	279	311	240	24000
250	25000	250	25000	279	311	250	25000
260	26000	260	26000	279	311	260	26000
270	27000	270	27000	279	311	270	27000
280	28000	280	28000	279	311	280	28000
290	29000	290	29000	279	311	290	29000
300	30000	300	30000	279	311	300	30000
310	31000	310	31000	279	311	310	31000
320	32000	320	32000	279	311	320	32000
330	33000	330	33000	279	311	330	33000
340	34000	340	34000	279	311	340	34000
350	35000	350	35000	279	311	350	35000
360	36000	360	36000	279	311	360	36000
370	37000	370	37000	279	311	370	37000
380	38000	380	38000	279	311	380	38000
390	39000	390	39000	279	311	390	39000
400	40000	400	40000	279	311	400	40000
410	41000	410	41000	279	311	410	41000
420	42000	420	42000	279	311	420	42000
430	43000	430	43000	279	311	430	43000
440	44000	440	44000	279	311	440	44000
450	45000	450	45000	279	311	450	45000
460	46000	460	46000	279	311	460	46000
470	47000	470	47000	279	311	470	47000
480	48000	480	48000	279	311	480	48000
490	49000	490	49000	279	311	490	49000
500	50000	500	50000	279	311	500	50000

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	3
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	9
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	252.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 15 C Clear	Hole Size (mm)		Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	311.00		Daily Costs	\$58,086.70
Operations @ 00:00	Drill plug and cement. 245 m.			Cumulative Costs	\$1,244,037.70
Operations @ 06:00	Picking up vertitrack			Cumulative AFE	\$1,244,037.75

Key Personnel

Personnel on Site

Drilling Supervisor Sam Machnee (403)537-2591	Geologist CLARANCE KENNEDY (403)850-8180	Company	3
Drilling Supervisor Keith Tichkowsky (403)537-2591	Office Contact Richardson, Kim (403)298-7273	Service	8
Rig Manager		Rig	12
		Total	23

Brief Summary of Day's Activities

Welded on 279 mm csg bowl, Nipple BOP, Pressure tested BOP and surface equipment. Tripped in well with 216 mm insert bit. Pressure tested kelly cock. Drilled out cement, tagged cement at 233 m.

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
1	216.00	Hughes	GX-18	6062422	20.0 / 20.0 / 20.0 /	.0	252.00	.00	.00	.0	
					/ / /						
					/ / /						

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
1	12000	80/80	12000		12000		6/6	.00 / .00	.00 / .00	.00
								/ /	/ /	/

Activities

Pump

Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
NUBOP	00:00	01:30	1.50	Weld on 279 mm csg bowl.					
SAFETY	01:30	01:45	0.25	Safety meeting with press. tester.	.0104			.000	
TESTBOP	01:45	17:30	15.75	Pressure test BOP and surface equipment.	.0125			.000	
TRIP	17:30	19:00	1.50	Trip in with 216 mm insert bit to drill out cement.					
TESTBOP	19:00	23:00	4.00	Pressure test upper kelly cock, winterize BOP system.					
TESTBOP	23:00	23:15	0.25	Bop drill with crews.					
RIGSER	23:15	23:30	0.25	Rig service.					
DRILLOUT	23:30	00:00	0.50	Drill out cement. Tagged shoe at 233 m.					

Survey		Well Control	
Depth(m)	Incl. Azim.	MACP	Pressure (kPa)
			.00 kPa
		Hydrostatic	.00 kPa
		BOP Last Tested	3/9/2008
		Last Casing Size	244.500 mm
		Casing Shoe	252.00 m
		Surface Tank	25.0 m3
		Premix Tank	.0 m3
		String	2.0 m3
		Annular	5.0 m3
		Total Mud	32.0 m3
		Mud Loss	.0 m3
		Cum. Mud Loss	3.5 m3
		Bottom Up Time	5.00 min
		Circulating Time	20.00 min
		Sump Volume	.0 m3
		Sump Freeboard	.0 m

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)
Main hole							
Bit	1	216.000	.000	.000	.30	Regular threads	114.000
Sub - bit	1	152.800	.600	.000	.73	Extra hole	114.000
Drill collar - standard	8	152.000	.620	.000	75.21	Extra hole	114.000
Sub - cross over	1	121.000	.580	.000	.26	Internal flush	88.000
Drill collar - standard	4	121.000	.580	.000	38.09	Internal flush	88.000

Mud Additives

Mud Properties

#	Mud Properties
10.00	Density(kg/m3) 1000.0
10.00	Viscosity(sec/L) 32.0
4.00	Drispac Reg (50.0lb)
5.00	Kelzan XCD (25.0kg)

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours
Centrifuge			.0	

Shale Shaker			
Mesh	Area (sq.in)	Flow (L/min)	Hours
12 Double Decker	80	80	

Date 3/9/2008

Husky Oil Operations Limited

Page 2 of 3

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	3
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	9
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	252.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 15 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$58,086.70
Operations @ 00:00	Drill plug and cement. 245 m.		311.00	Cumulative Costs	\$1,244,037.70
Operations @ 06:00	Picking up vertitrack			Cumulative AFE	\$1,244,037.75

Casing

Item Description	Item Type	Make	Landed Depth		Well Depth		Hole Size		Cutoff (m)	Length Ran(m)	Top Depth (m)
			Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints			
Casing Remarks											

Cementing

Cementing Description								Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type		
Cementing Remarks											

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
Abandonment/Plugback					

Abandonment/Plugback

Office		Person						Date		
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	3
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	9
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	252.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 15 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)			Daily Costs	\$58,086.70
Operations @ 00:00	Drill plug and cement. 245 m.	Hole Size (unit)		Cumulative Costs	\$1,244,037.70
Operations @ 06:00	Picking up vertitrack		311.00	Cumulative AFE	\$1,244,037.75

Detailed Remarks

No incidents to report.

- Welded on csg bowl. (279 mm 0
- Nipped up BOP stack.
- Pressure tested BOP's and surface equipment.
 - Manifold valves - 1500 kpa - 21,000 kpa 15 min each
 - Pipe rams 1500 kpa - 21,000 kpa 15 min
 - Hydril 1500 kpa - 10,000 kpa 15 min
 - Blind rams/csg 1500 kpa - 14,000 kpa 15 min
 - Surface eqiup. 1500 kpa - 21,000 kpa 15 min each
 - Kill line and valves 1500 kpa - 21,000 kpa 15 min each
- Tripped in with GX-18 insert bit and drilled out cement.

Date 3/10/2008

Husky Oil Operations Limited

Page 1 of 4

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	4
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	10
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	526.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	274.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 15 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$77,791.25
Operations @ 00:00	Drill 216 mm hole at 450 m.	216.00		Cumulative Costs	\$1,321,828.95
Operations @ 06:00	Drlg @ 531 m.	311.00		Cumulative AFE	\$1,321,829.00

Key Personnel

Personnel on Site

Drilling Supervisor Sam Machnee	(403)537-2591	Geologist	CLARANCE KENNEDY	(403)850-8180	Company	3
Drilling Supervisor Keith Tichkowsky	(403)537-2591	Office Contact	Richardson, Kim	(403)298-7273	Service	8
Rig Manager					Rig	12
					Total	23

Brief Summary of Day's Activities

Drilled out cement to 252 m. Drilled new hole to 257 m, circ and performed an integrity test to 1200 kpa. Displaced hole to mud and tripped out to pick up vertitrack tools. Drilled 216 mm hole from 216 m - 450 m.

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
1	216.00	Hughes	GX-18	6062422	20.0 / 20.0 / 20.0 / .0	252.00		198.00	10.75	18.4	

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
1	21000		22000		20000		8/9	.00 / .00	59.66 / 81.09	26.5

Activities

Pump

Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
DRILLOUT	00:00	00:15	0.25	Drilled out cement.	.0125	120	60	1.500	8500
DRILL	00:15	00:45	0.50	Drilled 216 mm hole from 252 m - 257 m.	.0104			.000	
CIRC	00:45	01:15	0.50	Circ hole clean.					

Survey

Well Control

Code	From	To	Hours	Remarks	Depth(m)	Incl.	Azim.	MACP	Pressure
CIRC	01:45	03:30	1.75	Circ and displace well with drilling mud.	269.00	.290		Hydrostatic	2521.00 kPa
TRIP	03:30	11:00	7.50	Tripped out and picked up vertitrack tools.	317.00	.050		BOP Last Tested	3/9/2008
TESTBOP	11:00	11:30	0.50	BOP drill.	348.00	.070		Last Casing Size	244.500 mm
DRILL	11:30	22:00	10.50	Drill 216 mm hole from 257 m - 450 m.	378.00	.200		Casing Shoe	252.00 m
CIRC	22:00	00:00	2.00	Connection and survey time.	408.00	.080		Surface Tank	21.0 m3
					438.00	.140		Premix Tank	.0 m3
								String	2.5 m3
								Annular	8.0 m3
								Total Mud	31.5 m3
								Mud Loss	2.0 m3
								Cum. Mud Loss	5.5 m3
								Bottom Up Time	4.00 min
								Circulating Time	20.00 min
								Sump Volume	.0 m3
								Sump Freeboard	.0 m

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)
Main hole							
Bit	1	216.000	.000	.000	.24	Regular threads	114.000
Down hole motor	1	152.000	.000	.000	9.39	Internal flush	114.000
Sub - screw in	1	152.000	.000	.000	1.67	Internal flush	114.000
Sub - float	1	152.000	.000	.000	.68	Extra hole	114.000
Reamer	1	216.000	.600	.000	1.35	Extra hole	114.000
Drill collar - standard	1	152.000	.600	.000	9.40	Extra hole	114.000
Sub - pump out	1	152.000	.600	.000	2.66	Extra hole	114.000
Drill collar - standard	7	152.000	.600	.000	65.81	Extra hole	114.000
Jars - hydraulic	1	152.000	.600	.000	4.76	Extra hole	114.000
Drill collar - standard	2	152.000	.600	.000	18.85	Extra hole	114.000
Sub - cross over	1	121.000	.570	.000	.26	Internal flush	.890
Drill collar - standard	4	121.000	.570	.000	38.09	Internal flush	.890

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours	Shale Shaker	
Centrifuge	1010	1410	80.0	16.0	11 Double Decker	50 50 (mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	4
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	10
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	526.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	274.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 15 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$77,791.25
Operations @ 00:00	Drill 216 mm hole at 450 m.		216.00	Cumulative Costs	\$1,321,828.95
Operations @ 06:00	Drlg @ 531 m.		311.00	Cumulative AFE	\$1,321,829.00

Casing

Item Description	Item Type	Make	Landed Depth			Well Depth			Hole Size		
			Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)

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Casing Remarks

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Cementing

Cementing Description								Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type		

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Cementing Remarks

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Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office		Person					Date			
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

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Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	4
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	10
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	526.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	274.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 15 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$77,791.25
Operations @ 00:00	Drill 216 mm hole at 450 m.		216.00	Cumulative Costs	\$1,321,828.95
Operations @ 06:00	Drig @ 531 m.		311.00	Cumulative AFE	\$1,321,829.00

Detailed Remarks

No incidents to report.

- Drilled out float shoe /cement/ . to 252 m.
- Drilled new hole from 252 m - 257 m.
- Circ and ran integrity formation test to 1200 kpa , no formation break down.
- Displaced well from cement water with polymer mud.
- Tripped out and picked up vertitak tool.
- Drilled 216 mm hole from 257 m - 450 m. 27 m/per/hr.

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	5
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	11
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	540.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	14.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 12 C Overcast			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$107,984.20
Operations @ 00:00	Trip out with core #1.		216.00	Cumulative Costs	\$1,429,813.15
Operations @ 06:00	Attempt to start cutting core #2. Jammed.			Cumulative AFE	\$1,429,813.13

Key Personnel

Drilling Supervisor Sam Machnee	(403)537-2591	Geologist	CLARANCE KENNEDY	(403)850-8180	Company	3
Drilling Supervisor Keith Tichkowsky	(403)537-2591	Office Contact	Richardson, Kim	(403)298-7273	Service	8
Rig Manager					Rig	12
					Total	23

Brief Summary of Day's Activities

Drilled 216 mm hole from 450 m - 531 m. (Core point). Wiper tripped 5 singles and tripped out to pick up core bbls. Cut core #1 from 531 m - 540 m. Tripped out to recover core #1.

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
2	171.00	Hughes	C-22	7113946	.0 / .0 / .0 / .0	531.00	540.00	9.00	3.25	2.8	1-1-NO-A-1-I-NO-CP
1	216.00	Hughes	GX-18	6062422	20.0 / 20.0 / 20.0 / .0	252.00	531.00	279.00	16.50	16.9	2-2-NO-A-2-I-NO-CP

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
2	23000	45/50	23500		22500		3/4	.00 / .00	63.23 / 150.42	.0
1	24000		25000		23000		8/11	.00 / .00	28.83 / 39.19	12.8

Activities

Code	From	To	Hours	Remarks
DRILL	00:00	00:30	0.50	Drilled 216 mm hole from 450 m - 459 m.
RIGSER	00:30	00:45	0.25	Rig service.
DRILL	00:45	06:00	5.25	Drilled 216 mm hole from 459 m - 531 m. Core point.
CIRC	06:00	08:00	2.00	Accumm circ. and connections.
TRIP	08:00	08:15	0.25	Wiper tripped 5 singles.
CIRC	08:15	08:45	0.50	Circ prior to cut core.
TRIP	08:45	13:00	4.25	Tripped out.
RIGSER	13:00	13:15	0.25	Rig service.
SAFETY	13:15	13:30	0.25	Safety meeting with Core hand.
TRIP	13:30	16:45	3.25	Make up core bbl and trip in well.
CIRC	16:45	17:30	0.75	Wash to core point.
CORE	17:30	20:45	3.25	Cut core #1 from 531 m - 540 m.
TRIP	20:45	00:00	3.25	Trip out to recover core #1.

Pump

Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
.0104			.000	
.0125	58	58	.725	3000

Survey

Well Control

Depth(m)	Incl.	Azim.	MACP	1990.00 kPa
468.00	.060		Hydrostatic	2571.00 kPa
498.00	.460		BOP Last Tested	3/9/2008
527.00	.040		Last Casing Size	244.500 mm
			Casing Shoe	252.00 m
			Surface Tank	22.0 m3
			Premix Tank	.0 m3
			String	2.5 m3
			Annular	14.7 m3
			Total Mud	39.2 m3
			Mud Loss	.0 m3
			Cum. Mud Loss	5.5 m3
			Bottom Up Time	10.00 min
			Circulating Time	29.00 min
			Sump Volume	.0 m3
			Sump Freeboard	.0 m

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)
Coring							
Bit	1	171.000	.000	.000	.26	Slim hole	114.000
Core barrel	1	159.000	.000	.000	10.43	Slim hole	114.000
Jars - hydraulic	1	159.000	.600	.000	2.12	Extra hole	114.000
Sub - double pin	1	159.000	.600	.000	.27	Regular threads	114.000
Sub - bit	1	159.000	.600	.000	.73	Regular threads	114.000
Drill collar - standard	10	159.000	.600	.000	93.96	Extra hole	114.000
Sub - cross over	1	121.000	.580	.000	.26	Internal flush	89.000
Drill collar - standard	4	121.000	.580	.000	38.09	Internal flush	89.000

Mud Additives

Mud Properties

Desco CF (25.0lb)	3.00	Density(kg/m3)	1030.0
Soda Ash (50.0lb)	5.00	Viscosity(sec/L)	83.0
Cal Carb "O" (25.0kg)	5.00	Gel Strength 1(Pa)	10.0
Cal Carb "325" (25.0kg)	5.00	Gel Strength 2(Pa)	12.0
PHPA LV (25.0kg)	1.00	Filter Cake(mm)	2.0
Drispac Reg (50.0lb)	5.00	Yield Point(Pa)	19.0
High Perm (20.0L)	1.00	Plastic Viscosity(mPa.s)	21.0
Newlig / Lignite (50.0lb)	12.00	pH	7.5
		Calcium(mg/l)	90.0
		Chlorides(mg/l)	350.0
		Solids%	.02
		Fluid Loss(cm3/30 min.)	9.3

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours
Centrifuge	1280	1010	60.0	12.0

Shale Shaker

10 Double Decker	50	50	(mesh/sq.in)
			(mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	5
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	11
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	540.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	14.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 12 C Overcast	Hole Size (unit)		Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	216.00		Daily Costs	\$107,984.20
Operations @ 00:00	Trip out with core #1.			Cumulative Costs	\$1,429,813.15
Operations @ 06:00	Attempt to start cutting core #2. Jammed.			Cumulative AFE	\$1,429,813.13

Casing

		Landed Depth			Well Depth			Hole Size				
		m			m			mm				
Item Description	Item Type	Make	Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	Top Depth (m)

Casing Remarks

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Cementing

Cementing Description							Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type	

Cementing Remarks

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Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)

Abandonment/Plugback

Office		Person					Date			
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	6
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	12
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	578.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	38.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 18 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$67,732.65
Operations @ 00:00	Drill 216 mm hole at 578 m.	216.00		Cumulative Costs	\$1,497,545.80
Operations @ 06:00	Drill 216 mm hole at 650 m.			Cumulative AFE	\$1,497,545.75

Key Personnel

Personnel on Site

Drilling Supervisor Sam Machnee	(403)537-2591	Geologist	CLARANCE KENNEDY	(403)850-8180	Company	3
Drilling Supervisor Keith Tichkowsky	(403)537-2591	Office Contact	Richardson, Kim	(403)298-7273	Service	8
Rig Manager					Rig	12
					Total	23

Brief Summary of Day's Activities

Recovered core #1 (8.8 m full), Tripped in to cut core #2. Attempt to core - jammed, tripped out, found plastic sleeve was loose allowing catcher to be pushed up in core bll jamming. Decided to drill ahead with PDC , 540 m - 578 m. National Energy Board check OK.

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
3	216.00	Smith	M516 BHYPX	SOA586	16.0 / 16.0 / 16.0 / 16.0	531.00		47.00	3.75	12.5	
					/ / /						
					/ / /						

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
3	23000		24000		22000		2/3	.00 / .00	59.66 / 81.09	31.1
								/ /	/ /	

Activities

Pump

Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
RIGSER	00:00	00:15	0.25	Rig service.					
SAFETY	00:15	00:30	0.25	Safety meeting prior to recover core, (check for H2s).	.0104			.000	
CORE	00:30	01:30	1.00	Recover core, full recover 8.8 m.	.0125	120	60	1.500	7500
TRIP	01:30	04:00	2.50	Tripped in well to cut core #2.					
CIRC	04:00	04:15	0.25	Wash to bottom.					
CORE	04:15	06:00	1.75	Attempt to core, Jammed off due to plastic sleeve cut to loose.					
TRIP	06:00	11:30	5.50	tripped out and lay out core bbls.					
REPAIR	11:30	13:30	2.00	Repair, o - ring in accumulator pump.					
TRIP	13:30	17:00	3.50	Tripped in well with vertittrak and PDC bit.					
REAMUG	17:00	18:15	1.25	Reamed rathole from 531 m - 540 m.					
DRILL	18:15	21:00	2.75	Drilled 216 mm hole from 540 m - 568 m.					
REPAIR	21:00	23:00	2.00	Weld wash on standpipe in sub.					
DRILL	23:00	00:00	1.00	Drill 216 mm hole from 568 m - 578 m.					

Survey

Well Control

Depth(m)	Incl.	Azim.	MACP	1990.00 kPa
			Hydrostatic	2571.00 kPa
			BOP Last Tested	3/9/2008
			Last Casing Size	244.500 mm
			Casing Shoe	252.00 m
			Surface Tank	24.0 m3
			Premix Tank	.0 m3
			String	2.6 m3
			Annular	14.7 m3
			Total Mud	41.3 m3
			Mud Loss	.0 m3
			Cum. Mud Loss	5.5 m3
			Bottom Up Time	9.70 min
			Circulating Time	31.00 min
			Sump Volume	.0 m3
			Sump Freeboard	.0 m

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)
Main hole							
Bit	1	216.000	.000	.000	.24	Regular threads	114.000
Down hole motor	1	152.000	.000	.000	9.39	Internal flush	114.000
Sub - screw in	1	152.000	.000	.000	1.67	Internal flush	114.000
Sub - float	1	152.000	.000	.000	.68	Extra hole	114.000
Reamer	1	216.000	.600	.000	1.35	Extra hole	114.000
Drill collar - standard	1	152.000	.600	.000	9.40	Extra hole	114.000
Sub - pump out	1	152.000	.600	.000	2.66	Extra hole	114.000
Drill collar - standard	7	152.000	.600	.000	65.81	Extra hole	114.000
Jars - hydraulic	1	152.000	.600	.000	4.76	Extra hole	114.000
Drill collar - standard	2	152.000	.600	.000	18.85	Extra hole	114.000
Sub - cross over	1	121.000	.570	.000	.26	Internal flush	.890
Drill collar - standard	4	121.000	.570	.000	38.09	Internal flush	.890

Mud Additives

Mud Properties

Kelzan XCD (25.0kg)	1.00	Density(kg/m3)	1030.0
High Perm (20.0L)	1.00	Viscosity(sec/L)	56.0
Newlig / Lignite (50.0lb)	2.00	Gel Strength 1(Pa)	6.0
Drispac Reg (50.0lb)	2.00	Gel Strength 2(Pa)	11.0
Cal Carb "O" (25.0kg)	10.00	Filter Cake(mm)	2.0
Cal Carb "325" (25.0kg)	6.00	Yield Point(Pa)	12.0
Sawdust (1.0sack)	5.00	Plastic Viscosity(mPa.s)	18.0
Desco CF (25.0lb)	5.00	pH	7.0
		Calcium(mg/l)	80.0
		Chlorides(mg/l)	350.0
		Solids%	.20
		Fluid Loss(cm3/30 min.)	8.0

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours
Centrifuge			.0	

Shale Shaker

9. Double Decker	(mesh/sq.in)
	(mesh/sq.in)

Husky Oil Operations Limited										Page 2 of 4	
Date 3/12/2008											
Well	KEELE RIVER L-52			Ground Elevation	310.17 m	Days From Spud	6				
Project	Initial Drilling			KB Elevation	314.42 m	Days on Location	12				
UWI	300L026401124560			Projected Depth	830.0 m	Spud Date	3/6/2008 16:00				
Licence	2052			Present Depth	578.0 m	Rig Release Date	3/21/2008 00:00				
Rig Name / Model	Akita #14 / Single			Daily Progress	38.0 m	AFE Number	US-28423				
Final Status Code	Drilled & Abandoned			Accident	No	AFE Amount	\$9,000,000.00				
Weather	- 18 C Clear					Budget Amount	\$5,829,000.00				
Formation	Surface (top hole)			Hole Size (mm)		Daily Costs	\$67,732.65				
Operations @ 00:00	Drill 216 mm hole at 578 m.				216.00	Cumulative Costs	\$1,497,545.80				
Operations @ 06:00	Drill 216 mm hole at 650 m.					Cumulative AFE	\$1,497,545.75				
Key Personnel							Personnel on Site				
Drilling Supervisor				Geologist			Company				
Drilling Supervisor				Office Contact			Service				
Rig Manager							Rig				
							Total				
Brief Summary of Day's Activities											
Bit											
Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
					/ / /						
					/ / /						
					/ / /						
Drilling Parameters											
Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)	
								/	/		
								/	/		
								/	/		
Activities						Pump					
Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)		
						Survey			Well Control		
						Depth(m)	Incl.	Azim.	MACP		
						Hydrostatic					
						BOP Last Tested					
						Last Casing Size					
						Casing Shoe					
						Surface Tank					
						Premix Tank					
						String					
						Annular					
						Total Mud					
						Mud Loss					
						Cum. Mud Loss					
						Bottom Up Time					
						Circulating Time					
						Sump Volume					
						Sump Freeboard					
Bottom Hole Assembly						Mud Additives					
Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)	# Mud Properties			
Main hole											
Sub - cross over	1	121.000	.570	.000	.30	Full hole	101.000				
Solids Control						Shale Shaker					
Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours							
					(mesh/sq.in)						
					(mesh/sq.in)						

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	6
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	12
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	578.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	38.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 18 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$67,732.65
Operations @ 00:00	Drill 216 mm hole at 578 m.		216.00	Cumulative Costs	\$1,497,545.80
Operations @ 06:00	Drill 216 mm hole at 650 m.			Cumulative AFE	\$1,497,545.75

Casing

Item Description	Item Type	Make	Landed Depth		m		Well Depth		m		Hole Size		mm
			Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	Top Depth (m)	
Casing Remarks													

Cementing

Cementing Description								Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type		
Cementing Remarks											

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
Drill Stem Testing Remarks					

Abandonment/Plugback

Office		Person				Date				
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives
Abandonment/Plugback Remarks										

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	7
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	13
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	830.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	252.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 18 C Overcast			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$66,130.60
Operations @ 00:00	Wiper trip prior to log, 830 m		216.00	Cumulative Costs	\$1,563,676.40
Operations @ 06:00	POOH to log.			Cumulative AFE	\$1,563,676.38

Key Personnel				Personnel on Site	
Drilling Supervisor		Geologist		Company	
Drilling Supervisor		Office Contact		Service	
Rig Manager				Rig	
				Total	

Brief Summary of Day's Activities

Bit											
Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
					/ / /						
					/ / /						
					/ / /						

Drilling Parameters										
Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
								/	/	/
								/	/	/
								/	/	/

Activities				Pump					
Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)

Survey			Well Control		
Depth(m)	Incl.	Azim.	MACP		
			Hydrostatic		
			BOP Last Tested		
			Last Casing Size		
			Casing Shoe		
			Surface Tank		
			Premix Tank		
			String		
			Annular		
			Total Mud		
			Mud Loss		
			Cum. Mud Loss		
			Bottom Up Time		
			Circulating Time		
			Sump Volume		
			Sump Freeboard		

Bottom Hole Assembly							
Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)

Mud Additives								# Mud Properties	

Solids Control					Shale Shaker	
Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours		

(mesh/sq.in)
(mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	7
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	13
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	830.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	252.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 18 C Overcast			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)			Daily Costs	\$66,130.60
Operations @ 00:00	Wiper trip prior to log, 830 m			Cumulative Costs	\$1,563,676.40
Operations @ 06:00	POOH to log.			Cumulative AFE	\$1,563,676.38

Casing

		Landed Depth			m		Well Depth			m		Hole Size		mm
Item Description	Item Type	Make	Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	Top Depth (m)		

Casing Remarks

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Cementing

Cementing Description								Stage #						
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type					

Cementing Remarks

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Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks							
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm							
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm							

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)

Abandonment/Plugback

Office		Person							Date	
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	8
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	14
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	885.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	55.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 29 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$167,329.00
Operations @ 00:00	Drill 216 mm hole at 885 m.	216.00		Cumulative Costs	\$1,731,005.40
Operations @ 06:00	Circ at TD. 895 m.			Cumulative AFE	\$1,731,005.38

Key Personnel				Personnel on Site		
Drilling Supervisor Sam Machnee	(403)537-2591	Geologist	CLARANCE KENNEDY	(403)850-8180	Company	3
Drilling Supervisor Keith Tichkowsky.	(403)537-2591	Office Contact	Richardson, Kim	(403)298-7273	Service	8
Rig Manager					Rig	12
					Total	23

Brief Summary of Day's Activities
 Wiper tripped, circulated 1 hr. Tripped out to log. Decision was made to move Schlumberger loggers over to B-20 and drill to 1000 m on L-52. Rigged out loggers and tripped in well with slick string. Drilled 216 mm hole from 830 m - 885 m.

Bit											
Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
3RR	216.00	Smith	M516 BHYPX	SOA586	20.0 / 20.0 / 20.0 / .0	830.00		55.00	26.25	2.1	
					/ / /						
					/ / /						

Drilling Parameters											
Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)	
3RR	27000	100/100	28000		26000		1/2	54.57 / .00	62.14 / 93.07	27.6	
									/ /		
									/ /		

Activities				Pump					
Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
TRIP	00:00	00:45	0.75	Finished wiper trip to 500 m.	.0104			.000	
CIRC	00:45	01:45	1.00	Circulated and condition well prior to logging.	.0125	125	60	1.563	5000
TRIP	01:45	07:45	6.00	Tripped out of well to log, lay out directional tools.					
LOG	07:45	11:00	3.25	Safety meeting and rig up loggers. / Decision made to rig out loggers and move to B-20.					
TRIP	11:00	15:45	4.75	Tripped in well with PDC and slick string.					
CIRC	15:45	17:15	1.50	Wash to bottom.					
REPAIR	17:15	17:30	0.25	Rig service.					
DRILL	17:30	23:30	6.00	Drilled 216 mm hole from 830 m - 885 m.					
TESTBOP	23:30	23:45	0.25	Bop drill.					
RIGSER	23:45	00:00	0.25	Rig service.					

Bottom Hole Assembly							Survey				Well Control			
Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)	Depth(m)	Incl.	Azim.	MACP	1990.00 kPa	Hydrostatic	2571.00 kPa
Main hole													BOP Last Tested	3/9/2008
Bit	1	216.000	.000	.000	.27	Regular threads	114.000						Last Casing Size	244.500 mm
Drill collar - standard	4	152.000	.600	.000	38.14	Extra hole	114.000						Casing Shoe	252.00 m
Jars - hydraulic	1	152.000	.600	.000	4.76	Extra hole	114.000						Surface Tank	20.0 m3
Drill collar - standard	2	152.000	.600	.000	18.85	Extra hole	114.000						Premix Tank	.0 m3
Sub - cross over	1	121.000	.570	.000	.26	Internal flush	.890						String	4.0 m3
Drill collar - standard	4	121.000	.570	.000	38.09	Internal flush	.890						Annular	21.0 m3
Sub - cross over	1	121.000	.570	.000	.30	Full hole	101.000						Total Mud	45.0 m3
													Mud Loss	.0 m3
													Cum. Mud Loss	7.5 m3
													Bottom Up Time	16.00 min
													Circulating Time	38.00 min
													Sump Volume	.0 m3
													Sump Freeboard	.0 m

Mud Additives							# Mud Properties					
Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)	PHPA LV (25.0kg)	1.00	Density(kg/m3)	1060.0	
Drill collar - standard	4	152.000	.600	.000	38.14	Extra hole	114.000	Newlig / Lignite (50.0lb)	5.00	Viscosity(sec/L)	75.0	
Jars - hydraulic	1	152.000	.600	.000	4.76	Extra hole	114.000	Drispac Reg (50.0lb)	1.00	Gel Strength 1(Pa)	7.0	
Drill collar - standard	2	152.000	.600	.000	18.85	Extra hole	114.000	Kelzan XCD (25.0kg)	1.00	Gel Strength 2(Pa)	14.0	
Sub - cross over	1	121.000	.570	.000	.26	Internal flush	.890	Soda Ash (50.0lb)	1.00	Filter Cake(mm)	2.0	
Drill collar - standard	4	121.000	.570	.000	38.09	Internal flush	.890			Yield Point(Pa)	17.5	
Sub - cross over	1	121.000	.570	.000	.30	Full hole	101.000			Plastic Viscosity(mPa.s)	20.0	
										pH	8.5	
											Calcium(mg/l)	80.0
											Chlorides(mg/l)	400.0
											Fluid Loss(cm3/30 min.)	6.7

Solids Control						Shale Shaker			
Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours					
Centrifuge	1430	1020	60.0	8.0	7. Double Decker	50	50	(mesh/sq.in)	
									(mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	8
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	14
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	885.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	55.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 29 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$167,329.00
Operations @ 00:00	Drill 216 mm hole at 885 m.		216.00	Cumulative Costs	\$1,731,005.40
Operations @ 06:00	Circ at TD. 895 m.			Cumulative AFE	\$1,731,005.38

Casing

Item Description	Item Type	Make	Landed Depth		Well Depth		Hole Size		Cutoff (m)	Length Ran(m)	Top Depth (m)
			Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints			

Casing Remarks

Cementing

Cementing Description							Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type	

Cementing Remarks

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office		Person						Date		
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	8
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	14
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	885.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	55.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 29 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$167,329.00
Operations @ 00:00	Drill 216 mm hole at 885 m.		216.00	Cumulative Costs	\$1,731,005.40
Operations @ 06:00	Circ at TD. 895 m.			Cumulative AFE	\$1,731,005.38

Detailed Remarks

No incidents to report.

- Wiper tripped to 500 m.
- Circulated 1 hr prior to logging.
- Tripped out and layed out Dir. tools.
- Rigged up to log. / Decided to rig out loggers and move logging equipment to B-20
- Tripped in with PDC bit and slick string.
- Drilled 216 mm hole from 830 m- 885 m.

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	9
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	15
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	
Rig Name / Model	Akita #14 / Single	Daily Progress	10.0 m	AFE Number	US-28423
Final Status Code		Accident	No	AFE Amount	\$9,000,000.00
Weather	- 30 Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$79,584.50
Operations @ 00:00	Tripped in well/ well flowing.	216.00		Cumulative Costs	\$1,415,674.90
Operations @ 06:00	Circ and prepare to trip out to test BOP.			Cumulative AFE	\$1,415,674.88

Key Personnel

Personnel on Site

Drilling Supervisor Sam Machnee (403)537-2591	Geologist CLARANCE KENNEDY (403)850-8180	Company	3
Drilling Supervisor Keith Tichkowsky (403)537-2591	Office Contact Richardson, Kim (403)298-7273	Service	8
Rig Manager		Rig	12
		Total	23

Brief Summary of Day's Activities

Drilled 216 mm hole from 885 m - 895 m TD. Wiper tripped and tripped out to 240 m. Circ in csg wait on loggers. Well began to slowly flow(1 litre per 5 min.) Tripped in well.

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
4RR	216.00	Smith	M516 BHYPX	SOA586	20.0 / 20.0 / 20.0 / .0	830.00	895.00	65.00	27.75	2.3	2-2-NO-A-3-I-NO-TD

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
4RR	27000	100/100	28000		26000		1/2	26.19 / .00	29.83 / 44.68	13.3

Activities

Pump

Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
DRILL	00:00	01:30	1.50	Drilled 216 mm hole from 885 m - 895 m.					
CIRC	01:30	03:45	2.25	Circulated.	.0104			.000	
SURVEY	03:45	04:00	0.25	Survey.	.0125	60	60	.750	855
TRIP	04:00	05:00	1.00	Wiper tripped to 800 m.					
CIRC	05:00	06:45	1.75	Circulated.					
TRIP	06:45	10:30	3.75	Tripped out past casing shoe. 240 m.					
CIRC	10:30	21:30	11.00	Circ. and wait for orders and loggers/ monitor well.					
TESTBOP	21:30	21:45	0.25	BOP drill with crew.					
TRIP	21:45	00:00	2.25	Well flowing , 1 litre per 5 min. Tripped in well.					

Survey

Well Control

Depth(m)	Incl.	Azim.	MACP	1990.00 kPa
884.00	1.500		Hydrostatic	2571.00 kPa
			BOP Last Tested	3/9/2008
			Last Casing Size	244.500 mm
			Casing Shoe	252.00 m
			Surface Tank	20.0 m3
			Premix Tank	.0 m3
			String	4.0 m3
			Annular	21.0 m3
			Total Mud	45.0 m3
			Mud Loss	.5 m3
			Cum. Mud Loss	6.0 m3
			Bottom Up Time	17.00 min
			Circulating Time	38.00 min
			Sump Volume	.0 m3
			Sump Freeboard	.0 m

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)
Main hole							
Bit	1	216.000	.000	.000	.24	Regular threads	114.000
Drill collar - standard	8	152.000	.600	.000	75.21	Extra hole	114.000
Jars - hydraulic	1	152.000	.600	.000	4.76	Extra hole	114.000
Drill collar - standard	2	152.000	.600	.000	18.85	Extra hole	114.000
Sub - cross over	1	121.000	.570	.000	.26	Internal flush	.890
Drill collar - standard	4	121.000	.570	.000	38.09	Internal flush	.890
Sub - cross over	1	121.000	.570	.000	.30	Full hole	101.000

Mud Additives

Mud Properties

	#	Mud Properties
Kelzan XCD (25.0kg)	2.00	Density(kg/m3) 1050.0
Drispac Reg (50.0lb)	4.00	Viscosity(sec/L) 72.0
Newlig / Lignite (50.0lb)	2.00	Yield Point(Pa) 18.0
		Plastic Viscosity(mPa.s) 21.0
		pH 8.0
		Calcium(mg/l) 60.0
		Chlorides(mg/l) 400.0
		Solids% .04
		Fluid Loss(cm3/30 min.) 7.0

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours
Centrifuge	1300	1020	.0	12.0

Shale Shaker

1. Double Decker	50	50	(mesh/sq.in) (mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	9
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	15
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	
Rig Name / Model	Akita #14 / Single	Daily Progress	10.0 m	AFE Number	US-28423
Final Status Code		Accident	No	AFE Amount	\$9,000,000.00
Weather	- 30 Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$79,584.50
Operations @ 00:00	Tripped in well/ well flowing.		216.00	Cumulative Costs	\$1,415,674.90
Operations @ 06:00	Circ and prepare to trip out to test BOP.			Cumulative AFE	\$1,415,674.88

Casing

		Landed Depth			m			Well Depth			m			Hole Size		mm	
Item Description	Item Type	Make	Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	Top Depth (m)					

Casing Remarks

Cementing

Cementing Description							Stage #				
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type		

Cementing Remarks

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office		Person						Date		
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	9
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	15
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	
Rig Name / Model	Akita #14 / Single	Daily Progress	10.0 m	AFE Number	US-28423
Final Status Code		Accident	No	AFE Amount	\$9,000,000.00
Weather	- 30 Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$79,584.50
Operations @ 00:00	Tripped in well/ well flowing.	216.00		Cumulative Costs	\$1,415,674.90
Operations @ 06:00	Circ and prepare to trip out to test BOP.			Cumulative AFE	\$1,415,674.88

Detailed Remarks

No incidents to report.

- Drilled 216 mm hole from 885 m - 895 m. TD.
- Surveyed @ 890 m 1.5 deg.
- Wiper tripped to 800 m. circ and tripped to 240 m.
- Waited on loggers. Circ in csg at 60 strokes, monitor well.
- Well began to flow, tripped in well.

Time	Activity	Spd (m/min)	Wt (kg)	RPM	Temp (C)	Pressure (bar)	Flow (L/min)	Surf Temp (C)	Bottom Temp (C)	Surf Pressure (bar)	Bottom Pressure (bar)
10:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
10:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
10:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
10:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
11:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
11:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
11:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
11:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
12:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
12:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
12:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
12:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
13:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
13:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
13:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
13:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
14:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
14:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
14:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
14:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
15:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
15:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
15:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
15:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
16:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
16:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
16:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
16:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
17:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
17:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
17:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
17:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
18:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
18:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
18:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
18:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
19:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
19:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
19:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
19:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
20:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
20:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
20:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
20:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
21:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
21:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
21:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
21:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
22:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
22:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
22:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
22:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
23:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
23:15	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
23:30	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
23:45	Drilling	10.0	1000	1000	100	100	100	100	100	100	100
24:00	Drilling	10.0	1000	1000	100	100	100	100	100	100	100

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	10
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	16
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 25 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$79,390.00
Operations @ 00:00	Run logs, FMI,DSI,PPC,HNGS,GR WITH Schlumberger.		216.00	Cumulative Costs	\$1,889,979.90
Operations @ 06:00	Run logs AIT,TLD,HGNS,CMR,ECS,TLD,			Cumulative AFE	\$1,889,979.88

Key Personnel				Personnel on Site		
Drilling Supervisor Sam Machnee	(403)537-2591	Geologist	CLARANCE KENNEDY	(403)850-8180	Company	3
Drilling Supervisor Keith Tichkowsky.	(403)537-2591	Office Contact	Richardson, Kim	(403)298-7273	Service	8
Rig Manager					Rig	12
					Total	23

Brief Summary of Day's Activities

Tripped in well due to well flowing. Reamed bridge at 780 m. Circ and mix mud due to vis dropping from 85 - 65. Tripped out to 500 m, (while waiting for loggers and clear influx area) circ and tripped out to log. Logged with Schlumberger. tagged bottom @ 2130 hrs. Mar.16/08 .

Bit											
Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
3RR	216.00	Smith	M516 BHYPX	SOA586	20.0 / 20.0 / 20.0 / .0	895.00		.00	27.75	.0	
					/ / /						
					/ / /						

Drilling Parameters										
Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
3RR	27000		28000		26000		/	45.84 / .00	52.20 / 70.95	23.2
									/	/
									/	/

Activities				Pump					
Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
TRIP	00:00	01:45	1.75	Tripped in well./ Washed bridge at 780 m.	.0104			.000	
CIRC	01:45	07:45	6.00	Circ and mixed mud, due to vis dropping. No gas bubbles.	.0125	105		1.313	4147
TRIP	07:45	12:15	4.50	Tripped out to 500 m. 1/2 flow check @ 500 m to see if well will continue to flow.					
CIRC	12:15	14:45	2.50	Circ and conditioned mud to 85 vis.					
TRIP	14:45	19:30	4.75	Tripped out to log.					
SAFETY	19:30	19:45	0.25	Safety meeting with loggers.					
LOG	19:45	00:00	4.25	Run FMI, DSI,PPC,HNGS,GR LOGS, Depth 888 M.					

Survey				Well Control			
Depth(m)	Incl.	Azim.	MACP	Hydrostatic	BOP Last Tested	Last Casing Size	Casing Shoe
			1990.00 kPa	2571.00 kPa	3/9/2008	244.500 mm	252.00 m
						20.0 m3	.0 m3
						4.0 m3	21.0 m3
						45.0 m3	1.0 m3
						9.0 m3	18.00 min
						38.00 min	.0 m3
						.0 m	.0 m

Bottom Hole Assembly							
Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)
Main hole							
Bit	1	216.000	.000	.000	.27	Regular threads	114.000
Drill collar - standard	4	152.000	.600	.000	38.14	Extra hole	114.000
Jars - hydraulic	1	152.000	.600	.000	4.76	Extra hole	114.000
Drill collar - standard	2	152.000	.600	.000	18.85	Extra hole	114.000
Sub - cross over	1	121.000	.570	.000	.26	Internal flush	.890
Drill collar - standard	4	121.000	.570	.000	38.09	Internal flush	.890
Sub - cross over	1	121.000	.570	.000	.30	Full hole	101.000

Mud Additives				# Mud Properties			
Kelzan XCD (25.0kg)	7.00	Density(kg/m3)	1050.0				
Caustic Soda (50.0lb)	1.00	Viscosity(sec/L)	83.0				
Soda Ash (50.0lb)	2.00	Gel Strength 1(Pa)	7.0				
Cal Carb "O" (25.0kg)	25.00	Gel Strength 2(Pa)	12.0				
Drispac Reg (50.0lb)	7.00	Filter Cake(mm)	2.0				
		Yield Point(Pa)	18.5				
		Plastic Viscosity(mPa.s)	20.0				
		pH	8.0				
		Calcium(mg/l)	70.0				
		Chlorides(mg/l)	360.0				
		Fluid Loss(cm3/30 min.)	6.7				

Solids Control					Shale Shaker		
Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours			
Centrifuge			.0		5. Double Decker	50	50 (mesh/sq.in)
							(mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	10
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	16
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 25 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$79,390.00
Operations @ 00:00	Run logs, FMI,DSI,PPC,HNGS,GR WITH Schlumberger.		216.00	Cumulative Costs	\$1,889,979.90
Operations @ 06:00	Run logs AIT,TLD,HGNS,CMR,ECS,TLD,			Cumulative AFE	\$1,889,979.88

Casing

			Landed Depth			m			Well Depth			m			Hole Size			mm		
Item Description	Item Type	Make	Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	Top Depth (m)								

Casing Remarks

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Cementing

Cementing Description								Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type		

Cementing Remarks

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Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)

Abandonment/Plugback

Office		Person							Date	
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	10
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	16
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 25 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$79,390.00
Operations @ 00:00	Run logs, FMI,DSI,PPC,HNGS,GR WITH Schlumberger.		216.00	Cumulative Costs	\$1,889,979.90
Operations @ 06:00	Run logs AIT,TLD,HGNS,CMR,ECS,TLD,			Cumulative AFE	\$1,889,979.88

Detailed Remarks

No incidents to report.

- Tripped in well due to well flowing. Bridged at 780 m. No gas to surface.
- Circ to raise vis.
- Wiper tripped to 500 m to heal influx area.
- Circ and raised mud density to 1050 from 1020 with cal-carb. Vis 85.
- Tripped out to log.
- Logged with Schlumberger, Log on bottom at 2130 hrs. Mar.16/08. 888 m. Driller depth 895 m. 1st run, FMI,DSI,PPC,HNGS,GR.

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	11
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	17
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 28 C Overcast			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$48,467.00
Operations @ 00:00	Circ and wt up well to trip to log.		216.00	Cumulative Costs	\$1,938,446.90
Operations @ 06:00	Trip out of well to log with 1095 mud wt.			Cumulative AFE	\$1,938,446.88

Key Personnel

Personnel on Site

Drilling Supervisor Sam Machnee	(403)537-2591	Geologist		Company	2
Drilling Supervisor Keith Tichkowsky	(403)537-2591	Office Contact	Richardson, Kim	Service	8
Rig Manager				Rig	12
				Total	22

Brief Summary of Day's Activities

Log with Schlumberger, Log # 1, FMI, DSI, PPC, HNGS, GR. Log #2, AIT, TLD, HGNS, CMR, ECS, TLD. Tripped in well to ream bridge at 780 m. Reamed from 770 m - 829 m. Washed 9 m to bottom. Circ. well started to flow as just as we were to trip out, Circ and increase mud wt 1060 - 1095.

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
1RR	216.00	Hughes	GX-18	6062422	20.0 / 20.0 / 20.0 / .0	895.00		.00	16.50	.0	

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
1RR	23000	80/90	24000		22000		3/4	50.21 / .00	57.17 / 77.71	25.4

Activities

Pump

Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
LOG	00:00	01:00	1.00	Log #1 , FMI, DSI, PPC, HNGS, GR					
LOG	01:00	11:30	10.50	Log #2 , AIT, TLD, HGNS, CMR, ECS, TLD.	.0104			.000	
TRIP	11:30	13:00	1.50	Lay out 4 159 mm collars.	.0125	115	60	1.438	4500
SAFETY	13:00	13:30	0.50	Safety meeting with Husky safety rep.					
TRIP	13:30	17:30	4.00	Tripped in well.					
CIRC	17:30	19:30	2.00	Blow kelly. Ream bridge from 770 m - 829 m.					
TRIP	19:30	20:00	0.50	Tripped in well.					
CIRC	20:00	22:00	2.00	Circulate, Washed 9 m to bottom.					
CIRC	22:00	00:00	2.00	Hole had cleaned up, prepared to trip, and well began to flow and shale out. Increased wt to 1095 and vis back to 90.					

Survey

Well Control

Depth(m)	Incl.	Azim.	MACP	1693.00 kPa
			Hydrostatic	2867.00 kPa
			BOP Last Tested	3/9/2008
			Last Casing Size	244.500 mm
			Casing Shoe	252.00 m
			Surface Tank	28.0 m3
			Premix Tank	.0 m3
			String	4.0 m3
			Annular	21.0 m3
			Total Mud	53.0 m3
			Mud Loss	.0 m3
			Cum. Mud Loss	9.0 m3
			Bottom Up Time	18.00 min
			Circulating Time	39.00 min
			Sump Volume	.0 m3
			Sump Freeboard	.0 m

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)
Main hole							
Bit	1	216.000	.000	.000	.27	Regular threads	114.000
Drill collar - standard	4	152.000	.600	.000	38.14	Extra hole	114.000
Jars - hydraulic	1	152.000	.600	.000	4.76	Extra hole	114.000
Drill collar - standard	2	152.000	.600	.000	18.85	Extra hole	114.000
Sub - cross over	1	121.000	.570	.000	.26	Internal flush	.890
Drill collar - standard	4	121.000	.570	.000	38.09	Internal flush	.890
Sub - cross over	1	121.000	.570	.000	.30	Full hole	101.000

Mud Additives

Mud Properties

PHPA LV (25.0kg)	1.00	Density(kg/m3)	1095.0
Newlig / Lignite (50.0lb)	1.00	Viscosity(sec/L)	89.0
Kelzan XCD (25.0kg)	3.00	Gel Strength 1(Pa)	5.0
Drispac Reg (50.0lb)	4.00	Gel Strength 2(Pa)	8.0
Soda Ash (50.0lb)	1.00	Filter Cake(mm)	2.0
Cal Carb "O" (25.0kg)	25.00	Yield Point(Pa)	19.0
		Plastic Viscosity(mPa.s)	22.0
		pH	9.0
		Calcium(mg/l)	60.0
		Chlorides(mg/l)	400.0
		Fluid Loss(cm3/30 min.)	6.7

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours
Centrifuge			.0	

Shale Shaker

4. Double Decker	50	50	(mesh/sq.in)
			(mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	11
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	17
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 28 C Overcast			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)			Daily Costs	\$48,467.00
Operations @ 00:00	Circ and wt up well to trip to log.			Cumulative Costs	\$1,938,446.90
Operations @ 06:00	Trip out of well to log with 1095 mud wt.			Cumulative AFE	\$1,938,446.88

Casing

		Landed Depth			m			Well Depth			m			Hole Size		mm	
Item Description	Item Type	Make	Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	Top Depth (m)					

Casing Remarks

Cementing

Cementing Description							Stage #				
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type		

Cementing Remarks

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office		Person					Date			
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	11
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	17
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 28 C Overcast			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$48,467.00
Operations @ 00:00	Circ and wt up well to trip to log.		216.00	Cumulative Costs	\$1,938,446.90
Operations @ 06:00	Trip out of well to log with 1095 mud wt.			Cumulative AFE	\$1,938,446.88

Detailed Remarks

No incidents to report.

- Logged #1 to 880 m. FMI, DSI, PPC, HNGS, GR.
- Logged #2 to 780 m Bridged off. AIT, TLD, HGNS, CMR, ECS, TLD.
- Layed 4 159 mm collars.
- Safety meeting with Husky Safety rep. and Drig Supervisor.
- Tripped in well reamed bridge from 770 m - 829 m. Washed 9 m of fill at bottom.
- Circulated and mixed mud.
- Prepared to trip out with 1060 mud wt, and well began to flow, mud vis had dropped from 84 to 64. Tank volume increase by 1.5 m3 and well began to shale out. Circ and increased mud wt to 1095 and increased vis back to 90, before tripping out of well. Flow had stopped.

Time	Activity	Flow Rate (m³/hr)	Pressure (kPa)	Temperature (°C)	Viscosity (cP)	Surfactant (ppm)	Other
00:00	Start of Trip	0.0	100	28	84	0	
00:15	Logging	0.5	100	28	84	0	
00:30	Logging	0.5	100	28	84	0	
00:45	Logging	0.5	100	28	84	0	
01:00	Logging	0.5	100	28	84	0	
01:15	Logging	0.5	100	28	84	0	
01:30	Logging	0.5	100	28	84	0	
01:45	Logging	0.5	100	28	84	0	
02:00	Logging	0.5	100	28	84	0	
02:15	Logging	0.5	100	28	84	0	
02:30	Logging	0.5	100	28	84	0	
02:45	Logging	0.5	100	28	84	0	
03:00	Logging	0.5	100	28	84	0	
03:15	Logging	0.5	100	28	84	0	
03:30	Logging	0.5	100	28	84	0	
03:45	Logging	0.5	100	28	84	0	
04:00	Logging	0.5	100	28	84	0	
04:15	Logging	0.5	100	28	84	0	
04:30	Logging	0.5	100	28	84	0	
04:45	Logging	0.5	100	28	84	0	
05:00	Logging	0.5	100	28	84	0	
05:15	Logging	0.5	100	28	84	0	
05:30	Logging	0.5	100	28	84	0	
05:45	Logging	0.5	100	28	84	0	
06:00	Logging	0.5	100	28	84	0	
06:15	Logging	0.5	100	28	84	0	
06:30	Logging	0.5	100	28	84	0	
06:45	Logging	0.5	100	28	84	0	
07:00	Logging	0.5	100	28	84	0	
07:15	Logging	0.5	100	28	84	0	
07:30	Logging	0.5	100	28	84	0	
07:45	Logging	0.5	100	28	84	0	
08:00	Logging	0.5	100	28	84	0	
08:15	Logging	0.5	100	28	84	0	
08:30	Logging	0.5	100	28	84	0	
08:45	Logging	0.5	100	28	84	0	
09:00	Logging	0.5	100	28	84	0	
09:15	Logging	0.5	100	28	84	0	
09:30	Logging	0.5	100	28	84	0	
09:45	Logging	0.5	100	28	84	0	
10:00	Logging	0.5	100	28	84	0	
10:15	Logging	0.5	100	28	84	0	
10:30	Logging	0.5	100	28	84	0	
10:45	Logging	0.5	100	28	84	0	
11:00	Logging	0.5	100	28	84	0	
11:15	Logging	0.5	100	28	84	0	
11:30	Logging	0.5	100	28	84	0	
11:45	Logging	0.5	100	28	84	0	
12:00	Logging	0.5	100	28	84	0	
12:15	Logging	0.5	100	28	84	0	
12:30	Logging	0.5	100	28	84	0	
12:45	Logging	0.5	100	28	84	0	
13:00	Logging	0.5	100	28	84	0	
13:15	Logging	0.5	100	28	84	0	
13:30	Logging	0.5	100	28	84	0	
13:45	Logging	0.5	100	28	84	0	
14:00	Logging	0.5	100	28	84	0	
14:15	Logging	0.5	100	28	84	0	
14:30	Logging	0.5	100	28	84	0	
14:45	Logging	0.5	100	28	84	0	
15:00	Logging	0.5	100	28	84	0	
15:15	Logging	0.5	100	28	84	0	
15:30	Logging	0.5	100	28	84	0	
15:45	Logging	0.5	100	28	84	0	
16:00	Logging	0.5	100	28	84	0	
16:15	Logging	0.5	100	28	84	0	
16:30	Logging	0.5	100	28	84	0	
16:45	Logging	0.5	100	28	84	0	
17:00	Logging	0.5	100	28	84	0	
17:15	Logging	0.5	100	28	84	0	
17:30	Logging	0.5	100	28	84	0	
17:45	Logging	0.5	100	28	84	0	
18:00	Logging	0.5	100	28	84	0	
18:15	Logging	0.5	100	28	84	0	
18:30	Logging	0.5	100	28	84	0	
18:45	Logging	0.5	100	28	84	0	
19:00	Logging	0.5	100	28	84	0	
19:15	Logging	0.5	100	28	84	0	
19:30	Logging	0.5	100	28	84	0	
19:45	Logging	0.5	100	28	84	0	
20:00	Logging	0.5	100	28	84	0	
20:15	Logging	0.5	100	28	84	0	
20:30	Logging	0.5	100	28	84	0	
20:45	Logging	0.5	100	28	84	0	
21:00	Logging	0.5	100	28	84	0	
21:15	Logging	0.5	100	28	84	0	
21:30	Logging	0.5	100	28	84	0	
21:45	Logging	0.5	100	28	84	0	
22:00	Logging	0.5	100	28	84	0	
22:15	Logging	0.5	100	28	84	0	
22:30	Logging	0.5	100	28	84	0	
22:45	Logging	0.5	100	28	84	0	
23:00	Logging	0.5	100	28	84	0	
23:15	Logging	0.5	100	28	84	0	
23:30	Logging	0.5	100	28	84	0	
23:45	Logging	0.5	100	28	84	0	
24:00	Logging	0.5	100	28	84	0	

Date 3/18/2008

Husky Oil Operations Limited

Page 2 of 3

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	12
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	18
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 28 C Partly cloudy			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$353,219.80
Operations @ 00:00	Log with Schlumberger #3.		216.00	Cumulative Costs	\$2,291,666.70
Operations @ 06:00	Log #4, bridged at 652m ,continue logging up.			Cumulative AFE	\$2,291,666.75

Casing

Item Description	Item Type	Make	Landed Depth			Well Depth			Hole Size			Top Depth (m)
			Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	

Casing Remarks

Cementing

Cementing Description							Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type	

Cementing Remarks

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office		Person					Date			
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	12
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	18
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 28 C Partly cloudy.			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)			Daily Costs	\$353,219.80
Operations @ 00:00	Log with Schlumberger #3.			Cumulative Costs	\$2,291,666.70
Operations @ 06:00	Log #4, bridged at 652m ,continue logging up.			Cumulative AFE	\$2,291,666.75

Detailed Remarks

There is one incident to report. Roughneck strained an abdominal muscle lifting a 25 kg. Cal Nit bag. Report sent in to Tim Deschner.

- Circ and increase mud wt from 1060 to 1095, due to well flowing, 1 litre - 5 min.
- Tripped out of well to log, volumes ok.
- Logged with Schlumberger. Log #2 AIT, TLD, HNGS, CMR, ECS, TLD. Log # 3. CMR fluid typing.

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	13
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	19
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 29 C partly overcast			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$342,920.24
Operations @ 00:00	Clean out trip to run 177.8 mm casing.		216.00	Cumulative Costs	\$2,634,586.94
Operations @ 06:00	Lay pipe prior to running casing.			Cumulative AFE	\$2,634,587.00

Casing

		Landed Depth			m			Well Depth			m			Hole Size		mm	
Item Description	Item Type	Make	Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	Top Depth (m)					

Casing Remarks

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Cementing

Cementing Description										Stage #	
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type		

Cementing Remarks

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Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)

Abandonment/Plugback

Office		Person						Date		
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	13
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	19
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 29 C partly overcast			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$342,920.24
Operations @ 00:00	Clean out trip to run 177.8 mm casing.		216.00	Cumulative Costs	\$2,634,586.94
Operations @ 06:00	Lay pipe prior to running casing.			Cumulative AFE	\$2,634,587.00

Detailed Remarks

No incidents to report.

- Ran log #3, (CMR Fluid typing.
- Ran log #4, (MRPS, MRHY, MRPO, LFA, MRMS, GR.
- Tripped in well prior to running 177.8 mm casing.

Time	Activity	Depth (m)	Flow (L/min)	Pressure (kPa)	Temperature (C)	Remarks
00:00:00	Start of log #3	0	0	0	0	
00:00:15	CMR Fluid typing	0	0	0	0	
00:00:30	End of log #3	0	0	0	0	
00:00:45	Start of log #4	0	0	0	0	
00:01:00	MRPS, MRHY, MRPO, LFA, MRMS, GR	0	0	0	0	
00:01:15	End of log #4	0	0	0	0	
00:01:30	Tripped in well	0	0	0	0	
00:01:45	End of trip	0	0	0	0	
00:02:00	Start of casing run	0	0	0	0	
00:02:15	Running 177.8 mm casing	0	0	0	0	
00:02:30	End of casing run	0	0	0	0	

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	14
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	20
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 28 C Partly Cloudy	Hole Size (mm)		Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	216.00		Daily Costs	\$78,399.60
Operations @ 00:00	Circ prior to cementing 177.8 mm abandonment csg.			Cumulative Costs	\$2,712,986.54
Operations @ 06:00	Wait on cement, clean mud tanks.			Cumulative AFE	\$2,712,986.50

Key Personnel

Personnel on Site

Drilling Supervisor Sam Machnee (403)537-2591	Geologist	Company	2
Drilling Supervisor Keith Tichkowsky (403)537-2591	Office Contact Richardson, Kim (403)298-7273	Service	8
Rig Manager		Rig	12
		Total	22

Brief Summary of Day's Activities

Tripped in well, reamed bridge @ 643 m - 676 m. washed 9 m to bottom. Circ. and layed drill string. Safety meeting and ran 66 jts of 177.8 mm csg with FI Canada .

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
1RR	216.00	Hughes	GX-18	6062422	20.0 / 20.0 / 20.0 / .0	895.00		.00	16.50	.0	

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
1RR							/	30.56 / .00	34.80 / 47.30	15.5

Activities

Pump

Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
TRIP	00:00	03:15	3.25	Tripped in well, washed bridge at 643 m and 9 m of fill on bottom.					
CIRC	03:15	06:30	3.25	Circulated.	.0104			.000	
TRIP	06:30	11:15	4.75	Lay drill string, prior to running 177.8 mm casing.	.0125	70	60	.875	1700
CASE	11:15	13:30	2.25	Move out pipe tubs, load casing on pipe racks and prepare.	Survey				
SAFETY	13:30	13:45	0.25	Safety meeting with FI Canada.	Well Control				
CASE	13:45	21:45	8.00	Run 177.8 mm, 38.68 kg/m, L-80, LT&C abandonment csg. 66 jts. 4 csg jts below float collar.	Depth(m)	Incl.	Azim.	MACP	1841.00 kPa
CIRC	21:45	00:00	2.25	Circulate 177.8 mm csg.				Hydrostatic	2719.00 kPa

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)
Main hole							
Bit	1	216.000	.000	.000	.27	Regular threads	114.000
Drill collar - standard	4	152.000	600	.000	38.14	Extra hole	114.000
Jars - hydraulic	1	152.000	600	.000	4.76	Extra hole	114.000
Drill collar - standard	2	152.000	600	.000	18.85	Extra hole	114.000
Sub - cross over	1	121.000	.570	.000	.26	Internal flush	.890
Drill collar - standard	4	121.000	.570	.000	38.09	Internal flush	.890
Sub - cross over	1	121.000	.570	.000	.30	Full hole	101.000

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours
Centrifuge			.0	

Shale Shaker

Mud Additives	#	Mud Properties
Desco CF (25.0lb)	1.00	Density(kg/m3) 1090.0
		Viscosity(sec/L) 55.0
		Fluid Loss(cm3/30 min.) 6.8

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	14
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	20
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 28 C Partly Cloudy			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$78,399.60
Operations @ 00:00	Circ prior to cementing 177.8 mm abandonment csg.		216.00	Cumulative Costs	\$2,712,986.54
Operations @ 06:00	Wait on cement, clean mud tanks.			Cumulative AFE	\$2,712,986.50

Casing

			Landed Depth			Well Depth			Hole Size			
			m			m			mm			
Item Description	Item Type	Make	Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	Top Depth (m)

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Casing Remarks

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Cementing

Cementing Description								Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type		

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Cementing Remarks

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Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office		Person						Date		
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

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Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	14
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	20
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 28 C Partly Cloudy			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$78,399.60
Operations @ 00:00	Circ prior to cementing 177.8 mm abandonment csg.		216.00	Cumulative Costs	\$2,712,986.54
Operations @ 06:00	Wait on cement, clean mud tanks.			Cumulative AFE	\$2,712,986.50

Detailed Remarks

No incidents to report.

- Tripped in well prior to run casing. Washed bridge at 643 m and 9 m fill on bottom.
- Circulated.
- Layed drill string.
- Ran 66 jts of 177.8 mm, 38.68 kg/m, L-80, LT&C abandonment casing.
- Circ and waited for cementers to transfer cement.

Husky Oil Operations Limited

Date 3/21/2008

Page 1 of 3

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	15
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	21
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 31 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$467,352.00
Operations @ 00:00	R.R. at 2400 hrs. Mar.21/08.	216.00		Cumulative Costs	\$3,180,338.54
Operations @ 06:00	Rlg out, prepare to move.			Cumulative AFE	\$3,180,338.50

Key Personnel

Personnel on Site

Drilling Supervisor Sam Machnee (403)537-2591	Geologist	Company	2
Drilling Supervisor Keith Tichkowsky (403)537-2591	Office Contact Richardson, Kim (403)298-7273	Service	8
Rig Manager		Rig	12
		Total	22

Brief Summary of Day's Activities

Circulated 177.8 mm abandonment csg. Cemented 177.8 mm csg. Bumped plug with 10,000 kpa, held for 10 min. Displaced cement / safe-kot inhibitor/fresh water. Set perm/packer@50 m. Cement from 50 m - surface. Nipple down, rig out. Haul extra loads to base.

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
					/ / /						

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
								/ /	/ /	

Activities

Pump

Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
CIRC	00:00	03:45	3.75	Circulate 177.8 mm csg and wait for cementers to start engine on pumper unit.	.0104			.000	
CEMENT	03:45	07:30	3.75	Cement 177.8 mm abandonment casing to 895 m. 11 m3 returns. Displaced with fresh water and 20 litres of safe-kot inhibitor. Bumped plug, 10Mpa - 10 min	.0125	60		.750	1100
WOC	07:30	13:15	5.75	Waited on cement.					
SAFETY	13:15	13:30	0.25	Safety meeting with wireline crew.					
PLUG	13:30	14:30	1.00	Set permanent packer at 50 m.					
NUBOP	14:30	15:00	0.50	Nipple down BOP's. cut casing.					
CEMENT	15:00	18:00	3.00	Pick up drill pipe and cement from 50 m to surface.					
RIGUP	18:00	00:00	6.00	Finish nipple down BOP, clean mud tanks.					

Survey

Well Control

Depth(m)	Incl.	Azim.	MACP	Hydrostatic	BOP Last Tested	Last Casing Size	Casing Shoe	Surface Tank	Premix Tank	String	Annular	Total Mud	Mud Loss	Cum. Mud Loss	Bottom Up Time	Circulating Time	Sump Volume	Sump Freeboard
			.00 kPa	.00 kPa	1/1/1900	.000 mm	.00 m	.0 m3	.0 m3	.0 m3	.0 m3	.0 m3	.0 m3	9.0 m3	.00 min	.00 min	.0 m3	.0 m

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)

Mud Additives

Mud Properties

Mud Additives	#	Mud Properties
Safe-Kote (20.0L)	1.00	Density(kg/m3) 1100.0
		Viscosity(sec/L) 55.0
		Gel Strength 1(Pa) 5.0
		Gel Strength 2(Pa) 7.0
		Filter Cake(mm) 2.0
		Yield Point(Pa) 6.0
		Plastic Viscosity(mPa.s) 20.0
		pH 7.5
		Calcium(mg/l) 60.0
		Chlorides(mg/l) 300.0
		Fluid Loss(cm3/30 min.) 6.0

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours

Shale Shaker

(mesh/sq.in)
(mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	15
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	21
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 31 C Clear	Hole Size (unit)		Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	216.00		Daily Costs	\$467,352.00
Operations @ 00:00	R.R. at 2400 hrs. Mar.21/08.			Cumulative Costs	\$3,180,338.54
Operations @ 06:00	Rig out, prepare to move.			Cumulative AFE	\$3,180,338.50

Casing

Item Description	Item Type	Make	Landed Depth		Well Depth		Hole Size		Cutoff (m)	Length Ran(m)	Top Depth (m)
			Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints			

Casing Remarks

Cementing

Cementing Description Production #1							Stage # 1			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type	
Lead #1	RFC-lite	0.2% D046 0.2% DO13	18.40	1530.00	24.20	.0	575.0	11.0	Cement slurry	
Tail #1	Class G		8.40	1900.00	4.60	575.0	898.0	11.0	Cement slurry	

Cementing Remarks

Ran float shoe, 4 jts csg, float collar, and 62 jts of 177.8 mm, 38.68 kg/m, L-80, new abandonment casing. Cemented with 18.4 tonne of RFC lite, followed with 8.4 tonne of Class G neat. Displaced with 16.8 m3 of fresh water/mix with 25 litres of Safe-kot inhibitor. 11 m3 of cement returns, plug bumped and held for 10 min at 10,000 kpa. Ran permanent bridge plug at 50 m and topped to surface with 1 tonne of Class -G.

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office National Energy Board			Person Rick Turner Rick Turner				Date 3/21/2008 00:00			
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives
1	Plug back and case	895.0	.0	.0				26.80		

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	16
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	22
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 25 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$386,811.00
Operations @ 00:00	Load out Akita 14 for move to Nisku.		216.00	Cumulative Costs	\$3,567,149.54
Operations @ 06:00	Loaded trucks traveling to Nisku.			Cumulative AFE	\$3,567,149.50

Casing

Item Description	Item Type	Make	Landed Depth		Well Depth		Hole Size		Cutoff (m)	Length Ran(m)	Top Depth (m)
			Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints			

Casing Remarks

Cementing

Cementing Description							Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type	

Cementing Remarks

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office		Person					Date			
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	16
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	22
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 25 C Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$386,811.00
Operations @ 00:00	Load out Akita 14 for move to Nisku.		216.00	Cumulative Costs	\$3,567,149.54
Operations @ 06:00	Loaded trucks traveling to Nisku.			Cumulative AFE	\$3,567,149.50

Detailed Remarks

No incidents to report.

- Rigged out and prepare derrick to be lifted off sub.
- Load out loads at base camp. Load out all Akita 14 loads to Base camp. Some loads began traveling to Nisku
- 2 wellsite units left on location to be loaded out Mar.23. All remaining Akita 14 loads to leave Base for Nisku Mar.23/08.

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	18
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	24
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 10 C Clear.			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$876,848.00
Operations @ 00:00	Truck Akita 14 rig loads to Nisku.	216.00		Cumulative Costs	\$4,465,047.54
Operations @ 06:00	Truck Akita 14 rig loads to Nisku.			Cumulative AFE	\$4,465,047.50

Key Personnel

Personnel on Site

Drilling Supervisor Sam Machnee	(403)537-2591	Geologist		Company	2
Drilling Supervisor Keith Tichkowsky	(403)537-2591	Office Contact	Richardson, Kim	Service	16
Rig Manager				Rig	12
				Total	30

Brief Summary of Day's Activities

Truck Akita 14 rig loads from Keele River L-52 to Akita yard Nisku.

Bit

Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
					/ / /						
					/ / /						
					/ / /						

Drilling Parameters

Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
								/	/	
								/	/	
								/	/	

Activities

Pump

Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
RIGUP	00:00	00:00	24:00	Moved Akita 14 from Keele River L-52 to Akita yard in Nisku.					

Survey			Well Control	
Depth(m)	Incl.	Azim.	MACP	.00 kPa
			Hydrostatic	.00 kPa
			BOP Last Tested	1/1/1900
			Last Casing Size	.000 mm
			Casing Shoe	.00 m
			Surface Tank	.0 m3
			Premix Tank	.0 m3
			String	.0 m3
			Annular	.0 m3
			Total Mud	.0 m3
			Mud Loss	.0 m3
			Cum. Mud Loss	9.0 m3
			Bottom Up Time	.00 min
			Circulating Time	.00 min
			Sump Volume	.0 m3
			Sump Freeboard	.0 m

Bottom Hole Assembly

Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)

Mud Additives

Mud Properties

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours

Solids Control

Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours

Shale Shaker

(mesh/sq.in)
(mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	18
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	24
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 10 C Clear.			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$876,848.00
Operations @ 00:00	Truck Akita 14 rig loads to Nisku.		216.00	Cumulative Costs	\$4,465,047.54
Operations @ 06:00	Truck Akita 14 rig loads to Nisku.			Cumulative AFE	\$4,465,047.50

Casing

		Landed Depth			m			Well Depth			m			Hole Size		mm	
Item Description	Item Type	Make	Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	Top Depth (m)					

Casing Remarks

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Cementing

Cementing Description										Stage #	
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type		

Cementing Remarks

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Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)

Abandonment/Plugback

Office		Person							Date	
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	18
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	24
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	- 10 C Clear.			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$876,848.00
Operations @ 00:00	Truck Akita 14 rig loads to Nisku.		216.00	Cumulative Costs	\$4,465,047.54
Operations @ 06:00	Truck Akita 14 rig loads to Nisku.			Cumulative AFE	\$4,465,047.50

Detailed Remarks

Truck and unload Akita 14 rig from Keele river L-52 to Akita yard Nisku.

Well	UWI	Project	Formation	Depth (m)	KB Elevation (m)	Ground Elevation (m)	Present Depth (m)	Daily Progress (m)	Accident	AFE Number	AFE Amount	Budget Amount	Daily Costs	Cumulative Costs	Cumulative AFE
KEELE RIVER L-52	300L026401124560	Initial Drilling	Surface (top hole)	895.0	314.42	310.17	830.0	.0	No	US-28423	\$9,000,000.00	\$5,829,000.00	\$876,848.00	\$4,465,047.54	\$4,465,047.50

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	17
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	23
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	-15 Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (mm)		Daily Costs	\$21,050.00
Operations @ 00:00	Haul Akita 14 to Akita yard Nisku.		216.00	Cumulative Costs	\$3,588,199.54
Operations @ 06:00	Haul Akita 14 to Akita yard Nisku.			Cumulative AFE	\$3,588,199.50

Key Personnel				Personnel on Site	
Drilling Supervisor Sam Machnee	(403)537-2591	Geologist		Company	2
Drilling Supervisor Keith Tichkowsky	(403)537-2591	Office Contact Richardson, Kim	(403)298-7273	Service	16
Rig Manager				Rig	12
				Total	30

Brief Summary of Day's Activities
 Load remaining loads from Base camp and truck to Akita yard Nisku.

Bit											
Bit #	Size (mm)	Make	Type	Serial #	Jets (mm)	In at (m)	Out at (m)	Progress (m)	Cum. bit hrs	ROP (m/hr)	Condition
					/ / /						
					/ / /						
					/ / /						

Drilling Parameters										
Bit #	Rot. Str. Wt. (daN)	RPM	P.U. Str. Wt. (daN)	Mechanical Torque (Nm)	Slack Str. Wt. (daN)	Electrical Torque (Nm)	Weight on Bit (daN)	DP Vel. (m/min)	DC Vel. (m/min)	Jet Vel. (m/sec)
								/	/	
								/	/	
								/	/	

Activities				Pump					
Code	From	To	Hours	Remarks	Stroke Vol. (m3)	SPM	Reduced SPM	Circ Rate (m3/min)	Pressure (kPa)
RIGUP	00:00	00:00	24.00	Move Akita 14 to Nisku, Akita yard.					
				Survey		Well Control			
				Depth(m)	Incl.	Azim.	MACP		.00 kPa
				Hydrostatic .00 kPa					
				BOP Last Tested 1/1/1900					
				Last Casing Size .000 mm					
				Casing Shoe .00 m					
				Surface Tank .0 m3					
				Premix Tank .0 m3					
				String .0 m3					
				Annular .0 m3					
				Total Mud .0 m3					
				Mud Loss .0 m3					
				Cum. Mud Loss 9.0 m3					
				Bottom Up Time .00 min					
				Circulating Time .00 min					
				Sump Volume .0 m3					
				Sump Freeboard .0 m					

Bottom Hole Assembly							
Item	#	OD (mm)	ID (mm)	Fishneck (mm)	Length (m)	Thread Type	Thread Size (mm)

Solids Control					Mud Additives		# Mud Properties	
Item	UF (kg/m3)	OF (kg/m3)	Flow (L/min)	Hours				

(mesh/sq.in)
(mesh/sq.in)

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	17
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	23
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	-15 Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$21,050.00
Operations @ 00:00	Haul Akita 14 to Akita yard Nisku.		216.00	Cumulative Costs	\$3,588,199.54
Operations @ 06:00	Haul Akita 14 to Akita yard Nisku.			Cumulative AFE	\$3,588,199.50

Casing

		Landed Depth			m			Well Depth			m			Hole Size		mm	
Item Description	Item Type	Make	Size (mm)	Weight (kg/m)	Grade	Thread & Coupling	Joints Ran	Surplus Joints	Surplus Length (m)	Cutoff (m)	Length Ran(m)	Top Depth (m)					

Casing Remarks

Cementing

Cementing Description							Stage #			
Slurry Type	Cement Type	Additives	Quantity (Mt)	Density (kg/m3)	Volume (m3)	Top Depth (m)	Bottom Depth(m)	Return Vol. (m3)	Return Type	

Cementing Remarks

Cores

Core No.	Formation	Bottom Depth (m)	Top Depth (m)	Cut (m)	Recovery (m)	Side wall	Remarks
2	Bearpaw Fm	540.0	531.2	8.8	8.8	No	Little Bear fm
3	Bearpaw Fm	540.7	540.2	.5	.5	No	Little Bear fm

Drill Stem Testing

DST No.	DST Type	DST Company	Formation	Bottom Depth (m)	Top Depth (m)
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Abandonment/Plugback

Office		Person						Date		
Plug No.	Plug Type	Bottom Depth (m)	Top Depth (m)	Felt at Depth (m)	Felt By	Felt Method	Cement Type	Cement Volume (m3)	Cement Method	Additives

Well	KEELE RIVER L-52	Ground Elevation	310.17 m	Days From Spud	17
Project	Initial Drilling	KB Elevation	314.42 m	Days on Location	23
UWI	300L026401124560	Projected Depth	830.0 m	Spud Date	3/6/2008 16:00
Licence	2052	Present Depth	895.0 m	Rig Release Date	3/21/2008 00:00
Rig Name / Model	Akita #14 / Single	Daily Progress	.0 m	AFE Number	US-28423
Final Status Code	Drilled & Abandoned	Accident	No	AFE Amount	\$9,000,000.00
Weather	-15 Clear			Budget Amount	\$5,829,000.00
Formation	Surface (top hole)	Hole Size (unit)		Daily Costs	\$21,050.00
Operations @ 00:00	Haul Akita 14 to Akita yard Nisku.		216.00	Cumulative Costs	\$3,588,199.54
Operations @ 06:00	Haul Akita 14 to Akita yard Nisku.			Cumulative AFE	\$3,588,199.50

Detailed Remarks

Moved Akita 14 rig from Keele River L-52 to Akita yard Nisku.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760

Report Date **06-Mar-08** Spud Date **06-Mar-08**

Drilling Fluids Report

Measured Depth (m) **0** Total Vert Depth (m) **0**

Deviation Deg. / Depth **0 / 0** Azimuth **1** Total Days **1**

Report # **1** Total Days **1**

Operator **Husky Oil Operations**
 Operator
 Well Location **Cloverleaf L-52**

Contractor
 Contractor Rep
 Well Name

Akita # 14
Husky et al Cloverleaf
 Present Activity
Spud Report
 AFE # **28423**

Drilling Fluid (Type) PROPERTIES		Flowline	Suction	HOLE GEOMETRY										CIRCULATION TIMES			
Time (Hours)	Temperature (C)	15:38		OD (mm)	ID (mm)	Length (M)	Washout %	Equivalent Hole Diameter (mm)			Bottoms Up	Surf-Surf	Circ Time				
Density (kg/m3)	0			Hole Size	0.0			Ann.	Ann. Vol	Ann. Vol	Minutes	0.0	0.0	0.0			
Viscosity (sec/L)	0			Casing#1	0.0	0.0	0.0	String Vol			Strokes	0	0	0			
Fann 600	2			Casing#2	0.0	0.0	0.0	m/min	OH	Cased Hole	Total Ann Mud Volume (m3)	0.0					
Fann 300	1.5			Liner/Csg#3	0.0	0.0	0.0	m3	m3	m3	Total String Mud Volume (m3)	0.0					
Fann 200	0			D.P.#1	0.0	0.0	0.0	0.00	0.00	0.00	Tanks(s) Volume (m3)	0.0					
Fann 100	0			D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	Total Circulating Volume (m3)	0.0					
Fann 6	0			D.C.#1	0.0	0.0	0.0	0.00	0.00	0.00	ECD (kg/m3)	0					
Fann 3	1			D.C.#2	0.0	0.0	0.0	0.00	0.00	0.00	Hydrostatic Pressure (kPa)	0					
Fann A.V. (mPa.s)	1			BHA	0.0	0.0	0.0	0.00	0.00	0.00	Low Gravity Solids (kg/m3)	-1625					
Plastic Vis (mPa.s)	0.5			Last Casing Set	0.0	0.0	0.0	Low "n"	0.1	Low "K" (Pa S)	High Gravity Solids (kg/m3)	0					
Yield Point (Pa)	0.5							BIT DATA									
10 Sec Gel (Pa)	0			Bit #		Depth In	0	Type		Hours	0	WOB (daN)					
10 Min Gel (Pa)	0			Size (mm)	0	Depth Out	0	RPM		Noz Vel (m/s)	0.0	T.F.A. (mm2)	0.0				
30 Min Gel (Pa)	0			Bit Depth	0	1	2	3	4	5	6	7	8	9	10	11	12
Fluid Loss (ml/30 min)				Nozzle Sizes (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Filter Cake (mm)				SOLIDS CONTROL EQUIPMENT										TIME BREAKDOWN			
PH Meter	0			Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	0	Survey	0		
Pf	0			Overflow Kg/m3	0	0	0	Mesh Size 1	0	0	0	Tripping	0	Ream	0		
Mf	0			Underflow Kg/m3	0	0	0	Mesh Size 2	0	0	0	Circulation	0	Clean	0		
Chlorides (mg/l)	0			Output (l/min)	0	0	0	Mesh Size 3	0	0	0	Rig Service	0	Misc.	0		
Calcium (mg/l)	0			Hours	0	0	0	Mesh Size 4	0	0	0	Dir. Work	0	Testing	0		
MBT (kg/m3)	0							Other				Coring	0	Total:	0		
Sand Volume Fraction	0			TANK FARM										PUMP DATA			
Water Volume Fraction	0											Stroke	Litres/	Strokes/ Min	m3/ min		
Oil Volume Fraction	0											0	0.0	0	0.00		
Solids Volume Fraction	0											0	0.0	0	0.00		
Potassium (mg/l)	0											0	0.0	0	0.00		
Excess Polymer (kg/m3)	0			FLUID TRACKING										Total Pump Output m3/min			
				Total in Tank Farm	0	Cumulative Volume Built	0.0					Pump Pressure (kPa)			0.0		
				Total Volume On Location	0.0	Surface Losses	0.0	PRODUCT USAGE / COST									
				Delivered	0.0	Subsurface Losses	0.0										
				Cumulative Delivered	0.0	Cumulative Losses	0.0										

OPERATION LAST 24 HOURS

SUGGESTIONS

For Spud

- Fill tanks with water and mix 2 sx Soda Ash.
- Spud in with water allowing Native Clays to build viscosity.
- Add PHPA Liquid on Supervisor's instruction.
- Increase Viscosity to 70 sec/l with Gel for running casing.
- Sand/ Gravel/ Boulders
- Increase Viscosity to 45 sec/l with Gel if hole cleaning becomes an issue.

- If severe, add SAPP down pipe, 1 viscup per connection. Try not to use more than 1 sk SAPP, for enviromental reasons.

Casing point

- Do not use Caustic if possible. pH needs to be under 8.5 prior to cleaning tanks. Use Sulphamic Acid if needed to reduce.

Lost Circulation

- Mix an LCM pill in one of the rig tanks. Add 1/2 sk Lime, raise viscosity to 80+ sec/l with Gel.
- Mix Sawdust, Fiber Seal and Cellophane in a 10:2:1 ratio. Mix as much product as possible and still be able to pump.
- Pump at reduce pump speed and spot in thief zone. Allow to settle while top filling hole.

Cementing

- Isolate returns to 1 tank.
- Lower Viscosity to 45 sec/l with water additions.

Please pails of PHPA in a warm building to thaw.

Wil

Mud Rings

- Put Dyna Detergent in a warm building to thaw.
- Add Dyna Det at suction, 10 min/pail if mud-rings present.

Thx

Inventory Cost Prior

0.00

Inventory Cost This Report

0.00

Total Inventory Costs

0.00

Warehouse

Formula Powell

Service Tech

Wil Skogstad

Address **Blackfalds, Ab.** Phone **403-885-5151** Address **Akita Rig # 40, Room #130** Phone **Camp**

24 Hour Phone (403) 266-7383

24 Hour Phone (403) 266-7383

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.



Newpark Drilling Fluids

Calgary Office: (403) 266-7383 (fax) 263-1760

Drilling Fluids Report

WATER BASED MUD REPORT

Report Date	07-Mar-08	Spud Date	05-Mar-08
Measured Depth (m)	165	Total Vert Depth (m)	165
Deviation Deg. / Depth	0 / 0	Azimuth	0
Report #	2	Total Days	2

Operator	Husky Oil Operations	Contractor	Akita # 14	Present Activity
Operator Rep	Sam Machnee/ Keith Tichkowsky	Contractor Rep		Drilling surface hole
Well Location	Cloverleaf L-52	Well Name	Husky et al Cloverleaf	AFE #

Drilling Fluid (Type)	Gel Slurry		HOLE GEOMETRY										CIRCULATION TIMES			
	Flowline	Suction	OD (mm)	ID (mm)	Length (M)	Washout %				Equivalent Hole Diameter (mm)		Bottoms Up	Surf-Surf	Circ Time		
Time (Hours)	9:58		Hole Size	311.0			0				311.0	Minutes	4.6	4.9	11.9	
Temperature (C)	22	0	Casing#1	0.0	0.0	0.0	Ann. Velocity	Ann. Vol	Ann. Vol	String Vol	Strokes	427	453	1108		
Density (kg/m3)	1110	0	Casing#2	0.0	0.0	0.0	m/min	OH	Cased Hole		Total Ann Mud Volume (m3)					
Viscosity (sec/L)	36	0	Liner/Csg#3	0.0	0.0	0.0					9.8					
Fann 600	21	0	D.P.#1	102.0	85.0	45.0	31.47	3.05	0.00	0.26	Total String Mud Volume (m3)					
Fann 300	14	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	0.00	0.6					
Fann 200	0	0	D.C.#1	159.0	60.0	120.0	38.02	6.73	0.00	0.34	Tanks(s) Volume (m3)					
Fann 100	0	0	D.C.#2	0.0	0.0	0.0	0.00	0.00	0.00	0.00	15.0					
Fann 6	0	0	BHA	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Total Circulating Volume (m3)					
Fann 3	3	0	Last Casing Set	0.0	0.0	0.0	Low "n"	0.3	Low "K" (Pa S)	0.9	25.4					
Fann A.V. (mPa.s)	10.5	0									ECD (kg/m3)					
Plastic Vis (mPa.s)	7	0									1118					
Yield Point (Pa)	3.5	0									Hydrostatic Pressure (kPa)					
10 Sec Gel (Pa)	2.5	0									1797					
10 Min Gel (Pa)	4	0									Low Gravity Solids (kg/m3)					
30 Min Gel (Pa)	0	0									179					
Fluid Loss (ml/30 min)	12	0									High Gravity Solids (kg/m3)					
Filter Cake (mm)	1	0									0					
PH Meter	8	0														
Pf	0.05	0														
Mf	0.3	0														
Chlorides (mg/l)	300	0														
Calcium (mg/l)	30	0														
MBT (kg/m3)	35	0														
Sand Volume Fraction	.005	0														
Water Volume Fraction	0.93	0														
Oil Volume Fraction	0	0														
Solids Volume Fraction	0.07	0														
Potassium (mg/l)	0	0														
Excess Polymer (kg/m3)																

SUGGESTIONS														
- Maintain Viscosity at 40 + sec/l with Gel.					- Fill tanks with water.									
Casing point					- Mix 5 sx Kelzan, 4 sx Drispac and 7 pails High Perm. 10 sx Cal Carb "0" and 10 sx Cal Carb 325.									
- Increase Viscosity to 70 sec/l with Gel for running casing.					- Drill out cement with water using pill tank.									
- Do not use Caustic if possible. pH needs to be under 8.5 prior to cleaning tanks. Use Sulphamic Acid if needed to reduce.					- When thru the shoe, displace hole to polymer mud. Run 2" stream of water to maintain volume.									
Cementing					- Begin adding PHPA Liquid at suction 1 pail very 75 meters. Add PHPA slowly to prevent screen blinding.									
- Isolate returns to 1 tank.					- Adjust Viscosity to 45 se/l initially with Kelzan at 40 min/sk.									
- Lower Viscosity to 45 sec/l with water additions.					- Adjust Water Loss to under 8 cc with Drispac/ Humilite at 40 min/sk.									
Please pails of PHPA in a warm building to thaw.					- Add 5 sx Cal Carb 0 and 5 sx CalCarb 325 each tour.									
While WOC														
- Clean tanks and drain all suction lines, centrifuge lines, etc.														
										Inventory Cost Prior		0.00		
										Inventory Cost This Report		1148.35		
										Total Inventory Costs		1148.35		

Warehouse	Formula Powell				Service Tech				Wil Skogstad					
Address	Blackfalds, Ab.				Phone	403-885-5151				Address	Akita Rig # 40, Room #130			
										Phone	Camp			

24 Hour Phone (403) 266-7383

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760

Report Date **15-Feb-08** Spud Date **14-Feb-08**
 Measured Depth (m) **0** Total Vert Depth (m) **0**
 Deviation Deg. / Depth **0 / 0** Azimuth **0** Total Days **3**
 Report # **3** Present Activity **Rigging Up**
 Contractor Rep **Husky et al North Haywood** AFE #

Drilling Fluids Report

Operator **Husky**
 Operator **Bill Cottrell/Alvin Vogt**
 Well Location **Dahadinni B-20**

Contractor **Husky et al North Haywood**
 Contractor Rep

Drilling Fluid (Type) PROPERTIES			HOLE GEOMETRY										CIRCULATION TIMES			
Time (Hours)	Flowline	Suction	OD (mm)	ID (mm)	Length (M)	Washout %	Equivalent Hole Diameter (mm)				Bottoms Up	Surf-Surf	Circ Time			
Temperature (C)	15	0	Hole Size	0.0			0.0				Minutes	0.0	0.0	0.0		
Density (kg/m3)	1010	0	Casing#1	0.0	0.0	0.0	Ann.	Ann. Vol	Ann. Vol	String Vol	Strokes	0	0	0		
Viscosity (sec/L)	65	0	Casing#2	0.0	0.0	0.0	m/min	OH	Cased Hole		Total Ann Mud Volume (m3)	0.0				
Fann 600	55	0	Liner/Csg#3	0.0	0.0	0.0		m3		m3	Total String Mud Volume (m3)	0.0				
Fann 300	41	0	D.P.#1	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Tanks(s) Volume (m3)	0.0				
Fann 200	36	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Total Circulating Volume (m3)	0.0				
Fann 100	24	0	D.C.#1	0.0	0.0	0.0	0.00	0.00	0.00	0.00	ECD (kg/m3)	0				
Fann 6	8	0	D.C.#2	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Hydrostatic Pressure (kPa)	0				
Fann 3	6	0	BHA	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Low Gravity Solids (kg/m3)	16				
Fann A.V. (mPa.s)	27.5	0	Last Casing Set	0.0	0.0	0.0	Low "n"	0.4	Low "K" (Pa S)	1.6	High Gravity Solids (kg/m3)	0				
Plastic Vis (mPa.s)	14	0					BIT DATA									
Yield Point (Pa)	13.5	0	Bit #	1	Depth In	0	Type	Hours	0	WOB (daN)						
10 Sec Gel (Pa)	4	0	Size (mm)	0	Depth Out	0	RPM	Noz Vel (m/s)	0.0	T.F.A. (mm2)	0.0					
10 Min Gel (Pa)	6	0	Bit Depth	0	1	2	3	4	5	6	7	8	9	10	11	12
30 Min Gel (Pa)	8	0	Nozzle Sizes (mm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fluid Loss (ml/30 min)	11	0					SOLIDS CONTROL EQUIPMENT			TIME BREAKDOWN						
Filter Cake (mm)	2	0	Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	0	Survey	0		
PH Meter	8.5	0	Overflow Kg/m3	0	0	0	Mesh Size 1	0	0	0	Tripping	0	Ream	0		
Pf	0.25	0	Underflow Kg/m3	0	0	0	Mesh Size 2	0	0	0	Circulation	0	Clean	0		
Mf	0.8	0	Output (l/min)	0	0	0	Mesh Size 3	0	0	0	Rig Service	0	Misc.	24		
Chlorides (mg/l)	300	0	Hours	0	0	0	Mesh Size 4	0	0	0	Dir. Work	0	Testing	0		
Calcium (mg/l)	80	0					Other				Coring	0	Total:	24		
MBT (kg/m3)	15	0					TANK FARM			PUMP DATA						
Sand Volume Fraction	0	0		0	0	0	Make/Mdl.	Liner	Stroke	Litres/	Strokes/ Min	m3/ min				
Water Volume Fraction	99	0		0	0	0	0	0	0	0.0	0	0.00				
Oil Volume Fraction	0	0		0	0	0	0	0	0	0.0	0	0.00				
Solids Volume Fraction	1	0		0	0	0	0	0	0	0.0	0	0.00				
Potassium (mg/l)	0	0					FLUID TRACKING			Total Pump Output m3/min						
Excess Polymer (kg/m3)	0	0	Total in Tank Farm	0	Cumulative Volume Built	0.0				Pump Pressure (kPa)	0.0					
			Total Volume On Location	0.0	Surface Losses	0.0	PRODUCT USAGE / COST									
			Delivered	0.0	Subsurface Losses	0.0	Product	Units	/Unit	Total						
			Cumulative Delivered	0.0	Cumulative Losses	0.0	Drispac Regular 50 lb.	8	273.30	2186.40						
							Soda Ash 25 kg.	3	21.75	65.25						
							Kelzan XCD 25 kg.	8	554.70	4437.60						
							Humalite	4	10.95	43.80						
							Bentonite - Natural 40	25	12.45	311.25						
							Engineering	1	1000.0	1000.00						

OPERATION LAST 24 HOURS

-Rigging up
 -Built spud mud to 65 sec/L viscosity and lowered fluid loss to 11 mL/30 min with 3 soda ash, 4 Humalite, 8 Drispac, 8 Flozan and NewGel

SUGGESTIONS

- Use mud in rig tanks for Spud mud. When drilling maintain viscosity at 60 to 80 sec/L with NewGel, KELZAN and DRISPAC at 15 to 1 to 1 ratio. 2 Kelzan then add Gel (Bentonite) for +\-50 sec/L viscosity.
- Maintain the mud density ALAP with use of all solids control at all times. Run all agitators and guns. Turn on centrifuge when ENGINEER requests.
- Maintain PH at 8.5 to 9.0. Don't go over 9.5. drilling starts, when everything going good, can go to finer
- Please watch tank volumes for any sudden increases or decreases. Add water as needed to maintain volume.
- Put 3-4 pails DYNA DET in pump house to thaw out, then when requested add 1 pail slowly over suction tank.
 Total Inventory Costs

PREMIX TANK:

Fill with 3/4 with water, add 2 Soda Ash, 2 Drispac, Then add 1 pallet SAWDUST and 10 sx Cellophane. Then add 20 sx More Bentonite to raise viscosity. **Will pump as needed or as requested.

**Try using 84's for screens for now on shakers, when screens.

Inventory Cost Prior 8000.00
 Inventory Cost This Report 8044.30
 16044.30

Warehouse **Fomula Powell**
 Address **Blackfalds Alberta**
24 Hour Phone (403) 266-7383
24 Hour Phone (403) 266-7383

Phone **1403-885-5151**
 Service Tech **Wayne Turgeon**
 Address **Camp**

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760

Report Date **11-Mar-08** Spud Date **06-Mar-08**
 Measured Depth (m) **531** Total Vert Depth (m) **531**
 Deviation Deg. / Depth **.46 / 498** Azimuth **5** Total Days **5**

Drilling Fluids Report

Operator **Husky Oil Operations**
 Operator **Sam Machnee/ Keith Tichkowsky**
 Well Location **Cloverleaf L-52**

Contractor **Akita # 14**
 Contractor Rep **Hallock/Unrau**
 Well Name **Husky et al Cloverleaf**

Present Activity **TOH to Core**
 AFE #

Drilling Fluid (Type) PROPERTIES		(WBM)	HOLE GEOMETRY										CIRCULATION TIMES							
Flowline	Suction		OD (mm)	ID (mm)	Length (M)	Washout %	Equivalent Hole Diameter (mm)			Bottoms Up	Surf-Surf	Circ Time								
Time (Hours)	10:43		Hole Size	216.0			Ann.	Ann. Vol	Ann. Vol	String Vol	Minutes	10.0	11.8	29.4						
Temperature (C)	22	0	Casing#1	244.5	220.0	252.0	OH	Cased Hole			Strokes	1175	1387	3469						
Density (kg/m3)	1030	0	Casing#2	0.0	0.0	0.0	m/min				Total Ann Mud Volume (m3)			14.7						
Viscosity (sec/L)	83	0	Liner/Csg#3	0.0	0.0	0.0	m3	m3	m3		Total String Mud Volume (m3)			2.6						
Fann 600	80	0	D.P.#1	102.0	85.0	396.6	49.36	4.38	7.52	2.25	Tanks(s) Volume (m3)			26.0						
Fann 300	59	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Total Circulating Volume (m3)			43.3						
Fann 200	0	0	D.C.#1	121.0	60.0	38.4	55.56	1.04	0.00	0.11	ECD (kg/m3)			1117						
Fann 100	0	0	D.C.#2	159.0	60.0	86.6	81.13	1.61	0.00	0.24	Hydrostatic Pressure (kPa)			5365						
Fann 6	15	0	BHA	181.0	78.0	9.4	119.93	0.12	0.00	0.04	Low Gravity Solids (kg/m3)			49						
Fann 3	10	0	Last Casing Set	244.5	220.0	252.0	Low "n"	0.4	Low "K" (Pa S)	2.7	High Gravity Solids (kg/m3)			0						
Fann A.V. (mPa.s)	40	0	BIT DATA																	
Plastic Vis (mPa.s)	21	0	Bit #	2	Depth In	252	Type	GTCS1	Hours	15.25	WOB (daN)	11								
Yield Point (Pa)	19	0	Size (mm)	216	Depth Out	531	RPM	120	Noz Vel (m/s)	26.0	T.F.A. (mm2)	942.0								
10 Sec Gel (Pa)	10	0	Bit Depth	252	1	2	3	4	5	6	7	8	9	10						
10 Min Gel (Pa)	12	0	Nozzle Sizes (mm)										20.0	20.0	20.0	20.0	0.0	0.0	0.0	0.0
30 Min Gel (Pa)	15	0	SOLIDS CONTROL EQUIPMENT										TIME BREAKDOWN							
Fluid Loss (ml/30 min)	9.3		Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	10.75	Survey	2						
Filter Cake (mm)	2		Overflow Kg/m3	1010	0	0	Mesh Size 1	50	0	0	Tripping	5	Ream	0						
PH Meter	7.5	0	Underflow Kg/m3	1820	0	0	Mesh Size 2	50	0	0	Circulation	2.25	Clean	0						
Pf	0.02	0	Output (l/min)	0	0	0	Mesh Size 3	50	0	0	Rig Service	0.5	Misc.	3.5						
Mf	0.3	0	Hours	8	0	0	Mesh Size 4	0	0	0	Dir. Work	0	Testing	0						
Chlorides (mg/l)	350	0	Other										Coring	0	Total:	24				
Calcium (mg/l)	90	0	TANK FARM										PUMP DATA							
MBT (kg/m3)	0	0	Total in Tank Farm	0	Cumulative Volume Built	0.0	Make/Mdl.	Liner	Stroke	Litres/	Strokes/ Min	m3/ min								
Sand Volume Fraction	0		Total Volume On Location	43.3	Surface Losses	0.0	Emsco	152	191	0.0	0	0.00								
Water Volume Fraction	0.978	0	Delivered	0.0	Subsurface Losses	0.0	Emsco	152	229	12.5	118	1.47								
Oil Volume Fraction	0	0	Cumulative Delivered	0.0	Cumulative Losses	0.0		0	0	0.0	0	0.00								
Solids Volume Fraction	0.022	0	FLUID TRACKING										Total Pump Output m3/min			1.5				
Potassium (mg/l)	0	0	Total in Tank Farm	0	Cumulative Volume Built	0.0	Pump Pressure (kPa)			6600.0	PRODUCT USAGE / COST									
Excess Polymer (kg/m3)	1.0		Delivered	0.0	Subsurface Losses	0.0	Product	Units	/Unit	Total										
			Cumulative Delivered	0.0	Cumulative Losses	0.0	Engineering	1	1000.0	1000.00										
			OPERATION LAST 24 HOURS										Humilite 25 kg	11	10.95	120.45				
			--TIH with vertitrac and start drilling 216 mm hole. Drill ahead at 11:15 hours, March 10th.										Drispac Regular 50 lb.	7	273.30	1913.10				
			--Drill to core point at 531 meters at 06:00 hours march 11th. Viscosity at 84 sec/L with Drispac regular and Humalite. Fluid loss at 9.5 mL/30 min. Mud weight at 1030 kg/m3.--TOH to run Core.--Sulfamic acid and Biacrb used for Surface mud and water to										Cal Carb #0 (25kg)	5	5.70	28.50				
			SUGGESTIONS										Cal Carb #325 (25kg)	5	5.70	28.50				
			-- Run small stream of water as required to maintain										High Perm 20 l	3	194.25	582.75				
			Sulfamic Acid 25 kg.										NewPHPA 25 kg	2	274.50	549.00				
			-- To lower viscosity, add 1 DESCO thru chem barrel at a time very slowly over 1-2 hours. If viscosity fall to where you want it, stop the additions.										Bicarbonate of Soda	11	154.95	1704.45				
			-- If needed to raise PH add 1 sk CAUSTIC thru chem barrel very slowly for 8.0-8.5 ph (Only as Co. Man requests).										4	54.15	216.60					

While Coring:
 volume.

- 1) Have Water Loss under 8 cc with Drispac/ Humilite at 30 to 40 min/sk at 1 to 1 ratio.
 ***ADD 1 DESCO THRU CHEM BARREL WHEN ADDING THE 1ST BAG OF DRISPAC and HUMALITE.
 ***TRY AND KEEP VISCOSITY UNDER 80 sec/L USING SMALL AMOUNTS OF DESCO WHEN ADDING THE DRISPAC.

- 2) Add 1 pail HIGHPERM every 50 meters thru grating until finished.
 Wayne

- 3) After Fluid loss under 8.0 mL/30 min use KELZAN at 30-40 min/sk to maintain viscosity 50+ sec/L.
 Inventory Cost Prior

- 4) Add 5 sx Cal Carb 0 and 5 sx CalCarb 325 each tour.
 Inventory Cost This Report
 Total Inventory Costs

Thanks

Warehouse
 Address

Formula Powell
 Blackfalds, Ab.

Service Tech
 Address

Wayne Turgeon
 Akita #40
 Phone
 Akita 40

24 Hour Phone (403) 266-7383
 24 Hour Phone (403) 266-7383

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10417.90

6143.35

16561.25

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760
Drilling Fluids Report

Report Date **20-Aug-08** Spud Date **06-Mar-08**
 Measured Depth (m) 531 Total Vert Depth (m) 531
 Deviation Deg. / Depth .46 / 498 Azimuth
 Total Days
 Report # **6** Total Days **6**
 Present Activity
Akita # 14
Hallock/Unrau
Husky et al Cloverleaf AFE #

Operator **Husky Oil Operations** Contractor
 Operator **Sam Machnee/ Keith Tichkowsky** Contractor Rep
 Well Location **Cloverleaf L-52** Well Name

Drilling Fluid (Type) PROPERTIES		(WBM)		HOLE GEOMETRY							CIRCULATION TIMES					
Time (Hours)	Flowline	Suction	OD (mm)	ID (mm)	Length (M)	Washout %	Equivalent Hole Diameter (mm)			Bottoms Up	Surf-Surf	Circ Time				
16:09			216.0			5	221.3			9.7	11.5	31.2				
Temperature (C)	21	0	Hole Size	216.0		Ann.	Ann. Vol	Ann. Vol	String Vol	Minutes	1149	1355	3678			
Density (kg/m3)	1030	0	Casing#1	244.5	220.0	252.0	OH	Cased Hole		Strokes	1149	1355	3678			
Viscosity (sec/L)	56	0	Casing#2	0.0	0.0	0.0	m/min			Total Ann Mud Volume (m3)	14.3					
Fann 600	60	0	Liner/Csg#3	0.0	0.0	0.0	m3	m3	m3	Total String Mud Volume (m3)	2.6					
Fann 300	42	0	D.P.#1	102.0	85.0	369.1	48.61	3.55	7.52	Tanks(s) Volume (m3)	29.0					
Fann 200	0	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	Total Circulating Volume (m3)	45.9					
Fann 100	0	0	D.C.#1	121.0	60.0	38.4	54.61	1.04	0.00	ECD (kg/m3)	1089					
Fann 6	8	0	D.C.#2	159.0	60.0	114.1	81.13	2.13	0.00	Hydrostatic Pressure (kPa)	5365					
Fann 3	5	0	BHA	181.0	78.0	9.4	115.58	0.12	0.00	Low Gravity Solids (kg/m3)	49					
Fann A.V. (mPa.s)	30	0	Last Casing Set	244.5	220.0	252.0	Low "n"	0.5	Low "K" (Pa S)	1.2	High Gravity Solids (kg/m3)	0				
Plastic Vis (mPa.s)	18	0	BIT DATA													
Yield Point (Pa)	12	0	Bit #	2	Depth In	252	Type	GTCS1	Hours	15.25	WOB (daN)	11				
10 Sec Gel (Pa)	6	0	Size (mm)	216	Depth Out	531	RPM	120	Noz Vel (m/s)	26.0	T.F.A. (mm2)	942.0				
10 Min Gel (Pa)	11	0	Bit Depth	531	1	2	3	4	5	6	7	8	9	10	11	12
30 Min Gel (Pa)	14	0	Nozzle Sizes (mm) 20.0 20.0 20.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0													
Fluid Loss (ml/30 min)	8.0		SOLIDS CONTROL EQUIPMENT										TIME BREAKDOWN			
Filter Cake (mm)	2		Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	5.75	Survey	2		
PH Meter	7	0	Overflow Kg/m3	0	0	0	Mesh Size 1	50	0	0	Tripping	11.5	Ream	0		
Pf	0.01	0	Underflow Kg/m3	0	0	0	Mesh Size 2	50	0	0	Circulation	0.75	Clean	0		
Mf	0.28	0	Output (l/min)	0	0	0	Mesh Size 3	50	0	0	Rig Service	0.5	Misc.	3.5		
Chlorides (mg/l)	350	0	Hours	0	0	0	Mesh Size 4	0	0	0	Dir. Work	0	Testing	0		
Calcium (mg/l)	80	0	Other										Coring	0	Total:	24
MBT (kg/m3)	0	0	TANK FARM										PUMP DATA			
Sand Volume Fraction	0							0	Make/Mdl.	Liner	Stroke	Litres/	Strokes/ Min	m3/ min		
Water Volume Fraction	0.98	0						0	Emsco	152	191	0.0	0	0.00		
Oil Volume Fraction	0	0						0	Emsco	152	229	12.5	118	1.47		
Solids Volume Fraction	0.2	0						0		0	0	0.0	0	0.00		
Potassium (mg/l)	0	0	FLUID TRACKING										Total Pump Output m3/min	1.5		
Excess Polymer (kg/m3)	1		Total in Tank Farm	0	Cumulative Volume Built	0.0	Pump Pressure (kPa)	6600.0	PRODUCT USAGE / COST							
			Total Volume On Location	45.9	Surface Losses	0.0	Product	Units	/Unit	Total						
			Delivered	0.0	Subsurface Losses	0.0	Engineering	1	1000.0	1000.00						
			Cumulative Delivered	0.0	Cumulative Losses	0.0	Drispac Regular 50 lb.	6	273.30	1639.80						

OPERATION LAST 24 HOURS
 --POH and TIH with core barrel and cut core from 17:30 to 20:45 hours, March 11th. TOH and retrieve core. TIH and run core from 540 to 541 meters, core jammed off. TOH and retrieve core. TIH with vertitrac to drill ahead. added DESCO to mud due to high viscosity from DRISPAC REGULAR to get fluid loss under 8.0 mL/30 min.

SUGGESTIONS

While DRILLING please add before TD:

-- Before TD, add 1 sk Caustic thru chem barrel over 1-2 hours to raise PH.

-- Run small stream of water as required to maintain volume.
 Dyna Det. 20 l

1) Have Water Loss 6 cc or lower with Drispac/ Humilite at 30 to 40 min/sk at 1 to 1 ratio.

-- To lower viscosity, add 1 DESCO thru chem barrel at a time very slowly over 1-2 hours. If viscosity fall to where you want it, stop the additions, can use the rest for cementing.

***KEEP VISCOSITY 60 - 80 sec/L USING DRISPAC and IF NEEDED KELZAN. Use DESCO for excessive Viscosities.
 drilling over 1-2 hours.

-- Add 1 sk Caustic thru chem barrel to raise PH when

2) Add 1 pail HIGHPERM every 50 meters thru grating until finished.

Thanks

3) Add 1 pail NEWPHPA when drilling thru grating at suction before TD.

Wayne

4) After Fluid loss under 6.0 mL/30 min use KELZAN at 30-40 min/sk if needed to maintain Visc. 60+ sec/L.

Inventory Cost Prior 16564.25

Inventory Cost This Report 4118.80

5) Add 5 sx Cal Carb 0 and 5 sx CalCarb 325 each tour.

Total Inventory Costs 20683.05

Warehouse Address

Formula Powell
 Blackfalds, Ab.

Phone 403-885-5151

Service Tech Address

Akita #40

Phone

Wayne Turgeon
 Akita 40

24 Hour Phone (403) 266-7383
 24 Hour Phone (403) 266-7383

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760
Drilling Fluids Report

Report Date **13-Mar-08** Spud Date **06-Mar-08**
 Measured Depth (m) **780** Total Vert Depth (m) **780**
 Deviation Deg. / Depth **0 / 0** Azimuth **7** Total Days **7**
 Report # **7** Present Activity **Drilling**
 Contractor **Akita # 14**
 Contractor Rep **Hallock/Unrau**
 Well Name **Husky et al Cloverleaf** AFE #

Operator **Husky Oil Operations**
 Operator **Sam Machnee/ Keith Tichkowsky**
 Well Location **Cloverleaf L-52**

Contractor
 Contractor Rep
 Well Name

Drilling Fluid (Type) (WBM)		HOLE GEOMETRY										CIRCULATION TIMES		
PROPERTIES		Flowline	Suction	OD (mm)	ID (mm)	Length (M)	Washout %			5	Bottoms Up Surf-Surf Circ Time			
Time (Hours)	13:47			216.0			Equivalent Hole Diameter (mm)			221.3	Minutes	14.9	17.6	37.2
Temperature (C)	27	0	Hole Size	244.5	220.0	252.0	Ann.	Ann. Vol	Ann. Vol	String Vol	Strokes	1753	2073	4395
Density (kg/m3)	1050	0	Casing#1	0.0	0.0	0.0	m/min	OH	Cased Hole		Total Ann Mud Volume (m3)	21.9		
Viscosity (sec/L)	68	0	Casing#2	0.0	0.0	0.0	m3	m3	m3		Total String Mud Volume (m3)	4.0		
Fann 600	82	0	Liner/Csg#3	102.0	85.0	618.1	48.61	11.09	7.52	3.51	Tanks(s) Volume (m3)	29.0		
Fann 300	60	0	D.P.#1	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Total Circulating Volume (m3)	54.9		
Fann 200	0	0	D.P.#2	121.0	60.0	38.4	54.61	1.04	0.00	0.11	Low Gravity Solids (kg/m3)	81		
Fann 100	0	0	D.C.#1	159.0	60.0	114.1	81.13	2.13	0.00	0.32	High Gravity Solids (kg/m3)	0		
Fann 6	15	0	D.C.#2	181.0	78.0	9.4	115.58	0.12	0.00	0.04				
Fann 3	10	0	BHA	244.5	220.0	252.0	Low "n"	0.4	Low "K" (Pa S)	2.7				
Fann A.V. (mPa.s)	41	0	Last Casing Set											
Plastic Vis (mPa.s)	22	0												
Yield Point (Pa)	19	0	Bit #	2	Depth In	252	Type	GTCS1	Hours	15.25	WOB (daN)	11		
10 Sec Gel (Pa)	8	0	Size (mm)	216	Depth Out	531	RPM	120	Noz Vel (m/s)	26.0	T.F.A. (mm2)	942.0		
10 Min Gel (Pa)	12	0	Bit Depth	780	Nozzle Sizes (mm)	1 2 3 4		5 6 7 8	9 10 11 12					
30 Min Gel (Pa)	14	0						0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0					
Fluid Loss (ml/30 min)	6.8													
Filter Cake (mm)	2													
PH Meter	8.5	0	Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	3.75	Survey	0
Pf	0.08	0	Overflow Kg/m3	0	0	0	Mesh Size 1	50	0	0	Tripping	10	Ream	1.25
Mf	0.35	0	Underflow Kg/m3	0	0	0	Mesh Size 2	50	0	0	Circulation	0.5	Clean	0
Chlorides (mg/l)	380	0	Output (l/min)	0	0	0	Mesh Size 3	50	0	0	Rig Service	0.25	Misc.	3.75
Calcium (mg/l)	80	0	Hours	24	0	0	Mesh Size 4	0	0	0	Dir. Work	0	Testing	0
MBT (kg/m3)	0	0					Other				Coring	4.5	Total:	24
Sand Volume Fraction	0													
Water Volume Fraction	0.95	0												
Oil Volume Fraction	0	0												
Solids Volume Fraction	0.5	0												
Potassium (mg/l)	0	0												
Excess Polymer (kg/m3)	2.1													

TANK FARM		FLUID TRACKING		PUMP DATA		PRODUCT USAGE / COST		
Total in Tank Farm	0	Cumulative Volume Built	0.0	Stroke	Litres/	Strokes/ Min	m3/ min	
Total Volume On Location	54.9	Surface Losses	0.0	191	0.0	0	0.00	
Delivered	0.0	Subsurface Losses	0.0	229	12.5	118	1.47	
Cumulative Delivered	0.0	Cumulative Losses	0.0	0	0.0	0	0.00	
OPERATION LAST 24 HOURS				Total Pump Output m3/min	1.5			
- Retrieve core and TIH with vertitrac. Ream rat hole to 540 meters. Drill ahead.				Pump Pressure (kPa)	6600.0			
- Keeping water loss low and viscosity 50-6- sec/L.								

SUGGESTIONS

While DRILLING please add before TD:
 Wayne
 -- Before TD, add 1 sk KELZAN, 1 pail NEWPHPA, 1 pail HIGHPERM, 1 sk SODA ASH and DRISPAC for Viscosity 70 to 80 sec/L and Fluid Loss as low as possible.

1) Have Water Loss 6 cc or lower with Drispac at 30 to 40 min/sk and to increase viscosity. Use DESCO for excessive Viscosity.

2) Run small stream of water as required to maintain volume.

-3) To lower viscosity, add 1 DESCO thru chem barrel at a time very slowly over 1-2 hours. If viscosity fall to where you want it, stop the additions, can use the rest for cementing.

Inventory Cost Prior
 -- Add 1 sk soda ash before TD.
 Total Inventory Costs

20683.05
 Inventory Cost This Report 3669.40
 24352.45

Warehouse **Formula Powell**
 Address **Blackfalds, Ab.**
24 Hour Phone (403) 266-7383
24 Hour Phone (403) 266-7383

Service Tech **Wayne Turgeon**
 Address **Akita #40**
 Phone **Akita 40**

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760

Report Date **14-Mar-08** Spud Date **06-Mar-08**
 Measured Depth (m) 830 Total Vert Depth (m) 830

Drilling Fluids Report

Deviation Deg. / Depth .12 / 823 Azimuth Total Days

Report # **8** Total Days **8**

Operator **Husky Oil Operations**
 Operator **Sam Machnee/ Keith Tichkowsky**
 Well Location **Cloverleaf L-52**

Contractor **Akita # 14**
 Contractor Rep **Hallock/Unrau**
 Well Name **Husky et al Cloverleaf**

Present Activity **Drilling**
 AFE # **28423**

Drilling Fluid (Type) PROPERTIES	(WBM)		HOLE GEOMETRY										CIRCULATION TIMES			
	Flowline	Suction	OD (mm)	ID (mm)	Length (M)	Washout %	Equivalent Hole Diameter (mm)			Bottoms Up	Surf-Surf	Circ Time				
Time (Hours)	17:01		Hole Size	216.0			5	221.3			Minutes	15.9	18.8	38.5		
Temperature (C)	22	0	Casing#1	244.5	220.0	252.0	Ann.	Ann. Vol	Ann. Vol	String Vol	Strokes	1875	2217	4539		
Density (kg/m3)	1060	0	Casing#2	0.0	0.0	0.0	m/min	OH	Cased Hole		Total Ann Mud Volume (m3)			23.4		
Viscosity (sec/L)	65	0	Liner/Csg#3	0.0	0.0	0.0					Total String Mud Volume (m3)			4.3		
Fann 600	75	0	D.P.#1	102.0	85.0	668.1	48.61	12.61	7.52	3.79	Tanks(s) Volume (m3)			29.0		
Fann 300	55	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Total Circulating Volume (m3)			56.7		
Fann 200	23	0	D.C.#1	121.0	60.0	38.4	54.61	1.04	0.00	0.11	ECD (kg/m3)			1134		
Fann 100	17	0	D.C.#2	159.0	60.0	114.1	81.13	2.13	0.00	0.32	Hydrostatic Pressure (kPa)			8631		
Fann 6	11	0	BHA	181.0	78.0	9.4	115.58	0.12	0.00	0.04	Low Gravity Solids (kg/m3)			98		
Fann 3	9	0	Last Casing Set	244.5	220.0	252.0	Low "n"	0.4	Low "K" (Pa S)	2.4	High Gravity Solids (kg/m3)			0		
Fann A.V. (mPa.s)	37.5	0	Bit #	3	Depth In	531	Type	M516BHVP	Hours		WOB (daN)		11			
Plastic Vis (mPa.s)	20	0	Size (mm)	216	Depth Out		RPM	120	Noz Vel (m/s)	20.1	T.F.A. (mm2)		1218.5			
Yield Point (Pa)	17.5	0	Bit Depth	830	1	2	3	4	5	6	7	8	9	10	11	12
10 Sec Gel (Pa)	7	0	Nozzle Sizes (mm) 16.6 16.6 16.6 16.6 15.0 15.0 0.0 0.0 0.0 0.0 0.0 0.0													
10 Min Gel (Pa)	14	0	SOLIDS CONTROL EQUIPMENT													
30 Min Gel (Pa)	18	0	TIME BREAKDOWN													
Fluid Loss (ml/30 min)	6.7		Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	16.5	Survey	0		
Filter Cake (mm)	2		Overflow Kg/m3	0	0	0	Mesh Size 1	50	0	0	Tripping	2.5	Ream	0		
PH Meter	8.5	0	Underflow Kg/m3	0	0	0	Mesh Size 2	50	0	0	Circulation	1	Clean	0		
Pf	0.05	0	Output (l/min)	0	0	0	Mesh Size 3	50	0	0	Rig Service	0.75	Misc.	3.25		
Mf	0.39	0	Hours	0	0	0	Mesh Size 4	0	0	0	Dir. Work	0	Testing	0		
Chlorides (mg/l)	400	0	Other													
Calcium (mg/l)	80	0	TANK FARM													
MBT (kg/m3)	0	0	PUMP DATA													
Sand Volume Fraction	0						Make/Mdl.	Liner	Stroke	Litres/	Strokes/ Min	m3/ min				
Water Volume Fraction	0.948	0					Emsco	152	191	0.0	0	0.00				
Oil Volume Fraction	0	0					Emsco	152	229	12.5	118	1.47				
Solids Volume Fraction	0.052	0						0	0	0.0	0	0.00				
Potassium (mg/l)	0	0	FLUID TRACKING													
Excess Polymer (kg/m3)	2.2		Total in Tank Farm	0	Cumulative Volume Built	0.0	Total Pump Output m3/min	1.5	Pump Pressure (kPa)	6600.0	PRODUCT USAGE / COST					
			Total Volume On Location	56.7	Surface Losses	0.0	PRODUCT USAGE / COST									
			Delivered	0.0	Subsurface Losses	0.0	Product	Units	/Unit	Total						
			Cumulative Delivered	0.0	Cumulative Losses	0.0	Cal Carb #325 (25kg)	5	5.70	28.50						

OPERATION LAST 24 HOURS

--Drill to 830 meters at 20:30 hours, March 13th. Circulate and POH at 21:30 hours to run Logs.--Viscosity at 78 sec/L--Wiper trip and POH to log. Start to run logs at 07:45 hours, March 14th, cancell logging to move loggers over to Akita #40. TIH with drill pipe and drill.

SUGGESTIONS

- While DRILLING please add before TD:
 Caustic Soda 50 lb.
 1) Before TD, add DRISPAC and KELZAN for Viscosity 70 to 80 sec/L and Fluid Loss as low as possible.
 2) Add water as requested, then run a stream of water as required.
 -3) To lower viscosity, add DESCO thru chem barrel at a time very slowly over 1-2 hours. If viscosity fall to where you want it, stop the additions, can use the rest for cementing.

Product	Units	/Unit	Total
Engineering	1	1000.0	1000.00
Soda Ash 25 kg.	2	21.75	43.50
Kelzan XCD 25 kg.	5	554.70	2773.50
Drispac Regular 50 lb.	9	273.30	2459.70
Cal Carb #0 (25kg)	5	5.70	28.50
Humilite 25 kg	2	10.95	21.90
Desco CF 25 lb.	2	75.60	151.20
1	48.00	48.00	
PHPA Liquid 20 l	1	274.50	274.50
Sawdust Bag	15	4.20	63.00
High Perm 20 l	4	194.25	777.00

Thanks
Wayne

Inventory Cost Prior 24352.45
 Inventory Cost This Report 7669.30
 Total Inventory Costs 32021.75

Warehouse **Formula Powell** Service Tech **Wayne Turgeon**
 Address **Blackfalds, Ab.** Phone **403-885-5151** Address **Akita #40** Phone **Akita 40**
24 Hour Phone (403) 266-7383
24 Hour Phone (403) 266-7383

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760
Drilling Fluids Report

Report Date **15-Mar-08** Spud Date **06-Mar-08**
 Measured Depth (m) **895** Total Vert Depth (m) **895**
 Deviation Deg. / Depth **1.5 / 884** Azimuth **9** Total Days **9**
 Report # **9** Present Activity **Tripping to Shoe/W.O.C.**
Akita # 14
Hallock//Unrau
Husky et al Cloverleaf AFE #

Operator **Husky Oil Operations** Contractor **Contractor Rep**
 Operator **Sam Machnee/ Keith Tichkowsky** Well Name
 Well Location **Cloverleaf L-52**

Drilling Fluid (Type) PROPERTIES		(WBM) Flowline	Suction	HOLE GEOMETRY								CIRCULATION TIMES					
Time (Hours)	Temperature (C)	25	0	OD (mm)	ID (mm)	Length (M)	Washout %	5	Equivalent Hole Diameter (mm)	221.3	Minutes	17.2	Surf-Surf	20.4	Circ Time	37.3	
Density (kg/m3)	1050	0	0	Hole Size	216.0	220.0	252.0	Ann.	Ann. Vol	Ann. Vol	String Vol	Strokes	2033	2404	4406		
Viscosity (sec/L)	72	0	0	Casing#1	244.5	0.0	0.0	m/min	OH	Cased Hole		Total Ann Mud Volume (m3)	25.4				
Fann 600	78	0	0	Liner/Csg#3	0.0	0.0	0.0	m3	m3	m3		Total String Mud Volume (m3)	4.6				
Fann 300	57	0	0	D.P.#1	102.0	85.0	733.1	48.61	14.58	7.52	4.16	Tanks(s) Volume (m3)	25.0				
Fann 200	27	0	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Total Circulating Volume (m3)	55.0				
Fann 100	17	0	0	D.C.#1	121.0	60.0	38.4	54.61	1.04	0.00	0.11	ECD (kg/m3)	1125				
Fann 6	14	0	0	D.C.#2	159.0	60.0	114.1	81.13	2.13	0.00	0.32	Hydrostatic Pressure (kPa)	9219				
Fann 3	9	0	0	BHA	181.0	78.0	9.4	115.58	0.12	0.00	0.04	Low Gravity Solids (kg/m3)	81				
Fann A.V. (mPa.s)	39	0	0	Last Casing Set	244.5	220.0	252.0	Low "n"	0.4	Low "K" (Pa S)	2.4	High Gravity Solids (kg/m3)	0				
Plastic Vis (mPa.s)	21	0	0														
Yield Point (Pa)	18	0	0	Bit #	2	Depth In	531	Type	GTCs1	Hours	22	WOB (daN)	11				
10 Sec Gel (Pa)	7	0	0	Size (mm)	216	Depth Out	830	RPM	120	Noz Vel (m/s)	21.0	T.F.A. (mm2)	1167.2				
10 Min Gel (Pa)	10	0	0	Bit Depth	550	1	2	3	4	5	6	7	8	9	10	11	12
30 Min Gel (Pa)	15	0	0	Nozzle Sizes (mm)	16.1	16.1	16.1	16.1	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fluid Loss (ml/30 min)	7.0			SOLIDS CONTROL EQUIPMENT								TIME BREAKDOWN					
Filter Cake (mm)	2			Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	6	Survey	0		
PH Meter	8	0	0	Overflow Kg/m3	0	0	0	Mesh Size 1	50	0	0	Tripping	11.25	Ream	0		
Pf	0.02	0	0	Underflow Kg/m3	0	0	0	Mesh Size 2	50	0	0	Circulation	2.5	Clean	0		
Mf	0.35	0	0	Output (l/min)	0	0	0	Mesh Size 3	50	0	0	Rig Service	0.75	Misc.	3.5		
Chlorides (mg/l)	400	0	0	Hours	0	0	0	Mesh Size 4	0	0	0	Dir. Work	0	Testing	0		
Calcium (mg/l)	60	0	0					Other				Coring	0	Total:	24		
MBT (kg/m3)	0	0	0	TANK FARM								PUMP DATA					
Sand Volume Fraction	0								0	Make/Mdl.	Liner	Stroke	Litres/	Strokes/ Min	m3/ min		
Water Volume Fraction	0.96	0	0						0	Emsco	152	191	0.0	0	0.00		
Oil Volume Fraction	0	0	0						0	Emsco	152	229	12.5	118	1.47		
Solids Volume Fraction	0.04	0	0						0		0	0	0.0	0	0.00		
Potassium (mg/l)	0	0	0	FLUID TRACKING								Total Pump Output m3/min					
Excess Polymer (kg/m3)	2.3			Total in Tank Farm	0	Cumulative Volume Built	0.0					Pump Pressure (kPa)	6600.0				
				Total Volume On Location	55.0	Surface Losses	0.0	PRODUCT USAGE / COST									
				Delivered	0.0	Subsurface Losses	0.0	Product	Units	/Unit	Total						
				Cumulative Delivered	0.0	Cumulative Losses	0.0	Engineering	1	1000.0	1000.00						
				OPERATION LAST 24 HOURS								NewPHPA 25 kg					
				--TIH and wash to bottom from 16:15 to 17:30 hours, drill ahead from 830 to 885 meters, March 14th.								1 274.50 274.50					
				--Drill ahead to final depth 895 meters, circulate and POH to casing shoe and W.O.O.								Kelzan XCD 25 kg. 1 554.70 554.70					
												Soda Ash 25 kg. 1 21.75 21.75					
												Drispac Regular 50 lb. 1 273.30 273.30					
												Humilite 25 kg 7 10.95 76.65					

SUGGESTIONS

While DRILLING//CIRCULATING:

***ADD 1 SK SODA ASH WHILE CIRCULATING.

- 1) Use DRISPAC for Viscosity 70 to 80 sec/L and Fluid Loss as low as possible.
- 2) Add water as requested, then run a stream of water as required.
- 3) To lower viscosity, add DESCO thru chem barrel at a time very slowly over 1-2 hours. If viscosity fall to where you want it, stop the additions, can use the rest for cementing.

Thanks
Wayne

Inventory Cost Prior 32021.75
 Inventory Cost This Report 2200.90
 Total Inventory Costs 34222.65

Warehouse **Formula Powell**
 Address **Blackfalds, Ab.** Phone **403-885-5151**
24 Hour Phone (403) 266-7383
24 Hour Phone (403) 266-7383

Service Tech **Wayne Turgeon**
 Address **Akita #40** Phone **Akita 40**
 In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760
Drilling Fluids Report

Report Date **16-Mar-08** Spud Date **06-Mar-08**
 Measured Depth (m) 895 Total Vert Depth (m) 895
 Deviation Deg. / Depth 1.5 / 884 Azimuth
 Total Days 10
 Report # **10** Present Activity
Akita # 14 TOH to shoe/W.O.O.
Hallock/Unrau AFE # **28423**
Husky et al Cloverleaf

Operator **Husky Oil Operations** Contractor
 Operator **Sam Machnee/ Keith Tichkowsky** Contractor Rep
 Well Location **Cloverleaf L-52** Well Name

Drilling Fluid (Type) (WBM)		HOLE GEOMETRY										CIRCULATION TIMES				
PROPERTIES	Flowline	Suction	OD (mm)	ID (mm)	Length (M)	Washout %	Equivalent Hole Diameter (mm)			String Vol	Bottoms Up	Surf-Surf	Circ Time			
Time (Hours)	8:19		Hole Size	216.0			221.3				Minutes	17.2	20.4	37.3		
Temperature (C)	24	0	Casing#1	244.5	220.0	252.0	Ann.	Ann. Vol	Ann. Vol		Strokes	2033	2404	4406		
Density (kg/m3)	1050	0	Casing#2	0.0	0.0	0.0	m/min	OH	Cased Hole		Total Ann Mud Volume (m3) 25.4					
Viscosity (sec/L)	75	0	Liner/Csg#3	0.0	0.0	0.0	m3	m3	m3		Total String Mud Volume (m3) 4.6					
Fann 600	77	0	D.P.#1	102.0	85.0	733.1	48.61	14.58	7.52	4.16	Tanks(s) Volume (m3) 25.0					
Fann 300	57	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Total Circulating Volume (m3) 55.0					
Fann 200	34	0	D.C.#1	121.0	60.0	38.4	54.61	1.04	0.00	0.11	ECD (kg/m3) 1127					
Fann 100	24	0	D.C.#2	159.0	60.0	114.1	81.13	2.13	0.00	0.32	Hydrostatic Pressure (kPa) 9219					
Fann 6	15	0	BHA	181.0	78.0	9.4	115.58	0.12	0.00	0.04	Low Gravity Solids (kg/m3) 81					
Fann 3	10	0	Last Casing Set	244.5	220.0	252.0	Low "n"	0.4	Low "K" (Pa S)	2.8	High Gravity Solids (kg/m3) 0					
Fann A.V. (mPa.s)	38.5	0					BIT DATA									
Plastic Vis (mPa.s)	20	0	Bit #	2	Depth In	531	Type	GTCS1	Hours	22	WOB (daN) 0					
Yield Point (Pa)	18.5	0	Size (mm)	216	Depth Out	830	RPM	105	Noz Vel (m/s)	21.0	T.F.A. (mm2) 1167.2					
10 Sec Gel (Pa)	7	0	Bit Depth	895	1	2	3	4	5	6	7	8	9	10	11	12
10 Min Gel (Pa)	12	0	Nozzle Sizes (mm) 16.1 16.1 16.1 16.1 15.0 15.0 0.0 0.0 0.0 0.0 0.0 0.0													
30 Min Gel (Pa)	15	0	SOLIDS CONTROL EQUIPMENT													
Fluid Loss (ml/30 min)	6.7		Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	1.5	Survey	0.25		
Filter Cake (mm)	2		Overflow Kg/m3	1020	0	0	Mesh Size 1	50	0	0	Tripping	7	Ream	0		
PH Meter	8	0	Underflow Kg/m3	1470	0	0	Mesh Size 2	50	0	0	Circulation	14.5	Clean	0		
Pf	0.02	0	Output (l/min)	8	0	0	Mesh Size 3	50	0	0	Rig Service	0.5	Misc.	0.25		
Mf	0.36	0	Hours	0	0	0	Mesh Size 4	0	0	0	Dir. Work	0	Testing	0		
Chlorides (mg/l)	360	0	Other													
Calcium (mg/l)	70	0	Coring													
MBT (kg/m3)	0	0	Total: 24													
Sand Volume Fraction	0		PUMP DATA													
Water Volume Fraction	0.958	0	TANK FARM	0	0	0	Make/Mdl.	Liner	Stroke	Litres/	Strokes/ Min	m3/ min				
Oil Volume Fraction	0	0				0	Emsco	152	191	0.0	0	0.00				
Solids Volume Fraction	0.042	0				0	Emsco	152	229	12.5	118	1.47				
Potassium (mg/l)	0	0				0	0	0	0	0.0	0	0.00				
Excess Polymer (kg/m3)	22	0	FLUID TRACKING													
			Total in Tank Farm	0	Cumulative Volume Built	0.0	Total Pump Output m3/min						1.5			
			Total Volume On Location	55.0	Surface Losses	0.0	Pump Presure (kPa)						3975.0			
			Delivered	0.0	Subsurface Losses	0.0	PRODUCT USAGE / COST									
			Cumulative Delivered	0.0	Cumulative Losses	0.0	Product	Units	/Unit	Total						
			OPERATION LAST 24 HOURS													
			--Circulate until 08:30 hours, TOH to shoe. Viscosity at 75 sec/L and mud weight at 1050 kg/m3.													
			Engineering 1 1000.0 1000.00													
			Drispac Regular 50 lb. 3 273.30 819.90													
			Kelzan XCD 25 kg. 4 554.70 2218.80													

SUGGESTIONS

- While CIRCULATING: very slowly over 1-2 hours. If viscosity fall to where you want it, stop the additions, can use the rest for cementing.
- 1) Use DRISPAC and KELZAN at 2 to 1 ratio for Viscosity 70 to 80 sec/L and Fluid Loss as low as possible.
 - 2) Add 5 sx CALCIUM CARBONATE (CACO3) when back on bottom circulating.
 - 3) Add water as requested, then run a stream of water as required.
- Wayne
 ***IF NEEDED TO RAISE MUD WEIGHT ADD CALCIUM CARBONATE AT 1-2 MIN/SK
- Thanks

Inventory Cost Prior 34222.65
 Inventory Cost This Report 4038.70
 Total Inventory Costs 38261.35

4) To lower viscosity, add DESCO thru chem barrel at a time

Warehouse **Formula Powell** Service Tech **Wayne Turgeon**
 Address **Blackfalds, Ab.** Phone **403-885-5151** Address **Akita #40** Phone **Akita 40**
24 Hour Phone (403) 266-7383
24 Hour Phone (403) 266-7383

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760

Report Date **17-Mar-08** Spud Date **06-Mar-08**
 Measured Depth (m) **895** Total Vert Depth (m) **895**
 Deviation Deg. / Depth **0 / 0** Azimuth **11** Total Days **11**

Drilling Fluids Report

Report # **11** Total Days **11**
 Present Activity **Circulating**
 AFE # **28423**

Operator **Husky Oil Operations**
 Operator **Sam Machnee/ Keith Tichkowsky**
 Well Location **Cloverleaf L-52**

Contractor **Husky et al Cloverleaf**
 Contractor Rep **Husky et al Cloverleaf**
 Well Name **Husky et al Cloverleaf**

Drilling Fluid (Type) PROPERTIES	(WBM)		HOLE GEOMETRY							CIRCULATION TIMES						
	Flowline	Suction	OD (mm)	ID (mm)	Length (M)	Washout %	Equivalent Hole Diameter (mm)			Bottoms Up	Surf-Surf	Circ Time				
Time (Hours)	16:01		216.0			5	221.3			Minutes	17.2	20.4	38.7			
Temperature (C)	21	0	Hole Size	216.0						Strokes	2033	2404	4566			
Density (kg/m3)	1060	0	Casing#1	244.5	220.0	252.0	Ann.	Ann. Vol	Ann. Vol	Total Ann Mud Volume (m3)			25.4			
Viscosity (sec/L)	75	0	Casing#2	0.0	0.0	0.0	m/min	OH	Cased Hole	Total String Mud Volume (m3)			4.6			
Fann 600	82	0	Liner/Csg#3	0.0	0.0	0.0	m3	m3	m3	Tanks(s) Volume (m3)			27.0			
Fann 300	60	0	D.P.#1	102.0	85.0	733.1	48.61	14.58	7.52	4.16	Total Circulating Volume (m3)			57.0		
Fann 200	32	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	0.00	ECD (kg/m3)			1134		
Fann 100	23	0	D.C.#1	121.0	60.0	38.4	54.61	1.04	0.00	0.11	Hydrostatic Pressure (kPa)			9307		
Fann 6	9	0	D.C.#2	159.0	60.0	114.1	81.13	2.13	0.00	0.32	Low Gravity Solids (kg/m3)			98		
Fann 3	8	0	BHA	181.0	78.0	9.4	115.58	0.12	0.00	0.04	High Gravity Solids (kg/m3)			0		
Fann A.V. (mPa.s)	41	0	Last Casing Set	244.5	220.0	252.0	Low "n"	0.4	Low "K" (Pa S)	2.0						
Plastic Vis (mPa.s)	22	0														
Yield Point (Pa)	19	0	Bit #	3	Depth In	895	Type	GX-18	Hours	WOB (daN)			0			
10 Sec Gel (Pa)	5	0	Size (mm)	216	Depth Out	895	RPM	105	Noz Vel (m/s)	41.1	T.F.A. (mm2)	595.4				
10 Min Gel (Pa)	8	0	Bit Depth	895	1	2	3	4	5	6	7	8	9	10	11	12
30 Min Gel (Pa)	12	0	Nozzle Sizes (mm) 15.9 15.9 15.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0													
Fluid Loss (ml/30 min)	6.7		SOLIDS CONTROL EQUIPMENT													
Filter Cake (mm)	2		Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	TIME BREAKDOWN					
PH Meter	9	0	Overflow Kg/m3	0	0	0	Mesh Size 1	50	0	0	Drilling	0	Survey	0		
PF	0.14	0	Underflow Kg/m3	0	0	0	Mesh Size 2	50	0	0	Tripping	10	Ream	0.5		
Mf	0.43	0	Output (l/min)	0	0	0	Mesh Size 3	50	0	0	Circulation	8.25	Clean	0		
Chlorides (mg/l)	400	0	Hours	0	0	0	Mesh Size 4	0	0	0	Rig Service	0.75	Misc.	4.5		
Calcium (mg/l)	60	0	Other													
MBT (kg/m3)	0	0	TANK FARM													
Sand Volume Fraction	0		PUMP DATA													
Water Volume Fraction	0.945	0	0	0	0	0	Make/Mdl.	Liner	Stroke	Litres/	Strokes/ Min	m3/ min				
Oil Volume Fraction	0	0	0	0	0	0	Emsco	152	191	0.0	0.00	0.00				
Solids Volume Fraction	0.55	0	0	0	0	0	Emsco	152	229	12.5	118	1.47				
Potassium (mg/l)	0	0	0	0	0	0	0	0	0	0.0	0	0.00				
Excess Polymer (kg/m3)	2.3		FLUID TRACKING													
			Total in Tank Farm	0	Cumulative Volume Built	0.0	Total Pump Output m3/min					1.5				
			Total Volume On Location	57.0	Surface Losses	0.0	Pump Pressure (kPa)					3975.0				
			Delivered	0.0	Subsurface Losses	0.0	PRODUCT USAGE / COST									
			Cumulative Delivered	0.0	Cumulative Losses	0.0	Product	Units	/Unit	Total						
			OPERATION LAST 24 HOURS													
			--Run 3RD Log until 11:30 hours. Hit bridge at 780 meters. TIH with drill pipe for cleanout trip. Wash from 770 to 895 meters from 19:30 to 20:30 hours. Circulate.													
			--Circulate to run more Logs, raise mud weight to 1100 kg/m3 with Calcium Carbonate due to gas.													

SUGGESTIONS

While CIRCULATING: very slowly over 1-2 hours. If viscosity fall to where you want

it, stop the additions, can use the rest for cementing.

- 1) Use DRISPAC and KELZAN at 2 to 1 ratio for Viscosity 75 to 85 sec/L and Fluid Loss as low as possible.

Thanks

- 2) Add 15 sx CALCIUM CARBONATE (CACO3) when back on bottom circulating.

***IF NEEDED TO RAISE MUD WEIGHT ADD CALCIUM CARBONATE AT 1-2 MIN/SK

- 3) Add water as requested, then run a stream of water as required.

Inventory Cost Prior **38261.35**
 Inventory Cost This Report **7172.50**
 Total Inventory Costs **45433.85**

- 4) To lower viscosity, add DESCO thru chem barrel at a time

Warehouse **Formula Powell**
 Address **Blackfalds, Ab.**

Phone **403-885-5151** Service Tech **Wayne Turgeon**
 Address **Akita #40**

Phone **Akita 40**

24 Hour Phone (403) 266-7383
24 Hour Phone (403) 266-7383

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760

Report Date **18-Mar-08** Spud Date **06-Mar-08**
 Measured Depth (m) 895 Total Vert Depth (m) 895
 Deviation Deg. / Depth 0 / 0 Azimuth Total Days

Drilling Fluids Report

Report # **12** Total Days **12**
Akita # 14 Present Activity
Hallock/Unrau Logging
Husky et al Cloverleaf AFE # **28423**

Operator **Husky Oil Operations** Contractor
 Operator **Sam Machnee/ Keith Tichkowsky** Contractor Rep
 Well Location **Cloverleaf L-52** Well Name

Drilling Fluid (Type) PROPERTIES		(WBM) Flowline Suction		HOLE GEOMETRY							CIRCULATION TIMES					
Time (Hours)	Flowline	Suction	OD (mm)	ID (mm)	Length (M)	Washout %	Equivalent Hole Diameter (mm)			Bottoms Up	Surf-Surf	Circ Time				
13:00			216.0			5	221.3			Minutes	17.2	20.4	38.7			
Temperature (C)	21	0	Hole Size	216.0			Ann.	Ann. Vol	Ann. Vol	Strokes	2033	2404	4566			
Density (kg/m3)	1095	0	Casing#1	244.5	220.0	252.0	m/min	OH	Cased Hole	Total Ann Mud Volume (m3) 25.4						
Viscosity (sec/L)	78	0	Liner/Csg#3	0.0	0.0	0.0	m3	m3	m3	Total String Mud Volume (m3) 4.6						
Fann 600	80	0	D.P.#1	102.0	85.0	733.1	48.61	14.58	7.52	Tanks(s) Volume (m3) 27.0						
Fann 300	58	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	Total Circulating Volume (m3) 57.0						
Fann 200	38	0	D.C.#1	121.0	60.0	38.4	54.61	1.04	0.00	ECD (kg/m3) 1168						
Fann 100	27	0	D.C.#2	159.0	60.0	114.1	81.13	2.13	0.00	Hydrostatic Pressure (kPa) 9614						
Fann 6	10	0	BHA	181.0	78.0	9.4	115.58	0.12	0.00	Low Gravity Solids (kg/m3) 154						
Fann 3	8	0	Last Casing Set	244.5	220.0	252.0	Low "n"	0.4	Low "K" (Pa S)	High Gravity Solids (kg/m3) 0						
Fann A.V. (mPa.s)	40	0														
Plastic Vis (mPa.s)	22	0														
Yield Point (Pa)	18	0	Bit #	3	Depth In	895	Type	GX-18	Hours	WOB (daN) 0						
10 Sec Gel (Pa)	5	0	Size (mm)	216	Depth Out	895	RPM	105	Noz Vel (m/s)	41.1	T.F.A. (mm2)		595.4			
10 Min Gel (Pa)	10	0	Bit Depth	895	1	2	3	4	5	6	7	8	9	10	11	12
30 Min Gel (Pa)	12	0	Nozzle Sizes (mm) 15.9 15.9 15.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0													
Fluid Loss (ml/30 min)	6.9	0	SOLIDS CONTROL EQUIPMENT													
Filter Cake (mm)	2	0	Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	0	Survey	0		
PH Meter	8.5	0	Overflow Kg/m3	0	0	0	Mesh Size 1	50	0	0	Tripping	4.5	Ream	1.75		
Pf	0.03	0	Underflow Kg/m3	0	0	0	Mesh Size 2	50	0	0	Circulation	3.5	Clean	0		
Mf	0.41	0	Output (l/min)	0	0	0	Mesh Size 3	50	0	0	Rig Service	0.5	Misc.	13.75		
Chlorides (mg/l)	350	0	Hours	0	0	0	Mesh Size 4	0	0	0	Dir. Work	0	Testing	0		
Calcium (mg/l)	60	0	Other													
MBT (kg/m3)	0	0	Coring													
Sand Volume Fraction	0	0	TANK FARM													
Water Volume Fraction	0.93	0	0	0	0	0	Make/Mdl.	Liner	Stroke	Litres/	Strokes/ Min	m3/ min				
Oil Volume Fraction	0	0	0	0	0	0	Emsco	152	191	0.0	0	0.00				
Solids Volume Fraction	0.07	0	0	0	0	0	Emsco	152	229	12.5	118	1.47				
Potassium (mg/l)	0	0	0	0	0	0	0	0	0	0.0	0	0.00				
Excess Polymer (kg/m3)	2.3	0	FLUID TRACKING													
			Total in Tank Farm	0	Cumulative Volume Built	0.0	PUMP DATA						Total Pump Output m3/min	1.5		
			Total Volume On Location	57.0	Surface Losses	0.0	PRODUCT USAGE / COST						Pump Pressure (kPa)	3975.0		
			Delivered	0.0	Subsurface Losses	0.0	Product	Units	/Unit	Total						
			Cumulative Delivered	0.0	Cumulative Losses	0.0	Engineering	1	1000.0	1000.00						
			OPERATION LAST 24 HOURS													
			-- Circulate until 03:00 hors, raise mud weight to 1100 kg/m3. TOH and Log well.													

SUGGESTIONS

While CIRCULATING:

***Use DRISPAAC and KELZAN at 2 to 1 ratio for Viscosity 75 to 80 sec/L and Fluid Loss as low as possible.

***Finish off the 1/2 sk Caustic into rig tanks.

***IF NEEDED TO RAISE MUD WEIGHT ADD CALCIUM CARBONATE AT 1-2 MIN/SK

***Add water as requested, then run a stream of water as required.

***To lower viscosity, add DESCO thru chem barrel at a time very slowly over 1-2 hours.

Inventory Cost Prior
 Thanks
 Wayne

45433.85
 Inventory Cost This Report 6543.55
 Total Inventory Costs 51977.40

Warehouse **Formula Powell**
 Address **Blackfalds, Ab.**

Phone **403-885-5151** Service Tech Address

Wayne Turgeon
 Phone **Akita #40**

24 Hour Phone (403) 266-7383
24 Hour Phone (403) 266-7383

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760

Report Date **20-Mar-08** Spud Date **06-Mar-08**
 Measured Depth (m) **895** Total Vert Depth (m) **895**
 Deviation Deg. / Depth **0 / 0** Azimuth Total Days **13**
 Report # **13** Present Activity **Laying down DP**
 Contractor Rep **Husky et al Cloverleaf** AFE # **28423**

Drilling Fluids Report

Operator **Husky Oil Operations**
 Operator **Sam Machnee/ Keith Tichkowsky**
 Well Location **Cloverleaf L-52**

Contractor **Husky et al Cloverleaf**
 Contractor Rep **Husky et al Cloverleaf**
 Well Name **Husky et al Cloverleaf**

Drilling Fluid (Type) PROPERTIES	(WBM)		HOLE GEOMETRY							CIRCULATION TIMES		
	Flowline	Suction	OD (mm)	ID (mm)	Length (M)	Washout %	Equivalent Hole Diameter (mm)		Bottoms Up	Surf-Surf	Circ Time	
Time (Hours)	9:04		Hole Size	216.0					Minutes	17.2	20.4	37.3
Temperature (C)	18	0	Casing#1	244.5	220.0	252.0	Ann.	Ann. Vol	Strokes	2033	2404	4406
Density (kg/m3)	78	0	Casing#2	0.0	0.0	0.0	m/min	OH	Total Ann Mud Volume (m3)	25.4		
Viscosity (sec/L)	78	0	Liner/Csg#3	0.0	0.0	0.0		Cased Hole	Total String Mud Volume (m3)	4.6		
Fann 600	77	0	D.P.#1	102.0	85.0	733.1	48.61	14.58	Tanks(s) Volume (m3)	25.0		
Fann 300	56	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	Total Circulating Volume (m3)	55.0		
Fann 200	35	0	D.C.#1	121.0	60.0	38.4	54.61	1.04	ECD (kg/m3)	146		
Fann 100	25	0	D.C.#2	159.0	60.0	114.1	81.13	2.13	Hydrostatic Pressure (kPa)	685		
Fann 6	9	0	BHA	181.0	78.0	9.4	115.58	0.12	Low Gravity Solids (kg/m3)	-1498		
Fann 3	7	0	Last Casing Set	244.5	220.0	252.0	Low "n"	0.5	High Gravity Solids (kg/m3)	0		
Fann A.V. (mPa.s)	38.5	0										
Plastic Vis (mPa.s)	21	0										
Yield Point (Pa)	17.5	0	Bit #	3	Depth In	895	Type	GX-18	Hours	WOB (daN)	0	
10 Sec Gel (Pa)	5	0	Size (mm)	216	Depth Out	895	RPM	105	Noz Vel (m/s)	T.F.A. (mm2)	595.4	
10 Min Gel (Pa)	9	0	Bit Depth	895	1	2	3	4	5	6	7	8
30 Min Gel (Pa)	12	0	Nozzle Sizes (mm)	15.9	15.9	15.9	0.0	0.0	0.0	0.0	0.0	0.0
Fluid Loss (ml/30 min)	6.0											
Filter Cake (mm)	2											
PH Meter	8.5	0	Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	0
Pf	0.024	0	Overflow Kg/m3	0	0	0	Mesh Size 1	50	0	0	Tripping	3.5
Mf	0.41	0	Underflow Kg/m3	0	0	0	Mesh Size 2	50	0	0	Circulation	0
Chlorides (mg/l)	270	0	Output (l/min)	0	0	0	Mesh Size 3	50	0	0	Rig Service	0.75
Calcium (mg/l)	60	0	Hours	0	0	0	Mesh Size 4	0	0	0	Dir. Work	0
MBT (kg/m3)	0	0					Other				Coring	0
Sand Volume Fraction	0										Total:	24
Water Volume Fraction	0.93	0										
Oil Volume Fraction	0	0										
Solids Volume Fraction	0.07	0										
Potassium (mg/l)	0	0										
Excess Polymer (kg/m3)	2.4											

TANK FARM			FLUID TRACKING			PUMP DATA			PRODUCT USAGE / COST		
Total in Tank Farm	0	Cumulative Volume Built	0.0	Total Pump Output m3/min	1.5	Engineering	1	1000.0	1000.00		
Total Volume On Location	55.0	Surface Losses	0.0	Pump Pressure (kPa)	3975.0	Caustic Soda 50 lb.	1	48.00	48.00		
Delivered	0.0	Subsurface Losses	0.0			Cal Carb #325 (25kg)	25	5.70	142.50		
Cumulative Delivered	0.0	Cumulative Losses	0.0			Kelzan XCD 25 kg.	4	554.70	2218.80		
OPERATION LAST 24 HOURS											
-- TIH to 887 meters, ream and wash to 895 meters. Circulate --80 sec/L viscosity and 1100 kg/m3 mud weight.											
-- Lay down drill pipe to run casing.											

SUGGESTIONS

**WHEN CIRCULATING CASING ON BOTTOM, ADD DESCO and 1 SACK SULFAMIC ACID THRU CHEM BARRELL.

LOWER VISCOSITY TO 45 to 50 SEC/L WITH DESCO FOR CEMENTING.

Inventory Cost Prior 51977.40
 Inventory Cost This Report 4524.25
 Total Inventory Costs 56501.65

Warehouse **Formula Powell**
 Address **Blackfalds, Ab.**
24 Hour Phone (403) 266-7383
24 Hour Phone (403) 266-7383

Service Tech **Wayne Turgeon**
 Address **Akita #40** Phone **Akita 40**

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.

Newpark Drilling Fluids

WATER BASED MUD REPORT

Calgary Office: (403) 266-7383 (fax) 263-1760
Drilling Fluids Report

Report Date **21-Mar-08** Spud Date **06-Mar-08**
 Measured Depth (m) 895 Total Vert Depth (m) 895
 Deviation Deg. / Depth 0 / 0 Azimuth Total Days
 14
 Report # **14** Total Days 14
Akita # 14 Present Activity
Hallock/Unrau W.O.C.
Husky et al Cloverleaf AFE # **28423**

Operator
 Operator
 Well Location

Husky Oil Operations
Sam Machnee/ Keith Tichkowsky
Cloverleaf L-52

Contractor
 Contractor Rep
 Well Name

Drilling Fluid (Type) PROPERTIES	(WBM)		HOLE GEOMETRY							CIRCULATION TIMES					
	Flowline	Suction	OD (mm)	ID (mm)	Length (M)	Washout %	Equivalent Hole Diameter (mm)			Minutes	Bottoms Up	Surf-Surf	Circ Time		
Time (Hours)	22:31						5								
Temperature (C)	18	0	Hole Size	216.0						10.2	15.3	40.4			
Density (kg/m3)	1100	0	Casing#1	244.5	220.0	252.0	Ann.	Ann. Vol	Ann. Vol	Strokes	820	1226	3229		
Viscosity (sec/L)	55	0	Casing#2	178.0	158.0	895.0	m/min	OH	Cased Hole	Total Ann Mud Volume (m3)			10.2		
Fann 600	52	0	Liner/Csg#3	0.0	0.0	0.0		m3	m3	Total String Mud Volume (m3)			5.1		
Fann 300	32	0	D.P.#1	102.0	85.0	895.0	87.34	0.00	10.23	5.08	Tanks(s) Volume (m3)			25.0	
Fann 200	22	0	D.P.#2	0.0	0.0	0.0	0.00	0.00	0.00	0.00	Total Circulating Volume (m3)			40.3	
Fann 100	13	0	D.C.#1	121.0	60.0	0.0	0.00	0.00	0.00	0.00	ECD (kg/m3)			1173	
Fann 6	7	0	D.C.#2	159.0	60.0	0.0	0.00	0.00	0.00	0.00	Hydrostatic Pressure (kPa)			9658	
Fann 3	6	0	BHA	181.0	78.0	0.0	0.00	0.00	0.00	0.00	Low Gravity Solids (kg/m3)			163	
Fann A.V. (mPa.s)	26	0	Last Casing Set	178.0	158.0	895.0	Low "n"	0.4	Low "K" (Pa S)	1.7	High Gravity Solids (kg/m3)			0	
Plastic Vis (mPa.s)	20	0	BIT DATA												
Yield Point (Pa)	6	0	Bit #	3	Depth In	895	Type	GX-18	Hours	WOB (daN)			0		
10 Sec Gel (Pa)	5	0	Size (mm)	216	Depth Out	895	RPM	105	Noz Vel (m/s)	27.9	T.F.A. (mm2)			595.4	
10 Min Gel (Pa)	7	0	Bit Depth	0	1	2	3	4	6	7	8	9	10	11	12
30 Min Gel (Pa)	9	0	Nozzle Sizes (mm) 15.9 15.9 15.9 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0												
Fluid Loss (ml/30 min)	6	0	SOLIDS CONTROL EQUIPMENT												
Filter Cake (mm)	2	0	Centrifuge	#1	#2	#3	ShaleShaker	#1	#2	#3	Drilling	0	Survey	0	
PH Meter	7.5	0	Overflow Kg/m3	0	0	0	Mesh Size 1	50	0	0	Tripping	5.75	Ream	2	
Pf	0	0	Underflow Kg/m3	0	0	0	Mesh Size 2	50	0	0	Circulation	5.5	Clean	0	
Mf	0.31	0	Output (l/min)	0	0	0	Mesh Size 3	50	0	0	Rig Service	0.25	Misc.	10.5	
Chlorides (mg/l)	300	0	Hours	0	0	0	Mesh Size 4	0	0	0	Dir. Work	0	Testing	0	
Calcium (mg/l)	60	0	Other												
MBT (kg/m3)	0	0	TANK FARM												
Sand Volume Fraction	0	0	PUMP DATA												
Water Volume Fraction	0.93	0	0	0	0	0	Make/Mdl.	Liner	Stroke	Litres/	Strokes/ Min	m3/ min			
Oil Volume Fraction	0	0	0	0	0	0	Emsco	152	191	0.0	0	0.00			
Solids Volume Fraction	0.07	0	0	0	0	0	Emsco	152	229	12.5	80	1.00			
Potassium (mg/l)	0	0	0	0	0	0	0	0	0	0.0	0	0.00			
Excess Polymer (kg/m3)	2.3	0	FLUID TRACKING												
			Total in Tank Farm	0	Cumulative Volume Built	0.0	Pump Pressure (kPa)						3975.0		
			Total Volume On Location	40.3	Surface Losses	0.0	PRODUCT USAGE / COST								
			Delivered	0.0	Subsurface Losses	0.0	Product	Units	/Unit	Total					
			Cumulative Delivered	0.0	Cumulative Losses	0.0	Cal Carb #325 (25kg)	205	5.70	1168.50					
			OPERATION LAST 24 HOURS												

--Circulate and cement casing at 04:00 hours.
 W.O.C. To run cement plug inside casing.

SUGGESTIONS

Cal Carb #0 (25kg)
 Sulfamic Acid 25 kg.
THANK YOU-- GOOD JOB-- HAVE A GOOD YEAR

Inventory Cost Prior 56501.65
 Inventory Cost This Report 3128.65
 Total Inventory Costs 59630.30

Warehouse **Formula Powell** Service Tech **Wayne Turgeon**
 Address **Blackfalds, Ab.** Phone **403-885-5151** Address **Akita #40** Phone **Akita 40**
24 Hour Phone (403) 266-7383
24 Hour Phone (403) 266-7383

In consideration of the furnishing of this report and oral suggestions, it is agreed that Newpark Drilling Fluids shall not be liable for any damage resulting from the same and it is to be held harmless.



Newpark Drilling Fluids

Drilling Fluid Summary Sheet

Well Location	Cloverleaf L-52	Operator	Husky Oil Operations
Well Name	Husky et al Cloverleaf	Attention	
Province	NWT	Supervisor	Mr. Machnee / Mr. Tichkowsky
Total Days		Rig Manager	Mr. Hallock / Mr. Unrau
Total Depth	895	Contractor	Akita # 14
Spud Date	06-Mar-08	Release Date	21-Mar-08

SURFACE HOLE

Drilling Fluid	Gel Slurry		
Surface Hole Diameter	311.0 (mm)	Surface Hole Depth	252.0 (m)
Surface Casing Diameter	244.5 (mm)	Surface Casing Depth	252.0 (m)
Surface Hole Days	3.0		
Programmed Cost	2733.00	Actual Cost	4275.00

Problem

Lost Circulation	negligible	Vol. Lost	10 (m ³)
Sand/Gravel/Etc.	nil		
Mud Rings	nil		
Coal	nil		

Comments

- 06-Mar-2008
 - Pretreated spud water with Soda Ash.
 - Spudded with water at 16:00 hours, on March 6, 2008.
 - Drilled ahead to 71 meters at 24:00 hours.
- 07-Mar-2008
 - Drilled ahead to 247 meters. Wiper tripped to conductor barrel.
 - Increased viscosity to 80+ sec/L with Gel.
 - Drilled to 252 meters, total depth on surface hole.
 - Pulled out of hole to run casing.
- 08-Mar-2008
 - Ran 244.5 mm casing to bottom with no problems.
 - Circulated casing and reduced viscosity to 45 sec/L with water for cementing.
 - Cemented casing with returns to surface.
 - Plug down at 13:15 hours on March 8, 2008.

MAIN HOLE

Drilling Fluid	Power Drill Polymer		
Main Hole Diameter	216 (mm)	Total Depth	895 (m)
Production Casing Diameter	178 (mm)	Production Casing Depth	895 (m)
Main Hole Days	14		
Programmed Cost	49095.00	Actual Cost	55679.00

Comments

- 08-Mar-2008
 - While waiting on cement, cleaned tanks and refilled with fresh water.
 - Premixed 25 m³ with 5 sacks Kelzan, 4 sacks Drispac Reg and 7 pails High Perm.
- 10-Mar-2008
 - Nipped up and pressure tested BOP's.

- Drilled out with 216mm bit using water.
- Drilled 5 meter, performed pressure integrity test. Displaced hole over to premixed mud (containing Kelzan, Drispac, High Perm).
- Tripped out of the hole and tripped in hole with vertitrac and new bit.
- Tripped in hole with vertitrac and started drilling 216mm hole.
- Drilled ahead at 11:15 hours, March 10, 2008.

11-March-2008

- Drilled to core point at 531 meters at 06:00 hours on March 11, 2008. Viscosity at 84 sec/L with Drispac Regular and Humalite. Fluid loss at 9.5 mL/30 min. Mud weight at 1030 kg/m³.
- Tripped out of hole to run core.
- Sulphamic acid and Bicarb used for surface mud and water to lower pH.
- Pulled out of hole and tripped in with core barrel. Cut core from 17:30 to 20:45 hours.
- Tripped out and retrieved core. Tripped in and ran core from 540 to 541 meters, core jammed off.
- Tripped in and retrieved core. Tripped in with vertitrac to drill ahead.
- Added Desco and Humalite due to high viscosity from Drispac R used to help get fluid loss under 8.0 mL/30 min.

12-March-2008

- Retrieved core and tripped in with vertitrac. Reamed rat hole to 540 meters. Drilled ahead.
- Kept water loss low and viscosity 50 - 60 sec/L. Added lots of Humalite to help keep fluid loss low.

13-March-2008

- Drilled to 830 meters at 20:30 hours. Circulated and pulled out at 21:30 hours to run Logs.
- Viscosity at 78 sec/L. Mud weight at 1030 kg/m³.
- Added lots of Humalite as per company man's requests.
- Needed to compensate with extra Drispac R and Kelzan to help keep viscosity up for drilling.

14-March-2008

- Wiper tripped and pulled out to log. Started to run logs at 07:45 hours.
- Cancelled logging to move loggers over to Akita #40.
- Tripped in and washed to bottom from 16:15 to 17:30 hours. Drilled ahead from 830 to 885 meters.

15-March-2008

- Drilled ahead to final depth 895 meters. Circulated and pulled out of the hole to casing shoe and waited on orders.
- Well flowed. Tripped in until 21:45 hours and circulated. Shut off centrifuge.
- Circulated until 08:30 hours and tripped out of the hole to shoe. Viscosity at 75 sec/L and mud weight at 1050 kg/m³.
- Added Calcium Carbonate to help clean hole and lower fluid loss. Brought up small sizes of shale while weighting up.

16-March-2008

- Circulated from 01:45 to 07:30 hours. Tripped out and ran 2 sets of logs at 19:45 hours.
- Ran third log until 11:30 hours. Hit bridge at 780 meters.
- Tripped in hole with drill pipe for cleanout trip. Washed from 770 to 895 meters from 19:30 to 20:30 hours.
- Circulated.
- Circulated to run more logs. Raised mud weight to 1100 kg/m³ with Calcium Carbonate due to gas and water flow.

17-March-2008

- Circulated until 03:00 hours, raised mud weight to 1100 kg/m³.
- Tripped out and logged well all day..

18-March-2008

- Logged and hit bridge on log #4 at 676 meters.
- Tripped in hole with drill pipe. Reamed from 643 to 676 meters.

19-March-2008

- Tripped in hole to 887 meters. Reamed and washed to 895 meters. Circulated. 80 sec/L viscosity and 1100 kg/m³ mud weight.

20-March-2008

- Laid down drill pipe to run casing. Ran casing until 21:45 hours. Circulated and lowered viscosity to 55 sec/L with Desco.
- Mud in good shape to cement.

21-March-2008

- Circulated and cemented casing at 04:00 hours with no problems.
- Waited on cement.
- Ran cement plug inside casing.
- Rigged out

Problem		
Lost Circulation	Seepage-none to major to report	Vol. Lost _____ (m ³)
Anhydrite	None reported	
Abn. Pressures	Minor gas and water flow	Mud Density 1100 (kg/ m ³)
Sloughing Shale	Minor sloughing shale after first set of Logs	
H ₂ S	None	
Salt	None	Max. Chlorides 400 (mg/l)
Coal	None	

Solids Control Equipment Comments

- Had 1 shaker and 1 centrifuge.
- Centrifuge worked very well keeping mud weight down.
- Shaker at times had problems keeping polymer mud on screens when pumping fast because of high excess of Drispac, Kelzan and PHPA.
- During logging bridged off at 780 meters. Tripped back in and raised mud weight to 1100 kg/m³ with Calcium Carbonate
- Brought up small sizes of shale after weighting up with Calcium Carbonate to 1100 kg/m³.
- Helped stabilize hole better for logging.

Time Breakdown Analysis

Report #	Drilling	Logging	Other	Standby	Swab	Flow	Clear	Wash	Total
1	0	0	0	0	0	0	0	0	0
2	0.5	2.28	0.8	0	0.5	0	0	0	3.58
3	1.75	0.75	3.25	1.25	0	1.75	0	0	8.5
4	0	1.5	0	0.25	0	0	0	0	1.75
5	10.75	5	2.25	0.8	0	3	0	0	19.75
6	5.75	11.5	0.75	0.5	0	5	0	0	23.5
7	3.75	10	0.8	0.25	0	4.5	0	1.25	20.5
8	10.5	2.5	1	0.75	0	0	0	0	14.75
9	8	11.25	2.5	0.75	0	0	0	0	22.5
10	1.5	7	14.5	0.5	0	0.25	0	0	24.25
11	0	10	0.25	0.75	0	0	0	0	11.25
12	0	4.5	3.5	0.5	0	0	0	0	8.5
13	0	3.5	0	0.75	0	0	0	0	4.25
14	0	2.25	8.5	0.25	0	0	0	0	11
Total	88.5	81.5	42.5	7.8	0	4.8	0	0	223.1

Products Used

Product	Units Used	Product	Units Used
Bentonite ABI Premium 40 kg.	64	Bicarbonate of Soda 50 lb.	11
Cal Carb #0 (25kg)	0	Cal Carb #325 (25kg)	290
Caustic Soda 50 lb.	5	Desco CF 25 lb.	10
Drispac Regular 50 lb.	55	Dyna Det. 20 l	6
Engineering	14	High Perm 20 l	16
Humilite 25 kg	40	Kelzan XCD 25 kg.	33
PHPA Liquid 20 l	7	Saf-Kote 20 L.	2
Sawdust Bag	100	Soda Ash 25 kg.	8
Sulfamic Acid 25 kg.	12	Walnut Medium 50 lb.	1

Bit Record

Bit #	Depth In	Depth Out	Bit Type	Bit Size	Hours	Acc. Hours	ROP	Nozzles														
								1	2	3	4	5	6	7	8	9	10	11	12			
2	252	531	GTCS1	216	15.3	15.3	18.3	20.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	252	531	GTCS1	216	15.3	30.5	36.6	20.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	252	531	GTCS1	216	15.3	45.8	54.9	20.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	531	830	GTCS1	216	22.0	67.8	68.5	16.1	16.1	16.1	16.1	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	531	895	GTCS1	216	22.0	89.8	85.0	16.1	16.1	16.1	16.1	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	895	895	GX-18	216		89.8	85.0	15.9	15.9	15.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	895	895	GX-18	216		89.8	85.0	15.9	15.9	15.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	895	895	GX-18	216		89.8	85.0	15.9	15.9	15.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	895	895	GX-18	216		89.8	85.0	15.9	15.9	15.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Time Breakdown Analysis

Report #	Drilling	Tripping	Circulation	Rig Service	Dir. Work	Coring	Survey	Ream	Clean	Misc.	Testing	Total
1	0	0	0	0	0	0	0	0	0	0	0	0
2	5.5	2.25	0.5	0.5	0	0	0.5	0	0	14.75	0	24
3	16.75	6.75	3.25	1.25	0	0	1.75	0	0	18.25	0	48
4	0	1.5	0	0.25	0	0	0	0	0	22.25	0	24
5	10.75	5	2.25	0.5	0	0	2	0	0	3.5	0	24
6	5.75	11.5	0.75	0.5	0	0	2	0	0	3.5	0	24
7	3.75	10	0.5	0.25	0	4.5	0	1.25	0	3.75	0	24
8	16.5	2.5	1	0.75	0	0	0	0	0	3.25	0	24
9	6	11.25	2.5	0.75	0	0	0	0	0	3.5	0	24
10	1.5	7	14.5	0.5	0	0	0.25	0	0	0.25	0	24
11	0	10	8.25	0.75	0	0	0	0.5	0	4.5	0	24
12	0	4.5	3.5	0.5	0	0	0	1.75	0	13.75	0	24
13	0	3.5	0	0.75	0	0	0	0	0	19.75	0	24
14	0	5.75	5.5	0.25	0	0	0	2	0	10.5	0	24
Total	66.5	81.5	42.5	7.5	0	4.5	6.5	5.5	0	121.5	0	336

E.12 WELL ABANDONMENT SIGN



L-52



Well Information

Operator:	Husky Energy Inc.
Well Name:	Husky et al Keele River L-52
Location:	L-52
UWI:	Keele River L-52
Pool:	Little Bear
Field:	North Cloverleaf
Province / State:	Northwest Territories
Country:	Canada

Elevations

Reference:	Ground	Ground:	310.17 m
Cut(-) / Fill(+):		Kelly Bushing:	314.42 m
K.B. to Ground:	4.25 m	Casing Flange:	m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	895 m	894.96 m
Drillers TD (Strap or SLM)	m	m
Loggers TD	888.3 m	888.26 m

Surface Co - Ordinates

Well Type:	Straight	N / S Co - Ordinates:	
Longitude:	124 56' 07.3"	E / W Co - Ordinates:	
Latitude:	64 01' 30.2"		

Bottom Hole Co - Ordinates

Longitude:		N / S Co - Ordinates:	
Latitude:		E / W Co - Ordinates:	

Well Summary

Spud Date:	Mar 6, 2008 @ 16:00hrs
TD Date:	Mar 15, 2008 @ 01:30hrs
Rig Release Date:	Mar 21, 2008 @ 23:59hrs
Contractor:	Akita Sahtu Drilling Ltd. #14

Drilling Fluid Summary

Fluid Type	From	To
Gel Chem	0 m	252 m
Gel Polymer	252 m	895 m

Casing Summary

Type	Hole Size	Casing Size	Landed
Surface	311 mm	244.5 mm	252 m
Production	216 mm	177.8 mm	895 m

Work Schedule

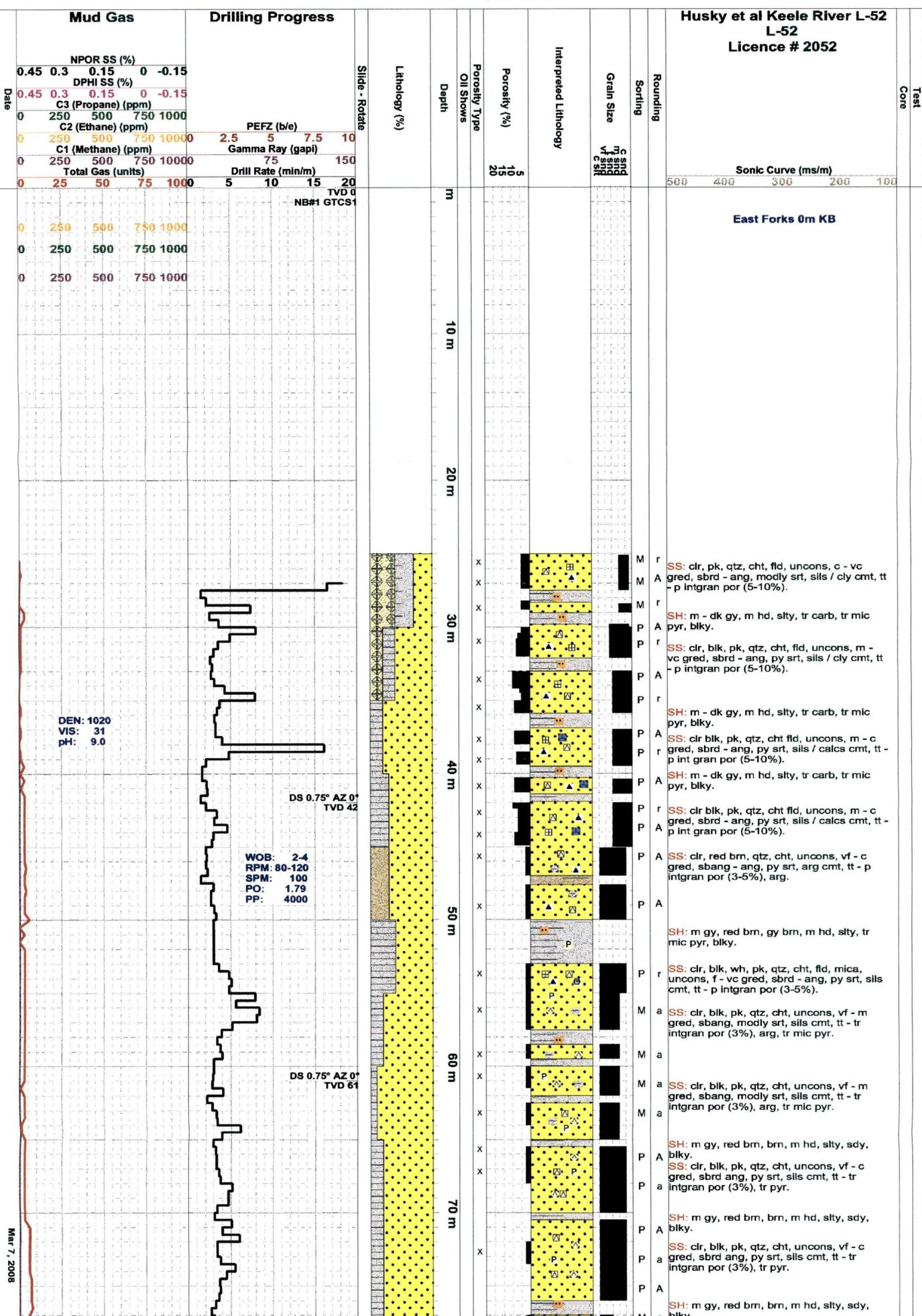
Contractor	Geologist	Log Interval	Dates Logged
McGrath Resource Consulting	Clarence G. Kennedy, P.Geol.	0 m - 895 m	Mar 3, 2008 - Mar 16, 2008

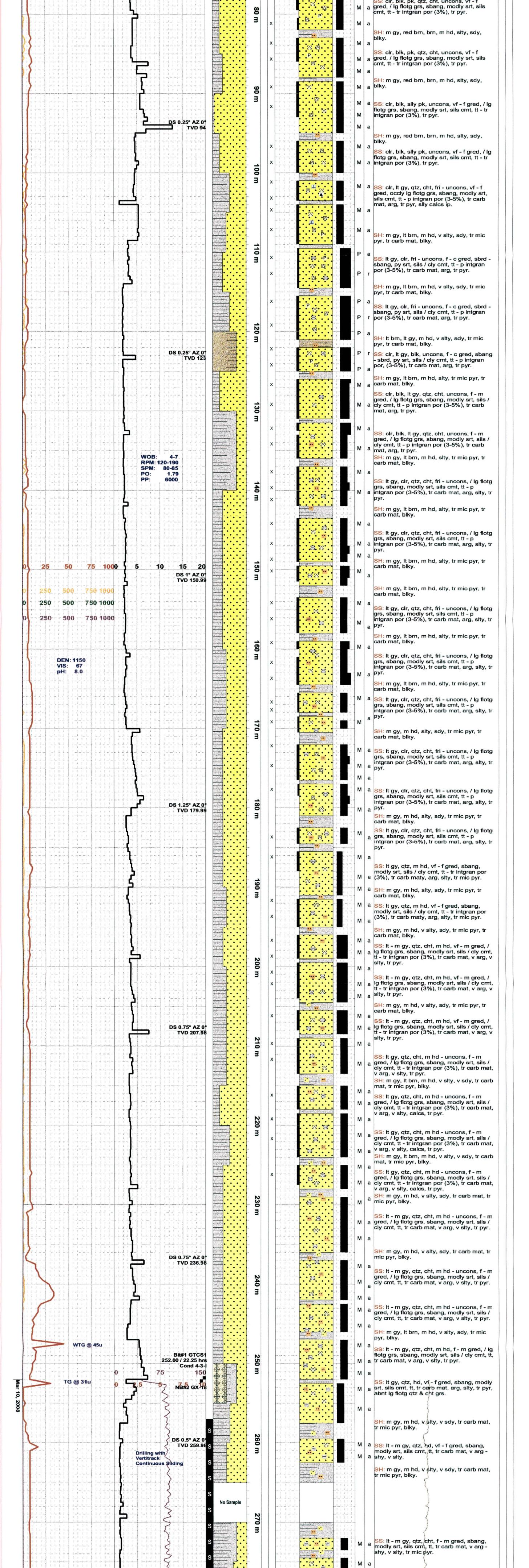
Remarks

Legend

	Conglomerate varicolored chert (Rock)
	Chert varicolored (Rock)
	Shale Brown (Rock)
	Shale dark gray (Rock)
	Shale medium gray (Rock)
	Sandstone (Rock)
	Sandstone (Stringers)
	Calcareous (Cement)
	Siderite (Cement)
	Siliceous (Cement)
	Argillaceous (Matrix)
X	Intercrystalline - interfragmental - intergranular (Porosity)
	Chert dark (Grain)
	Chert light (Grain)
	Coal (Grain)
	Feldspar (Grain)
	Quartz (Grain)
	Argillaceous (Accessory)
	Calcareous (Accessory)
	Carbonaceous (Accessory)
	Kaolinitic (Accessory)
	Micaceous (Grain)
	Pyritic (Accessory)
	Sandy (Accessory)
	Silty (Accessory)
	Slide (Slides)

* Abundance: Trace Occasional Common Abundant No Indication





WOB: 4-7
RPM: 120-190
SPM: 80-85
PO: 1.79
PP: 6000

DEN: 1150
VIS: 67
pH: 8.0

Mar 10, 2008

Drilling with
Vertitrack
Continuous Sliding

Bit#1 GTCs1
252.00 / 22.25 hrs
Cond 4-3-1
150
7.5
10
NB#2 GX-16

WTG @ 45u

TG @ 31u

DS 0.5° AZ 0°
TVD 259.96

DS 0.75° AZ 0°
TVD 236.98

DS 0.75° AZ 0°
TVD 207.98

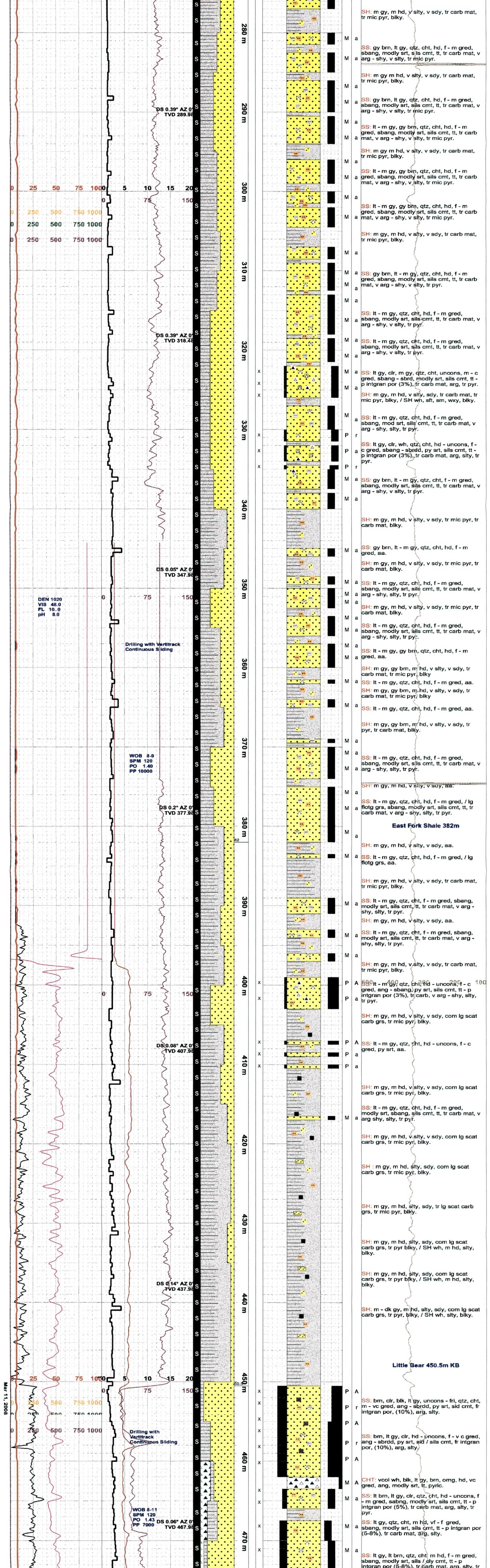
DS 1.25° AZ 0°
TVD 179.99

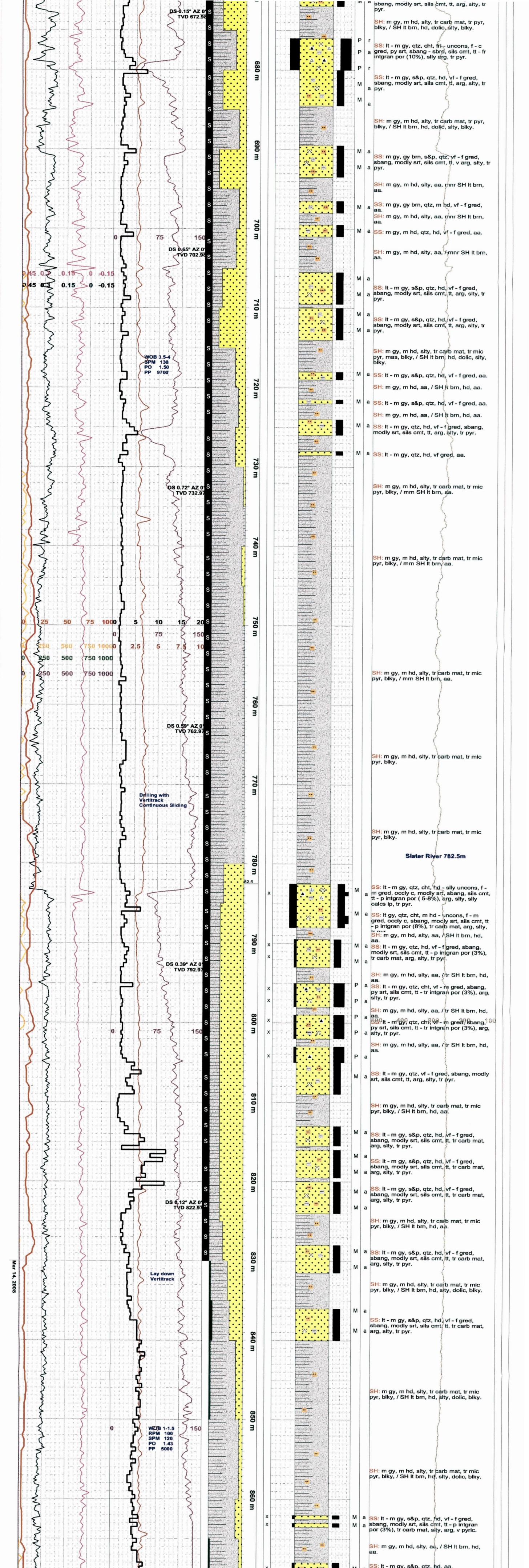
DS 1° AZ 0°
TVD 150.99

DS 0.25° AZ 0°
TVD 123

DS 0.25° AZ 0°
TVD 94

No Sample





DS 0.15° AZ 0°
TVD 672.96

DS 0.65° AZ 0°
TVD 702.96

DS 0.72° AZ 0°
TVD 732.97

DS 0.59° AZ 0°
TVD 762.97

DS 0.39° AZ 0°
TVD 792.97

DS 0.12° AZ 0°
TVD 822.97

WOB 3.5-4
SPM 130
PO 1.50
PP 9700

Drilling with
Vertitrack
Continuous Sliding

Lay down
Vertitrack

WOB 1-1.5
RPM 100
SPM 120
PO 1.43
PP 5000

SH: m gy, m hd, sily, tr carb mat, tr pyr, blk, / SH lt brn, hd, dolic, sily, blk.

SS: lt - m gy, qtz, cht, fi - uncons, f - c gred, py srt, sbang - sbrd, sils cmt, tt - fr intgran por (10%), sily arg, tr pyr.

SS: lt - m gy, s&p, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, sily, tr pyr.

SH: m gy, m hd, sily, tr carb mat, tr pyr, blk, / SH lt brn, hd, dolic, sily, blk.

SS: m gy, gy brn, s&p, qtz, vf - f gred, sbang, modly srt, sils cmt, tt, v arg, sily, tr pyr.

SH: m gy, m hd, sily, aa, mntr SH lt brn, aa.

SS: m gy, gy brn, qtz, m hd, vf - f gred, aa.

SH: m gy, m hd, sily, aa, mntr SH lt brn, aa.

SS: m gy, m hd, qtz, hd, vf - f gred, aa.

SH: m gy, m hd, sily, aa, / mntr SH lt brn, aa.

SS: lt - m gy, s&p, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, sily, tr pyr.

SS: lt - m gy, s&p, qtz, hd, vf - f gred, aa.

SH: m gy, m hd, aa, / SH lt brn, hd, aa.

SS: lt - m gy, s&p, qtz, hd, vf - f gred, aa.

SH: m gy, m hd, aa, / SH lt brn, hd, aa.

SS: lt - m gy, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, sily, tr pyr.

SS: lt - m gy, qtz, hd, vf gred, aa.

SH: m gy, m hd, sily, tr carb mat, tr mic pyr, blk, / mm SH lt brn, aa.

SH: m gy, m hd, sily, tr carb mat, tr mic pyr, blk, / mm SH lt brn, aa.

SH: m gy, m hd, sily, tr carb mat, tr mic pyr, blk.

SH: m gy, m hd, sily, tr carb mat, tr mic pyr, blk.

Slater River 782.5m

SS: lt - m gy, qtz, cht, hd - sily uncons, f - m gred, occl c, modly srt, sbang, sils cmt, tt - p intgran por (5-8%), arg, sily, sily calcs lp, tr pyr.

SS: lt gy, qtz, cht, m hd - uncons, f - m gred, occl c, sbang, modly srt, sils cmt, tt - p intgran por (8%), tr carb mat, arg, sily, tr pyr.

SH: m gy, m hd, sily, aa, / SH lt brn, hd, aa.

SS: lt - m gy, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt - p intgran por (3%), tr carb mat, arg, sily, tr pyr.

SH: m gy, m hd, sily, aa, / tr SH lt brn, hd, aa.

SS: lt - m gy, qtz, cht, vf - m gred, sbang, py srt, sils cmt, tt - tr intgran por (3%), arg, sily, tr pyr.

SH: m gy, m hd, sily, aa, / tr SH lt brn, hd, aa.

SS: lt - m gy, qtz, cht, vf - m gred, sbang, py srt, sils cmt, tt - tr intgran por (3%), arg, sily, tr pyr.

SH: m gy, m hd, sily, aa, / tr SH lt brn, hd, aa.

SS: lt - m gy, qtz, vf - f gred, sbang, modly srt, sils cmt, tt, arg, sily, tr pyr.

SH: m gy, m hd, sily, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, aa.

SS: lt - m gy, s&p, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, tr carb mat, arg, sily, tr pyr.

SS: lt - m gy, s&p, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, tr carb mat, arg, sily, tr pyr.

SS: lt - m gy, s&p, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, tr carb mat, arg, sily, tr pyr.

SH: m gy, m hd, sily, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, sily, dolic, blk.

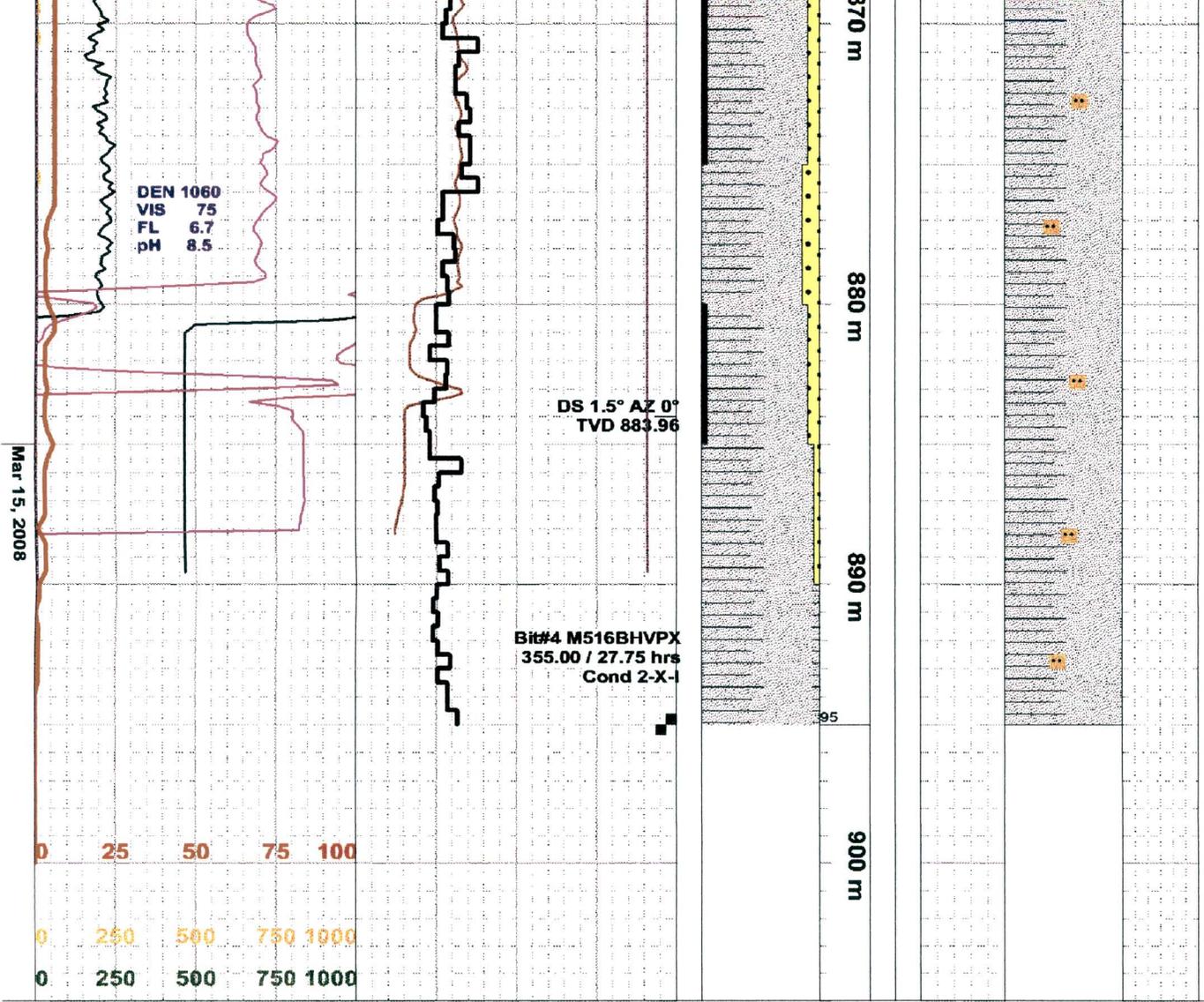
SS: lt - m gy, s&p, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, tr carb mat, arg, sily, tr pyr.

SH: m gy, m hd, sily, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, sily, dolic, blk.

SS: lt - m gy, s&p, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt - p intgran por (3%), tr carb mat, sily, arg, v pyric.

SH: m gy, m hd, sily, aa, / SH lt brn, hd, aa.

SS: lt - m gy, s&p, qtz, hd, aa.



SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolc, blk.

SH: m gy, m hd, slty, tr carb mat, tr pyr, blk, / SH lt brn, hd, dolc, slty, blk.

SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / tr SH lt brn, hd, aa.

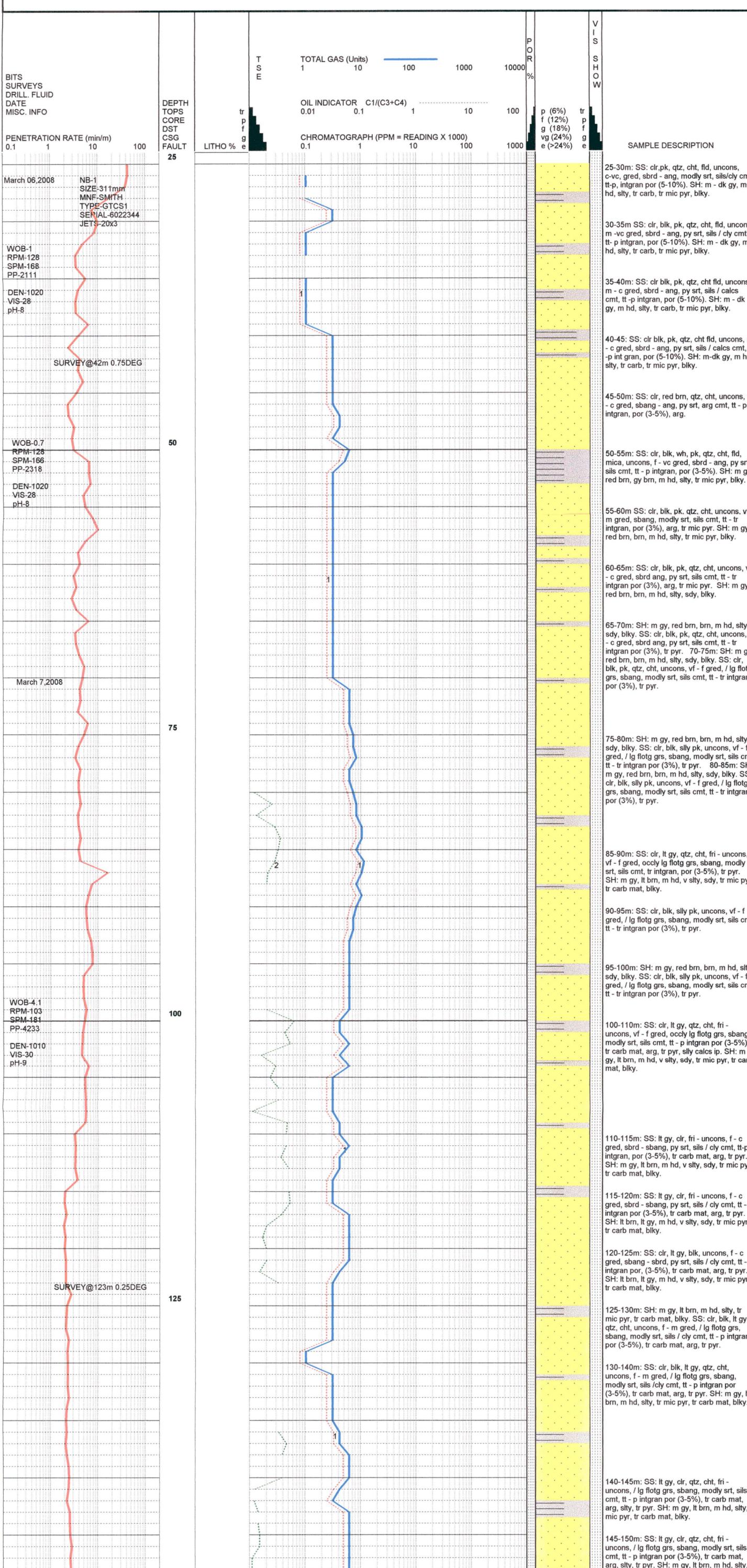
Total Depth 895m KB

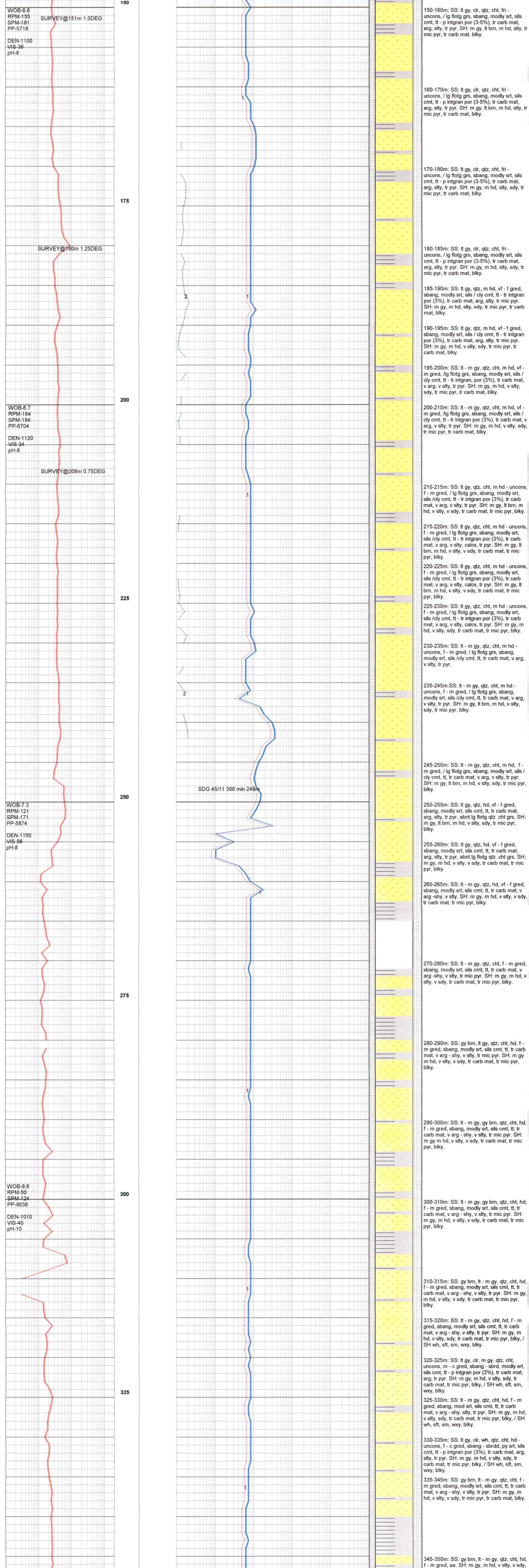
**Finished Drilling March 15, 2008
01:30**

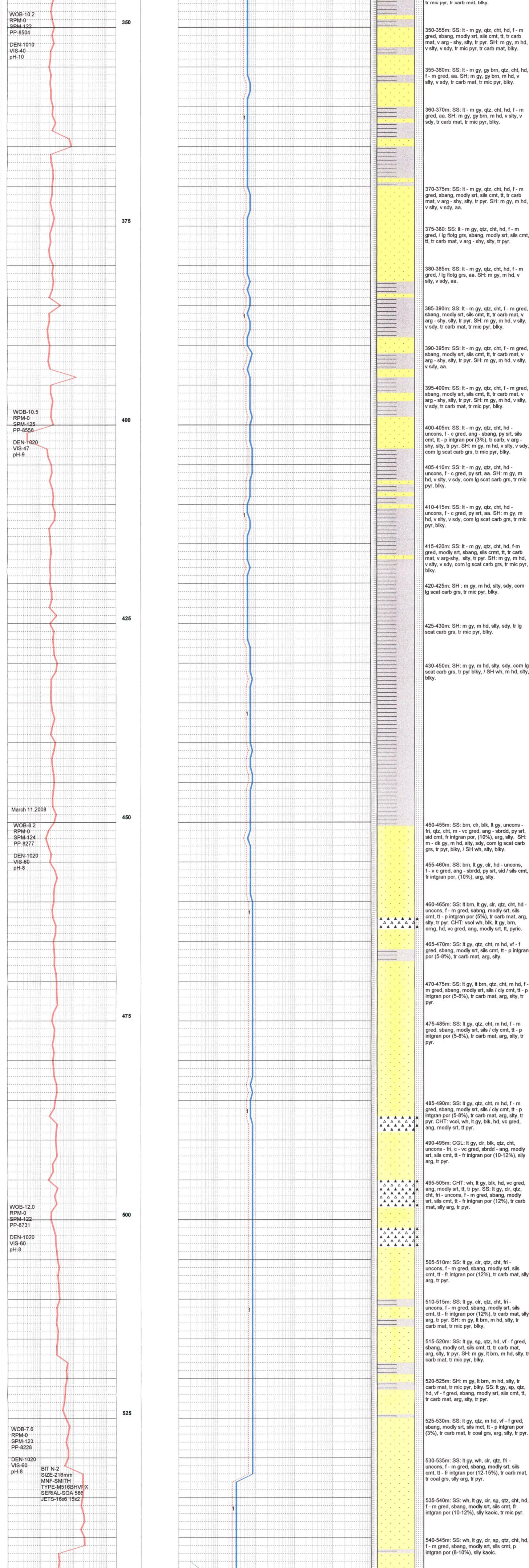


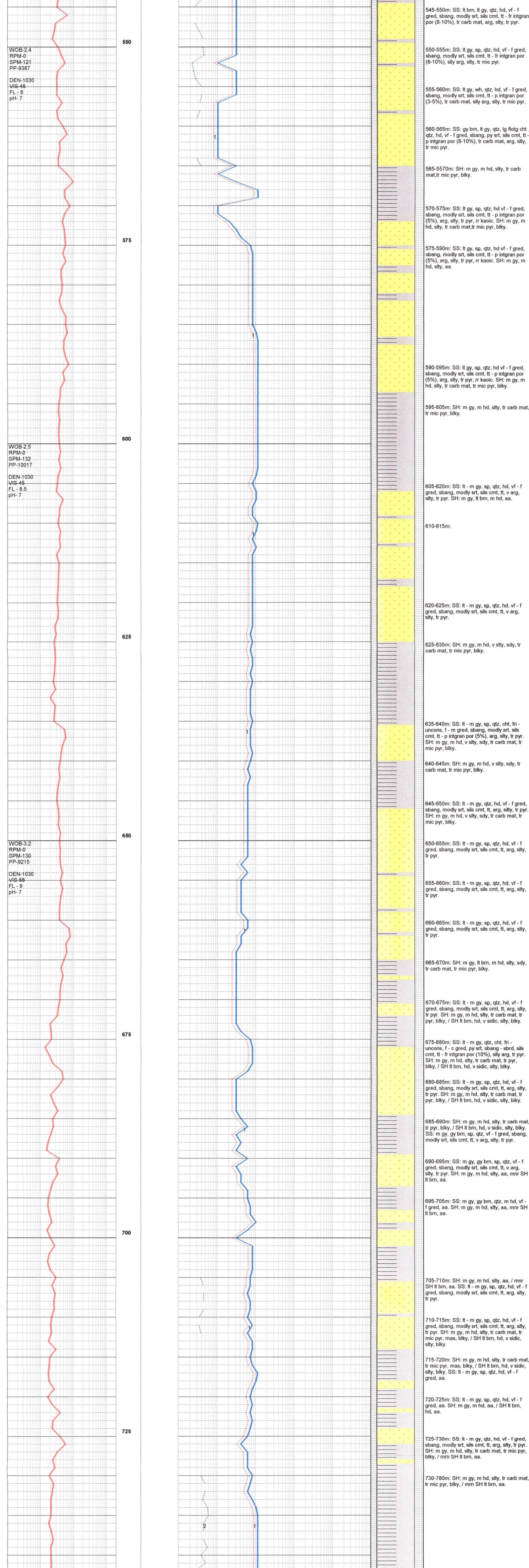
WELL NAME: Husky et al Keele River L-52
LOCATION: 64° 01' 30.2" N / 124° 56' 07.3" W
COMPANY: Husky Oil Operations Ltd.
PROVINCE: NWT **FILE:** 15168
ELEVATION K.B.: 304.0 m **HOLE SIZE:** 311 mm from 0 m to 250 m
ELEVATION G.L.: 300.3 m 215.9 mm from 250 m to 895 m
LOGGING INTERVAL: 26 m to 895 m
LOGGING DATES: 3/ 3/2008 to 16/ 3/2008 **MUD SYSTEM:** Gel Chem
PERSONNEL: Jian Guo/Alex Danici
INSTRUMENTATION: MP 2300, Chromatograph

ALL LITHOLOGIC SYMBOLS ARE CANSTRAT COMPATIBLE









550

WOB-2.4
RPM-0
SPM-121
PP-9387

DEN-1030
VIS-48
FL-8
pH-7

575

600

WOB-2.5
RPM-0
SPM-132
PP-10017

DEN-1030
VIS-45
FL-8.5
pH-7

625

650

WOB-3.2
RPM-0
SPM-130
PP-9215

DEN-1030
VIS-68
FL-9
pH-7

675

700

725

545-550m: SS: lt brn, lt gy, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt - fr intgran por (8-10%), tr carb mat, arg, slty, tr pyr.

550-555m: SS: lt gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt - fr intgran por (8-10%), sily arg, slty, tr mic pyr.

555-560m: SS: lt gy, wh, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt - p intgran por (3-5%), tr carb mat, sily arg, slty, tr mic pyr.

560-565m: SS: gy brn, lt gy, qtz, lg flotg cht qtz, hd, vf - f gred, sbang, py srt, sils cmt, tt - p intgran por (8-10%), tr carb mat, arg, slty, tr mic pyr.

565-5570m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blkly.

570-575m: SS: lt gy, sp, qtz, hd vf - f gred, sbang, modly srt, sils cmt, tt - p intgran por (5%), arg, slty, tr pyr, rr kaocic. SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blkly.

575-590m: SS: lt gy, sp, qtz, hd vf - f gred, sbang, modly srt, sils cmt, tt - p intgran por (5%), arg, slty, tr pyr, rr kaocic. SH: m gy, m hd, slty, aa.

590-595m: SS: lt gy, sp, qtz, hd vf - f gred, sbang, modly srt, sils cmt, tt - p intgran por (5%), arg, slty, tr pyr, rr kaocic. SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blkly.

595-605m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blkly.

605-620m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, v arg, slty, tr pyr. SH: m gy, lt brn, m hd, aa.

610-615m:

620-625m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, v arg, slty, tr pyr.

625-635m: SH: m gy, m hd, v slty, sdy, tr carb mat, tr mic pyr, blkly.

635-640m: SS: lt - m gy, sp, qtz, cht, fri - uncons, f - m gred, sbang, modly srt, sils cmt, tt - p intgran por (5%), arg, slty, tr pyr. SH: m gy, m hd, v slty, sdy, tr carb mat, tr mic pyr, blkly.

640-645m: SH: m gy, m hd, v slty, sdy, tr carb mat, tr mic pyr, blkly.

645-650m: SS: lt - m gy, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, slty, tr pyr. SH: m gy, m hd, v slty, sdy, tr carb mat, tr mic pyr, blkly.

650-655m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, slty, tr pyr.

655-660m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, slty, tr pyr.

660-665m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, slty, tr pyr.

665-670m: SH: m gy, lt brn, m hd, slty, sdy, tr carb mat, tr mic pyr, blkly.

670-675m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, slty, tr pyr. SH: m gy, m hd, slty, tr carb mat, tr pyr, blkly, / SH lt brn, hd, v sidic, slty, blkly.

675-680m: SS: lt - m gy, qtz, cht, fri - uncons, f - c gred, py srt, sbang - sbrd, sils cmt, tt - fr intgran por (10%), sily arg, tr pyr. SH: m gy, m hd, slty, tr carb mat, tr pyr, blkly, / SH lt brn, hd, v sidic, slty, blkly.

680-685m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, slty, tr pyr. SH: m gy, m hd, slty, tr carb mat, tr pyr, blkly, / SH lt brn, hd, v sidic, slty, blkly.

685-690m: SH: m gy, m hd, slty, tr carb mat, tr pyr, blkly, / SH lt brn, hd, v sidic, slty, blkly. SS: m gy, gy brn, sp, qtz, vf - f gred, sbang, modly srt, sils cmt, tt, v arg, slty, tr pyr.

690-695m: SS: m gy, gy brn, sp, qtz, vf - f gred, sbang, modly srt, sils cmt, tt, v arg, slty, tr pyr. SH: m gy, m hd, slty, aa, mnr SH lt brn, aa.

695-705m: SS: m gy, gy brn, qtz, m hd, vf - f gred, aa. SH: m gy, m hd, slty, aa, mnr SH lt brn, aa.

705-710m: SH: m gy, m hd, slty, aa, / mnr SH lt brn, aa. SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, slty, tr pyr.

710-715m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, slty, tr pyr. SH: m gy, m hd, slty, tr carb mat, tr mic pyr, mas, blkly, / SH lt brn, hd, v sidic, slty, blkly.

715-720m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, mas, blkly, / SH lt brn, hd, v sidic, slty, blkly. SS: lt - m gy, sp, qtz, hd, vf - f gred, aa.

720-725m: SS: lt - m gy, sp, qtz, hd, vf - f gred, aa. SH: m gy, m hd, aa, / SH lt brn, hd, aa.

725-730m: SS: lt - m gy, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, arg, slty, tr pyr. SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blkly, / mnr SH lt brn, aa.

730-780m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blkly, / mnr SH lt brn, aa.

2

1

750

775

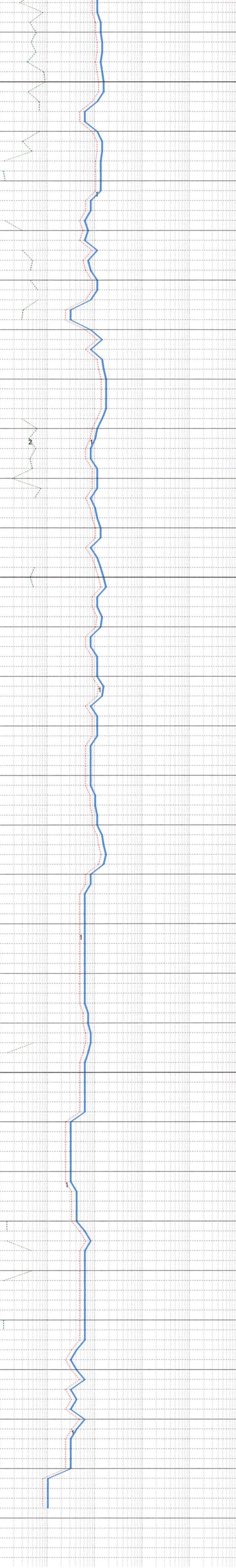
800

825

850

875

900



780-785m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / mrn SH lt brn, aa. SS: lt - m gy, qtz, cht, hd - sily unconc, f - m gred, ocly c, modly srt, sbang, sils cmt, tt - p intgran por (5-8%), arg, silty, sily calcs ip, tr pyr.

785-790m: SS: lt gy, qtz, cht, m hd - unconc, f - m gred, ocly c, sbang, modly srt, sils cmt, tt - p intgran por (8%), tr carb mat, arg, slty, tr pyr. SH: m gy, m hd, slty, aa, / SH lt brn, hd, aa.

790-795m: SS: lt - m gy, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt - p intgran por (3%), tr carb mat, arg, slty, tr pyr. SH: m gy, m hd, slty, aa, / tr SH lt brn, hd, aa.

795-800m: SS: lt - m gy, qtz, cht, vf - m gred, sbang, py srt, sils cmt, tt - tr intgran por (3%), arg, slty, tr pyr. SH: m gy, m hd, slty, aa, / tr SH lt brn, hd, aa.

800-805m: SS: lt - m gy, qtz, cht, vf - m gred, sbang, py srt, sils cmt, tt - tr intgran por (3%), arg, slty, tr pyr. SH: m gy, m hd, slty, aa, / tr SH lt brn, hd, aa.

805-810m: SS: lt - m gy, qtz, vf - f gred, sbang, modly srt, sils cmt, tt, arg, slty, tr pyr. SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, aa.

810-815m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, aa. SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, tr carb mat, arg, slty, tr pyr.

815-820m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, tr carb mat, arg, slty, tr pyr.

820-825m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, tr carb mat, arg, slty, tr pyr. SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, aa.

825-830m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, aa. SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, tr carb mat, arg, slty, tr pyr.

830-835m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, aa. SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, tr carb mat, arg, slty, tr pyr.

835-840m: SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt, tr carb mat, arg, slty, tr pyr. SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolic, blk.

840-845m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolic, blk.

845-850m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolic, blk.

850-855m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolic, blk.

855-860m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolic, blk.

860-865m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolic, blk. SS: lt - m gy, sp, qtz, hd, vf - f gred, sbang, modly srt, sils cmt, tt-p intgran por 3%, tr carb mat, arg, slty, v pyric.

865-870m: SH: m gy, m hd, slty, aa, / SH lt brn, hd,aa. SS: lt - m gy, sp, qtz, hd, aa.

870-875m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolic, blk.

875-880m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolic, blk.

880-885m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolic, blk.

885-890m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, slty, dolic, blk.

890-895m: SH: m gy, m hd, slty, tr carb mat, tr mic pyr, blk, / SH lt brn, hd, aa.