

WELL	Ranger Fort Liard P-66-A		DATE	98-02-22		REPORT NO.:	406	
DEPTH:	3500		m	PROGRESS:	0		m	FORMATION: NAHANNI
OPERATIONS AT 06:00 HOURS: WAIT ON COMPUTALOG AND ANCHOR TRUCK								
CONTRACTOR/RIG SUPT.:			Precision Drilg Rig #426E Terry Gongchuk			CO. SUPERVISOR:		Art Schmitt
DAILY COST: \$			- 135,136			CUM. COST:		\$ 24,483,849
						AFE NO:		E8D 011 - E6D 015

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):		MAXIMUM CASTING HOLD BACK		kPa

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)			No. 1 LINER (mm)	140	
SIZE (mm)				VISCOSITY (s/l)			No. 1 STROKES PER MINUTE		
TYPE				pH			No. 2 LINER (mm)	127	
SERIAL No.				PV (mPa S)			No. 2 STROKES PER MINUTE		
NOZZLES (mm)				YP (Pa)			VOLUME (m ³)		
DEPTH IN (m)				GELS (Pa)			PRESSURE (kPa)		
METERS (m)				SAND (%)			D.P. ANNULAR VEL. (m/min.)		
HOURS				SOLIDS (%)			D.C. ANNULAR VEL.		
WOB (1000 daN)				FILTER CAKE (mm desc.)			D.C. ANNULAR VEL. (m/min.)		
R.P.M.				FLUID LOSS (cc)			<u>SOLIDS CONTROL</u>		
CONDITION				CHLORIDES			SHAKER SCREENS		
<u>DRILLING ASSEMBLY</u>				Ca			DRYER SCREENS		
ITEM	O.D.	I.D.	T.J. TYPE	<u>MUD ADDITIVES</u>			U.F. (kg/m ³)	D. SILT.	CENT.
							OF. (kg/m ³)		
							VOL. (l/min.)		
							HOURS		
							<u>SURVEYS</u>	ANGLE	DIRECTION
								m	o
								m	o
								m	o
								m	o
								m	o
								m	o
BHA LENGTH			M	JTS. D.P. : ON RACKS	433				
HOOK LOAD			daN	: IN STRING					
AVAILABLE WOB			daN	: TOTAL	433				

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE RIGGING	TODAY	CUM
TRIP		NOIP DRILL		LEAKING		WASH TO BOTTOM			24	7711.75
KID SERVICE		HANDLING TOOLS		TESTING		CIRCULATE				239
SURVEY		CIRCULATE		CIRC. SAMPLE		FISH				1793.25
SLIP & CUT		PRESSURE TEST		HANDLE TOOLS		TRIP			24	9744
COND. MUD		W.O. Computalog	24	TRIP		HANDLE TOOLS				
NIPPLE TYPON				REAM RATHOLE					- 15 c	
RUN CASING				CIRCULATE					GOOD	

Wait on Computalog and anchor truck to set anchors for flare stack - Unload testing equipment and assemble flare stack - Rig out centrifuge - De-ice shale tanks
Loaded out 24 HWDP - 2 jars - 3 stabilizers - Wadeco pipe stripper - Mud chemicals
Unable to pump invert to centrifuge

P.06

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-02-21 REPORT NO.: 405
 DEPTH: 3500 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: WAIT ON PERFORATING TOOLS
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 32,183 \$ 33410 CUM. COST: \$ 215,125 \$ 24,618,985 AFE NO: E8D 011 - E6D 015

WELL CONTROL

DAILY RIG CHECK: _____ DAILY BOP CHECK: _____ R.S.S.P.: _____ kPa @ _____ SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 3 - 10 MAXIMUM CASING HOLD BACK _____ kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)		No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (s/l)		No. 1 STROKES PER MINUTE	
TYPE				pH		No. 2 LINER (mm)	127
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)		<u>SOLIDS CONTROL</u>	
CONDITION				CHLORIDES		SHAKER SCREENS	
<u>DRILLING ASSEMBLY</u>				Ca		DRYER SCREENS	
ITEM	O.D.	I.D.	T.I. TYPE	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)	D. SILT. CENT.
						OF. (kg/m ³)	
						VOL. (U/min.)	
						HOURS	
						<u>SURVEYS</u>	ANGLE DIRECTION
						m	°
				CCS 1,365,003		m	°
BHA LENGTH			M	JTS. D.P.: ON RACKS		433	m °
HOOK LOAD			daN	: IN STRING			m °
AVAILABLE WOB			daN	: TOTAL		433	m °

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING			COMMENT		CORING		REPAIR	TODAY	CUM
TRIP			BOP DRILL		WORKING		WASH TO BOTTOM	24	7687.75
RIG SERVICE	75		HANDLE TOOLS		TESTING		CIRCULATE		239
SURVEY			CIRCULATE		CIRC. SAMPLE		FISH		1793.25
SLIP & CUT			PRESSURE TEST	8	HANDLE TOOLS		TRIP	24	9720
COND. MUD			RIG OUT TESCO		TRIP		HANDLE TOOLS		
NIPPLE UP/DN	8		DRESS TUBING	3.25	REMARKABLE			TEMPERATURE	- 24c
RUN CASING			CHANGE LINER	4	CIRCULATE			ROADS	GOOD

24 SUMMARY

Nipple up 179.4mm BOP - Pressure test blind rams and casing to 1500 kpa and 30,000 kpa
 Pressure test pipe rams - annular and BOP valves to 1500 kpa and 30,000 kpa - Function test accumulator start 19,100 kpa
 Close annular close and open pipe rams 16,100 kpa pressure remaining - 30 seconds to recharge accumulator to 19,100kpa
 Precharge pressure 7800 kpa - Accumulator manifold set at 10,500 kpa - Change #2 pump to 127mm heads and liners

Tubing head to KB - 8.60m

SIGNED BY: ART SCHMITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-02-19 REPORT NO.: 403
 DEPTH: 3500 m PROGRESS: 0 m FORMATION: NAHANNT
 OPERATIONS AT 06:00 HOURS: RIG DOWN BOP AND CLEAN MUD TANKS
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 108,612 CUM. COST: \$ 24,589,087 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: _____ kPa @ _____ SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 2 9 MAXIMUM CASING HOLD BACK _____ kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1000	No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (s/l)	28	No. 1 STROKES PER MINUTE	
TYPE				pH	10	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES		SHAKER SCREENS	
DRILLING ASSEMBLY				Ca		DRYER SCREENS	
ITEM	O.D.	I.D.	T.I. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.
						OF. (kg/m ³)	CENT.
						VOL. (l/min.)	
						HOURS	
						SURVEYS	ANGLE
							DIRECTION
						m	°
						m	°
						m	°
						m	°
BHA LENGTH			M	JTS. D.P. ON RACKS	433		
HOOK LOAD			daN	IN STRING			
AVAILABLE WOB			daN	TOTAL	433		

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		REPAIR		TODAY	CUM.
TRIP		BOP DRILL		LOGGING		WASH TO BOT.		24	7639.75
RIG SERVICE	.75	HANDLING TOOLS		TESTING		CIRCULATE			239
SURVEY		CIRCULATE		CIRC. SAMPLE		FISH			1793.25
SLIP & CUT	.75	PRESSURE TEST		HANDLE TOOLS		TRIP		24	9672.7
COND. MUD		RIG OUT TESCO	15.5	TRIP		HANDLE TOOLS		WEATHER	
NEEPLEUP/DN	1	INSTAL HOOK	6	REAM RAITHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								CLEAR	
								- 25c	
								GOOD	

24 SUMMARY

Rig down top drive - Install blocks dyna-flex - Unload 89mm tubing - wellhead and rental BOP - Rig down BOP
 Clean mud tanks - Load out 144 joints 89mm drillpipe - 21 drill collars and running tools - Norm.s mats - Dowell batch mixer
 Compressor and small silo - Pason picked up computers and PVT

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403)424-8050

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RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>98-02-18</u>	REPORT NO.:	<u>402</u>
DEPTH:	<u>3500</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNI</u>
OPERATIONS AT 06:00 HOURS: <u>RIG DOWN TOP DRIVE AND BOP</u>					
CONTRACTOR/RIG SUPT.:	<u>Precision Drilg Rig #426E Terry Gorgichuk</u>	CO. SUPERVISOR:	<u>Art Schitt</u>		
DAILY COST: \$	<u>24,296</u>	CUM. COST:	<u>\$ 24,480,475</u>	AFE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL				m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN		MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):			8 - 8	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)		1000		No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)		28		No. 1 STROKES PER MINUTE	
TYPE				pH		10		No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)				No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)				VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)				PRESSURE (kPa)	
METERS (m)				SAND (%)				D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)				D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)				D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)				SOLIDS CONTROL	
CONDITION				CHLORIDES				SHAKER SCREENS	
DRILLING ASSEMBLY				Ca				DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)		D. SILT.	CENT.
						OF. (kg/m ³)			
						VOL. (l/min.)			
						HOURS			
						SURVEYS		ANGLE	DIRECTION
								m	°
				CC\$ 1,365,003				m	°
BHA LENGTH			M	ITS. D.P. : ON RACKS				m	°
HOOK LOAD			daN	: IN STRING				m	°
AVAILABLE WOB			daN	: TOTAL		433		m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		REPAIR		TODAY	CUM.
TRIP		DOP DRILL		LOGGING	19.7	WASH TO HEFTT.		4.25	7615.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		CIRCULATE		19.75	239
SURVEY		CIRCULATE		CIRC. SAMPLE		FISH			1793.25
SLIP & CUT		PRESSURE TEST		HANDLE TOOLS		TRIP		34	9648
COND. MUD		RIG HIT TESCO	1	TRIP		HANDLE TOOLS		TOTAL WEATHER CLEAR	
NIPPLE UP/DN		LAY DOWN DP	2.5	REAM RATHOLE				TEMPERATURE	-21c
RUN CASING				CIRCULATE				ROADS	GOOD

24 SUMMARY

Lay down drill pipe and drill collars - Rig in Computalog and log - Run #1 GR - MANL 3482.5m - 2910m
Run #2 - GR - Sector Bond 3482.5m - 2900m - 2nd pass with 7000 kpa 3482.5m - 2900m Pull out change to 215.9 caliper
Log 2910m - 2600m 1325m - 800m - Rig out Computalog - Rig down top drive

SIGNED BY: ART SCHRITT

MOBILE NO: (403) 210-1202 (403) 424-8050

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RANGER OIL LIMITED

WELL	Ranger Fort Liard P-66-A	DATE	98-02-17	REPORT NO.:	401
DEPTH:	3500	m	PROGRESS:	0	m
OPERATIONS AT 06:00 HOURS:	LAY DOWN DRILL PIPE				
CONTRACTOR/RIG SUPT.:	Precision Drig Rig #426E Terry Gongichuk	CO. SUPERVISOR:	Art Schriert		
DAILY COST: \$	21,446	CUM. COST:	\$ 24,456,179	AFE NO:	E6D-015

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.	kPa @	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³		
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.		
CONDUCTED AT		HRS. CREW PERFORMANCE				
DAYS SINCE BOP DRILL (EACH CREW):	7 - 7	MAXIMUM CASING HOLD BACK		kPa		

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1000	No. 1 LINER (mm)	140		
SIZE (mm)				VISCOSITY (s/l)	28	No. 1 STROKES PER MINUTE			
TYPE				pH	10	No. 2 LINER (mm)	140		
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE			
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)			
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)			
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)			
HOURS				SOLIDS (%)		D.C. ANNULAR VEL.	59		
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)			
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL			
CONDITION				CHLORIDES		SHAKER SCREENS	140 - 140		
DRILLING ASSEMBLY				Ca		DRYER SCREENS			
ITEM	O.D.	I.D.	T.J. TYPE						
				MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.	
				32 - Standrill		OF. (kg/m ³)			
						VOL. (l/min.)			
						HOURS			
						SURVEYS	ANGLE	DIRECTION	
							m	°	
				DC \$ 9600 CCS 1,365,003			m	°	
BHA LENGTH		M	JTS. D.P. : ON RACKS				m	°	
HOOK LOAD		daN	: IN STRING				m	°	
AVAILABLE WOB		daN	: TOTAL	433			m	°	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		REPAIR		TODAY	CUM.
TRIP	4.25	BOP DRILL		LOGGING		WASH TO BOTT.		24	7611.5
RIG SERVICE	.75	HANDLE TOOLS		TESTING		CIRCULATE			219.25
SURVEY		CIRCULATE	5.75	CIRC. SAMPLE		FISH			1793.25
SLIP & CUT		PRESSURE TEST		HANDLE TOOLS		TRIP		24	9624
COND. MUD		DISPLACE	2.75	TRIP		HANDLE TOOLS		WEATHER	CLEAR
NITRO PUMP		LAY DOWN DP	10.5	REAM RATIOLE				TEMPERATURE	- 19c
RUN CASING				CIRCULATE				ROADS	GOOD

24 SUMMARY

Trip in with 156mm bit and 177.8mm casing scraper to 3484m - Circulate and clean shaker mud tanks
Make up Standrill water and displace hole to same - Lay down 10 singles - Blow mud line and top drive
Lay down drill pipe
Sump free board - 1.5m

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>98-02-16</u>	REPORT NO.:	<u>400</u>
DEPTH:	<u>3500</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNI</u>
OPERATIONS AT 06:00 HOURS: <u>TRIP IN WITH 156mm BIT AND 177.8mm CASING SCRAPER</u>					
CONTRACTOR/RIG SUPT.:	<u>Precision Drig Rig #426E Terry Gorgichuk</u>	CO. SUPERVISOR:	<u>Art Schritt</u>		
DAILY COST: \$	<u>24,931</u>	CUM. COST: \$	<u>24,434,753</u>	APE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	2300	kPa @:	48	SPM
TRIP RECORDS: CALCULATED HOLE FILL:	16.2	m ³ ACTUAL HOLE FILL:	16.9	m ³				
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.				
CONDUCTED AT		HRS. CREW PERFORMANCE						
DAYS SINCE BOP DRILL (EACH CREW):	6 - 6	MAXIMUM CASING HOLD BACK	27,000	kPa				

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER	66			WEIGHT (kg/m ³)	1045	No. 1 LINER (mm)	140		
SIZE (mm)	156			VISCOSITY (s/l)	85	No. 1 STROKES PER MINUTE	80		
TYPE	ATJ4			pH	11.5	No. 2 LINER (mm)	140		
SERIAL No.	I72XK			PV (mPa S)	22	No. 2 STROKES PER MINUTE			
NOZZLES (mm)	3 x 15.9			YP (Pa)	13	VOLUME (m ³)			
DEPTH IN (m)	2910			GELS (Pa)	3 // 10	PRESSURE (kPa)			
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	43		
HOURS				SOLIDS (%)	2.4	D.C. ANNULAR VEL.	59		
WOB (1000 daN)				FILTER CAKE (mm desc.)	2	D.C. ANNULAR VEL. (m/min.)			
R.P.M.				FLUID LOSS (cc)	14	SOLIDS CONTROL			
CONDITION				CHLORIDES	900	SHAKER SCREENS	140 - 140		
DRILLING ASSEMBLY				Ca		DRYER SCREENS			
ITEM	O.D.	I.D.	T.J. TYPE						
BIT SUB	120	57	3 1/2 IF	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.		
12 DCs.	120	57	3 1/2 IF			OF (kg/m ³)			
						VOL. (l/min.)			
						HOURS			
						SURVEYS	ANGLE DIRECTION		
						m	°		
						m	°		
						m	°		
						m	°		
						m	°		
						m	°		
BHA LENGTH	M	JTS. D.P. : ON RACKS	205						
HOOK LOAD	123,000 daN	: IN STRING	228						
AVAILABLE WOB	daN	: TOTAL	433						

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	1	COMMENT		CORING		REPAIR		TODAY	CUM.
TRIP	10.25	BOP DRILL		LOGGING		WASH TO HOTT		23.5	7587.5
RIG SERVICE	.75	HANDLE TOOLS		TESTING		CIRCULATE			219.25
SURVEY		CIRCULATE	2	CIRC. SAMPLE		FISH		.5	1793.25
SIIP & CLIT		PRESSURE TEST	3	HANDLE TOOLS		TRIP		24	9600
CONTD. MUD		CHANGE RAMS		TRIP		HANDLE TOOLS		CLOUDY	
NIPPLEUP/DN		PICK UP 3 1/2 DP	6.5	REAM RATHOLE				TEMPERATURE - 17c	
RUN CASING				CIRCULATE				ROADS GOOD	

24 SUMMARY

Pick up 156mm bit 12 120mm drill collars and 55 joints 89mm drill pipe - Strap in to 2910m - Drill cement 2910m - 2911m - Trip in to 3484m - Pressure test casing to 27,000 kpa for 10 minutes no pressure loss - Circulate bottoms up Blow mud line and top drive - Trip out - Pick up 177.8mm casing scraper - Trip in with scraper and 156mm bit

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>98-02-15</u>	REPORT NO.:	<u>399</u>
DEPTH:	<u>3500</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNI</u>
OPERATIONS AT 06:00 HOURS: <u>PRESSURE TEST BOP BONNET SEALS</u>					
CONTRACTOR/RIG SUPT.:	<u>Precision Drig Rig #426E Terry Gorgichuk</u>	CO. SUPERVISOR:	<u>Art Schitt</u>		
DAILY COST: \$	<u>33,788</u>	CUM. COST:	<u>\$ 24,409,802</u>	AFE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK: YES	DAILY BOP CHECK: YES	R.S.S.P.: 2300	kPa @: 48	SPM
TRIP RECORDS: CALCULATED HOLE FILL	15.17	m ³ ACTUAL HOLE FILL:	22.83	m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	5 - 5	MAXIMUM CASING HOLD BACK	21,500	kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER	RR 61			WEIGHT (kg/m ³)	1040		No. 1 LINER (mm)	140	
SIZE (mm)	315.9			VISCOSITY (s/l)	85		No. 1 STROKES PER MINUTE	80	
TYPE	S44 G			pH	11.5		No. 2 LINER (mm)	140	
SERIAL No.	663637			PV (mPa S)	22		No. 2 STROKES PER MINUTE		
NOZZLES (mm)	663637			YP (Pa)	13		VOLUME (m ³)		
DEPTH IN (m)	2812			GELS (Pa)	3 // 10		PRESSURE (kPa)		
METERS (m)	98			SAND (%)			D.P. ANNULAR VEL. (m/min.)	43	
HOURS	8.5			SOLIDS (%)	2.4		D.C. ANNULAR VEL.	59	
WOB (1000 daN)	5.8			FILTER CAKE (mm desc.)	2		D.C. ANNULAR VEL. (m/min.)		
R.P.M.	85			FLUID LOSS (cc)	14		SOLIDS CONTROL		
CONDITION	6-4-1			CHLORIDES	900		SHAKER SCREENS	140 - 140	
DRILLING ASSEMBLY				Ca			DRYER SCREENS		
ITEM	O.D.	I.D.	T.I. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.	
BIT SUB	165	64	4 1/2 H90			OF. (kg/m ³)			
3 DCs.	165	64	4 1/2 H90			VOL. (l/min.)			
XO SUB	166	57	4 1/2 IF			HOURS			
JARS	171	64	4 1/2 IF			SURVEYS	ANGLE	DIRECTION	
24 HWDP	127	76	4 1/2 IF						
				DC S	CCS 1,356,003		m	o	
BHA LENGTH	M			JTS. D.P. : ON RACKS	205		m	o	
HOOK LOAD	123,000 daN			: IN STRING	228		m	o	
AVAILABLE WOB	daN			: TOTAL	433		m	o	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	8.5	CEMENT		CORING		REPAIR		TODAY	CUM
TRIP	6.5	BOF DRILL		LOGGING		WASH TO NEXT		24	7564
RIG SERVICE	.75	HANDLE TOOLS		TESTING		CIRCULATE			219.25
SURVEY		CIRCULATE	3.25	CIRC. SAMPLE		FISH			1792.75
SIP & CIFT		PRESSURE TEST	1	HANDLE TOOLS		TRIP		24	9576
CORND. MTD		CHANGE RAMS	4	TRIP		HANDLE TOOLS		WEATHER	CLOUDY
NIPPLEUPON				REAM RATHOLE				TEMPERATURE	- 14c
RUN CASING				CIRCULATE				ROADS	GOOD

24 SUMMARY

Circulate WOC - Pressure test casing to 15,000 kpa for 10 minutes no pressure loss - Drill out cement to liner top at 2910m - Drilled hard cement 2845m - 2910m ROP 5m/hr. 5-8000 daN RPM 85 - Circulate bottoms up - Pressure test liner top to 10,000 kpa no loss - Trip out - Lay down 29.02 kg/m DP HWDP and DCs. - Change lower pipe rams to 89mm Pressure test BOP bonnett seals to 1500 and 15000 kpa

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-02-14 REPORT NO.: 398
DEPTH: 3500 m PROGRESS: 0 m FORMATION: NAHANNI
OPERATIONS AT 06:00 HOURS: CIRCULATE AT 2819m W.O.C.
CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schritt
DAILY COST: \$ 129,736 CUM. COST: \$ 24,376,014 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4200 kPa @: 66 SPM
TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE
DAYS SINCE BOP DRILL (EACH CREW): 4 - 4 MAXIMUM CASING HOLD BACK 21,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER	RR 61			WEIGHT (kg/m ³)	1040		No. 1 LINER (mm)	140	
SIZE (mm)	215.9			VISCOSITY (s/l)	80		No. 1 STROKES PER MINUTE	80	
TYPE	S44 G			pH	9.5		No. 2 LINER (mm)	140	
SERIAL No.	663637			PV (mPa S)	22		No. 2 STROKES PER MINUTE		
NOZZLES (mm)	663637			YP (Pa)	13		VOLUME (m ³)		
DEPTH IN (m)				GELS (Pa)	3 // 10		PRESSURE (kPa)		
METERS (m)	CLEAN			SAND (%)			D.P. ANNULAR VEL. (m/min.)	43	
HOURS	OUT			SOLIDS (%)	2.4		D.C. ANNULAR VEL.	59	
WOB (1000 daN)				FILTER CAKE (mm desc.)	2		D.C. ANNULAR VEL. (m/min.)		
R.P.M.				FLUID LOSS (cc)	14		SOLIDS CONTROL		
CONDITION				CHLORIDES	900		SHAKER SCREENS	140 - 140	
DRILLING ASSEMBLY				Ca			DRYER SCREENS		
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.	
BIT SUB	165	64	4 1/2 H90			OF. (kg/m ³)			
3 DCs.	165	64	4 1/2 H90			VOL. (l/min.)			
XO SUB	166	57	4 1/2 IF			HOURS			
JARS	171	64	4 1/2 IF			SURVEYS	ANGLE	DIRECTION	
24 HWDP	127	76	4 1/2 IF						
							m	°	
				DC S CCS 1,356,003			m	°	
BHA LENGTH	255.90	M	JTS. D.P. : ON RACKS	166			m	°	
HOOK LOAD	123,000	daN	: IN STRING	267			m	°	
AVAILABLE WOB	18,000	daN	: TOTAL	433			m	°	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT	4.5	CORING		REPAIR		TODAY	CUM.
TRIP	11	ROP DRILL		LOGGING		WASH TO BOT		24	7540
RIG SERVICE	75	HANDLE TOOLS		TESTING		CIRCULATE			219.25
SURVEY		CIRCULATE	7.75	CIRC. SAMPLE		FISH			1792.75
SLIP & CUT		PRESSURE TEST		HANDLE TOOLS		TRIP		24	9552.7
COND. MUD		WORK PIPE		TRIP		HANDLE TOOLS		WEATHER	
NIPPLE/UP/DN				RRAM KATHOLE				CLOUDY	
RIN CASING				CIRCULATE				TEMPERATURE	
								ROADS	

24 SUMMARY

Rig up Dowell pumper - Set liner in place 3499m - Pump 3m³ CW7 preflush - Cement with 14.75m³ (1900 kg/m³ slurry) + 0.5% D65 0.3% D28 0.2% D121 100L D135 1960L D600 76L D47 - Pumpout lines - Displaced with rubber plug and 37.8m³ drill mud - Plug down at 14:10 hours full returns through out - Pump plug to 15000 kpa floats held
Rig out Smith cementing head - Trip out 11 stands circulate bottoms up - Trip out - Break down and load out liner running tools
Make up BHA - Trip in with RR#61 bit to 2582m - Circulate WOC - Trip in tag cement at 2812m - Circulate WOC

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

CASING AND CEMENT REPORT

WELL NAME: RANGER FT LIARD P-66

SUPERVISOR: Art Schritz

DATE: 98-02-13

CEMENTERS: DOWELL

TOTAL DEPTH: 3500 m

CASING

SURFACE CASING ☐ INTERMEDIATE CASING ☐ PRODUCTION CASING ☐ LINER CASING ☒

FROM TOP OF STRING:

JOINTS	O.D. (mm)	MASS (kg/m)	GRADE	COUPLING	RANGE	TORQUE	MAKE	LENGTH (m)
42	177.8	38.69	N80	LT&C	3	5190	Algoma	584.52

CASING BOWL				SHOE JOINT WAS:	
MAKE	ABB VETCO			☐	THREAD LOCKED
TYPE	EGL 22			☒	WELDED
SIZE	508	mm x	559	mm	GRD. ELEV 449.49 m
RATING	21000			kPa	KB ELEV 459.89 m
SERIAL No	11348				FLANGE ELEV 449.54 m
STAND OFF BANDS, NUMBER/JT, INTERVALS:					
2 on joint #1 - 1 on each remaining 41 joints					
CENTRALIZERS (TYPE & COLLAR NUMBERS):					

GUIDE/FLOAT SHOE	WOTCO	.38
FLOAT COLLAR	WOTCO	.42
BALL CATCH		.35
LINER HANGER		3.90
TOTAL STRING LENGTH		589.57 m
STICK UP		m
LANDED AT		3499.00 m
PLUG BACK T.D.		m
STAGE COLLAR TOP AT		m
MARKER JOINT TOP AT		m
LINER HANGER TOP AT		2909.43 m
CUT OFF LENGTH		m

CEMENTING

CONVENTIONAL CEMENTING ☒ FOAMED CEMENTING ☐ STAGED CEMENTING ☐ BATCH mix ☒

ITEM	TONNES	CLASS	TYPE	ADDITIVES	kg/m ³	m ³	RATE (m ³ /min.)
PRE-FLUSH			WATER	CW 7	1000	3.0	1.0
SCAVENGER							
LEAD							
TAIL	14.7	G	OW	35% silica 0.5% D65 0.3% D28	1900	14.8	.7
				0.2% D121 100L D135			
				1900L D600 76L D47			
DISPLACE			Mud		1040	37.8	.8

TIME MIXING STARTED 12:30 HRS.

CEMENT HEAD TYPE Plug loaded

TIME DISPLACEMENT STARTED 13:05 HRS.

WIPER PLUG TYPE

TIME PLUG BUMPED 14:10 HRS.

DISPLACEMENT PLUG TYPE

FINAL PUMPING PRESSURE 7500 kPa

VOLUME CEMENT RETURNS 0 m³

PLUG BUMPING PRESSURE 15000 kPa

VOLUME LOST RETURNS m³

FLOATS HELD? YES

CALCULATED CEMENT TOP AT 2816 m

Pipe was reciprocated until N/A m³ left to displace. Cement volume based on H/V plus 30 % excessMUD WEIGHT 1040 kg/m³ VISCOSITY 80 sec/l YIELD POINT 13 Pa SLIPS SET WITH daN

ABANDONMENT PLUGS

COMMENTS

	No. 4	No. 5	No.	
BOTTOM				
TOP				
CEMENT TONNES				
CEMENT TYPE				
ADDITIVES				
TIME SPOTTED HRS.				
TIME LOCATED HRS.				
DEPTH LOCATED				
FELT/LOGGED				

BOWL CUT OFF?

PLATE WELDED ON?

FEB-17-1998 09:34

403 232 5200

79%

P.07

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-02-13 REPORT NO.: 397
 DEPTH: 3500 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: CIRCULATE 177.8mm LINER - RIG UP DOWELL
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 24,201 CUM. COST: \$ 24,246,278 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4200 kPa @: 66 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 3 - 3 MAXIMUM CASING HOLD BACK 21,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1040	No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (s/l)	80	No. 1 STROKES PER MINUTE	60
TYPE				pH	9.5	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)	22	No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)	13	VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)	3 // 10	PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	30
HOURS				SOLIDS (%)	2.4	Csg. ANNULAR VEL.	59
WOB (1000 daN)				FILTER CAKE (mm desc.)	2	D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)	14	SOLIDS CONTROL	
CONDITION				CHLORIDES	900	SHAKER SCREENS	140 - 140
DRILLING ASSEMBLY				Ca		DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.
						OF. (kg/m ³)	CENT.
						VOL. (l/min.)	
						HOURS	
						SURVEYS	ANGLE
							DIRECTION
						m	°
						m	°
						m	°
						m	°
BHA LENGTH			M	JTS. D.P. : ON RACKS	129		
HOOK LOAD	121,000		daN	: IN STRING	304		
AVAILABLE WOB			daN	: TOTAL	433		

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		REPAIR		TODAY	CUM
TRIP		BOP DRILL		LUXKING		WASH TO BOTT.		24	7516
RIG SERVICE	.75	HANDLE TOOLS	.75	TESTING		CIRCULATE			219.25
SURVEY		CIRCULATE	4.75	CIRC. SAMPLE		FISH			1792.75
SLIP & CLT		PRESSURE TEST		HANDLE TOOLS		TRIP		24	9528.7
COND. MUD		WORK PIPE		TRIP		HANDLE TOOLS		WEATHER	
NIPPLEUP/DN				REAM RATHOLE				TEMPERATURE	
RUN CASING	17.25			CIRCULATE				ROADS	

24 SUMMARY

Rig up power tongs - Safety meeting - Run 42 joints 177.8mm 589.57m 38.69 kg/m N80 Algoma liner
 Run in liner fill pipe every stand and break circulation every 6 stands to 3085m - Circulate bottoms up - Circulate in stands
 3085m - 3500m - Circulate and work pipe - Rig up Dowell for cementing

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD		LOCATION		P-224		DATE		12-Feb-98	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS 25-E		REPORT No		332	
REPORT FOR Mr.		PERCY CHAPMAN		REPORT FOR Mr.		TERRY GORICHUCK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (BBL)		PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)	218.0	LENGTH (m)		SIZE (mm)		TANKS	175	PUMP #1	140 X 254	OPPOSITE DP	29
BIT NUMBER				508.0	263	HOLE	118.0	M3/STK	0.0117	OPPOSITE DC	59
DRILL PIPE #1 (mm)	127.0	2689		244.5	3115	TOTAL	284	PUMP #2	140 X 254	CIRC. TIME	419
DRILL PIPE #2 (mm)	127.0	220		LINER	TOP/ROT	STAND BY		M3/STK		BOTTOMS UP	121
COLLAR #1 (mm)	177.8	991						S.P.M.	60		
COLLAR #2 (mm)								M3/MIN	0.7020		
HOLE DATA		DESANDER		DESILTER		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS			
MUD TYPE - Ketzen / Bentonite		FLOWLINE WT.				kg/m ³		MUD WT.		1040 Kg/m ³	
HOLE COND.		UNDERFLOW WT.				kg/m ³		VISCOSITY		45-50 cP	
DEVIATION-3482 30.8 204.7		OVERFLOW WT.				kg/m ³		FILTRATE		10-12 cm ³ /30 min.	
CURRENT DP -CIRC CASING		UNDERFLOW RT.				m ³ /min		pH		10.0-10.5	
EQUIPMENT:		X DEGASSER		DESILTER		DESANDER		X CENTRIFUGE			
XX DOUBLE DECK OR HIGH SPEED SHAKER											
MUD PROPERTIES						INVENTORY					
TIME SAMPLE TAKEN		4:49		MATERIALS		MATERIALS		RECEIVED		MATERIALS	
SAMPLE FROM		Flowline		RECEIVED		SINCE LAST		MATERIALS		USED SINCE	
PRESENT DEPTH		3500		TO DATE		REPORT		LAST REPORT		DATE	
FLOWLINE TEMPERATURE (C)		69		BENTONITE M6		18375		13895		4480	
DENSITY		1040		BENTONITE M2		4851		3140		1711	
FUNNEL VISCOSITY (mL)		80		CALC CARB 0		840		840			
GUD READING		70		CALC CARB 325		2018		1120		898	
SUD READING		48		CALYSTC		360		251		109	
APPARENT VISCOSITY (mPa s)		35		FLO FLEX		720		227		483	
PLASTIC VISCOSITY (mPa s)		32		BOP FLR		7				7	
YIELD POINT (Pa)		13		BENTONITE 400g		330		156		164	
S Q/10 min (Pa)		3-10		DANMS		54		16		36	
pH		STRIP		METER X		9.5		LIGNITE		136	
FILTRATE (cm ³)		AP 1/2		F/10MPH		14		LIGNITE		1826	
FILTER CAKE (mm)		2		SAND/CLAY		1400		500		810	
PF		0.80		BENTONITE 400g		60		5		36	
MF		2.5		BENTONITE 400g		2000		2208		391	
PM				BENTONITE 400g		1570		1080		480	
TOTAL HARDNESS (mg/L)		Ca		ZINC CARBONATE		151				151	
CHLORIDES (mg/L)		NaCl		BENTONITE 400g		29				28	
SAND CONTENT %		FR		WALNUT 100		1300		1203		87	
SOLIDS CONTENT %		FR		BENTONITE 400g		108		21		85	
OIL/WATER CONT %		FR		BENTONITE 400g		10				10	
MBT (Kg/m ³)		OIL RET		20		PREVIOUS COST		\$2,706,239.45		STARTING VOLUME	
EQUIVALENT CIRCULATING DENSITY		1187.9				DAILY COST				VOL BUILT	
OIL WATER RATIO						CUM. COST		\$2,708,239.45		VOL LOST ON SURFACE	
H2S PPM						DISCOUNTED COST		\$1,488,431.70		VOL LOST ON SUB SURFACE	
"n"		0.42				CUM. ENG. COST		\$152,560.00		END VOLUME	
"k"		3.01				TOTAL COST		\$1,640,981.70		CUM VOL LOST	

RECOMMENDATIONS:
MUD CHECK PRIOR TO CEMENTINGRIG ACTIVITIES (Last 12 hours)
RUN LINER

Thanks, Dan

STOCK POINT	FORMULA TRANSPORT @ GRANDE PRAIRIE	DOWELL ENGINEER	DAN MALOCHA	MOBILE #
WE	631-4000	PHONE NUMBER	CAMP ROOM # 5	PAGE #
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.				

02/13/98 07:05 FAX

01

Wellname : RANGER UNOCAL FT. LIARD P-66
 Location : LAT 60 40'/LONG 123 30'
 Date : 02-13-98
 Contact : PETER GORTZ

(403) 261 7007

AM REPORT

Depth @ 06:00 hrs: 3500m Progress last 24 hrs: 0

Present Operations: circulating on bottom (on gas)

Avg ROP: Avg BGG:
 Drill Fluid: Polymer/flowplex
 Density: 1040 kg/m3 Vis: 80 FL: 13 ph: 9.5

Surveys:

FORMATION TOPS	KB: 459.89M		
Formation	Prognosis (md/tvd)	Sample (md/tvd)	Subsea (tvd)
Besa R.	Sfc		
Ft Simpson	2387m / 2188m	2054m / 1944m	-1484m
Horn R.	2812m / 2480m	2796m / 2461m	-2001m
Fault	-- --	3007m / 2611m	-2151m
Muskwa	-- --	3100m	
Nahanni	-- --	3115m	

SHOW SUMMARY:

Formation	Interval Gas show / BGG Lith/por/shows/remarks
Nahanni	no gas shows for last 41 hrs

Remarks: We plan to circ. on bottom for 3-4 hrs then cement.

Geologist: Fred Richardson
 Phone: 1-403-210-1202

FEB-13-1998 07:26

403 261 7007

P.02

FROM : PERCY INTERNATIONAL LTD.

PHONE NO. : 14035438693

Feb. 12 1998 08:26AM P1

Wellname : RANGER UNOCAL FT. LIARD P-66
 Location : LAT 60 40'/LONG 123 30'
 Date : 02-12-98
 Contact : PETER GORTZ

(403) 261 7007

AM REPORT

Depth @ 06:00 hrs: 3500m td Progress last 24 hrs: 0

Present Operations: tripping out ti run casing

AVG ROP: Avg BGG:
 Drill Fluid: Polymer/flowplex
 Density: 1055 kg/m3 Vic: 84 FL: 14 ph: 10.2

veys:

FORMATION TOPS	Prognosis (md/tvd)	Sample (md/tvd)	Subsea (tvd)
Besa R.	sfc		
Ft Simpson	2387m / 2188m	2054m / 1944m	-1484m
Horn R.	2812m / 2480m	2796m / 2461m	-2001m
Fault	--	3007m / 2611m	-2151m
Muskwa	--	3100m	
Nahanni	--	3115m	

SHOW SUMMARY:

Formation	Interval	Gas show / BGG Lith/por/chows/remarks
Nahanni		

Remarks: gas readings at "0"

Geologist: Fred Richardson
 Phone: 1-403-210-1202

FROM : PERCY INTERNATIONAL LTD.

PHONE NO. : 14035438693

Feb. 11 1998 07:46AM P2

DAILY DRILLING REPORT

WELL NAME: RANGER PORT LIARD P-66 A DATE: 98-02-11 REPORT NO.: 395
 DEPTH: 3500 m PROGRESS: T D m FORMATION: NATHANNI
 OPERATIONS AT 06:00 HOURS: CIRC COND MUD FROM TD TOTAL GAS 2.55 UNITS
 CONTRACTOR/RIG SUPP.: PRECISION DRILL # 426 E TERRY GORGICHUK CO SUPERVISOR: PERCY CHAPMAN
 DAILY COST: 29131 CUM. COST: 24193,619 AFF NO: BGD-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY HOP CHECK: YES W.S.P.: 4000 kPa @: 55 SF
 TRIP RECORDS: CALCULATED HOI-H FILL: 1.16 m³ ACTUAL HOI-H FILL: .63 SHORT .53
 BOP DRILLS CONDUCTED WHILE CIRC WELL SECURED IN 3.8 M
 CONDUCTED AT 1600 HRS. CREW PERFORMANCE GOOD
 DAYS SINCE BOP DRILL (EACH CREW): 1 X 1 MAXIMUM CASING HOLD BACK 21500

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES				PUMPS			
BIT NUMBER	RR67			WEIGHT (kg/m ³)	1050			No. 1 LINER (mm)	140		
SIZE (mm)	215.9			VISCOSITY (cP)	108			No. 1 STROKES PER MINUTE	60-85		
TYPE	R44G			pH	9.8			No. 2 LINER (mm)	140		
SERIAL No.	663637			PV (mPa.s)	24			No. 2 STROKES PER MINUTE	N/A		
NOZZLES (mm)	1X14.3	2X19.0		YP (Pa)	17			VOLUME (m ³)	.99		
DEPTH IN (m)				GELS (Pa)	6-12			PRESSURE (kPa)	5130		
METERS (m)				SAND (%)	NIL			D.P. ANNULAR VEL. (m/min.)	23		
HOURS				SOLIDS (%)	3.4			D.C. ANNULAR VEL. (m/min.)			
WOB (1000 daN)				FILTER CAKE (mm disc.)	2			D.C. ANNULAR VEL. (m/min.)			
R.P.M.				WATER LOSS (cc)	14			SOLIDS CONTROL			
CONDITION	FAIR			CHLORIDES (mg/l)	900			SHAKER SCREENS	140 X140		
DRILLING ASSEMBLY				 H2S	TRACE						
ITEM	OD	ID	T.J. TYPE	MUD ADDITIVES				D. SIFT			
H1	215.9			DRILL THIN 14 SK.S				U.F. (kg/m ³)	N/A		CENT.
H1 SUB	159	62	4 1/2	CAUSTIC 3 SK.S				U.F. (kg/m ³)			
XO	159	62	4 1/2 IF	BARITE 30 SK.S				VOL. (l/min.)			
G11WDP	127	76	4 1/2 IF					HOURS			
JAR.S	174	72	4 1/2 IF					SURVEYS			
I81WDP	127	76	4 1/2 IF								
				DC\$3378	CC\$1347.042						
SHA LENGTH	227.75	m		JTS. D.P. ON RACKS	94			m	36.8	o	204.7
HOOK LOAD	134000	daN		IN STRING	339			m		u	
AVAILABLE WOB	18000	daN		TOTAL	433			m		o	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		RIG REPAIR		DRILL. OP	TODAY
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.		EVALUATION	7.25
RIG SERVICE	.25	WASH TO BOTTOM		TESTING		REAM & WASH		PROBLEMS	219
SURVEY		PUMP PILL		CIRC. SAMPLE		WORK PIPE		TOTAL	16.75
SLIP & CLUT	.75	HOP DRILL	.25	HANDLE TOOLS		FISH		WEATHER	24.00
COND. MUD	6.00			TRIP		TRIP	2.50	TEMPERATURE	CLOUDY
NIPPLE UP/DN				REAM KATHOLE		CIRC. OUT GAS	3.75	ROADS	-22
RUN CASING		FLOW CHECK		CIRC HOLE		W.O.O	10.50		FAIR

24 HOUR SUMMARY

CIRC COND MUD & HOLE ON BT W.O.O. GAS 28 UNITS. NEW CREW B.O.P. DRILL.
 PUMP PILL ON BT P.O.O.H. 15 STDS TO CSG FLOW CHECK CIRC DRILLING ANNULAR GOOD @ 1900 HRS
 BREAK CIRC 15 MIN GAS TO SURFACE 1100 UNITS FLOW PUMP 10 HALL RATE CIRC FILL RATE 0015 HRS
 0015 0130 R.H.H. CIRC TO BT CIRC @ REDUCED RATE GAS FR BT 1249 TO 4.65 UNITS @ 0600 HRS
 NO MUD LOSS

GAS DOWN TO 20 UNITS @ 0500
MUD 1055 kg/m³ VISC 90 DOWN BACK @ 130
pH 10.3

SIGNED BY: PERCY CHAPMAN MOBILE No.: 403 210-1202 403 424 8050

FROM : PERCY INTERNATIONAL LTD.

PHONE NO. : 14035438693

Feb. 11 1998 07:47AM P4

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD		LOCATION		P-88-6		DATE		11-Feb-98																	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS 26-E		REPORT NO		331																	
REPORT FOR Mr.		PERCY CHAPMAN		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97																	
ASSEMBLY			CASING			MUD VOL. (m3)			PUMP OUTPUT			ANNULAR VEL. (m/min)															
BIT SIZE (mm)		218.0		LENGTH (m)		3242		SIZE (mm)		244.5		LENGTH (m)		3115		TANKS		178		PUMP #1		140 X 254		OPPOSITE DP		42	
BIT NUMBER								SIZE (mm)		208.0		LENGTH (m)		283		HOLE		117.6		M3/STK		0.0117		OPPOSITE DC		85	
DRILL PIPE #1 (mm)		127.0		3242		244.5		3115		TOTAL		284		PUMP #2		140 X 254		CIRC TIME		205							
DRILL PIPE #2 (mm)		127.0		220		LINER		TOP/BOI		STAND BY				M3/STK				BOTTOMS UP		89							
COLLAR #1 (mm)		105.0		38										S.P.M.		85											
COLLAR #2 (mm)														M3/MIN		0.0945											
MUD DATA			DEBANDER			DEBILTER			CENTRIFUGE			DRILLING FLUID SPECIFICATIONS															
MUD TYPE - Kelzan / Bentonite			FLOWLINE WT.						kg/m3			MUD WT			1040 kg/m3												
HOLE COND.			UNDERFLOW WT.						kg/m3			VISCOSITY			45-50 cP												
DEVIATION-3482 38.8 204.7			OVERFLOW WT.						kg/m3			FILTRATE			10-12 cm3/30 min												
CURRENT OP. CIRC			UNDERFLOW RT.						m3/min			PH			10.0-10.5												
EQUIPMENT:			X DEBANDER			DEBILTER			DEBANDER			X CENTRIFUGE															
			XX DOUBLE DECK OR HIGH SPEED SHAKER																								
MUD PROPERTIES			INVENTORY																								
TIME SAMPLE TAKEN		4:53		MATERIALS		MATERIALS		RECEIVED		MATERIALS		MATERIALS		MATERIALS		MATERIALS		DAILY		CUMULATIVE							
SAMPLE FROM		Flowline		RECEIVED		TO DATE		SINCE LAST		USED SINCE		USED TO		REMAINING		ON LOCATION		COST		COST							
PRESENT DEPTH		3500						REPORT		LAST REPORT																	
FLOWLINE TEMPERATURE (C)		88		BARITE #0		15375				13893		4460								\$270,952.50							
DENSITY		1050		BARITE #0		4851				3140		1711								\$54,008.00							
FUNNEL VISCOSITY (cP)		108		CALC CARB 2		840				840										\$68,400.00							
300 READING		82		CALC CARB 325		2016				1120		802								\$11,200.00							
300 READING		58		CALCULIC		360				251		109								\$14,556.00							
APPARENT VISCOSITY (mPa.s)		41		FLO PLEX		720				227		463								\$43,504.00							
PLASTIC VISCOSITY (mPa.s)		24		SUP FLR		7						7															
YIELD POINT (Pa)		17		KELZAN #00		320				156		164								\$193,936.00							
GELS @ 10 min (Pa)		6-12		KANNIS		54				18		30								\$18,000.00							
PH		STRIP		METER		X		9.8		LIGNITE		136				60		76				\$1,200.00					
FILTRATE (cm3)		AP		X		14		LIME		1026				1402		144						\$22,871.00					
FILTER CAKE (mm)				2		BANDNET		1400				500		810								\$3,835.00					
PF		0.80		SODA ASH		40				5		35										\$180.00					
MF		2.6		BENTONITE 400g		2000				2209		391										\$34,781.75					
PM				BENTONITE 400g		1570				1000		480										\$18,332.00					
TOTAL HARDNESS (mg/l)		Ca		LIMO CARBONATE		101						101															
CHLORIDES (mg/L)		X		NaCl		800						28															
SAND CONTENT %		FR		WALMUT (B)		1300				1203		97										\$43,308.00					
SOLIDS CONTENT %		FR		X-CIDE 207		108				21		85										\$4,452.00					
OIL/WATER CONT %		FR		Blackie Drying Agent		10						10															
MBT (kg/m3)		X OIL RET		20		PREVIOUS COST		\$2,697,323.75		STARTING VOLUME		252															
EQUIVALENT CIRCULATING DENSITY		1202.7		DAILY COST		\$8,915.70		VOL. BUILT		30.5																	
OIL WATER RATIO				CUM. COST		\$2,706,239.45		VOL. LOST ON SURFACE		2.1																	
H2S PPM		TRACE		DISCOUNTED COST		\$1,480,431.70		VOL. LOST ON SUB SURFACE																			
"n"		0.29		CUM. ENG. COST		\$148,050.00		END VOLUME		197																	
"k"		7.44		TOTAL COST		\$1,637,381.70		CUM. VOL. LOST		37.3																	

RECOMMENDATIONS:

CONTINUE ADDING DRILL THIN AND WATER TO LOWER VIB TO 80 S/L
 RUN WATER @ 30 L/MIN MINIMUM
 ADD CAL CARB 325 IF DENSITY DROPS TO 1045 KG/M³ 200 SX WILL RAISE DENSITY 10 POINTS

Please Maintain the following:

1. pH TO 10.0-10.5 w/ Caustic
2. Vis at 80 sec/L w/ DRILL THIN AND WATER
3. CONTROL DENSITY @ 1050 kg/m³ w/ CAL CARB 325
4. Fluid loss @ 10-12 ml / 30 min w/ Drispac use regular if viscosity is required

RUN WATER WHILE CIRCULATING TO PREVENT DEHYDRATION

RIG ACTIVITIES (Last 12 hours)

LOGGING - RTH CIRC WOO

Thanks, Don

CHECK POINT

VC

FORMULA TRANSPORT @ GRANDE PRAIRIE

831-4000

DOWELL ENGINEER

PHONE NUMBER

DAN MAJOOHA

CAMP ROOM 8.5

MODULE 8

PAGE #

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE. REPRESENTS OUR BEST JUDGMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL
 BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN
 SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE



PIPE TALLY

Page No 1

Well Name: Ranger Fort Liard P-66A

Date: 88-02-03

Size: 177.8 Make: Algoma Grd: N-80 Wt: 38.69 Rge: 3

1	1347	11	1403	21	1392	31	1400	41	1382
2	1402	12	1405	22	1401	32	1402	42	1393
3	1390	13	1361	23	1394	33	1382	43	
4	1396	14	1390	24	1403	34	1392	44	
5	1402	15	1401	25	1402	35	1401	45	
6	1403	16	1381	26	1393	36	1395	46	
7	1401	17	1403	27	1392	37	1383	47	
8	1402	18	1401	28	1402	38	1391	48	
9	1395	19	1396	29	1362	39	1397	49	
10	1393	20	1402	30	1386	40	1333	50	
A	13931	B	13943	C	13927	D	13876	E	2776

51		61		71		81		91	
52		62		72		82		92	
53		63		73		83		93	
54		64		74		84		94	
55		65		75		85		95	
56		66		76		86		96	
57		67		77		87		97	
58		68		78		88		98	
59		69		79		89		99	
60		70		80		90		100	
F		G		H		I		J	

A	13931	F	0
B	13943	G	0
C	13927	H	0
D	13876	I	0
E	2776	J	0

Explanations

Float shoe	38
Float collar	42
	58452
Total	58532
T.D.	3500

Talled by: Art and crew

DAILY DRILLING REPORT

WELL NAME: RANGER PORT LIARD P-66 A DATE: 98-02-10 REPORT NO.: 394
DEPTH: 3500 m PROGRESS: T D m FORMATION: NAHANNI
OPERATIONS AT 06:00 HOURS: CIRC TO BT FR 3100 M
CONTRACTOR/RIG SUPT.: PRECISION DRILL # 426 H TERRY GORGICIRUK CO. SUPERVISOR: PERCY CHAPMAN
DAILY COST: 152'626 CUM COST: 24'164'488 APB NO. E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 3940 L.P.A. @: 55
TRIP RECORDS: CALCULATED HOLD FILL m³ ACTUAL HOLD FILL:
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN
CONDUCTED AT HRS. CRKW PERFORMANCE
DAYS SINCE BOP DRILL (EACH CRW): 3 & 5 MAXIMUM CASING HOLD BACK 21500

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	RR67			WEIGHT (kg/m ³)	1060	No. 1 LINER (mm)	140
SIZE (mm)	215.9			VISCOSITY (cP)	96	No. 1 STROKES PER MINUTE	60-85
TYPE	S440			pH	10.5	No. 2 LINER (mm)	140
SERIAL No.	663637			PV (mPa S)		No. 2 STROKES PER MINUTE	N/A
NOZZLES (mm)	2X14.2	1X19.0		YP (Pa)		VOLUME (m ³)	99
DEPTH (m)				GELS (Pa)		PRESSURE (kPa)	5130
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	23
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm disc)	2	D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)	13.0	SOLIDS CONTROL	
CONDITION	FAIR			CHLORIDES (mg/l)		SHAKER SCREENS	140 X140
DRILLING ASSEMBLY				MOD ADDITIVES		SURVEYS	
ITEM	O.D.	I.D.	T.J. TYPE			U.P. (kg/m ³)	D. SILENT
BIT	215.9					U.F. (kg/m ³)	CENT
BIT SUB	159	62	4 1/2	GEL 14 SKS	BAKITE 25 SKS		N/A
X U	159	62	4 1/2 IF	CAUSTIC 4 SKS		VOL. (l/min.)	N/A
6 HWOP	127	76	4 1/2 IF	DRISPAK 2 SKS		HOURS	
JAR S	174	72	4 1/2 IF	SIC CALCARB 15 SKS			
IR 11W/IF	127	76	4 1/2 IF	ZINC CARB SKS			
				DCS 2763	CCS 1343/664	3482	
BHA LENGTH	227.75	m		JTS. D.P. ON RACKS	94	m	36.8
HOOK LOAD	134000	daN		IN STRING	339	m	
AVAILABLE WOB	18000	daN		TOTAL	433	m	

TIME BREAKDOWN

DRILLING OPERATIONS		EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT	CORING	RIG REPAIR		TODAY	CU
TRIP		HANDLE TOOLS	LOGGING	LOST CIRC		25	247
RIG SERVICE	25	WASH TO BOTTOM	TESTING	REAM & WASH		23 75	219
SURVEY		PUMP PILL	CIRC. SAMPLE	WORK PIPE			17.52
SLIP & CUT		WELL SHUT IN	HANDLE TOOLS	FISH		TOTAL	2400
COND. MUD		MIX MUD	TRIP	TRIP		WEATHER	CLOUDY
NIPPLE UP/DN		CIRC CHOKE	REAM RATIOCK			TEMPERATURE	-22
RUN CASING		FLOW CHECK	CIRC HOLE			MOONING	FAIR

24 HOUR SUMMARY

RUN #1 SIMULTANEOUS TRIPLE INDUCTION & BOREHOLE COMPENSATED SONIC 3500 3112.5 M @ 1300 HRS
RUN #2 SPECTRAL PE DENSITY COMPENSATED NEUTRON 3500M 3112.5 M
RUN #3 DUAL LATHROLOG MICRO SPHERICALLY FOCUSSED 3500 M 3112.5 M @ 1645 HRS
REWIRE CABLE HEAD @ 1800 HRS
RUN #4 2 M 1 3500M 3125 M WORK THU BRIDGE @ 3276 M LAY DOWN TOOL'S @ 2200 HRS
RUN IN HOLE WITH BIT TO CIRC COND. BREAK CIRC @ 1200 2000 M CIRC HT UP @ 3100 M @ 0545 HRS GAS 24 UNITS
CIRC TO BT FR 3100 M

SIGNED BY: PERCY CHAPMAN MOBILE No.: 403 210-1202 403 424 8050

FROM : PERCY INTERNATIONAL LTD.

PHONE NO. : 14035438693

Feb. 10 1998 07:48AM P1

Wellname : RANGER UNOCAL FT. LIARD P-66
 Location : LAT 60 40' / LONG 123 30'
 Date : 02-10-98
 Contact : PETER GORTZ

(403) 261 7007

AM REPORT

Depth @ 06:00 hrs: 3500m Progress last 24 hrs: 0

Present Operations: in hole at 2798m and circulating

Avg ROP: Avg BGG:

Drill Fluid: Polymer/slowplex

Density: 1060 kg/m3 Vis: 96 FL: 13 ph: 10.5

Revs: n/a

FORMATION TOPS

KB: 459.89M

Formation	Prognosis (md/tvd)	Sample (md/tvd)	Subsea (tvd)
Bcea R.	efc		
Ft Simpson	2387m / 2188m	2054m / 1944m	-1484m
Horn R.	2812m / 2480m	2796m / 2461m	-2001m
Fault	-- --	3007m / 2611m	-2151m
Muskwa	-- --	3100m	
Nahanni	-- --	3115m	
Nahanni[whip 4]		3128m / 2699.8	

SHOW SUMMARY:

Formation	Interval	Gas show / BGG Lith/por/shows/remarks
-----------	----------	---------------------------------------

Nahanni

Remarks: All logging completed at 22:00 hrs Feb 9/98
 Run in hole to 2796m and circ.bottom up
 [no gas units]

Geologist: Fred Richardson

Phone: 1-403-210-1202

FEB-10-1998 07:18

403 261 7007

P.02

DAILY DRILLING REPORT

WELL NAME: RANGAR FORT LIARD P-66 A DATE: 98-02-09 REPORT NO.: 393
 DEPTH: 3500 m PROGRESS: T D FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: LOGGING RUN # ONE RTI SONIC FR TD @ 0515 HRS
 CONTRACTOR/RIG SUPT.: PRECISION DRILL # 426 E TERRY GORGICHUK CO. SUPERVISOR: PERCY CHAPMAN
 DAILY COST: 51792 CUM. COST: 24,011,862 AVE NO: H6D-013

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 3300 kPa @: 53
 TRIP RECORDS CALCULATED HOLE FILL: 18.35 m³ ACTUAL HOLE FILL: 27.83
 BOP DRILLS: CONDUCTED WHILE WILL SECURED IN
 CONDUCTED AT HRS. CKEW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 4-6 MAXIMUM CASING HOLD BACK: 20500

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES				PUMPS						
BIT NUMBER	KK 66			WRIGHT (kg/m ³)	1055			No. 1 LINER (mm)		140				
SIZE (mm)	215.9			VISCOSITY (cP)	83			No. 1 STROKES PER MINUTE		60-85				
TYPE	S440			pH	10.2			No. 2 LINER (mm)		140				
SERIAL No.	663637			PV (mPa S)	32			No. 2 STROKES PER MINUTE		140				
NOZZLES (mm)	3X12			YP (Pa)	15			VOI PUMP (m ³)		80				
DEPTH IN (m)				GELS (Pa)	417			PRESSURE (kPa)		6200				
METERS (m)				SAND (%)	N/A			D.P. ANNULAR VEL. (m/min.)		42				
HOURS				SOLIDS (%)	3.4			D.C. ANNULAR VEL. (m/min.)						
WOB (1000 daN)				FILTER CAKE (mm desc.)	2			D.C. ANNULAR VEL. (m/min.)						
R.P.M.				WATER LOSS (cc)				SOLIDS CONTROL						
CONDITION	FAIR			CHLORIDES (mg/l)	500			SHAKER SCREENS		140 X140				
DRILLING ASSEMBLY				H2S										
ITEM	O.D.	I.D.	T.I. TYPE	E.C.D.										
BIT	215.9			MUD ADDITIVES										
BIT SUB	159	62	4 1/2	GEL 62 SKS CAUSTIC 20 SKS				U.F. (kg/m ³)						
X O	159	62	4 1/2 IF	FIBER FLUID'S 8 SKS DRIS PAC 3SKS				U.F. (kg/m ³)						
6 HWDP	127	76	4 1/2 IF	CAL CARB 167 SKS S CAL CARB 23 SKS				VOI. (l/min.)						
JAK.S	174	72	4 1/2 IF	ZINOCAT 25 SKS ID VISE 3 SKS				HOURS						
18 HWDP	127	76	4 1/2 IF	DCS11287 CCS1340901				SURVEYS						
								3482						
DHA LENGTH				227.75	m	JTS D.P. ON RACKS				m		36.8	n	204.7
HOOK LOAD				134000	daN	: IN STRING				m			o	
AVAILABLE WOB				18000	daN	: TOTAL				m			o	
												m		o

DRILLING OPERATIONS				EVALUATION				PROBLEMS				SUMMARY	
DRILLING		CEMENT		CORING				RIG REPAIR				TODAY	CU
TRIP		HANDLE TOOLS		LOGGING	2.25			LOST CIRC.				1.50	24.76
RIG SERVICE	.75	WASH TO BOTTOM		TESTING				REAM & WASH				9.00	195.
SURVEY		PUMP FILL	.25	CIRC. SAMPLE				WORK PIPE				13.50	1357.
SLIP & CUT		WELL SHUT IN		HANDLE TOOLS				FISH				24.00	2432.
COND MUD		PUMP FILL	.50	TRIP	6.75			TRIP				WEATHER	CLOUDY
NIPPLE UP/DN		CIRC CHOKE		REAM RATHOLE				CIRC COND	10.75			TEMPERATURE	-19
RUN CASING		FLOW CHECK						WIPER TRIP	2.75			MOIST	FAIR

24 HOUR SUMMARY

CIRC @ REDUCED TILL BT UP CIRC @ FILL RATE COND MUD NO GAS FR 3500 m 1245 HRS
 PUMP FILL P.O.O.H 15 STD.S WITH OUT CIRC. 30 MIN FLOW CHECK GOOD RIG SER & CLOSE KAMS @ 1445 HRS HOLE FILL + .30 M3
 R.I.H TAG BT @ 3500 M CIRC & COND MUD FILL RATE 80 UNITS GAS TO 41 UNITS @ 2030 HRS
 PUMP BARITE FILL FILL OUT 15 STD.S FLOW CHECK OUT @ 0345 HRS
 RIG LOGGER'S IN 0415 HRS
 RUN #1 RTI SONIC TAG RT @ 0515 HRS & LOGGING OUT 0600 HRS

SIGNED BY: PERCY CHAPMAN MOBILE No.: 403 210-1202 403 424 8050

DAILY MUD REPORT

WELL NAME		LOCATION		DATE						
RANGER FT. LIARD		P-88-9		8-Feb-98						
OPERATOR		CONTRACTOR		REPORT No						
RANGER OIL LTD.		CACTUS 28-E		329						
REPORT FOR Mr.		REPORT FOR Mr.		SPUD DATE						
PERCY CHAPMAN		TERRY GORICHUCK		12-Jan-97						
ASSEMBLY		CASINO		MUD VOL (M3)						
PUMP OUTPUT		ANNULAR VEL. m/min								
BIT SIZE (mm)	210.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	150	PUMP #1	140 X 254	OPPOSITE DP	42
BIT NUMBER			500.0	263	HOLE	117.8	MVSTR	0.0117	OPPOSITE DC	83
DRILL PIPE #1 (mm)	127.0	3242	244.5	3115	TOTAL	208	PUMP #2	140 X 254	CIRC. TIME	280
DRILL PIPE #2 (mm)	127.0	320	LINER	TOP/BOT	STAND BY		MVSTK		BOTTOMS UP	89
COLLAR #1 (mm)	168.0	30					S.P.M.	85		
COLLAR #2 (mm)							M3/MIN	0.8945		
HOLE DATA		DESANDER		DESILTER		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS		
MUD TYPE - Kelzan/Bentonite		FLOWLINE WT.				kg/m3		MUD WT		1040 kg/m3
HOLE COND.		UNDERFLOW WT				kg/m3		VISCOSITY		45-80 cP
DEVIATION 3482 36 8 204.7		OVERFLOW WT				kg/m3		FILTRATE		10-12 cm/30 min
CURRENT OP. CIRC OUT KICK		UNDERFLOW RT				m3/min		PH		10.0-10.5
EQUIPMENT:		X DEGASSER		DESILTER		DESANDER		X CENTRIFUGE		
		XX DOUBLE DECK OR HIGH SPEED SHAKER								
MUD PROPERTIES								INVENTORY		
TIME SAMPLE TAKEN	8:58	MATERIAL	MATERIAL	RECEIVED	MATERIAL	MATERIAL	MATERIAL	DAILY	CUMULATIVE	
SAMPLE FROM	Flowline		RECEIVED	SINCE LAST	USED SINCE	USED TO	REMAINING	COST	COST	
PRESENT DEPTH	3500		TO DATE	REPORT	LAST REPORT	DATE	ON LOCATION			
FLOWLINE TEMPERATURE (C)	86	BARITE #5	18375			13895	4400		\$270,652.50	
DENSITY	1055	BARITE #7	4851			3140	1711		\$54,008.00	
FUNNEL VISCOSITY (WL)	83	CALC CARB D	840			840			\$8,400.00	
600 READING	84	CALC CARB 325	1680			1120	500		\$11,200.00	
300 READING	82	CAUSTIC	300			251	109		\$14,558.00	
APPARENT VISCOSITY (mPa.s)	47	FLOPLEX	720			227	483		\$43,584.00	
PLASTIC VISCOSITY (mPa.s)	32	IDE FLR	7				7			
POINT (Pa)	15	KELZAN ACD	320			156	184		\$133,536.00	
110 min (Pa)	4-11	KANNE	34			18	36		\$18,000.00	
STRIP	METER	9	LIGNITE	138		80	76		\$1,200.00	
FILTRATE (cm3)	AP X	14	LIME	1626		1482	144		\$22,971.00	
FILTER CAKE (mm)		2	SAWDUST	1400		580	810		\$3,836.00	
VF		0.45	SOON ACH	40		6	35		\$180.00	
VF		2	BENTONITE 40kg	2000		2200	381		\$34,791.75	
VF			BENTONITE 40kg	1570		1080	490		\$19,332.00	
TOTAL HARDNESS (mg/l)	X	Ca	40	ZINC CARBONATE	80		80			
CHLORIDES (mg/l)	X	NaCl	500	HBO 800 Amine Amp	28		28			
SAND CONTENT	X	FR		WALNUT (M)	1300		1203	87	\$43,308.00	
SOLIDS CONTENT	X	FR	3.4	X-CIDE 2V7	106		21	85	\$4,452.00	
OIL/WATER CONT	X	FR		Gravels (Noninert)	10		10			
WT (kg/m3)	X	OIL RET	20	PREVIOUS COST	\$2,889,500.30			STARTING VOLUME	252	
EQUIVALENT CIRCULATING DENSITY	1191.0			DAILY COST	\$28,815.45			VOL. BUILT	30.5	
OIL WATER RATIO				CUM. COST	\$2,897,323.75			VOL. LOST ON SURFACE	2.1	
28 PPM	-7		2.00	DISCOUNTED COST	\$1,483,528.00			VOL. LOST ON SUB SURFACE		
VF			0.40	CUM. ENG. COST	\$148,050.00			END VOLUME	197	
VF			4.19	TOTAL COST	\$1,832,478.05			CUM VOL LOST	37.3	
RECOMMENDATIONS:					RIG ACTIVITIES: (Last 12 hours)					
PFTER WIPER TRIP ADD 25 BX OF ZINC CARBONATE					POH LAY DOWN DIRECTIONAL TOOLS RIN CIRC					
Issue Maintain the following:					Frankie, Dan					
pH TO 10.0-10.5 w/ Caustic										
Vis at 50-80 sec/L w/ Kelzan or IDVIB-D and Prehydrated Gel										
CONTROL DENSITY @ 1040 kg/m ³ w/ CALC CARB 325										
Fluid loss @ 10-12 ml/30 min w/ Dripac use regular if viscosity is required										
add IDLUBE to control torque and drag Add Antifoamer D47 while mixing ID LUBE										
ADD 25 L OF PTA-300 Monomethacrylate PER DAY										
ADD 1 JUG OF X-CIDE 207 PER HOUR										
IN WATER WHILE CIRCULATING TO PREVENT DEHYDRATION										
LOCK POINT	FORMULA TRANSPORT @ GRANDE PRAIRIE		DOWELL ENGINEER		DAN MAJOCHA		MOBILE #			
PHONE	851-4000		PHONE NUMBER		CAMP ROOM #5		PAGE #			
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.										

FROM : PERCY INTERNATIONAL LTD.

PHONE NO. : 14035438693

Feb. 09 1998 07:26AM P1

Wellname : RANGER UNOCAL FT. LIARD P-66
 Location : LAT 60 40'/LONG 123 30'
 Date : 02-09-98
 Contact : PETER GORTZ

AM REPORT

(403) 261 7007

Depth @ 06:00 hrs: 3500m Progress last 24 hrs: 0

Present Operations: prep to run in hole with logs STI & sonic

Avg ROP: Avg BGG:
 Drill Fluid: Polymer/flowplex
 Density: 1060 kg/m3 Visc: 85 FL:12.5 ph: 10

veys:

FORMATION TOPS		KB: 459.89M	
Formation	Prognosis (md/tvd)	Sample (md/tvd)	Subsea (tvd)
Beza R.	bfc		
Fl Simpson	2387m / 2188m	2054m / 1944m	-1484m
Horn R.	2812m / 2480m	2796m / 2461m	-2001m
Fault	-- --	3007m / 2611m	-2151m
Muekwa	-- --	3100m	
Nahanni	-- --	3115m	
Naharri[whip 4]		3128m / 2699.8	

SHOW SUMMARY:

Formation	Interval	Gas show / BGG lith/por/shows/remarks
Nahanni	Sunday afternoon with bit on bottom gas readings of 40 units, so now we are ready to log.	

PS loggers tagged bottom at 05:15 this am and we are now logging.

Geologist: Fred Richardson
 Phone: 1-403-210-1202
 FEB-09-1998 07:47

403 261 7007

P.02

DAILY DRILLING REPORT

WELL NAME: RANGER FORT LIARD F-66 A DATE: 98-02-08 REPORT NO.: 392
DEPTH: 3500 m PROGRESS: T D FORMATION: NAHANNI
OPERATIONS AT 06:00 HOURS: CIRC PR T.D. AT REDUCED RATE TOTAL GAS 11.00
CONTRACTOR/RIG SUPT.: PRECISION DRILL # 426 E TERRY GORGICHIUK CO. SUPERVISOR: PERCY CHAPMAN
DAILY COST: 23121 CUM. COST: 23,960,070 AFE NO: EAD-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4400 kPa @ 60 SF
TRIP RECORDS: CALCULATED HOLE FILL TRIP TO BOTTOM CSG m³ ACTUAL HOLE FILL: M
BOP DRILLS: CONDUCTED WHILE WFL SECURED IN
CONDUCTED AT HRS. CREW PERFORMANCE
DAYS SINCE BOP DRILL (EACH CREW): 3 & 5 MAXIMUM CASING HOLD BACK 20500

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	RR 66			WEIGHT (kg/m ³)	1055	No. 1 LINER (mm)	140
SIZE (mm)	215.9			VISCOSITY (cP)	78	No. 1 STROKES PER MINUTE	60-85
TYPE	S440			pH	9.5	No. 2 LINER (mm)	140
SERIAL No.	663637			PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)	3X12			YP (Pa)		VOLUME (m ³)	74
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	4400
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	23
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm disc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION	FAIR			CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							140 X140
ITEM	O.D.	I.D.	T.J. TYPE				
BIT	215.9			MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.
BIT SUB	159	62	4 1/2	GEL 168 SK.S KELZAN 5 SK.S		U.F. (kg/m ³)	N/A N/A
X O	159	62	4 1/2 IF	CAL CARB 125 SC CARB 146 SK.S		VOI. (l/min.)	
6 HWDP	127	76	4 1/2 IF	CAUSTIC 128K.S WALNUT 4 SK.S		HOURS	
JAR. S	174	72	4 1/2 IF	ZINC CARB 43 SK.S FIBER FILLED 10ska		SURVEYS	
18 HWDP	127	76	4 1/2 IF	ID VIS 2 sk.s		3482	m 36.8 o 204.7
				DCS 19600 CCS 1,329,614			n o
BHA LENGTH	227.75	m		JTS. D.P. ON RACKS		94	m o
HOOK LOAD	134000	daN		: IN STRING		339	m o
AVAILABLE WOB	18000	daN		: TOTAL		433	m o
				TIME BREAKDOWN			

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		COMMENT		CORING		RIG REPAIR		DRILL OP	TODAY CU
TRIP	2.25	HANDLE TOOLS		LOGGING		LOST CIRC.		EVALUATION	186
RIG SERVICE	.25	WASH TO BOTTOM		TESTING		REAM & WASH		PROBLEMS	174
SURVEY		PUMP FILL		CIRC. SAMPLE		WORK PIPE		TOTAL	24 940
SIIP & CUT		WELL SHUT IN		HANDLE TOOLS		FISH		WEATHER	CLOUDY
COND. MUD	6.75	MIX MUD	5.00	TRIP		TRIP		TEMPERATURE	-19
NIPPLE UP/DN		CIRC CHOKE	9.25	REAM RATHOLE				ROADS	PAIR
RUN CASINO		FLOW CHECK	.25						

24 HOUR SUMMARY

MIX MUD VOLUME WELL SHUT IN SICP 4800 kpa SIDPP 300kpa PVT 137.6 m3
1100 hrs 1345 hrs CIRC GAS MUD RETURN SHUT WELL IN SIDPP 0 kpa SICP 0 kpa
1345 hrs 1615 hrs OPEN WELL, CIRC FLOW CHECKS LOOKS GOOD
1615 hrs 1700 hrs R.I.H TO 3280m CIRC THROUGH CHOKE GAS IN 5 MIN WITH FORMATION FLUID
2300 hrs FINISH CIRC WELL WITH B.O.P.S OPEN
2330 hrs RAN IN TO 3365 mCIRC @ 55 STROKES NO GAS @ 0200 hrs
0200 hrs 0330 hrs CIRC @ 85 SPM TILL BOTTOM UP
0330 hrs 0430 hrs R.I.H TAG BT 3500 M FR 3365 M
0430 hrs 0600 hrs CIRC @ REDUCED RATE TILL BT UP NOTE DAILY MUD LOSS 12m3 ABOVE 2388 M
TOTAL P.V.T. 141.5 M3
SIGNED BY: PERCY CHAPMAN MOBILE No.: 403 210-1202 403 424 8050

Wellname : RANGER UNOCAL FT. LIARD P-66
 Location : LAT 60 40'/LONG 123 30'
 Date : 02-08-98
 Contact : PETER GORTZ.

AM REPORT

Contact: Peter Gortz (403) 261 7007

Depth @ 06:00 hrs: 3500m Progress last 24 hrs: 0

Present Operations: circulating on bottom

Avg ROP: Avg BGG:
 Drill fluid: Polymer/flowplex
 Density: 1055 kg/m³ Visc: 78 FL: 14 ph: 9.5

Surveys: n/a

FORMATION TOPS		KB: 459.89M	
Formation	Prognosis (md/tvd)	Sample (md/tvd)	Subsea (tvd)
sea R.	sfc		
St Simpson	2387m / 2188m	2054m / 1944m	-1484m
Horn R.	2812m / 2480m	2796m / 2461m	-2001m
Fault	-- --	3007m / 2611m	-2151m
Muskwa	-- --	3100m	
Nahanni	-- --	3115m	
Nahanni(whip 4)		3128m / 2699.8	

SHOW SUMMARY:

Formation	Interval	Gas show / BGG Lith/por/shows/remarks
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Remarks: Start to run in hole from 3105m @ 17:30 hrs Feb 7/98

Gas readings are as follows:

at 3248m 1172 units
 at 3361m 448 units
 at 3500m 1171 units

Geologist: Fred Richardson
 Phone: 1-403-210-1302

DAILY DRILLING REPORT

WELL NAME: KANGER FORT LIARD P-46 A DATE: 98-02-07 REPORT NO.: 391
 DRPTH: 3500 m PROGRESS: 7 D m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: MIX MUD VOLUME IN TANKS: WHILE SHUT W/ DRLO PIPE @ 300 KPA CSG @ 4800 KPA
 CONTRACTOR/RIG SUPT.: PERCISION DRILL # 426 E TENNY GORGICHIUK CO. SUPERVISOR: PERCY CHAPMAN
 DAILY COST: 23121 CUM. COST: 23, 936, 949 AFE NO: E613-D13

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.P.: 4600 KPa @: 70 51
 TRIP RECORDS: CALCULATED HOLE FILL TRIP TO BOTTOM CSG m³ ACTUAL HOLE FILL:
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN M
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 2-4 MAXIMUM CASINO HOLE BACK 21500

DRILLING PARAMETERS

M/T PERFORMANCE				MUD PROPERTIES		PUMPS	
M/T NUMBER	RR 66			WEIGHT (kg/m ³)	1045	No. 1 LINER (mm)	140
SIZE (mm)	215.9			VISCOSITY (cP)	100-80	No. 1 STROKES PER MINUTE	60
TYPE	S44G			pH	10.5	No. 2 LINER (mm)	140
SERIAL No.	663637			PV (mPa S)	28	No. 2 STROKES PER MINUTE	
NOZZLES (mm)	3X12			VI (Pa)	17	VOLUME (m ³)	1.2
DRPTH IN (m)				GELS (Pa)	12.27	PRESSURE (kPa)	8000
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	45
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION	FAIR			CHLORIDES (mg/l)		SHAKER SCREENS	140 X140
DRILLING ASSEMBLY							
ITEM	O.D.	I.D.	T.J. TYPE				
BIT	215.9			MUD ADDITIVES			
BIT SUB	159	62	4 1/2	GEL 15 SKS			
X O	159	62	4 1/2 IF	CARBONATE 16 SKS			
6 HWDP	127	76	4 1/2 IF	HAKITE 30 SKS			
JAR S	174	72	4 1/2 IF				
18 HWDP	127	76	4 1/2 IF				
				DCS945	CCS1310 014		
BIT LENGTH	227.75	m		JTS. D.P. ON RACKS	94		
HOOK LOAD	134000	daN		IN STRING	339		
AVAILABLE WOB	18000	daN		TOTAL	433		
				TIME BREAKDOWN			

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		RIG REPAIR		DRILL-OP EVALUATION	TODAY	CU
TRIP	13	HANDLE TOOLS		LOGGING		LOST CIRC.			1850	745
RIG SERVICE	75	WASH TO BOTTOM		TESTING		RAM & WASH		PROBLEMS TOTAL		180
SURVEY		PUMP PILL		CIRC. SAMPLE		WORK PIPE			550	172
SLIP & CUT		WELL SHUT IN	75	HANDLE TOOLS		FISH		WEATHER CLOUDY	24	938
COND. MUD	4			TRIP						
NIPPLE UP/DN				REAM RATIO HOLE		MIX MUD	3.50	TEMPERATURE	-20	
RUN CASING				CIRC KICK	2.00			ROADS	FAIR	

24 HOUR SUMMARY

0000-0045 CIRC COND HOLE TO LOG
 WIPER TRIP 15 STD.S TIGHT @ 3251m 3309m 3367m 3427m
 1315 HRS CIRC COND RIG SERVICE ANNULAR chg 42 SEC
 1630 HRS P.O.O.II 15 STD.S FLOW CHECK PUMP PILL
 1930 HRS P.O.O.II 15 STD.S FLOW CHECK TWICE HOLE NOT TAKEN PROPER PILL
 2120 HRS RUN IN 15 STD.S TO 3106m
 2300-2330 HRS CIRC IN CSG @ 90 SPM GAS @ SURFACE
 SHUT WELL IN SIDPP OKPA SICP 2000 KPA READ & RECORDED
 0015 0030 HRS SICP 8000 KPA SIDPP 200 KPA CIRC KICK
 0030 HRS SHUT WELL IN REESTABLISH SICP 8000 KPA SIDPP 200 KPA
 SIGNED BY: PERCY CHAPMAN MOBILE No.: 403 210-1202 403 424 8050

@ 0400 well Dpp - 300 - CSG 4800 kpa
 MOVE 120 STKS EVERY hr. Dpp. 300 kpa CSG. 4600 kpa
 Daily Pipe @ 3106m w/ B/T JET 3x12

FROM : PERCY INTERNATIONAL LTD.

PHONE NO. : 14035438693

Feb. 07 1998 10:13AM P1

Wellname : RANGER UNOCAL FT. LIARD P-66
 Location : LAT 60 40' / LONG 123 30'
 Date : 02-07-98
 Contact : PETER GORTZ

AM REPORT

(403) 261 7007

AM REPORT

Depth @ 06:00 hrs: 3500m TD Progress last 24 hrs: 0

Present Operations: building mud volum

Avg ROP: n/a Avg BGG:
 Drill Fluid: Polymer/flowplex
 Density: 1045 kg/m3 Visc: 80-100 FL: ph: 10.5

Surveys: n/a

FORMATION TOPS KB: 459.89M
 Formation Prognosis (md/tvd) Sample (md/tvd) Subsea (tvd)

Besa R.	sfc		
Ft Simpson	2387m / 2188m	2054m / 1944m	-1484m
Horn R.	2812m / 2480m	2796m / 2461m	-2001m
Fault	-- --	3007m / 2611m	-2151m
Mugkwa	-- --	3100m	
Nahanni	-- --	3115m	
Nahanni(whip 4)		3128m / 2699.8	

SHOW SUMMARY:

Formation	Interval	Gas show / BGG Lith/por/shows/remarks
Nahanni		

Nahanni

Remarks: at 23:00 hrs Feb 6/98 we were starting out of hole too log and the formation kicked gas [too a max of 1500 units] this reading is not relevant because the shaker was bypassed and the gas was flared.

The gas kick was controlled, and 25m3 of mud was lost to formation.

As of this report we are building mud volume.

This happened when the bit was at 3106m and our next operation will be to run in to bottom and circulate to condition mud and hole some more, before it will be safe to continue normal operations [hopefully logging]

Wellname : RANGER UNOCAL FT. LIARD P-66
 Location : LAT 60 40' / LONG 123 30'
 Date : 02-06-98
 Contact : PETER GORTZ

AM REPORT

(403) 261 7007

AM REPORT

Depth @ 06:00 hrs: 3500 Progress last 24 hrs: 0

Present Operations: circ. and cond hole for loggers

Avg ROP: Avg BGG:
 Drill Fluid: Polymer/flowplex
 Density: 1060 kg/m3 Visc: 80 FL: 10.2 ph: 11.5

Surveys: n/a

FORMATION TOPS KB: 459.89M
 Formation Prognosis (md/tvd) Sample (md/tvd) Subsea (tvd)

Besa R.	sfc		
Pt Simpson	2387m / 2188m	2054m / 1944m	-1484m
Horn R.	2812m / 2480m	2796m / 2461m	-2001m
Fault	-- --	3007m / 2611m	-2151m
Muskwa	-- --	3100m	
Nahanni	-- --	3115m	
Nahanni(whip 4)		3128m / 2699.8m	

SHOW SUMMARY:

Formation Interval Gas show / BGG Lith/por/shows/remarks

Nahanni trip gas to 197 units

Remarks: loggers could not get STI & SONIC tools below 3288
 STI tool was not functioning properly anyway, so
 loggers came out of the hole to make repairs and
 we went in to work the rough spot and circulate.

As of 06:30 our plan is to circulate 2-3 more hours
 on bottom, then pull out to attempt new logging
 run.

Eng. staff are looking into the possibility of
 logging with flexible tubing.

Geologist: Fred Richardson Phone: 1-403-210-1202

Feb. 06 1998 07:59AM P1
 FEB-06-1998 07:35

PHONE NO. : 14035438693
 403 261 7007

FROM : PERCY INTERNATIONAL LTD.
 96% 20 P.

DAILY DRILLING REPORT

WELL NAME: **RANGER PORT LIARD P-66 A** DATE: **02-02-95** REPORT NO.: **389**
 DEPTH: **3300** m PROGRESS: **T.D.** m FORMATION: **NAHANNI**
 OPERATIONS AT 06.00 HOURS: **CIRC & COND HOLE TO LOG**
 CONTRACTOR/NO SUPT.: **(PRECISION DRILL 426 F. TERRY GORGICHUK** CO. SUPERVISOR: **PERCY CHAPMAN**
 DAILY COST: **\$ 21811** CUM. COST: **\$ 23,884,292** APN NO.: **B004115**

WELL CONTROL:
 DAILY RIG CHECK: **YES** DAILY ROP CHECK: **YES** R.S.P.: **4600** kPa @ **70** m
 TRIP RECORDS: CALCULATED HOLE FILL: **13.54** m³ ACTUAL HOLE FILL: **27.95** m³
 BOP DRILLS: CONDUCTED WHILE: **WELL SECURED IN** M
 CONDUCTED AT: **MRS. CREW PERFORMANCE**
 DAYS SINCE BOP DRILL (EACH CREW): **6-2** MAXIMUM CASING HOLD BACK: **21500**

DRILLING PERFORMANCE				MUD PROPERTIES				PUMPS			
BIT NUMBER	65	RR 60		WEIGHT (kg/m)	1050			No. 1 LINER (mm)		140	
SIZE (mm)	215.9	215.9		VISCOSITY (m)	60			No. 1 STROKES PER MINUTE		60	
TYPE	SS80P	11P 51A		pH	10.5			No. 2 LINER (mm)		140	
SERIAL NO.	629161	1/6 0005		PV (mPa.s)	21			No. 2 STROKES PER MINUTE			
NOZZLES (mm)	3 X 11.1	3X12		YP (Pa)	12			VOLUME (m ³)		1.3	
DEPTH IN (m)	1246			GELS (Pa)	6 / 14			PRESSURE (kPa)		3400	
METERS (m)	254			SAND (%)				D.C. ANGULAR VEL. (m/min)		45	
HOURS	62.25			SOLIDS (%)	2.7			D.C. ANGULAR VEL. (m/min)			
WTR (1000 daN)	5.8			FILTER CAKE (mm desc.)	1			D.C. ANGULAR VEL. (m/min)			
R.P.M.	35-100			WATER LOSS (cc)	11			ROLLING CONTROL			
CONDITION	7.0 AMM			CHALK LOSS (mg/L)	1000			SHAKER SCREENS		140 X140	
DRILLING ASSEMBLY				MUD ADDITIVES				SURVEYS			
ITEM	Q.D.	I.D.	T.J. TYPE					U.P. (kg/m ³)			
BIT	215.9							U.F. (kg/m ³)			
BIT SUB	159	62	4 1/2					VOL. (L/min)			
X O	159	62	4 1/2 IF					HOURS			
8 HWDP	127	76	4 1/2 IF								
IAR S	174	72	4 1/2 IF								
18 HWDP	127	76	4 1/2 IF								
QUANTITY	227.95	m		DC S. MUD	CCS 1:208:281						
HOLE LOAD	134000	daN		375 D.P. ON RACKS	94						
AVAILABLE WOB	18000	daN		IN STRING	820						
				TOTAL	43.1						

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		LOGGING		LOOKING		LOGGING		DRILL. OP	
TRIP	13.30	WASH TO BOTTOM	1.35	TESTING		WASH & WASH		EVALUATION	
W.C. REMOVED	7.2	PUMP HILL	3.5	CIRC. SAMPLE		WORK HILL		PROBLEMS	
SURVEY				HANDLED TOOLS		WASH		TOTAL	
WASH & CUT				TRIP		TRIP		WEATHER	CLOUDY
WATER IN	4.15			WASH BATHING				TEMPERATURE	-15
WATER IN								ROADS	PAVE

24 HOUR SUMMARY

FINISH TRIP OUT PIPE TALLY --- 117 m
 LAY DOWN DIRE TOOL'S & LOAD OUT
 R.I.H. DRAK CIRC @ 1800 AND EVERY 12 STD'S AFTER
 WASH TO BOTTOM 3107m CIRC & COND HOLE. JIVE MAKE 15 STD'S WIPER TRIP
 CIRC & COND HOLE TO LOG

SIGNED BY: **PERCY CHAPMAN** MOBILE No.: **403 210-1202 403 424 8050**

FROM : PERCY INTERNATIONAL LTD.

PHONE NO. : 14035439693

Feb. 05 1998 07:18AM P1

Wellname : RANGER UNOCAL ET LIARD P-66
 Location : LAT 60 40 / LONG 123 30
 Date : 02-05-98
 Contact : PETER GORTZ

AM REPORT

Contact: Kent Wallace (403) 232 5276 / (403) 261 7007

AM REPORT

Depth @ 06:00 hrs: 3500 Progress last 24 hrs: 0

ent Operations: pull out of hole to log

Avg ROP: Avg BGG: 25 units
 Drill Fluid: Polymer/flowplex
 Density: 1050 kg/m3 Vic: 68 FL: 11 ph: 11.5

Surveys:

FORMATION TOPS

KB: 459.89M

Formation	Prognosis (md/tvd)	Sample (md/tvd)	Subsea (tvd)
Besa R.	sfc		
Pt Simpson	2387m / 2188m	2054m / 1944m	-1484m
Horn R.	2812m / 2480m	2796m / 2461m	-2001m
Fault	-- --	3007m / 2611m	-2151m
Muskwa	-- --	3100m	
Nahanni	-- --	3115m	
Nahanni(whip 4)		3128m / 2699.8m	

SHOW SUMMARY:

Formation	Interval	Gas show / BGG	Lith/por/shows/remarks
Nahanni			

Remarks: trip gas of 111 units

Logist: Fred Richardson phone: 1-403-210-1202

FEB-05-1998 07:18

403 261 7007

P.04

02/04/98 07:22 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-02-04 REPORT NO.: 388
 DEPTH: 3500 m PROGRESS: 60 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: STRAP OUT OF HOLE TO LAY DOWN DIRECTIONAL TOOLS
 CONTRACTOR/RIG SUPT.: Precision Drilg Rig #426E Terry Gorgichuk CO. SUPERVISOR: Ari Schmitt
 DAILY COST: \$ 40,461 CUM. COST: \$ 23,858,481 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4200 kPa @: 66 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE DRILLING WELL SECURED IN 2 MIN.
 CONDUCTED AT 22:30 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 5 - 1 MAXIMUM CASING HOLD BACK 21,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER	<u>65</u>			WEIGHT (kg/m ³)	<u>1045</u>	No. 1 LINER (mm)	<u>140</u>
SIZE (mm)	<u>215.9</u>			VISCOSITY (s/l)	<u>60</u>	No. 1 STROKES PER MINUTE	<u>105</u>
TYPE	<u>SS86F</u>			pH	<u>10.5</u>	No. 2 LINER (mm)	<u>140</u>
SERIAL No.	<u>629161</u>			PV (mPa S)	<u>20</u>	No. 2 STROKES PER MINUTE	
NOZZLES (mm)	<u>3 x 11.1</u>			YP (Pa)	<u>12</u>	VOLUME (m ³)	<u>1.2</u>
DEPTH IN (m)	<u>3246</u>			GELS (Pa)	<u>3 // 11</u>	PRESSURE (kPa)	<u>8400</u>
METERS (m)	<u>254</u>			SAND (%)		D.P. ANNULAR VEL. (m/min.)	<u>45</u>
HOURS	<u>67.25</u>			SOLIDS (%)	<u>2.7</u>	D.C. ANNULAR VEL.	
WOB (1000 daN)	<u>5-8</u>			FILTER CAKE (mm desc.)	<u>1</u>	D.C. ANNULAR VEL. (m/min.)	
R.P.M.	<u>35//100</u>			FLUID LOSS (cc)	<u>11</u>	SOLIDS CONTROL	
CONDITION	<u>IN</u>			CHLORIDES	<u>1000</u>	SHAKER SCREENS	<u>140 - 140</u>
DRILLING ASSEMBLY				Ca	<u>80</u>	DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES			
HDS MM	<u>164</u>		<u>4 1/2 Reg.</u>				
XO SUB	<u>159</u>	<u>62</u>	<u>4 1/2 Reg.</u>	<u>96 - Barite</u>		U.F. (kg/m ³)	<u>1805</u>
PULSER DC	<u>166</u>		<u>4 1/2 IF</u>	<u>3 - Kelzan</u>		OF. (kg/m ³)	<u>1020</u>
2FLX-NMDC	<u>163</u>	<u>73</u>	<u>4 1/2 IF</u>	<u>2 - Xcide</u>		VOL. (l/min.)	<u>4</u>
JARS	<u>174</u>	<u>72</u>	<u>4 1/2 IF</u>	<u>14 - D47</u>		HOURS	<u>10</u>
24 HWDP	<u>127</u>	<u>76</u>	<u>4 1/2 IF</u>	<u>2 - Defoamer</u>		SURVEYS	
				<u>DC \$ 5292</u>	<u>CCS 1,298,281</u>	ANGLE	DIRECTION
BHA LENGTH	<u>257.20</u>	<u>M</u>	JTS. D.P. : ON RACKS	<u>94</u>	<u>3455</u>	m 35.5	° 203.9
HOOK LOAD	<u>130,000</u>	<u>daN</u>	: IN STRING	<u>339</u>	<u>3474</u>	m 35.5	° 204.5
AVAILABLE WOB	<u>18,000</u>	<u>daN</u>	: TOTAL	<u>433</u>	<u>3482</u>	m 36.0	° 204.5
						m 36.6	° 205.2
						m 36.8	° 204.7

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	<u>17</u>	<u>CEMENT</u>		<u>CORING</u>		<u>REPAIR</u>		Today	Cum.
TRIP	<u>2.5</u>	<u>HOP/DRILL</u>		<u>LOGGING</u>		<u>WASH TO BOT.</u>		<u>24</u>	<u>7415</u>
RIG SERVICE	<u>75</u>	<u>HANDLE TOOLS</u>		<u>TESTING</u>		<u>CIRCULATE</u>			<u>182.25</u>
SURVEY	<u>2</u>	<u>CIRCULATE</u>	<u>1.25</u>	<u>CIRC SAMPLE</u>		<u>FISH</u>			<u>1714.75</u>
SLIP & CUT		<u>PRESSURE TEST</u>		<u>HANDLE TOOLS</u>		<u>TRIP</u>		<u>24</u>	<u>9312.7</u>
COND. MUD		<u>WORK PIPE</u>	<u>.5</u>	<u>TRIP</u>		<u>HANDLE TOOLS</u>		WEATHER	
NIPPI FLIP/ON				<u>REAM RATHOLE</u>				CLOUDY	
RUN CASING				<u>CIRCULATE</u>				TEMPERATURE	
								<u>- 13 c</u>	
								REMARKS	
								<u>GOOD</u>	

24 SUMMARY

Directional drill 215.9mm hole with 1.5 degree low speed HDS mud motor and survey with MWD 3440m - 3500m
 Circulate bottom hole sample - Circulate out 3500m - 3115m - Pump pill and blow mud line and top drive
 Strap out to lay down directional tools
 Rotate - 3440m-3500m No mud losses last 24 Hours
 Hole drag up - 20-30,000 daN
 Hole drag down - 5-10,000 daN
 Torque on bottom - 2000-2250 P.S.I.
 Back ground gas - 12-78 Units
 Trip gas - Units
 SIGNED BY: ART SCHRITT MOBILE NO: (403)210-1202 (403) 424-8050

02/04/98 07:30 FAX

0003

DAILY MUD REPORT

WELL NAME RANGER FT. LIARD		LOCATION P&S-6		DATE 4-Feb-98	
OPERATOR RANGER OIL LTD.		CONTRACTOR CACTUS 25-E		REPORT No 326	
REPORT FOR Mr. ART SCHMITT		REPORT FOR Mr. TERRY GOROICHUCK		SPUD DATE 12-Jan-97	
ASSEMBLY		CASTING		MUD VOL (m3)	
BIT SIZE (mm)	215.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS
BIT NUMBER			508.0	283	HOLE
DRILL PIPE #1 (mm)	127.0	3243	244.5	3115	TOTAL
DRILL PIPE #2 (mm)	127.0	720	LINER	TOP/BOT.	STAND BY
COLLAR #1 (mm)	165.0	38			S.P.M.
COLLAR #2 (mm)					M3/MIN
HOLE DATA		DESANDER		CENTRIFUGE	
MUD TYPE - Kalzan/Bentonite		FLOWLINE WT.		MUD WT.	
HOLE COND. GOOD		UNDERFLOW WT.		VISCOSITY	
DEVIATION 3482 38.8 204.7		OVERFLOW WT.		FILTRATE	
CURRENT OP. WIPER TRIP @TD		UNDERFLOW RT.		pH	
EQUIPMENT:		X DEGASSER		X CENTRIFUGE	
		DEBITER			
		X DOUBLE DECK OR HIGH SPEED SHAKER			

MUD PROPERTIES				INVENTORY						
TIME SAMPLE TAKEN	6:12	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE	
SAMPLE FROM	Flowline		RECEIVED	SINCE LAST	USED SINCE	USED TO	REMAINING	COST	COST	
PRESENT DEPTH	3500		TO DATE	REPORT	LAST REPORT	DATE	ON LOCATION			
FLOWLINE TEMPERATURE (C)	68	WHITE MS	18375			13485	4480		\$270,852.50	
DENSITY	1045	WHITE MS	4801			3140	1711		\$54,008.00	
FUNNEL VISCOSITY (cP)	60	SALE ENDS 6	840			840			\$8,400.00	
800 READING	64	CALO CARB 20F	1680			1120	560		\$11,200.00	
300 READING	44	CAUSTIC	360			251	109		\$14,558.00	
APARENT VISCOSITY (mPa.s)	32	FLO FLUX	720			227	483		\$43,984.00	
PL VISCOSITY (mPa.s)	20	TOP FLR	7				7			
YIELD POINT (Pa)	12	WELZAN XCD	320			156	164		\$133,536.00	
GELS D/10 min. (Pa)	3-11	WELZAN	54			18	36		\$18,000.00	
PH	10.5	WONITE	136			60	78		\$1,200.00	
FILTRATE (cm3)	11	LINE	1628			1482	144		\$22,971.00	
FILTER CAKE (mm)	1	CAVEMIST	1400			580	818		\$3,835.00	
PF	1.50	BOOA AGG	40			5	56		\$180.00	
MF	3	BENTONITE 480g	2600			2208	391		\$34,781.75	
PM		BENTONITE 480g	1570			1080	490		\$18,332.00	
TOTAL HARDNESS (mg/l)	80	ZINC CARBONATE	80				80			
CHLORIDES (mg/L)	1000	250 650 Amine MS	29				28			
SAND CONTENT	FR	WALNUT 60	1300			1203	97		\$43,302.00	
SOLIDS CONTENT	FR	SLIDE 307	108			21	85		\$4,452.00	
OIL/WATER CONT	FR	Slurries Chatterbox	10				10			
MBT (Kg/m3)	15		PREVIOUS COST	\$2,652,980.10			STARTING VOLUME		23	
EQUIVALENT CIRCULATING DENSITY	1158.5		DAILY COST	\$7,773.20			VOL BUILT		30	
OIL WATER RATIO			CUM COST	\$2,660,753.30			VOL LOST ON SURFACE		2	
CaCl2 Wt%			DISCOUNTED COST	\$1,463,414.32			VOL LOST ON SUB SURFACE			
"n"	0.40		CUM. ENG COST	\$148,500.00			END VOLUME		19	
"n"	3.13		TOTAL COST	\$1,611,914.32			CUM VOL LOST		37	

RECOMMENDATIONS:

- Please maintain the following:
1. pH TO 10.0-10.5 w/ Caustic
 2. Vis at 25-60 sec/L w/ Kalzan or IDV15-D and Prehydrated Gel
 3. CONTROL DENSITY @ 1040 kg/m³ w/ RUN CENTRIFUGE OVER FULL CIRC'S AS REQUIRED
 4. Fluid loss @ 10-12 ml/50 min w/ DriSpec use regular if viscosity is required
 5. Add IDLUBE to control torque and drag Add AutoSealant D47 while mixing ID LUBE
 6. ADD 20 L OF FTS-200 Monitors/Transmitters PER DAY
 7. ADD 1 JUG OF X-CIDE 207 PER HOUR
- RUN WATER WHILE CIRCULATING TO PREVENT DEHYDRATION

RIG ACTIVITIES: (Last 12 hours)
DRILL TO TD 3500 M POH

Theriot, Dan

X POINT

FORRELLA TRANSPORT @ GRANDE PRAIRIE
831-4800

DOWELL ENGINEER
PHONE NUMBER

DAN MAJOCHA
CAMP ROOM # 5

MOBILE #
PAGE 4

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

Halliburton Drilling Systems

Survey Report

Page 1

Job No: 97d007s4

Date: 2/4/98

Time: 4:35 am

Wellpath ID: 97d007s4

Date Created: 1/27/97

Last Revision: 2/4/98

Calculated using the Minimum Curvature Method

Computed using WIN-CADDS REV2.2.0

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED

RANGER Fort Liard P - 66 - A

IN UNIT P SECTION 66

Cactus #26E KB: 459.89 m

97D007S4

LWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
3204.00	38.10	207.80	2760.12	-2300.23	1111.15	800.89 S	770.52W	4.73
3214.00	38.40	207.70	2787.97	-2308.08	1117.06	806.37 S	773.39W	0.92
3224.00	38.50	208.10	2775.80	-2315.91	1123.00	811.87 S	776.30W	0.80
3253.00	34.70	206.30	2799.08	-2339.19	1139.47	827.24 S	784.21W	4.08
3282.00	33.40	202.80	2823.11	-2363.22	1154.68	842.00 S	790.96W	2.43
3311.00	34.60	204.90	2847.15	-2387.28	1169.80	856.82 S	797.52W	1.74
3340.00	35.30	204.80	2870.92	-2411.03	1185.40	871.90 S	804.51W	0.73
3369.00	35.40	205.00	2894.57	-2434.68	1201.15	887.12 S	811.57W	0.18
3397.00	35.80	205.30	2917.37	-2457.48	1216.45	901.84 S	818.48W	0.28
3416.00	35.80	204.80	2932.82	-2472.93	1226.84	911.86 S	823.16W	0.46
3426.00	35.50	203.90	2940.95	-2481.06	1232.28	917.15 S	825.56W	1.60
3436.00	35.50	204.50	2949.09	-2489.20	1237.71	922.45 S	827.94W	1.05
3445.00	35.70	205.70	2958.41	-2496.52	1242.84	927.19 S	830.16W	2.42
3455.00	36.00	204.50	2964.52	-2504.63	1248.14	932.50 S	832.66W	2.29
3465.00	36.30	204.30	2972.59	-2512.70	1253.67	937.87 S	835.06W	0.97
3474.00	36.60	205.20	2979.83	-2519.94	1258.68	942.72 S	837.32W	2.04
3482.00	36.80	204.70	2986.25	-2526.36	1263.17	947.06 S	839.34W	1.35
EXTRAPOLATED TO T.D.								
3500.00	37.26	203.59	3000.62	-2540.73	1273.30	956.95 S	843.77W	1.35

RANGER OIL LIMITED

WELL: Ranger Fort Liard P-66-A DATE: 98-02-03 REPORT NO.: 387
 DEPTH: 3440 m PROGRESS: 75 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 215.9mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 36,877 CUM. COST: \$ 23,818,020 AFE NO: E6D-015

WELL CONTROL

DAILY BOP CHECK: YES R.S.S.P.: 5100 kPa @: 80 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 5 - 5 MAXIMUM CASING HOLD BACK 21,500 kPa

DRILLING PARAMETERS

DRILL PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER	65			WEIGHT (kg/m ³)	1035	No. 1 LINER (mm)	140		
SIZE (mm)	215.9			VISCOSITY (s/l)	52	No. 1 STROKES PER MINUTE	105		
TYPE	SS86F			pH	11.0	No. 2 LINER (mm)	140		
SERIAL No	629161			PV (mPa S)	17	No. 2 STROKES PER MINUTE			
NOZZLES (mm)	3 x 11.1			YP (Pa)	8	VOLUME (m ³)	1.2		
DEPTH IN (m)	3246			GELS (Pa)	3 // 6	PRESSURE (kPa)	8400		
METERS (m)	194			SAND (%)		D.P. ANNULAR VEL. (m/min.)	45		
HOURS	50.25			SOLIDS (%)	2.1	D.C. ANNULAR VEL.			
WOB (1000 daN)	5-8			FILTER CAKE (mm desc)	1	D.C. ANNULAR VEL. (m/min.)			
R.P.M.	35//100			FLUID LOSS (cc)	12	SOLIDS CONTROL			
CONDITION	IN			CHLORIDES	1100	SHAKER SCREENS	140 - 140		
DRILLING ASSEMBLY				Ca	70	DRYER SCREENS			
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.	
HDS MM	164		4 1/2 Reg.	22 - Gel	3 - Kelzan	OF. (kg/m ³)		1840	
NO SUB	159	62	4 1/2 Reg.	3 - Drispac	2 - Lignasite	VOL (l/min.)		1020	
PULSER DC	166		4 1/2 IF	11 - D47	1 - ID Lube	HOURS		10	
2FLX-NMDC	163	73	4 1/2 IF	205 - PTS200		SURVEYS	ANGLE	DIRECTION	
JARS	174	72	4 1/2 IF	2 - Xcide207		3369	m 35.4	° 205.0	
24 HWDP	127	76	4 1/2 IF	DC 5 7050	CCS 1,292,989	3397	m 35.6	° 205.3	
BHA LENGTH	257.20	M	JTS. D.P. : ON RACKS	103	3416	m 35.6	° 204.8		
HOOK LOAD	130,000	daN	IN STRING	330		m	°		
AVAILABLE WOB	18,000	daN	TOTAL	433		m	°		

TIME BREAKDOWN

TIME		VARIATION		PROBLEMS		SUMMARY	
TRIP	3.25	BOP DRILL		LEAKING	WASH TO BOT	DRILL OP	TODAY CUM
RIG SERVICE	.75	HANDLE TOOLS		TESTING	CIRCULATE	EVALUATION	24 7391
SURVEY	2	CIRCULATE		CIRC. SAMPLE	FISH	PROBLEMS	182.25
SLIP & CUT		PRESSURE TEST		HANDLE TOOLS	TRIP	TOTAL	24 9288 ?
COND. MUD		WORK PITE	.75	TRIP	HANDLE TOOLS	WEATHER	CLEAR
NIPPLEUPON				REAM RATHOLE		TEMPERATURE	- 15 c
RUN CASING				CIRCULATE		ROADS	GOOD

24 SUMMARY

Directional drill 215.9mm hole with 1.5 degree low speed HDS mud motor and survey with MWD 3365m - 3397m

Wiper trip 10 stands - Circulated out and in 3393m - 3407m - No fill - Directional drill 215.9mm hole and survey

with MWD 3395m - 3440m

Rotate - 3365m - 3440m No mud losses last 24 Hours

Hole drag up - 20-30,000 daN

Hole drag down - 5-10,000 daN

Torque on bottom - 2000-2250 P.S.I.

Back ground gas - 20-760 Units

Trip gas - 120 Units

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems

Survey Report

Page 1

Job No: 97d007s4

Date: 2/3/98

Time: 6:31 am

Wellpath ID: 97d007s4

Date Created: 1/27/97

Last Revision: 2/3/98

Calculated using the Minimum Curvature Method

Computed using WIN-CADDS REV2.2.0

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED

RANGER Fort Liard P - 66 - A

IN UNIT P SECTION 66

Cactus #26E KB: 459.89 m

97D007S4

UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
3095.00	43.90	219.80	2675.20	-2215.31	1044.91	742.93 S	734.75W	1.27
3122.00	40.40	214.70	2685.22	-2235.33	1062.85	757.33 S	745.77W	5.44
3138.00	38.90	208.80	2707.72	-2247.83	1072.57	765.81 S	751.03W	9.52
3157.00	37.00	208.70	2722.90	-2263.01	1083.53	775.82 S	756.53W	0.18
3185.00	37.80	209.50	2745.15	-2285.26	1099.89	790.68 S	764.80W	1.00
3195.00	38.10	209.90	2753.03	-2293.14	1105.82	798.02 S	767.85W	1.16
3204.00	38.10	207.60	2760.12	-2300.23	1111.15	800.89 S	770.52W	4.73
3214.00	38.40	207.70	2767.97	-2308.08	1117.06	806.37 S	773.39W	0.92
3224.00	38.50	208.10	2775.80	-2315.91	1123.00	811.87 S	776.30W	0.80
3253.00	34.70	206.30	2799.08	-2339.19	1139.47	827.24 S	784.21W	4.08
3282.00	33.40	202.80	2823.11	-2363.22	1154.68	842.00 S	790.96W	2.43
3311.00	34.60	204.90	2847.15	-2387.26	1169.80	856.82 S	797.52W	1.74
3340.00	35.30	204.80	2870.92	-2411.03	1185.40	871.90 S	804.51W	0.73
3369.00	35.40	205.00	2894.57	-2434.68	1201.15	887.12 S	811.57W	0.16
3397.00	35.60	205.30	2917.37	-2457.48	1216.45	901.84 S	818.48W	0.28
3416.00	35.50	204.80	2932.82	-2472.93	1226.84	911.86 S	823.16W	0.46

TOD

FEB-03-1998 07:30

403 261 7007

TVD 24:30 86/00/20

94%

P.02

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-02-02 REPORT NO.: 386
 DEPTH: 3365 m PROGRESS: 56 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 215.9mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Dril Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 35,983 CUM. COST: \$ 23,781,143 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4500 kPa @: 70 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 4 - 4 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS	PUMPS		
BIT NUMBER	65			WEIGHT (kg/m ³)	1055		No. 1 LINER (mm)	140	
SIZE (mm)	215.9			VISCOSITY (cP)	53		No. 1 STROKES PER MINUTE	105	
TYPE	SS86F			pH	12.0		No. 2 LINER (mm)	140	
SERIAL No.	629161			PV (mPa S)	17		No. 2 STROKES PER MINUTE		
NOZZLES (mm)	3 x 11.1			YP (Pa)	10		VOLUME (m ³)	1.2	
DEPTH IN (m)	3246			GELS (Pa)	4 // 10		PRESSURE (kPa)	7800	
METERS (m)	119			SAND (%)			D.P. ANNULAR VEL. (m/min.)	45	
HOURS	53			SOLIDS (%)	2.5		D.C. ANNULAR VEL.		
WOB (1000 daN)	5.8			FILTER CAKE (mm desc.)	1		D.C. ANNULAR VEL. (m/min.)		
R.P.M.	35/100			FLUID LOSS (cc)	12.4		SOLIDS CONTROL		
CONDITION	IN			CHLORIDES	1000		SHAKER SCREENS	140 - 175	
DRILLING ASSEMBLY				Ca	60		DRYER SCREENS		
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES			U.F. (kg/m ³)	D. SILT	CENT.
HDS MM	164		4 1/2 Reg.	18 - Barite	3 - Drispac		OF. (kg/m ³)		1845
XO SUB	159	62	4 1/2 Reg.	63 - Cal. Carb. 325	5 - Lignosize		VOL. (l/min.)		1040
PULSER DC	166		4 1/2 IF	40 L - PTS200	3 - ID Lube		HOURS		3.5
2FLX-NMDC	163	73	4 1/2 IF	2 - X-Cide 207	4 - Defoamer		SURVEYS	ANGLE	DIRECTION
JARS	174	72	4 1/2 IF	10 - D47	50 - Gel		3311	m 34.6	° 204.9
24 HWDP	127	76	4 1/2 IF	DC S 5782	CCS 1,285,939		3340	m 35.3	° 204.8
BHA LENGTH 257.20 M				JTS. D.P.: ON RACKS	109			m	°
HOOK LOAD 130,000 daN				: IN STRING	324			m	°
AVAILABLE WOB 18,000 daN				: TOTAL	433			m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	SUMMARY	
DRILLING	18.25	CHAMPT		CORING		REPAIR			TRIP	CUM.
TRIP	2.75	BOP DRILL		LOGGING		WASH TO BOTTOM			24	7367
RIG SERVICE	.75	HANDLE TOOLS		TESTING		CIRCULATE				182.25
SURVEY	1.25	CIRCULATE		CIRC. SAMPLE		FISH				1714.75
SLIP & CUT		PRESSURE TEST		HANDLE TOOLS		TRIP			24	9264.7
COND. MUD		WORK PIPE	1	TRIP		HANDLE TOOLS			CLEAR	
NIPPLE UP/DN				RAM MATHOLE					- 12 c	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Wiper trip - Circulate out 3309m - 3107m - Pull up to 3020m - Trip in - Wash 3107m - 3309m - Directional drill 215.9mm hole with 1.5 degree low speed HDS mud motor and survey with MWD 3309m - 3365m

No mud losses last 24 Hours

Rotate - 3309m - 3365m

Hole drag up - 20-25,000 daN

Hole drag down - 5-10,000 daN

Torque on bottom - 2000-2350 P.S.I.

Back ground gas - 9-95 Units

Trip gas - Units

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

DAILY MUD REPORT

WELL NAME		LOCATION		DATE	
OPERATOR		CONTRACTOR		REPORT No	
REPORT FOR Mr.		REPORT FOR Mr.		SPUD DATE	
ASSEMBLY		CASINO		MUD VOL. (CB)	
PUMP OUTPUT		ANNULAR VEL. (ft/min)			
BIT SIZE (mm)	218.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS
BIT NUMBER			SIZE (mm)	LENGTH (m)	HOLE
DRILL PIPE #1 (mm)	127.0	3103	244.5	3115	TOTAL
DRILL PIPE #2 (mm)	127.0	220	LINER	TOP/ROT.	STAND BY
COLLAR #1 (mm)	163.0	35			
COLLAR #2 (mm)					
HOLE DATA		DEGRASSER		DESLINTER	
MUD TYPE - Kalzan / Bentonite		FLOWLINE WT.		CENTRIFUGE	
HOLE COND. 0000		UNDERFLOW WT.		MUD WT	
DEVIATION 3340 36 3 204.8		OVERFLOW WT.		VISCOSITY	
CURRENT OP. DRILLING		UNDERFLOW RT.		FILTRATE	
EQUIPMENT:		X DEGRASSER		X CENTRIFUGE	
XX DOUBLE DECK OR HIGH SPEED SHAKER		DESLINTER		DEGRASSER	
MUD PROPERTIES		INVENTORY			
TIME SAMPLE TAKEN	6:48	MATERIALS	MATERIALS	RECEIVED	MATERIALS
SAMPLE FROM	Flowline	RECEIVED	RECEIVED	PRICE LAST	USED SINCE
PRESENT DEPTH	3301	TO DATE	TO DATE	REPORT	LAST REPORT
FLOWLINE TEMPERATURE (C)	63	BARITE MB	18375		13895
DENSITY	1040	BARITE 40	4851		3140
FUNNEL VISCOSITY (cL)	52	CALC CARB 0	840		840
100 READING	60	CALC CARB 325	1600		1120
300 READING	42	CAUSTIC	360		251
APPARENT VISCOSITY (mPa.s)	30	FLD PLX	720		227
PLASTIC VISCOSITY (mPa.s)	18	DEF FLR	7		7
YIELD POINT (Pa)	12	RED TAN 300	320		156
GELS 0/10 min. (Pa)	6-7	RAWAB	51		18
pH	11.5	LIGNITE	136		60
FILTRATE (cm ³)	12	LINE	1626		1482
FILTER CAKE (mm)	1	RAWELBY	1400		590
PF	2.80	SODA ASH	40		5
MF	4.5	BENTONITE 400	2600		2200
PM		BENTONITE 400	1570		1080
TOTAL HARDNESS (mg/l)	70	ZINC CARBONATE	80		80
CHLORIDES (mg/L)	1400	ISO 600 Amine Aft	28		28
SAND CONTENT	FR	WALWAT (m)	1300		1200
SOLIDS CONTENT	FR	X-CIDE 207	108		21
OIL/WATER CONT	FR	Black de Degreaser	10		10
MBT (kg/m ³)	15	PREVIOUS COST	\$2,626,351.50		STARTING VOLUME
EQUIVALENT CIRCULATING DENSITY	1154.3	DAILY COST	\$12,575.10		VOL BUILT
OIL WATER RATIO		CUM. COST	\$2,036,926.60		VOL LOST ON SURFACE
CaCO ₃ %		DISCOUNTED COST	\$1,451,409.63		VOL LOST ON SUB SURFACE
"n"	0.31	CUM. ENG. COST	\$147,150.00		END VOLUME
"f"	4.81	TOTAL COST	\$1,998,999.63		CUM VOL LOST
RECOMMENDATIONS:		RIG ACTIVITIES: (Last 12 hours)			
START CIRCULATION OF DRISPAK REG 3 SX AND 2 SX OF LIGNITE		DRILL			
Please maintain the following:					
1. pH TO 10.0-10.5 w/ Caustic no additions required					
2. Vls at 50-65 sec/l w/ Kalzan or IDNLS-B and Polyhydrotol Gel					
3. CONTROL DENSITY @ 1040 kg/m ³ w/ RUN CENTRIFUGE OVER FULL CIRC'S AS REQUIRED					
4. Fluid loss @ 10-12 ml/30 min w/ Drispac use regular if viscosity is required					
5. Add LUBES to control torque and drag use anti-foamer D47 while adding ID LUBE					
6. ADD 20 L OF PTO-200 Monomethacrylate PEB Day					
7. ADD 1 JUG OF X-CIDE 207 PER HOUR					
RUN WATER WHILE CIRCULATING TO PREVENT DEHYDRATION					
STOCK POINT	FORMULA TRANSPORT @ GRANDE PRAIRIE	DOWELL ENGINEER	DAN MAJERNA	MOBILE #	
PHONE	831-4000	PHONE NUMBER	CAMP ROOM 83	PAGE #	
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE					

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-02-01 REPORT NO.: 385
 DEPTH: 3309 m PROGRESS: 63 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 215.9mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drllg Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schritt
 DAILY COST: \$ 35,729 CUM. COST: \$ 23,745,160 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5200 kPa @ 70 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 3 - 3 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS	PUMPS	
BIT NUMBER	65			WEIGHT (kg/m ³)	1065		No. 1 LINER (mm)	140
SIZE (mm)	215.9			VISCOSITY (s/l)	63		No. 1 STROKES PER MINUTE	105
TYPE	SS86F			pH	12.0		No. 2 LINER (mm)	140
SERIAL No.	629161			PV (mPa S)	21		No. 2 STROKES PER MINUTE	
NOZZLES (mm)	3 x 11.1			YP (Pa)	15.5		VOLUME (m ³)	1.2
DEPTH IN (m)	3246			GELS (Pa)	6 // 13		PRESSURE (kPa)	7600
METERS (m)	63			SAND (%)			D.P. ANNULAR VEL. (m/min)	45
HOURS	14.75			SOLIDS (%)	2.5		D.C. ANNULAR VEL.	
WOB (1000 daN)	5-8			FILTER CAKE (mm desc.)	1		D.C. ANNULAR VEL. (m/min.)	
R.P.M.	35//100			FLUID LOSS (cc)	11.8		SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	1500		SHAKER SCREENS	140 - 175
DRILLING ASSEMBLY				Ca	50		DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES			D. SULT.	CENT.
HDS MM	164		4 1/2 Reg.				U.F. (kg/m ³)	1845
XO SUB	159	62	4 1/2 Reg.	30 - Barite			OF. (kg/m ³)	1040
PULSER DC	166		4 1/2 IF	1 - ID-Lube			VOL. (l/min.)	3.5
2FLX-NMDC	163	73	4 1/2 IF	40 L - PTS200			HOURS	16
JARS	174	72	4 1/2 IF	1 - X-Cide 207			SURVEYS	
24 HWDP	127	76	4 1/2 TF	4 - D47			ANGLE	DIRECTION
				DC S 2200	CCS 1,280,157		3253	m 34.7 ° 206.3
							3263	m 33.8 ° 203.8
BHA LENGTH	257.20	M		JTS. D.P. : ON RACKS	115		3283	m 33.4 ° 202.8
HOOK LOAD	130,000	daN		: IN STRING	318			m °
AVAILABLE WOB	18,000	daN		: TOTAL	433			m °

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	14.75	CRIMENT			CORING		REPAIR	TODAY	CUM.
TRIP	4.75	HOP DRILL			LOGGING		WASH TO BOTT	23.25	7343
RIG SERVICE	75	HANDLE TOOLS			TESTING		CIRCULATE		182.25
SURVEY	.75	CIRCULATE	.5		CIRC SAMPLE		FISH	.75	1714.75
SLIP & CUT	.75	PRESSURE TEST			HANDLE TOOLS		TRIP	24	9240.7
COND MUD		POLISH PLUG			TRIP		HANDLE TOOLS	WEATHER CLEAR	
NITPLEUP/DN		WORK PIPE	1		REAM HATHOLE			TEMPERATURE - 20 c	
RUN CASING					CIRCULATE			ROADS GOOD	

24 SUMMARY

Ship and cut drill line - Trip in to 280m shallow test MWD - Trip in break circulation at 1809m - 2158m - 2474m - 2794m
 Wash and ream 3119m - 3246m no fill - Directional drill 215.9mm hole with 1.5 degree low speed Halliburton mud motor
 and survey with MWD 3246m - 3309m - Drilled fractured formation 3292m - 3298m - Lost 29m³ mud to formation
 Circulate and mix calcium carbonate #325 pill and spot same at 3280m - 3309m - Worked pipe every 9m drilled
 Rotate - 3246m - 3290m 3293m - 3309m Slide - 3290m - 3293m
 Hole drag up - 20-25,000 dan
 Hole drag down - 5-10,000 dan
 Torque on bottom - 2000-2150 P.S.I.
 Back ground gas - 5-71 Units
 Trip gas - 127 Units
 SIGNED BY: ART SCHRITT MOBILE NO: (403)210-1202 (403) 424-8050

DAILY MUD REPORT

WELL NAME RANGER FT. LIARD		LOCATION P-55-4		DATE 1-Feb-98	
OPERATOR RANGER OIL LTD.		CONTRACTOR CACTUS 20-E		REPORT No 292	
REPORT FOR Mr. ART SCHRITT		REPORT FOR Mr. TERRY GORDICHUCK		SPUD DATE 12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (BBL)	
BIT SIZE (mm)	216.0	LENGTH (m)	SIZE (mm)	TANKS	102
BIT NUMBER			508.0	HOLE	115.8
DRILL PIPE #1 (mm)	127.0	3051	244.5	TOTAL	218
DRILL PIPE #2 (mm)	127.0	230	LINER	TOP/BOT	STAND BY
COLLAR #1 (mm)	166.0	38			
COLLAR #2 (mm)					
PUMP OUTPUT		ANNULAR VEL. m/min			
PUMP #1	140 X 254	OPPOSITE CP	51		
M3/STK	0.0117	OPPOSITE DC	60		
PUMP #2	140 X 254	CIRC. TIME	179		
M3/STK		BOTTOMS UP	72		
S.P.N.	104				
M3/MIN	1.2128				
MOLE DATA		DESANDER		DESILTER	
DESANDER		DESILTER		CENTRIFUGE	
DRILLING FLUID SPECIFICATIONS					
MUD TYPE - Kelzan / Bentonite	FLOWLINE WT		kg/m3	MUD WT	1040 kg/m3
MOLE COND - CASED	UNDERFLOW WT		kg/m3	VISCOSITY	45-50 cP
DEVIATION - 3250 34 1 204	OVERFLOW WT		kg/m3	FILTRATE	10-12 cm3/30 min
CURRENT OF - DRILLING	UNDERFLOW RT.		m3/min	pH	10.0-10.5
EQUIPMENT:		X DEGASSER		DESANDER	
XX DOUBLE DECK OR HIGH SPEED SHAKER		DESANDER		X CENTRIFUGE	
MUD PROPERTIES		INVENTORY			
TIME SAMPLE TAKEN	14:23	MATERIALS	RECEIVED	MATERIALS	RECEIVED
SAMPLE FROM	Flowline	RECEIVED	SINCE LAST	USED SINCE	LAST REPORT
PRESENT DEPTH	3309	TO DATE	REPORT	DATE	ON LOCATION
FLOWLINE TEMPERATURE (C)	63	BARITE 100	18375	13895	4480
DENSITY	1055	BARITE 100	4851	3140	1711
FUNNEL VISCOSITY (cP)	53	CALC CARB 0	840	840	
600 READING	54	CALC CARB 325	1680	1120	560
300 READING	37	PALESTIC	380	251	108
APPARENT VISCOSITY (mPa.s)	27	FLG PLS	720	227	493
PLASTIC VISCOSITY (mPa.s)	17	ROP FLR	7		7
YIELD POINT (Pa)	10	CELZAM 100	370	156	168
GELS 0/10 min (Pa)	4-10	CELZAM 100	54	18	36
pH	12	LIGNITE	136	00	78
FILTRATE (cm3)	12.4	LIME	1828	1482	144
FILTER CAKE (mm)	1	SEWELT	1400	590	810
PF	2.10	SOCA 200	40	5	35
MF	3.5	BENTONITE 400	2600	2208	391
PM		BENTONITE 400	1570	1080	490
TOTAL HARDNESS (mg/l)	80	ZINC CARBONATE	80		80
CHLORIDES (mg/L)	1000	ISO 800 Amine Ad	25		28
SAND CONTENT %	FR	WALUT 80	1300	1203	97
SOLIDS CONTENT %	FR	EXIDE 207	106	21	85
OILWATER CONT %	FR	EXIDE 207	10		10
MRT (kg/m3)	17.5	PREVIOUS COST	\$2,818,061.50	STARTING VOLUME	262
EQUIVALENT CIRCULATING DENSITY	1154.3	DAILY COST	\$7,380.00	VOL. BUILT	30.5
OIL WATER RATIO		CUM. COST	\$2,825,351.50	VOL. LOST ON SURFACE	2.1
CaO2 wt%		DISCOUNTED COST	\$1,444,493.33	VOL. LOST ON SUB SURFACE	
"n"	0.27	CUM. ENG. COST	\$145,850.00	END VOLUME	187
"k"	5.19	TOTAL COST	\$1,590,343.33	CUM VOL LOST	37.3
RECOMMENDATIONS: START CIRCULATION OF DRISPAC REG 3 SX AND 2 SX OF LIGNITE Please Maintain the following: 1. pH TO 10.0-10.5 w/ Caustic no additions required 2. Vis at 50-55 cP w/ Kelzan or EDV10-D and Prehydrated Gel 3. CONTROL DENSITY @ 1940 kg/m3 W/ RUN CENTRIFUGE OVER FULL CHICKS AS REQUIRED 4. Fluid loss @ 10-12 ml/30 min w/ Driplate use regular if viscosity is required 5. Add 10 LUBE to control torque and drag Add Antifoamer D47 while mixing 10 LUBE 6. ADD 20 L OF PTE-300 Biodegradable foam PER DAY 7. ADD 1 JUG OF X-CIDE 207 PER HOUR RUN WATER WHILE CIRCULATING TO PREVENT DEHYDRATION					
RIG ACTIVITIES: (Last 12 hours) RIH DRILL AHEAD Thanks, Dan					
STOCK POINT		FORMULA TRANSPORT @ GRANDE PRAIRIE		DOWELL ENGINEER	
PHONE		871-4000		PHONE NUMBER	
				DAN MAJOCHA	
				CAMP ROOM 55	
				MOBILE #	
				PAGE 6	
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.					

02/01/98 09:38 FAX

02

Wellname : RANGER UNOCAL FT. LIARD P-66
 Location : LAT 60 40'/LONG 123 30'
 Date : 02-01-98
 Contact : PETER GORTZ

AM REPORT

Contact: Kent Wallace (403) 232 5276 / (403) 261 7007

AM REPORT

Depth @ 09:00 hrs: 3309 Progress last 24 hrs: 63 m

Present Operations: drilling

Avg ROP: 6 m/hr Avg BGG: 10-15 units
 Drill Fluid: Polymer/flowplex
 Density: 1065 kg/m3 Vis: 63 FL: 11.8 ph: 12

veys: See Halliberton Report

FORMATION TOPS

KB: 459.89M

Formation	Prognosis (md/tvd)	Sample (md/tvd)	Subsea (tvd)
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Besa R.	sfc		
Ft Simpson	2387m / 2188m	2054m / 1944m	-1484m
Horn R.	2812m / 2480m	2796m / 2461m	-2001m
Fault	-- --	3007m / 2611m	-2151m
Muskwa	-- --	3100m	
Nahanni	-- --	3115m	
Nahanni[whip 4]		3128m	

SHOW SUMMARY:

Formation	Interval	Gas show /	BGG Lith/por/shows/remarks
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Nahanni	3246	127 units [trip gas]	15-20 units
	3253	52 units	
	3273	72 units	
	3299	62 units	

Remarks: lost 29m3 of mud 2992-2998

Geologist: Fred Richardson

one: 1-403-210-1202

FEB-02-1998 08:59

403 261 7007

P.04

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-31 REPORT NO.: 384
DEPTH: 3246 m PROGRESS: 33 m FORMATION: NAHANNI
OPERATIONS AT 06:00 HOURS: TRIP IN WITH BIT # 65 AND DIRECTIONAL TOOLS
CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
DAILY COST: \$ 63,407 CUM. COST: \$ 23,709,431 AFE NO. E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4600 kPa @: 66 SPM
TRIP RECORDS: CALCULATED HOLE FILL 17.05 m³ ACTUAL HOLE FILL: 19.63 m³
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE
DAYS SINCE BOP DRILL (EACH CREW): 2 - 2 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS	PUMPS		
BIT NUMBER	64	65		WEIGHT (kg/m ³)	1055		No. 1 LINER (mm)	140	
SIZE (mm)	215.9	215.9		VISCOSITY (cP)	51		No. 1 STROKES PER MINUTE	105	
TYPE	EHP51a	SS86F		pH	12.0		No. 2 LINER (mm)	140	
SERIAL No.	TB6005	629161		PV (mPa S)	20		No. 2 STROKES PER MINUTE		
NOZZLES (mm)	3 x 11.1	3 x 11.1		YP (Pa)	10		VOLUME (m ³)	1.2	
DEPTH IN (m)	3140	3246		GELS (Pa)	5.5 // 9		PRESSURE (kPa)	8500	
METERS (m)	106			SAND (%)			D.P. ANNULAR VEL. (m/min.)	45	
HOURS	28.5			SOLIDS (%)	3.4		D.C. ANNULAR VEL.		
WOB (1000 daN)	5-8			FILTER CAKE (mm deac.)	1		D.C. ANNULAR VEL. (m/min.)		
R.P.M.	35//100			FLUID LOSS (cc)	13		SOLIDS CONTROL		
CONDITION	4-4-1			CHLORIDES	2000		SHAKER SCREENS	140 - 175	
DRILLING ASSEMBLY				Ca	40		DRYER SCREENS		
ITEM	O.D.	I.D.	T.I. TYPE	MUD ADDITIVES			U.F. (kg/m ³)	D. SILT.	CENT.
HDS MM	164		4 1/2 Reg.	30 - Gel	2 - Lignosite		OF. (kg/m ³)		1740
XO SUB	159	62	4 1/2 Reg.	3 - TD-Lube	3 - Drispac		VOL. (l/min.)		1015
PULSER DC	166		4 1/2 IF	3 - Kelzan			HOURS		3.5
2FLX-NMDC	163	73	4 1/2 IF	1 - X-Cide 207			SURVEYS	ANGLE	DIRECTION
JARS	174	72	4 1/2 IF	3 - D47			3204	m 38.1	° 207.6
2+HWDP	127	76	4 1/2 IF	DC S 4585	CCS 1,277,957		3214	m 38.4	° 207.7
BHA LENGTH	257.20	M	JTS. D.P. : ON RACKS	121			3224	m 38.5	° 208.1
HOOK LOAD	128,000	daN	: IN STRING	312				m	°
AVAILABLE WOB	18,000	daN	: TOTAL	433				m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE KINDS	SUMMARY	
DRILLING	7.5	CEMENT		CORING		REPAIR			TODAY	CUM.
TRIP	11.75	BOP DRILL		LOGGING		WASH TO HOIT.			24	7319.75
RIG SERVICE	.75	HANDLE TOOLS	2.5	TESTING		CIRCULATE				142.25
SURVEY	1.25	CIRCULATE	.25	CIRC. SAMPLE		FISH				1714
SHIP & CUT		PRESSURE TEST		HANDLER TOOLS		TRIP			24	9216.7
COND MUD		POLISH PLUG		TRIP		HANDLE TOOLS			CLEAR	
NIPPLE/UPDN		ATTEMPT CIRC		REAM RATHOLE					- 20 c	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Directional drill 215.9mm hole and survey with MWD 3213m - 3222m - Wiper trip 12 stands - Wash and ream 3115m - 3222m
Directional drill 215.9mm hole with 1.5 degree low speed Halliburton mud motor and survey with MWD 3222m - 3246m
Circulate work pipe - Circulate out 4 stands - Pump pill - Blow mud line and top drive - Trip out for bit - Service MWD
Trip in BHA
Hole drag up - 20-25,000 daN Hole drag reduced 15,000 daN after adding TD-Lube to mud system
Hole drag down - 5-10,000 daN
Torque on bottom - 2000-2200 P.S.I.
Back ground gas - 5-40 Units

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403)424-8050

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD		LOCATION		F-884		DATE		31-Jan-88																													
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS 20-E		REPORT No		722																													
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-87																													
ASSEMBLY			CASING			MUD VOL. (BD)			PUMP OUTPUT			ANNULAR VEL. m/min																											
BIT SIZE (mm)		218.0		LENGTH (m)		SIZE (mm)		LENGTH (m)		TANKS		121		PUMP #1		140 X 234		OPPOSITE DP		51																			
BIT NUMBER						508.0		263		HOLE		112.5		M3/STK		0.0117		OPPOSITE DC		80																			
DRILL PIPE #1 (mm)		127.0		2999		244.5		3115		TOTAL		233		PUMP #2		140 X 254		CIRC. TIME		182																			
DRILLPIPE #2 (mm)		127.0		220		LINER		TOP/ROT		STAND BY				M3/STK				BOTTOMS UP		70																			
COLLAR #1 (mm)		185.0		38										S.P.M.		104																							
COLLAR #2 (mm)														M3/MIN		1.2168																							
HOLE DATA				DESANDER				DESILTER				CENTRIFUGE				DRILLING FLUID SPECIFICATIONS																							
MUD TYPE - Kelzan / Bentanite				FLOWLINE WT.								kg/m3				MUD WT.				1080 or as required Kg/m3																			
HOLE COND - CASSED				UNDERFLOW WT.								kg/m3				VISCOSITY				45-50 cP																			
DEVIATION-3185 37.8 209.5				OVERFLOW WT.								kg/m3				FILTRATE				10-12 cm3/30 min																			
CURRENT OP. DRILLING				UNDERFLOW RT.								m3/min				PH				10.0-10.5																			
EQUIPMENT:				X DEGASSER				DESILTER				DESANDER				X CENTRIFUGE																							
				XX DOUBLE DECK OR HIGH SPEED SHAKER																																			
MUD PROPERTIES												INVENTORY																											
TIME SAMPLE TAKEN				17:58				MATERIALS				MATERIALS				RECEIVED				MATERIALS				MATERIALS				DAILY				CUMULATIVE							
SAMPLE FROM				Flowline				RECEIVED				RECEIVED				SINCE LAST				USED SINCE				USED TO				REMARKS				COST							
PRESENT DEPTH				3257				TO DATE				TO DATE				LAST REPORT				LAST REPORT				DATE				ON LOCATION											
FLOWLINE TEMPERATURE (C)				83				BARITE / LB				18375								13885				4480								\$270,852.50							
DENSITY				1085				BENTONITE				4851								3140				1711								\$54,008.00							
FUNNEL VISCOSITY (cP)				63				CALC CARR 0				840								840												\$9,400.00							
FOO READING				73				CALC CARR 325				1880								1120				560								\$11,200.00							
FOO READING				52				CALC CARR				360								251				109								\$14,558.00							
APPARENT VISCOSITY (mPa.s)				36.5				FLO FLEX				720								337				493								\$43,564.00							
LASTIC VISCOSITY (mPa.s)				21				SOL R/L				7																											
FLO POINT (Pa)				15.5				KELZAN 200				320								156				164								\$130,538.00							
10 min. (Pa)				6-13				CLAY				58								18				38								\$18,000.00							
STRIP				METER X				12				LIGNITE				136								60				78								\$1,200.00			
FE (cm3)				API X				11.8				LIME				1828								1482				144								\$22,971.00			
FILTER CAKE (mm)				1				CONVOLUT				1400								590				810								\$3,836.00							
F				2.40				WOOD ASH				40								5				35								\$180.00							
F				4				BENTONITE 400g				2600								2209				391								\$34,791.75							
F								BENTONITE 400g				1670								1080				480								\$19,332.00							
TOTAL HARDNESS (mpa)				X Ca				50				ZINC CARBONATE				80								60															
CHLORIDES (mg/L)				X NaCl				1500				WSD 800 Arma No				29								29															
AND CONTENT				X FR								WALDUT (m)				1300								1203				97								\$43,308.00			
OLDS CONTENT				X FR				2.5				L-CIDE 207				102								21				85								\$4,452.00			
WATER CONT				X FR								Bridle Blasting				10												10											
IBT (Kg/m3)				X OIL RET				15				PREVIOUS COST				\$2,809,812.00								STARTING VOLUME				252											
EQUIVALENT CIRCULATING DENSITY				1213.5								DAILY COST				\$9,349.50								VOL. BUILT				30.5											
WATER RATIO												CUM. COST				\$2,818,961.50								VOL. LOST ON SURFACE				2.1											
SCIZ WAPA												DISCOUNTED COST				\$1,440,428.83								VOL. LOST ON SUB SURFACE															
F				0.26								CUM. ENG. COST				\$145,850.00								END VOLUME				187											
F				7.79								TOTAL COST				\$1,586,278.83								CUM VOL LOST				37.3											

RECOMMENDATIONS:

1. Maintain the following:

- pH TO 10.0-10.5 w/ Caustic - no additions required
- Vts at 50-80cc/L w/ Kelzan or IDV3-D and Prehydrated Gel
- CONTROL DENSITY @ 1080 kg/m³ w/ BARITE RUN CENTRIFUGE OVER FULL CIRC'S 1-2 TIMES DAILY
- Fluid loss @ 10-12 ml/30 min w/ Driplex use regular if viscosity is required
- Add IDLUBE to control torque and drag Add Aerofoamer D47 while mixing ID LUBE
- ADD 20 L OF PTFE-220 thermoplastic grease PER DAY
- ADD 1 JUG OF L-CIDE 207 PER TOUR
- UN WATER WHILE CIRCULATING TO PREVENT DEHYDRATION

RIG ACTIVITIES (Last 12 hours)
DRILL TO 3246 TRIP

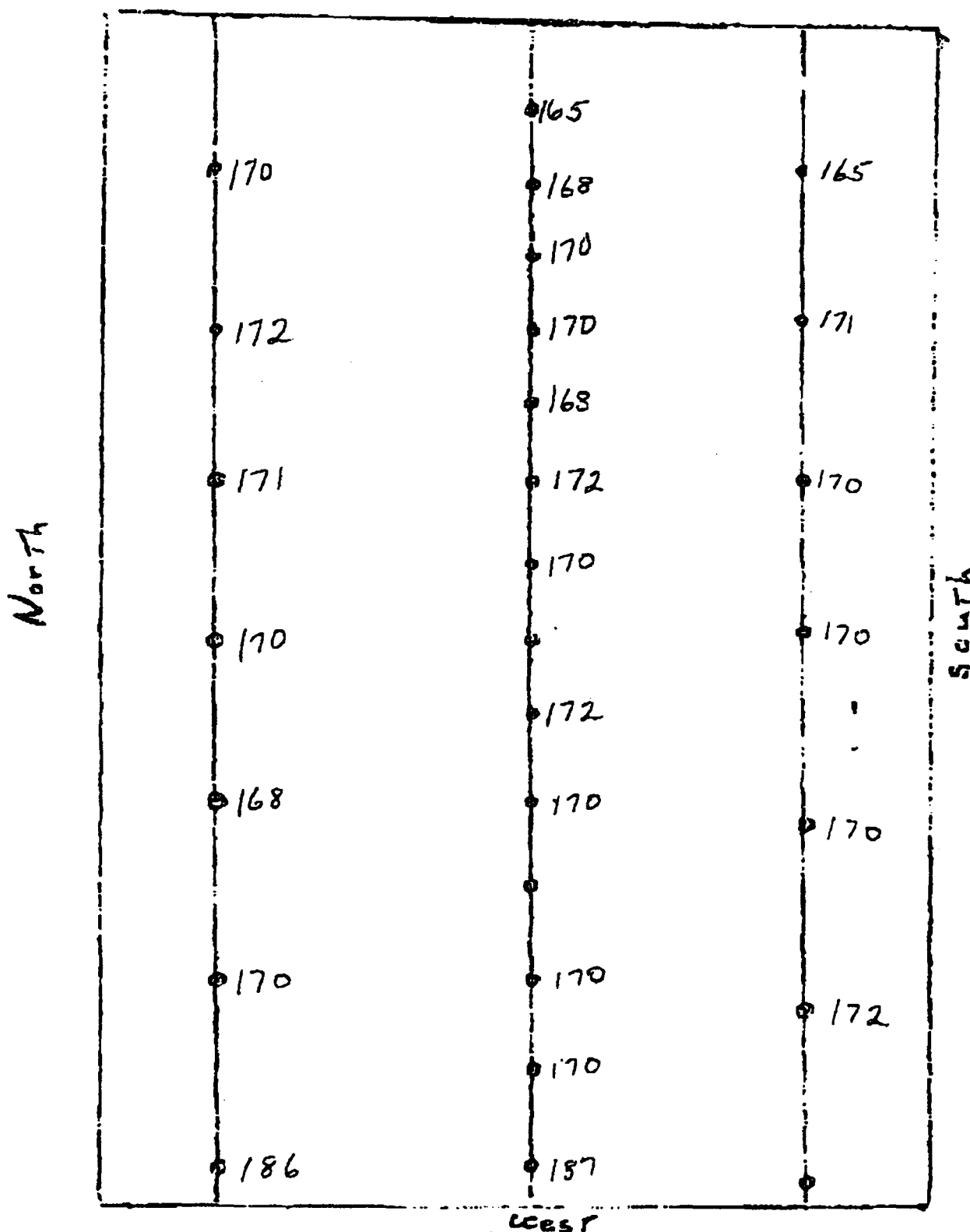
Thanks, Dan

LOCK POINT	FORMULA TRANSPORT @ GRANDE PRAIRIE	DOWELL ENGINEER	DAN MAJOCHA	MOBILE #
PHONE	831-4000	PHONE NUMBER	CAMP ROOM # 5	PAGE #

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

P-66A

East



Ice bridge grid 98-01-30

01/31/98 09:10 FAX

02

Wellname : RANGER UNOCAL FT. LIARD P-66
 Location : LAT 60 40'/LONG 123 30'
 Date : 01-31-98
 Contact : PETER GORTZ

AM REPORT

Contact: 261 7007

AM REPORT

Depth @ 06:00 hrs: 3246m Progress last 24 hrs: 37 m

Present Operations: tripping for new bit

Avg ROP: 4-5 m/hr Avg BGG: 30 units
 Drill Fluid: Polymer/flowplex
 Density: 1060 kg/m³ Vis: 58 FL: 12 ph: 11.5

Surveys: see Halliberton survey Report

FORMATION TOPS KB: 459.89M
 Formation Prognosis (md/tvd) Sample (md/tvd) Subsea (tvd)

Besa R.	sfc		
Ft Simpson	2387m / 2188m	2054m / 1944m	-1494m
Horn R.	2812m / 2490m	2796m / 2461m	-2001m
Fault	-- --	3007m / 2611m	-2151m
Muskwa	-- --	3100m	
Nahanni	-- --	3115m	
Nahanni [whip 4]		3128m	

SHOW SUMMARY:

Formation	Interval	Gas show / BGG	Lith/por/shows/remarks
Nahanni	3216	50 units	10-20 units
	3229	54 units	10-15 units

Geologist: Fred Richardson Phone: 1-403-210-1202

Halliburton Drilling Systems

Survey Report

Page 1

Job No: 97d007s4

Date: 1/31/98

Time: 3:55 am

Wellpath ID: 97d007s4

Date Created: 1/27/97

Last Revision: 1/30/98

Calculated using the Minimum Curvature Method

Computed using WIN-CADDS REV2.2.0

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED

RANGER Fort Liard P - 66 - A

IN UNIT P SECTION 66

Cactus #26E KB: 459.89 m

97D007S4

UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
3013.00	45.20	220.40	2616.86	-2156.97	987.53	698.81 S	697.97W	0.91
3023.00	45.20	220.60	2623.91	-2164.02	994.60	704.00 S	702.52W	0.43
3032.00	44.90	219.70	2630.27	-2170.38	1000.95	708.87 S	706.69W	2.35
3036.00	44.80	219.70	2633.10	-2173.21	1003.76	711.04 S	708.49W	0.75
3045.00	44.90	219.60	2639.48	-2179.59	1010.08	715.93 S	712.54W	0.41
3054.00	44.60	219.50	2645.88	-2185.99	1016.39	720.81 S	716.57W	1.03
3064.00	44.50	219.20	2653.00	-2193.11	1023.37	726.24 S	721.02W	0.70
3073.00	44.30	219.40	2659.43	-2199.54	1029.63	731.11 S	725.01W	0.81
3085.00	44.30	219.60	2666.02	-2206.13	1037.98	737.58 S	730.34W	0.35
3095.00	43.90	219.80	2675.20	-2215.31	1044.91	742.93 S	734.79W	1.27
3122.00	40.40	214.70	2695.22	-2235.33	1062.85	757.33 S	745.77W	5.44
3138.00	36.90	208.80	2707.72	-2247.83	1072.57	765.81 S	751.03W	9.52
3157.00	37.00	208.70	2722.90	-2263.01	1083.53	775.82 S	756.53W	0.18
3185.00	37.80	209.50	2745.15	-2285.26	1099.89	790.68 S	764.80W	1.00
3195.00	38.10	209.90	2753.03	-2293.14	1105.82	796.02 S	767.85W	1.16
3204.00	38.10	207.60	2760.12	-2300.23	1111.15	800.99 S	770.52W	4.73
3214.00	38.40	207.70	2767.97	-2308.08	1117.06	806.37 S	773.39W	0.92
3224.00	38.50	208.10	2775.80	-2315.91	1123.00	811.87 S	776.30W	0.80

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-30 REPORT NO. 383
 DEPTH: 3213 m PROGRESS: 54 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 215.9mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 34,331 CUM. COST: \$ 23,646,024 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 1900 kPa @: 50 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE Wiper tripping - Drilling WELL SECURED IN 2 - 2 MIN.
 CONDUCTED AT 11:00 06:30 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 1 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS	PUMPS		
BIT NUMBER	<u>64</u>			WEIGHT (kg/m ³)		<u>1055</u>	No. 1 LINER (mm)		<u>140</u>
SIZE (mm)	<u>215.9</u>			VISCOSITY (s/l)		<u>51</u>	No. 1 STROKES PER MINUTE		<u>105</u>
TYPE	<u>EHP51a</u>			pH		<u>12.0</u>	No. 2 LINER (mm)		<u>140</u>
SERIAL No.	<u>TB6005</u>			PV (mPa S)		<u>20</u>	No. 2 STROKES PER MINUTE		
NOZZLES (mm)	<u>3 x 11.1</u>			YP (Pa)		<u>10</u>	VOLUME (m ³)		<u>1.2</u>
DEPTH IN (m)	<u>3140</u>			GELS (Pa)		<u>5.5 // 9</u>	PRESSURE (kPa)		<u>8100</u>
METERS (m)	<u>73</u>			SAND (%)			D.P. ANNULAR VEL. (m/min.)		<u>45</u>
HOURS	<u>21</u>			SOLIDS (%)		<u>3.4</u>	D.C. ANNULAR VEL.		
WOB (1000 daN)	<u>5.8</u>			FILTER CAKE (mm desc.)		<u>1</u>	D.C. ANNULAR VEL. (m/min.)		
R.P.M.	<u>35/100</u>			FLUID LOSS (cc)		<u>13</u>	SOLIDS CONTROL		
CONDITION	<u>IN</u>			CHLORIDES		<u>2000</u>	SHAKER SCREENS		<u>210 - 175</u>
DRILLING ASSEMBLY				Ca		<u>40</u>	DRYER SCREENS		
ITEM	O.D.	I.D.	T.I. TYPE	MUD ADDITIVES			U.F. (kg/m ³)	D. SILT	CENT.
HDS MM	<u>164</u>		<u>4 1/2 Reg.</u>	<u>3 - Kelzan</u>		<u>1 - Citric Acid</u>			<u>1740</u>
XO SUB	<u>159</u>	<u>62</u>	<u>4 1/2 Reg.</u>	<u>165 - Barite</u>			OF. (kg/m ³)		<u>1015</u>
PULSER DC	<u>166</u>		<u>4 1/2 IF</u>	<u>1 - Xcidc 207</u>			VOL. (l/min.)		<u>3.5</u>
2FLX-NMDC	<u>163</u>	<u>73</u>	<u>4 1/2 IF</u>	<u>4 - D47 Defoamer</u>			HOURS		<u>7.5</u>
JARS	<u>174</u>	<u>72</u>	<u>4 1/2 IF</u>	<u>2 - Drispac</u>			SURVEYS	ANGLE	DIRECTION
24 HWDP	<u>127</u>	<u>76</u>	<u>4 1/2 IF</u>	<u>DC S 3794</u>		<u>CCS 1,273,372</u>	<u>3157</u>	<u>m 37.0</u>	<u>° 208.7</u>
							<u>3185</u>	<u>m 37.8</u>	<u>° 209.5</u>
BHA LENGTH	<u>257.20</u>	<u>M</u>		<u>JTS. D.P. : ON RACKS</u>		<u>124</u>	<u>3195</u>	<u>m 38.1</u>	<u>° 209.9</u>
HOOK LOAD	<u>122,000</u>	<u>daN</u>		<u>: IN STRING</u>		<u>309</u>		<u>m</u>	<u>°</u>
AVAILABLE WOB	<u>18,000</u>	<u>daN</u>		<u>: TOTAL</u>		<u>433</u>		<u>m</u>	<u>°</u>

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	SUMMARY	
DRILLING	<u>15.5</u>	<u>CEMENT</u>		<u>CYRINK</u>		<u>REPAIR</u>			TODAY	CUM.
TRIP	<u>5.75</u>	<u>BOP DRILL</u>		<u>LIXXING</u>		<u>WASH TO BOTT.</u>			<u>24</u>	<u>7295.75</u>
RIG SERVICE	<u>.75</u>	<u>HANDLE TOOLS</u>		<u>TESTING</u>		<u>CIRCULATE</u>				<u>182.25</u>
SURVEY	<u>2</u>	<u>CIRCULATE</u>		<u>CIRC. SAMPLE</u>		<u>FISH</u>				<u>1714</u>
SLIP & CUT		<u>PRESSURE TEST</u>		<u>HANDLE TOOLS</u>		<u>TRIP</u>			<u>24</u>	<u>9192.7</u>
COND. MUD		<u>POUSH PLUG</u>		<u>TRIP</u>		<u>HANDLE TOOLS</u>			LIGHT SNOW	
NIHPLEUP/DN		<u>ATTEMPT CIRC</u>		<u>REAM RATIOLE</u>					<u>- 17 c</u>	
RUN CASINO				<u>CIRCULATE</u>					GOOD	

24 SUMMARY

Directional drill 215.9mm hole and survey with MWD 3159m - 3165m - Wiper trip 10 stands - Wash and ream 3115m - 3165m
 Directional drill 215.9mm hole with 1.5 degree low speed Halliburton mud motor and survey with MWD 3165m - 3193m
 Wiper trip 6 stands - Circulate out and in 3115m - 3193m - Directional drill 215.9mm hole and survey with MWD 3193m-3213m
 No direction on surveys 3141m - 3156m interference from fish

Hole drag up - 20-40,000 daN

Hole drag down - 10-20,000 daN

Torque on bottom - 2200-2300 P.S.I.

Trip gas - 3200 Units wiper trip at 3165m - 450 Units wiper trip at 3193m

Back ground gas - 5 - 45 Units

SIGNED BY: ART SCHRITTMOBILE NO: (403)210-1202 (403) 424-8050

DAILY MUD REPORT

WELL NAME			LOCATION			DATE					
RANGER FT. LIARD			P-482			30-Jan-98					
OPERATOR			CONTRACTOR			REPORT No.					
RANGER OIL LTD.			CACTUS 244			321					
REPORT FOR Mr.			REPORT FOR Mr.			SPUD DATE					
ART SCHMITT			TERRY GORGICHUCK			12-Jan-97					
ASSEMBLY		CASING		MUD VOL. (MG)		PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)	216.0	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	125	PUMP #1	140 X 254	OPPOSITE DP		
BIT NUMBER			508.0	263	HOLE	100.3	M3/STK	0.0117	OPPOSITE DC		
DRILL PIPE #1 (mm)	127.0	2940	244.5	3115	TOTAL	234	PUMP #2	140 X 254	CIRC. TIME		
DRILL PIPE #2 (mm)	127.0	220	LINER	TOP/BOT.	STAND BY		M3/STK		BOTTOMS UP		
COLLAR #1 (mm)	165.0	38					G.P.M.	104			
COLLAR #2 (mm)							M3/MIN	1.2168			
MUD DATA		DESANDER		DESILTER		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS			
MUD TYPE - Kalzan / Bentonite		FLOWLINE WT.				kg/m3		MUD WT			
OLE COND. CASED		UNDERFLOW WT				kg/m3		VISCOSITY			
EVATION 3185 37.8 208.5		OVERFLOW WT.				kg/m3		FILTRATE			
CURRENT OP. DRILLING		UNDERFLOW RT.				m3/min		pH			
EQUIPMENT.		X DEGASSER		DESILTER		DESANDER		X CENTRIFUGE			
		XX DOUBLE DECK OR HIGH SPEED SHAKER									
MUD PROPERTIES				INVENTORY							
ME SAMPLE TAKEN		6:04		MATERIALS		RECEIVED		MATERIALS		MATERIALS	
SAMPLE FROM		FLOWLINE		RECEIVED		SINCE LAST		USED SINCE		USED TO	
RESENT DEPTH		3207		TO DATE		REPORT		LAST REPORT		DATE	
FLOWLINE TEMPERATURE (C)		63		BARITE #6		18375				13895	
DENSITY		1055		BARITE #40		4851				3140	
INNEL VISCOSITY (cP)		51		CALC CARR D		840				840	
D READING		80		CALC CARR 32A		1680				1120	
D READING		40		CALC CARR 32A		360				251	
PARENT VISCOSITY (mPa.s)		30		CALC CARR 32A		720				483	
ASTIC VISCOSITY (mPa.s)		20		CALC CARR 32A		7				7	
ELD POINT (Pa)		10		CALC CARR 32A		320				156	
Q min (Pa)		5.5-9		CALC CARR 32A		58				36	
STRIP		METER X		LIGNITE		136				60	
API X		METER X		LIGNITE		1628				1482	
LTER CAKE (mm)		1		LIGNITE		1400				580	
		3.20		LIGNITE		40				5	
		4.3		LIGNITE		2800				2209	
				LIGNITE		1570				1080	
TOTAL HARDNESS (mg/l)		X		LIGNITE		80				80	
FLORIDES (mg/L)		X		LIGNITE		29				29	
WIND CONTENT		X		LIGNITE		1300				1203	
WINDS CONTENT		X		LIGNITE		108				21	
LWATER CONT		X		LIGNITE		10				10	
ST (Kg/m3)		Z OIL RET		PREVIOUS COST		\$2,601,683.00				STARTING VOLUME	
DIVALENT CIRCULATING DENSITY		1180.5		DAILY COST		\$7,929.00				VOL. BUILT	
L WATER RATIO				CUM. COST		\$2,609,612.00				VOL. LOST ON SURFACE	
Q12 mPa.s				DISCOUNTED COST		\$1,436,286.50				VOL. LOST ON SUB SURFACE	
		D 18		CUM. ENG. COST		\$145,850.00				END VOLUME	
		B 14		TOTAL COST		\$1,581,136.80				CUM VOL LOST	

RECOMMENDATIONS:

ART CIRCULATION OF 3 SA DRISPAK SL ADD 2 SA OF LIGNITE

Wee Maintain the following:

M TO 10.0-10.5 w/ Caustic no additions required
 Vis at 30-50sec/1 w/ Kalzan or IOWIS-D and Prehydrated Gel
 CONTROL DENSITY @ 1050 g/cm³ w/ BARITE RUN CENTRIFUGE OVER FULL CIRC'S 1-2 TIMES DAILY
 Fluid loss @ 10-12 ml/30 min w/ Drispac use regular if viscosity is required
 Add IOWIS-D to control torque and drag Add Andosmer D47 while mixing ID LUSE
 ADD 20 L OF PTE-200 Montmorillonite PER DAY
 ADD 1 JUG OF X-CIDE 207 PER TOUR

RIG ACTIVITIES: (Last 12 hours)
DRILL AND WIPER TRIP

Thanks, Dan

OCK POINT	FORMULA TRANSPORT @ GRANDE PRAIRIE	DOWELL ENGINEER	DAN MAJOCHA	MOBILE #
ONE	831-4088	PHONE NUMBER	CAMP ROOM #5	PAGE #

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 BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN
 SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

Halliburton Drilling Systems

Survey Report

Page 1
 Job No: 97d007s4
 Date: 1/30/98
 Time: 7:38 am
 Wellpath ID: 97d007s4
 Date Created: 1/27/97
 Last Revision: 1/30/98

Calculated using the Minimum Curvature Method
 Computed using WIN-CADDS REV2.2.0
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D007S4
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
3013.00	45.20	220.40	2616.86	-2156.97	987.53	698.61 S	697.97W	0.91
3023.00	45.20	220.60	2623.91	-2164.02	994.60	704.00 S	702.58W	0.43
3032.00	44.90	219.70	2630.27	-2170.38	1000.95	708.87 S	706.65W	2.35
3038.00	44.80	219.70	2633.10	-2173.21	1003.78	711.04 S	708.49W	0.75
3045.00	44.80	219.60	2639.48	-2179.59	1010.08	715.93 S	712.54W	0.41
3054.00	44.60	219.50	2645.88	-2185.99	1016.39	720.81 S	716.57W	1.03
3064.00	44.50	219.20	2653.00	-2193.11	1023.37	726.24 S	721.02W	0.70
3073.00	44.30	219.40	2659.43	-2199.54	1029.83	731.11 S	725.01W	0.81
3085.00	44.30	219.60	2668.02	-2208.13	1037.98	737.58 S	730.34W	0.35
3095.00	43.90	219.80	2675.20	-2215.31	1044.91	742.93 S	734.75W	1.27
3122.00	40.40	214.70	2695.22	-2235.33	1062.85	757.33 S	745.77W	5.44
3138.00	38.90	208.80	2707.72	-2247.83	1072.57	765.81 S	751.03W	9.52
3157.00	37.00	208.70	2722.90	-2263.01	1083.53	775.82 S	756.53W	0.18
3185.00	37.80	209.50	2745.15	-2285.26	1099.89	790.68 S	764.80W	1.00
3195.00	38.10	209.90	2753.03	-2293.14	1105.82	796.02 S	767.85W	1.16

JAN-30-1998

09:15

403 232 5200

P.04

Wellname : RANGER UNOCAL FT. LIARD P-66
 Location : LAT 60 40'/LONG 123 30'
 Date : 01-30-98
 Contact : PETER GORTZ

AM REPORT

Depth @ 06:00 hrs: 3209 m Progress last 24 hrs: 45 m

Present Operations: drilling

Avg ROP: 3 m/hr Avg BGG: 25-30 units
 Drill Fluid: Polymer/flowplex
 Density: 1055 kg/m3 Vis: 51 FL: 13 ph: 12

veys: see Halliburton Survey Report

FORMATION TOPS

KB: 459.89M

Formation	Prognosis (md/tvd)	Sample (md/tvd)	Subsea (tvd)
-----------	--------------------	-----------------	--------------

Besa R.	sfc		
Ft Simpson	2387m / 2188m	2054m / 1944m	-1484m
Horn R.	2812m / 2480m	2796m / 2461m	-2001m
Fault	-- --	3007m / 2611m	-2151m
Muskwa	-- --	3100m	
Nahanni	-- --	3115m	
Nahanni [whip 4]		3128m	

SHOW SUMMARY:

Formation	Interval	Gas show /	BGG
Nahanni	3166m	2280 units	0-40 units
Remarks:		[trip gas]	

Geologist: fred richardson Phone: 1-403-210-1202

Wellname : RANGER UNOCAL FT. LIARD P-66
Location : LAT 60 40'/LONG 123 30'
Date : 01-29-98
Contact : PETER GORTZ

AM REPORT

Contact: Kent Wallace (403) 232 5276 / (403) 261 7007

AM REPORT.

Depth @ 09:00 3164 m Progress last 24 hrs: 32 m

Present Operations: drilling

Avg ROP: 5 m/hr Avg BGG: 25-30 units
Mud Fluid: Polymer/flowplex
Density: kg/m3 1030 Vis: 54 FL: 12 ph: 12

Surveys: See Halliburton Report

Geologist: FRED RICHARDSON Phone: 1-403-210-1202

Halliburton Drilling Systems**Survey Report**

Page 1
Job No: 97d007s4
Date: 1/29/98
Time: 7:21 am
Wellpath ID: 97d007s4
Date Created: 1/27/97
Last Revision: 1/29/98

Calculated using the Minimum Curvature Method
Computed using WIN-CADDS REV2.2.0
Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

RANGER OIL LIMITED
RANGER Fort Liard P - 66 - A
IN UNIT P SECTION 66
Cactus #26E KB: 459.89 m
97D007S4
UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		DLS (dg/30m)
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3032.00	44.90	219.70	2630.27	-2170.38	1000.95	708.87 S	706.69W	2.35
3036.00	44.80	219.70	2633.10	-2173.21	1003.76	711.04 S	708.49W	0.75
3045.00	44.90	219.60	2639.48	-2179.59	1010.08	715.93 S	712.54W	0.41
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3085.00	44.30	219.60	2668.02	-2208.13	1037.98	737.58 S	730.34W	0.35
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3122.00	40.40	214.70	2695.22	-2235.33	1062.85	757.33 S	745.77W	5.44
3138.00	36.90	208.80	2707.72	-2247.83	1072.57	765.81 S	751.03W	9.52

WELL	Ranger Fort Liard P-66-A	DATE	98-01-29	REPORT NO.:	382
DEPTH:	3159	m	PROGRESS:	19	m
FORMATION:	NAHANNI				
OPERATIONS AT 06:00 HOURS	DIRECTIONAL DRILL 215.9mm HOLE				
CONTRACTOR/RIG SUPT.:	Precision Drllg Rig #426E Terry Gorgichuk	CO. SUPERVISOR:	Art Schmitt		
DAILY COST: \$	48,180	CUM. COST: \$	23,611,693	AFE NO.:	E6D-015

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	1900	kPa @:	50	SPM
TRIP RECORDS: CALCULATED HOLE FILL	16.72	m ³ ACTUAL HOLE FILL:	25.09	m ³				
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.				
CONDUCTED AT		HRS. CREW PERFORMANCE						
DAYS SINCE BOP DRILL (EACH CREW):	8 - 8	MAXIMUM CASING HOLD BACK	21,000	kPa				

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER	63	64		WEIGHT (kg/m ³)	1030	No. 1 LINER (mm)	140		
SIZE (mm)	215.9	215.9		VISCOSITY (s/l)	54	No. 1 STROKES PER MINUTE	105		
TYPE	D12ST	EHP51a		pH	12.0	No. 2 LINER (mm)	140		
SERIAL No.	IQ7603	TB6005		PV (mPa S)	18	No. 2 STROKES PER MINUTE			
NOZZLES (mm)		3 x 11.1		YP (Pa)	8	VOLUME (m ³)	1.2		
DEPTH IN (m)	3116.5	3140		GELS (Pa)	4 // 9	PRESSURE (kPa)			
METERS (m)	24	19		SAND (%)		D.P. ANNULAR VEL. (m/min)	45		
HOURS	29.25	5.5		SOLIDS (%)	1.8	D.C. ANNULAR VEL.			
WOB (1000 daN)	2-10	5-7		FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min)			
R.P.M.	350	35//100		FLUID LOSS (cc)	12	SOLIDS CONTROL			
CONDITION	FAIR	IN		CHLORIDES	2200	SHAKER SCREENS	210 - 175		
DRILLING ASSEMBLY				Ca	40	DRYER SCREENS			
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.	
HDS MM	164		4 1/2 Reg.	28 - Gel	2 - Xride 207	OF. (kg/m ³)		1720	
XO SUB	159	62	4 1/2 Reg.	40 L - PTS200		VOI. (l/min.)		1010	
PULSER DC	166		4 1/2 IF	6 - Defoamer		HOURS		3.5	
2FLX-NMDC	163	73	4 1/2 IF	2 - Kelzan		SURVEYS	ANGLE	DIRECTION	
JARS	174	72	4 1/2 IF	2 - Drispac		3138	m 36.9	° 208.8	
24 HWDP	127	76	4 1/2 IF	DC S 2735	CCS 1,269,578		m	°	
							m	°	
BHA LENGTH				JTS. D.P. : ON RACKS		132	m	°	
HOOK LOAD				: IN STRING		301	m	°	
AVAILABLE WOB				: TOTAL		433	m	°	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE RAINS	SUMMARY	
DRILLING	5.5	CEMENT		CORING		REPAIR			TODAY	CUM.
TRIP	13.75	ROP DRILL		LOGGING		WASH TO BOYT.	1.5		22.5	7271.75
RIG SERVICE	.75	HANDLE TOOLS	2.5	TESTING		CIRCULATE				182.25
SURVEY		CIRCULATE		CIRC. SAMPLE		FISH			1.5	1714
WIP & CUT		PRESSURE TEST		HANIK & TIE INS		TRIP			24	9168
COND. MUD		POLISH PILING		TRIP		HANDLE TOOLS				
NIPPLE UPON		ATTEMPT CIRC.		REAM HATHOLE						- 20 c
RUN CASING				CIRCULATE						GOOD

24 SUMMARY

Trip out for BHA and bit change dump valve not working wet trip - Lay down mud motor - Pick up HDS low speed mud motor and adjust bent housing to 1.5 degrees - Service MWD - Trip in to 115m shallow test MWD
Trip in and break circulation at 1814m - 2074m - 2440m - 2675m - 2989m - Wash and ream 3115m - 3140m
Directional drill 215.9mm hole with 1.5 degree low speed Halliburton mud motor and survey with MWD 3140m - 3159m
Hole drag up - 20-40,000 dan
Hole drag down - 6-15,000 dan
Torque on bottom - 2200 P.S.I.
Trip gas - 80 Units
Back ground gas - 25 Units
SIGNED BY: ART SCHRITT
MOBILE NO: (403)210-1202 (403) 424-8050

01/29/98 07:48 FAX

DAILY MUD REPORT

WELL NAME	RANGER FT. LIARD		LOCATION		Page		DATE		29-Jan-98	
OPERATOR	RANGER OIL LTD.		CONTRACTOR		CACTUS 26-E		REPORT No		229	
REPORT FOR Mr.	ART SCHRITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (m3)		PUMP OUTPUT		ANNULAR VEL. m/min		
BIT SIZE (mm)	216.0	LENGTH (m)	SIZE (mm)	LENGTH(m)	TANKS	142	PUMP #1	140 X 254	OPPOSITE DP	51
BIT NUMBER			508.0	283	HOLE	100.7	M3/STK		OPPOSITE DC	81
DRILL PIPE #1(mm)	127.0	2891	244.5	3115	TOTAL	243	PUMP #2	140 X 254	CIRC TIME	120
DRILL PIPE #2(mm)	127.0	220	LINER	TOP/BOT	STAND BY		M3/STK	0.0117	BOTTOMS UP	62
COLLAR #1(mm)	165.0	38					S.P.M	105		
COLLAR #2(mm)							M3/MIN	1.2285		
HOLE DATA		DEGRASSER		DESILTER		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS		
MUD TYPE - Kelzan/Bentonite		FLOWLINE WT.				kg/m3		MUD WT.		1020 Kg/m3
HOLE COND - CASED		UNDERFLOW WT				kg/m3		VISCOSITY		45-60 cP
DEVIATION-11ZZ 40.4 214.7		OVERFLOW WT				kg/m3		FILTRATE		10-12 cm3/30 min.
CURRENT OP.-DRILLING		UNDERFLOW RT				m3/min		pH		10.0-10.5
EQUIPMENT:		X DEGASSER		DESILTER		DESANDER		X CENTRIFUGE		
		XX DOUBLE DECK OR HIGH SPEED SHAKER								

MUD PROPERTIES

INVENTORY

TIME SAMPLE TAKEN	5:01	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	Flowline		RECEIVED	SINCE LAST	USED SINCE	USED TO	REMAINING	COST	COST
PRESENT DEPTH	3149		TO DATE	REPORT	LAST REPORT	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	60	BARITE #5	18375			13895	4480		\$270,862.50
DENSITY	1030	BARITE #6	4851			3140	1711		\$54,008.00
FUNNEL VISCOSITY (cP)	54	CALC CARB 2	840			840			\$8,400.00
RED READING	52	CALC CARB 325	1680			1120	560		\$11,200.00
300 READING	34	CALCITIC	360			251	109		\$16,558.00
APPARENT VISCOSITY (mPa.s)	29	FLO PLEX	720			227	493		\$43,584.00
THIN VISCOSITY (mPa.s)	18	DEF FLA	7				7		
DINT (Pa)	8	SELAN XED	320			158	164		\$133,536.00
/10 min. (Pa)	4-9	XANAS	54			18	36		\$18,000.00
PM	STRIP	METER	X	12	LIGHT	136	60	78	\$1,200.00
FILTRATE (cm3)	AP	X	12	LIME	1626		1482	144	\$22,971.00
FILTER CAKE (mm)			1	SAWFLUT	1400		560	810	\$3,635.00
PF			3.60	SPICE 40H	40		5	35	\$180.00
MF			5	BENTONITE 45g	2800		2209	361	\$34,791.75
PM				BENTONITE 45g	1570		1080	490	\$19,332.00
TOTAL HARDNESS (mg/l)	X	Ca	40	ONP CARBONATE	80			80	
CHLORIDES (mg/l)	X	NaCl	2200	MED 800 Lime ad	20			20	
SAND CONTENT	X	FR		WALNUT (m)	1300		1203	97	\$43,308.00
SOLIDS CONTENT	X	FR	1.8	ACIDE 207	108		21	85	\$4,452.00
OIL/WATER CONT	X	FR		Bleed Disintegrator	10			10	
MBT (Kg/m3)	X	OIL RET	15		PREVIOUS COST	\$2,588,624.75		STARTING VOLUME	252
EQUIVALENT CIRCULATING DENSITY	1116.3				DAILY COST	\$4,513.20		VOL BUILT	30.5
OIL WATER RATIO					CUM. COST	\$2,633,137.95		VOL LOST ON SURFACE	2.1
CMC2 wt%					DISCOUNTED COST	\$1,431,722.87		VOL LOST ON SUB SURFACE	
"n"	0.22				CUM ENG. COST	\$145,850.00		END VOLUME	107
"K"	5.58				TOTAL COST	\$1,577,575.87		CUM VOL LOST	37.2

RECOMMENDATIONS:

RIG ACTIVITIES: (Last 12 hours)
DRILL TO 3140 POH

Please Maintain the following:

1. pH TO 10.0-10.5 w/ Caustic no additions required
2. Vis at 50-55 mPa.s w/ Kelzan or IDVIS-D and Prehydrated Gel
3. If Weight material is required, Use Barite
4. Fluid loss @ 10-12 ml/30 min w/ Drispac use regular if viscosity is required
5. Add IDLUBE to control torque and drag Add AntiFoamer D67 while mixing ID LUBE
6. ADD 20 L OF PFS-300 Monoethanolamine PER DAY
7. ADD 1 JUG OF 3-GIDS 207 PER HOUR

Thanks, Don

STOCK POINT	FORMULA TRANSPORT @ GRANDE PRAIRIE	DOWELL ENGINEER	DAN MAJOCHA	MOBILE #
NE	801.4000	PHONE NUMBER	CAMP ROOM # 5	PAGE #

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

Halliburton Drilling Systems

Survey Report

Page 1
 Job No: 97d007s4
 Date: 1/29/98
 Time: 7:22 am
 Wellpath ID: 97d007s4
 Date Created: 1/27/97
 Last Revision: 1/29/98

Calculated using the Minimum Curvature Method
 Computed using WIN-CADDs REV2.2.0
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Lard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D007S4
 UWI 300P666040123300

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3138.00	38.90	208.80	2707.72	-2247.83	1072.57	765.81 S	751.03W	9.52

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-28 REPORT NO.: 381
 DEPTH: 3140 m PROGRESS: 17 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: TRIP OUT FOR BHA AND BIT CHANGE
 CONTRACTOR/RIG SUPT.: Precision Drilg Rig #426E Terry Gongichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 77,067 CUM. COST: \$ 23,563,513 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 1900 kPa @: 50 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 7 - 7 MAXIMUM CASING HOLD BACK 21,000 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS	PUMPS	
BIT NUMBER	<u>63</u>			WEIGHT (kg/m ³)	<u>1025</u>		No. 1 LINER (mm)	<u>140</u>
SIZE (mm)	<u>215.9</u>			VISCOSITY (s/l)	<u>56</u>		No. 1 STROKES PER MINUTE	<u>105</u>
TYPE	<u>D12ST</u>			pH	<u>12.5</u>		No. 2 LINER (mm)	<u>140</u>
SERIAL No.	<u>JQ7603</u>			PV (mPa S)	<u>19</u>		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)	<u>8</u>		VOLUME (m ³)	<u>1.2</u>
DEPTH IN (m)	<u>3116.5</u>			GELS (Pa)	<u>4 // 10</u>		PRESSURE (kPa)	
METERS (m)	<u>24</u>			SAND (%)			D.P. ANNULAR VEL. (m/min.)	<u>45</u>
HOURS	<u>29.25</u>			SOLIDS (%)	<u>1.5</u>		D.C. ANNULAR VEL.	
WOB (1000 daN)	<u>2-10</u>			FILTER CAKE (mm desc.)	<u>1</u>		D.C. ANNULAR VEL. (m/min.)	
R.P.M.	<u>350</u>			FLUID LOSS (cc)	<u>12</u>		SOLIDS CONTROL	
CONDITION	<u>LN</u>			CHLORIDES	<u>2500</u>		SHAKER SCREENS	<u>210 - 175</u>
DRILLING ASSEMBLY				Ca	<u>40</u>		DRYER SCREENS	
ITEM	O.D.	I.D.	T.I. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.
VECTOR MM	<u>158</u>		<u>4 1/2 Reg.</u>					<u>1730</u>
XO SUB	<u>159</u>	<u>62</u>	<u>4 1/2 Reg.</u>	<u>5 - Drispac</u>		OF. (kg/m ³)		<u>1020</u>
PULSER DC	<u>166</u>		<u>4 1/2 IF</u>	<u>3 - Citric Acid</u>		VOL. (l/min.)		<u>4</u>
2FLX-NMDC	<u>163</u>	<u>73</u>	<u>4 1/2 IF</u>	<u>3 - Kchem</u>		HOURS		<u>18</u>
JARS	<u>174</u>	<u>72</u>	<u>4 1/2 IF</u>	<u>1 - Xcide 207</u>		SURVEYS	ANGLE	DIRECTION
34 HWDP	<u>127</u>	<u>76</u>	<u>4 1/2 IF</u>			<u>3095</u>	<u>m 43.9</u>	<u>° 219.8</u>
				<u>DC S 2355</u>	<u>CCs 1,266,843</u>	<u>3122</u>	<u>m 40.4</u>	<u>° 214.7</u>
BHA LENGTH	<u>258.13</u>	<u>M</u>	<u>JTS. D.P. : ON RACKS</u>	<u>132</u>				
HOOK LOAD	<u>122,000</u>	<u>daN</u>	<u>: IN STRING</u>	<u>301</u>				
AVAILABLE WOB	<u>18,000</u>	<u>daN</u>	<u>: TOTAL</u>	<u>433</u>				

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	<u>21.5</u>	<u>CEMENT</u>		<u>CORING</u>		<u>REPAIR</u>	<u>.5</u>	TODAY	CUM.
TRIP	<u>1.25</u>	<u>BOP DRILL</u>		<u>LOGGING</u>		<u>WASH TO HVT</u>		<u>23.5</u>	<u>7249.25</u>
RIG SERVICE	<u>.75</u>	<u>HANDLE TOOLS</u>		<u>TESTING</u>		<u>CIRCULATE</u>			<u>182.25</u>
SURVEY	<u>.25</u>	<u>CIRCULATE</u>		<u>CIRC. SAMPLE</u>		<u>FISH</u>		<u>.5</u>	<u>1712.5</u>
SLIP & CUT		<u>PRESSURE TEST</u>		<u>HANDLE TOOLS</u>		<u>TRIP</u>		<u>24</u>	<u>9144.7</u>
CONID. MUD		<u>POUR PLUG</u>		<u>TRIP</u>		<u>HANDLE TOOLS</u>		CLOUD	
NOBLEUP/DN		<u>ATTEMPT CIRC</u>		<u>REAM HATHOLE</u>				TEMPERATURE	
RUN CASING				<u>CIRCULATE</u>				<u>- 17 c</u>	
								ROADS	
								<u>GOOD</u>	

24 SUMMARY

Time drill 215.9mm hole with 1.83 degree high speed Vector mud motor and survey with MWD 3123m - 3140m

Survey - Trip out for BHA and bit change

Hole drag up - 25-38,000 daN

Hole drag down - 8-12,000 daN

Torque on bottom - PSI

Back ground gas - 10 Units

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-27 REPORT NO.: 380
 DEPTH: 3123 m PROGRESS: 7 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: TIME DRILL WITH SIDE TRACK BIT
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schrit
 DAILY COST: \$ 32,601 CUM. COST: \$ 23,486,446 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 1900 kPa @: 50 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 16.48 m³ ACTUAL HOLE FILL: 20.68 m³
 BOP DRILLS CONDUCTED WHILE CONDUCTED AT HRS. CREW PERFORMANCE MIN.
 DAYS SINCE BOP DRILL (EACH CREW): 6 - 6 MAXIMUM CASING HOLD BACK 21,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS		
BIT NUMBER	63			WEIGHT (kg/m ³)	1030	No. 1 LINER (mm)	140	
SIZE (mm)	215.9			VISCOSITY (s/l)	47	No. 1 STROKES PER MINUTE	105	
TYPE	D12ST			pH	12.7	No. 2 LINER (mm)	140	
SERIAL No.	JQ7603			PV (mPa S)	15	No. 2 STROKES PER MINUTE		
NOZZLES (mm)				YP (Pa)	3.5	VOLUME (m ³)	1.2	
DEPTH IN (m)	3116.5			GELS (Pa)	1.5 // 10	PRESSURE (kPa)		
METERS (m)	7			SAND (%)		D.P. ANNULAR VEL. (m/min.)	45	
HOURS	7.75			SOLIDS (%)	1.8	D.C. ANNULAR VEL.		
WOB (1000 daN)	1 - 2			FILTER CAKE (mm desc.)	2	D.C. ANNULAR VEL. (m/min.)		
R.P.M.	350			FLUID LOSS (cc)	19	SOLIDS CONTROL		
CONDITION	IN			CHLORIDES	3000	SHAKER SCREENS	210 - 175	
DRILLING ASSEMBLY				Ca	60	DRYER SCREENS		
ITEM	O.D.	I.D.	T.I. TYPE	MUD ADDITIVES				
VECTOR MM	158		4 1/2 Reg.	U.F. (kg/m ³)		D. SILT.		CENT.
XO SUB	159	62	4 1/2 Reg.	5 - Bicarb		OF. (kg/m ³)		
PULSER DC	166		4 1/2 IF	2 - Citric Acid		VOL. (l/min.)		
2FLX-NMDC	163	73	4 1/2 IF	2 - Lignosite		HOURS		
JARS	174	72	4 1/2 IF	1 - Xcelde 207		SURVEYS	ANGLE	DIRECTION
24 HWDP	127	76	4 1/2 IF	5 - Kelzan			m	o
				DC S 2896	CCS 1,264,488		m	o
BHA LENGTH	258.13	M		JTS, D.P. : ON RACKS	142		m	o
HOOK LOAD	122,000	daN		: IN STRING	291		m	o
AVAILABLE WOB	18,000	daN		: TOTAL	433		m	o

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	7.75	CEMENT		CORING		REPAIR		TODAY	CUM.
TRIP	9.5	BOP DRILL		LOGGING		WASH TO BOTTL	1	23	7225.75
RIG SERVICE	.75	HANDLE TOOLS	4.25	TESTING		CIRCULATE			182.25
SURVEY		CIRCULATE		CIRC. SAMPLE		FISH		1	1712
SLIP & CUT	.75	PRESSURE TEST		HANDLE TOOLS		TRIP		24	9120.7
COND. MUD		POWISH PLUG		TRIP		HANDLE TOOLS		CLOUD	
NEPPEUP/DN		ATTEMPT CIRC		REAM RATHER				TEMPERATURE	-17 c
RUN CASING				CIRCULATE				ROADS	GOOD

24 SUMMARY

Trip out plugged bit and mud motor - Unable to unplug mud motor - Change out mud motor and service MWD
 Trip in to 114m and shallow test MWD - Trip in BHA - Slip and cut drill line - Trip in break circulation at 1910m - 2301m
 2612m - 3068m - Wash to bottom 3068m - 3116m - Orient tool - Time drill side track with 1.83 degree high speed
 Vector mud motor and survey with MWD 110 - 120 left tool face - Sample from 3120m 100% cement

Hole drag up - 20-25,000 daN
 Hole drag down - 5-10,000 daN
 Torque on bottom - 1750 PSI
 Back ground gas - 17-19 Units
 SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD		LOCATION		P-66-4		DATE		27-JAN-98	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS 25-E		REPORT No		317	
REPORT FOR Mr.		ART SCHMITT		REPORT FOR Mr.		TERRY GORGICHUCK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL (bbl)		PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)	218.0	LENGTH (m)		SIZE (mm)		TANKS	123	PUMP #1	140 X 254	OPPOSITE DP	56
BIT NUMBER				508.0	283	HOLE	98.8	M3/STK		OPPOSITE DC	77
DRILL PIPE #1 (mm)	127.0	2858		244.5	3115	TOTAL	273	PUMP #2	140 X 254	CIRC. TIME	145
DRILL PIPE #2 (mm)	127.0	220		LINER	TOP/BOT.	STAND BY		M3/STK	0.0117	BOTTOMS UP	63
COLLAR #1 (mm)	186.0	35						S.P.M.	103		
COLLAR #2 (mm)								M3/MIN	1.2051		
HOLE DATA		DESANDER		DESILTER		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS			
MUD TYPE - Kelzan /Bentonite		FLOWLINE WT				kg/m3		MUD WT.		1020 kg/m3	
HOLE COND -CASED		UNDERFLOW WT				kg/m3		VISCOSITY		#5-50 #/L	
DEVIATION-		OVERFLOW WT.				kg/m3		FILTRATE		10-12 cm3/30 min.	
CURRENT OP. CONTROL DRILL		UNDERFLOW RT.				m3/min		PH		10.0-10.5	
EQUIPMENT:		X DEGASSER		DESILTER		DESANDER		X CENTRIFUGE			
		XX DOUBLE DECK OR HIGH SPEED SHAKER									

MUD PROPERTIES				INVENTORY						DAILY COST	CUMULATIVE COST
TIME SAMPLE TAKEN	2:27	MATERIALS	RECEIVED	RECEIVED	MATERIALS	MATERIALS	MATERIALS	MATERIALS	MATERIALS		
SAMPLE FROM	Flowline		RECEIVED	SPRINK LAST	USED SINCE	USED TO	REMAINING	ON LOCATION			
PRESENT DEPTH	3115		TO DATE	REPORT	LAST REPORT	DATE					
FLOWLINE TEMPERATURE (C)	60	BARITE MS	16375			13895	4480				\$270,822.00
DENSITY	1030	BARITE MS	4851			3140	1711				\$56,009.00
FUNNEL VISCOSITY (cP)	47	CALC GARB 8	840			840					\$9,400.00
SDO READING	37	CALC GARB 375	1680			1120	560				\$11,200.00
300 READING	22	BAUSTE	360			251	109				\$14,556.00
APPARENT VISCOSITY (mPa.s)	18.5	OLD FLEX	720			227	493				\$43,584.00
PLASTIC VISCOSITY (mPa.s)	15	DOF FLR	7				7				
POINT (Pa)	3.5	DELAN MCO	320			158	184				\$133,538.00
1/10 min. (Pa)	1.5-10	BARITE	54			18	36				\$18,000.00
STRIP	METER X	12.7	WHITE	136		80	76				\$1,200.00
FILTRATE (cm3)	API X	19	LINE	1626		1482	144				\$22,071.00
FILTER CAKE (mm)	2	BARITE	1470			590	810				\$3,835.00
PF	5.30	DOOLASH	40			5	35				\$180.00
MF	6.8	BENTONITE 44g	2000			2209	391				\$34,791.75
PM		BENTONITE 44g	1570			1080	490				\$19,302.00
TOTAL HARDNESS (mg/l)	X Ca	80	ZINC CARBONATE	80			80				
CHLORIDES (mg/L)	X NaCl	3000	PSO 520 Amg 40	29			29				
SAND CONTENT	% FR		WALNUT (8)	1300		1203	97				\$43,368.00
SOLIDS CONTENT	% FR	1.8	CLIDE 207	106		21	85				\$4,452.00
OIL/WATER CONT	% FR		Washers Deming	10			10				
MBT (kg/m3)	X OIL RET	15		PREVIOUS COST	\$2,591,781.55			STARTING VOLUME		252	
EQUIVALENT CIRCULATING DENSITY	1075.8			DAILY COST	\$1,212.20			VOL. BUILT		30.6	
OIL WATER RATIO				CUM. COST	\$2,582,073.75			VOL. LOST ON SURFACE		2.1	
CaOZ WAPA				DISCOUNTED COST	\$1,426,135.56			VOL. LOST ON SUB SURFACE			
"n"	0.33			CUM. ENG. COST	\$143,150.00			END VOLUME		197	
"k"	1.74			TOTAL COST	\$1,569,285.56			CUM VOL LOST		37.3	

RECOMMENDATIONS:

REDUCE pH W/ ADD 4 SX OF CITRIC ACID 2 SX PER CIRC
ADD ALL BROKEN BAGS OF KELZAN AND ADD 15 M³ OF PRISX
ADD 55% OF DRISPAK AND 2 SX OF LIGNITE

Please maintain the following:

1. pH TO 10.0-10.5 w/ Caustic no additions required
2. Vis at 50-55 cP/L w/ Kelzan or NOVIS-D and Prehydrated Gel
3. If Weight material is required, Use Barite
4. Fluid loss @ 10-12 ml /30 min w/ Drispac use regular if viscosity is required
5. Add LULUBE to control torque and drag Add Antifoamer D47 while mixing ID LUBE
6. ADD 20 L OF PFS-200 Monoammonium PER DAY
7. ADD 1 JUG OF X-CIDE 207 PER TOUR

RIG ACTIVITIES: (Last 12 hours)

RIH ATTEMPT TO CIRC COULD NOT BREAK CIRC
ROH CHANGE OUT MOTOR RIH

Thanks, Dan

STOCK POINT	FORMULA TRANSPORT @ GRANDE PRAIRIE	DOVELL ENGINEER	DAN MAJOZHA	MOBILE #
PHONE	801.4000	PHONE NUMBER	CAMP ROOM # 5	PAGE #

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

01/28/98 08:47 FAX

RANGER OIL LIMITED

WELL	Ranger Fort Liard P-66-A	DATE	98-01-26	REPORT NO.:	379
DEPTH:	3116.5 m	PROGRESS:	0 m	FORMATION:	NAHANNT
OPERATIONS AT 06:00 HOURS: TRIP OUT PLUGGED BIT					
CONTRACTOR/RIG SUPT.:	Precision Dril Rig #426E Terry Gorgichuk	CO. SUPERVISOR:	Art Schmitt		
DAILY COST: \$ 27,521	CUM. COST: \$ 23,453,845	AFE NO:	E6D-015		

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	1900	kPa @:	50	SPM
TRIP RECORDS: CALCULATED HOLE FILL	16.79	m ³ ACTUAL HOLE FILL:	18.16	m ³				
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MTN.				
CONDUCTED AT		HRS. CREW PERFORMANCE						
DAYS SINCE BOP DRILL (EACH CREW):	5 - 5	MAXIMUM CASING HOLD BACK	21,500	kPa				

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER	RR61	63		WEIGHT (kg/m ³)		1020	No. 1 LINER (mm)	140	
SIZE (mm)	215.9	215.9		VISCOSITY (s/l)		51	No. 1 STROKES PER MINUTE	105	
TYPE	S44 GF	D12ST		pH		12.7	No. 2 LINER (mm)	140	
SERIAL No.	603637	JQ7603		PV (mPa S)		15	No. 2 STROKES PER MINUTE		
NOZZLES (mm)	3x12.7			YP (Pa)		6.5	VOLUME (m ³)	1.2	
DEPTH IN (m)	3071	3116.5		GELS (Pa)		3 // 20	PRESSURE (kPa)		
METERS (m)	45.5			SAND (%)		0	D.P. ANNULAR VEL. (m/min.)	45	
HOURS	2.5			SOLIDS (%)		1.2	D.C. ANNULAR VEL.		
WOB (1000 daN)	5000			FILTER CAKE (mm desc.)		2	D.C. ANNULAR VEL. (m/min.)		
R.P.M.	60	350		FLUID LOSS (cc)		18	SOLIDS CONTROL		
CONDITION	4-2-I	IN		CHLORIDES		3000	SHAKER SCREENS	210 - 175	
DRILLING ASSEMBLY				Ca		160	DRYER SCREENS		
ITEM	O.D.	I.D.	T.J. TYPE				D. SILT.	CENT.	
VECTOR MM	161		4 1/2 Reg.	MUD ADDITIVES			U.F. (kg/m ³)		
XO SUB	159	62	4 1/2 Reg.	5 - Bicarb			OF. (kg/m ³)		
PULSER DC	166		4 1/2 TF	28 - Gel			VOL. (l/min.)		
2FLX-NMDC	163	73	4 1/2 TF				HOURS		
JARS	174	72	4 1/2 TF				SURVEYS	ANGLE	
24 HWDP	127	76	4 1/2 TF					DIRECTION	
				DC S 795 CCS 1,261,592			m	o	
BHA LENGTH	258.13	M	JTS D.P. : ON RACKS	142			m	o	
HOOK LOAD	122,000	daN	: IN STRING	291			m	o	
AVAILABLE WOB	18,000	daN	: TOTAL	433			m	o	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	SUMMARY	
DRILLING		CEMENT		CONKING		REPAIR			TODAY	CUM.
TRIP	15	BOP DRILL		LOCKING		WASH TO BOT.			24	7202.75
RIG SERVICE	.75	HANDLE TOOLS	3	TESTING		CIRCULATE				182.25
SURVEY		CIRCULATE	1.5	CIRC. SAMPLE		FISH				1711
SLIP & CUT		PRESSURE TEST		HANDLE TOOLS		TRIP			24	9096
COND. MUD		POLISH PLUG	1.75	TRIP		HANDLE TOOLS			CLEAR	
NUPPLE UPON		ATTEMPT CIRC	2	REAM RATEHOLE					- 20 c	
RUN CASINO				CIRCULATE					GOOD	

24 SUMMARY

Polish plug 3087m - 3116.5m WOB 6000 dan RPM 60 ROP 3.5m per hour - Circulate bottoms up - Blow mud line and top drive - Trip out - Pick up directional tools - Trip in shallow test MWD at 110m - Trip in break circulation at 1816m - Trip in break circulation at 2195m - 2517m - 2859m - 2985m - Trip in to 3112m unable to circulate - Trip out to 2935m Attempt to break circulation - Trip out plugged bit

SIGNED BY: ART SCHRITT

MOBILE NO: (403) 210-1202 (403) 424-8050

01/26/98 06:50 FAX

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD		LOCATION		R-65-6		DATE		25-Jan-98	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS 25-E		REPORT No		318	
REPORT FOR Mr.		ART SCHRITT		REPORT FOR Mr.		TERRY GORDONCHUCK		SPUD DATE		12-JAN-97	
ASSEMBLY			CASINO			MUD VOL. (BBL)			PUMP OUTPUT		
BIT SIZE (mm)	216.0	LENGTH (m)		SIZE (mm)		TANKS	123	PUMP #1	140 X 254	OPPOSITE DP	44
BIT NUMBER				SIZE (mm)	283	HOLE	99.6	M3/STK	0.0117	OPPOSITE DC	68
DRILL PIPE #1 (mm)	127.0	2856		SIZE (mm)	3115	TOTAL	723	PUMP #2	140 X 254	CIRC TIME	209
DRILL PIPE #2 (mm)	127.0	220		LINER	TOP/BOT	STAND BY		M3/STK		BOTTOMS UP	71
COLLAR #1 (mm)	165.0	30						S.P.M	91		
COLLAR #2 (mm)								M3/MIN	1.0247		
HOLE DATA			DEGRANDER			DESILTER			CENTRIFUGE		
JO TYPE - Kelzan Reamline			FLOWLINE WT			kg/m3			MUD WT		
2-E COND - CASED			UNDERFLOW WT			kg/m3			VISCOSITY		
VIATION -			OVERFLOW WT			kg/m3			FILTRATE		
JRRFNT OP - POLISH PLUG			UNDERFLOW RT			m3/min			pH		
EQUIPMENT:			X DEGAUSSER			DESILTER			DESANDER		
			XX DOUBLE DECK OR HIGH SPEED SHAKER			X CENTRIFUGE					

MUD PROPERTIES				INVENTORY						DAILY COST	CUMULATIVE COST
ME SAMPLE TAKEN	10.08	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIALS	MATERIALS	MATERIALS		
AMPLE FROM	Flowline		RECEIVED	SINCE LAST	USED 8/10/98	USED TO	USED TO	REMAINING	ON LOCATION		
PRESENT DEPTH	3115		TO DATE	REPORT	LAST REPORT	DATE					
LOWLINE TEMPERATURE (C)	60	BASITE 40	18375			13895		4480			\$270,852.30
DENSITY	1020	BASITE 40	4851			3140		1711			\$54,008.00
UNNEL VISCOSITY (cP)	51	CALC CARB 0	840			840					\$8,400.00
OO READING	43	CALC CARB 25	1680			1120		560			\$11,200.00
OO READING	28	CAUSTIC	380			251		109			\$14,558.00
PPARENT VISCOSITY (mPa.s)	21.5	FLO PLOK	720			227		493			\$43,584.00
C VISCOSITY (mPa.s)	15	REV FLR	7					7			
JOINT (Pa)	6.5	KELZAN 300	320			156		184			\$133,536.00
2/10 min. (Pa)	3/20	KANAB	54			18		36			\$18,000.00
HI	12.7	LIGHT	136			60		76			\$1,200.00
FILTRATE (cm3)	18	LIBE	1626			1482		144			\$22,971.00
FILTER CAKE (mm)	2	MARLBEST	1400			590		810			\$3,635.00
MF	5.00	SDO A 5H	40			5		35			\$180.00
MF	6	ADENTONITE 400	2500			2209		391			\$34,791.75
2H		ADENTONITE 400	1570			1080		490			\$19,332.00
TOTAL HARDNESS (mg/L)	180	ONE CARBONATE	80					80			
CHLORIDES (mg/L)	3000	250 800 ANION 40	29					29			
SAND CONTENT	FR	WALNUT 04	1300			1203		97			\$43,308.00
SOLIDS CONTENT	1.2	SL-ONE 207	106			21		85			\$4,452.00
OIL/WATER CONT	FR	Slurries (Gardner)	10					10			
MBT (kg/m3)	19			PREVIOUS COST	\$2,584,611.55				STARTING VOLUME		257
EQUIVALENT CIRCULATING DENSITY	1087.6			DAILY COST	\$790.00				VOL. BUILT		30.5
OIL WATER RATIO				CUM. COST	\$2,585,401.55				VOL. LOST ON SURFACE		2.1
CaCR Wt%				DISCOUNTED COST	\$1,421,970.86				VOL. LOST ON SUB SURFACE		
"n"	0.25			CUM. ENG. COST	\$143,150.00				END VOLUME		197
"k"	4.02			TOTAL COST	\$1,595,120.85				CUM VOL. LOST		37.3

RECOMMENDATIONS:
 ADD 10 BZ OF BICARB
 ADD ALL BROKEN BAGS OF KELZAN AND ADD 15 MP'S OF FRENIX
 RUN WATER TO INCREASE VOLUME

RIG ACTIVITIES: (Last 12 hours)
 WOC POLISH PLUG
 POH RIH W/ BIT WOC

Thanks, Dan

FROM PRESENT CLEANED OUT DEPTH and below, Please Maintain the following:
 1. pH TO 10.0-10.5 w/ Caustic - no additions required
 2. Vts at 500-550 cP w/ Kelzan or 10VLS-0 and Polydispersed Gel
 3. If weight material is required, Use Grits and Rites Vts to 45-55 sec/L
 4. Fluid loss @ 10 - 12 ml /30 min w/ DriSpec use regular if viscosity is required
 5. Add SLURBS to control torque and drag Control foaming w/ Antifoamer D47

CK POINT FORMULA TRANSPORT @ GRANDE PRAIRIE
 IE 831-4000

DEWELL ENGINEER
 PHONE NUMBER

DAN MAJOCHA
 CAMP ROOM # 5

MOBILE #
 PAGE 8

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-25 REPORT NO.: 378
 DEPTH: 3074 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: POLISH PLUG AT 3074m
 CONTRACTOR/RIG SUPT.: Precision Drilg Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 31,478 CUM. COST: \$ 23,426,324 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 2100 kPa @: 60 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 4 - 4 MAXIMUM CASING HOLD BACK 21,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS	PUMPS		
BIT NUMBER	RR61			WEIGHT (kg/m ³)	1020		No. 1 LINER (mm)	140	
SIZE (mm)	215.9			VISCOSITY (s/l)	47		No. 1 STROKES PER MINUTE	90	
TYPE	S44 GF			pH	12.5		No. 2 LINER (mm)	140	
SERIAL No.	663637			PV (mPa S)	15		No. 2 STROKES PER MINUTE		
NOZZLES (mm)	3x12.7			YP (Pa)	8.5		VOLUME (m ³)	1.0	
DEPTH IN (m)	3071			GELS (Pa)	1.5/5		PRESSURE (kPa)	4400	
METERS (m)	14			SAND (%)	0		D.P. ANNULAR VEL. (m/min.)	41	
HOURS	.75			SOLIDS (%)	1.2		D.C. ANNULAR VEL.	68	
WOB (1000 daN)	5000			FILTER CAKE (mm desc.)	2		D.C. ANNULAR VEL. (m/min.)		
R.P.M.	60			FLUID LOSS (cc)	12.5		SOLIDS CONTROL		
CONDITION	IN			CHLORIDES	1900		SHAKER SCREENS	210 - 175	
DRILLING ASSEMBLY				Ca	120		DRYER SCREENS		
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)		D. SILT	CENT.
BIT SUB	165	64	4 1/2 H90			OF. (kg/m ³)			
3 DCs	165	64	4 1/2 H90	5 - Bicarb		VOL. (l/min.)			
XO SUB	170	73	5 H90			HOURS			
TARS	171	64	5 H90			SURVEYS		ANGLE	DIRECTION
XO SUB	170	73	4 1/2 IF						
24 HWDP	127	76	4 1/2 IF						
				DC S 550	CCS 1,260,797		m	o	
								m	o
BHA LENGTH	256.55	M	JTS. D.P. : ON RACKS	142			m	o	
HOOK LOAD	122,000	daN	: IN STRING	291			m	o	
AVAILABLE WOB	16,000	daN	: TOTAL	433			m	o	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS			SUMMARY	
DRILLING		CEMENT		CORING		REPAIR TOPDR			TODAY	CUM.
TRIP	<u>7.75</u>	BOP DRILL		LOCKING		WASH TO BOT.		DRILL OP	<u>24</u>	<u>7178.75</u>
RIG SERVICE	<u>.75</u>	HANDLE TOOLS		TESTING		CIRCULATE		EVALUATION		<u>182.25</u>
SURVEY		CIRC. WOC	<u>14.5</u>	CIRC. SAMPLE		FISH		PROBLEMS		<u>1711</u>
SUMP & CUT		PRESSURE TEST		HANDLE TOOLS		TRIP		TOTAL	<u>24</u>	<u>9072.7</u>
COND. MUD		POLISH PLUG	<u>1</u>	TRIP		HANDLE TOOLS		WEATHER	<u>CLOUDY</u>	
NIPPLE/UPHOLD		WORK SCRAPER		REAM RATIOLE		THAW LINES		TEMPERATURE	<u>-19 c</u>	
RUN CASING				CIRCULATE				ROADS	<u>GOOD</u>	

24 SUMMARY

Trip out - Make up BHA - Trip in with bit to 2870m - Circulate wait on cement - Trip in tag plug at 3071m
 Polish plug 3071m - 3087m ROP 23m per hour

SIGNED BY: ART SCHRITTMOBILE NO: (403)210-1202 (403) 424-8050

01/23/98 09:31 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-23 REPORT NO.: 376
 DEPTH: 3097 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: TRIP IN WITH BIT TO POLISH PLUG
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gargichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 22,728 CUM. COST: \$ 23,350,693 AFE NO: E6D-Q15

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 2700 kPa @: 62 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 16.74 m³ ACTUAL HOLE FILL: 19.13 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 2 - 2 MAXIMUM CASING HOLD BACK 21,000 kPa

DRILLING PARAMETERS

BIT PERFORMANCE		MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER	RR61	WEIGHT (kg/m ³)	1015	No. 1 LINER (mm)	140		
SIZE (mm)	215.9	VISCOSITY (s/l)	50	No. 1 STROKES PER MINUTE	50		
TYPE	544 GF	pH	11.5	No. 2 LINER (mm)	140		
SERIAL No.	663637	PV (mPa S)	15	No. 2 STROKES PER MINUTE	50		
NOZZLES (mm)	3x12.7	YP (Pa)	9	VOLUME (m ³)	1.17		
DEPTH IN (m)		GELS (Pa)	2.5/7.5	PRESSURE (kPa)	5000		
METERS (m)		SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	48		
HOURS		SOLIDS (%)	.9	D.C. ANNULAR VEL.			
WOB (1000 daN)		FILTER CAKE (mm deep.)	1	D.C. ANNULAR VEL. (m/min.)			
R.P.M.		FLUID LOSS (cc)	11.2	SOLIDS CONTROL			
CONDITION		CHLORIDES	1400	SHAKER SCREENS	210	175	
		Ca	30	DRYER SCREENS			

DRILLING ASSEMBLY

ITEM	O.D.	I.D.	T.I. TYPE	MUD ADDITIVES		D. SILT. CENT.	
BIT SUB	165	64	4 1/2 H90	U.F. (kg/m ³)		1890	
3 DCs	165	64	4 1/2 H90	OF. (kg/m ³)		1005	
XO SUB	170	73	5 H90	VOL. (l/min.)		4.5	
JARS	171	64	5 H90	HOURS		8	
XO SUB	170	73	4 1/2 IF	SURVEYS		ANGLE	DIRECTION
34 HWDP	127	76	4 1/2 IF			m	°
				DC S 2100 CCS 1,252,327		m	°
BHA LENGTH	256.55	M	JTS. D.P. : ON RACKS	142		m	°
HOOK LOAD	122,000	daN	: IN STRING	291		m	°
AVAILABLE WOB	16,000	daN	: TOTAL	433		m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CURING		REPAIR TOPHAT		TODAY	CUM.
TRIP	19.25	BOP DRILL		LOGGING		WASH TO BOTTOM		24	7130.75
RIG SERVICE	.75	HANDLE TOOLS	.5	TESTING		CIRCULATE			182.25
SURVEY		CIRCULATE	1.5	CIRC. SAMPLE		FISH			1711
SLIP & CUT		PRESSURE TEST		HANDLE TOOLS		TRIP		24	9024.7
COND. MUD		POLISH PLUG		TRIP		HANDLE TOOLS		WEATHER LIGHT SNOW	
NIPL/FUP/DN		WORK SCRAPER	2	REAM RATHOLE		THAW LINES		TEMPERATURE: -25 c	
RUN CASING				CIRCULATE				GOOD	

24 SUMMARY

Trip out - Pick up casing scraper - Trip in - Circulate and work pipe at 1375m - 1863m - 2524m - 3005m
 Circulate and work pipe 3005m - 3097m - Circulate bottoms up very few solids to surface - Blow mud line and top drive
 Trip out - Lay down casing scraper - Trip in with bit

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

01/22/98 07:25 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-22 REPORT NO.: 375
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: WAIT ON CEMENT PLUG
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 25,348 CUM COST: \$ 23,327,965 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 500 kPa @: 45 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE CIRCULATING WELL SECURED IN 2 - 2 MIN.
 CONDUCTED AT 15:00 21:00 HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 1 MAXIMUM CASING HOLD BACK 21,000 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER	RR61			WEIGHT (kg/m ³)	1015		No. 1 LINER (mm)	140	
SIZE (mm)	215.9			VISCOSITY (s/l)	50		No. 1 STROKES PER MINUTE	85	
TYPE	S44 GF			pH	11.5		No. 2 LINER (mm)	140	
SERIAL No.	663637			PV (mPa S)	15		No. 2 STROKES PER MINUTE		
NOZZLES (mm)	3x12.7			YP (Pa)	9		VOLUME (m ³)	.99	
DEPTH IN (m)				GELS (Pa)	2.5/7.5		PRESSURE (kPa)	2300	
METERS (m)				SAND (%)	0		D.P. ANNULAR VEL. (m/min.)	43	
HOURS				SOLIDS (%)	.9		D.C ANNULAR VEL.		
WOB (1000 daN)				FILTER CAKE (mm desc.)	1		D.C. ANNULAR VEL. (m/min.)		
R.P.M.				FLUID LOSS (cc)	11.2		SOLIDS CONTROL		
CONDITION				CHLORIDES	1400		SHAKER SCREENS	210 - 175	
DRILLING ASSEMBLY				Ca	30		DRYER SCREENS		
ITEM	O.D.	I.D.	T.I. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.	
BIT SUB	165	64	4 1/2 H90	3 - Keltan	3 - D47	OF. (kg/m ³)			
3 DCs	165	64	4 1/2 H90	3 - Defoamer	3 - ID-Lube	VOL. (l/min.)			
XO SUB	170	73	5 H90	6 - X-cide		HOURS			
JARS	171	64	5 H90	3 - Drispac		SURVEYS	ANGLE	DIRECTION	
XO SUB	170	73	4 1/2 IF	52 - Gel					
24 HWDP	127	76	4 1/2 IF	DC S 5710	CCS 1,250,227				
BHA LENGTH	256.55	M	JTS. D.P. : ON RACKS	142					
HOOK LOAD	122,000	daN	: IN STRING	291					
AVAILABLE WOB	16,000	daN	: TOTAL	433					

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE REMARKS	SUMMARY	
DRILLING		COMMENT		CORING		REPAIR TOPDR		TODAY	CUM.
TRIP	.75	WIP DRILL		LOADING		WASH TO BOT.		24	7106.75
RIG SERVICE	.75	HANDLE TEXTS		TESTING		CIRCULATE			192.25
SURVEY		LOAD TEXTS		CIRC. SAMPLE		FISH			1711
SIT & CUT		STANDBY		HANDLE TEXTS		TRIP		24	8976.7
CONTD. MTD	21	PRESSURE TEST		TRIP		HANDLE TEXTS		CLEAR	
NIPPLE/UP/TN		POLISH PLUG	1.5	REAM RATHOLE		THAW LINKS		-27	
RUN CASING		CIRCULATE		CIRCULATE				GOOD	

24 SUMMARY

Polish plug 3065m - 3079m - Circulate condition mud - Polish plug 3079m - 3097m - Circulate bottoms up
 Blow mud line and top drive - Trip out for scraper run
 Torque 2200 PSI - After ID-Lube additions 1650 PSI
 Hole drag up - 15,000 dan

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403)424-8050

01/22/98 08:01 FAX

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD		LOCATION		P-88-6		DATE		22-Jan-98	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS 28-5		REPORT NO		313	
REPORT FOR MR.		ART SCHMITT		REPORT FOR MR.		TERRY GORWICHUCK		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (GAL)		PUMP OUTPUT		ANGULAR VEL. (in/min)			
BIT SIZE (mm)	216.0	LENGTH (m)		SIZE (mm)		TANKS	120	PUMP #1	140 X 254	OPPOSITE DP	40
BIT NUMBER				SIZE (mm)	508.0	HOLE	98.1	PUMP #2	140 X 254	OPPOSITE DC	75
DRILL PIPE #1 (mm)	127.0	2840		SIZE (mm)	311.5	TOTAL	218	PUMP #2	140 X 254	CIRC. TIME	187
DRILL PIPE #2 (mm)	127.0	220		LINE	TOP/BOY	BTAND BY		PUMP #2	140 X 254	BOTTOMS UP	64
COLLAR #1 (mm)	165.0	36						S.P.M.	100		
COLLAR #2 (mm)								M3/MIN	1.1700		
HOLE DATA		DEBANDER		DEBANDER		CENTRIFUGE		DEBANDER		CENTRIFUGE	
MUD TYPE - Ketan / Bentonite		FLOWLINE WT.				kg/m3		MUD WT.		1020 kg/m3	
HOLE COND. CASED		UNDERFLOW WT.				kg/m3		VISCOSITY		40-50 cP	
DEVIATION-		OVERFLOW WT.				kg/m3		FILTRATE		BELOW 8.0 cm3/30 min.	
CURRENT CP. CIRC & POLISH PLUG		UNDERFLOW RT.				m3/min		pH		10.0-10.6	
EQUIPMENT:		X DEBANDER		DEBANDER		DEBANDER		X CENTRIFUGE			
		XX DOUBLE DECK OR HIGH SPEED SHAKER									
MUD PROPERTIES		INVENTORY									
TIME SAMPLE TAKEN	9:59	MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIALS	DAILY	DAILY		
SAMPLE FROM	Flowline	RECEIVED	RECEIVED	SINCE LAST	USED SINCE	USED TO	REMAINING	COST	COST		
PRESENT DEPTH	3097	TO DATE	TO DATE	REPORT	LAST REPORT	DATE	ON LOCATION				
FLOWLINE TEMPERATURE (C)	60	WHITE MS	18375			13680	4480			\$270,862.50	
DENSITY	1016	WHITE MS	4851			3140	1711			\$54,008.00	
FUNNEL VISCOSITY (cP)	60	CALC GARD 9	840			840				\$8,400.00	
600 READING	46	CALC GARD 35	1620			1120	840			\$11,200.00	
300 READING	33	PLASTIC	360			291	109			\$14,508.00	
APPARENT VISCOSITY (mPa.s)	24	FLO FLEX	720			227	480			\$43,564.00	
PLASTIC VISCOSITY (mPa.s)	16	TOP FLO	7				7				
YIELD POINT (Pa)	9	WELDON MCD	320			166	184			\$139,326.00	
YIELD POINT (Pa)	2.5-7.5	WELDON	54			16	36			\$16,000.00	
STRIP	METER	11.9	WHITE	128		60	78			\$1,200.00	
APR	112	LINE	1626			1482	144			\$22,971.00	
FILTER CAKE (mm)	1	WELDON	1400			560	810			\$3,835.00	
PF	2.80	WELDON	40			5	35			\$180.00	
MF	4	WELDON	2240			2209	31			\$34,731.75	
PM	1070	WELDON	1080			480				\$19,332.00	
TOTAL HARDNESS (mg/L)	X	Ca	30			80					
CHLORIDES (mg/L)	X	NaCl	1600			29					
SAND CONTENT	%	FR				1203	87			\$43,308.00	
SOLIDS CONTENT	%	FR	0.9			108	21			\$4,452.00	
OIL/WATER CONT	%	FR				10					
MBT	(kg/m3) X OIL RET	19									
EQUIVALENT CIRCULATING DENSITY	1068.6										
OIL WATER RATIO											
Circ 24 hrs											
"1"	0.37										
"2"	2.74										
RECOMMENDATIONS:											
FROM PRESENT CLEANED OUT DEPTH and below; Please obtain the following:											
1. pH TO 10.5-10.7 w/ Caustic - no additions required											
2. Vis at 30-45 cP w/ Ketan or LOM-6 and Prehydrated Gel											
3. If Weight material is required, Use Barite and Reduce Vis to 45-55 cP											
4. Phos loss @ 10-12 ml (30 min w/ Organic use regular if viscosity is required											
5. Add COLUSE to control Surge and drag Control foaming w/ Antifoam 607											
STOCK POINT	POSSULA TRANSPORT @ GRANDE PRAIRIE	DOWELL ENGINEER	DAN MAJOCHA	MOBILE #							
PHONE	831-4000	PHONE NUMBER	CAMP ROOM #5	PAGE #							
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.											

RIG ACTIVITIES (Last 12 hours)
 RH OPEN ENDED PLUG BACK TO 3064M
 POH RH W/ BIT POLISH PLUG AND CIRC

Thanks, Ben

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-21 REPORT NO.: 374
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: WAIT ON CEMENT PLUG
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 45,998 CUM. COST: \$ 23,302,617 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 500 kPa @: 49 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 14.71 m³ ACTUAL HOLE FILL: 16.74 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 7 - 5 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER	RR61			WEIGHT (kg/m ³)	1030	No. 1 LINER (mm)	140
SIZE (mm)	215.9			VISCOSITY (u)	41	No. 1 STROKES PER MINUTE	85
TYPE	S44 GF			pH	9.5	No. 2 LINER (mm)	140
SERIAL No.	663637			PV (mPa S)	14	No. 2 STROKES PER MINUTE	
NOZZLES (mm)	3x12.7			YP (Pa)	7	VOLUME (m ³)	.99
DEPTH IN (m)				GELS (Pa)	2 // 2	PRESSURE (kPa)	2100
METERS (m)				SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	43
HOURS				SOLIDS (%)	1.8	D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)	9	SOLIDS CONTROL	
CONDITION				CHLORIDES	650	SHAKER SCREENS	210 - 175
DRILLING ASSEMBLY				Ca	20	DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		D. S.L.T.	CENT.
BIT SUB	165	64	4 1/2 H90			U.F. (kg/m ³)	
3 DCs	165	64	4 1/2 H90			OF. (kg/m ³)	
XO SUB	170	73	5 H90			VOL. (l/min.)	
JARS	171	64	5 H90			HOURS	
XO SUB	170	73	4 1/2 IF			SURVEYS	ANGLE DIRECTION
24 HWDP	127	76	4 1/2 IF			m	°
				DC S	CCS 1,244,517	m	°
BHA LENGTH	256.55	M	JTS. D.P. : ON RACKS	142	m	°	
HOOK LOAD	122,000	daN	: IN STRING	291	m	°	
AVAILABLE WOB	16,000	daN	: TOTAL	433	m	°	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CHAMONT		CORING		REPAIR TOPDR	5.75	TODAY	CUM.
TRIP	13.25	BOP DRILL		LOOKING		WASH TO BOT.		17.5	7082.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		CIRCULATE			182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE		FISH		6.5	1711
SLIP & CUT	.75	STANDBY		HANDLE TOOLS		TRIP		24	8952.7
COND. MUD		PRESSURE TEST		TRIP		HANDLE TOOLS		CLOUD	
NEEDLE PUMP		PLUG BACK	.5	REAM RATHOLE		THAW LINES	.75	TEMPERATURE	-22
RUN CASING		CIRCULATE	2.25	CIRCULATE				ROADS	GOOD

24 SUMMARY

Finish running plug back plug with Dowell - Pull out 5 stands - Circulate bottoms up - Trip out - Repair top drive
 Pick up BHA - Strap in to 3048m - Thaw mud line - Trip in tag plug at 3065m - Circulate condition mud

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403)424-8050

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>98-01-19</u>	REPORT NO.:	<u>372</u>
DEPTH:	<u>3177</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNI</u>
OPERATIONS AT 06:00 HOURS: <u>RUN IN WITH SPUD BARS</u>					
CONTRACTOR/RIG SUPT.:		<u>Precision Drilg Rig #426E Terry Gorgichuk</u>	CO. SUPERVISOR: <u>Art Schritz</u>		
DAILY COST: \$ <u>68,293</u>		CUM. COST: \$ <u>23,204,501</u>		AFE NO: <u>E6D-015</u>	

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	500	kPa @:	45	SPM
TRIP RECORDS: CALCULATED HOLE FILL	16.12	m ³ ACTUAL HOLE FILL:	19.04					m ³
BOP DRILLS CONDUCTED WHILE		WELL SECURED IN						MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE						
DAYS SINCE BOP DRILL (EACH CREW):	6 - 4	MAXIMUM CASING HOLD BACK	20,500					kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)		1030		No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (cP)		41		No. 1 STROKES PER MINUTE	
TYPE				pH		9.5		No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		14		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		7		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		2 // 2		PRESSURE (kPa)	
METERS (m)				SAND (%)		0		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		1.8		D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)		1		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)		9		<u>SOLIDS CONTROL</u>	
CONDITION				CHLORIDES		650		SHAKER SCREENS	
<u>DRILLING ASSEMBLY</u>				Ca		20		DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)		D. SILT.	CENT.
S.I. SUB	171	64	4 1/2 H90	1 - Kelzan		OF. (kg/m ³)			
BUMPERSUB	171	64	5 1/2 Reg.	2 - Caustic		VOL. (l/min.)			
JARS	171	64	5 1/2 Reg.	1 - Lime		HOURS			
XO SUB	170	67	5 H90	2 - PTS 200		<u>SURVEYS</u>		<u>ANGLE</u>	<u>DIRECTION</u>
XO SUB	171	65	4 1/2 IF						
HWDP	127	76	4 1/2 IF						
				DC S 895		CCS 1,244,517			
BHA LENGTH				116.31	M	JTS. D.P. : ON RACKS		118	
HOOK LOAD				125,000	daN	: IN STRING		315	
AVAILABLE WOB					daN	: TOTAL		433	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		DRILL OF EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	SUMMARY	
DRILLING		CEMENT		CORING		REPAIR TOPDR			TODAY	CUM.
TRIP		BOP DRILL		LOGGING		WASH TO BOT.			2	7061
RIO SERVICE	.75	HANDLE TOOLS		TESTING		WASH OVER	2.25			182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE		SPUD BARS	2		22	1684.75
SLIP & CUT	1.25	STANDBY		HANDLE TOOLS		TRIP	14.5		24	8928
COND. MUD		PRESSURE TEST		TRIP		CIRCULATE	1.25			SNOW
NIPPI KUPADN				REAM RATHIER		SCREW IN	.75			-22
RUN CASING				CIRCULATE		HANDLE TOOLS	1.25		GOOD	

24 SUMMARY

Trip in with 194mm wash pipe to 3124m - Wash to top of fish at 3136m - Wash over 3136m - 3145m top of 171mm jars
Circulate bottoms up - Circulate out 3145m - 3047m - Blow mud line and top drive - Trip out wash pipe and lay down same
Pick up screw in sub and jars - Trip in to 3107m - Circulate and tag fish - Screw in to fish - Run in wire line and run spud bars

SIGNED BY: ART SCHRITT

MOBILE NO: (403) 210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-18 REPORT NO.: 371
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: TRIP IN WITH 194mm WASH PIPE
 CONTRACTOR/RIG SUPT.: Precision Drilg Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 51,934 CUM. COST: \$ 23,136,208 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 500 kPa @: 45 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 16.12 m³ ACTUAL HOLE FILL: 16.81 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 5 - 3 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1030	No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (s/l)	40	No. 1 STROKES PER MINUTE	85
TYPE				pH	9	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)	12	No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)	6	VOLUME (m ³)	.99
DEPTH IN (m)				GELS (Pa)	1.5 // 1.5	PRESSURE (kPa)	2500
METERS (m)				SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	43
HOURS				SOLIDS (%)	1.8	D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)	8.6	SOLIDS CONTROL	
CONDITION				CHLORIDES	650	SHAKER SCREENS	210 - 175
DRILLING ASSEMBLY				Ca	30	DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.
W.O. SOE	196	174	7 5/8 FJ	6 - X-Cide		OF. (kg/m ³)	
1 WASHPIPE	194	174	7 5/8 FJ	4 - Caustic		VOL. (l/min.)	
DR. BUSH	158	72	4 1/2 FH	2 - Lime		HOURS	
XO SUB	170	67	5 H90	1 - Xanvis		SURVEYS	ANGLE DIRECTION
JARS	171	65	5 H90	1 - Kelzan		m	°
XO SUB	172	73	4 1/2 IF	DC \$ 1650 CCS 1,243,622		m	°
HWDP	127	76	4 1/2 IF			m	°
BHA LENGTH	127.61	M	JTS. D.P. : ON RACKS	118	m	°	
HOOK LOAD	125,000	daN	: IN STRING	315	m	°	
AVAILABLE WOB		daN	: TOTAL	433	m	°	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		REPAIR TOPDR		TODAY	CUM.
TRIP		BOP DRILL		LOGGING		WASH TO BOTT	4.25	.75	7059
RIG SERVICE	.75	HANDLE TOOLS		TESTING		WASH OVER	1.5		182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE		SPUD BARS		23.25	1662.75
SLIP & CUT		STANDBY		HANDLE TOOLS		TRIP	11	24	8904.7
COND. MUD		PRESSURE TEST		TRIP		CIRCULATE	.5	CLEAR	
NEEDLEUP/DN				EXAM RATHOLE		BACK-OFF		-26	
RUN CASING				CIRCULATE		HANDLE TOOLS	6	SLIPPERY	

24 SUMMARY

Trip out - Lay down screw in assembly and fish 1 DC - Pick up 2 - 206mm wash pipe - Trip in with wash pipe to 3030m
 Wash from 3030m - 3136m top of fish - Circulate bottoms up - Wash over fish 3136m - 3142 m
 Wash pipe sticking on fish - Trip out to 3025m - Blow mud line and top drive - Trip out - Lay down 206mm wash pipe
 Pick 1 joint 194mm wash pipe - Trip in with wash pipe

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

DAILY MUD REPORT

WELL NAME RANGER FT. LIARD		LOCATION F-48		DATE 12-Jan-98	
OPERATOR RANGER OIL LTD.		CONTRACTOR CACTUS ZEE		REPORT No 318	
REPORT FOR Mr. ART SCHMITT		REPORT FOR Mr. TERRY GONGCHUCK		SPUD DATE 12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (m3)	
BIT SIZE (mm)	218.0	LENGTH (m)	SIZE (mm)	TANKS	118
BIT NUMBER			SCB 0	HOLE	102.9
DRILL PIPE #1 (mm)	127.0	3177	244.5	TOTAL	219
DRILL PIPE #2 (mm)			LINER	TOP/BOT.	44
COLLAR #1 (mm)				STAND BY	
COLLAR #2 (mm)					
PUMP OUTPUT		PUMP #1		140 X 254	
PUMP #2		140 X 254		CIRC TIME	
S.P.M.		85		BOTTOMS UP	
M3/MIN		1.1115			
HOUR DATA		DESANDER		CENTRIFUGE	
MUD TYPE - Kalcin / Flops		FLOWLINE WT.		kg/m3	
HOLE COND. CASSED		UNDERFLOW WT.		kg/m3	
DEVIATION		OVERFLOW WT.		kg/m3	
CURRENT OP. WASH OVER FISH		UNDERFLOW RT.		m3/min	
EQUIPMENT:		X DEGASSER		DESANDER	
		X DOUBLE DECK OR HIGH SPEED SHAKER		X CENTRIFUGE	
MUD PROPERTIES		INVENTORY			
TIME SAMPLE TAKEN	16:11	MATERIALS	MATERIALS	RECEIVED	DATE
SAMPLE FROM	Flowline	RECEIVED	DATE	TIME LAST	REPORT
PRESENT DEPTH	3177	TO DATE		USED SINCE	LAST REPORT
FLOWLINE TEMPERATURE (C)	43	BARITE MS	18375	USED TO	DATE
DENSITY	1030	BARITE MS	4851	MATERIALS	REMAINING
FUNNEL VISCOSITY (mL)	41	CALC CARB S	840	ON LOCATION	
800 READING	42	CALC CARB SFS	1880		
300 READING	28	CALCITIC	360		
APPARENT VISCOSITY (mPa.s)	21	FLO FLEX	720		
PLASTIC VISCOSITY (mPa.s)	16	TOP FLEX	7		
YIELD POINT (Pa)	7	ELIZAN ACD	320		
0.5% 900 min. (Pa)	2-2	ELIZAN	54		
STRIP	METER	0.5	135		
APX	THICKNESS	9	1825		
PER CAKE (mm)	THICKNESS	1	1400		
PF		0.30	8000		
MF		2.4	2240		
PM			1570		
TOTAL HARDNESS (mg/l)	X	Ca	20		
CHLORIDES (mg/L)	X	NaCl	650		
SAND CONTENT	%	FR	1.0		
SOLIDS CONTENT	%	FR	1.0		
OIL/WATER CONT	%	FR	1.0		
MBT (Kg/m3)	X	OIL RET	28		
EQUIVALENT CIRCULATING DENSITY			1095.0		
OIL WATER RATIO					
CHOC W/M					
"n"			0.27		
"k"			2.18		
RECOMMENDATIONS:		PREVIOUS COST		STARTING VOLUME	
FROM PRESENT CLEANED OUT DEPTH and below; Please Maintain the following:		DAILY COST		VOL. BUILT	
1. RAISE pH TO 10.0-10.5 w/ Caustic and Lime 1:1 ratio		CUM. COST		VOL. LOST ON SURFACE	
2. Vis at 40-45 sec/l w/ Kents or DVI-2 and Gel as required by Engineer		DISCOUNTED COST		VOL. LOST ON SUB SURFACE	
3. If Weight material is required, Use Barite and Raise Vis to 45-50 sec/l		CUM. ENG. COST		END VOLUME	
4. Do not add Flops or Lignosulfonate further notice.		TOTAL COST		CUM VOL LOST	
5. Control foaming w/ Antifoamer D67					
RIG ACTIVITIES (Last 12 hours)					
RIH W/ BACK OFF CHARGE					
BACK OFF ONE COLLAR POH					
RIH W/ WASH OVER PIPE WASH OVER FISH POH					
Thanks, Ben					
STOCK POINT		FORMULA TRANSPORT @ GRANDE PRAIRIE		DOWELL ENGINEER	
PHONE		851-4000		PHONE NUMBER	
				DAN MAJUCHA	
				CAMP ROOM # 5	
				MOBILE #	
				PAGE #	
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.					

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>98-01-17</u>	REPORT NO.:	<u>370</u>
DEPTH:	<u>3177</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNI</u>
OPERATIONS AT 06:00 HOURS: <u>TRIP OUT AFTER BACK OFF AT 3135m</u>					
CONTRACTOR/RIG SUPT.:	<u>Precision Drilg Rig #426E Terry Gorgichuk</u>	CO. SUPERVISOR:	<u>Art Schmitt</u>		
DAILY COST: \$	<u>57,177</u>	CUM. COST:	<u>\$ 23,084,274</u>	AFE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	500	kPa @:	45	SPM
TRIP RECORDS: CALCULATED HOLE FILL		15.84	m ³	ACTUAL HOLE FILL:		17.05	m ³	
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN				MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE				
DAYS SINCE BOP DRILL (EACH CREW):		4 - 2		MAXIMUM CASING HOLD BACK		20,500		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
RIT NUMBER				WEIGHT (kg/m ³)	1030	No. 1 LINER (mm)	140		
SIZE (mm)				VISCOSITY (s/l)	48	No. 1 STROKES PER MINUTE	85		
TYPE				pH	8.5	No. 2 LINER (mm)	140		
SERIAL No.				PV (mPa S)	14	No. 2 STROKES PER MINUTE			
NOZZLES (mm)				YP (Pa)	10	VOLUME (m ³)	.99		
DEPTH IN (m)				GELS (Pa)	1.5 //1.5	PRESSURE (kPa)	2500		
METERS (m)				SAND (%)	0	O.P. ANNULAR VEL. (m/min.)	43		
HOURS				SOLIDS (%)	1.8	D.C ANNULAR VEL.			
WOB (1000 daN)				FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)			
R.P.M.				FLUID LOSS (cc)	8.6	<u>SOLIDS CONTROL</u>			
CONDITION				CHLORIDES	650	SHAKER SCREENS	210 - 175		
<u>DRILLING ASSEMBLY</u>				Ca	30	DRYER SCREENS			
ITEM	O.D.	LD.	T.J. TYPE	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)	D. SILT.	CENT.	
S.I. SUB	171	73	4 1/2 H90			OF. (kg/m ³)			
BUMPERSUB	171	64	5 1/2 Reg.			VOL. (l/min.)			
JARS	171	64	5 1/2 Reg.			HOURS			
XO SUB	170	64	4 1/2 IF			<u>SURVEYS</u>	<u>ANGLE</u>	<u>DIRECTION</u>	
HWDP	127	76	4 1/2 IF						
							m	°	
				DC S CCS 1,241,972			m	°	
BHA LENGTH	106.22	M	JTS. D.P. : ON RACKS	124			m	°	
HOOK LOAD	125,000	daN	: IN STRING	309			m	°	
AVAILABLE WOB		daN	: TOTAL	433			m	°	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		REPAIR TUPDR		TODAY	CUM.	
TRIP		NEW DRILL		LOGGING		WASH TO BOT.		4.25	7058.25	
RIG SERVICE	.75	HANDLE TURNS		TESTING		WASH OVER			182.25	
SURVEY		LOAD TOOLS		CIRC. SAMPLE		SPUD BARS	4.25	19.75	1639.5	
SLP & CUT		STANDBY		HANDLE TURNS		TRIP	13.2	24	8880	
COND MUD		PRESSURE TEST		TRIP		CIRCULATE	2.25	CLEAR		
NIPPI.ATTACH		INSPECT HWDP	3.5	REAM RATIOLE		HACK OFF	2.5	TEMPERATURE	-26	
RUN CASING				CIRCULATE		HANDLE TURNS		ROADS	SLIPPERY	

24 SUMMARY

Inspect HWDP and subs - Trip in with screw in sub and jars - Circulate above fish - Screw in to fish
Rig to and run spud bars to 3171m - Work reverse torque in to pipe - Run in with string shot and back off at 3135m
Circulate bottoms up - Blow mud line and top drive - Trip out

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL: Ranger Fort Lind F-66-A DATE: 08-01-16 REPORT NO.: 360
 OPERATIONS AT 08:00 HOURS: TRIP IN WITH SCREW IN SUB AND JARS
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #4308 Terry Oughton CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 53,330 CUM. COST: \$ 23,027,097 AFE NO. E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 500 kPa @: 45 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: 15.89 m³ ACTUAL HOLE FILL: 18.15 m³
 BOP DRILLS: CONDUCTED WHILE TRIPPING WELL SECURED IN 2 MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 3 - 1 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (lb/m ³)		1020		No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (s/l)		40		No. 1 DISCHARGE PER MINUTE	83
TYPE				pH		8.8		No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)		12		No. 2 DISCHARGE PER MINUTE	
NOZZLES (mm)				YP (Pa)		6.5		VOLUME (m ³)	.99
DEPTH IN (m)				GELS (Pa)		1.5 / 1.5		PRESSURE (kPa)	2500
METERS (m)				SAND (%)		0		D.P. ANNULAR VEL. (m/min.)	43
HOURS				SOLIDS (%)		1.8		D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm/30min)		1		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)		8.6		SOLIDS CONTROL	
CONDITION				CHLORIDES		650		SHAKER SCREENS	210 - 175
DRILLING ASSEMBLY				Ca		40		DRYER SCREENS	
S.I. SUB	171	73	4 1/2 H90	MUD ADDITIVES					
MUDPUMP	171	64	5 1/2 R.C.	45 - Oil				U.F. (kg/m ³)	
JARS	171	64	5 1/2 Kog.	4 - Caustic				OF. (kg/m ³)	
XO SUB	170	64	4 1/2 IF	1 - Lime				VOL. (min.)	
HWDP	127	76	4 1/2 IF	3 - Xanvis				HOURS	
								STARTS	ANILE
									UNPLUGS
								m	0
								m	0
								m	0
								m	0
BHA LENGTH	106.22	M	JTS. D.P. : ON RACKS	124				m	0
HOOK LOAD	125,000	daN	: IN STRING	309				m	0
AVAILABLE WOB		daN	: TOTAL	433				m	0

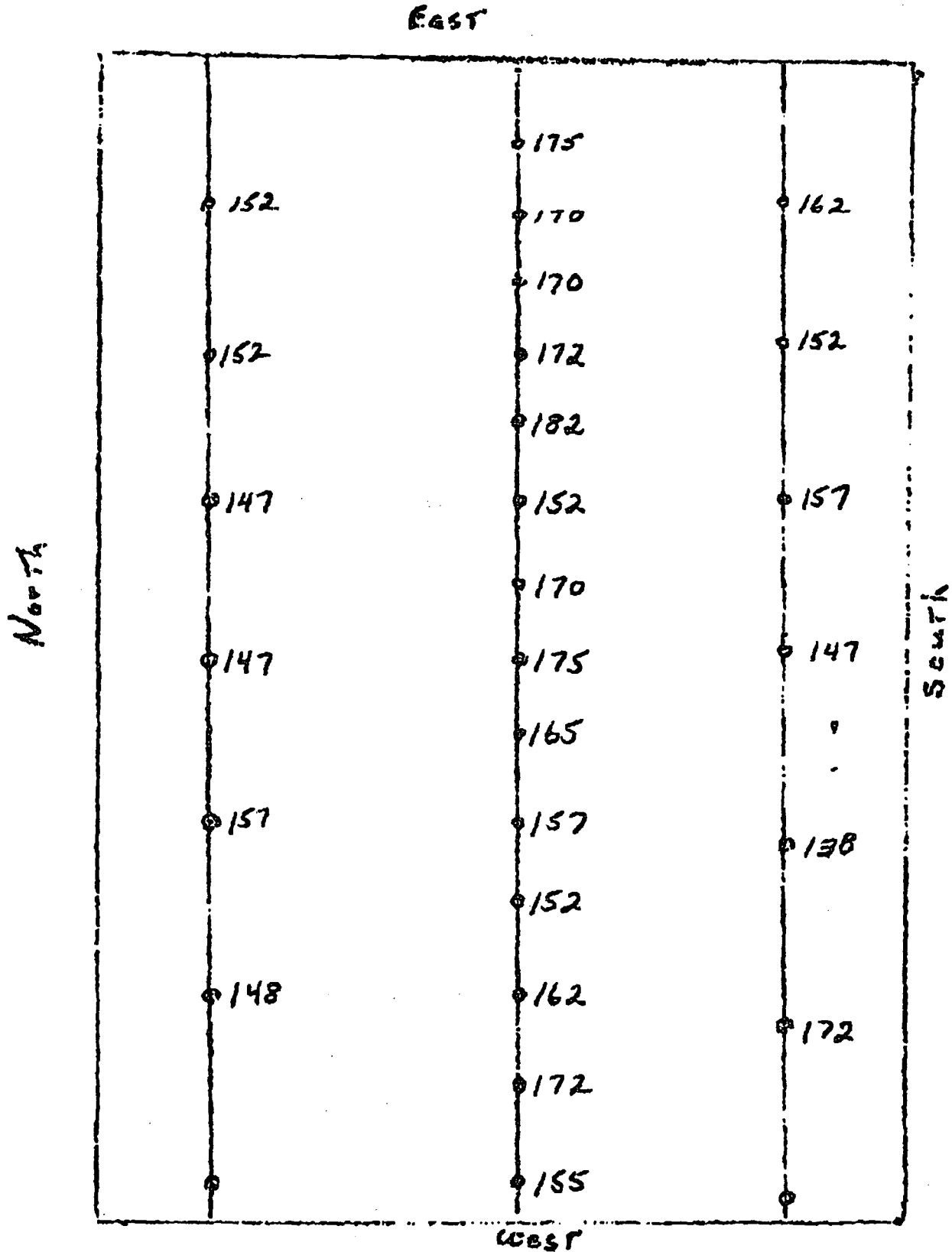
DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		COKING		REPAIR WORK		TODAY	CUM.
TRIP		BOP DRILL		LOGGING		WASH TO WTT	2.5	.75	7054
WTT	.75	TRIP TO WTT		TRIP TO WTT		WASH TO WTT	6		102.25
WTT		WTT TO WTT		WTT TO WTT		WTT TO WTT		23.75	1010.75
SLIP & CUT		STANDBY		HANDLE TOOLS		TRIP	13	24	8856.7
COND. MUD		PERFORMANCE TEST		TRIP		CIRCUITRY		CLEAR	
WTT TO WTT				RIAM RATION		BACK OFF		TEMPERATURE	30
RUN CASING				CIRCULATE		HANDLE TOOLS	1.75	ROADS	SLIPPERY

24 SUMMARY

Circulate in 9095m - 3126m - Wash over fish 3126m - 3141m - High torque 3140m - 3141m Circulate work pipe
 Trip out hole swabbing - Circulate out 5 stands - Blow mud line and top drive - Trip out wash pipe
 Stand wash pipe in derrick - Make up screw in sub and jars - Trip in with same
 Wash over shoe worn out
 Hole drag up - 8-12000 daN
 Hole drag down - 5-8000 daN
 Wash over torque - 1450-1600 P.S.I.

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050



98-01-15 Ice bridge grid.

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-14 REPORT NO.: 367
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: Prepare to reshoot at 3135 m.
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 65,380 CUM. COST: \$ 22,914,462 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 500 kPa @: 45 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 15.89 m³ ACTUAL HOLE FILL: 17.58 m³
 BOP DRILLS: CONDUCTED WHILE TRIPPING WELL SECURED IN 2 MIN.
 CONDUCTED AT 19:00 HRS. CREW PERFORMANCE Satisfactory
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 7 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)		1025		No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (s/l)		39		No. 1 STROKES PER MINUTE	
TYPE				pH		9		No. 2 LINER (mm)	140
SERIAL No.				VP (Pa S)		9		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		4.5		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		1 // 2		PRESSURE (kPa)	
METERS (m)				SAND (%)		0		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		3		D.C. ANNULAR VEL	
WOR (1000 daN)				FILTER CAKE (mm desc.)		2		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)		8.8		SOLIDS CONTROL	
CONDITION				CHLORIDES		600		SHAKER SCREENS	250 - 175
DRILLING ASSEMBLY				Ca		30		DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES				U.F. (kg/m ³)	D. SHT.
S.I. SUB	171	73	5 1/2 FH					OF. (kg/m ³)	CENT.
BUMPERSUB	171	64	5 1/2 FH					VOL. (l/min.)	
JARS	171	64	5 1/2 FH					HOURS	
XO SUB	170	64	4 1/2 IF					SURVEYS	ANGLE
12 HWDP	127	76	4 1/2 IF						DIRECTION
				DC S		CCS 1,240,102		m	°
BHA LENGTH	106.22	M	JTS. D.P. : ON RACKS	133				m	°
HOOK LOAD	125,000	daN	: IN STRING	300				m	°
AVAILABLE WOB		daN	: TOTAL	433				m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING?		CEMENT		COCKING		REPAIR TOPDR		TODAY	CUM.
TRIP		BOP DRILL		LOGGING		RUN SPUD BAR	1.5	.75	7051.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		WASH OVER			182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE		FREE POINT	.75	23.25	1574
SLIP & CUT		STANDBY		HANDLE TOOLS		TRIP	15.7	24	8808.7
COND. MUD		PRESSURE TEST		TRIP		CIRCULATE	1.25	WEATHER SNOW	
NIPPLE/FITTING				REAM RATHOLE		BACK-OFF	2.5	TEMPERATURE -29	
RUN CASING				CIRCULATE		HANDLE TOOLS	1.5	ROADS SLIPPERY	

24 SUMMARY

Trip out with wash pipe - Make up screw in assembly - Trip in to 3076m - Circulate to top of fish - Screw in to fish
 Run in with free point tool - Free point tool hung up at 3082m - Pull out free point tool - Run in with spud bars
 Work spud bars through bridge 3082m - 3093m - Run in with spud bars to 3171m - Pull out spud bars - Work pipe attempt to activate jars
 Work reverse torque in to pipe - Run in with string shot to 3135m and back off - Circulate bottoms up from 3135m
 Back-off appears high, screwed back in to reshoot.

SIGNED BY: ART SCHMITT

MOBILE NO: (403)210-1202 (403) 424-8050

100

XVd 89:60 88/81/10

JAN-14-1998 10:37

403 232 5200

72%

P.02

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-13 REPORT NO.: 366
 DEPTH: 3177 m PROGRESS: 0 in FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: TRIP OUT WASH OVER PIPE
 CONTRACTOR/RIG SUPT.: Precision Drilg Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 53,951 CUM. COST: \$ 22,849,082 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 500 kPa @ 45 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 16.51 m³ ACTUAL HOLE FILL: 18.13 m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE Satisfactory
 DAYS SINCE BOP DRILL (EACH CREW): 6 - 6 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1025	No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (s/l)	39	No. 1 STROKES PER MINUTE	60
TYPE				pH	9	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)	9	No. 2 STROKES PER MINUTE	60
NOZZLES (mm)				YP (Pa)	4.5	VOLUME (m ³)	1.4
DEPTH IN (m)				GELS (Pa)	1 // 2	PRESSURE (kPa)	3500
METERS (m)				SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	56
HOURS				SOLIDS (%)	3	D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)	2	D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)	8.8	SOLIDS CONTROL	
CONDITION				CHLORIDES	600	SHAKER SCREENS	250 - 175
DRILLING ASSEMBLY				Ca	30	DRYER SCREENS	
ITEM	Q.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.
W.O. SHOE	198	187	8 1/8 FJ	1 - Defoamer		OF. (kg/m ³)	CENT.
2 WASHPIPE	194	175	8 1/8 FJ	3 - Xanvis		VOL. (l/min.)	
XO SUB	194	175	7 5/8 FJ	36 - Gel		HOURS	
4 WASHPIPE	194	174	7 5/8 FJ	2 - Caustic		SURVEYS	ANGLE
XO SUB	171	76	5 1/2 FH				DIRECTION
JARS	165	64	5 1/2 FH			m	°
12 HWDP	127	76	4 1/2 IF	DC \$ 1850	CC\$ 1,240,102	m	°
BHA LENGTH	170.18	M	JTS. D.P. : ON RACKS	133		m	°
HOOK LOAD	120,000	daN	: IN STRING	300		m	°
AVAILABLE WOB	7,000	daN	: TOTAL	433		m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		REPAIR TOPDR		TODAY	CUM.
TRIP		BOP DRILL		LOGGING		RUN SPUD BAR		75	7051
RIG SERVICE	75	HANDLE TOOLS		TESTING		WASH OVER	3.75		182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE		FREE POINT		23.25	1550.75
SLIP & CUT		STANDBY		HANDLE TOOLS		TRIP	13.7	24	8784.7
COND. MUD		PRESSURE TEST		TRIP		CIRCULATE	3	WEATHER	
NUPLUP/DN				RRAM RATHOLE		BACK-OFF		TEMPERATURE	
RUN CASING				CIRCULATE		HANDLE TOOLS	2.75	ROADS	
								CLEAR	
								-34	
								SLIPPERY	

24 SUMMARY

Blow mud lines - Trip out - Lay down 2 HWDP - Pick up 2-206mm wash pipe and 4-194mm wash pipe and drilling jars
 Trip in with wash pipe to 2925m - Wash from 2925m - 3078m - Wash over fish 3078m - 3132m
 Circulate condition mud - Trip out to 3049m - Blow mud line and top drive - Trip out to 2550m hole drag 20,000 dan
 Work pipe and circulate fine solids to surface - Blow mud line and top drive - Trip out wash pipe
 Hole drag up - 12-15,000 dan
 Hole drag down - 5-8,000 dan
 Wash over torque - 1250-1550 P.S.I.

SIGNED BY: ART SCHMITT

MOBILE NO: (403)210-1202 (403) 424-8050

WELL	Ranger Fort Liard P-66-A	DATE	98-01-12	REPORT NO.:	365
DEPTH:	3177 m	PROGRESS:	0 m	FORMATION:	NAHANNI
OPERATIONS AT 06:00 HOURS: CIRCULATE BOTTOMS UP AFTER BACK OFF AT 3078m					
CONTRACTOR/RIG SUPT.:	Precision Drilg Rig #426E Terry Gorgichuk	CO. SUPERVISOR:	Art Schitt		
DAILY COST: \$	51,311	CUM. COST:	\$ 22,795,131	AFE NO.	E6D - 015

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	700	kPa @:	45	SPM
TRIP RECORDS: CALCULATED HOLE FILL	15.68	m ³ ACTUAL HOLE FILL.			17.7	m ³		
BOP DRILLS: CONDUCTED WHILE	WELL SECURED IN			MIN.				
CONDUCTED AT	HRS. CREW PERFORMANCE			Satisfactory				
DAYS SINCE BOP DRILL (EACH CREW):	5 - 5	MAXIMUM CASING HOLD BACK			20,500	kPa		

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1020	No. 1 LINER (mm)	140		
SIZE (mm)				VISCOSITY (s/l)	38	No. 1 STROKES PER MINUTE	50		
TYPE				pH	8.8	No. 2 LINER (mm)	140		
SERIAL No.				PV (mPa S)	10	No. 2 STROKES PER MINUTE	50		
NOZZLES (mm)				YP (Pa)	4	VOLUME (m ³)	1.1		
DEPTH IN (m)				GELS (Pa)	1 // 2	PRESSURE (kPa)	4400		
METERS (m)				SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	46		
HOURS				SOLIDS (%)	3	D.C ANNULAR VEL.			
WOB (1000 daN)				FILTER CAKE (mm dev.)	2	D.C. ANNULAR VEL. (m/min.)			
R.P.M.				FLUID LOSS (cc)	11.6	SOLIDS CONTROL			
CONDITION				CHLORIDES	600	SHAKER SCREENS	250 - 175		
DRILLING ASSEMBLY				Ca	30	DRYER SCREENS			
ITEM	O.D.	I.D.	T.J. TYPE				D. SILT.	CENT.	
S.I. SUB	198	175	4 1/2 IF	MUD ADDITIVES		U.F. (kg/m ³)			
BUMPERSUB	194	175	5 1/2 FH	2 - Xanvis		OF. (kg/m ³)			
JARS	171	64	5 1/2 FH	10 - Gel		VOL. (l/min.)			
XO SUB	171	64	4 1/2 IF	2 - Caustic		HOURS			
12 HWDP	127	76	4 1/2 IF			SURVEYS	ANGLE	DIRECTION	
							m	o	
				DC \$ 1050 CCS 1,238,252			m	o	
BHA LENGTH	189.57	M	JTS. D.P. : ON RACKS	153			m	o	
HOOK LOAD	120,000	daN	: IN STRING	300			m	o	
AVAILABLE WOB	7,000	daN	: TOTAL	433			m	o	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		REPAIR TOPDR		TODAY	CUM
TRIP		BOP DRILL		LOGGING		RUN SPUD BAR	2.25	75	7050.25
RIG SERVICE	.75	HANDLE TOOLS		TESTING		WASH OVER	1.5		182.25
SURVEY		LOAD TOOLS		CTRC SAMPLE		FREE POINT	2.	23.25	1527.5
SLIP & CUT		STANDBY		HANDLE TOOLS		TRIP	11.5	24	8760
COND. MUD		PRESSURE TEST		TRIP		CIRCULATE	2.5	CLEAR	
NTHLEUPON				REAM HATHOLE		HACK-OFF	2.5	TEMPERATURE -31	
RUN CASING				CIRCULATE		HANDLE TOOLS	1	ROADS SLIPPERY	

24 SUMMARY

Trip in with wash pipe to 2934m - Wash to top of fish at 2987m - Wash over fish 2987m - 3070m
Circulate condition mud - Trip out to 2934m - Blow mud lines - Trip out wash pipe - Pick up screw in sub and jars
Trip in - Circulate and screw in to fish - Run in with spud bars to 3165m - Run in with free point tool hung up at 2990m
Work reverse torque in to pipe - Rig up string shot and run in to 3078m - Back off at 3078m - Circulate bottoms up

TORQUE 1005-1200

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403)424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-11 REPORT NO. 364
DEPTH 3177 m PROGRESS 0 m FORMATION NAHANNI
OPERATIONS AT 06:00 HOURS: TRIP IN WITH 194mm WASH PIPE
CONTRACTOR/RIG SUPT.: Precision Drilg Rig #426E Terry Gorgichuk CO SUPERVISOR: Art Schritt
DAILY COST: \$ 72,399 CUM. COST: \$ 22,743,820 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 500 kPa @ 45 SPM
TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
BOP DRILLS CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE Satisfactory
DAYS SINCE BOP DRILL (EACH CREW): 4 - 4 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS		
BIT NUMBER				WEIGHT (kg/m ³)	1020	No. 1 LINER (mm)		140
SIZE (mm)				VISCOSITY (s/l)	37	No. 1 STROKES PER MINUTE		50
TYPE				pH	9.8	No. 2 LINER (mm)		140
SERIAL No.				PV (mPa S)	8	No. 2 STROKES PER MINUTE		50
NOZZLES (mm)				YP (Pa)	3.5	VOLUME (m ³)		1.1
DEPTH IN (m)				GELS (Pa)	1 // 2	PRESSURE (kPa)		2100
METERS (m)				SAND (%)	0	D.P. ANNULAR VEL. (m/min.)		46
HOURS				SOLIDS (%)	3	D.C. ANNULAR VEL.		
WOB (1000 daN)				FILTER CAKE (mm desc.)	2	D.C. ANNULAR VEL. (m/min.)		
R.P.M.				FLUID LOSS (cc)	11.4	SOLIDS CONTROL		
CONDITION				CHLORIDES	600	SHAKER SCREENS		250 - 175
DRILLING ASSEMBLY				Ca	30	DRYER SCREENS		
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.
W.O. SHOE	198	175	7 5/8 FI			OF. (kg/m ³)		
9 WASH PIPE	194	175	7 5/8 FI			VOL. (l/min.)		
XO SUB	171	64	5 H90			HOURS		
JARS	171	64	5 H90			SURVEYS	ANGLE	DIRECTION
XO SUB	171	70	4 1/2 IF					
12 HWDP	127	72	4 1/2 IF					
				DC S	CCS 1,237,202			
BHA LENGTH	189.57	M	JTS. D.P. : ON RACKS	133				
HOOK LOAD	120,000	daN	: IN STRING	300				
AVAILABLE WOB	7,000	daN	: TOTAL	433				

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		REPAIR TOPDR		TODAY	CTM.
TRIP		BOP DRILL		LOGGING		W.O. ORDERS		1.5	7049.5
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE		FREE POINT	3.5	22.5	1504.25
SLIP & CUT	.75	STANDHY		HANDLE TOOLS		TRIP	11.7	24	8736.7
COND MUD		PRESSURE TEST		TRIP		CIRCULATE	2.5	TOTAL	
NTPLEUMON				REAM KATHOLE		BACK-OFF	2	WEATHER	
RUN CASINO				CIRCULATE		HANDLE TOOLS	2.75	TEMPERATURE	
								ROADS	

24 SUMMARY

Circulate through pump out sub - Rig in wire line truck - Run free point - 75% free at 2987m - Work reverse torque in pipe
Run in string shot and back off at 2987m - Circulate bottoms up - Chain out of hole - Lay down 4 HWDP and fishing tools
Run in with 9-194mm wash pipe - jars - 12 HWDP - Slip and cut drill line - Trip in with wash pipe

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD		LOCATION		P-88-a		DATE		11-Jan-98	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS 28-E		REPORT No		304	
REPORT FOR Mr.		Art Schmitt		REPORT FOR Mr.		Terry Gorgichuck		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)	218.0	LENGTH (m)		SIZE (mm)		TANKS	123	PUMP #1	140 X 254	OPPOSITE DP	54
BIT NUMBER				508.0	263	HOLE	27	M3/STK	0.0117	OPPOSITE DG	
DRILL PIPE #1 (mm)	127.0	3177		244.5	3115	TOTAL	150	PUMP #2	140 X 254	CIRC. TIME	183
DRILLPIPE #2 (mm)				LINER	TOP/BOT	STAND BY	44	M3/STK	0.0117	BOTTOMS UP	65
COLLAR #1 (mm)								S P M	110		
COLLAR #2 (mm)								M3/MIN	1.2870		
HOLE DATA		DESANDER		DESILTER		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS			
MUD TYPE - Kelzan / Floplex		FLOWLINE WT				kg/m3		MUD WT.		1020 Kg/m3	
HOLE COND. - cased hole		UNDERFLOW WT				kg/m3		VISCOSITY		45-50 cP	
DEVIATION -		OVERFLOW WT				kg/m3		FILTRATE		BELOW 8.0 cm3/30 min.	
CURRENT OP. - circulating		UNDERFLOW RT				m3/min		pH		10.0-10.5	
EQUIPMENT:		X DEGASSER		DESILTER		DESANDER		X CENTRIFUGE			
XX DOUBLE CHECK OR HIGH SPEED SHAKER											
MUD PROPERTIES				INVENTORY							
TIME SAMPLE TAKEN	23 50			MATERIALS	MATERIALS	RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	Flowline				RECIEVED	SINCE LAST	USED SINCE	USED TO	REMAINING	COST	COST
PRESENT DEPTH	3177				TO DATE	REPORT	AST REPORT	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	48.8888889			BARITE /45	18375			13895	4480		\$270,952.50
DENSITY	1020			BARITE /40	4851			3140	1711		\$54,008.00
FUNNEL VISCOSITY (cP)	38			CALC CARB 0	840			840			\$8,400.00
600 READING	28			CALC CARB 3	1680			1120	560		\$11,200.00
300 READING	18			CAUSTIC	360		2	240	120	\$116.00	\$13,920.00
APPARENT VISCOSITY (mPa.s)	14			FLO PLEX	720			227	493		\$43,584.00
PLASTIC VISCOSITY (mPa.s)	10			IDE FLR	7				7		
ELO POINT (Pa)	4			KELZAN XCD	320			155	165		\$132,680.00
ILS 0/10 min. (Pa)	1/2			XANVIS	54		2	9	45	\$2,000.00	\$9,000.00
pH	STRIP	METER	X	8.8	LIGNITE	136		60	76		\$1,200.00
FILTRATE (cm3)	API	X	HTHP	11.6	LIME	1626		1479	147		\$22,924.50
FILTER CAKE (mm)				2	SAWDUST	1400		590	810		\$3,835.00
PF				0.01	SODA ASH	40		5	35		\$180.00
MF				0.65	BENTONITE 4	2240		10	2208	\$157.50	\$34,776.00
PM					BENTONITE 4	1080			802	278	\$14,355.80
TOTAL HARDNESS (mg/l)	X	Ca	X	30	ZINC CARBON	80			80		
CHLORIDES (mg/L)	X	NaCl		600	HSO 600 Amin	29			29		
SAND CONTENT %		FR.			WALNUT (M)	1300		1203	97		\$43,308.00
SOLIDS CONTENT %	X	FR.		3	X-CIDE 207	106		15	81		\$3,180.00
OIL/WATER CONT %	X	FR.			Blocide Diamin	10			10		
MBT (Kg/m3)	X	OIL REY		11		PREVIOUS COST	\$2,377,144.70			STARTING VOLUME	252
EQUIVALENT CIRCULATING DENSITY				1057.02		DAILY COST	\$2,273.50			VOL. BUILT	30.9
OIL/WATER RATIO						CUM. COST	\$2,379,418.20			VOL. LOST ON SURFACE	2.1
CaCl2 w/w%						DISCOUNTED COST	1418680.01			VOL. LOST ON SUB SURFACE	
"n"				0.62		CUM. ENG. COST	137750			END VOLUME	197
"k"				0.36		TOTAL COST	1558430.01			CUM. VOL. LOST	37.3
RECOMMENDATIONS:				COMMENTS: (since last report) 11th: POOH, P/U Fishing tools, RIH, tag fish at 2987M, Wash over fish to 3070M Circ B/U and clean hole 1hr. pump out 3 stds, POOH, M/U screw in assembly RIH. Recovered 3 Jts HWDOP or 82M of fish. Mud is very foamy Thanks, Warren							
STOCK POINT		FORMULA TRANSPORT @ GRANDE PRAIRIE		DOWELL ENGINEER		WARREN SIMPSON		MOBILE #			
PHONE		831-4000		PHONE NUMBER		CAMP ROOM # 5		PAGE #			
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.											

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-10 REPORT NO: 363
DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
OPERATIONS AT 06:00 HOURS: CIRCULATE THROUGH PUMP OUT SUB
CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schritt
DAILY COST: \$ 61,199 CUM. COST: \$ 22,671,421 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 500 kPa @ 45 SPM
TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
CONDUCTED AT _____ HRS CREW PERFORMANCE Satisfactory
DAYS SINCE BOP DRILL (EACH CREW): 4 - 4 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1020	No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (s/l)	37	No. 1 STROKES PER MINUTE	50
TYPE				pH	9.8	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)	8	No. 2 STROKES PER MINUTE	50
NOZZLES (mm)				YP (Pa)	4.5	VOLUME (m ³)	1.1
DEPTH IN (m)				GELS (Pa)	1 // 2	PRESSURE (kPa)	2100
METERS (m)				SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	46
HOURS				SOLIDS (%)	2	D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)	2	D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)	10.8	SOLIDS CONTROL	
CONDITION				CHLORIDES	600	SHAKER SCREENS	250 - 175
DRILLING ASSEMBLY				Ca	30	DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.
						OF. (kg/m ³)	CENT.
						VOL. (l/min.)	
						HOURS	
						SURVEYS	ANGLE
							DIRECTION
						m	°
						m	°
						m	°
						m	°
BHA LENGTH	189.57		M	JTS. D.P. : ON RACKS	133		
HOOK LOAD	120,000		daN	: IN STRING	300		
AVAILABLE WOB			daN	: TOTAL	433		

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		REPAIR TOPDR	5	TODAY	CUM.
TRIP		BOP DRILL		LAXKING		WO. ORDEIS		75	7048
RIG SERVICE	75	HANDLE TOOLS		TESTING		REAM & WASH			182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE		FREE POINT	3	23 25	1481.75
SLIP & CUT		STANDHY		HANDLE TOOLS		PRESSURE TEST	1.5	24	8712.7
COND. MUD		PRESSURE TEST		TRIP		CIRCULATE	1.25	WEATHER	
NIPPLEUP/DN				REAM RATHOLE		THAW COIL	4.5	TEMPERATURE	
RUN CASING				CIRCULATE		RUN IN TUBING	12.5	ROADS	
								SLIPPERY	

24 SUMMARY

Thaw out coil - Pressure test coil to 21mpa - Run in with coil tubing circulating with Dowell pumper at 43m³/min.
to 3170m - Wiper trip to 2880m - Pull out circulating to 200m - Blow coil with nitrogen and finish out of hole
Rig down injector and Dowell BOP - Rig in wire line truck - Run in with free point - Tool hung up at 2884m
Rig down wire line - Screw in top drive - Circulate through pump out sub

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD		LOCATION		P-86-2		DATE		10-Jan-98	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS 26-E		REPORT No		303	
REPORT FOR Mr.		Art Schmitt		REPORT FOR Mr.		Terry Gargischuck		SPUD DATE		12-Jan-97	
ASSEMBLY		CASING		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)	216.0	LENGTH (m)		SIZE (mm)		TANKS	123	PUMP #1	140 X 254	OPPOSITE DP	54
BIT NUMBER				508 0	283	HOLE	27 0	M3/STK	0.0117	OPPOSITE DC	
DRILL PIPE #1 (mm)	127 0	3177		244.5	3115	TOTAL	150	PUMP #2	140 X 254	CIRC. TIME	183
DRILL PIPE #2 (mm)				LINER	TOP/BOT	STAND BY	44	M3/STK	0.0117	BOTTOMS UP	65
COLLAR #1 (mm)								S P M	110		
COLLAR #2 (mm)								M3/MIN	1.2870		
HOLE DATA		DEGRASSER		DESILTER		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS			
MUD TYPE - Kelzan / Floplex		FLOWLINE WT.				kg/m3		MUD WT.		1020 kg/m3	
HOLE COND. - cased hole		UNDERFLOW WT.				kg/m3		VISCOSITY		45-50 cP	
DEVIATION:		OVERFLOW WT.				kg/m3		FILTRATE		BELOW 8.0 cm3/30 min	
CURRENT OP. - circulating		UNDERFLOW RT				m3/min		pH		10.0-10.5	
EQUIPMENT:		X DEGASSER		DESILTER		DESANDER		X CENTRIFUGE			
		XX DOUBLE DECK OR HIGH SPEED SHAKER									
MUD PROPERTIES				INVENTORY							
TIME SAMPLE TAKEN	17.47	MATERIALS		MATERIALS		RECEIVED	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	Flowline			RECEIVED		SINCE LAST	USED SINCE	USED TO	REMAINING	COST	COST
PRESENT DEPTH	3177			TO DATE		REPORT	LAST REPORT	DATE	ON LOCATION		
FLOWLINE TEMPERATURE (C)	49	BARITE 185		18375				13895	4480		\$270,852.50
DENSITY	1020	BARITE 40		4851				3140	1711		\$54,008.00
FUNNEL VISCOSITY (cP)	37	CALC CARB 8		840				840			\$8,400.00
600 READING	23	CALC CARB 328		1680				1120	560		\$11,200.00
300 READING	15	CAUSTIC		360				238	122		\$13,804.00
APPARENT VISCOSITY (mPa.s)	11.5	FLO PLEX		720				227	493		\$43,984.00
PLASTIC VISCOSITY (mPa.s)	8	HGF FLR		7					7		
POINT (Pa)	3.5	KELZAN XCO		320				156	165		\$132,680.00
1/10 min. (Pa)	1/2	XANIS		54				7	47		\$7,000.00
STRIP	METER X	B.2		LIGNITE				60	76		\$1,200.00
FILTRATE (cm3)	AP X HTHP	11.4		LIME				1478	147		\$22,924.50
FILTER CAKE (mm)		2		SAND/DUST				590	810		\$3,835.00
PF		0.03		SODA ASH				5	35		\$180.00
MF		0.45		BENTONITE 40kg				2198	42		\$34,618.50
PM				BENTONITE 48kg				802	278		\$14,355.80
TOTAL HARDNESS (mg/l)	X Ca X	30		ZINC CARBONATE					80		
CHLORIDES (mg/L)	X NaCl	800		H3O 800 Antine Aid					28		
SAND CONTENT	% FR			WALNUT (M)				1203	97		\$43,308.00
SOLIDS CONTENT	% FR	3		X-CIDE 207				15	81		\$3,180.00
OIL/WATER CONT	% FR			Bleeds Diagnostics					10		
MBT (Kg/m3)	X OIL RET	5		PREVIOUS COST		\$2,577,144.70		STARTING VOLUME		252	
EQUIVALENT CIRCULATING DENSITY		1032.4		DAILY COST				VOL. BUILT		30.5	
OIL WATER RATIO				CUM. COST		\$2,577,144.70		VOL. LOST ON SURFACE		2.1	
CaCl2 w/w%				DISCOUNTED COST		\$1,417,429.59		VOL. LOST ON SUB SURFACE			
"n"		0.56		CUM. ENG. COST		\$137,750.00		END VOLUME		197	
"k"		0.39		TOTAL COST		\$1,555,179.59		CUM VOL LOST		37.3	

RECOMMENDATIONS:

COMMENTS: (since last report)

100h: POOH w/ tubing, Rig and run Wireline for freepoint, Bridge at 2905M
POOH w/ Wireline, R/H w/ wireline freepoint, POOH w/ same Circ B/L

Thanks, Warren

STOCK POINT
ONEFORMULA TRANSPORT @ GRANDE PRAIRIE
831-4000DOWELL ENGINEER
PHONE NUMBERWARREN SIMPSON
CAMP ROOM # 5MOBILE #
PAGE #THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL
BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN
SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE

01/09/98 07:25 FAX

RANGER OIL LIMITED

WELL	Ranger Fort Liard P-66-A	DATE	98-01-09	REPORT NO.:	362
DEPTH:	3177 m	PROGRESS:	0 m	FORMATION:	NALIANNI
OPERATIONS AT 06:00 HOURS. THAW DOWELL COILED TUBING					
CONTRACTOR/OIG SUPT.:	Precision Drilg Rig #426E Terry Gorgichuk	CO SUPERVISOR:	Art Schmitt		
DAILY COST: \$	75,562	CUM COST: \$	22,610,222	AFE NO:	E6D-015

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	500	kPa @	45	SPM
TRIP RECORDS: CALCULATED HOLE FILL				m ³ ACTUAL HOLE FILL:				m ³
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN				MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE				Satisfactory
DAYS SINCE BOP DRILL (EACH CREW):	3 - 3			MAXIMUM CASING HOLD BACK	20,500			kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)		1020	No. 1 LINER (mm)	140	
SIZE (mm)				VISCOSITY (s/l)		37	No. 1 STROKES PER MINUTE	50	
TYPE				pH		9.8	No. 2 LINER (mm)	140	
SERIAL No.				PV (mPa S)		8	No. 2 STROKES PER MINUTE	50	
NOZZLES (mm)				YP (Pa)		4.5	VOLUME (m ³)	1.1	
DEPTH IN (m)				GELS (Pa)		1 // 2	PRESSURE (kPa)	2100	
METERS (m)				SAND (%)		0	D.P. ANNULAR VEL. (m/min)	46	
HOURS				SOLIDS (%)		2	D.C ANNULAR VEL.		
WOB (1000 daN)				FILTER CAKE (mm desc.)		2	D.C. ANNULAR VEL. (m/min)		
R.P.M.				FLUID LOSS (cc)		10.8	<u>SOLIDS CONTROL</u>		
CONDITION				CHLORIDES		600	SHAKER SCREENS	250 - 175	
<u>DRILLING ASSEMBLY</u>				Ca		30	DRYER SCREENS		
ITEM	O.D.	I.D.	I.J. TYPE	<u>MUD ADDITIVES</u>			U.F. (kg/m ³)	D. SILT.	CENT.
				31 - Gel			OF. (kg/m ³)		
				2 - Xanvis			VOL. (l/min.)		
				3 - Caustic			HOURS		
				2 - Lignosir			<u>SURVEYS</u>	ANGLE	DIRECTION
								m	o
				DC S 1350 CCS 1,237,202				m	o
BHA LENGTH	189.57		M	JTS. D.P. : ON RACKS		133		m	o
HOOK LOAD	120,000		daN	: IN STRING		300		m	o
AVAILABLE WOB			daN	: TOTAL		433		m	o

TIME BREAKDOWN

DRILLING OPERATIONS			EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT	CORING		REPAIR TOPDR		TODAY	CUM
TRIP		ROP DRILL	LOGGING		W.O. ORDERS		.75	7047.25
RIG SERVICE	.75	HANDLE TOOLS	TESTING		REAM & WASH			182.25
SURVEY		LOAD TOOLS	CIRC. SAMPLE		SCREW IN	1.5	23.25	1458.5
SLIP & CUT		STANDHY	HANDLE TOOLS		PRESSURE TEST	2	24	8688
COND. MUD		PRESSURE TEST	TRIP		CIRCULATE	4.5	CLEAR	
NIPPLEUP/DN			REAM RATHOLE		THAW COIL	4.5	TEMPERATURE -26	
RUN CASING			CIRCULATE		RIG UP CTU	10.7	ROADS SLIPPERY	

24 SUMMARY

Rig up Dowell CTU and test Dowell BOP - Finish rig up CTU - Inject methanol in to coil and tarp in coil and heat with steam

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

01/09/98 07:25 FAX

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD		LOCATION		P-65-a		DATE		8-Jan-98	
OPERATOR		RANGER OIL LTD.		CONTRACTOR		CACTUS 26-5		REPORT No		301	
REPORT FOR Mr.		Art Schmitt		REPORT FOR Mr.		Terry Gerschluck		SPUD DATE		12-Jan-97	
ASSEMBLY		CASINO		MUD VOL. (M3)		PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)	215.0	LENGTH (m)		SIZE (mm)	LENGTH (m)	TANKB	123	PUMP #1	140 X 254	OPPOSITE DP	54
BIT NUMBER				508.0	283	HOLE	27.0	M3/STK	0.0117	OPPOSITE DC	
DRILL PIPE #1 (mm)	127.0	3177		244.5	3115	TOTAL	150	PUMP #2	140 X 254	CIRC. TIME	183
DRILL PIPE #2 (mm)				LINER	TOP/BOT.	STAND BY	44	M3/STK	0.0117	BOTTOMS UP	85
COLLAR #1 (mm)								S.P.M.	110		
COLLAR #2 (mm)								M3/MIN	1.2870		
HOLE DATA		DESANDER		DESILTER		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS			
MUD TYPE - Kelzan / Floplex		FLOWLINE WT.				kg/m3		MUD WT.		1020	kg/m3
HOLE COND - cased hole		UNDERFLOW WT.				kg/m3		VISCOSITY		45-50	cP
DEVIATION -		OVERFLOW WT.				kg/m3		FILTRATE		BELOW 8.0	cm3/30 min.
CURRENT OP - circulating		UNDERFLOW RT.				m3/min		pH		10.0-10.5	
EQUIPMENT:		X DEGASSER		DESILTER		DESANDER		X CENTRIFUGE			
XX DOUBLE DECK OR HIGH SPEED SHAKER											
MUD PROPERTIES						INVENTORY					
TIME SAMPLE TAKEN	11.31	MATERIALS		MATERIALS		RECEIVED	MATERIALS		MATERIALS		
SAMPLE FROM	Flowline	RECEIVED		RECEIVED		SINCE LAST	USED SINCE		USED TO		
PRESENT DEPTH	3177	TO DATE		TO DATE		REPORT	LAST REPORT		DATE		
FLOWLINE TEMPERATURE (C)	49	BARITE /43	18375				13895	4480			\$270,952.50
DENSITY	1020	BARITE NO	4051				3140	1711			\$54,008.00
FUNNEL VISCOSITY (cP)	37	CALC CARB D	840				840				\$8,400.00
500 READING	25	CALC CARB 328	1680				840	840			\$8,400.00
300 READING	17	CAUSTIC	360				232	128			\$13,458.00
APPARENT VISCOSITY (mPa.s)	12.5	FLO PLEX	720				223	497			\$42,816.00
THIN VISCOSITY (mPa.s)	8	Amorphous	0					8			
YIELD POINT (Pa)	4.5	POF FLA	7					7			
YIELD STRESS (Pa)	1/2	POF FREE	8				2	4			\$670.00
PH	STRIP	METER	9.8	PO LUBE	40		13	27			\$17,030.00
FILTRATE (cm3)	AP	X	10.8	KELZAN ACD	320		125	195			\$107,000.00
FILTER CAKE (mm)			2	LIGNITE	58		58				\$1,120.00
PF			0.15	LIME	1626		1478	147			\$22,924.50
MF			0.4	SAWDUST	1400		590	610			\$3,835.00
PM				SODA ASH	40		5	35			\$180.00
TOTAL HARDNESS (mg/L)	X	Ca	30	VEN FIBER 201	90			90			
CHLORIDES (mg/L)	X	NaCl	800	BENTONITE 40kg	2240		2120	120			\$33,390.00
SAND CONTENT %		FR		WALNUT (F)	550		185	365			\$8,660.00
SOLIDS CONTENT %	X	FR	3	WALNUT (M)	1300		1203	97			\$43,308.00
OIL/WATER CONT %	X	FR		CLIDE 207	106		15	91			\$3,180.00
MGT (kg/m3)	X	OIL RET	5	PREVIOUS COST		\$2,549,444.40	STARTING VOLUME		252		
EQUIVALENT CIRCULATING DENSITY			1062.5	DAILY COST			VOL BUILT		30.5		
OIL WATER RATIO				CUM. COST		\$2,549,444.40	VOL LOST ON SURFACE		2.1		
CaCl2 w/w%				DISCOUNTED COST		\$1,402,194.42	VOL LOST ON SUB SURFACE				
"n"			0.44	CUM. ENG COST		\$136,850.00	END VOLUME		197		
"k"			0.98	TOTAL COST		\$1,539,044.42	CUM VOL LOST		37.3		
RECOMMENDATIONS:						COMMENTS: (since last report)					
1. Minimize mud tank volume by isolating tank 5 + 6 from active system.						08th: Circulating and waiting for endless tubing.					
For active system											
2. Bring pH up to 10.0 w/ 2 oz Caustic. Mix through chem BBL at 45 min/xx.											
3. Bring Vis up to 40-45 w/ 2oz of Xanvis at 20 min/xx and Gel at 10 min/xx											
NOTE: We DO NOT RECOMMEND adding any more Desco or Lignosite as they will lower the YP and Viscosity and require much more gel to be added to bring up the Vhs/YP. Also, We DO NOT RECOMMEND adding any Floplex as the system is presently full of Bacteria and Floplex will not do anything positive for the mud system at this time; all we are out of the casing and drilling formation. Kelzo 207 has to be added as well. Desco and Lignosite are also acidic and lower pH.						Bring Vis up in mud to 40.49sec/L					
						Thanks, Warren					

STOCK POINT: FORMULA TRANSPORT @ GRANDE PRAIRIE DOWELL ENGINEER WARREN SIMPSON MOBILE #
 TNE: 831-4000 PHONE NUMBER CAMP ROOM # 5 PAGE #

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JAN-09-1998 09:09

403 232 5200

P.03

P.04

01/08/98 07:29 FAX

DAILY MUD REPORT

WELL NAME		LOCATION		DATE	
OPERATOR		CONTRACTOR		REPORT No	
REPORT FOR Mr.		REPORT FOR Mr.		SPUD DATE	
RANGER FT. LIARD		P-22-4		8-Jan-98	
RANGER OIL LTD.		CACTUS #4		388	
Art Schre		Terry Garbisch		12-Jan-97	
ASSEMBLY		CASING		BLVD VOL. (BBL)	
PUMP OUTPUT		ANNULAR VEL. m/min			
BIT SIZE (mm)	101.6	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS
BIT NUMBER			508.0	203	152
DRILL PIPE #1 (mm)	42.2	3177	244.5	3115	27.0
DRILL PIPE #2 (mm)			LINER	TOP/BOT.	179
COLLAR #1 (mm)				STAND BY	16
COLLAR #2 (mm)					M3/STK
HOLE DATA		DEGRASSER		CENTRIFUGE	
MUD TYPE - Kelzan / Floplex		FLOWLINE WT.		MUD WT.	
HOLE COND. - Pipe		UNDERFLOW WT.		VISCOSITY	
DEVIATION		OVERFLOW WT.		FILTRATE	
CURRENT OP. - Tripping to circulate hole		UNDERFLOW RT.		pH	
EQUIPMENT:		X DEGRASSER		X CENTRIFUGE	
		DESILTER		DESANDER	
		XX DOUBLE DECK OR HIGH SPEED SHAKER			
MUD PROPERTIES		INVENTORY			
TIME SAMPLE TAKEN	0:30	MATERIALS	RECEIVED	RECEIVED	DATE
SAMPLE FROM	Flowline		RECEIVED	DATE	
PRESENT DEPTH	3177		TO DATE	DATE	
FLOWLINE TEMPERATURE (C)	27	BARITE MS	18375	180	13895
DENSITY	1020	BARITE MS	4851		3140
FUNNEL VISCOSITY (cP)	36	SCALE CASE 8	840		840
600 READING	20	SCALE CASE 20	1880		840
300 READING	14	SCALE CASE 30	360		232
APPARENT VISCOSITY (mPa.s)	10	SCALE CASE 40	720	220	223
THIN VISCOSITY (mPa.s)	6	SCALE CASE 50	8		497
POINT (Pa)	4	SCALE CASE 60	7		8
1/10 min. (Pa)	1/2	SCALE CASE 70	6		4
STRIP	METER	SCALE CASE 80	40		13
APZ	10.8	SCALE CASE 90	320	180	2
FILTRATE (cm3)	2	SCALE CASE 100	58		125
PF	0.05	SCALE CASE 110	1628		195
MF	0.1	SCALE CASE 120	1400		58
PM		SCALE CASE 130	40		58
TOTAL HARDNESS (mpa)	X	SCALE CASE 140	80		1479
CHLORIDES (mg/L)	X	SCALE CASE 150	2240	120	147
SAND CONTENT	X	SCALE CASE 160	550		810
SOLIDS CONTENT	X	SCALE CASE 170	1300		35
OIL/WATER CONT	X	SCALE CASE 180	105	10	80
MBT (Kg/m3)	X	SCALE CASE 190			2120
EQUIVALENT CIRCULATING DENSITY		SCALE CASE 200			120
OIL WATER RATIO		SCALE CASE 210			185
G/GZ WAYS		SCALE CASE 220			365
"n"	0.59	SCALE CASE 230			87
"k"	0.38	SCALE CASE 240			91
RECOMMENDATIONS:		SCALE CASE 250			
1. Minimize mud tank volume by isolating tank 5 + 6 from active system.		SCALE CASE 260			
2. Bring pH up to 10.0 w/ 2 qt Caustic. Mix through chem BBL at 45 min/hr.		SCALE CASE 270			
3. Bring Vis up to 40-45 w/ 2 qt of Kelzan at 20 min/hr and Gel at 10 min/hr.		SCALE CASE 280			
NOTE: readings are before Vis is brought up.		SCALE CASE 290			
COMMENTS: (since last report)		SCALE CASE 300			
05th: RIH, Circ sweep, POCH, Change BHA, RIH w/ fish hook.		SCALE CASE 310			
06th: Work string, back off DP, WOC, RIH to back off, POCH.		SCALE CASE 320			
07th: RIH, weigh over fish at 2585-2600m, circ, POCH, change BHA, RIH circ over fish.		SCALE CASE 330			
Bring Vis up in mud to 40-45sec/L.		SCALE CASE 340			

Flanagan, Warren

STOCK POINT FORMULA TRANSPORT @ GRANDE PRAIRIE DOWELL ENGINEER WARRDEN SUBFON MOBILE #

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN COMPLIANCE WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

JAN-08-1998 09:09

403 232 5200

P.05

RANGER OIL LIMITED

WELL Ranger Fort Lard P-66-A DATE 98-01-07 REPORT NO.: 360
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: TRIP OUT WASH PIPE
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 38,772 CUM. COST: \$ 22,411,459 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 1400 kPa @ 45 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 15.01 m³ ACTUAL HOLE FILL: 17.06 m³
 BOP DRILLS: CONDUCTED WHILE TRIPPING WELL SECURED IN 2 - 2 MIN.
 CONDUCTED AT 20:00 02:45 HRS. CREW PERFORMANCE Satisfactory
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 1 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1020	No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (cP)	35	No. 1 STROKES PER MINUTE	85
TYPE				pH	8.0	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	.99
DEPTH LN (m)				GELS (Pa)		PRESSURE (kPa)	2100
METERS (m)				SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	45
HOURS				SOLIDS (%)	2	D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)	2	D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES	600	SHAKER SCREENS	250 - 175
DRILLING ASSEMBLY				Ca	20	DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. S/LT.
W.O. SHOE	198	175	7 5/8 FI			OF. (kg/m ³)	CENT.
9 WASH PIPE	194	175	7 5/8 FI			VOL. (l/min.)	
XO SUB	171	64	5 H90			HOURS	
JARS	171	64	5 H90			SURVEYS	ANGLE
XO SUB	171	70	4 1/2 IF				DIRECTION
11 HWDP	127	72	4 1/2 IF			m	°
				DC S	CCS 1,233,746	m	°
BHA LENGTH	189.57	M	JTS. D.P. : ON RACKS	133		m	°
HOOK LOAD	120,000	daN	: IN STRING	300		m	°
AVAILABLE WOB	6,000	daN	: TOTAL	433		m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION	PROBLEMS	SUMMARY	
DRILLING		CEMENT		CORING	REPAIR TOPDR	DRILL OP	TODAY
TRIP		BOP DRILL		LOGGING	W.C. CHUCKERS	EVALUATION	CUM.
RIG SERVICE	.75	HANDLE TOOLS		TESTING	REAM & WASH	PROBLEMS	75
SURVEY		LOAD TOOLS		CIRC. SAMPLE	BACK-OFF	TOTAL	7045.75
SLIP & CUT		STANDBY		HANDLE TOOLS	HANDLE TURNS	WEATHER	182.25
COND. MUD		PRESSURE TEST		TRIP	CIRCULATE	TEMPERATURE	23.25
MISPLUG/ON				REAM RATIOLE	TRIP	ROADS	1412
RUN CASING				CIRCULATE	WASH OVER		24

24 SUMMARY

Run in string shot no back-off - Stab in top drive and reverse torque and do manual back-off
 Trip out - Pick up 9 joints wash pipe and jars - Trip in - Wash over fish to 2904m - Unable to wash over Xosub at 2904m
 Circulate bottoms up - Trip out wash pipe
 Manual back-off at 2889.29m
 Hole drag up - 8-10,000 daN
 Hole drag down - 5-7,000 daN
 Wash over torque - 1005 PSI
 Estimated water usage 52.5m³ per day rig and camp

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

01/08/88 07:34 FAX

RANGER OIL LIMITED

WELL: Ranger Fort Liard P-66-A DATE: 98-01-06 REPORT NO.: 359
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: RUN SPUD BAR WITH WEATERFORD LINE TRUCK
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 38,852 CUM. COST: \$ 22,372,687 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 1350 kPa @ 45 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MTN.
 CONDUCTED AT HRS. CREW PERFORMANCE Satisfactory
 DAYS SINCE BOP DRILL (EACH CREW): 5 - 5 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1030	No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (s/l)	35	No. 1 STROKES PER MINUTE	85
TYPE				pH	8.0	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				VP (Pa)		VOLUME (m ³)	.99
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	2100
METERS (m)				SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	43
HOURS				SOLIDS (%)	2	D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm deac.)	2	D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES	600	SHAKER SCREENS	250 - 175
DRILLING ASSEMBLY				Ca	20	DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.
S.I. SUB	171	73	4 1/2 IF			OF. (kg/m ³)	CENT.
XO SUB	171	72	5 1/2 Reg			VOL. (l/min.)	
BUMPER sub	171	64	5 1/2 Reg			HOURS	
JARS	171	64	5 1/2 Reg			SURVEYS	ANGLE DIRECTION
XO SUB	174	70	4 1/2 IF				
12 HWDP	127	72	4 1/2 IF				
				DC S	CCS 1,233,746		
BHA LENGTH	115.27	M	JTS. D.P. : ON RACKS	133			
HOOK LOAD	120,000	daN	: IN STRING	300			
AVAILABLE WOB		daN	: TOTAL	433			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		REPAIR TOPDR		TODAY	CUM.
TRIP		WOP DRILL		LOGGING		W/O ORDERS		.75	7043
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE		SCREW IN	3	PROBLEMS	23.25 1388.75
SLIP & CUT		STANISHY		HANDLE TOOLS		HANDLE TOOLS	2	TOTAL	24 8616
COND. MUD		PRESSURE TEST		TRIP		CIRCULATE	.5	WEATHER	SNOW
NIPPLE UP/DN				REAM RATHOLE		TRIP	12.5	TEMPERATURE	-25
RUN CASING				CIRCULATE		WIRE LINE	5.25	ROADS	SLIPPERY

24 SUMMARY

Trip out wash pipe - Pick up screw in sub-jars-bumper sub - Trip in strap string to 2876m - Circulate to top of fish
 Screw in to fish - Work in reverse torque - Back out top drive - Blow out top drive and mud lines
 Rig up line truck - Run in with string shot - String shot hung up at 2906m - Corrected top of fish at 2905.39m
 Pull out string shot - Rig to and run spud bars - Work spud bars down to 2913m - Pull out spud bars
 Hole drag up - 8-10,000 daN
 Hole drag down - 5-7,000 daN

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-05 REPORT NO: 358
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNT
 OPERATIONS AT 06:00 HOURS: TRIP OUT WASH PIPE
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schrittz
 DAILY COST: \$ 30,722 CUM. COST: \$ 22,333,835 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 1350 kPa @: 45 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE Satisfactory
 DAYS SINCE BOP DRILL (EACH CREW): 4 - 4 MAXIMUM CASING HOLD BACK 20,500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1020	No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (sI)	35	No. 1 STROKES PER MINUTE	85
TYPE				pH	8.0	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	.99
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	2100
METERS (m)				SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	43
HOURS				SOLIDS (%)	2	D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)	2	D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES	600	SHAKER SCREENS	250 - 175
DRILLING ASSEMBLY				Ca	20	DRYER SCREENS	
ITEM	O.D.	I.D.	T.I. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. S.L.T.
W.O. SHOE	198	169	7 5/8 FI	1 - Kelzan		OF. (kg/m ³)	CENT.
4 W.O. PIPE	194	175	7 5/8 FI			VOL. (l/min.)	
BUMPER sub	171	70	5 1/2 Reg			HOURS	
JARS	172	62	5 1/2 Reg			SURVEYS	ANGLE DIRECTION
XO SUB	174	70	4 1/2 IF				
12 HWDP	127	72	4 1/2 IF				
				DC S 428	CCS 1,233,746		
BHA LENGTH	156.19	M	JTS. D.P. : ON RACKS	133			
HOOK LOAD	120,000	daN	: IN STRING	300			
AVAILABLE WOB	7,000	daN	: TOTAL	433			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION	PROBLEMS	SUMMARY	
DRILLING		CEMENT		CORING	REPAIR TOPDR	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY CUM.
TRIP		BOP DRILL		LOGGING	W.O. ORDERS		6.75 7044.25
RIG SERVICE	.75	HANDLE TOOLS		TESTING	KHAM & WASH		182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE	WASH OVER 2.5		17.25 1365.5
SLIP & CUT	.75	STANDBY		HANDLE TOOLS	HANDLE TOOLS 2.5		24 8592.7
COND. MUD		PRESSURE TEST	\$ 25	TRIP	CIRCULATE 1.25	TEMPERATURE	CLEAR
NIPTLEUP/DN				KHAM RATHOLE	TRIP 11	ROADS	-25
RUN CASING				CIRCULATE			SLIPPERY

24 SUMMARY

Pressure test BOP - Pick up 4 joints wash pipe - jars - 9 joints HWDP - Slip and cut drill line	
Trip in with wash pipe - Wash over fish 2909m - 2950m - Pump sweep circulate bottoms up	
Pump out 2 stands - Blow kelly - Trip out wash pipe	
Hole drag up - 8-10,000 daN	
Hole drag down - 5-7,000 daN	
Wash over torque - 1005 PSI	
SIGNED BY: ART SCHRITT	
MOBILE NO: (403)210-1202 (403) 424-8050	

Schlumberger

Dowell

Dowell
Division of Schlumberger Canada Limited

DRILLING FLUID REPORT

DATE 98/1/15
REPORT No. 299
SPUD DATE 97/1/12WELL NAME RANGER FT. LIAROLOCATION P-66-AOPERATOR RANGER OILCONTRACTOR CACTUS 26EREPORT FOR Mr. ART SCHAIFF

REPORT FOR Mr.

ASSEMBLY	CASING	MUD Vol. (m ³)	PUMP OUTPUT	ANNULAR VEL. m/min.
BIT SIZE / #	COND	TANKS	PUMP SIZE	OPPOSITE D.P.
DRILL PIPE mm	SURFACE	HOLE	m ³ /STK.	OPPOSITE D.C.
DRILL COLLARS mm	INTER.	TOTAL	S.P.M.	PUMP PRESS.
OTHER	OTHER	STANDBY	m ³ /min.	CIRC. TIME /B.U.P.

HOLE DATA	DESANDER/DESILTER	DRILLING FLUID SPECIFICATIONS
MUD TYPE <u>KELZAN</u>	FLOWLINE WT.	kg/m ³ MUD WT.
HOLE COND <u>FIRE HOLE</u>	UNDERFLOW WT.	kg/m ³ VISCOSITY
DEVIATION <u>W/PILL</u>	OVERFLOW WT.	kg/m ³ FILTRATE
CURRENT OP.	UNDERFLOW RATE	m ³ /min. pH
EQUIPMENT: ☐ DEGASER ☐ DESILTER ☐ DESANDER ☐ CENTRIFUGE ☐ DOUBLE DECK OR HIGH SPEED SHAKER		

SAMPLE FROM FL. (1) PIT (1)	MUD PROPERTIES	MATERIALS	INITIAL	RECEIVED	USED	BALANCE	COST
TIME SAMPLE TAKEN	3:30 3:30						
PRESENT DEPTH (m)	2909 2909	<u>KELZAN</u>			10		
FLOWLINE TEMPERATURE (°C)	27 27	<u>CAUSTIC</u>			3		
DENSITY (kg/m ³)	1025 1020	<u>GFL</u>			1		
FUNNEL VISCOSITY (s/L)	30-35 120+						
APPARENT VISCOSITY (mPa.s)	DIARY 39.5						
PLASTIC VISCOSITY (mPa.s)	WATER 21						
YIELD POINT (Pa)	SPOTTY 18.5						
GBLB Q/10 min. (Pa)	8/110						
pH STRIP ☐ METER ☐	8.0 8.0						
FILTRATE K API (1) HT HP (cm ²)	16.4						
FILTER CAKE (mm)	2 2						
ALKAL (PF/MF) ☐ (PM/LIME)	.05/1						
TOTAL HARDNESS ☐ Ca ☐ (mg/L)	20 20						
SAL ☐ NaCl ☐ Cl ☐ (mg/L)	600 600						
SAND CONTENT (%) ☐ (G) ☐							
SOLIDS CONTENT (%) ☐ (G) ☐	2 2						
OIL/WATER CONT. (%) ☐ (G) ☐							
MBT (Kg/m ³) ☐ % ☐ OIL RET ☐							
ELECTRICAL STABILITY (V)							
OIL/WATER RATIO							
CaCl ₂ w/w%							
W/W%	21/12.06						
COMMENTS:							

MUD IN TANKS
+ HOLE
MUD FOR PILL

MUD UP INSTRUCTIONS IN OIL HOUSE

ONE BAG OF KELZAN ALSO USED FOR PILL

STOCK POINT GRAND PRAIRIEDOWELL ENGINEER WARREN SIMPSONPHONE 403 831 4000PHONE CAMP A-5

MOBILE #

THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE, REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSTRUED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.

DFR - 001 (94/01)

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>98-01-04</u>	REPORT NO.:	<u>357</u>
DEPTH:	<u>3177</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNI</u>
OPERATIONS AT 06:00 HOURS: <u>PRESSURE TEST BOP</u>					
CONTRACTOR/RIG SUPT.:			<u>Precision Drilling Rig #436E Terry Gorgichuk</u>	CO. SUPERVISOR: <u>Art Schmitt</u>	
DAILY COST: \$ <u>92,625</u>		CUM COST: \$ <u>22,303,113</u>		AFE NO: <u>E6D - 015</u>	

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	1350	kPa @:	45	SPM
TRIP RECORDS: CALCULATED HOLE FILL	14.77	m ³	ACTUAL HOLE FILL:	16.1	m ³			
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN				MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE	Satisfactory			
DAYS SINCE BOP DRILL (EACH CREW):	3 - 3	MAXIMUM CASING HOLD BACK		20,500	kPa			

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1005	No. 1 LINER (mm)	140		
SIZE (mm)				VISCOSITY (s/l)	40	No. 1 STROKES PER MINUTE	80		
TYPE				pH	9.5	No. 2 LINER (mm)	140		
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE			
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	.93		
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	3000		
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	38		
HOURS				SOLIDS (%)		D.C ANNULAR VEL.			
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C ANNULAR VEL. (m/min.)			
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL			
CONDITION				CHLORIDES		SHAKER SCREENS	250 - 175		
DRILLING ASSEMBLY				Ca		DRYER SCREENS			
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.	
				10 - Kelzan		OF. (kg/m ³)			
				3 - Caustic		VOL. (l/min.)			
				1 - Gel		HOURS			
						SURVEYS	ANGLE	DIRECTION	
							m	o	
				DC 5 4380 CCS 1,233,318			m	o	
BHA			m	JTS. M.T.: ON RACKS		133	m	o	
LENGTH									
HOOK LOAD		daN		: IN STRING	300		m	o	
AVAILABLE WOB		daN		: TOTAL	433		m	o	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	SUMMARY	
DRILLING		CEMENT		CORING		REPAIR TOPDR	2.25		TODAY	CUM.
TRIP		NOPI DRILL		LOGGING		W.C. ORDERS			3.5	7037.5
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH				182.25
SURVEY		LAND TOOLS		CIRC. SAMPLE		RUN CTU			20.5	1348.25
SLIP & CUT		STANDBY		HANDLE TOOLS		BACK OFF DP	5		24	8560
CYNTD. MUD		PRESSURE TEST	2.75	TRIP		TRIP	8.75			
NIPPLE UP/IN				REAM RATHOLE		CIRCULATE	4.5			-26
RUN CASING				CIRCULATE					SLIPPERY	

24 SUMMARY

Work torque in to pipe - Repair top drive - Run in string shot and back-off - Pull out wire line
Back-off and pull up .5m - Circulate and condition mud - Repair top drive change out control cord
Trip out - Lay down 1 HWDP - Rig to and pressure test BOP - Pressure test Blind rams - upper and lower pipe rams
BOP valves - HCRs and manifold - Stabbing and Kelly valves to 1500kpa low and 15000kpa high 10 minutes each
Pressure test annular to 1500kpa and 9000kpa
Top of fish at 2909.04m - Left in hole 23 HWDP - Xc sub - 3 Dcs - 1 Jars - 2 NMDCs - 1 IBS - Short DC - 3 PTR - Bit
Loaded out 4 228mm NMDCs - 171mm 5"H90 jars - Cutters for 311mm 3PTR

SIGNED BY: ART SCHRIFF

MOBILE NO: (403) 210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 98-01-03 REPORT NO.: 356
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: RIG UP TO RUN STRING SHOT
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt - Wayne Casler
 DAILY COST: \$ 77,204 CUM. COST: \$ 22,210,488 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: _____ R.S.S.P.: _____ kPa @: _____ SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE Satisfactory
 DAYS SINCE BOP DRILL (EACH CREW): 2 - 2 MAXIMUM CASING HOLD BACK 17,800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1000	No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (cP)	28	No. 1 STROKES PER MINUTE	
TYPE				pH	8.0	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES		SHAKER SCREENS	250 - 175
DRILLING ASSEMBLY				Ca		DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.
						OF. (kg/m ³)	CENT.
						VOL. (l/min.)	
						HOURS	
						SURVEYS	ANGLE
							DIRECTION
						m	°
						m	°
						m	°
BHA		m		DC S	CCS 1,228,938		
LENGTH				JTS. M.T.: ON RACKS	133		
HOOK LOAD		daN		: IN STRING	300	m	°
AVAILABLE WOB		daN		: TOTAL	433	m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		DOWEL REPAIR		TODAY	CUM.
TRIP		BOP DRILL		LEAKING		W.O. ORDERS		.75	7034
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE		RUN CTU	14.7	23.25	1327.75
SLIP & CUT		STANDBY		HANDLE TOOLS		FREE-POINT	8.5	24	8544.7
COND. MUD				TRIP				WEATHER	
NEUTRALIZATION				REAM HATHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								SLIPPERY	

24 SUMMARY

Run 50.8mm coiled tubing inside drill string, circulate water with Dowell pumper .43m³ to 3170m
 Pull up circulating to 1350m - Circulate out solids - Run in circulating to 3170m - Pull out circulating to 200m
 Blow coil dry with nitrogen - Flow check well - Rig down CTU injector and BOP - Rig up Weatherford line truck
 Run in with free-point - Free-point tool failed - Pull out and change out tool - Run in and free-point
 100% free at 2909m - 90% free at 2919m - 10 to 15% free at 2928m - 2966m
 Back-off point 2909m - #5 joint of HWD

SIGNED BY: ART SCHMITT

MODIFIED NO: /4031010.1207 /4031474.8040

RANGER OIL LIMITED

WELL	<u>Ranger Fort Lard P-66-A</u>	DATE	<u>98-01-02</u>	REPORT NO.:	<u>355</u>
DEPTH:	<u>3177</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNI</u>
OPERATIONS AT 06:00 HOURS: <u>Circulate coiled tubing at 242m - Repair Dowell pump</u>					
CONTRACTOR/OIG SUPT.:	<u>Precision Drilg Rig #426E Terry Gorgichuk</u>		CO. SUPERVISOR:	<u>Art Schrin - Wayne Casler</u>	
DAILY COST: \$	<u>62,928</u>	CUM. COST: \$	<u>22,133,284</u>	AFE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:		R.S.S.F.:		kPa @:		SPM
TRIP RECORDS: CALCULATED HOLE FILL				m ³ ACTUAL HOLE FILL:				m ³
BOP DRILLS: CONDUCTED WHILE		Rigging up Dowell CTU		WELL SECURED IN		2.0	2.0	MIN.
CONDUCTED AT		14:00	06:30	HRS. CREW PERFORMANCE		Satisfactory		
DAYS SINCE BOP DRILL (EACH CREW):				MAXIMUM CASING HOLD BACK		17,800		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1000	No. 1 LINER (mm)	140		
SIZE (mm)				VISCOSITY (s/l)	28	No. 1 STROKES PER MINUTE			
TYPE				pH	8.0	No. 2 LINER (mm)	140		
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE			
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)			
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)			
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)			
HOURS				SOLIDS (%)		D.C. ANNULAR VEL.			
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)			
R.P.M.				FLUID LOSS (cc)		<u>SOLIDS CONTROL</u>			
CONDITION				CHLORIDES		SHAKER SCREENS	250 - 175		
<u>DRILLING ASSEMBLY</u>				Ca		DRYER SCREENS			
ITEM	O.D.	I.D.	T.J. TYPE	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)	D. SILT.	CENT.	
						OF. (kg/m ³)			
						VOL. (l/min.)			
						HOURS			
						<u>SURVEYS</u>	<u>ANGLE</u>	<u>DIRECTION</u>	
							m	°	
				DC S CCS 1,228,938			m	°	
							m	°	
BHA			m	JTS. M.T.: ON RACKS		133			
LENGTH									
HOOK LOAD			daN	: IN STRING		300	m	°	
AVAILABLE WOB			daN	: TOTAL		433	m	°	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		COMMENT		CORING		DOWNHOLE REPAIR	3	TODAY	CUM
TRIP		BLVD KILL		LOGGING		W.C. ORDERS		21	7033.2
RIG SERVICE		HANDLE TOOLS		TESTING		REAM & WASH			182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE				3	1304.5
SLIP & CUT		STANDBY		HANDLE TOOLS				24	8520
COND. MUD		RIGUP CTU	21	TRIP				CLOUDY	
NIPPLE/PAW				REAM RATHOLE				-28	
RUN CASING				CIRCULATE				SLIPPERY	

DRILL OP
EVALUATION
PROBLEMS
TOTAL
WEATHER
TEMPERATURE
RISK

24 SUMMARY

Rig up Dowell coiled tubing unit - Pressure test Dowell BOP with nitrogen to 21mpa
Finish rig up CTU - Pressure test coil to 21mpa with nitrogen - Work on Dowell pumper
Run in with coil tubing to 242m - Circulate with one Dowell pump .25m3 8000 kpa - Repair 2nd Dowell pump

SIGNED BY: ART SCHRITT

MORRIS NO: (403) 210-1202 (403) 474-8050

100

WELL CONTROL

DRILLING PARAMETERS

TIME BREAKDOWN										
DRILLING OPERATIONS				EVALUATION		PROBLEMS		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE REMARKS	SUMMARY	
DRILLING		CEMENT		CORING		RIG REPAIR			TODAY	CUM.
TRIP		WIP DRILL		LOGGING		W.O. ORDERS			24	7012.25
RIG SERVICE		HANDLE TOOLS		TESTING		REAM & WASH				182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE						1301.5
BLP & CUT		STANDBY	18	HANDLE TOOLS					24	1496
COND. MUD		WIP CUT	6	TRIP					CLEAR	
WIP LIFT/DN				REAM KATHINK					-26	
RUN CASING				CIRCULATE					SLIPPERY	

Build ice bridge with Beaver Enterprise crew - One ice flood 97-12-31 - Released crew until 98-01-02

Dumped and cleaned suction tank and poorboy degasser tank

1998

WELL CONTROL

DRILLING PARAMETERS

DRILLING OPERATIONS				EVALUATION		PROBLEMS					SUMMARY	
DRILLING		CEMENT		CURING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.		
TRIP		BOF DRILL		LACKING		W.O. ORDERS			24	6988.2		
RIG SERVICE		HANDLE TOOLS		TESTING		REAM & WASH				182.25		
SURVEY		LOAD TOOLS		CIRC. SAMPLE						1301.5		
SLIP & CUT		STANDBY	24	HANDLE TOOLS					24	8472		
COND. MUD				TRIP								
NIPPLE UP/DN				REAM RATTLE						-19		
RUN CASING				CIRCULATE					SLIPPERY			

P.05

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-12-30 REPORT NO.: 352
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: STANDBY - WAIT ON ICE BRIDGE
 CONTRACTOR/RIG SUPT.: Precision Drilg Rig #426E Ward McKenzie CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 14,400 CUM. COST: \$ 22,020,913 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: _____ DAILY BOP CHECK: _____ R.S.S.P.: _____ kPa @: _____ SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 47 MAXIMUM CASING HOLD BACK _____ kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS	PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)		1040	No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (cP)		40	No. 1 STROKES PER MINUTE	
TYPE				pH		8.5	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)			No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)			VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)			PRESSURE (kPa)	
METERS (m)				SAND (%)			D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)			D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)			D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)			SOLIDS CONTROL	
CONDITION				CHLORIDES			SHAKER SCREENS	250 - 175
DRILLING ASSEMBLY				Ca			DRYER SCREENS	
ITEM	O.D.	L.D.	T.I. TYPE	MUD ADDITIVES			U.F. (kg/m ³)	D. SILT.
							OF. (kg/m ³)	CENT.
							VOL. (l/min.)	
							HOURS	
							SURVEYS	ANGLE
								DIRECTION
							m	°
				DC S		CCS 1,228,938	m	°
BHA			m	JTS. M.T. ON RACKS		133	m	°
LENGTH								
HOOK LOAD			daN	: IN STRING		300	m	°
AVAILABLE WOB			daN	: TOTAL		433	m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	SUMMARY	
DRILLING		CEMENT		CORNING		RIG REPAIR			TODAY	CUM
TRIP		BOP DRILL		LOGGING		W.O. ORDERS			24	6964.25
RIG SERVICE		HANDLE TOOLS		TESTING		REAM & WASH				182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE						1301.5
SLIP & CUT		STANDRY	24	HANDLE TOOLS					24	4448.7
COND. MUD				TRIP					CLEAR	
PIPELUTION				REAM RATIOLE					-19	
RUN CASING				CIRCULATE					SLIPPERY	

24 SUMMARY

Build ice bridge with Beaver Enterprise crew - Two ice floods - Ice grid test 101cm - 156cm
 Dowell coil tubing unit on the road the A.M.

SIGNED BY: ART SCHMITT

MORRIS NO. (403) 232-1207 (403) 474-8050

DEC-30-1997 09:52

403 232 5200

78%

P.04

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>97-12-29</u>	REPORT NO.:	<u>351</u>
DEPTH:	<u>3177</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNT</u>
OPERATIONS AT 06.00 HOURS: <u>STANDBY - WAIT ON ICE BRIDGE</u>					
CONTRACTOR/RIG SUPT.:		<u>Precision Drilg Rig #426E Ward McKenzie</u>	CO. SUPERVISOR:		<u>Art Schrit</u>
DAILY COST: \$	<u>13,432</u>	CUM. COST:	<u>\$ 22,006,513</u>	AFE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL	m ³	ACTUAL HOLE FILL:	m ³	
BOP DRILLS: CONDUCTED WHILE	WELL SECURED IN	MIN.		
CONDUCTED AT	HRS.	CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	46	MAXIMUM CASING HOLD BACK	kPa	

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		MUD TANKS		PUMPS	
BIT NUMBER				WEIGHT (kg/cm ³)		1040		No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (cP)		40		No. 1 STROKES PER MINUTE	
TYPE				pH		8.5		No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)				No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)				VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)				PRESSURE (kPa)	
METERS (m)				SAND (%)				D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)				D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)				D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)				<u>SOLIDS CONTROL</u>	
CONDITION				CHLORIDES				SHAKER SCREENS	
<u>DRILLING ASSEMBLY</u>				Ca				DRYER SCREENS	
ITEM	O.D.	I.D.	T.J. TYPE	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)		D. SILT.	CENT.
						OF. (kg/m ³)			
						VOL. (l/min.)			
						HOURS			
						<u>SURVEYS</u>		<u>ANGLE</u>	<u>DIRECTION</u>
								m	°
								m	°
								m	°
								m	°
								m	°
BHA LENGTH				m	JTS. M.T.: ON RACKS	133			
HOOK LOAD				daN	: IN STRING	300			
AVAILABLE WOB				daN	: TOTAL	433			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		DRILL OF EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	SUMMARY	
DRILLING		CEMENT		CORING		RIG REPAIR			TODAY	CLM.
TRIP		ROP DRILL		LICKING		W.O. ORDERS			24	6940.25
RIG SERVICE		HANDLE TOOLS		TESTING		REAM & WASH				182.25
SURVEY		LOAD TOOLS		CIRC. SAMPLE						1301.5
SLIP & CUT		STANDBY	24	HANDLE TOOLS					24	8424
COND. MUD				TRIP					CLEAR	
NIPPLE UP/DN				REAM RATHOLE					-22	
RUN CASINO				CIRCULATE					SLIPPERY	

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

005

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-26	REPORT NO.:	348
DEPTH:	3177	m	PROGRESS:	0	m
FORMATION:		Nahanni			
OPERATIONS AT 06:00 HOURS: Operations Suspended					
CONTRACTOR/RIG SUPT.:			Precision 426E. Ward McKenzie		
CO. SUPERVISOR:					
DAILY COST:	\$10582	CUM. COST:	\$21,963,907	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	43	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

[illegible]

TIME BREAKDOWN

[illegible]

24 HOUR SUMMARY

Drilling operations suspended...

SIGNED BY: _____ **MOBILE No.:** _____

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Liard P-66A DATE: 97-12-25 REPORT NO.: 347
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: Nahanni
 OPERATIONS AT 06:00 HOURS: Operations Suspended
 CONTRACTOR/RIG SUPT.: Precision #26E. Ward McKenzie CO. SUPERVISOR: _____
 DAILY COST: \$10582 CUM. COST: \$21,953,325 AFE NO: E6D015

WELL CONTROL

DAILY RIG CHECK: _____	DAILY BOP CHECK: _____	R.S.S.P.: _____	kPa @: _____	SPM _____
TRIP RECORDS: CALCULATED HOLE FILL _____	_____	m ³ ACTUAL HOLE FILL: _____	_____	m ³ _____
BOP DRILLS: CONDUCTED WHILE _____	_____	WELL SECURED IN _____	_____	MIN. _____
CONDUCTED AT _____	_____	HRS. CREW PERFORMANCE _____	_____	_____
DAYS SINCE BOP DRILL (EACH CREW): 42	_____	MAXIMUM CASING HOLD BACK _____	_____	kPa _____

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m^3)	1040	No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)	40	No. 1 STROKES PER MINUTE	
TYPE				PH	8.5	No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m^3)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (run desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
				MUD ADDITIVES		D. SILT. CENT. 	
						U.F. (kg/m^3)	
						U.F. (kg/m^3)	
						VOL. (l/min.)	
						HOURS	
						SURVEYS	
						DIRECTION	
				DC \$ CC\$		m o	
BHA LENGTH _____ m				JTS. D.P.: ON RACKS		m o	
HOOK LOAD _____ daN				: IN STRING		m o	
AVAILABLE WOB _____ daN				: TOTAL		m o	

DRILLING OPERATIONS			EVALUATION		PROBLEMS		SUMMARY		
DRILLING	CEMENT		CORING		RIO REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE	TODAY	CUM.
TRIP	HANDLE TOOLS		LOGGING		LOST CIRC.			24	6844.25
RIG SERVICE	Stby	24	TESTING		REAM & WASH				182.25
SURVEY			CIRC. SAMPLE		WORK PIPE				1301.5
SLIP & CUT			HANDLE TOOLS		FISH				8328
COND. MUD			TRIP		TRIP				
NIPPLE UP/DN			REAM RATHOLE						
RUN CASING									
							ROADS	-25	°C

24 HOUR SUMMARY

Drilling operations suspended. Precision running 5 men on rig over holiday. Beaver to continue ice flooding. Drilling foreman will run ice grid test Dec 27. Expect to mobilize full rig crews and Dowell ETU on Dec 28-29.

SIGNED BY: MOBILE No.:

DAILY DRILLING REPORT

WELL NAME:	<u>Ranger Fort Liard P-66A</u>	DATE:	<u>97-12-24</u>	REPORT NO.:	<u>346</u>
DEPTH:	<u>3177</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>Nahanni</u>
OPERATIONS AT 06:00 HOURS: <u>Operations Suspended</u>					
CONTRACTOR/RIG SUPT.:		<u>Precision 426E. Ward McKenzie</u>		CO. SUPERVISOR:	
DAILY COST:	<u>\$12462</u>	CUM. COST:	<u>\$21,942,743</u>	AFE NO:	<u>E6D015</u>

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL	m ³	ACTUAL HOLE FILL:	m ³	
BOP DRILLS: CONDUCTED WHILE	WELL SECURED IN	MIN.		
CONDUCTED AT	HRS. CREW PERFORMANCE			
DAYS SINCE BOP DRILL (EACH CREW):	41	MAXIMUM CASING HOLD BACK	kPa	

DRILLING PARAMETERS

[illegible]

TIME BREAKDOWN

[illegible]

24 HOUR SUMMARY

Drilling operations suspended. Precision running 5 men on rig over holiday. Beaver to continue ice flooding. Drilling foreman will run ice grid test Dec 27. Expect to mobilize full rig crews and Dowell ETU on Dec 28-29.

SIGNED BY:

MOBILE No.:

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-23	REPORT NO.:	345
DEPTH:	3177	m	PROGRESS:	0	m
OPERATIONS AT 06:00 HOURS:		Operations Suspended			
CONTRACTOR/RIG SUPT.:	Precision 426E. Ward McKenzie	CO. SUPERVISOR:	M. Hammond		
DAILY COST:	\$17962	CUM. COST:	\$21,930,281	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	39	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	PUMPS
BIT NUMBER _____	_____	_____	_____	WEIGHT (kg/m^3) 1040	No. 1 LINER (mm) _____
SIZE (mm) _____	_____	_____	_____	VISCOSITY (s/l) 40	No. 1 STROKES PER MINUTE _____
TYPE _____	_____	_____	_____	PH 8.5	No. 2 LINER (mm) _____
SERIAL No. _____	_____	_____	_____	FV (mPa S) _____	No. 2 STROKES PER MINUTE _____
NOZZLES (mm) _____	_____	_____	_____	YP (Pa) _____	VOLUME (m^3) _____
DEPTH IN (m) _____	_____	_____	_____	GELS (Pa) _____	PRESSURE (kPa) _____
METERS (m) _____	_____	_____	_____	SAND (%) _____	D.P. ANNULAR VEL. (m/min.) _____
HOURS _____	_____	_____	_____	SOLIDS (%) _____	D.C. ANNULAR VEL. (m/min.) _____
WOB (1000 daN) _____	_____	_____	_____	FILTER CAKE (mm desc.) _____	D.C. ANNULAR VEL. (m/min.) _____
R.P.M. _____	_____	_____	_____	WATER LOSS (cc) _____	SOLIDS CONTROL
CONDITION _____	_____	_____	_____	CHLORIDES (mg/l) _____	SHAKER SCREENS
DRILLING ASSEMBLY					
				MUD ADDITIVES	U.F. (kg/m^3) _____
					U.F. (kg/m^3) _____
					VOL. (l/min.) _____
					HOURS _____
					SURVEYS
					DIRECTION
				DC \$ CCS	m o
BHA LENGTH _____ m				JTS. D.P.: ON RACKS	m o
HOOK LOAD _____ daN				: IN STRING	m o
AVAILABLE WOB _____ daN				: TOTAL	m o

TIME BREAKDOWN

WELL LOG				PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING			24	6796.25
RIG SERVICE	Stby	24	TESTING		REAM & WASH			182.25
SURVEY			CIRC. SAMPLE		WORK PIPE			1301.5
SLP & CUT			HANDLE TOOLS		FISH			8280
COND. MUD			TRIP		TRIP			
NIPPLE UP/DN			REAM RATHOLE					
RUN CASING								

24 HOUR SUMMARY

Drilling operations suspended No pressures on casing or drill pipe. Construction foreman flew home. Beaver Construction to continue with ice flooding Dec 23 & 24. Ice crew off Dec 25...

SIGNED BY: MOBILE No.:

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-21	REPORT NO.:	343
DEPTH:	3177	m	PROGRESS:	0	m
FORMATION:		Nahanni			
OPERATIONS AT 06:00 HOURS: Operations Suspended					
CONTRACTOR/RIG SUPT.:	Precision 426E. T. Gorgichuk		CO. SUPERVISOR:	M. Hammond	
DAILY COST:	\$13037	CUM. COST:	\$21,899,282	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	37	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m^3)	1040	No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)	40	No. 1 STROKES PER MINUTE	
TYPE				PH	8.5	No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m^3)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
				MUD ADDITIVES		U.F. (kg/m^3)	
						U.F. (kg/m^3)	
						VOL. (l/min.)	
						HOURS	
						SURVEYS	DIRECTION
						m	o
						m	o
						m	o
						m	o
						m	o
BHA LENGTH		m	JTS. D.P.: ON RACKS			m	o
HOOK LOAD		daN	: IN STRING			m	o
AVAILABLE WOB		daN	: TOTAL			m	o

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OF EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.			24	6748.25
RIG SERVICE		Siby	24	TESTING		REAM & WASH				182.25
SURVEY				CIRC SAMPLE		WORK PIPE				1301.5
SLP & CUT				HANDLE TOOLS		FISH				8232
COND. MUD				TRIP		TRIP				
NIFFLE UP/DN				REAM RATHOLE						
RUN CASING										
								TEMPERATURE -19 °C		
								ROADS Clear		

24 HOUR SUMMARY

Drilling operations suspended. Made two floods. Ice grid showed 90 to 103 cm ice on out side edges of bridge. Center line of bridge has 93 to 107 cm of ice. One thin spot at 79 cm. This thin spot would hold 24000 kg load.

SIGNED BY: _____ **MOBILE No.:** _____

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-20	REPORT NO.:	342
DEPTH:	3177	m	PROGRESS:	0	m
FORMATION:	Nahanni				
OPERATIONS AT 06:00 HOURS:	Operations Suspended				
CONTRACTOR/RIG SUPT.:	Precision 426E. T. Gorgichuk		CO. SUPERVISOR:	M. Hammond	
DAILY COST:	\$13037	CUM. COST:	\$21,886,245	AFE NO:	E6D015

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (BACH CREW):	36	MAXIMUM CASING HOLD BACK		kPa

[illegible]

DRILLING OPERATIONS				EVALUATION	PROBLEMS	SUMMARY
DRILLING		CEMENT		CORING	RIG REPAIR	
TRIP		HANDLE TOOLS		LOGGING	LOST CIRC.	
RIG SERVICE		Stby	24	TESTING	REAM & WASH	
SURVEY				CIRC. SAMPLE	WORK PIPE	
SLIP & CUT				HANDLE TOOLS	FISH	
COND. MUD				TRIP	TRIP	
NIPPLE UP/DN				REAM BATHOLE		
RUN CASING						
						TOTAL WEATHER
						TEMPERATURE -23 °C
						ROADS Cloudy

Drilling operations suspended Made two floods. Built snow ramps.....

P.03

DAILY DRILLING REPORT

WELL NAME: Ranger Port Liard P-66A DATE: 97-12-19 REPORT NO.: 341
DEPTH: 3177 m PROGRESS: 0 m FORMATION: Nahanni
OPERATIONS AT 06:00 HOURS: Operations Suspended
CONTRACTOR/RIG SUPT.: Precision 426E. T. Gorgichuk CO. SUPERVISOR: M. Hammond
DAILY COST: \$15165 CUM. COST: \$21,873,208 AFE NO: E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL	m ³	ACTUAL HOLE FILL:	m ³	
BOP DRILLS: CONDUCTED WHILE	WELL SECURED IN			MIN.
CONDUCTED AT	HRS. CREW PERFORMANCE			
DAYS SINCE BOP DRILL (EACH CREW):	35	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m^3)	1040	No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)	40	No. 1 STROKES PER MINUTE	
TYPE				pH	8.5	No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m^3)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
				MUD ADDITIVES			
						U.F. (kg/m^3)	
						U.F. (kg/m^3)	
						VOL. (l/min.)	
						HOURS	
						SURVEYS	
							DIRECTION
						m	o
						m	o
						m	o
						m	o
						m	o
						m	o
						m	o
						m	o
BHA LENGTH		m		JTS. D.P.: ON RACKS			
HOOK LOAD		daN		: IN STRING			
AVAILABLE WOB		daN		: TOTAL			

TIME BREAKDOWN

DRILLING LOG				PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		RIG REPAIR	
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.	
RIG SERVICE		Stby	24	TESTING		REAM & WASH	
SURVEY				CIRC. SAMPLE		WORK PIPE	
SLIP & CUT				HANDLE TOOLS		FISH	
CONG. MUD				TRIP		TRIP	
NIPPLE UP/DN				REAM RATHOLE			
RUN CASING							

DRILL OP		TODAY	CUM.
EVALUATION PROBLEMS TOTAL		24	6700.25
			182.25
			1301.5
			8184

WEATHER	
TEMPERATURE	-22 °C
ROADS	Clear. Some ice flows on road

24 HOUR SUMMARY

Drilling operations suspended Made two floods on bridge. Building snow ramps on east and west river banks. Ice thickness test grid planned for this weekend.....

SIGNED BY: MOBILE No.:

DAILY CONSTRUCTION REPORT

DON JORJIANO

261-7010

DATE DEC 18/97 NO E60-015

ARE APPROVED ACCOUNT

Clear - 22 AM

PROJECT OR LOCATION FT. LIND P-66-A

ARE CREDITED ACCOUNT

SITUATION BEAVER ENTER PRISGS RD

MEASURE 4

LABOR Labor Crew & Equipment DBH on DEC 17th & 18th.

PERSON M. HAMMOND

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	(1) SUPERVISION	575.00
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	(2) BEAVER	1880.00
KM GRAVELLED	% BUMP COMPLETED	% BACKFILLED	(3) BEAVER	1014.00
		DATE TESTED	(4) BEAVER	1114.00
			(5) PICKUP	150.00
			TOTAL	4733.00
			PREVIOUS	85,217.50
			CUMULATIVE	89,950.50
				89,800.50

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

LABOR crew made 2 complete floods on whole area of bridge. Repair snow beams.

DB Put Gather Snow at east end of bridge for ramp onto ice.

DBH Put Down to-day.

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Llard P-66A DATE: 97-12-18 REPORT NO.: 340
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: Nahanni
 OPERATIONS AT 06:00 HOURS: Operations Suspended
 CONTRACTOR/RIG SUPT.: Precision 426E. T. Gorgichuk CO. SUPERVISOR: M. Hammond
 DAILY COST: \$13187 CUM. COST: \$21,858,043 AFE NO: E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL	m ³	ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	34	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1040	No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)	40	No. 1 STROKES PER MINUTE	
TYPE				PH	8.5	No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
				MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.
						U.F. (kg/m ³)	
						VOL. (l/min.)	
						HOURS	
						SURVEYS	DIRECTION
						m	o
						m	o
						m	o
						m	o
						m	o
						m	o
BHA LENGTH		m		JTS. D.P.: ON RACKS		m	o
HOOK LOAD		daN		: IN STRING		m	o
AVAILABLE WOB		daN		: TOTAL		m	o

TIME BREAKDOWN

DRILLING OPERATIONS			EVALUATION		PROBLEMS		SUMMARY		
DRILLING	CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER	TODAY	CUM.
TRIP	HANDLE TOOLS		LOGGING		LOST CIRC.			24	6676.25
RIG SERVICE	Sby	24	TESTING		REAM & WASH				182.25
SURVEY			CIRC. SAMPLE		WORK PIPE				1301.5
SLIP & CUT			HANDLE TOOLS		FISH				8160
COND. MUD			TRIP		TRIP				
NIPPLE UP/DN			REAM RATHOLE				TEMPERATURE	-17	°C
RUN CASING							ROADS	Clear, 1" snow fell	

24 HOUR SUMMARY

Drilling operations suspended Cleared 1" snow off ice bridge. Flooded west side of bridge.....

SIGNED BY: MOBILE No.:

DAILY CONSTRUCTION REPORT

Don Sorokin MO

261-7010	DATE DEC 17 / 97	NO E6D-015	SPE OF PROJECT ADJUST
TIME 1 st of Snow Jan - 17 AM	PROJECT OR LOCATION MT. LEARD P-66-A	APPROXIMATED AMOUNT	

PROJECTOR BEAVER ENTERPRISES LTD	MANPOWER 4
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LABOR Labor Crew & Equipment

DIVISION M. HAMMOND

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	(12) SUPERVISION:	575. ⁰⁰
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	(17) 1. BEAVER	1880. ⁰⁰
KM GRAVELLED	% BUMP COMPLETED	% BACKFILLED	(17) 2. PICKUP	150. ⁰⁰
		DATE TESTED	3. _____	
			4. _____	
			5. _____	
		TOTAL		2605. ⁰⁰
		PREVIOUS		82,612. ⁵⁰
		CUMULATIVE		85,217. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

Labor crew clean snow on ice bridge about 1 inch overnight. Start to flood whole creek at 11:00 AM. Clean snow + build levee in P.M. Make small flood at west end of bridge last thing. Cat did work on ice flows on access to rig and ice broke down again to night.

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Lard P-66A	DATE:	97-12-17	REPORT NO.:	339
DEPTH:	3177	m	PROGRESS:	0	m
FORMATION:		Nahanni			
OPERATIONS AT 06:00 HOURS: Operations Suspended					
CONTRACTOR/RIG SUPT.:			CO. SUPERVISOR:		
Precision 426E. T. Gorgichuk			M. Hammond		
DAILY COST:	\$13187	CUM. COST:	\$21,844,856	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	33	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m^3)	1040	No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (cP)	40	No. 1 STROKES PER MINUTE	
TYPE				PH	8.5	No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m^3)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
				MUD ADDITIVES		U.F. (kg/m^3)	
						U.F. (kg/m^3)	
						VOL. (l/min.)	
						HOURS	
						SURVEYS	
				DC \$	CCS		
BHA LENGTH		m		JTS. D.P.: ON RACKS			
HOOK LOAD		daN		: IN STRING			
AVAILABLE WOB		daN		: TOTAL			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.		24	6652.25
RIG SERVICE		Sib _y	24	TESTING		RRAM & WASH			182.25
SURVEY				CIRC. SAMPLE		WORK PIPE			1301.5
SLIP & CUT				HANDLE TOOLS		FISH			8136
COND. MUD				TRIP		TRIP			
NIPPLE UP/DN				REAM RATHOLE					
RUN CASING									
							WEATHER		
							TEMPERATURE		-16 °C
							ROADS		cloudy

24 HOUR SUMMARY

Drilling operations suspended. Ran two floods during the day. Working on ice flows along access to rig.....

SIGNED BY: _____ **MOBILE No.:** _____

DAILY CONSTRUCTION REPORT

Don Surkimo

Cloudy 261-7010

DATE

DEC 16 / 97

E6D-015

APPROVED AMOUNT

Cloudy - 16 AM

PROJECT DESCRIPTION

FT. LIARD P-66-A

APPROVED AMOUNT

SYNOPSIS

BISCUIT IDENTIFICATION 12D

MANPOWER

4

DESCRIPT

Labor Crew + Equipment

PERSON

M. HAMMOND

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	SUPERVISION	375. ⁰⁰
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	1. <u>BURR</u>	1880. ⁰⁰
KM GRAVELLED	% SUMP COMPLETED	% BACKFILLED	2. <u>PICKUP</u>	150. ⁰⁰
		DATE TESTED	3. _____	
			4. _____	
			5. _____	
			TOTAL	2405. ⁰⁰
			PREVIOUS	80,007. ⁵⁰
			CUMULATIVE	82,612. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

Labor crew flood down both side
 of bridge in A.M. Haul Snow + build
 snow berms + around labor.
 Flood upstream side in P.M.
 D6H Cat work on ice flow on snow
 to Rig.

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-16	REPORT NO.:	338
DEPTH:	3177	m	PROGRESS:	0	m
OPERATIONS AT 06:00 HOURS:		Operations Suspended			
CONTRACTOR/RIG SUPT.:	Precision 426E. T. Gorgichuk	CO. SUPERVISOR:	M. Hammond		
DAILY COST:	\$13187	CUM. COST:	\$21,831,669	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	32	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

[illegible]

TIME BREAKDOWN

DRILLING OPERATION			EVALUATION		PROBLEMS		SUMMARY		
DRILLING	CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	HANDLE TOOLS		LOGGING		LOST CIRC.			24	6628.25
RIG SERVICE	Sby	24	TESTING		REAM & WASH				182.25
SURVEY			CIRC. SAMPLE		WORK PIPE				1301.5
SLIP & CUT			HANDLE TOOLS		FISH				8112
COND. MUD			TRIP		TRIP				
NIPPLE UPDN			REAM RATHOLE						
RUN CASING									

24 HOUR SUMMARY

Drilling operations suspended. No pressures on casing or drill pipe. Flooded full surface of bridge in A.M. Flooded center line in P.M. Sides not freezing hard.....

SIGNED BY: _____ **MOBILE No.:** _____

DAILY CONSTRUCTION REPORT

ION SURKILMO

261-7010

Jan - 15 AM

PROJECT

DAYS

DEC 15/97

NO

E6D-015

ARE APPROVED AMOUNT

PROJECT LOCATION

FT. LIND P-66-A

ARE COMPLETED AMOUNT

REMARKS

BEAVER ENTERPRISES LTD

NUMBER

4

WORK

LABOR crew & Equipment.

BY

M. HAMMOND

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	SUPERVISION:	575. ⁰⁰
KM FINAL GRADE	% PAU COMPLETE & LEVEL	% PIPE WELDED	1. BEAVER	1880. ⁰⁰
KM GRAVELLED	% BUMP COMPLETED	% BACKFILLED	2. P.C. 12.1.1.1	150. ⁰⁰
		DATE TESTED	3. _____	
			4. _____	
			5. _____	
			TOTAL	2605. ⁰⁰
			PREVIOUS	77,402. ⁵⁰
			CUMULATIVE	80,007. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

Made flood on full surface of Bridge in AM.

Haul snow & make snow banks and chop ice.

Made flood in P.M. in Centre of Bridge.

Tires were not frozen back.

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-15	REPORT NO.:	337
DEPTH:	3177	m	PROGRESS:	0	m
FORMATION:		Nahanni			
OPERATIONS AT 06:00 HOURS: Operations Suspended					
CONTRACTOR/RIG SUPT.:			Precision 426E. T. Gorgichuk	CO. SUPERVISOR: M. Hammond	
DAILY COST:	\$13187	CUM. COST:	\$21,818,482	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (BACH CREW):	31	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1050	No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)	40	No. 1 STROKES PER MINUTE	
TYPE				PH	8.0	No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							

TIME BREAKDOWN

DRILLING OPERATIONS			EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.		24	6604.25
RIG SERVICE	Sby		24	TESTING		REAM & WASH			182.25
SURVEY				CIRC. SAMPLE		WORK PIPE			1301.5
SLIP & CUT				HANDLE TOOLS		FISH			8088
COND. MUD				TRIP		TRIP			
NIPPLE UP/DN				REAM RATHOLE					
RUN CASING									
							DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE	+3	°C
							ROADS clear		

24 HOUR SUMMARY

Drilling operations suspended. One flood in A.M Built snow berms along sides. Ice not freezing well....

SIGNED BY:

MOBILE No.:

DAILY CONSTRUCTION REPORT

DON BORRILMO

261-7010

DATE

DEC 14/97

REF

EGD-015

APE APPROVED AMOUNT

FROM
12:00 + 3 AM

PROJECT OR LOCATION

FT. LIND P-66-A

APE COMPLETED AMOUNT

ESTIMATION

PISAUER ENTERPRISES INC

PAGE NUMBER

4

DESCRIPT

Labor crew & Equipment

PERSON

M. Hammond

ROAD	LEASE	PIPELINE	COST	DAILY
— KM TO BUILD	— % CLEARED	— % R.O.W. CLEARED	BID:	
— KM ROUGH IN	— % GRADED	— % PIPE STRUNG	(2) SUPERVISION:	575. ⁰⁰
— KM FINAL GRADE	— % PAD COMPLETE & LEVEL	— % PIPE WELDED	(14) 1. BEAVER	1880. ⁰⁰
— KM GRAVELLED	— % SLUMP COMPLETED	— % BACKFILLED	(14) 2. PICKUP	150. ⁰⁰
		DATE TESTED	3. _____	
			4. _____	
			5. _____	
		TOTAL		2605. ⁰⁰
		PREVIOUS		74797. ⁵⁰
		CUMULATIVE		77402. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

Labor crew made one flood in am.

Would not freeze good. Build crew

began on edges of bridge.

Weather cooled down to day: 6:30 p.m. - 9

DAILY CONSTRUCTION REPORT

Do: SOPHILMO		DATE DEC 12 + 13		EGD-015	ARE APPROVED AMOUNT
261-7010		PROJECT OR LOCATION FT. LIARD P-66-A			ARE COUNTRYED AMOUNT
DAILY + 4 am					
CONTRACTOR BEAVER ENTERPRISES LTD					MARKETER 4
LABOR Labor crew + Equipment.					
SUPERVISOR M. Hammond					

ROAD	LEASE	PIPELINE	COST	DAILY
10M TO BUILD	% CLEARED	% R.O.W. CLEARED	(12) BID: MBN	575. ⁰⁰
10M ROUGH IN	% GRADED	% PIPE CUTTING	(13) REINSPECTION MPM	575. ⁰⁰
10M FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	(12) 1. BEAVER	1880. ⁰⁰
10M GRAVELLED	% SUMP COMPLETED	% BACKFILLED	(12) 2. PICKUP	150. ⁰⁰
		DATE TESTED	(13) 3. BEAVER	1880. ⁰⁰
			(13) 4. PICKUP	150. ⁰⁰
			S. _____	
			TOTAL	5210. ⁰⁰
			PREVIOUS	69587. ⁵⁰
			CUMULATIVE	74797. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

(12) Labor crew make one flood in A.M.

Chop & level ice & build snow beams.

Crew change to-day.

(13) Plus 3 am. Labor crew make one flood

in A.M. Build snow beams along side

& Malaw. Flood did not freeze until to-night.

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-14	REPORT NO.:	336
DEPTH:	3177	m	PROGRESS:	0	m
FORMATION:			Nahanni		
OPERATIONS AT 06:00 HOURS: Operations Suspended					
CONTRACTOR/RIG SUPT.:			Precision 426E. T. Gorgichuk		
CO. SUPERVISOR:			M. Hammond		
DAILY COST:	\$13187	CUM. COST:	\$21,805,295	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL	m ³	ACTUAL HOLE FILL:	m ³	
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN	MIN.	
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	30	MAXIMUM CASING HOLD BACK	kPa	

DRILLING PARAMETERS

[illegible]

TIME BREAKDOWN

DRILLING OPERATIONS			EVALUATION	PROBLEMS	SUMMARY
DRILLING		CEMENT	CORING	RIG REPAIR	TODAY CUM.
TRIP		HANDLE TOOLS	LOGGING	LOST CTC.	24 6580.25
RIO SERVICE		Sby	24 TESTING	REAM & WASH	182.25
SURVEY			CTC SAMPLE	WORK PIPE	1301.5
SLIP & CUT			HANDLE TOOLS	FISH	8064
COND. MUD			TRUP	TRIP	
NIFPLE UP/DN			REAM RATHOLE		
RUN CASING					
					TEMPERATURE +4 °C
					ROADS Cloudy

24 HOUR SUMMARY

Drilling operations suspended. One flood in A.M Built snow berms along sides. Flood did not freeze until night...

SIGNED BY: MOBILE No:

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-13	REPORT NO.:	335
DEPTH:	3177	m	PROGRESS:	0	m
OPERATIONS AT 06:00 HOURS:		Operations Suspended			
CONTRACTOR/RIG SUPT.:	Precision 426E. T. Gorgichuk	CO. SUPERVISOR:	M. Hammond		
DAILY COST:	\$13187	CUM. COST:	\$21,792,108	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	29	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m^3)	1050	No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)	40	No. 1 STROKES PER MINUTE	
TYPE				PH	8.0	No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m^3)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
				MUD ADDITIVES		U.F. (kg/m^3)	D. SILT.
						U.F. (kg/m^3)	CENT.
						VOL. (l/min.)	
						HOURS	
						SURVEYS	DIRECTION
						m	o
						m	o
						m	o
						m	o
						m	o
				DC \$ CC\$			
BHA LENGTH		m		JTS. D.P.: ON RACKS			
HOOK LOAD		daN		: IN STRING			
AVAILABLE WOB		daN		: TOTAL			

TIME BREAKDOWN

DRILLING OPERATIONS			EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		RIG REPAIR		
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.		
RIG SERVICE		Siby	24	TESTING		REAM & WASH		
SURVEY				CIRC. SAMPLE		WORK PIPE		
SLIP & CUT				HANDLE TOOLS		FISH		
COND. MUD				TRIP		TRIP		
NIFFLE UP/DN				REAM RATHOLE				
RUN CASING								
							DRILL OP	TODAY
							EVALUATION	CUM.
								24
								6556.25
								182.25
								1301.5
								8040
							TOTAL	
							WEATHER	
							TEMPERATURE	+4 °C
							ROADS	Cloudy

24 HOUR SUMMARY

Drilling operations suspended. One flood in A.M. Changed out ice building crew today..

SIGNED BY:

MOBILE No.:

DAILY CONSTRUCTION REPORT

JOB NO. 261-7010		DATE Dec 11/97	WFE E6D-015	WFE APPROVED AMOUNT
WFE PROJECT LOCATION		Mt. Lind P-66-A		WFE COMMITTED AMOUNT
WFE PROJECT DESCRIPTION 201.100 12-500-010000.000				MANPOWER
WFE REPORT Labor crew + equipment.				
WFE PERSONNEL M. Hammond				

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	SUPERVISION:	575.00
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	(11) BORING	1000.00
KM GRAVELLED	% BUMP COMPLETED	% BACKFILLED	(12) PICKUP	150.00
		DATE TESTED	(13)	
			4.	
			5.	
			TOTAL	2605.00
			PREVIOUS	66982.50
			CUMULATIVE	69587.50

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

Labor crew make one flood in A.M.

Build from house & close window.

Two women to flood in P.M.

A.M. Flood should freeze to night.

+4 at 6:00 P.M.

DAILY CONSTRUCTION REPORT

Dow Sorkinmo

261-7010

DATE DEC 10 1997

REF EGD-015

ARE APPROVED AMOUNT

Clear Windy +4 AM

PROJECT OR LOCATION FT LAND P-66-A

ARE COMMITTED AMOUNT

CONTRACTOR BEAVER RENTAL PRISERS LTD

MANPOWER 4

REPORT Labor crew & Equipment

PREPARED M. Hammond

ROAD	LEASE	PIPELINE	COST	DAILY
___ KM TO BUILD	___ % CLEARED	___ % R.O.W. CLEARED	BID:	
___ KM ROUGH IN	___ % GRADED	___ % PIPE STRUNG	SUPERVISION:	575. ⁰⁰
___ KM FINAL GRADE	___ % PAD COMPLETE & LEVEL	___ % PIPE WELDED	⑩ 1. BEAVER	1880. ⁰⁰
___ KM GRAVELLED	___ % SUMP COMPLETED	___ % BACKFILLED	⑩ 2. PICKUP	150. ⁰⁰
		DATE TESTED	1. _____	
			4. _____	
			5. _____	
		TOTAL		2605. ⁰⁰
		PREVIOUS		64377. ⁵⁰
		CUMULATIVE		66982. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

Weather is warm and close to freeze.

We made flood in AM & Ditch Flood in P.M.

Chop ice and flood checked area.

DAILY CONSTRUCTION REPORT

DOCS 3001111111		DATE DEC 9/97	AFE E6D-015	AFE APPROVED AMOUNT
261-7010		PROJECT OR LOCATION FT. LIND P-66-A		AFE COMMITTED AMOUNT
Clear - 3 am.				
CONTRACTOR BOSQUER ENTERPRISES LTD				MANAGER
OBJECT Cut 140 G Grader. Labor Crew & Equipment				
PERSON M. HAMMOND				

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	SUPERVISION:	575. ⁰⁰
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	① 1. BOSQUER	1000. ⁰⁰
KM GRAVELLED	% SUMP COMPLETED	% BACKFILLED	② 2. BOSQUER	855. ⁰⁰
		DATE TESTED	③ 3. PICKUP	150. ⁰⁰
			4.	
			5.	
			TOTAL	3460. ⁰⁰
			PREVIOUS	60917. ⁵⁰
			CUMULATIVE	64377. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

Labor Crew, flood ice 2 teams, down.
 Contine. Chose ice and flood to stop
 Loss of Water.

Grader work on access from Highway
 to Bridge Site.

We crossed ice bridge to-day with Pickups.
 Myself; Larry and Gordon from Beaver.
 1:30 P.M.

TUE 12/09/97 21:47

0000 CARTER RIG OFF

TEL 1-403-424-0050

0002

10/11/98 FRI 08:40 FAX 403 232 5200

RANGER OIL

P. 2

0002

DAILY CONSTRUCTION REPORT

Don Sorokinmo

261-7010

DATE DEC 8/97

NO E6D-015

JOB APPROVED AMOUNT

Clear - 16 AM

PROJECT OR LOCATION FT. LIARD P-66-A

JOB COMPLETED AMOUNT

DRAINAGE ENTERPRISES LTD

MANPOWER 5

CUT 140 G Gravel Labor Crew + Equipment

M. Hammond

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	SUPERVISION:	575.2
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	①. BROWNE	1880.2
KM GRAVELLED	% SUMP COMPLETED	% BACKFILLED	②. BRAUER	1164.2
		DATE TESTED	③. PICKUP	120.2
			4. _____	
			5. _____	
			TOTAL	3769.2
			PREVIOUS	57148.50
			CUMULATIVE	60917.50

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

Labor crew made flood and one half.

Chop ice and flood ice ridges.

Cut 140 G Gravel work across from
Highway to Bridge site.

W

WEST END OF BRIDGE

UPSTREAM SIDE

CENTER LINE MEASUREMENTS ON DEC 8/97 @ 1:00 PM.
THIS READING IS NEW HOLE ALIVE 3 m from Quad Below.

78 cm	30.7"
98 cm	38.5"
69 cm	27.16"
58 cm	22.8
68 cm	26.7
67 cm	26.3
71 cm	27.9
68 cm	26.7
70 cm	27.5
75 cm	29.5
76 cm	29.5
89 cm	35.0
81 cm	31.8

DOWNSTREAM SIDE

Ave. 28" 145

EAST END OF BRIDGE
E

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-05	REPORT NO.:	327
DEPTH:	3177	m	PROGRESS:	0	m
FORMATION:		Nahanni			
OPERATIONS AT 06:00 HOURS: Operations Suspended					
CONTRACTOR/RIG SUPT.:			CO. SUPERVISOR:		
Precision 426E. T. Gorgichuk			M. Hammond		
DAILY COST:	\$13645	CUM. COST:	\$21,679,845	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL	m ³	ACTUAL HOLE FILL:	m ³	
BOP DRILLS: CONDUCTED WHILE	WELL SECURED IN	MIN.		
CONDUCTED AT	HRS.	CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	21	MAXIMUM CASING HOLD BACK	kPa	

DRILLING PARAMETERS

BIT PERFORMANCE						MUD PROPERTIES		PUMPS	
BIT NUMBER						WEIGHT (kg/m^3)	1050	No. 1 LINER (mm)	
SIZE (mm)						VISCOSITY (g/l)	40	No. 1 STROKES PER MINUTE	
TYPE						PH	8.0	No. 2 LINER (mm)	
SERIAL No.						PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)						YP (Pa)		VOLUME (m^3)	
DEPTH IN (m)						GELS (Pa)		PRESSURE (kPa)	
METERS (m)						SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS						SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)						FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.						WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION						CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY									
						MUD ADDITIVES			
								U.F. (kg/m^3)	
								U.F. (kg/m^3)	
								VOL. (l/min.)	
								HOURS	
								SURVEYS	DIRECTION
								m _____	O _____
								m _____	O _____
								m _____	O _____
								m _____	O _____
								m _____	O _____
BHA LENGTH				m		JTS. D.P.: ON RACKS		m _____	O _____
HOOK LOAD				daN	:	IN STRING		m _____	O _____
AVAILABLE WOB				daN	:	TOTAL		m _____	O _____

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.			24	6364.25
RIG SERVICE		Stby	24	TESTING		REAM & WASH				182.25
SURVEY				CIRC. SAMPLE		WORK PIPE				1301.5
SLIP & CUT				HANDLE TOOLS		FISH				7848
COND. MUD				TRIP		TRIP				
NIPPLE UP/DN				REAM RATHOLE						
RUN CASING										
									-10 °C	
									Clear, roads good	

24 HOUR SUMMARY

Drilling operations suspended. No pressures on casing or DP. Ran ice thickness grid. Average thickness 50cm. Thin spot on north side, west bank area at 21cm.

SIGNED BY: MOBILE No.:

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-04	REPORT NO.:	326
DEPTH:	3177	m	PROGRESS:	0	m
OPERATIONS AT 06:00 HOURS:		Operations Suspended			
CONTRACTOR/RIG SUPT.:	Precision 426E. T. Gorgichuk	CO. SUPERVISOR:	M. Hammond		
DAILY COST:	\$13,875	EST. COST:	\$21,666,200	AFE NO:	E6D015

WELL CONTROL

TRIP RECORDS: CALCULATED HOLE FILL		RSSP:	EP: @	SPM
BOP DRILLS: CONDUCTED WHILE		m ³ ACTUAL HOLE FILL:		m ³
CONDUCTED AT		WELL SECURED IN		FEET
HRS ORRW PERFORMANCE				
MAXIMUM CASING HOLD BACK			EP:	

DRILLING PARAMETERS

[illegible]

DATE			TIME		LOCATION		RIG REPAIR		DRILL OF		TODAY	CUM.
LOG	DATE	TIME	LOGGING	POST CIRC.	DRILL OF				14	0340.25		
RIG SERVICE	Subj	24	TESTING	SEAL & WASH	EVALUATION					182.25		
WORK			CIRC. SAMPLE	WORK PIPE	PROBLEMS					182.25		
SLIP & CLUT			HANDLE TOOLS	FISH	TOTAL					7824		
COND. MUD			TRIP	TRIP	WEATHER							
ATTN. & REMARKS			REMARKS		TEMPERATURE				-4	°C		
RUN CASING					ROADS				Clear, roads good			

Summary

Training operations suspended. Chopping down ridges and flagging for "Work on winter road and for forest management purposes" in ng....

DAILY CONSTRUCTION REPORT

Don Sullivan

261-7010

DATE
DEC 4/97

AFB
E60 - 015

24 DIVISIONS

Over to B Am

PROPERTY OR LOCATION
FT. LIND P-66-A

NEW COLUMBIAN TRAVEL BUREAU

BECKER IS THE PRICE MAN

5

Don Cat, Lard can - 25 quarts Don Cat, Lard

M. Hammond

ROAD	LEASE	PIPELINE	COST	DAILY
___ KM TO BUILD	___ % CLEARED	___ % R.O.W. CLEARED	BID:	___
___ KM ROUGH IN	___ % GRADED	___ % PIPE STRUNG	(4) SUPERVISION:	575. ⁰⁰
___ KM FINAL GRADE	___ % PAD COMPLETE & LEVEL	___ % PIPE WELDED	(4) 1. BRAVAR	1880. ⁰⁰
___ KM GRAVELLED	___ % BUMP COMPLETED	___ % BACKFILLED	(4) 2. BRAVAR	458. ⁰⁰
		DATE TESTED	(4) 3. PICKUP	150. ⁰⁰
			4. _____	___
			5. _____	___
			TOTAL	3063. ⁰⁰
			PREVIOUS	44,522. ⁵⁰
			CUMULATIVE	44,585. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

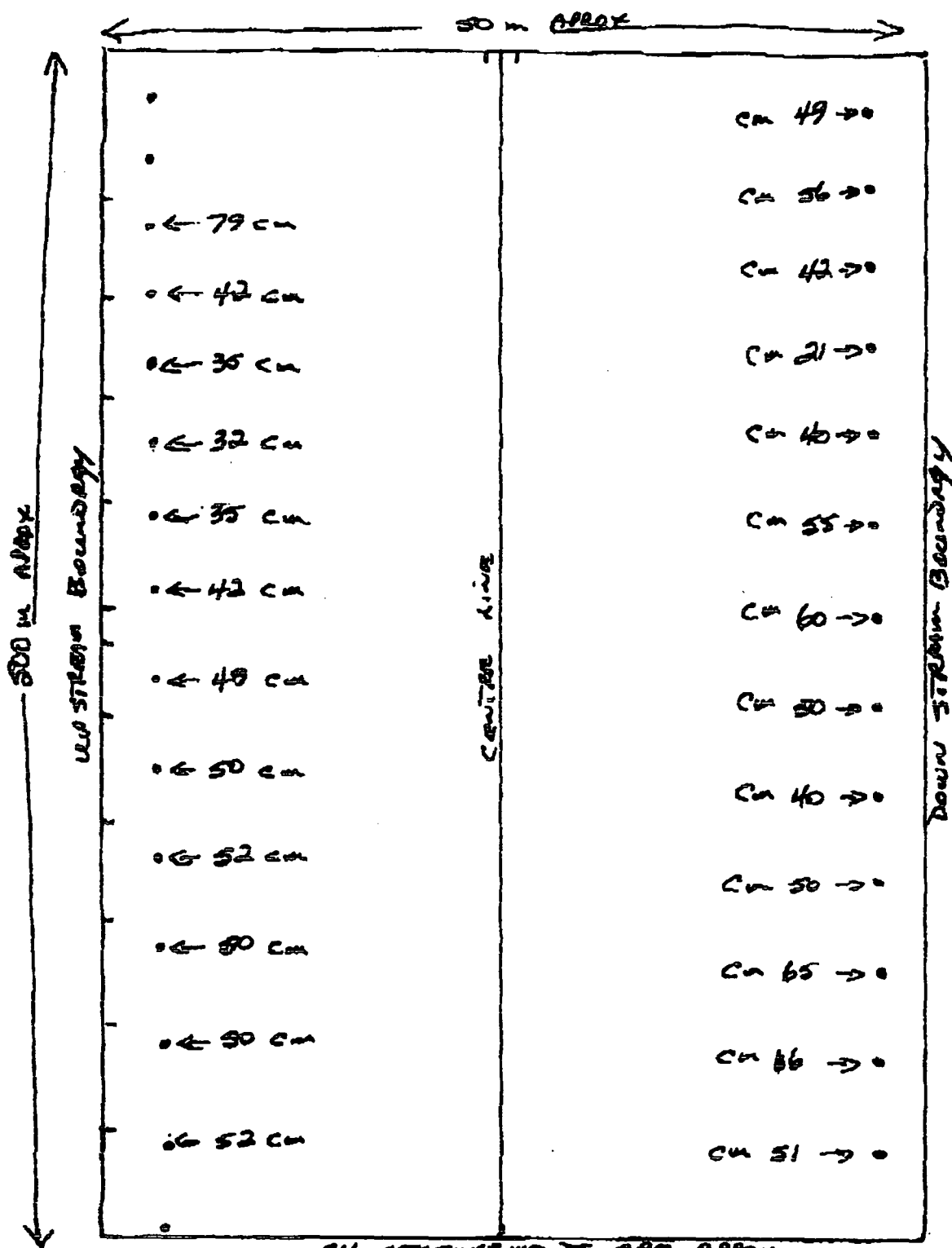
Labor now closed is in AM. South & North

Sidon, Choro lie down on North Side in P.m.

DBH Hold down new access

D3 Cat & drag word seen from Highway
to Bridge Site.

ICE BRIDGE.

W.
FT. LIND.

ALL MEASUREMENTS ARE APPROX.

E

CENTER LINE HOLES WERE
NOT DRILLED OPEN AT THIS
TIME DEC 4/97 2:30 PM.

43002

DAILY DRILLING REPORT

WELL NAME:	Ranger Port Liard P-66A	DATE:	97-12-03	REPORT NO.:	325
DEPTH:	3177	m	PROGRESS:	0	m
FORMATION:		Nahanni			
OPERATIONS AT 06:00 HOURS: Operations Suspended					
CONTRACTOR/RIG SUPT.:	Precision 426E. T. Gorgichuk	CO. SUPERVISOR:	M. Hammond		
DAILY COST:	\$18237	CUM. COST:	\$21,652,325	AFB NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	19	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES				PUMPS			
BIT NUMBER				WEIGHT (kg/m³)		1050		No. 1 LINER (mm)			
SIZE (mm)				VISCOSITY (s/l)		40		No. 1 STROKES PER MINUTE			
TYPE				PH		8.0		No. 2 LINER (mm)			
SERIAL No.				PV (mPa S)				No. 2 STROKES PER MINUTE			
NOZZLES (mm)				YP (Pa)				VOLUME (m³)			
DEPTH IN (m)				GELS (Pa)				PRESSURE (kPa)			
METERS (m)				SAND (%)				D.P. ANNULAR VEL. (m/min.)			
HOURS				SOLIDS (%)				D.C. ANNULAR VEL. (m/min.)			
WOB (1000 daN)				FILTER CAKE (mm desc.)				D.C. ANNULAR VEL. (m/min.)			
R.P.M.				WATER LOSS (cc)				SOLIDS CONTROL			
CONDITION				CHLORIDES (mg/l)				SHAKER SCREENS			
DRILLING ASSEMBLY											
				MUD ADDITIVES							
								U.F. (kg/m³)			
								U.F. (kg/m³)			
								VOL. (l/min.)			
								HOURS			
								SURVEYS			
				DC \$	CCS						
BHA LENGTH		m		JTS. D.P.: ON RACKS							
HOOK LOAD		daN		: IN STRING							
AVAILABLE WOB		daN		: TOTAL							

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.			24	6316.25
RIG SERVICE		Stry	24	TESTING		REAM & WASH				182.23
SURVEY				CIRC. SAMPLE		WORK PIPE				1301.5
SLIP & CUT				HANDLE TOOLS		FISH				7800
COND. MUD				TRIP		TRIP				
NIPPLE UP/DN				REAM RATHOLE					-4	°C
RUN CASING									Clear, roads good	

24 HOUR SUMMARY

Drilling operations suspended. No pressure on casing or drill pipe...

SIGNED BY: _____ **MOBILE No.:** _____

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-12-02	REPORT NO.:	324
DEPTH:	3177	m	PROGRESS:	0	m
OPERATIONS AT 06:00 HOURS:		Operations Suspended			
CONTRACTOR/RIG SUPT.:	Precision 426E. T. Gorchuk	CO. SUPERVISOR:	M. Hammond		
DAILY COST:	\$19320	CUM. COST:	\$21,634088	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW): 18		MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m^3)		No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)		No. 1 STROKES PER MINUTE	
TYPE				PH		No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m^3)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
				MUD ADDITIVES		D. SILT. CENT.	
				DC \$ CCS			
BHA LENGTH				m	JTS. D.P.: ON RACKS		
HOOK LOAD				daN	: IN STRING		
AVAILABLE WOB				daN	: TOTAL		
						SURVEYS	
						m	o
						m	o
						m	o
						m	o
						m	o
						m	o
						DIRECTION	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.		24	6292.25
RIG SERVICE	Sby	24		TESTING		REAM & WASH			182.25
SURVEY				CIRC. SAMPLE		WORK PIPE			1301.5
SLIP & CUT				HANDLE TOOLS		FISH			7776
COND. MUD				TRIP		TRIP			
NIPPLE UP/DN				REAM RATHOLE					
RUN CASING									
								WEATHER	
								TEMPERATURE -10 °C	
								ROADS Clear, roads good	

24 HOUR SUMMARY

Drilling operations suspended. Flooding ice bridge. Average 12" ice over river with approx. 24" ice at shore line. Blading winter road access to Hwy 77. Warm weather reduces number of floods per day..

SIGNED BY:

MOBILE No.:

10/11/96 FRI 08:48 FAX 403 232 5200

RANGER OIL

0002

DAILY CONSTRUCTION REPORT

Don Sorvikimo

261-7010

DATE DEC 1/97

MR EGD-015

APPROVED AMOUNT

OTHER

PROJECT OR LOCATION
FT. Lind P-66-A

APPROVED AMOUNT

CONTRACTOR

BEAVER ENTERPRISES LTD

UNAPPROVED

EQUIPMENT

DGN Cat Labor Crew + Equipment DGM + Loaded Tickets

SUPERVISOR

M. Hammond

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	DEC ① SUPERVISION	575. ⁰⁰
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	NOV ② 1. BEAVER	2488. ⁰⁰
KM GRAVELLED	% SUMP COMPLETED	% BACKFILLED	NOV ② 2. BEAVER	2366. ⁰⁰
		DATE TESTED	① 3. BEAVER	2580. ⁰⁰
			① 4. BEAVER	504. ⁰⁰
			① 5. PICKUP	150. ⁰⁰
			TOTAL	8663. ⁰⁰
			PREVIOUS	26,411. ⁵⁰
			CUMULATIVE	35,074. ⁵⁰

NOTE ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

LABOR CREW BLIND SNOW BERMS + FLOOD

ICE BRIDGE.

DGN CATHER SNOW FOR SNOW BERMS +

BLADE ACCESS ROAD.

NOV ② 8 + NOV ② 9 Tickets are on file

for DGM + Loaded TRUCK WORKING FROM

HIGHWAY to Bridge Site.

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Liard P-66A DATE: 97-12-01 REPORT NO.: 323
 DEPTH: 3177 PROGRESS: 0 m FORMATION: Nahanni
 OPERATIONS AT 06:00 HOURS: Operations Suspended
 CONTRACTOR/RIG SUPT.: Precision 426E. T. Gorgichuk CO. SUPERVISOR: M. Hammond
 DAILY COST: \$13,805 CUM. COST: \$21,614,768 AFE NO: E6D015

WELL CONTROL

DAILY RIG CHECK: DAILY BOP CHECK: R.S.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 17 MAXIMUM CASING HOLD BACK kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)		No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)		No. 1 STROKES PER MINUTE	
TYPE				PH		No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
ITEM	O.D.	I.D.	TYPE				
				MUD ADDITIVES			
						U.F. (kg/m ³)	
						U.F. (kg/m ³)	
						VOL. (l/min.)	
						HOURS	
						SURVEYS	DIRECTION
						m	o
						m	o
						m	o
						m	o
						m	o
BHA LENGTH	m			JTS. D.P.: ON RACKS		m	o
HOOK LOAD	daN			: IN STRING		m	o
AVAILABLE WOB	daN			: TOTAL		m	o

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER	TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.			24	6268.25
RIG SERVICE		Sby	24	TESTING		REAM & WASH				182.25
SURVEY				CIRC. SAMPLE		WORK PIPE				1301.5
SLIP & CUT				HANDLE TOOLS		FISH				7752
COND. MUD				TRIP		TRIP		TEMPERATURE -18 °C ROADS Clear, roads good		
NIPPLE UP/DN				REAM RATHOLE						
RUN CASING										

24 HOUR SUMMARY

Drilling operations suspended. No pressures on casing or drill pipe. Building snow berms on ice bridge. Made flood of full ice bridge area. Building winter road east of Liard R. to Hwy 77. Crew change today.

SIGNED BY:

MOBILE No.:

DAILY DRILLING REPORT

WELL NAME:	Ranger Fort Liard P-66A	DATE:	97-11-30	REPORT NO.:	322
DEPTH:	3177	PROGRESS:	0	m	FORMATION: Nahanni
OPERATIONS AT 06:00 HOURS:		Operations Suspended			
CONTRACTOR/RIG SUPT.:	Precision 426E. T. Gorgichuk	CO. SUPERVISOR:	M. Hammond		
DAILY COST:	\$13,760	CUM. COST:	\$21,600,963	AFE NO:	E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m' ACTUAL HOLE FILL:		m'
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MTN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	16	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)		No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)		No. 1 STROKES PER MINUTE	
TYPE				PH		No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
ITEM	O.P.	I.D.	PI TYPE	MUD ADDITIVES		D. SILT. CENT.	
						U.F. (kg/m ³)	
						U.F. (kg/m ³)	
						VOL. (l/min.)	
						HOURS	
						SURVEYS	DIRECTION
						m	o
						m	o
						m	o
						m	o
						m	o
						m	o
BHA LENGTH				JTS. D.P.: ON RACKS			
HOOK LOAD				: IN STRING			
AVAILABLE WOB				: TOTAL			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.			24	6244.25
RIG SERVICE		Siby	24	TESTING		REAM & WASH				182.25
SURVEY				CIRC. SAMPLE		WORK PIPE				1301.5
SLIP & CUT				HANDLE TOOLS		FISH				7728
COND. MUD				TRIP		TRIP				
NIPPLE UP/DN				REAM RATHOLE						
RUN CASING										

24 HOUR SUMMARY

Drilling operations suspended. SICP & SIDP 0Kpa.

SIGNED BY:

MOBILE No.:

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Liard P-66A DATE: 97-11-29 REPORT NO.: 321
 DEPTH: 3177 PROGRESS: 0 m FORMATION: Nahanni
 OPERATIONS AT 06:00 HOURS: Operations Suspended
 CONTRACTOR/RIG SUPT.: Precision 426E. T. Gorgichuk CO. SUPERVISOR: M. Hammond
 DAILY COST: \$13760 CUM. COST: \$21587203 AFE NO: E6D015

WELL CONTROL

DAILY RIG CHECK: DAILY BOP CHECK: R.S.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 15 MAXIMUM CASING HOLD BACK kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)		No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (s/l)		No. 1 STROKES PER MINUTE	
TYPE				PH		No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
ITEM	Q.D.	LD	TL TYPE				
				MUD ADDITIVES			
						U.F. (kg/m ³)	
						U.F. (kg/m ³)	
						VOL. (l/min.)	
						HOURS	
						SURVEYS	DIRECTION
						m	o
						m	o
						m	o
						m	o
						m	o
						m	o
BHA LENGTH		m		JTS. D.P.: ON RACKS			
HOOK LOAD		daN		: IN STRING			
AVAILABLE WOB		daN		: TOTAL			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER	TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.			24	6220.25
RIG SERVICE		Stby	24	TESTING		REAM & WASH				182.25
SURVEY				CIRC. SAMPLE		WORK PIPE				1301.5
SLIP & CUT				HANDLE TOOLS		FISH				7704
COND. MUD				TRIP		TRIP		TEMPERATURE	-18	°C
NIPPLE UP/DN				REAM RATHOLE				ROADS		
RUN CASING										

24 HOUR SUMMARY

Drilling operations suspended. SICP & SIDP OKpa.

SIGNED BY:

MOBILE No.:

DAILY CONSTRUCTION REPORT

DON SORRILMO

261-7010

DATE

NOV 30/97

NO

EE6D-015

APPROVED AMOUNT

Crew - 18 MM

PROJECT OR LOCATION

FT LIND P-66-A

APPROVED AMOUNT

CONTRACTOR

BEAVER ENTERPRISES LTD

MANPOWER

5

WORK

D6H Cut + Labor Crew + Equipment

PERSON

M. HAMMOND

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	SUPERVISION:	575. ⁰⁰
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	1. BEAVER	1780. ⁰⁰
KM GRAVELLED	% SUMP COMPLETED	% BACKFILLED	2. BEAVER	504. ⁰⁰
		DATE TESTED	3. PICKUP	150. ⁰⁰
			4.	
			5.	
			TOTAL	3009. ⁰⁰
			PREVIOUS	23,402. ⁵⁰
			CUMULATIVE	26,411. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

D6H fill dips with snow +
 Pack in on snow to Bridge.

Labor Crew Paul snow to build
 drain on north side and steel
 on South side.

Make one flood full, widest + longest.

DAILY CONSTRUCTION REPORT

DOW SAPHILMO

261-7010

DATE

NOV 29/97

REF

EGD-015

MEASUREMENTS

Clear - 18 AM

PROJECT OR LOCATION

FT. LIND P-66-A

MEASUREMENTS

REMARKS

BEAVER ENTERPRISES

MANPOWER

5

DON Call, LABOR CREW WITH EQUIPMENT

M. HAMMOND

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	SUPERVISION:	575. ⁰⁰
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	1. BEAVER	1780. ⁰⁰
KM GRAVELLED	% BUMP COMPLETED	% BACKFILLED	2. BEAVER	468. ⁰⁰
		DATE TESTED	3. PICKUP	150. ⁰⁰
			4.	
			5.	
			TOTAL	2963. ⁰⁰
			PREVIOUS	20,438. ⁵⁰
			CUMULATIVE	23,402. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

DON Work done to bridge site.

Labor crew chop ice and build

Snow berm along north side of

ice bridge. Gather snow with

Cat & haul with Ski-doo & sled.

DON Work on access from Highway

to bridge site. Build snow ramp

at river.

DAILY CONSTRUCTION REPORT

DON SORKINMO

261-7010

DATE NOV 28/97

NO EGD-015

EST. APPROVED AMOUNT

OTHER

PROJECT OR LOCATION

FT. LIND A-66-A

EST. COMMITTED AMOUNT

CONTRACTOR

BEAVER ENTERPRISES LTD

RESPONSIBLE

EQUIPMENT

D6H LABOR CREW + EQUIP.

PERSON

M. HAMMOND

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	SUPERVISION:	575. ⁰⁰
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	1. BEAVER	1780. ⁰⁰
KM GRAVELLED	% SUMP COMPLETED	% BACKFILLED	2. BEAVER	458. ⁰⁰
		DATE TESTED	3. PICKUP	150. ⁰⁰
			4.	
			5.	
			TOTAL	2963. ⁰⁰
			PREVIOUS	17476. ⁵⁰
			CUMULATIVE	20438. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

D6H Work on access to bridge site.
Labor crew level & flood site for
Ice Bridge

haul D6H Cat to KLM 91 and
build snow approach and work
on access to bridge site from Highway.

DAILY CONSTRUCTION REPORT

Don Sorkin MD		DATE	NOV 28/97	WFO	EGD 015	APR APPROVED AMOUNT
261-7010		PROJECT OR LOCATION	FT. LIND A-66-17		APR COMPLETED AMOUNT	
CONTRACTOR BEAVER ENTERPRISES MD						MANPOWER
EQUIP D6H LABOR CREW + EQUIP.						
PERSON M. HAMMOND						

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	SID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	SUPERVISION:	575. ⁰⁰
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	1. BEAVER	1700. ⁰⁰
KM GRAVELLED	% SUMP COMPLETED	% BACKFILLED	2. BEAVER	450. ⁰⁰
		DATE TESTED	3. PICKUP	150. ⁰⁰
			4.	
			5.	
			TOTAL	2968. ⁰⁰
			PREVIOUS	17476. ⁵⁰
			CUMULATIVE	20,478. ⁵⁰

NOTE: ALL COST INFORMATION TO BE OBTAINED ON COST LOG AND FORWARDED AT END OF JOB.

D6H Work on access to bridge site
Labor crew level & flood site for
Lee Bridge

Haul D6m Cat to Km 91 and
build snow approach road work
on access to Bridge site from Highway.

TOTAL	20,478.50
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DAILY DRILLING REPORT

WELL NAME: Ranger Fort Liard P-66A DATE: 97-11-28 REPORT NO.: 320
DEPTH: 3177 m PROGRESS: 0 m FORMATION: Nahanni
OPERATIONS AT 06:00 HOURS: Operations Suspended
CONTRACTOR/RIG SUPT.: Precision 426E. T. Gorg ichuk CO. SUPERVISOR: M. Hammond
DAILY COST: \$13845 CUM. COST: \$21573443 AFE NO: E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	14	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

[illegible]

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OF EVALUATION PROBLEMS TOTAL WEATHER	TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.			24	6196.25
RIG SERVICE		Siby	24	TESTING		REAM & WASH				182.25
SURVEY				CIRC. SAMPLE		WORK PIPE				1301.5
SLIP & CUT				HANDLE TOOLS		FISH				7680
COND. MUD				TRIP		TRIP				
NIPPLE UP/DN				REAM RATHOLE						
RUN CASING								TEMPERATURE	-18	°C
								ROADS	Good 4" new sduw	

24 HOUR SUMMARY

Drilling operations suspended. . SICP & SIDP 0Kpa.

SIGNED BY: MOBILE No.:

DAILY CONSTRUCTION REPORT

Don Sorkilmo

361-7010

DATE

NOV 27/97

JOB

EGD-015

APE APPROVED AMOUNT

Cloudy Snow -17

PROJECT OR LOCATION

FT. LIARD P-66-A

APE COMMITTED AMOUNT

FIRM

BEAVER ENTERPRISES LTD

MANPOWER

5

EQUIPMENT

DCA + LABOUR CREW WITH EQUIPMENT

SUPERVISOR

M. HAMMOND

ROAD	LEASE	PIPELINE	COST	DAILY
KM TO BUILD	% CLEARED	% R.O.W. CLEARED	BID:	
KM ROUGH IN	% GRADED	% PIPE STRUNG	SUPERVISION:	570. ⁰⁰
KM FINAL GRADE	% PAD COMPLETE & LEVEL	% PIPE WELDED	1. BEAVER	550. ⁰⁰
KM GRAVELLED	% RIMP COMPLETED	% BACKFILLED	2. BEAVER	1780. ⁰⁰
		DATE TESTED	3. RANGER TRUCK	150. ⁰⁰
			4.	
			5.	
			TOTAL	3050. ⁰⁰
			PREVIOUS	14,421. ⁵⁰
			CUMULATIVE	17471. ⁵⁰

NOTE: ALL COST INFORMATION TO BE DETAILED ON COST LOG AND FORWARDED AT END OF JOB.

Labour crew arrived + flooded Lee bridge

Slow flooding to-day because it

Snowed all day. 2" of Snow.

Cat work on main to bridge site

in P.m.



RANGER OIL LIMITED
DAILY CONSTRUCTION/CLEANUP REPORT

DATE Nov 26/97	AFE EGD-015	AFE APPROVED AMOUNT
WEATHER Clear - 18km	PROJECT OR LOCATION FT. Lind P-66-A	AFE COMMITTED AMOUNT
CONTRACTOR BEAUIER ENTERPRISES LTD		MANPOWER 5
EQUIPMENT 20H Cat Labor Power & Equipment		
SUPERVISOR M. Hammond		

ROAD	LEASE	PIPELINE	COST	DAILY
___ km to build	___ % cleared	___ % ROW cleared	Bld:	
___ km to rough in	___ % graded	___ % pipe strung	Supervision:	515.⁰⁰
___ km final grade	___ % pad complete & level	___ % pipe welded	1. BEAUIER	1780.⁰⁰
___ km gravelled	___ % sump complete	___ % backfilled	2. BEAUIER	734.⁰⁰
		Date Tested:	3. RANGER TRAC	150.⁰⁰
			4. _____	
			5. _____	
			TOTAL	3,179.⁰⁰
			PREVIOUS	11,242.⁵⁰
			CUMULATIVE	14,421.⁵⁰

NOTE: All cost information to be detailed on cost log and forwarded daily and complete package sent to office at end of job.

D6d work on access to bridge site.
Laber Power & equipment work on
Ice Bridge. Level ice & flood.
40-50m wide x 600-700m long.

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Liard P-66A DATE: 97-11-27 REPORT NO.: 319
DEPTH: 3177 m PROGRESS: 0 m FORMATION: Nahanni
OPERATIONS AT 06:00 HOURS:
CONTRACTOR/RIG SUPT.: Precision 426E. T. Gorg ichuk CO. SUPERVISOR: M. Hammond
DAILY COST: \$14000 CUM. COST: \$21559598 AFE NO: E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	13	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES				PUMPS			
BIT NUMBER				WEIGHT (kg/m^3)				No. 1 LINER (mm)			
SIZE (mm)				VISCOSITY (S/l)				No. 1 STROKES PER MINUTE			
TYPE				PH				No. 2 LINER (mm)			
SERIAL No.				PV (mPa S)				No. 2 STROKES PER MINUTE			
NOZZLES (mm)				YP (Pa)				VOLUME (m^3)			
DEPTH IN (m)				GELS (Pa)				PRESSURE (kPa)			
METERS (m)				SAND (%)				D.P. ANNULAR VEL. (m/min.)			
HOURS				SOLIDS (%)				D.C. ANNULAR VEL. (m/min.)			
WOB (1000 daN)				FILTER CAKE (mm desc.)				D.C. ANNULAR VEL. (m/min.)			
R.P.M.				WATER LOSS (cc)				SOLIDS CONTROL			
CONDITION				CHLORIDES (mg/l)				SHAKER SCREENS			
DRILLING ASSEMBLY											
				MUD ADDITIVES				U.F. (kg/m^3)			
								U.F. (kg/m^3)			
								VOL. (l/min.)			
								HOURS			
								SURVEYS			
				DC S	CCS			m		O	
BHA LENGTH			m	JTS. D.P.: ON RACKS				m		O	
HOOK LOAD			daN	: IN STRING				m		O	
AVAILABLE WOB			daN	: TOTAL				m		O	

TIME BREAKDOWN

[illegible]

24 HOUR SUMMARY

Drilling operations suspended. SICP & SIDP OKPa.

SIGNED BY: MOBILE No.:

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Liard P-66A DATE: 97-11-26 REPORT NO.: 318
DEPTH: 3177 m PROGRESS: 0 m FORMATION: Nahanni
OPERATIONS AT 06:00 HOURS:
CONTRACTOR/RIG SUPT.: Precision 426E. T. Gorg ichuk CO. SUPERVISOR: M. Hammond
DAILY COST: \$20125 CUM. COST: \$21545598 AFE NO: E6D015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	12	MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES	PUMPS
BIT NUMBER _____				WEIGHT (kg/m^3) _____	No. 1 LINER (mm) _____
SIZE (mm) _____				VISCOSITY (s/l) _____	No. 1 STROKES PER MINUTE _____
TYPE _____				PH _____	No. 2 LINER (mm) _____
SERIAL No. _____				PV (mPa S) _____	No. 2 STROKES PER MINUTE _____
NOZZLES (mm) _____				YP (Pa) _____	VOLUME (m^3) _____
DEPTH IN (m) _____				GELS (Pa) _____	PRESSURE (kPa) _____
METERS (m) _____				SAND (%) _____	D.P. ANNULAR VEL. (m/min.) _____
HOURS _____				SOLIDS (%) _____	D.C. ANNULAR VEL. (m/min.) _____
WOB (1000 daN) _____				FILTER CAKE (mm desc.) _____	D.C. ANNULAR VEL. (m/min.) _____
R.P.M. _____				WATER LOSS (cc) _____	SOLIDS CONTROL _____
CONDITION _____				CHLORIDES (mg/l) _____	SHAKER SCREENS _____
DRILLING ASSEMBLY					
				MUD ADDITIVES	U.F. (kg/m^3) _____
					U.F. (kg/m^3) _____
					VOL. (l/min.) _____
					HOURS _____
					SURVEYS _____
					DIRECTION _____
					m _____ o _____
					m _____ o _____
					m _____ o _____
					m _____ o _____
					m _____ o _____
					m _____ o _____
BHA LENGTH _____ m				ITS, D.P.: ON RACKS _____	m _____ o _____
HOOK LOAD _____ daN				: IN STRING _____	m _____ o _____
AVAILABLE WOB _____ daN				: TOTAL _____	m _____ o _____

TIME BREAKDOWN

DATE & TIME OF OPERATION				LOCATION		PROBLEM		SUMMARY		
DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.			24	6148.25
RIG SERVICE		Stby	24	TESTING		REAM & WASH				182.25
SURVEY				CIRC. SAMPLE		WORK PIPE				1301.5
SLIP & CUT				HANDLE TOOLS		FISH				7632
COND. MUD				TRIP		TRIP				
NOBLE UP/DN				REAM RATHOLE						
RUN CASING										
									-5	°C
								Good		

24 HOUR SUMMARY

Drilling operations suspended. Crew doing minor repairs and monitoring well pressures. SICP & SIDP 0 Kpa.

SIGNED BY: MOBILE No.:

WELL NAME: Ranger Fort Liard P-66A Date 97-11-25 REPORT NO.: 317
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: Nabanni
 OPERATIONS AT 06:00 HOURS: Operations suspended, waiting on ice bridge
 CONTRACTOR/RIG SUPT.: Precision Rig 426E.T. Gorgichuk CO. SUPERVISOR: A. Schrit
 DAILY COST: \$28000 CUM. COST: \$21525473 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK:	DAILY BOP CHECK:	Yes	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL			m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE			WELL SECURED IN		MIN.
CONDUCTED AT			HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	11		MAXIMUM CASING HOLD BACK		kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m^3)	1170	No. 1 LINER (mm)	
SIZE (mm)				VISCOSITY (cP)	80	No. 1 STROKES PER MINUTE	
TYPE				pH		No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m^3)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				WATER LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES (mg/l)		SHAKER SCREENS	
DRILLING ASSEMBLY							
				MUD ADDITIVES		U.F. (kg/m^3)	D. SILT.
						U.F. (kg/m^3)	CENT.
						VOL. (l/min.)	
						HOURS	
						SURVEYS	DIRECTION
						m	o
						m	o
						m	o
						m	o
						m	o
						m	o
BHA LENGTH		m		FTS. D.P.: ON RACKS			
HOOK LOAD		daN		: IN STRING			
AVAILABLE WOB		daN		: TOTAL			

TIME BREAKDOWN

[illegible]

24 HOUR SUMMARY

Loaded out remaining rental tools. Crews sent home. Rig manned with Rig Manager and two-two man crews, water hauler, two camp staff.. Ice bridge crew manned with ROL foreman and four labourers. Rig running boiler and circ. mud tanks. NEB gave approval to suspend operations until ice bridge is completed. Ice bridge construction est. 30 days.

SIGNED BY: MOBILE No.:

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-11-24 REPORT NO.: 316
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: STANDBY - WAIT ON ICE BRIDGE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt - Percy Chapman
 DAILY COST: \$ 29,382 CUM. COST: \$ 21,497,473 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 8 - 10 MAXIMUM CASING HOLD BACK 17800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES	MUD TANKS	PUMPS	
BIT NUMBER			WEIGHT (kg/m ³)	1170	No. 1 LINER (mm)	140
SIZE (mm)			VISCOSITY (cp)	88	No. 1 STROKES PER MINUTE	
TYPE			pH	10.9	No. 2 LINER (mm)	140
SERIAL No.			PV (mPa S)	22	No. 2 STROKES PER MINUTE	
NOZZLES (mm)			YP (Pa)	26.5	VOLUME (m ³)	
DEPTH IN (m)			GELS (Pa)	12/13	PRESSURE (kPa)	
METERS (m)			SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	
HOURS			SOLIDS (%)	9	D.C. ANNULAR VEL.	
WOB (1000 daN)			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	
R.P.M.			FLUID LOSS (cc)	4.2	<u>SOLIDS CONTROL</u>	
CONDITION			CHLORIDES	1000	SHAKER SCREENS	250 - 175
<u>DRILLING ASSEMBLY</u>			Ca	30	DRYER SCREENS	
			<u>MUD ADDITIVES</u>		U.F. (kg/m ³)	D. SILT. CENT.
					OF. (kg/m ³)	
					VOL. (l/min.)	
					HOURS	
					SURVEYS	ANGLE DIRECTION
						m °
						m °
						m °
						m °
BHA LENGTH	m		DC S	CCS 1,238,938		
HOOK LOAD	daN		JTS. M.T.: ON RACKS	133		
AVAILABLE WOB	daN		: IN STRING	300		
			: TOTAL	433		

TIME BREAKDOWN

DRILLING	CEMENT	CORING	RIG REPAIR	DRILL OP	TODAY	CUM.
TRIP	BOP DRILL	LARKING	W.O. ORDERS	EVALUATION	24	6100.25
RIG SERVICE	HANDLE TOOLS	TESTING	REAM & WASH	PROBLEMS		182.25
SURVEY	LOAD TOOLS	CIRC. SAMPLE		TOTAL	24	7584
SLIP & CUT	STANDBY	HANDLE TOOLS		WEATHER	CLOUDY	
CONTD. MUD		TRIP		TEMPERATURE	-10	
NOFFLEUPAIN		REAM RATHOLE		ROADS	GOOD	
RUN CASING		CIRCULATE				

24 SUMMARY

Stand-by wait on ice bridge - Haul mud and from air strip to location - Work on winter road and ice bridge
 Load out Halliburton and Weatherford tools

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403)424-8050

11/24/97 07:03 FAX

RANGER OIL LIMITED

WELL Ranger Fort Lind P-66-A DATE 97-11-23 REPORT NO.: 315
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: PREPARE FOR STANDBY - WAIT ON ICE BRIDGE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt - Percy Chapman
 DAILY COST: \$ 27,699 CUM. COST: \$ 21,468,091 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 7 - 9 MAXIMUM CASING HOLD BACK 17800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES		MUD TANKS	PUMPS	
BIT NUMBER			WEIGHT (kg/m ³)		1170	No. 1 LINER (mm)	140
SIZE (mm)			VISCOSITY (s/l)		88	No. 1 STROKES PER MINUTE	
TYPE			pH		10.9	No. 2 LINER (mm)	140
SERIAL No.			PV (mPa S)		22	No. 2 STROKES PER MINUTE	
NOZZLES (mm)			YP (Pa)		26.5	VOLUME (m ³)	
DEPTH IN (m)			GELS (Pa)		12/13	PRESSURE (kPa)	
METERS (m)			SAND (%)		0	D.P. ANNULAR VEL. (m/min.)	
HOURS			SOLIDS (%)		9	D.C. ANNULAR VEL.	
WOB (1000 daN)			FILTER CAKE (mm desc.)		1	D.C. ANNULAR VEL. (m/min.)	
R.P.M.			FLUID LOSS (cc)		4.2	SOLIDS CONTROL	
CONDITION			CHLORIDES		1000	SHAKER SCREENS	250 - 175
DRILLING ASSEMBLY			Ca		30	DRYER SCREENS	
			MUD ADDITIVES			U.F. (kg/m ³)	D. SILT. CENT.
						OF. (kg/m ³)	
						VOL. (l/min.)	
						HOURS	
						SURVEYS	ANGLE DIRECTION
						m	°
						m	°
						m	°
						m	°
						m	°
						m	°
BHA LENGTH	m		JTS. M.T. ON RACKS		133		
HOOK LOAD	daN		: IN STRING		300		
AVAILABLE WOB	daN		: TOTAL		433		

TIME BREAKDOWN

DRILLING	CEMENT	CORING	RIG REPAIR	DRILL OP	TODAY	CUM.
TRIP	BOP DRILL	LOGGING	W.O. ORDERS	4	20	6076.25
RIG SERVICE	0.75	HANDLE TOOLS	TESTING	REAM & WASH		182.25
SURVEY	LOAD TOOLS	2	CIRC. SAMPLE		4	1301.5
SLIP & CUT	STANDBY	17.25	HANDLE TOOLS		24	7560
COND. MUD			TRIP		WEATHER CLOUDY	
NIPPI RUPON			REAM RATHOLE		TEMPERATURE -11	
RUN CASING			CIRCULATE		ROADS GOOD	

24 SUMMARY

Wait on orders - Load out wire line and fishing tools - Drain BOP stack - Close pipe rams

Tarp in BOPs - Prepare rig for shut down

7 Precision Drilling and 4 service hands on Kenn Borek Air today

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

P.04

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard F-66-A</u>	DATE	<u>97-11-21</u>	REPORT NO.:	<u>313</u>
DEPTH:	<u>3177</u>	m	PROGRESS:	<u>0</u>	m
OPERATIONS AT 06:00 HOURS:		TRIP OUT LAY DOWN MT PIPE			
CONTRACTOR/RIG SUPT.:	<u>Precision Dril rig #4265 Terry Gorgiechuk</u>	CO. SUPERVISOR:	<u>Art Schmitt - Percy Chapman</u>		
DAILY COST: \$	<u>43234</u>	CUM. COST:	<u>\$ 21,196,151</u>		
		AFE NO.:	<u>E6D-015</u>		

WILL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	LPs @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m3		
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.		
CONDUCTED AT		HRS. CREW PERFORMANCE				
DAYS SINCE BOP DRILL (EACH CREW):	5 - 7	MAXIMUM CASING HOLD BACK	17800	LPs		

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1180	No. 1 LINER (mm)	DOWELL
SIZE (mm)				VISCOSITY (cP)	88	No. 1 STROKES PER MINUTE	PUMPER
TYPE				pH	10.9	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)	22	No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)	26.5	VOLUME (m ³)	205
DEPTH IN (m)				GELS (Pa)	12/13	PRESSURE (kPa)	19500
METERS (m)				SAND (%)	0	D.P. ANNULAR VEL. (m/min.)	32
HOURS				SOLIDS (%)	9	D.C. ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)	4.2	<u>SOLIDS CONTROL</u>	
CONDITION				CHLORIDES	1000	SHAKER SCREENS	250 - 175
<u>DRILLING ASSEMBLY</u>				Ca	30	DRYER SCREENS	
1 1/4 MT PIPE	42	19	1 1/4 MT	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)	D. SILT.
				145 - Barite		OF. (kg/m ³)	CENT.
				35 - Gel		VOL. (l/min.)	
				1 - Kalzan		HOURS	
				1 - X-Cide 207		<u>SURVEYS</u>	<u>ANGLE</u>
							<u>DIRECTION</u>
						m	a
				DC 5 2202	CCS 1,227,366	m	o
BHA LENGTH			m	ITS. M.T.: ON RACKS	77	m	o
HOOK LOAD	48,000		daN	: IN STRING	328	m	o
AVAILABLE WOB			daN	: TOTAL	405	m	o

SIGNED BY: ART SCHRITT

MOBILE NO: (403) 210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-11-20 REPORT NO.: 312
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: RUN IN WITH MT PIPE
 CONTRACTOR/RIG SUPT.: Precision Drilg rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schrin - Percy Chapman
 DAILY COST: \$ 46244 CUM. COST: \$ 21,152,917 AFE NO.: E6D - 015

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS:	CALCULATED HOLE FILL			m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS:	CONDUCTED WHILE			WELL SECURED IN		MIN.
	CONDUCTED AT			HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	4 - 6			MAXIMUM CASING HOLD BACK	17800	kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS													
BIT NUMBER				WEIGHT (kg/m ³)	1150	No. 1 LINER (mm)	140												
SIZE (mm)				VISCOSITY (mI)	63	No. 1 STROKES PER MINUTE													
TYPE				pH	9.5	No. 2 LINER (mm)	140												
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE													
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)													
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)													
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)													
HOURS				SOLIDS (%)		D.C. ANNULAR VEL.													
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)													
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL													
CONDITION				CHLORIDES		SHAKER SCREENS	250 - 84												
DRILLING ASSEMBLY				Ca		DRYER SCREENS													
						<table><tr><td>D. SILT.</td><td>CENT.</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>		D. SILT.	CENT.										
D. SILT.	CENT.																		
1 1/4 MT PIPE	42	19	1 1/4 MT	MUD ADDITIVES		U.F. (kg/m ³)													
						OF. (kg/m ³)													
						VOL. (l/min.)													
						HOURS													
						SURVEYS	<table><tr><td>ANGLE</td><td>DIRECTION</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	ANGLE	DIRECTION										
ANGLE	DIRECTION																		
						m	°												
				DC \$ CCS 1,225,164		m	°												
BHA LENGTH		m	JTS. D.P.: ON RACKS	133		m	°												
HOOK LOAD		daN	: IN STRING	300		m	°												
AVAILABLE WOB		daN	: TOTAL	433		m	°												

TIME BREAKDOWN

DRILLING		CEMENT		CORING		EGG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		W.O. ORDERS			.75	6054.75
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH				182.25
SURVEY				CRC. SAMPLE		RUN MT PIPE	6.75		23.25	1251
SLIP & CUT				HANDLE TOOLS		W.O. PIPE INSP	4.25		24	7488
COND. MUD				TRIP		RUN FREE-PT	5.75			
NIPPLE UP/DN				REAM RATHKILK		INSPECT MPE	4.5			-19
RUN CASINO				CIRCULATE		W.O. ORDERS	2		GOOD	

24 SUMMARY

Wait on orders - Run in with free point tool hung up at 3000m - Tool joint depth for back off at 2984m

Wait on Satellite Inspection - Inspect MT pipe and condition mud - Run in with MT pipe

300 good joints MT pipe on location - 50 joints N-80 1 1/4 MT pipe shipped from Fort St. John

SIGNED BY: ART SCHRITT

MOBILE NO: (403) 210-1202 (403) 424-8050

494

WELL CONTROL

DRILLING PARAMETERS

TIME BREAKDOWN

24 SUMMARY

Out of hall x 1 AM

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL	<u>Ranger Fort Llard P-66-A</u>	DATE	<u>97-11-17</u>	REPORT NO.:	<u>309</u>
DEPTH:	<u>3177</u>	m	PROGRESS:	<u>0</u>	m
OPERATIONS AT 06:00 HOURS:		<u>RUN IN OPEN END MT PIPE</u>			
CONTRACTOR/RIG SUPT.:	<u>Precision Drilg rig #426B Eric Harvey</u>	CO. SUPERVISOR:	<u>Art Schmitt - Percy Chapman</u>		
DAILY COST: \$	<u>51,044</u>	CUM. COST:	<u>\$ 21,005,565</u>		
		AFE NO:	<u>E6D - 015</u>		

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	kPa @:	SPM
TRIP RECORDS: CALCULATED HOLE FILL				m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN		MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	1 - 3			MAXIMUM CASING HOLD BACK	17800	kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WRIGHT (kg/m^3)	1115	No. 1 LINER (mm)	DOWELL
SIZE (mm)				VISCOSITY (ν/l)	44	No. 1 STROKES PER MINUTE	PUMPER
TYPE				pH	9.5	No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)	13	No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)	15.5	VOLUME (m^3)	205
DEPTH IN (m)				GELS (Pa)	7117	PRESSURE (kPa)	22500
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	32
HOURS				SOLIDS (%)	5	D.C ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (run desc.)	1	D.C ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)	4.4	<u>SOLIDS CONTROL</u>	
CONDITION				CHLORIDES	1400	SHAKER SCREENS	250 - 84
<u>DRILLING ASSEMBLY</u>				Ca	40	DRYER SCREENS	
MT PIPE	32	25	1 1/4 MT	<u>MUD ADDITIVES</u>		U.F. (kg/m^3)	D. SILT.
						O.F. (kg/m^3)	CENT.
						VOL. (l/min.)	
						HOURS	
						<u>SURVEYS</u>	ANGLE
							DIRECTION
						m	o
						m	o
						m	o
						m	o
						m	o
BHA LENGTH		m		JTS. D.P.: ON RACKS	133		
HOOK LOAD	44,000	daN		: IN STRING	300		
AVAILABLE WOB		daN		: TOTAL	433		

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>97-11-16</u>	REPORT NO.:	<u>308</u>
DEPTH:	<u>3177</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNI</u>
OPERATIONS AT 06:00 HOURS: <u>DISPLACE INSIDE DP TO DIESEL</u>					
CONTRACTOR/RIG SUPT.:	<u>Precision Dril rig #426E Eric Harvey</u>		CO. SUPERVISOR:	<u>Art Schmitt - Percy Chapman</u>	
DAILY COST: \$	<u>112,490</u>	CUM. COST:	<u>\$ 20,954,521</u>	AFE NO:	<u>ESD - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	kPa @	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³		
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.		
CONDUCTED AT		HRS. CREW PERFORMANCE				
DAYS SINCE BOP DRILL (EACH CREW):	1 - 3	MAXIMUM CASING HOLD BACK	17800	kPa		

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1005	No. 1 LINER (mm)	DOWELL
SIZE (mm)				VISCOSITY (s/l)	41	No. 1 STROKES PER MINUTE	PUMPER
TYPE				pH	10.5	No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)	8	No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)	12	VOLUME (m ³)	205
DEPTH IN (m)				GELS (Pa)	2.5/2.5	PRESSURE (kPa)	22500
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	32
HOURS				SOLIDS (%)	1	D.C ANNULAR VEL.	
WOB (1000 daN)				FILTER CAKE (mm desc.)	1	D.C ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)	11.6	<u>SOLIDS CONTROL</u>	
CONDITION				CHLORIDES	750	SHAKER SCREENS	250 - 84
<u>DRILLING ASSEMBLY</u>				Ca	60	DRYER SCREENS	
MT PIPE	32	25	1 1/4 MT	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)	D. SILT.
						OF. (kg/m ³)	CENT.
						VOL. (l/min.)	
						HOURS	
						<u>SURVEYS</u>	<u>ANGLE</u>
							<u>DIRECTION</u>
						m	°
						m	°
						m	°
						m	°
						m	°
						m	°
BHA LENGTH		m	JTS. D.P.: ON RACKS	133			
HOOK LOAD	44,000	daN	: IN STRING	300			
AVAILABLE WOB		daN	: TOTAL	433			

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OF EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		CIRCULATE	12.2		.75	6051.75
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH				182.25
SURVEY				CRC. SAMPLE		W.O. TOOLS			23.25	1158
SLIP & CLIP				HANDLE TOOLS		RUN IN MT PIPE	10		24	7392
COND. MUD				TRIP		RIG UP DOWEL	1		CLEAR	
NIFFLE UP/DN				REAM RATHOLE		WORK PIPE			-8	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Run in with open end MT pipe to 1250m pump 6 m3 mud - Run in with MT pipe - Circulate in 2090m-2150m
Run in with MT pipe to 2872m top of HWDP - Circulate 1/2 Hr. - Run in with MT pipe - Circulate in 3160m-3173m
Tag totco ring - Rig in Dowell steel line from stand pipe to MT pipe - Circulate with kelzan mud + 1% Himul degreaser
Circulated up solids - Circulated 2nd circulation with kelzan mud + 1% degreaser solids content lower
Pump 1m3 water - Displace inside 127 mm DP to Diesel

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-11-15 REPORT NO.: 307
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: RUN IN WITH MT - PIPE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Eric Harvey CO. SUPERVISOR: Art Schmitt - Percy Chapman
 DAILY COST: \$ 75,744 CUM. COST: \$ 20,842,031 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @ SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 10 - 3 MAXIMUM CASING HOLD BACK 17800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1015	No. 1 LINER (mm)	DOWELL
SIZE (mm)				VISCOSITY (s/l)	47	No. 1 STROKES PER MINUTE	PUMPER
TYPE				pH	8	No. 2 LINER (mm)	
SERIAL No.				PV (mPa S)	7	No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)	16	VOLUME (m ³)	150
DEPTH IN (m)				GELS (Pa)	6.5/6.5	PRESSURE (kPa)	14500
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)	2	D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (min desc.)	1	SOLIDS CONTROL	
R.P.M.				FLUID LOSS (cc)	10.4	SHAKER SCREENS	250 - 84
CONDITION				CHLORIDES	900	DRYER SCREENS	
DRILLING ASSEMBLY				Ca	120		
MT PIPE	32	25	1 1/4 MT	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.
				3 - Caustic		OF. (kg/m ³)	CENT.
						VOL. (l/min.)	
						HOURS	
						SURVEYS	ANGLE DIRECTION
							m °
							m °
							m °
							m °
BHA LENGTH			m	DC S 87	CC\$ 1,225,044		
HOOK LOAD	42,000		daN	JTS. D.P.: ON RACKS	133		
AVAILABLE WOB			daN	: IN STRING	300		
				: TOTAL	433		

TIME BREAKDOWN

DRILLING	CEMENT	CORING	RIG REPAIR	DRILL OP	TOTAL	CUM.
TRIP	BOP DRILL	LOOING	CIRCULATE		.75	6051
RIG SERVICE	0.75	HANDLING TOOLS	TESTING	RRAM & WASH		182.25
SURVEY		CIRC. SAMPLE	W.O. TOOLS	2.35	23.75	1134.75
SLIP & CUT		HANDLE TOOLS	RUN IN MT PIPE	8	24	7368
COND. MUD		TRIP	RUN FREE PT	8	CLEAR	
NIPLER UPDN		RRAM BATHOLE	WORK PIPE	5	TEMPERATURE	
RUN CASING		CIRCULATE			ROADS	
					GOOD	

24 SUMMARY

Attempt to run free point tools past bridge at 2130m - Wait on nuckle joints and 25.4mm tools
 Work pipe attempt to fire jars - Rig up wire line truck - Run in with nuckle joints - load shaker bars and free point tool
 Tool hanging up at 2108m - Make up 25.4mm tools - Tools hanging up at 2108m - Rig out wire line truck
 Hang drill pipe in lower pipe rams - Lock rams closed - Back out top single - Rig to and run MT string

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403)424-8050

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>97-11-13</u>	REPORT NO.:	<u>305</u>
DEPTH:	<u>2177</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNI</u>
OPERATIONS AT 06:00 HOURS: <u>TRIP OUT MT STRING AND MILL</u>					
CONTRACTOR/RIG SUPT.:	<u>Precision Drig rig #426E Eric Harvey</u>		CO. SUPERVISOR:	<u>Art Schrim - Percy Chapman</u>	
DAILY COST: \$	<u>40,119</u>	CUM. COST:	<u>\$ 20,700,543</u>	AFE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	kPa @	SPM
TRIP RECORDS: CALCULATED HOLE FILL		m ³ ACTUAL HOLE FILL:		m ³		
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.		
CONDUCTED AT		HRS. CREW PERFORMANCE				
DAYS SINCE BOP DRILL (EACH CREW):	9 - 2	MAXIMUM CASING HOLD BACK	17800	kPa		

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS											
BIT NUMBER				WEIGHT (kg/m ³)	1000	No. 1 LINER (mm)	DOWELL										
SIZE (mm)	55			VISCOSITY (s/l)	54	No. 1 STROKES PER MINUTE	PUMPER										
TYPE	MILL			pH	10	No. 2 LINER (mm)											
SERIAL No.				PV (mPa S)	9	No. 2 STROKES PER MINUTE											
NOZZLES (mm)	3x6.7			YP (Pa)	20	VOLUME (m ³)	150										
DEPTH IN (m)				GELS (Pa)	10//11	PRESSURE (kPa)	14500										
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)											
HOURS	12.25			SOLIDS (%)													
WOB (1000 daN)	1000			FILTER CAKE (mm desc.)	2	D.C. ANNULAR VEL. (m/min.)											
R.P.M.	450 +			FLUID LOSS (cc)	16	<u>SOLIDS CONTROL</u>											
CONDITION	IN			CHLORIDES	850	SHAKER SCREENS	250 - 84										
<u>DRILLING ASSEMBLY</u>				Ca	60	DRYER SCREENS											
						<table><tr><td>D. SILT.</td><td>CENT.</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>		D. SILT.	CENT.								
D. SILT.	CENT.																
BLADE MILL	55	25	1 1/4 MT	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)											
XO SUB	54	19	1 1/2 MT	10 - Kelzan		OF. (kg/m ³)											
M.M.	54		1 1/2 MT	1 - Caustic		VOL. (l/min.)											
XO SUB	54	19	1 1/4 MT	1 - Xcide		HOURS											
H.O. STRING	32	19	1 1/4 MT			<u>SURVEYS</u>	<table><tr><td>ANGLE</td><td>DIRECTION</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	ANGLE	DIRECTION								
ANGLE	DIRECTION																
				DC S 4502 CCS 1,224,957		m	°										
BHA LENGTH			m	JTS. D.P.: ON RACKS		133	m °										
HOOK LOAD	42,000		daN	: IN STRING		300	m °										
AVAILABLE WOB			daN	: TOTAL		433	m °										

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		CIRCULATE	5.25		0.75	6048.75
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH	10.7			182.25
SURVEY				CIRC. SAMPLE		TRIP	7.25		23.25	1089
SLIP & CUT				HANDLE TOOLS		RUN IN MT PIPE			24	7320
COND. MUD				TRIP					CLEAR	
NIPPLE UP/DN				REAM RATHOLE					-2	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Wash 2872m - 3115m top Dcs - Circulate bottoms up - Wash 3115m - 3170m top of short DC
Circulate bottoms up - Wiper trip 33 joints - No fill - Circulate condition for wire line free point
Trip out lay down MT string
Hole drag up - 1-2000 dan
Hole drag down - 1-2000 dan

SIGNED BY: ART SCHRITT

MOBILE NO: (403) 210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-11-12 REPORT NO.: 304
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNT
 OPERATIONS AT 06:00 HOURS: CLEANING INSIDE DRILL STRING WITH MILL AND M.T. STRING
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Eric Harvey CO. SUPERVISOR: Art Schmitt - Percy Chapman
 DAILY COST: \$ 37,744 CUM. COST: \$ 20,660,344 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 8 - 1 MAXIMUM CASING HOLD BACK 17800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1035	No. 1 LINER (mm)	DOWELL
SIZE (mm)	55			VISCOSITY (s/l)	40	No. 1 STROKES PER MINUTE	
TYPE	MILL			pH	9.5	No. 2 LINER (mm)	
SERIAL No.				PV (mPa s)	11	No. 2 STROKES PER MINUTE	
NOZZLES (mm)	3x6.7			YP (Pa)	7.5	VOLUME (m ³)	150 - 200 <i>lit</i>
DEPTH IN (m)				GELS (Pa)	4/4	PRESSURE (kPa)	15200
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		SOLIDS CONTROL	
R.P.M.				FLUID LOSS (cc)	6.2	SHAKER SCREENS	84 - 84
CONDITION				CHLORIDES	850	DRYER SCREENS	
DRILLING ASSEMBLY				Ca	90		
BLADE MILL	55	25	1 1/4 MT	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.
XO SUB	54	19	1 1/2 MT	4 - Kalzium		OF. (kg/m ³)	
M.M.	54		1 1/2 MT	1 - Caustic		VOL. (l/min.)	
XO SUB	54	19	1 1/4 MT			HOURS	
H.O. STRING	32	19	1 1/4 MT			SURVEYS	ANGLE DIRECTION
				DC \$ 1742	CCS 1,220,455	m	°
BHA LENGTH			m	JTS. D.P.: ON RACKS	133	m	°
HOOK LOAD	42,000	daN		: IN STRING	300	m	°
AVAILABLE WOB		daN		: TOTAL	433	m	°

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR	.75	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		CIRCULATE	6.25		0.75	6047.25
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH	2			182.25
SURVEY				CIRC. SAMPLE		TRIP			23.25	1065.75
SLIP & CUT				HANDLE TOOLS		RUN IN MT PIPE	14.2		24	7296
COND. MUD				TRIP				WEATHER	CLEAR	
NIPPLE UP/DN				REAM RA/HOLE				TEMPERATURE	-5	
RUN CASING				CIRCULATE				ROADS	GOOD	

24 SUMMARY

Pick up MT pipe - Circulate at 1702m - 2036m - 2230 - 2706m - Clean bridge at 2819m
 Wash 2819m - 2872m *8:30 AM - 2901 working*
 Hole drag up - 1-2000 daN *- STRIKE WT. - 7000*
 Hole drag down - 1-2000 daN *- TOP DRIVE WT. - 35000*
- 42000

SIGNED BY: ART SCHMITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-11-11 REPORT NO.: 303
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: RUN IN WITH HOT OIL STRING < MUD MOTOR AND MILL
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgighuk CO SUPERVISOR: Art Schmitt - Percy Chapman
 DAILY COST: \$ 33,244 CUM. COST: \$ 20,622,600 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL 1.08 m³ ACTUAL HOLE FILL: 1.17 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 7 - 7 MAXIMUM CASING HOLD BACK 17800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)	1005	No. 1 LINER (mm)	140
SIZE (mm)	<u>55</u>			VISCOSITY (uI)	38	No. 1 STROKES PER MINUTE	
TYPE	<u>MILL</u>			pH	9.5	No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)	<u>3x6.7</u>			YP (Pa)		VOLUME (m ³)	
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		SOLIDS CONTROL	
R.P.M.				FLUID LOSS (cc)		SHAKER SCREENS	<u>84 - 84</u>
CONDITION				CHLORIDES		DRYER SCREENS	
DRILLING ASSEMBLY				OIL WATER			
				ELECTRICAL STAB.			
BLADE MILL	<u>55</u>	<u>25</u>	<u>1 1/4 MT</u>	MUD ADDITIVES		U.F. (kg/m ³)	
XO SUB	<u>54</u>	<u>19</u>	<u>1 1/2 MT</u>	<u>2 - Kelzan</u>		OF. (kg/m ³)	
M.M.	<u>54</u>		<u>1 1/2 MT</u>	<u>1 - Causic</u>		VOL. (l/min.)	
XO SUB	<u>54</u>	<u>19</u>	<u>1 1/4 MT</u>	<u>2 - Xcide 207</u>		HOURS	
H.O. STRING	<u>32</u>	<u>19</u>	<u>1 1/4 MT</u>			SURVEYS	
				DC S 991	CCS 1,218,713		
BHA LENGTH			m	JTS. D.P.: ON RACKS	133		
HOOK LOAD			daN	: IN STRING	300		
AVAILABLE WOB			daN	: TOTAL	433		

TIME BREAKDOWN

DRILLING	CEMENT	CORING	RIG REPAIR	DRILL OP EVALUATION	TODAY	CUM.
TRIP	BOP DRILL	LOGGING	CIRCULATE		0.75	6047.25
RIG SERVICE	0.75	HANDLING TOOLS	TESTING	REAM & WASH		182.25
SURVEY			CIRC. SAMPLE	TRIP	23.25	1042.5
SLIP & CUT		HANDLING TOOLS	FISH SHACKLE	4.75	24	7272
COND. MUD		TRIP		WEATHER	CLEAR	
NIPPLEUP/DN		REAM HATHOLE		TEMPERATURE	-5	
RUN CASING		CIRCULATE		ROADS	GOOD	

1 1/4" MACARONI

24 SUMMARY

Circulate ~~lost~~ string at 1392m - Lost shackle down hole - Trip out - Run magnet on wire line MACARONI
 3 wire line runs with magnet to 436m - 936m - 1115m recovered shackle - Run in with bladed mill - mud motor - ~~lost~~ string
 Break circulation at 230m - Run in

SIGNED BY: ART SCHMITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-11-10 REPORT NO.: 302
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNI
 OPERATIONS AT 06:00 HOURS: RIG IN DOWELL PUMPER
 CONTRACTOR/RIG SUPT.: Precision Dril Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schrin
 DAILY COST: \$ 38964 CUM. COST: \$ 20,589,356 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.B.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 6 - 6 MAXIMUM CASING HOLD BACK 17800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	<u>62</u>			WEIGHT (kg/m ³)	<u>1185</u>	No. 1 LINER (mm)	<u>140</u>
SIZE (mm)	<u>216</u>	<u>55</u>		VISCOSITY (s/l)	<u> </u>	No. 1 STROKES PER MINUTE	<u> </u>
TYPE	<u>F-2</u>	<u>Mill</u>		pH	<u> </u>	No. 2 LINER (mm)	<u>140</u>
SERIAL No.	<u>LJ7809</u>			PV (mPa S)	<u> </u>	No. 2 STROKES PER MINUTE	<u> </u>
NOZZLES (mm)	<u>3x15.9</u>	<u>6.7</u>		YP (Pa)	<u> </u>	VOLUME (m ³)	<u> </u>
DEPTH IN (m)	<u>3128</u>			GELS (Pa)	<u> </u>	PRESSURE (kPa)	<u> </u>
METERS (m)	<u>49</u>			SAND (%)	<u> </u>	D.P. ANNULAR VEL. (m/min.)	<u> </u>
HOURS	<u>10.25</u>			SOLIDS (%)	<u> </u>	D.C. ANNULAR VEL. (m/min.)	<u> </u>
WOB (1000 daN)	<u>10/14</u>			FILTER CAKE (mm desc.)	<u> </u>	D.C. ANNULAR VEL. (m/min.)	<u> </u>
R.P.M.	<u>70</u>			FLUID LOSS (cc)	<u> </u>	SOLIDS CONTROL	
CONDITION	<u>IN</u>			CHLORIDES	<u> </u>	SHAKER SCREENS	<u>84 - 84</u>
DRILLING ASSEMBLY				Ca	<u> </u>	DRYER SCREENS	<u> </u>
BLADE MILL	<u>55</u>	<u>25</u>	<u>1 1/4 MT</u>	MUD ADDITIVES		U.F. (kg/m ³)	<u> </u>
XO SUB	<u>54</u>	<u>19</u>	<u>1 1/2 MT</u>			OF. (kg/m ³)	<u> </u>
M.M.	<u>54</u>		<u>1 1/2 MT</u>			VOL. (l/min.)	<u> </u>
XO SUB	<u>54</u>	<u>19</u>	<u>1 1/4 MT</u>			HOURS	<u> </u>
H.O.STRING	<u>32</u>	<u>19</u>	<u>1 1/4 MT</u>			SURVEYS	<u> </u>
						ANGLE	<u> </u>
						DIRECTION	<u> </u>
						m	<u> </u>
						m	<u> </u>
						m	<u> </u>
						m	<u> </u>
						m	<u> </u>
BHA	<u>305.68</u>	<u>m</u>		DC \$	<u>CCS 1,217,722</u>		<u> </u>
HOOK LOAD	<u>128,000</u>	<u>daN</u>		JTS. D.P.: ON RACKS	<u>133</u>		<u> </u>
AVAILABLE WOB	<u>25,000</u>	<u>daN</u>		: IN STRING	<u>300</u>		<u> </u>
				: TOTAL	<u>433</u>		<u> </u>

TIME BREAKDOWN

DRILLING	CEMENT	CORING	RIG REPAIR	DRILL OP	TODAY	CUM.
TRIP	BOP DRILL	LOADING	LOST CL RC.	EVALUATION	<u>0.75</u>	<u>6046.5</u>
RIG SERVICE	HANDLE TOOLS	TESTING	REAM & WASH	PROBLEMS	<u>23.25</u>	<u>182.25</u>
SURVEY	WASH & REAM	CIRC. SAMPLE	WORK PIPE	TOTAL	<u>24</u>	<u>7248.5</u>
SLIP & CUT	CIRCULATE	HANDLE TOOLS	RIGUP PUMPER	WEATHER	<u>CLEAR</u>	
COND. MUD	PRESSURE TEST	TRIP	W/O. HOS	TEMPERATURE	<u>- 9 °C</u>	
NIPPLEUPDN	DRILL OUT	REAM RATHOLE	PICK UP HOS	ROADS	<u>GOOD</u>	
RUN CASINO		CIRCULATE	HANDLE TOOLS			

24 SUMMARY

Wait on hot oil string and mud motors - Haul in tools from air strip - Measure hot oil string
 Land 127mm drill string in lower pipe rams - Lay down top joint - Clean shaker and premix tank
 Mix up polymer mud system - Make up mud motor and bladed junk mill - Pick up hot oil string
 Run in to 1390m - Rig up Dowell to circulate - Diesel and ID-Free at surface
 1605.29m hot oil string on location

SIGNED BY: Art SchrinMOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-11-09 REPORT NO.: 301
 DEPTH: 3177 m PROGRESS: 0 m FORMATION: NAHANNT
 OPERATIONS AT 06:00 HOURS: WAIT ON HOT OIL STRING
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schrit
 DAILY COST: \$ 34,606 CUM. COST: \$ 20,550,392 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4300 kPa @: 49 SFM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 5 - 5 MAXIMUM CASINO HOLD BACK 17800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES		PUMPS	
BIT NUMBER	<u>62</u>		WEIGHT (kg/m ³)	<u>1185</u>	No. 1 LINER (mm)	<u>140</u>
SIZE (mm)	<u>216</u>		VISCOSITY (cP)	<u>52</u>	No. 1 STROKES PER MINUTE	
TYPE	<u>F-2</u>		pH	<u>9.5</u>	No. 2 LINER (mm)	<u>140</u>
SERIAL No.	<u>LJ7809</u>		PV (mPa S)	<u>14</u>	No. 2 STROKES PER MINUTE	
NOZZLES (mm)	<u>3x15.9</u>		YP (Pa)	<u>25</u>	VOLUME (m ³)	
DEPTH IN (m)	<u>3128</u>		GELS (Pa)	<u>7.5/8</u>	PRESSURE (kPa)	
METERS (m)	<u>49</u>		SAND (%)	<u>trace</u>	D.P. ANNULAR VEL. (m/min.)	
HOURS	<u>10.25</u>		SOLIDS (%)	<u>13</u>	D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)	<u>10/14</u>		FILTER CAKE (mm desc.)	<u>1</u>	D.C. ANNULAR VEL. (m/min.)	
R.P.M.	<u>70</u>		FLUID LOSS (cc)	<u>12</u>	SOLIDS CONTROL	
CONDITION	<u>IN</u>		CHLORIDES	<u>1200</u>	SHAKER SCREENS	<u>84 - 84</u>
DRILLING ASSEMBLY			Ca	<u>100</u>	DRYER SCREENS	

3pi REAMER				MUD ADDITIVES		D. SILT.		CENT.	
SHORT DC	<u>165</u>	<u>64</u>	<u>5 H90</u>		U.F. (kg/m ³)				
TBS	<u>160</u>	<u>64</u>	<u>5 H90</u>		OF. (kg/m ³)				
2 NMDC	<u>162</u>	<u>64</u>	<u>5 H90</u>		VOL. (l/min.)				
JARS	<u>170</u>	<u>64</u>	<u>5 H90</u>		HOURS				
3 DC	<u>160</u>	<u>60</u>	<u>4 1/2 IF</u>		SURVEYS				
27 HWDP	<u>127</u>	<u>76</u>	<u>4 1/2 IF</u>	DC S	CCS 1,217,722				
BHA	<u>305.68</u>	<u>m</u>		JTS. D.P.: ON RACKS	<u>133</u>				
HOOK LOAD	<u>128,000</u>	<u>daN</u>		: IN STRING	<u>300</u>				
AVAILABLE WOB	<u>25,000</u>	<u>daN</u>		: TOTAL	<u>433</u>				

TIME BREAKDOWN

DRILLING	CEMENT	CORING	RIG REPAIR	DRILL OP	TODAY	CUM.
TRIP	BOP DRILL	LOGGING	LOST CIRC.	EVALUATION	<u>0.75</u>	<u>6045.75</u>
RIG SERVICE	HANDLE TOOLS	TESTING	REAM & WASH	PROBLEMS		<u>182.25</u>
SURVEY	WASH & REAM	CIRC. SAMPLE	WORK PIPE	TOTAL	<u>23.25</u>	<u>996</u>
SLIP & CUT	CIRCULATE	HANDLE TOOLS	WIRE LINE	WEATHER	<u>24</u>	<u>7224.5</u>
CONDA MUD	PRESSURE TEST	TRIP	JAR PIPE	TEMPERATURE		<u>CLEAR</u>
NUFFLEUPON	DRILL OUT	REAM RATHOLE	W.O. TOOLS	ROADS		<u>- 9 °C</u>
RUN CASINO		CIRCULATE				<u>GOOD</u>

24 SUMMARY

Jar stuck pipe wait on wire line tools - Rig up new rope socket and driver - Run in wire line driver and chisel
 Unable to get past 2906m pull out wire line - Run in with pointed driver unable to get past 2906m
 Pull out driver no marks on same - Rig out wire line truck - Wait on hot oil string

SIGNED BY: Art SchritMOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>1997-11-08</u>	REPORT NO.:	<u>300</u>
DEPTH:	<u>3177</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>NAHANNI</u>
OPERATIONS AT 06:00 HOURS: <u>JAR STUCK PIPE - WAIT ON COMPUTALOG WIRE LINE TOOL</u>					
CONTRACTOR/RIG SUPT.:		<u>Precision Drilg Rig #426E Terry Gorgichuk</u>	CO. SUPERVISOR:		<u>Art Schmitt</u>
DAILY COST:	<u>\$ 31,678</u>	CUM. COST:	<u>\$ 20,515,786</u>	AFE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	4500	kPa @:	49	SPM
TRIP RECORDS:	CALCULATED HOLE FILL			m ³	ACTUAL HOLE FILL:			m ³
BOP DRILLS:	CONDUCTED WHILE			WELL SECURED IN			MIN.	
	CONDUCTED AT			HRS. CREW PERFORMANCE			SATISFACTORY	
DAYS SINCE BOP DRILL (EACH CREW):	4 - 4			MAXIMUM CASING HOLD BACK			17800	kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	62			WEIGHT (kg/m ³)	1185	No. 1 LINER (mm)	140	
SIZE (mm)	216			VISCOSITY (s/l)	52	No. 1 STROKES PER MINUTE	75	
TYPE	F-2			pH	9.5	No. 2 LINER (mm)	140	
SERIAL No.	LJ7809			PV (mPa S)	14	No. 2 STROKES PER MINUTE		
NOZZLES (mm)	3x15.9			YP (Pa)	25	VOLUME (m ³)	0.89	
DEPTH IN (m)	3128			GELS (Pa)	7.5/8	PRESSURE (kPa)	6000	
METERS (m)	49			SAND (%)	trace	D.P. ANNULAR VEL. (m/min)	37	
HOURS	10.25			SOLIDS (%)	13	D.C. ANNULAR VEL. (m/min.)	63	
WOB (1000 daN)	10/14			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)		
R.P.M.	70			FLUID LOSS (cc)	12	SOLIDS CONTROL		
CONDITION	IN			CHLORIDES	1200	SHAKER SCREENS	84 - 84	
DRILLING ASSEMBLY				Ca	100	DRYER SCREENS		
3pt REAMER	171	64	5 H90	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.
SHORT DC	165	64	5 H90			OF. (kg/m ³)		
IBS	160	64	5 H90			VOL. (l/min.)		
2 NMDC	162	64	5 H90			HOURS		
JAKS	170	64	5 H90			SURVEYS	ANGLE	DIRECTION
3 DC	160	60	4 1/2 IF				m	o
27 HWDP	127	76	4 1/2 IF	DC 5	CCS 1,217,722		m	o
BHA	305.68	m	JTS. D.P.: ON RACKS	133			m	o
HOOK LOAD	128,000	daN	: IN STRING	300			m	o
AVAILABLE WOB	25,000	daN	: TOTAL	433			m	o

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OF EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.			0.75	6045
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH				182.25
SURVEY		WASH & REAM		CHC. SAMPLE		WORK PIPE			23.25	972.75
SUMP CUT		CIRCULATE		HANDLE TOOLS		FREE - POINT	5.5		24	7200
COND. MUD		PRESSURE TEST		TRIP		JAR PIPE	17.7			
NIPPLE UP/DN		DRILL OUT		REAM RATHOLE						
RUN CASING				CIRCULATE						

24 SUMMARY

Jar stuck pipe unable to circulate - Jar stuck pipe wait on wire line personal and tools
Rig to and run free-point with Computalog - Free-point tool hanging up at 2900m - Pull out free-point tool
Rig to run sinker bars and driving tool - Damaged wire-line and rope socket while picking up the tools
Wait on wire line tools - Jar pipe

4 joints 52.64m 244.5mm L80 79.62 kg/m casing on location
53 joints 723.90m 244.5mm L80 69.96 kg/m casing on location

SIGNED BY: Art Schmitt

MOBILE NO: (403) 210-1202 (403) 424-8050

11/07/97 08:30 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-11-07 REPORT NO.: 299
 DEPTH 3177 m PROGRESS: 49 m FORMATION: NAHANNI
 OPERATIONS AT 06 00 HOURS. JAR STUCK PIPE
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO SUPERVISOR: Art Schmitt
 DAILY COST: \$ 31,314 CUM. COST: \$ 20,484,108 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4500 kPa @: 49 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 3 - 3 MAXIMUM CASING HOLD BACK 17800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES		PUMPS	
BIT NUMBER	62		WEIGHT (kg/m ³)	1185	No. 1 LINER (mm)	140
SIZE (mm)	216		VISCOSITY (s/l)	52	No. 1 STROKES PER MINUTE	75
TYPE	F-2		pH	9.5	No. 2 LINER (mm)	140
SERIAL No.	LJ7809		PV (mPa S)	14	No. 2 STROKES PER MINUTE	
NOZZLES (mm)	3x15.9		YP (Pa)	25	VOLUME (m ³)	0.89
DEPTH IN (m)	3128		GELS (Pa)	7.5/lb	PRESSURE (kPa)	6000
METERS (m)	49		SAND (%)	trace	D.P. ANNULAR VEL (m/min.)	37
HOURS	10.25		SOLIDS (%)	13	D.C. ANNULAR VEL (m/min.)	63
WOB (1000 daN)	10/14		FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL (m/min.)	
R.P.M	70		FLUID LOSS (cc)	12	SOLIDS CONTROL	
CONDITION	IN		CHLORIDES	1200	SHAKER SCREENS	84 - 84
DRILLING ASSEMBLY			Ca	100	DRYER SCREENS	

DRILLING ASSEMBLY				MUD ADDITIVES		D. SILT. CENT.	
3pt REAMER	171	64	5 H90				
SHORT DC	165	64	5 H90	4 - Caustic	4.5 - Diesel		
IBS	160	64	5 H90	3 - ID-Lube			
2 NMDC	162	64	5 H90	2 - ID Free			
JARS	170	64	5 H90	4 - Defoamer			
5 DC	160	60	4 1/2 IF	13 - Flo-Plex			
27 HWDP	127	76	4 1/2 IF	DC \$ 6196	CCS 1,217,722		
BHA	305.68	m		JTS. D.P.: ON RACKS	133		
HOOK LOAD	130,000	daN		IN STRING	300		
AVAILABLE WOB	25,000	daN		TOTAL	433		

TIME BREAKDOWN

DRILLING	10.25	CEMENT		CORING		RIG REPAIR		DRILL OP	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		EVALUATION	11.75	6044.25
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH		PROBLEMS		178.5
SURVEY		WASH & REAM	0.75	CIRC SAMPLE		WORK PIPE	12.2	TOTAL	12.25	949.5
SLIP & CUI		CIRCULATE		HANDLE TOOLS		WORK JUNK sub		WEATHER	24	7176.5
COND MUD		PRESSURE TEST		TRIP				TEMPERATURE		CLEAR
NIPTURE/DON		DRILL OUT		REAM RATHOLE				ROADS	- 4 °C	GOOD
RUN CASING				CIRCULATE						

24 SUMMARY

Wash and ream to bottom - Drill 216mm hole 3128m - 3177m - work pipe every 9m
 Stuck on bottom - Circulate and jar - Mix ID Free and Diesel 5.4m³ - Spot pill 3177m - 3140m - Pump 10 strokes every 1/2 Hr.
 Jar pipe no movement - Max pull 230,000 daN

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

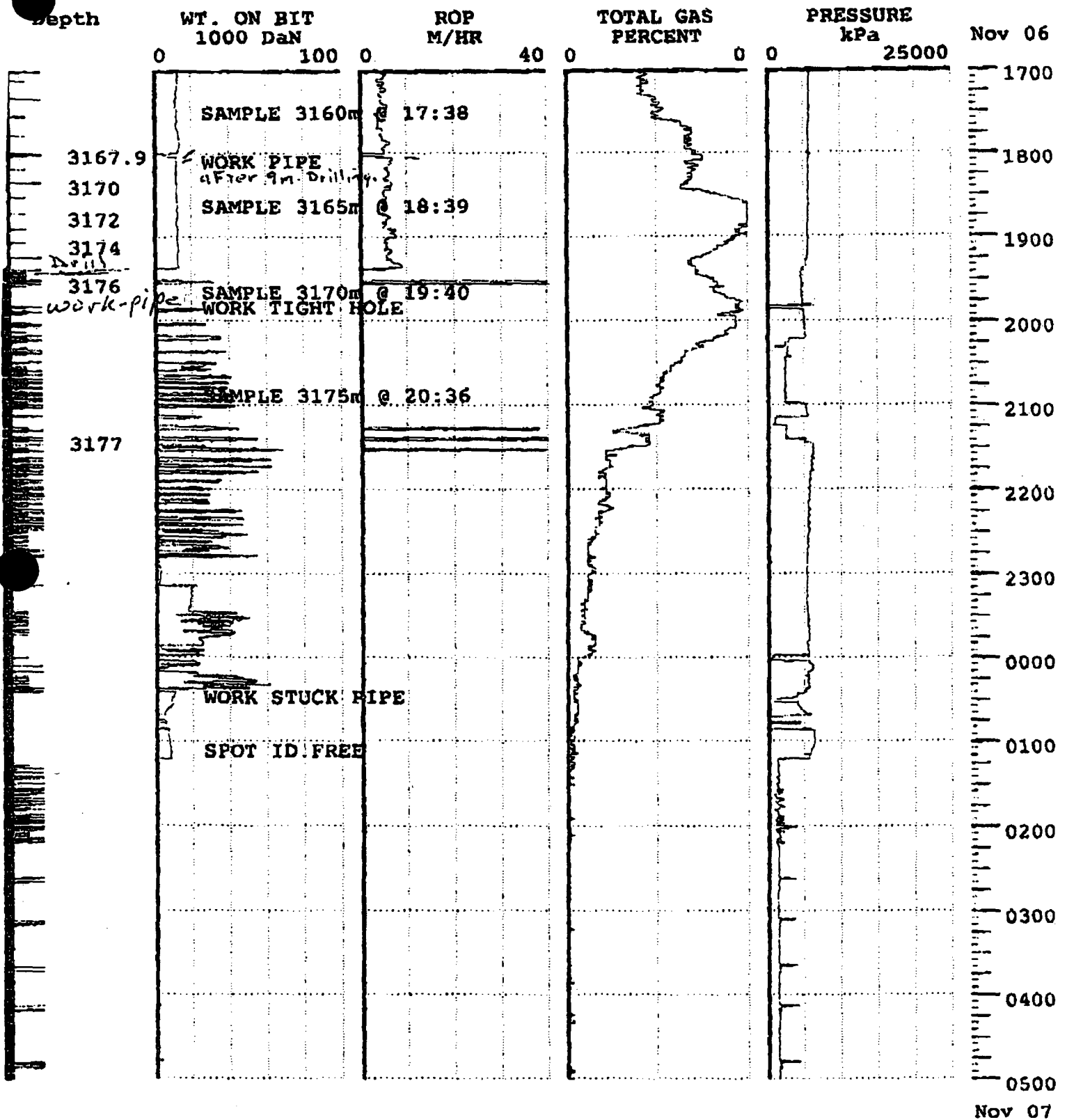
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P.02

PRECISION 426E / RANGER OIL LTD / FT. LIARD / P-66-A



09:30 Nov-07

Pason PENLESS Drilling Recorder V2.45D

PAGE: 1

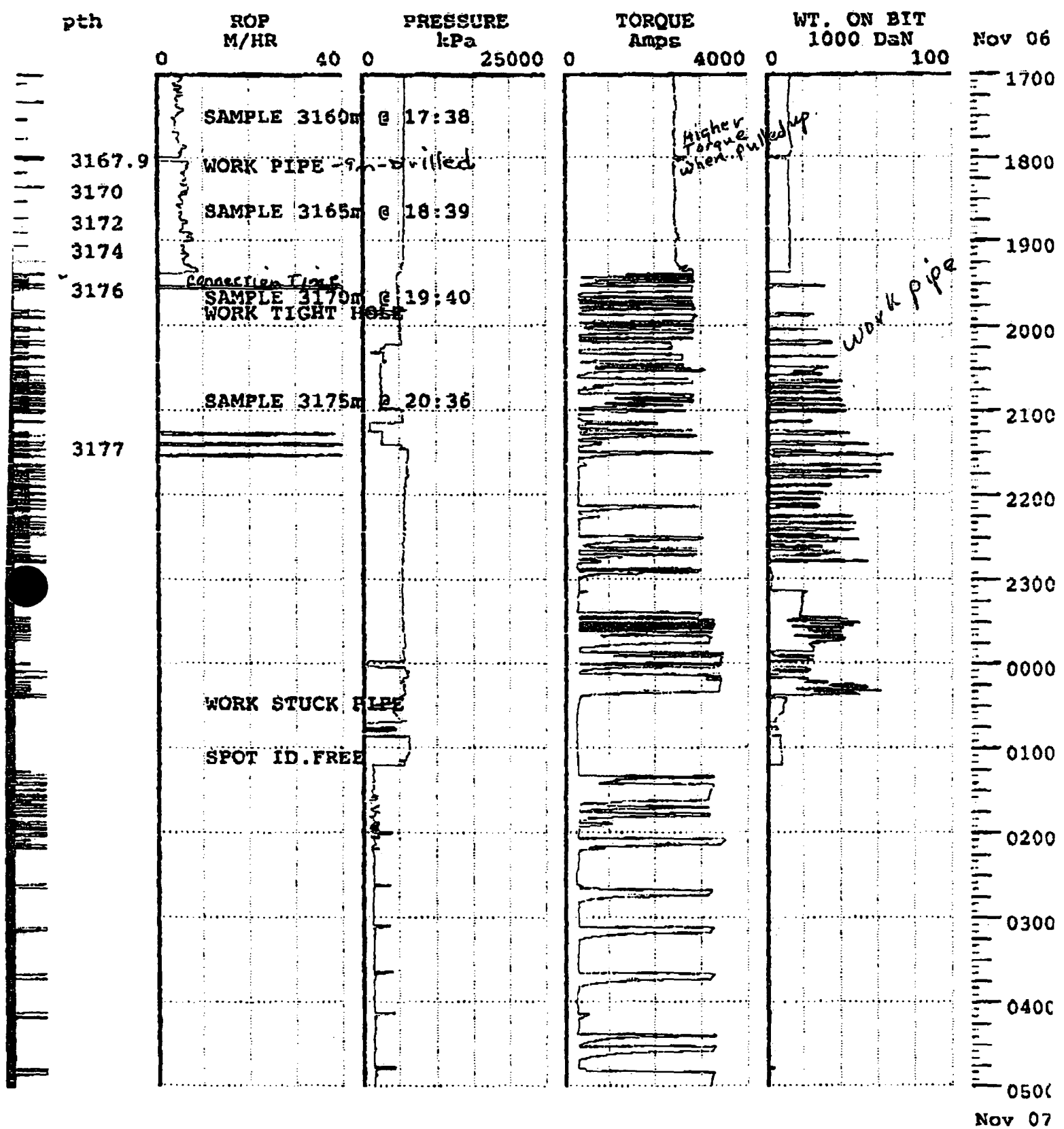
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P.05

PRECISION 426E / RANGER OIL LTD / FT. LIARD / P-66-A



RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-11-06 REPORT NO.: 298
 DEPTH 3128 m PROGRESS: 0 m FORMATION: Nahanni
 OPERATIONS AT 06:00 HOURS: TRIP IN WITH BIT # 62
 CONTRACTOR/RIG SUPT.: Precision Drilg Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 40,314 CUM. COST: \$ 20,452,794 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 2 - 2 MAXIMUM CASING HOLD BACK 16800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	61	62		WEIGHT (kg/m ³)	1190	No. 1 LINER (mm)	140	
SIZE (mm)	216	216		VISCOSITY (s/l)	54	No. 1 STROKES PER MINUTE	75	
TYPE	S44GF	F-2		pH	10	No. 2 LINER (mm)	140	
SERIAL No.	663637	1 J 7809		PV (mPa S)	15	No. 2 STROKES PER MINUTE		
NOZZLES (mm)	3 x 17.5	3 x 15.9		YP (Pa)	27.5	VOLUME (m ³)	0.89	
DEPTH IN (m)	3115	3128		GELS (Pa)	11/14	PRESSURE (kPa)	4200	
METERS (m)	13			SAND (%)	trace	D.P. ANNULAR VEL. (m/min.)	37	
HOURS	5.25			SOLIDS (%)	11	D.C. ANNULAR VEL. (m/min.)	63	
WOB (1000 daN)	10/15			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)		
R.P.M.	60			FLUID LOSS (cc)	5.2	<u>SOLIDS CONTROL</u>		
CONDITION	3-1-I			CHLORIDES	1500	SHAKER SCREENS	84 - 84	
<u>DRILLING ASSEMBLY</u>				Ca	200	DRYER SCREENS		
3 pt REAMER	161	64	4 1/2 H90	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)	D SILT.	CENT.
SHORT DC	160	64	4 1/2 H90	50 - Barite		OF. (kg/m ³)		
IBS	161	64	4 1/2 H90			VOL. (l/min.)		
2 NMDC	160	64	4 1/2 H90			HOURS		
JARS	160	64	4 1/2 H90			<u>SURVEYS</u>	<u>ANGLE</u>	<u>DIRECTION</u>
3 DCs	160	60	4 1/2 IF			3122	m 43.0	° 220
27 HWDP	127	76	4 1/2 IF	DC \$ 488 CC\$ 1,211,526			m	°
BHA	305.68	m	JTS. D.P.: ON RACKS	139			m	°
HOOK LOAD	127,000	daN	: IN STRING	294			m	°
AVAILABLE WOB	25,000	daN	: TOTAL	433			m	°

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR	2.25	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	17.75	BOP DRILL		LOGGING		LOST CIRC.			20.5	6032.5
RIG SERVICE	0.75	HANDLE TOOLS	1.5	TESTING		REAM & WASH				182.25
SURVEY		WASH & REAM	0.5	CIRC. SAMPLE		WORK PIPE			3.5	937.25
SLIP & CUT		CIRCULATE		HANDLE TOOLS		ANCHOR TAPPS	1.25		24	7152.5
COND MUD		PRESSURE TEST		TRIP				WEATHER	CLEAR	
NIPPLEUP/DN		DRILL OUT		REAM RATHOLE				TEMPERATURE	+ 5 °C	
RUN CASING				CIRCULATE				ROADS	GOOD	

24 SUMMARY

Repair drawworks - Trip out - Tie down prefabs (very windy) - Trip out lay down DP with worn tool joints and
 168mm DC - Pick up BHA and DP - Strap in - Ream 3111m to 3128m

Hole drag up - 20,000 daN

Hole drag down - 8-10,000 daN

Torque on bottom -

Back ground gas -

Trip gas -

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-11-05 REPORT NO. 297
 DEPTH: 3128 m PROGRESS: 13 m FORMATION: MUSKWA
 OPERATIONS AT 06:00 HOURS: TRIP OUT TO CHANGE BHA
 CONTRACTOR/RIG SUPT.: Precision Drilg Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schriit
 DAILY COST: \$ 35,799 CUM. COST: \$ 20,412,480 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4200 kPa @: 50 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE DRILLING WELL SECURED IN 1.5 1.5 MIN.
 CONDUCTED AT 15:00 21:00 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 1 MAXIMUM CASING HOLD BACK 16,800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	61			WEIGHT (kg/m ³)	1190	No. 1 LINER (mm)	140
SIZE (mm)	216			VISCOSITY (s/l)	54	No. 1 STROKES PER MINUTE	70
TYPE	S44GF			pH	9.5	No. 2 LINER (mm)	140
SERIAL No.	663637			PV (mPa S)	15	No. 2 STROKES PER MINUTE	
NOZZLES (mm)	3 x 17.5			YP (Pa)	27.5	VOLUME (m ³)	0.85
DEPTH IN (m)	3115			GELS (Pa)	11/14	PRESSURE (kPa)	6100
METERS (m)	13			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	35
HOURS	5.25			SOLIDS (%)	11	D.C. ANNULAR VEL. (m/min.)	59
WOB (1000 daN)	10/15			FILTER CAKE (mm desc.)	10	D.C. ANNULAR VEL. (m/min.)	
R.P.M.	45/60			FLUID LOSS (cc)	5.2	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	1500	SHAKER SCREENS	110 - 84
DRILLING ASSEMBLY				Ca	200	DRYER SCREENS	
BIT SUB	171	73	5 H90	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.
NMDC	165	64	5 H90	3 - Caustic		OF. (kg/m ³)	
3 DC	168	73	5 H90	10 - Kelzan		VOL. (l/min.)	
JARS	170	64	5 H90	738 - Barite		HOURS	
1 DC	168	73	5 H90	2 - Defoamer		SURVEYS	ANGLE DIRECTION
XO SUB	170	73	4 1/2 IF	1 - ID-Lube		m	°
27 HWDP	127	76	4 1/2 IF	DC \$ 13,137 CC\$ 1,211,038		m	°
BHA	302.26	m		JTS. D.P.: ON RACKS		m	°
HOOK LOAD	128,000	daN		: IN STRING		m	°
AVAILABLE WOB	25,000	daN		: TOTAL		m	°

TIME BREAKDOWN

DRILLING	5.25	CEMENT		CORING		RIG REPAIR	9.75	DRILL OP	TODAY	CUM.
TRIP	3.0	BOP DRILL	0.5	LOGGING		LOST CIRC.		EVALUATION	10.5	6012
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH		PROBLEMS	3.75	182.25
SURVEY	0.5	WASH & REAM		CIRC. SAMPLE	3.75	WORK PIPE		TOTAL	9.75	933.75
SLIP & CUT		CIRCULATE		HANDLE TOOLS		WORK JUNK sub		WEATHER	24	7128.5
COND. MUD		PRESSURE TEST		TRIP				TEMPERATURE	CLOUD	
NIPPLEUP/DN		DRILL OUT	0.5	REAM RATHOLE				ROADS	- 2 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Mix and condition mud - Repair #2 mud pump - Drill out shoe - Drill 216 mm hole 3115m - 3120m	
Circulate sample - Drill 216 mm hole 3120m - 3125m - Circulate sample - Drill 216 mm hole 3125m - 3128m	
Circulate and survey - Pump pill - Trip out to pick up stabilization - Repair drawworks low chain	
Hole drag up - 20,000 dan	Fuel used daily
Hole drag down - 10,000 dan	Vacuum truck - 45 Liters
On bottom torque - 2100-2300 P.S.I. at 60 RPM	Water truck - 25 Liters
Back ground gas - 56 units	Ranger pickup - 5 Liters
	Crew truck - 10 Liters

SIGNED BY: Art SchriitMOBILE NO: (403)210-1202 (403) 424-8050

11/04/87 07:49 FAX

RANGER OIL LIMITED

WELL	Ranger Fort Liard P-66-A	DATE	1997-11-04	REPORT NO.:	296
DEPTH:	3115	m	PROGRESS:	0	m
OPERATIONS AT 06:00 HOURS:		CIRCULATE MIX MUD - REPAIR MUD PUMP			
CONTRACTOR/RIG SUPT.:	Precision Drilg Rig #426E Tarry Gorgichuk	CO. SUPERVISOR:	Art Schmitt		
DAILY COST:	\$ 31199	CUM. COST:	\$ 20,376,681	AFE NO:	E6D - 015

WELL CONTROL

DAILY RIG CHECK.	YES	DAILY BOP CHECK.	YES	R.S.S.P.:	kPa @	SPM
TRIP RECORDS: CALCULATED HOLE FILL				m ³ ACTUAL HOLE FILL:		m ³
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN		MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE	SATISFACTORY	
DAYS SINCE BOP DRILL (EACH CREW):	4 - 4			MAXIMUM CASING HOLD BACK	17800	kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	61			WEIGHT (kg/m ³)	1175	No. 1 LINER (mm)	140
SIZE (mm)	216			VISCOSITY (s/l)	51	No. 1 STROKES PER MINUTE	80
TYPE	S44GF			pH	10.5	No. 2 LINER (mm)	140
SERIAL No.	663637			PV (mPa S)	10	No. 2 STROKES PER MINUTE	
NOZZLES (mm)	3 x 17.5			YP (Pa)	22.5	VOLUME (m ³)	0.93
DEPTH IN (m)	3115			GELS (Pa)	8/9	PRESSURE (kPa)	4200
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	39
HOURS				SOLIDS (%)	6	D.C. ANNULAR VEL. (m/min.)	66
WOB (1000 daN)	5			FILTER CAKE (mm desc.)	1.5	D.C. ANNULAR VEL. (m/min.)	
R.P.M.	70			FLUID LOSS (cc)	8.0	SOLIDS CONTROL	
CONDITION	NEW			CHLORIDES	500	SHAKER SCREENS	210 - 175
DRILLING ASSEMBLY				Ca	100	DRYER SCREENS	
				MUD ADDITIVES		U.F. (kg/m ³)	D. SILT
BIT SUB	171	73	5 H90	2 - Caustic	80 - Walnut	OF. (kg/m ³)	CENT.
NMDC	165	64	5 H90	9 - Kelzan	4 - ID-Lube	VOL. (l/min.)	
3 DC	168	73	5 H90	1512 - Calcium Carb.		HOURS	
JARS	170	64	5 H90	13 - Flo-Flex		SURVEYS	ANGLE
1 DC	168	73	5 H90	9 - Xcide 207			DIRECTION
XO SUB	170	73	4 1/2 IF	DC \$ 17732	CC\$ 1,197,901		
27 HWDP	127	76	4 1/2 IF				
BHA	302.26	m	JTS. D.P.: ON RACKS	139			
HOOK LOAD	130,000	daN	: IN STRING	294			
AVAILABLE WOB	25,000	daN	: TOTAL	433			

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	TUM
TRIP		ROP DRILL		LOGGING		LOST CT RC.			24	6001.5
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH				178.5
SURVEY		WASH & REAM		CIRC. SAMPLE		WORK PIPE				924
SLIP & CUT		CIRCULATE		HANDLE TOOLS		WORK JUNK sub			24	7104.5
COND. MUD	23.25	PRESSURE TEST		TRIP					CLEAR	
NIPPLE UP/DN		DRILL OUT		REAM RATHOLE					- 2 °C	
RUN CASING				CIRCULATE				GOOD		

24 SUMMARY

Mix and condition mud - Wait on #2 pump repairs

Off bottom torque at 50 RPM decreased to 2100 P.S.I. from 2400 P.S.I. after 4 drums of ID-Lube was added

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-11-03 REPORT NO: 295
 DEPTH: 3115 m PROGRESS: 0 m FORMATION: MUSKWA
 OPERATIONS AT 06:00 HOURS: CIRCULATE MIX MUD - REPAIR MUD PUMP
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schrit
 DAILY COST: \$ 31199 CUM. COST: \$ 20,345,482 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 3 - 3 MAXIMUM CASING HOLD BACK 25500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	61			WEIGHT (kg/m ³)	1025	No. 1 LINER (mm)	140
SIZE (mm)	216			VISCOSITY (s/l)	48	No. 1 STROKES PER MINUTE	100
TYPE	S44GF			pH	10.4	No. 2 LINER (mm)	140
SERIAL No.	663637			PV (mPa S)	8	No. 2 STROKES PER MINUTE	
NOZZLES (mm)	3 x 17.5			YP (Pa)	16	VOLUME (m ³)	1.17
DEPTH IN (m)	3115			GELS (Pa)	6/8	PRESSURE (kPa)	4200
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	48
HOURS				SOLIDS (%)	3	D.C. ANNULAR VEL. (m/min.)	78
WOB (1000 daN)	5			FILTER CAKE (mm desc.)	1.5	D.C. ANNULAR VEL. (m/min.)	
R.P.M.	70			FLUID LOSS (cc)	10.8	SOLIDS CONTROL	
CONDITION	NEW			CHLORIDES	500	SHAKER SCREENS	210 - 175
DRILLING ASSEMBLY				Ca	100	DRYER SCREENS	
BIT SUB	171	73	5 H90	MUD ADDITIVES		U.F. (kg/m ³)	
NMDC	165	64	5 H90	2 - Caustic		OF. (kg/m ³)	
3 DC	168	73	5 H90	31 - Kelzan		VOL. (l/min.)	
JARS	170	64	5 H90	220 - Calcium Carb.		HOURS	
1 DC	168	73	5 H90			SURVEYS	
XO SUB	170	73	4 1/2 IF			ANGLE	DIRECTION
27 HWDP	127	76	4 1/2 IF	DC \$ 14426 CC\$ 1 180 169		m	o

BHA	302.26	m	JTS. D.P.: ON RACKS	139	m	a
HOOK LOAD	133,000	daN	: IN STRING	294	m	o
AVAILABLE WOB	25,000	daN	: TOTAL	433	m	o

TIME BREAKDOWN

DRILLING	CEMENT	CURING	RIG REPAIR	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	BOP DRILL	LOGGING	LOST CIRC.		24	5977.5
RIG SERVICE	HANDLE TOOLS	TESTING	REAM & WASH			178.5
SURVEY	WASH & REAM	CIRC. SAMPLE	WORK PIPE			924
SLIP & CUT	CIRCULATE	HANDLE TOOLS	WORK JUNK sub		24	7080.5
COND. MUD	PRESSURE TEST	TRIP				
NIPPLE/WDN	DRILL OUT	REAM RATHOLE				
RUN CASING		CIRCULATE				

24 SUMMARY

Mix and condition mud - Wait on #2 pump repairs

SIGNED BY: Art Schrit

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-11-02 REPORT NO: 294
 DEPTH: 3115 m PROGRESS: 0 m FORMATION: MUSKWA
 OPERATIONS AT 06:00 HOURS: CIRCULATE MIX MUD - REPAIR MUD PUMP
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgiechuk CO. SUPERVISOR: Art Schritt
 DAILY COST: \$ 47633 CUM. COST: \$ 20,314,283 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 2 - 2 MAXIMUM CASING HOLD BACK 25500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	61			WEIGHT (kg/m ³)	1010	No. 1 LINER (mm)	140
SIZE (mm)	216			VISCOSITY (s/l)	32	No. 1 STROKES PER MINUTE	100
TYPE	S44GF			pH	10.7	No. 2 LINER (mm)	140
SERIAL No.	663637			PV (mPa S)	10	No. 2 STROKES PER MINUTE	
NOZZLES (mm)	3 x 17.5			YP (Pa)	5	VOLUME (m ³)	1.17
DEPTH IN (m)	3115			GELS (Pa)	1/3	PRESSURE (kPa)	3150
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	48
HOURS				SOLIDS (%)	1	D.C. ANNULAR VEL. (m/min.)	78
WOB (1000 daN)	5			FILTER CAKE (mm desc.)	1.5	D.C. ANNULAR VEL. (m/min.)	
R.P.M.	70			FLUID LOSS (cc)	13	<u>SOLIDS CONTROL</u>	
CONDITION	NEW			CHLORIDES	500	SHAKER SCREENS	210 - 175
<u>DRILLING ASSEMBLY</u>				Ca	160	DRYER SCREENS	
BIT SUB	171	73	5 H90	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)	
NMDC	165	64	5 H90	25 - Flo-Plex		OF. (kg/m ³)	
3 DC	168	73	5 H90	15 - Kelzan		VOL. (l/min.)	
IARS	170	64	5 H90			HOURS	
1 DC	168	73	5 H90			<u>SURVEYS</u>	<u>ANGLE</u> <u>DIRECTION</u>
XO SUB	170	73	4 1/2 IF			m	°
27 HWDP	127	76	4 1/2 IF	DC \$ 8820	CCS 1,165,743	m	°
BHA	302.26	m	JTS. D.P.: ON RACKS	139		m	°
HOOK LOAD	133,000	daN	IN STRING	294		m	°
AVAILABLE WOB	25,000	daN	TOTAL	433		m	°

TIME BREAKDOWN

DRILLING	CEMENT	CORING	RIG REPAIR	DRILL OP	TODAY	CUM.
TRIP	BOP DRILL	LOGGING	LOST CIRC.	EVALUATION	24	5953.5
RIG SERVICE: 0.75	HANDLE TOOLS	TESTING	REAM & WASH	PROBLEMS		178.5
SURVEY	WASH & REAM	CIRC. SAMPLE	WORK PIPE	TOTAL	24	7056.5
SLIP & CUT	CIRCULATE	HANDLE TOOLS	WORK JUNK sub	WEATHER	CLEAR	
COND. MUD	23.25	PRESSURE TEST	TRIP	TEMPERATURE	-5 °C	
NIPPLE UP/DN	DRILL OUT	REAM RATHOLE		ROADS	GOOD	
RUN CASING		CIRCULATE				

24 SUMMARY

Mix and condition mud - Wait on #2 pump repairs

SIGNED BY: Art Schritt

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-11-01 REPORT NO.: 293
DEPTH: 3115 m PROGRESS: 0 m FORMATION: MUSKWA
OPERATIONS AT 06:00 HOURS: CIRCULATE MIX MUD - REPAIR MUD PUMP
CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
DAILY COST: \$ 37,637 CUM. COST: \$ 20,266,650 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @ SPM
TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
BOP DRILLS: CONDUCTED WHILE CIRCULATING WELL SECURED IN 1.5 1.5 MIN.
CONDUCTED AT 22:00 07:00 HRS. CREW PERFORMANCE SATISFACTORY
DAYS SINCE BOP DRILL (EACH CREW): 1 - 1 MAXIMUM CASING HOLD BACK 25500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS																			
BIT NUMBER	61			WEIGHT (kg/m ³)	1000	No. 1 LINER (mm)	140																		
SIZE (mm)	216			VISCOSITY (s/l)	28	No. 1 STROKES PER MINUTE	100																		
TYPE	S44GF			EXCESS LIME		No. 2 LINER (mm)	140																		
SERIAL No.	663637			PV (mPa S)		No. 2 STROKES PER MINUTE																			
NOZZLES (mm)	3 x 17.5			YP (Pa)		VOLUME (m ³)	1.17																		
DEPTH IN (m)	3115			GELS (Pa)		PRESSURE (kPa)	3150																		
METERS (m)				SAND (%)		D.P. ANNULAR VEL. (m/min.)	48																		
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	78																		
WOB (1000 daN)	5			FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)																			
R.P.M.	70			FLUID LOSS (cc)		SOLIDS CONTROL																			
CONDITION	NEW			CHLORIDES		SHAKER SCREENS	210 - 175																		
DRILLING ASSEMBLY				OIL WATER		DRYER SCREENS																			
				ELECTRICAL STAB.		<table><tr><th>D. SILT.</th><th>CENT.</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>		D. SILT.	CENT.																
D. SILT.	CENT.																								
BIT SUB	171	73	5 H90	MUD ADDITIVES		U.F. (kg/m ³)																			
NMDC	165	64	5 H90			OF. (kg/m ³)																			
3 DC	168	73	5 H90			VOL. (l/min.)																			
JARS	170	64	5 H90			HOURS																			
7 DC	168	73	5 H90			<table><tr><th>SURVEYS</th><th>ANGLE</th><th>DIRECTION</th></tr><tr><td></td><td>m</td><td>o</td></tr><tr><td></td><td>m</td><td>o</td></tr><tr><td></td><td>m</td><td>o</td></tr><tr><td></td><td>m</td><td>o</td></tr><tr><td></td><td>m</td><td>o</td></tr></table>		SURVEYS	ANGLE	DIRECTION		m	o		m	o		m	o		m	o		m	o
SURVEYS	ANGLE	DIRECTION																							
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XO SUB	170	73	4 1/2 IF																						
27 HWDP	127	76	4 1/2 IF	DC S	CCS 1,156,923																				
BHA	302.26	m		JTS. D.P.: ON RACKS	142																				
HOOK LOAD	133,000	daN		: IN STRING	291																				
AVAILABLE WOB	25,000	daN		: TOTAL	433																				

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR	0.5	DRILL OP EVALUATION		TODAY	CUM.
TRIP	11.0	BOP DRILL	0.5	LOGGING		LOST CIRC.				23.5	5929.5
RIG SERVICE	0.75	HANDLE TOOLS	2.5	TESTING		REAM & WASH					178.5
SURVEY		WASH & REAM		CIRC. SAMPLE		WORK PIPE				0.5	924
SLIP & CUT		CIRCULATE	2.5	HANDLE TOOLS		WORK JUNK sub		TOTAL		24	7032.5
COND. MUD		PRESSURE TEST	1.0	TRIP				WEATHER		CLOUD	
NEEDLEUP/DN		DRILL OUT	5.25	REAM RATHOLE				TEMPERATURE		- 4 °C	
RUN CASING				CIRCULATE				ROADS		GOOD	

24 SUMMARY

Strap in to 1280m - Drill out cement, plug and stage cementer - Stage cementer at 1300.4m - Circulate bottoms up
Pressure test casing to 27,000 kpa - Strap in tag cement at 3070m - Float collar at 3101m - Drill out float and cement
Change swivel packing - Circulate mix mud and chemicals - Repair #2 pump

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Llard P-66-A DATE 1997-10-31 REPORT NO.: 292
 DEPTH: 3115 m PROGRESS: 0 in FORMATION: MUSKWA
 OPERATIONS AT 06.00 HOURS: STRAP IN WITH BIT# 61 - REPAIR MUD PUMP
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 31585 CUM. COST: \$ 20,229,013 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: _____ R.S.S.P.: _____ kPa @: _____ SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m' ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE: _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 9 - 4 MAXIMUM CASING HOLD BACK _____ kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	61			WEIGHT (kg/m ³)		No. 1 LINER (mm)	140	
SIZE (mm)	216			VISCOSITY (s/l)		No. 1 STROKES PER MINUTE		
TYPE	S44GF			EXCESS LIME		No. 2 LINER (mm)	140	
SERIAL No.	663637			PV (mPa S)		No. 2 STROKES PER MINUTE		
NOZZLES (mm)	3 x 17.5			YP (Pa)		VOLUME (m ³)		
DEPTH IN (m)	3115			GELS (Pa)		PRESSURE (kPa)		
METERS (m)				SAND (%)		CSG-ANNULAR VEL. (m/min.)		
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)		
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)		
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL		
CONDITION	NEW			CHLORIDES		SHAKER SCREENS	210	
DRILLING ASSEMBLY				OIL WATER		DRYER SCREENS		
				ELECTRICAL. STAB.				
				MUD ADDITIVES				
BIT SUB	171	73	5 H90			U.F. (kg/m ³)	D. SILT.	CENT.
NMDC	165	64	5 H90			OF. (kg/m ³)		
3 DC	168	73	5 H90			VOL. (l/min.)		
JARS	170	64	5 H90			HOURS		
1 DC	168	73	5 H90			SURVEYS	ANGLE	DIRECTION
XO SUB	170	73	4 1/2 IF				m	o
27 HWDP	127	76	4 1/2 IF	DC S	CCS 1,156,923		m	o
BHA	297.16		m	JTS. D.P.: ON RACKS	142		m	o
HOOK LOAD			daN	: IN STRING	291		m	o
AVAILABLE WOB	25,000		daN	: TOTAL	433		m	o

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR	<u>14</u>		TODAY	CUM.
TRIP	<u>0.75</u>	BOP DRILL		LOGGING		LOST CIRC		DRILL OP	<u>10</u>	<u>5906</u>
RIG SERVICE	<u>0.75</u>	HANDLE TOOLS		TESTING		REAM & WASH		EVALUATION		<u>178.5</u>
SURVEY		WASH & REAM		CTRC SAMPLE		WORK PIPE		PROBLEMS	<u>14</u>	<u>923.5</u>
SLIP & CUT		CIRCULATE		HANDLE TOOLS		WORK JUNK sub		TOTAL	<u>24</u>	<u>7008.5</u>
COND. MUD		PRESSURE TEST		TRIP				WEATHER	CLOUD	
NIPPLE UP/DN		CLEAN TANKS	<u>8.5</u>	REAM KATHOLE				TEMPERATURE	<u>- 6 °C</u>	
RUN CASING				CIRCULATE				ROADS	GOOD	

24 SUMMARY

Clean mud tanks - Make up BHA - Repair #2 mud pump

SIGNED BY: Art SchmittMOBILE NO: (403)210-1202 (403) 424-8050

OCT-31-1997 08:44

403 232 5200

79%

P.02

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-10-29 REPORT NO: 290
 DEPTH: 3115 m PROGRESS: 0 m FORMATION: MUSKWA
 OPERATIONS AT 06:00 HOURS: REPAIR MUD PUMP AND MUD LINE MANIFOLD
 CONTRACTOR/RIG SUPT.: Precision Drilg Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 36,007 CUM. COST: \$ 20,166,081 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: _____ R.S.S.P.: _____ kPa @: _____ SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS. CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 7 - 7 MAXIMUM CASING HOLD BACK _____ kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS											
BIT NUMBER				WEIGHT (kg/m ³)		No. 1 LINER (mm)	140										
SIZE (mm)				VISCOSITY (s/l)		No. 1 STROKES PER MINUTE											
TYPE				EXCESS LIME		No. 2 LINER (mm)	140										
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE											
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)											
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)											
METERS (m)				SAND (%)		CSG-ANNULAR VEL. (m/min.)											
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)											
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)											
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL											
CONDITION				CHLORIDES		SHAKER SCREENS											
DRILLING ASSEMBLY				OIL WATER		DRYER SCREENS											
				ELECTRICAL STAB.		<table><tr><td>D. SILT.</td><td>CENT.</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>		D. SILT.	CENT.								
D. SILT.	CENT.																
				MUD ADDITIVES		U.F. (kg/m ³)											
						OF. (kg/m ³)											
						VOL. (l/min.)											
						HOURS											
						SURVEYS	<table><tr><td>ANGLE</td><td>DIRECTION</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	ANGLE	DIRECTION								
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TIME BREAKDOWN

DRILLING	CEMENT	CORING	RIG REPAIR	4.25	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	BOP DRILL	LOGGING	LOST CIRC.			19.75	5872
RIG SERVICE	HANDLE TOOLS	TESTING	REAM & WASH				178.5
SURVEY	WASH & REAM	CIRC SAMPLE	WORK PIPE			4.25	909.5
SLIP & CUT	CIRCULATE	HANDLE TOOLS	WORK JUNK sub			24	6960.5
COND. MUD	PRESSURE TEST	TRIP				SNOW	
NIPPLE UP/DN		REAM RATHOLE				- 9 °C	
RUN CASING		CIRCULATE				GOOD	

24 SUMMARY

Rig up BOP - Change top pipe rams to 127mm - Pressure test upper and lower pipe rams - blind rams - HCRs and manual BOP valves - manifold valves and lines - stabbing valve - kelly valves to 1400 kpa low and 34000 kpa high for 10 minutes each - Pressure test annular BOP to 1400 kpa and 10500 kpa - Mud line manifold valves failed test - repair valves Centrifuge invert mud - Strip down #2 mud pump for repair - Weld on suction tank and mixing system

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>1997-10-28</u>	REPORT NO.	<u>289</u>
DEPTH:	<u>3115</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>MUSKWA</u>
OPERATIONS AT 06:00 HOURS. <u>NIPPLE UP BOP</u>					
CONTRACTOR/RIG SUPT.:	<u>Precision Drig Rig #426E Terry Gorgichuk</u>		CO. SUPERVISOR: <u>Art Schritt</u>		
DAILY COST:	<u>\$ 30,967</u>	CUM. COST:	<u>\$ 20,130074</u>	AFE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:		R.S.S.P.:		kPa @:		SPM
TRIP RECORDS: CALCULATED HOLE FILL				m ³ ACTUAL HOLE FILL:				m ³
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN				MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE				
DAYS SINCE BOP DRILL (EACH CREW):	6 - 6			MAXIMUM CASING HOLD BACK				kPa

DRILLING PARAMETERS

[illegible]

TIME BREAKDOWN

DRILLING		CEMENT		CURING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		ROP DRILL		LOGGING		LOST CIRC.			24	\$852.25
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH				178.5
SURVEY		WASH & REAM		CIRC SAMPLE		WORK PIPE				905.25
SLIP & CUT		CIRCULATE		HANDLE TOOLS		WORK JUNK sub			24	6936.5
COND. MUD		SET CSG. SLIPS	1.5	TRIP						
NIPPLEUPDN	21.75			REAM RATHOLE					- 7 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Rig down BOP - Set casing slips - Weight set in casing slips 120,000 dan - Cut casing - Install primary seal assembly and 346mm x 35 mpa x 279mm x 35 mpa hanger - Rig up BOP - Centrifuge mud and clean suction tank

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

10/27/97 07:38 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-10-27 REPORT NO.: 288
 DEPTH: 3115 m PROGRESS: 0 m FORMATION: MUSKWA
 OPERATIONS AT 06:00 HOURS: WOC
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gongichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 111,704 CUM. COST: \$ 20,099,107 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: _____ R.S.S.P.: _____ kPa @ _____ SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 5 - 5 MAXIMUM CASING HOLD BACK _____ kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER				WEIGHT (kg/m ³)		No. 1 LINER (mm)	140
SIZE (mm)				VISCOSITY (s/l)		No. 1 STROKES PER MINUTE	102
TYPE				EXCESS LIME		No. 2 LINER (mm)	140
SERIAL No.				PV (mPa S)		No. 2 STROKES PER MINUTE	
NOZZLES (mm)				YP (Pa)		VOLUME (m ³)	1.19
DEPTH IN (m)				GELS (Pa)		PRESSURE (kPa)	3100
METERS (m)				SAND (%)		CSG-ANNULAR VEL. (m/min.)	41
HOURS				SOLIDS (%)		D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)				FILTER CAKE (mm desc.)		D.C. ANNULAR VEL. (m/min.)	
R.P.M.				FLUID LOSS (cc)		SOLIDS CONTROL	
CONDITION				CHLORIDES		SHAKER SCREENS	84 - 84
DRILLING ASSEMBLY				OIL WATER		DRYER SCREENS	110
				ELECTRICAL STAB.		U.F. (kg/m ³)	D. SILT. CENT.
				MUD ADDITIVES		OF. (kg/m ³)	
				3 - Floor dry		VOL. (l/min.)	
						HOURS	
						SURVEYS	ANGLE DIRECTION
						m	o
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TIME BREAKDOWN

DRILLING		CEMENT	4.0	CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.			24	5828.25
RIO SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH				178.5
SURVEY		WASH & REAM		CIRC. SAMPLE		WORK PIPE				905.25
SLIP & CUT		CIRCULATE	4.5	HANDLE TOOLS		WORK JUNK sub		TOTAL WEATHER TEMPERATURE ROADS	24	6912.5
COND MUD		RAMS & TEST		TRIP						
NOBLEUP/DN	14.75			REAM RATHOLE						
RUN CASING				CIRCULATE						

24 SUMMARY

Circulate through stage cementer - Load plug in head - Safety meeting - Pump 3m3 Diesel - 3m3 CW8 preflush
 Cement with 68 tonnes G + .3% B71 + .5% D65 displace with Weatherford plug and 49.97m3 water - Bump plug with
 19000 kpa closed stage cementer - Plug down at 16:00 Hrs. - Rig out Dowell - Rig down BOP to set slips
 Centrifuge mud - 160m3 in mud tanks 204m3 in tank farm

SIGNED BY: Art SchmittMOBILE NO: (403)210-1202 (403) 424-8050

OCT-27-1997 08:46

403 232 5200

79%

P.02

10/27/97 06:18 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-10-26 REPORT NO.: 287
 DEPTH: 3115 m PROGRESS: 0 m FORMATION: MUSKWA
 OPERATIONS AT 06:00 HOURS: CIRCULATE THROUGH STAGE CEMENTER
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schritt
 DAILY COST: \$ 31,974 CUM. COST: \$ 19,987,403 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5000 kPa @ 92 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: in³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 4 - 4 MAXIMUM CASING HOLD BACK _____ kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES		PUMPS	
BIT NUMBER			WEIGHT (kg/m ³)	1420	No. 1 LINER (mm)	140
SIZE (mm)			VISCOSITY (s/l)	91	No. 1 STROKES PER MINUTE	102
TYPE			EXCESS LIME	12.6	No. 2 LINER (mm)	140
SERIAL No.			PV (mPa S)	39	No. 2 STROKES PER MINUTE	
NOZZLES (mm)			YP (Pa)	18.5	VOLUME (m ³)	1.19
DEPTH IN (m)			GELS (Pa)	9/13	PRESSURE (kPa)	3100
METERS (m)			SAND (%)	Trace	CSG-ANNULAR VEL. (m/min.)	41
HOURS			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	
WOB (1000 daN)			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	
R.P.M.			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION			CHLORIDES	303,373	SHAKER SCREENS	84 - 84
DRILING ASSEMBLY			OIL WATER	92/08	DRYER SCREENS	110
			ELECTRICAL STAB	2000		
			MUD ADDITIVES			
			4 - Floor dry		U.F. (kg/m ³)	
					OF. (kg/m ³)	
					VOL. (l/min.)	
					HOURS	
					SURVEYS	
					ANGLE	DIRECTION
					m	°
					m	°
					m	°
					m	°
					m	°
BHA	m		JTS. D.P.: ON RACKS	142		
HOOK LOAD	daN		IN STRING	291		
AVAILABLE WOB	daN		TOTAL	433		

TIME BREAKDOWN

DRILLING		CEMENT	5.0	CORING		RIG REPAIR		DRILL OP	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CT RC.		EVALUATION	24	5803.25
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH		PROBLEMS		178.3
SURVEY		WASH & REAM		CIRC. SAMPLE		WORK PIPE		TOTAL	24	905.25
SLIP & CUT		CIRCULATE	5.5	HANDLE TOOLS		WORK JUNK sub		WEATHER		
COND. MUD		RAMS & TEST		TRIP				TEMPERATURE		
NIPPLE UP/DN				REAM RATHOLE				ROADS		
RUN CASING	13.75			CIRCULATE					CLOUD	
									- 2 °C	
									GOOD	

24 SUMMARY

Run 51 joints 244.5mm 662.42m 79.62 kg/m L-80 Butress - 180 joints 244.5mm 2460.04m 69.94 kg/m L-80 Butress
 Landed @ 3114.80m - Weatherford stage cementer landed @ 1300.40 - Circulate condition hole for cement
 Unable to reciprocate casing - Drill line on dead line anchor slipped at 260,000 dan - Safety meeting - Rig to cement
 Pump 3m3 Diesel - 3m3 CW8 preflush - Pressure test lines to 21000 kpa - Cement with 17 tonnes "G" + 35% D66
 1.25% D160 + .5% D65 + .5% D-28 displaced with 67.93m3 water 3.0m3 Diesel 46.97 m3 Invert mud - Plug down at 06:45
 Over displaced .5m3 with out bumping plug - Floats held - Drop dart opened stage cementer with 900kpa - Circulate W.O.C.
 Hole drag up with casing - Un-known Hole drag down - 32,000 dan
 Casing string weight 178,000 dan - Top drive and blocks 35,000 dan
 Back ground gas - 84 Units Trip gas - 1348 Units
 Mud lost last 24 Hrs. -
 SIGNED BY: Art Schritt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL CONTROL

DRILLING PARAMETERS

TIME BREAKDOWN

24 SUMMARY

P.04

P.02

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-10-23 REPORT NO.: 284
 DEPTH: 3115 m PROGRESS: 0 m FORMATION: MUSKWA
 OPERATIONS AT 06:00 HOURS. CIRCULATE CONDITION HOLE AND MUD
 CONTRACTOR/RIG SUPT.: Precision Drilling #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 33,100 CUM COST: \$ 19,887,240 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4800 kPa @: 91 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 11.38 m³ ACTUAL HOLE FILL: 12.89 m³
 BOP DRILLS: CONDUCTED WHILE Reaming - Tripping WELL SECURED IN 1.25 1.5 MIN.
 CONDUCTED AT 08:30 23:00 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 1 MAXIMUM CASING HOLD BACK 4200 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	60			WEIGHT (kg/m ³)	1425	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	104	No. 1 STROKES PER MINUTE	85
TYPE	GT 1			EXCESS LIME	11.5	No. 2 LINER (mm)	140
SERIAL No.	H41YY			PV (mPa S)	37	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	3 X22.2			YP (Pa)	14.5	VOLUME (m ³)	1.99
DEPTH IN (m)	3115			GELS (Pa)	12/115	PRESSURE (kPa)	13900
METERS (m)	CLEAN			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	32
HOURS	OUT			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	41
WOB (1000 daN)	2-5			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57
R.P.M.	80			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	2-2-6			CHLORIDES	310,636	SHAKER SCREENS	84 - 84
DRILLING ASSEMBLY				OIL WATER	93//07	DRYER SCREENS	110
				ELECTRICAL STAB.	2000		
				MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.
BIT SUB	227	76	7 H90	50 - Barite	10 - Truvis	OF (kg/m ³)	
2 DC	228	76	7 H90	15 - Lime	25 - Interdrill S	VOL. (l/min)	
JARS	228	73	7 H90	3 - Interdrill OW	18m3 - Diesel	HOURS	
XO SUB	228	73	5 H90	2 - Interdrill EMUL	2m3 - Brine	SURVEYS	ANGLE DIRECTION
4 DC	168	76	5 H90	2 - Interdrill FL			
XO SUB	168	73	5 XH				
27 HWDP	127	76	5 XH	DC \$ 14900	CC\$ 1,151,418		
BHA	310.95		m	JTS. D.P.: ON RACKS	142		
HOOK LOAD	132,000		daN	: IN STRING	291		
AVAILABLE WOB	26,000		daN	: TOTAL	433		

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR	3.0	DRILL OP	TODAY	CUM.
TRIP	<u>10.75</u>	BOP DRILL		LOGGING		LOST CIRC.		EVALUATION	<u>21</u>	<u>5731.25</u>
RIG SERVICE	<u>0.75</u>	HANDLE TOOLS		TESTING		REAM & WASH		PROBLEMS	<u>3</u>	<u>905.25</u>
SURVEY		WASH & REAM	<u>6.5</u>	CIRC. SAMPLE		WORK PIPE		TOTAL	<u>24</u>	<u>6815.5</u>
SLIP & CUT	<u>0.75</u>	CIRCULATE	<u>2.25</u>	HANDLE TOOLS		WORK JUNK sub		WEATHER	CLOUD	
COND. MUD				TRIP				TEMPERATURE	<u>- 5 °C</u>	
NIPPLE UP/DN				REAM RATHOLE				ROADS	<u>GOOD</u>	
RUN CASING				CIRCULATE						

24 SUMMARY

Wash and ream 1756m - 1786m - Trip out - tight hole at 1438m-1430m - Lay down 3 point reamer
 Trip in BHA - Slip and cut drill line - Trip in with RR#60 bit - Wash and ream bridges 1440m-1462m
 1662m-1842m 1936m-1952m - Repair top drive - Trip in - Clean fill 3104m-3115m - Circulate condition hole and mud

Hole drag up-10-25000dan Hole drag down- 2-5000dan

Torque on bottom - 1450-1740psi

Back ground gas - 180 Units Trip gas - 3240 Units

Mud lost last 24 Hrs. - 2.1m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

WELL	Ranger Fort Liard P-66-A		DATE	1997-10-21		REPORT NO.:	282			
DEPTH:	3115		m	PROGRESS:	0		m	FORMATION:	MUSKWA	
OPERATIONS AT 06:00 HOURS: REAM IN WITH 3PT. REAMER AND BIT										
CONTRACTOR/RIG SUPT.:		Precision Drilg rig #426E Terry Gorgichuk				CO. SUPERVISOR:		Art Schmitt		
DAILY COST:		\$ 31,765		CUM. COST:		\$ 19,817,875		AFE NO: E6D - 015		

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	52	kPa @:	86	SPM
TRIP RECORDS: CALCULATED HOLE FILL				m' ACTUAL HOLE FILL:				m3
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN				MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE				SATISFACTORY
DAYS SINCE BOP DRILL (EACH CREW):		7 - 7		MAXIMUM CASING HOLD BACK	4300			kPa

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	60			WEIGHT (kg/m ³)	1425	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	119	No. 1 STROKES PER MINUTE	85	
TYPE	GT 1			EXCESS LIME	11.1	No. 2 LINER (mm)	140	
SERIAL No.	H41YY			PV (mPa S)	43	No. 2 STROKES PER MINUTE	85	
NOZZLES (mm)	3 X22.2			YP (Pa)	18.5	VOLUME (m ³)	1.99	
DEPTH IN (m)	3115			GELS (Pa)	12/14	PRESSURE (kPa)	9500	
METERS (m)	2107			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	32	
HOURS	22.25			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	41	
WOB (1000 daN)	3-5			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57	
R.P.M.	80			FLUID LOSS (cc)	0.8	<u>SOLIDS CONTROL</u>		
CONDITION	IN			CHLORIDES	338,957	SHAKER SCREENS	84 - 84	
<u>DRILLING ASSEMBLY</u>				OIL WATER	93/07	DRYER SCREENS	110	
				ELECTRICAL STAB.	2000			
BIT SUB	227	76	7 H90	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)	D. SILT.	CENT.
1 DC - 3 PTR	228	76	7 H90	1 - Interdrill OW		OF. (kg/m ³)		2510
JARS - 1 DC	228	73	7 H90	1 - Interdrill EMUL		VOL. (l/min.)		1390
XO SUB	228	73	5 H90			HOURS		14
4 DC	168	76	5 H90			<u>SURVEYS</u>	<u>ANGLE</u>	<u>DIRECTION</u>
XO SUB	168	73	5 XH				m	°
27 HWDP	127	76	5 XH	DC \$ 1365	CC\$ 1,136,028		m	°
BHA	312.35	m	JTS. D.P.: ON RACKS	142			m	°
HOOK LOAD	132,000	daN	: IN STRING	291			m	°
AVAILABLE WOB	26,000	daN	: TOTAL	433			m	°

DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.			24	5686.25
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH				178.5
SURVEY		WASH & REAM	22.25	CIRC. SAMPLE		WORK PIPE				902.25
SLIP & CUT		CIRCULATE	1	HANDLE TOOLS		WORK JUNK sub			24	6767
COND MUD				TRIP						
NIPPLEUP/DN				REAM RATHOLE					- 5 °C	
RUN CASING				CIRCULATE					GOOD	

Pull up to 1485m - Circulate change to 84 mesh shaker screens - Ream with bit and 3 point reamer 1485m -1548m
Hole unloading shale 1485m - 1548m -Work pipe circulate hole clean - Ream with bit and 3 point reamer 1548m - 3115m
2.5m fill on bottom - Circulate and work pipe condition for casing

Hole drag up-5-15000dan Hole drag down- 2-8000dan
Torque on bottom - 1450-1740psi
Back ground gas - 85units Trip gas -950 units
Mud lost last 24 Hrs. - 4.5m3

SIGNED BY: Art Schnitt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-10-20 REPORT NO.: 281
 DEPTH: 3115 m PROGRESS: 0 m FORMATION: MUSKWA
 OPERATIONS AT 06:00 HOURS: REAM IN WITH 3PT. REAMER AND BIT
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 209,868 CUM. COST: \$ 19,786,110 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5000 kPa @: 82 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 6 - 6 MAXIMUM CASING HOLD BACK 4100 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	60			WEIGHT (kg/m ³)	1440	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	150	No. 1 STROKES PER MINUTE	85
TYPE	GT 1			EXCESS LIME	10.4	No. 2 LINER (mm)	140
SERIAL No.	H41YY			PV (mPa S)	43	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	3 X22.2			YP (Pa)	19.5	VOLUME (m ³)	1.99
DEPTH IN (m)	3115			GELS (Pa)	11//16	PRESSURE (kPa)	9500
METERS (m)				SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	32
HOURS	2.5			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	41
WOB (1000 daN)	2-5			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57
R.P.M.	80			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	303,373	SHAKER SCREENS	84 - 84
DRILLING ASSEMBLY				OIL WATER	92//08	DRYER SCREENS	110
				ELECTRICAL STAB.	2000	D SILT.	CENT.
BIT SUB	227	76	7 H90	MUD ADDITIVES		U.F. (kg/m ³)	
1 DC - 3 PTR	228	76	7 H90	60 - Barite		OF. (kg/m ³)	
JARS - 1 DC	228	73	7 H90	10 - Fiber Fluid		VOL. (l/min.)	
XO SUB	228	73	5 H90			HOURS	
4 DC	168	76	5 H90			SURVEYS	ANGLE DIRECTION
XO SUB	168	73	5 XH			m	°
27 HWDP	127	76	5 XH	DC \$ 1095	CCS 1,134,663	m	°
BHA	312.35	m		JTS. D.P. ON RACKS	142	m	°
HOOK LOAD	78,000	daN		IN STRING	291	m	°
AVAILABLE WOB	26,000	daN		TOTAL	433	m	°

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR		DRILL OP	TODAY	CUM.
TRIP	9.25	BOP DRILL		LOGGING	8.5	LOST CIRC.		EVALUATION	15.5	5662.25
RIG SERVICE	0.75	HANDLE TOOLS	0.5	TESTING		REAM & WASH		PROBLEMS	8.5	178.5
SURVEY		WASH & REAM	2.5	CIRC. SAMPLE		WORK PIPE		TOTAL	24	6743.5
SLIP & CUT	0.75	CIRCULATE	1.75	HANDLE TOOLS		WORK JUNK sub		WEATHER	CLOUD	
COND. MUD				TRIP				TEMPERATURE	- 3 °C	
NIPPLEUP/DN				REAM RATHOLE				ROADS	GOOD	
RUN CASING				CIRCULATE						

24 SUMMARY

Log well with Computalog STI - BCS - GR - 3116.4m - 1006m - Tight hole 1490m - 1478m - Rig out loggers
 Trip in with bit # 60 to 1500m - Circulate work pipe - Hole condition good - Pump pill trip out - Pick up 3pt. reamer
 Trip in BHA - Slip and cut drill line - Repair mud manifold valves - Trip in to 1326m - Strap in hole
 Wash and ream 1326m - 1565m

Hole drag up-2-5000dan Hole drag down- 1-2000dan

Torque on bottom - 920-1270psi

Back ground gas - 20 units Trip gas -

Mud lost last 24 Hrs. - 3.5m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

P.04

WELL CONTROL

DRILLING PARAMETERS

TIME BREAKDOWN

24 SUMMARY

P.05

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>1997-10-17</u>	REPORT NO.:	<u>278</u>
DEPTH:	<u>3115</u> m	PROGRESS:	<u>0</u> m	FORMATION:	<u>MUSKWA</u>
OPERATIONS AT 06.00 HOURS. CIRCULATE CONDITION HOLE FOR LOGS					
CONTRACTOR/RIG SUPT.:	<u>Precision Drllg rig #426E Terry Gorgichuk</u>		CO. SUPERVISOR:	<u>Art Schmitt</u>	
DAILY COST:	<u>\$ 40,097</u>	CUM. COST:	<u>\$ 19,504,697</u>	AFE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	7700	kPa @	96	SPM
TRIP RECORDS: CALCULATED HOLE FILL:	18.3	m ³	ACTUAL HOLE FILL:	22.4	m ³			
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN				MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE				SATISFACTORY
DAYS SINCE BOP DRILL (EACH CREW):	3 - 3	MAXIMUM CASING HOLD BACK			4300	kPa		

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	59			WEIGHT (kg/m ³)	1420	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	108	No. 1 STROKES PER MINUTE	85	
TYPE	SS86F			EXCESS LIME	11.1	No. 2 LINER (mm)	140	
SERIAL No.	652908			PV (mPa S)	47	No. 2 STROKES PER MINUTE	85	
NOZZLES (mm)	OPEN			YP (Pa)	20	VOLUME (m ³)	1.99	
DEPTH IN (m)	3098			GELS (Pa)	11//15	PRESSURE (kPa)	1,600	
METERS (m)	17			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	32	
HOURS	14.25			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	41	
WOB (1000 daN)	22			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57	
R.P.M.	35/150			FLUID LOSS (cc)	0.8	SOLIDS CONTROL		
CONDITION	2-2-I			CHLORIDES	291,105	SHAKER SCREENS	110 - 84	
DRILLING ASSEMBLY				OIL WATER	92//08	DRYER SCREENS	110	
				ELECTRICAL STAB.	2000			
				MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.
BIT SUB	227	76	7 H90	60 - Barite		OF. (kg/m ³)		2500
2 DC	228	76	7 H90	2m3 - Premix		VOL. (l/min.)		1395
JARS	228	73	7 H90			HOURS		2.2
XO SUB	228	73	5 H90			SURVEYS	ANGLE	DIRECTION
4 DC	168	76	5 H90				m	°
XO SUB	168	73	5 XH				m	°
27 HWDP	127	76	5 XH	DC \$ 585	CCS 1,132,378		m	°
BHA	310.56	m	JTS. D.P. ON RACKS	142			m	°
HOOK LOAD	131,000	daN	IN STRING	291			m	°
AVAILABLE WOB	26,000	daN	TOTAL	433			m	°

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR	0.5	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM
TRIP	15.5	BOP DRILL		LOGGING		LOST CIRC.			20	5645.25
RIG SERVICE	0.75	HANDLE TOOLS	2.75	TESTING		REAM & WASH	0.25		3.25	124.75
SURVEY	0.25	INSPECT BHA		CIRC. SAMPLE	0.5	WORK PIPE			0.75	901
SLIP & CUT	0.75			HANDLE TOOLS		WORK JUNK sub			24	6671
COND. MUD				TRIP					CLOUDY	
NIPPLEUPON				REAM BATHOLE					- 5 °C	
RUN CASING				CIRCULATE	2.75			GOOD		

24 SUMMARY

Circulate sample - Wait on orders - Survey - Circulate out 6 stands - Pump pill trip out - Strap drill string	
Lay down directional tools - Trip in BHA - Slip and cut drilling line - Trip in with RR# 59 bit	
Wash to bottom 3064m - 3115m No fill - Circulate condition hole for logging	
Strap 3115.39m Tally 3115.00m .39m difference no correction	
Hole drag up-25-30000dan Hole drag down- 15-20000dan	
Torque on bottom - 1325-1430 psi	
Back ground gas - 80 units Trip gas -	
Mud lost last 24 Hrs. - 4.2m3	
SIGNED BY: Art Schritt	MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems

Survey Report

Page 1
 Job No: 97D006
 Date: 16/10/97
 Time: 11:07 am
 Wellpath ID: 97d006s4
 Date Created: 27/01/97
 Last Revision: 16/10/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
2959.00	46.40	222.10	2578.93	-2119.04	949.22	669.41 S	672.95W	949.22@225.15	1.39
2969.00	46.30	220.90	2585.83	-2125.94	956.44	674.82 S	677.75W	956.44@225.13	2.62
2978.00	45.40	220.60	2592.10	-2132.21	962.88	679.72 S	682.00W	962.88@225.10	3.08
2988.00	44.80	220.00	2599.16	-2139.27	969.94	685.12 S	686.58W	969.94@225.06	2.21
2998.00	44.80	220.10	2606.26	-2146.37	976.96	690.51 S	691.12W	976.96@225.03	0.21
3013.00	45.20	220.40	2616.86	-2156.97	987.53	698.61 S	697.97W	987.53@224.97	0.91
3023.00	45.20	220.60	2623.91	-2164.02	994.60	704.00 S	702.58W	994.60@224.94	0.43
3032.00	44.90	219.70	2630.27	-2170.38	1000.95	708.87 S	706.65W	1000.95@224.91	2.35
3036.00	44.80	219.70	2633.10	-2173.21	1003.76	711.04 S	708.45W	1003.76@224.90	0.75
3045.00	44.90	219.60	2639.48	-2179.59	1010.08	715.93 S	712.54W	1010.08@224.86	0.41
3054.00	44.60	219.50	2645.88	-2185.99	1016.39	720.81 S	716.57W	1016.39@224.83	1.03
3064.00	44.50	219.20	2653.00	-2193.11	1023.37	726.24 S	721.02W	1023.37@224.79	0.70
3073.00	44.30	219.40	2659.43	-2199.54	1029.63	731.11 S	725.01W	1029.63@224.76	0.81
3085.00	44.30	219.60	2668.02	-2208.13	1037.98	737.58 S	730.34W	1037.98@224.72	0.35
3095.00	43.90	219.80	2675.20	-2215.31	1044.91	742.93 S	734.79W	1044.92@224.68	1.27
PROJECTED TO BIT.									
3115.00	43.90	219.80	2689.61	-2229.72	1058.72	753.59 S	743.66W	1058.74@224.62	0.00

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RANGER FORT LIARD P-86 A

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RANGER OIL

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10/18/97 06:45 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-10-16 REPORT NO.: 277
 DEPTH: 3115 m PROGRESS: 17 m FORMATION: MUSKWA
 OPERATIONS AT 06:00 HOURS: CIRCULATING SAMPLE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 45,512 CUM. COST: \$ 19,464,600 AFE NO.: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 7400 kPa @: 90 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 2 - 2 MAXIMUM CASING HOLD BACK 4100 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	59			WEIGHT (kg/m ³)	1435	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	107	No. 1 STROKES PER MINUTE	85
TYPE	SS86F			EXCESS LIME	11.1	No. 2 LINER (mm)	140
SERIAL No.	652908			PV (mPa S)	47	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	OPEN			YP (Pa)	20	VOLUME (m ³)	1.99
DEPTH IN (m)	3098			GELS (Pa)	11//15	PRESSURE (kPa)	19,600
METERS (m)	17			SAND (%)	Trace	D.P. ANNULAR VEL (m/min.)	32
HOURS	14.25			SOLIDS (%)	28	D.C. ANNULAR VEL (m/min.)	41
WOB (1000 daN)	22			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL (m/min.)	57
R.P.M.	35//150			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	291,103	SHAKER SCREENS	110 - 84
DRILLING ASSEMBLY				OIL WATER	92//08	DRYER SCREENS	110
				ELECTRICAL STAB.	2000	D. SILT.	CENT.
JS- MTR XO	197	151	65/BREG	MUD ADDITIVES		U.F. (kg/m ³)	2510
MWD XO	203	87	7H90	1 - Interdrill OW		OF. (kg/m ³)	1400
2 NMDC	231	76	7H90	1 - Interdrill EMUL		VOL. (l/min.)	2.8
1 DC JAR	230	73	7H90	1 - Interdrill FL		HOURS	8
1 DC XO	228	76	7H90	58 - Barite		SURVEYS	ANGLE DIRECTION
4 DC XO	168	73	5H90			3073	m 44.3 ° 219.4
27 HWDP	127	76	41/2 IF	DC \$ 2701	CC \$ 1,131,793	3085	m 44.3 ° 219.6
BHA	342.40	m		JTS. D.P.: ON RACKS	145	3095	m 43.9 ° 219.8
HOOK LOAD	133,000	daN		: IN STRING	288		m °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING	14.25	CEMENT		CORING		RIG REPAIR	.75	DRILL OP	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		EVALUATION	15.5	5625.25
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH	1.25	PROBLEMS	6	121.5
SURVEY	0.5	INSPECT BHA		CIRC. SAMPLE	6.0	WORK PIPE		TOTAL	2.5	900.25
SLIP & CUI				HANDLE TOOLS		WORK JUNK sub	0.5	WEATHER	24	6647.5
COND. MUD				TRIP				TEMPERATURE		CLOUDY
NIPPLEUP/DN				REAM RATHOLE				ROADS	-7 °C	ROUGH
RUN CASING				CIRCULATE						

24 SUMMARY

Wash and ream 3045m - 3098m - 5m undergauge hole - no fill - Work junk sub - Directional drill 311mm hole
 193mm 1.5 degree Halliburton mud motor and survey with MWD log with Gamma 3098m - 3105m - Circulate sample
 Directional drill 311mm hole 3105m - 3111m - Circulate sample - Directional drill 311mm hole 3111m - 3115m
 Circulate sample
 Slide - 0
 Rotate - 3098m - 3115m
 Hole drag up-25-30000dan Hole drag down- 15-20000dan
 Torque on bottom - 1300-1550 psi
 Back ground gas - 80 units Trip gas - 1080 units
 Mud lost last 24 Hrs. - 2.8 m³
 SIGNED BY: Art Schmitt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-10-15 REPORT NO.: 276
 DEPTH: 3098 m PROGRESS: 3 m FORMATION: MUSKWA
 OPERATIONS AT 06:00 HOURS: TRIP IN WITH BIT#59 AND DIRECTIONAL TOOLS
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 64027 CUM. COST: \$ 19,420,283 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6400 kPa @: 88 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 18.22 m³ ACTUAL HOLE FILL: 22.37 m³
 BOP DRILLS: CONDUCTED WHILE TRIPPING WELL SECURED IN 2 - 2 MIN.
 CONDUCTED AT 15:00 21:00 HRS. CREW PERFORMANCE SATISFACTORY
 SINCE BOP DRILL (EACH CREW): 1 -- 1 MAXIMUM CASING HOLD BACK 4100 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS									
BIT NUMBER	58	59		WEIGHT (kg/m ³)	1415	No. 1 LINER (mm)	140								
SIZE (mm)	311	311		VISCOSITY (s/l)	104	No. 1 STROKES PER MINUTE	87								
TYPE	HP61A	SS86F		EXCESS LIME	13.9	No. 2 LINER (mm)	140								
SERIAL No	JL3883	652908		PV (mPa S)	51	No. 2 STROKES PER MINUTE	87								
NOZZLES (mm)	OPEN	OPEN		YP (Pa)	21.5	VOLUME (m ³)	2.0								
DEPTH IN (m)	3072	3098		GELS (Pa)	9.5//14	PRESSURE (kPa)	19,600								
METERS (m)	26			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	34								
HOURS	45.5			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43								
WOB (1000 daN)	26			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (in/min.)	61								
R.P.M.	35//90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL									
CONDITION	4-8-6	NEW		CHLORIDES	243,685	SHAKER SCREENS	110 - 84								
DRILLING ASSEMBLY				OIL WATER	90//10	DRYER SCREENS	110								
				ELECTRICAL STAB.	1928	<table><tr><td>D. SILT.</td><td>CENT.</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>		D. SILT.	CENT.						
D. SILT.	CENT.														
JS- MTR XO	197	151	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)									
MWD XO	203	87	7H90	2 - Interdrill OW		OF. (kg/m ³)									
2 NMDC	231	76	7H90	2 - Interdrill EMUL		VOL. (l/min.)									
1 DC JAR	230	73	7H90	1 - Interdrill FL		HOURS									
1 DC XO	228	76	7H90	10m3 - Fresh water		SURVEYS	<table><tr><td>ANGLE</td><td>DIRECTION</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	ANGLE	DIRECTION						
ANGLE	DIRECTION														
4 DC XO	168	73	5H90	6m3 - Premix											
27 HWD	127	76	41/2 IF	DC \$ 3500 CCS 1,129,092											
BHA				342.40	m	JTS. D.P.: ON RACKS	148								
HOOK LOAD				131,000	daN	: IN STRING	285								
AVAILABLE WOB				26,000	daN	: TOTAL	433								

TIME BREAKDOWN

DRILLING	5.25	CEMENT		CORING		RIG REPAIR		DRILL OP	TODAY	CUM.
TRIP	<u>16.5</u>	BOP DRILL		LOGGING		LOST CIRC.		EVALUATION	<u>23.75</u>	<u>3609.75</u>
RIG SERVICE	<u>0.75</u>	HANDLE TOOLS	<u>1.25</u>	TESTING		REAM & WASH		PROBLEMS	<u>0</u>	<u>115.5</u>
SURVEY		INSPECT BHA		CIRC. SAMPLE		WORK PIPE	<u>0.25</u>	TOTAL	<u>0.25</u>	<u>897.75</u>
SLIP & CUT				HANDLE TOOLS		WORK RANK sub		WEATHER	<u>CLOUDY</u>	
COND. MUD				TRIP				TEMPERATURE	<u>- 7 °C</u>	
NIPPLEUP/DN				REAM RATHOLE				ROADS	<u>ROUGH</u>	
RUN CASING				CIRCULATE						

24 SUMMARY

Directional drill 311mm hole with 196mm 1.83 degree Tru-Drill mud motor and survey with MWD log with
 Gamma 3095m - 3098m - Circulate out 6 stands - Pump pill trip out - Change out mud motor and bit service MWD
 Trip in Bit #59 Junk sub and 193mm 1.5 degree Halliburton mud motor MWD and Gamma tool - Shallow test MWD @ 1128m

Slide - 0

Rotate - 3095m - 3098m

Hole drag up-25-30000dan Hole drag down- 15-20000dan

Torque on bottom - 1300-1500 psi

Back ground gas - 82 units Trip gas

Mud lost last 24 Hrs. - 2.1 m3

SIGNED BY: Art SchmittMOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97/10/14 REPORT NO. 275
 DEPTH: 3095 m PROGRESS: 11 m FORMATION: Muskwa
 OPERATIONS AT 06:00 HOURS: Drilling (rotate) 0.4m/hr
 CONTRACTOR/RIG SUPT: Precision Drilling rig #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 38681 CUM COST: \$ 19,356,256 AFE NO E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 7000 kPa @ 95 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL m³
 BOP DRILLS: CONDUCTED WHILE drilling WELL SECURED IN 2 MIN.
 CONDUCTED AT 0330 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 0-5 MAXIMUM CASING HOLD BACK 4100 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	58			WEIGHT (kg/m ³)	1450	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	108	No. 1 STROKES PER MINUTE	87	
TYPE	HP61A			EXCESS LIME	33.9	No. 2 LINER (mm)	140	
SERIAL No.	J13883			PV (mPa S)	46	20.5 No. 2 STROKES PER MINUTE	87	
NOZZLES (mm)	Open			YP (Pa)	19.5	VOLUME (m ³)	2	
DEPTH IN (in)	3072			GELS (Pa)	12.5/17	PRESSURE (kPa)	19800	
METERS (m)	23			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	34	
HOURS	40.25			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43	
WOB (1000 daN)	26			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61	
R.P.M.	35/90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL		
CONDITION	in			CHLORIDES	389053	SHAKER SCREENS	110 - 140	
DRILLING ASSEMBLY				OIL WATER	94/6	DRYER SCREENS	140	
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB	2000	U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS	D. SILT.	CENT.
MTR XO	196	81	65/8 REG	MUD ADDITIVES				
MWD XO	203	71	7H90	OW 1bbl				
2 NMDC	231	76	7H90	Emul. 1bbl				
1 DC JAR	230	76	7H90	Lime 15secs				
1 DC XO	228	76	7H90			SURVEYS	ANGLE	DIRECTION
4 DC XO	168	73	5H90			3073	44.30	219.40
27 HWDP	127	76	41/3 IF	DC \$ 1981	CCS 1,125,592			
BHA LENGTH	341.52	m	JTS. D.P.: ON RACKS	148				
HOOK LOAD	131,000	daN	IN STRING	285				
AVAILABLE WOB	26,000	daN	TOTAL	433				

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	<u>21.5</u>	<u>CEMENT</u>		CORING		RIG REPAIR	<u>1.5</u>	TODAY	CUM
TRIP		<u>BOP DRILL</u>		LOGGING		LOST CIRC		<u>22.5</u>	<u>3586</u>
RIG SERVICE	<u>.75</u>	<u>HANDLE TOOLS</u>		TESTING		REAM & WASH			<u>115.3</u>
SURVEY	<u>25</u>			CIRC SAMPLE		Work junk sub		<u>1.5</u>	<u>897.3</u>
SLIP & CUT				HANDLE TOOLS		Circ. gas		<u>24</u>	<u>6599</u>
COND. MUD				TRIP				WEATHER	<u>Light snow</u>
NIPPLE/JDN				REAM RATHOLE				TEMPERATURE	<u>-7 °C</u>
RUN CASING				CIRCULATE				ROADS	<u>good</u>

24 SUMMARY

Drill 311mm hole with Tru Drill 1.83 degret slow speed motor. Rig service and survey. Repair mud pumps.

Rotate -3084-3095M

Hole drag up-20/30000dan down-10-15000dan

Torque on bottom - 14-1550psi

Back ground gas - 80 units

Mud lost last 24 Hrs. - 1.5m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>97/10/13</u>	REPORT NO.	<u>274</u>
DEPTH:	<u>3084</u> m	PROGRESS:	<u>12</u> m	FORMATION:	<u>Muskwa</u>
OPERATIONS AT 06:00 HOURS: <u>Drill (rotate)</u>					
CONTRACTOR/RIG SUPT.:	<u>Precision Drig rig #426E Ward McKenzie</u>		CO. SUPERVISOR:	<u>John Faulkner</u>	
DAILY COST: \$	<u>38654</u>	CUM. COST:	<u>\$ 19,317,575</u>	AFE NO:	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	7700	kPa @:	86	SPM
TRIP RECORDS: CALCULATED HOLE FILL	18.07	m ³	ACTUAL HOLE FILL:	19.07	m ³			
BOP DRILLS. CONDUCTED WHILE				WELL SECURED IN				MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE				
DAYS SINCE BOP DRILL (EACH CREW):	6-4	MAXIMUM CASING HOLD BACK		4100				kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	58			WEIGHT (kg/m ³)	1435	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	110	No. 1 STROKES PER MINUTE	87	
TYPE	HP61A			EXCESS LIME	10.2	No. 2 LINER (mm)	140	
SERIAL No.	J13883			PV (mPa S)	48	20 SNo. 2 STROKES PER MINUTE	87	
NOZZLES (mm)	Open			YP (Pa)	20	VOLUME (m ³)	2	
DEPTH IN (m)	3072			GELS (Pa)	13/18	PRESSURE (kPa)	19700	
METERS (m)	12			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	34	
HOURS	18.75			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43	
WOB (1000 daN)	26			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61	
R.P.M.	30/90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL		
CONDITION	in			CHLORIDES	324941	SHAKER SCREENS 110 - 140		
DRILLING ASSEMBLY				OIL WATER	93/7	DRYER SCREENS 140		
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000	U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS	D. SILT.	CENT.
MTR XO	196	81	65/8 REG	MUD ADDITIVES				
MWD XO	203	71	7H90	OW 1bbl				
2 NMDC	231	76	7H90	Emul 1bbl				
1 DC JAR	230	76	7H90	Barite 60sxs				
1 DC XO	228	76	7H90					
4 DC XO	168	73	5H90					
27 HWDP	127	76	41/2 IF	DC S 1881	CCS 1,123,611			
BHA LENGTH	341.52	m		JTS D.P.: ON RACKS	148	3054	m 44.60	° 219.50
HOOK LOAD	131,000	daN		: IN STRING	285	3064	m 44.50	° 219.20
AVAILABLE WOB	26,000	daN		: TOTAL	433		m	°

TIME BREAKDOWN

DRILLING OPERATIONS			EVALUATION		PROBLEMS		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	SUMMARY	
DRILLING	18.75	CEMENT	CORING		RIG REPAIR			TODAY	CUM.
TRIP	3.75	ROP DRILL	LOGGING		LOST CIRC.			24	5563.5
RIG SERVICE	.75	HANDLE TOOLS	TESTING		REAM & WASH				115.5
SURVEY	.75		CIRC. SAMPLE		Work junk sub				896
SLIP & CUT			HANDLE TOOLS		Circ. gas			24	6575
COND. MUD			TRIP						Clear
NIPPLE UP/DN			REAM HATHOLE						-11 °C
RUN CASING			CIRCULATE						good

24 SUMMARY

Finish in hole with new bit. Wash and ream from 3014m. Survey. Drill 311mm hole with Tru Drill 1.83-degree motor.

Rotare -3072-3084m

Hole drag up-20/30000dan down-15-20000dan

Torque on bottom - 13-1500psi

Back ground gas - 50 units.

Mud lost last 24 Hrs. -- 3m3

SIGNED BY: John Faulkner

MOBILE NO: (403) 210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97/10/12 REPORT NO.: 273
 DEPTH: 3072 m PROGRESS: 0 m FORMATION: Muskwa
 OPERATIONS AT 06:00 HOURS: Run in hole
 CONTRACTOR/RIG SUPT.: Precision Drilling #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 57894 CUM. COST: \$ 19,278,921 AFE NO. E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @ SPM
 TRIP RECORDS: CALCULATED HOLE FILL m ACTUAL HOLE FILL: m
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 5-3 MAXIMUM CASING HOLD BACK 4100 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES		PUMPS		
BIT NUMBER	57	58	WEIGHT (kg/m ³)	1440	No. 1 LINER (mm)	140	
SIZE (mm)	311	311	VISCOSITY (s/l)	118	No. 1 STROKES PER MINUTE	89	
TYPE	F27	HP61A	EXCESS LIME	14.2	No. 2 LINER (mm)	140	
SERIAL No.	LQ2471	J13883	PV (mPa S)	44	20.3m. 2 STROKES PER MINUTE	89	
NOZZLES (mm)	open	Open	YP (Pa)	19	VOLUME (m ³)	2	
DEPTH IN (m)	3053	3072	GELS (Pa)	10/14	PRESSURE (kPa)		
METERS (m)	19		SAND (%)	11	D.P. ANNULAR VEL. (m/min.)	34	
HOURS	30		SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43	
WOB (1000 daN)	23/25		FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61	
R.P.M.	30/90		FLUID LOSS (cc)	1.0	SOLIDS CONTROL		
CONDITION	3-4-1/8		CHLORIDES	338957	SHAKER SCREENS	110 - 140	
DRILLING ASSEMBLY			OIL WATER	92/8	DRYER SCREENS	140	
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000	D. SILT.	CENT.
MTR XO	196	81	65/BREG	MUD ADDITIVES			
MWD XO	203	71	7H90				
2 NMDC	231	76	7H90				
1 DC JAR	230	76	7H90				
1 DC XO	228	76	7H90				
4 DC XO	168	73	5H90				
27 HWDP	127	76	41/2 IF	DC S 0	CCS 1,121,730		
BHA LENGTH	341.52	m	JTS. D.P. ON RACKS	151			
HOOK LOAD	131,000	daN	: IN STRING	282			
AVAILABLE WOB	26,000	daN	: TOTAL	433			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		RIG REPAIR	16	TODAY	CUM.
TRIP	5.5	DRIP DRILL		LOGGING		LOST CHILL		8	5539.5
RIG SERVICE		HANDLE TOOLS	2.5	TESTING		REAM & WASH			115.5
SURVEY				CIRC. SAMPLE		Work junk sub		16	896
SLIP & CUT				HANDLE TOOLS		Circ gas		24	6551
COND. MUD				TRIP				WEATHER	
NEEDLE UP/DN				REAM RATHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								Overcast	
								-9 °C	
								good	

24 SUMMARY

Wait on mechanic and repairs for Elinago. Change bearings. Finish out of hole. Lay down motor and junk sub.

Pick up a new Tru drill motor set at 1.83 degrees. Run in hole. Shallow test MWD at 1124m. Stage in motor.

Rotate -3072m-

Hole drag up-dan down-dan

Torque on bottom - psi

Back ground gas - 0 units.

Mud lost last 24 Hrs. -m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403)424-8050

78%

P.09

**BHA REPORT**

October 12, 1997

Page 1
10/12/97 4:28:42 am
Version VER2.2.4 - BETA

Job No.: 97D008
Operator: RANGER OIL LIMITED
Field: FT. LIARD
Well: 97D006s4
Run No.: 1

AFE No.: E6D-016
Location: P-66-A
MWD Operator(s): DEWALD, McNEIL
Dir'l Driller(s): HUBENSKY
BHA No.: 87

Company Man: JOHN FAULKNER

Hole Size: 311.000 mm

BOTTOM HOLE ASSEMBLY

Assembly Type: Steerable System

Reason Pulled: <undefined>

Objective: HOLD INCLINATION AND DIRECTION TO TD.

Motor Size / Type: 200.000 mm / 8"@7/8LOBE

Serial No.: 3110-77031-02Circulating: 0.00 hrs

No.	Serial No.	Tool Description	OD (mm)	ID (mm)	Length (m)	Total Length (m)	Connections Up	Down	Conn
1	JL3883	(BIT) Reed Tool, HP61A, TCI	311.000		0.35	0.35	4 1/2 Reg		P
2	3110-77031-0	(MTR) TRUDRIL, 8"@7/8LOBE, 1.830" Band	200.000	151.308	7.50	7.85	6 5/8 Reg	6 5/8 Reg	B/B
3	L-3306	(SUB) Cross-Over Sub	193.000	87.000	0.24	8.09	6 5/8 Reg	6 5/8 Reg	P/P
4	PC-6056	(MWD) PULSER COLLAR battery(b5474), das(4704), gamma(ugs-7077), muleshoe stinger(mi-1165), inter. plug/tandem sub(dip1293/1222), pulser, dis(tp-4169), collar(pc-6056), float sub(xs-6102), muleshoe sub(ms-6077)	203.200	171.000	4.76	12.85	6 5/8 Reg	6 5/8 Reg	B/B
5	XO-8062	(SUB) Non-Mag Cross-Over Sub	232.000	77.000	0.69	13.54	7 H-90	6 5/8 Reg	B/P
6	9030-7092	(DC) Slick Non-Mag Drill Collar	231.000	83.000	9.44	22.98	7 H-90	7 H-90	B/P
7	9030-7093	(DC) Slick Non-Mag Drill Collar	232.000	83.000	9.45	32.43	7 H-90	7 H-90	B/P
8	RIG-1	(DC) Slick Drill Collar	230.000	76.000	9.59	42.02	7 H-90	7 H-90	B/P
9	10153	(JAR) FASTER Jar	228.000	61.000	5.50	47.52	7 H-90	7 H-90	B/P
10	RIG-1B	(DC) Slick Drill Collar	228.000	74.000	9.59	57.11	7 H-90	7 H-90	B/P
11	9x6.75-2	(SUB) Cross-Over Sub	228.000	73.000	0.90	58.01	5 H-90	7 H-90	B/P
12	RIG-4x6 3/4	(DC) 4 jts, Slick Drill Collar	168.000	73.000	35.48	93.49	5 H-90	5 H-90	B/P
13	6.75DC-4.5DR	(SUB) Cross-Over Sub	176.000	72.000	0.95	84.44	4 1/2 IF	5 H-90	B/P
14	27 x HWDP	(HW) 27 jts, Hevi-Wate Drill Pipe	127.000	76.200	247.08	341.52	4 1/2 IF	4 1/2 IF	B/P

BIT DATA

Manufacturer: Reed Tool
Bit Type: TCI
Serial No.: JL3883
Hours On Bit: 0.00

IADC: 617X
Depth In: 36.00 - 36.00 (0.00) m
Nozzles: 25.4(3) mm
MTG On Bit: 0.00

Length: 0.35 m
Gage Length: 0.00 mm
TFA: 1520.122 mm2

10/14/97 TUE 09:22 FAX 403 232 5200 RANGER OIL
 WELL: Ranger Fort Liard P-66-A DATE: 9/7/10/11 REPORT NO.: 272
 DEPTH: 3072 m PROGRESS: 4 m FORMATION: Muskwa
 OPERATIONS AT 06:00 HOURS: Wait on rig repairs
 CONTRACTOR/RIG SUPP.: Precision Dril rig #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 41378 CUM. COST: \$ 19,219,832 ✓ AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6800 kPa @ 96 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 4-2 MAXIMUM CASING HOLD BACK 4100 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	57			WEIGHT (kg/m ³)	1440	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	118	No. 1 STROKES PER MINUTE	89
TYPE	F27			EXCESS LIME	14.2	No. 2 LINER (mm)	140
SERIAL No.	LG2471			PV (mPa S)	44	20.5M. 2 STROKES PER MINUTE	89
NOZZLES (mm)	open			YP (Pa)	19	VOLUME (m ³)	2
DEPTH IN (m)	3053			GELS (Pa)	10/14	PRESSURE (kPa)	19600
METERS (m)	19			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	34
HOURS	30			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	23/25			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61
R.P.M.	30/90			FLUID LOSS (cc)	1.0	SOLIDS CONTROL	
CONDITION	in			CHLORIDES	338957	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB	2000	U.F. (kg/m ³)	
MTR XO	196	81	65/8REG	MUD ADDITIVES		OF. (kg/m ³)	
MWD XO	203	71	7H90	Barite 56sks		VOI. (l/min.)	
2 NMDC	231	76	7H90	Emul 1bbl		HOURS	
1 DC JAR	230	76	7H90	OW 1bbl		SURVEYS	
1 DC XO	228	76	7H90			ANGLE	DIRECTION
4 DC XO	168	73	5H90			3054	m 44.60 ° 219.50
27 HWDP	127	76	41/2 IF	DC \$ 1847 CC'S 1,121,730		m	°
BHA LENGTH	342.01	m		JTS. D.P.: ON RACKS	151	m	°
HOOK LOAD	131,000	daN		IN STRING	282	m	°
AVAILABLE WOB	26,000	daN		TOTAL	433	m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	5.75	CEMENT		CIRCUING		RIG REPAIR	10.25	TODAY	CUM.
TRIP	5.25	HOP DRILL		LOGGING		LOST CIRC.		11.75	5531.5
RIG SERVICE	5	HANDLE TOOLS		TESTING		REAM & WASH		2	115.5
SURVEY	25			CIRC. SAMPLE	2	Work junk sub		10.25	WRO
SLIP & CUT				HANDLE TOOLS		Circ. gas		24	6527
COND. MUD				TRIP				Light snow	
JIPPLEUP/TN				REAM RATIORE				-5 °C	
CUN CASING				CIRCULATE				good	

24 SUMMARY

Drill 311mm hole with vector 1.83 degree slow speed motor. Rig service and survey. Circulate 3072m sample.
 Work junk sub and hoist for bit. Circulate 6 stands out, pump trip pill and hoist to 2100m. check Elmago, out side bearing
 was worn out. Pull into the casing. Circulate hole and work on Elmago brake. Wait on bearing.

otate -3068-3072m

ole drag up-25-35000dan down-10-15000dan

orque on bottom -1350-1500 psi

ack ground gas -1.25 units.

ud lost last 24 Hrs. -2.6m3

IGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97/10/10 REPORT NO. 271
 DEPTH: 3068 m PROGRESS: 13 m FORMATION: Muskwa
 OPERATIONS AT 06:00 HOURS: Drilling (rotate)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 45438 CUM. COST: \$ 19,178,454 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6300 kPa @: 93 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 3-----1 MAXIMUM CASING HOLD BACK 4100 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	57			WEIGHT (kg/m ³)	1440	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (cP)	101	No. 1 STROKES PER MINUTE	89	
TYPE	F27			EXCESS LIME	14.6	No. 2 LINER (mm)	140	
SERIAL No.	LG2471			PV (mPa S)	44	20.5 No. 2 STROKES PER MINUTE	89	
NOZZLES (mm)	open			YP (Pa)	18	VOLUME (m ³)	2	
DEPTH IN (in)	3053			GELS (Pa)	11/16	PRESSURE (kPa)	19400	
METERS (m)	15			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	34	
HOURS	24.25			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	43	
WOB (1000 daN)	23/25			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61	
R.P.M.	30/90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL		
CONDITION	in			CHLORIDES	318,845	SHAKER SCREENS	110 - 140	
DRILLING ASSEMBLY				OIL WATER	90/10	DRYER SCREENS	140	
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000		D. SILT.	CENT.
MTR XO	196	81	65/8 REG	MUD ADDITIVES		U.F. (kg/m ³)		
MWD XO	203	71	7H90	Emul 1bbl		OF. (kg/m ³)		
2 NMDC	231	76	7H90	OW 1bbl		VOL. (l/min.)		
1 DC JAR	230	76	7H90	FL 1bbl		HOURS		
1 DC XO	228	76	7H90	Lime 15sxs		SURVEYS	ANGLE	DIRECTION
4 DC XO	168	73	5H90			3036	m 44.80	° 219.70
27 HWD	127	76	41/2 IF	DC S 2247	CCS 1119,883	3045	m 44.90	° 219.60
BHA LENGTH	342.01	m		JTS. D.P. ON RACKS	151		m	°
HOOK LOAD	131,000	daN		IN STRING	282		m	°
AVAILABLE WOB	26,000	daN		TOTAL	433		m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	21	CEMENT		CORING		RIG REPAIR	5	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		22.5	5519.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		RIAM & WASH		1	113.5
SURVEY	.75			CIRC. SAMPLE	1	Work junk sub		.5	869.75
SLIP & CUT				HANDLE TOOLS		Circ. gas		24	6503
COND. MUD				TRIP				WEATHER	
NIPPLEUP/DN				REAM RATHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								Cloudy	
								-5 °C	
								good	

24 SUMMARY

Circulate 3055m sample. Drill 311mm hole with rig service and survey. Work on both pumps.

Rotate -3055-

Hole drag up-35-45000daN down-20-25000daN

Torque on bottom - 1350-1600psi

Back ground gas - 120units.

Mud lost last 24 Hrs. -3m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403)424-8050

Halliburton Drilling Systems

Survey Report

Page 1

Job No: 97D006

Date: 09/10/97

Time: 11:34 pm

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 09/10/97

Calculated using the Minimum Curvature Method

Computed using PDS VER2.2.4 - BETA

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED

RANGER Fort Liard P - 66 - A

IN UNIT P SECTION 66

Cactus #26E KB: 459.89 m

97D006

UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. (m)	Dir. (deg.)	DLS (dg/30m)
2903.00	43.70	224.80	2539.46	-2079.57	909.53	640.40 S	645.87W	909.54	225.24	2.39
2913.00	44.00	224.10	2546.67	-2086.78	916.46	645.34 S	650.72W	916.47	225.24	1.71
2921.00	44.80	222.40	2552.39	-2092.50	922.05	649.42 S	654.56W	922.06	225.23	5.38
2931.00	45.30	222.20	2559.45	-2099.56	929.12	654.66 S	659.32W	929.13	225.20	1.56
2940.00	45.80	223.80	2565.75	-2105.86	935.54	659.35 S	663.70W	935.55	225.19	4.16
2950.00	46.10	222.50	2572.71	-2112.82	942.72	664.60 S	668.62W	942.73	225.17	2.94
2959.00	46.40	222.10	2578.93	-2119.04	949.22	669.41 S	672.95W	949.22	225.15	1.39
2969.00	46.30	220.90	2585.83	-2125.94	956.44	674.82 S	677.75W	956.44	225.13	2.62
2978.00	45.40	220.60	2592.10	-2132.21	962.88	679.72 S	682.00W	962.88	225.10	3.08
2988.00	44.80	220.00	2599.16	-2139.27	969.94	685.12 S	686.58W	969.94	225.06	2.21
2998.00	44.80	220.10	2606.26	-2146.37	976.96	690.51 S	691.12W	976.96	225.03	0.21
3013.00	45.20	220.40	2616.66	-2156.97	987.53	698.61 S	697.97W	987.53	224.97	0.91
3023.00	45.20	220.60	2623.91	-2164.02	994.60	704.00 S	702.58W	994.60	224.94	0.43
3032.00	44.90	219.70	2630.27	-2170.38	1000.95	708.87 S	706.65W	1000.95	224.91	2.35
3036.00	44.80	219.70	2633.10	-2173.21	1003.76	711.04 S	708.46W	1003.76	224.90	0.75
3045.00	44.90	219.60	2639.48	-2179.59	1010.08	715.93 S	712.54W	1010.08	224.86	0.41

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97/10/10 REPORT NO.: 271
 DEPTH: 3068 m PROGRESS: 13 m FORMATION: Muskwa
 OPERATIONS AT 06:00 HOURS: Drilling (rotate)
 CONTRACTOR/RIG SUPT.: Precision Drilg rig #426E Terry Gorgichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 45438 CUM. COST: \$ 19,178,454 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6300 kPa @: 93 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 3-1 MAXIMUM CASING HOLD BACK 4100 kPa

BIT PERFORMANCE

MUD PROPERTIES

PUMPS

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97/10/09 REPORT NO. 270
 DEPTH: 3055 m PROGRESS: 5 m FORMATION: Muskaw
 OPERATIONS AT 06:00 HOURS: Circulate sample
 CONTRACTOR/RIG SUPT.: Precision Drilling #426E Terry Gorgichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 51494 CUM. COST: \$ 19,133,016 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE Tripping WELL SECURED IN 2 MIN.
 CONDUCTED AT 1000 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 1-0 MAXIMUM CASING HOLD BACK 4200 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	<u>57</u>			WEIGHT (kg/m ³)	<u>1435</u>	No. 1 LINER (mm)	<u>140</u>
SIZE (mm)	<u>311</u>			VISCOSITY (s/l)	<u>110</u>	No. 1 STROKES PER MINUTE	<u>89</u>
TYPE	<u>F27</u>			EXCESS LIME	<u>13.0</u>	No. 2 LINER (mm)	<u>140</u>
SERIAL No.	<u>LG2471</u>			PV (mPa S)	<u>47</u>	20.5 No. 2 STROKES PER MINUTE	<u>89</u>
NOZZLES (mm)	<u>open</u>			YP (Pa)	<u>18</u>	VOLUME (m ³)	<u>2</u>
DEPTH IN (m)	<u>3053</u>			GELS (Pa)	<u>10/15</u>	PRESSURE (kPa)	<u>19500</u>
METERS (m)	<u>5</u> <u>2</u>			SAND (%)	<u>Tr.</u>	D.P. ANNULAR VEL. (m/min.)	<u>34</u>
HOURS	<u>3.35</u>			SOLIDS (%)	<u>27</u>	D.C. ANNULAR VEL. (m/min.)	<u>43</u>
WOB (1000 daN)	<u>23</u>			FILTER CAKE (mm desc.)	<u>1</u>	D.C. ANNULAR VEL. (m/min.)	<u>61</u>
R.P.M.	<u>30/90</u>			FLUID LOSS (cc)	<u>1.0</u>	SOLIDS CONTROL	
CONDITION	<u>in</u>			CHLORIDES	<u>259513</u>	SHAKER SCREENS	<u>110 - 140</u>
DRILLING ASSEMBLY				OIL WATER	<u>92/8</u>	DRYER SCREENS	<u>140</u>
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB	<u>2000</u>	U.F. (kg/m ³)	D. SILT
MTR XO	<u>196</u>	<u>81</u>	<u>65/8 REG</u>	MUD ADDITIVES		OF (kg/m ³)	CENT.
MWD XO	<u>203</u>	<u>71</u>	<u>7H90</u>			VOL. (l/min.)	
2 NMDC	<u>231</u>	<u>76</u>	<u>7H90</u>			HOURS	
1 DC JAR	<u>230</u>	<u>76</u>	<u>7H90</u>			SURVEYS	ANGLE
1 DC XO	<u>228</u>	<u>76</u>	<u>7H90</u>				DIRECTION
4 DC XO	<u>168</u>	<u>73</u>	<u>5H90</u>				
27 HWDP	<u>127</u>	<u>76</u>	<u>4 1/2 IF</u>	DC S 0	CCS 1117636		
BHA LENGTH	<u>342.01</u>		m	JTS D.P.: ON RACKS	<u>151</u>		
HOOK LOAD	<u>139,000</u>		daN	IN STRING	<u>282</u>		
AVAILABLE WOB	<u>26,000</u>		daN	TOTAL	<u>433</u>		

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	<u>3.25</u>	CEMENT		CORING		RIG REPAIR	<u>6.25</u>	TODAY	CUM.
TRIP	<u>8</u>	BOP DRILL		LOGGING		LOST CIRC		<u>13</u>	<u>5497.25</u>
RIG SERVICE	<u>.75</u>	HANDLE TOOLS		TESTING		REAM & WASH	<u>1</u>	<u>2.25</u>	<u>112.5</u>
SURVEY	<u>.25</u>			CIRC. SAMPLE	<u>2.25</u>	Work junk sub	<u>.5</u>	<u>8.75</u>	<u>869.25</u>
SLIP & CUT	<u>.75</u>			HANDLE TOOLS		Circ. gas	<u>1</u>	<u>24</u>	<u>6479</u>
COND. MUD				TRIP				WEATHER	<u>Clear</u>
PIPELIFTING				REAM RATHOLE				TEMPERATURE	<u>-9 °C</u>
RUN CASING				CIRCULATE				ROADS	<u>fair</u>

24 SUMMARY

Run in hole Pick up singles with good hard banding. Slip and cut line. Run in. Two scr's down. Work on panels.
 Blown fuses and RLI relays. Finish in with MWD check and staging motor to 3020m. Ream to bottom and work junk sub.
 Circulate out trip gas maximum 4050 units. Work on #2 pump. Drill 31 lmm hole. Survey. Circulate 3055m sample.

Rotate -3053-3055

Hole drag up-15-30000dan down-15-20000dan

Torque on bottom -1350-1650 psi

Lack ground gas - 156units.

Fluid lost last 24 Hrs. -2.7m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97/10/08 REPORT NO.: 269
 DEPTH: 3048 3050 m PROGRESS: 3053 2 m FORMATION: Muskaw
 OPERATIONS AT 06:00 HOURS: Handle tools
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 41403 CUM. COST: \$ 19,081,522 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6900 kPa @: 94 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 18.07 m³ ACTUAL HOLE FILL: 17.87 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 1-1-1 MAXIMUM CASING HOLD BACK 4200 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	57	56		WEIGHT (kg/m ³)	1430	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (s/l)	117	No. 1 STROKES PER MINUTE	89
TYPE	F27	F2		EXCESS LIME	10.2	No. 2 LINER (mm)	140
SERIAL No.	LG2471	LG4835		PV (mPa S)	46	20 SNo. 2 STROKES PER MINUTE	89
NOZZLES (mm)	open	OPEN		YP (Pa)	19.5	VOLUME (m ³)	2
DEPTH IN (m)		3017		GELS (Pa)	10.5/15	PRESSURE (kPa)	19400
METERS (m)		36		SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	34
HOURS		42.25		SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)		23/24		FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61
R.P.M.		35/90		FLUID LOSS (cc)	1.2	SOLIDS CONTROL	
CONDITION		5-7-1-23		CHLORIDES	226,574	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	90/10	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	1682		
MTR XO	196	81	65/8 REG	MUD ADDITIVES		D. SILT.	CENT.
MWD XO	203	71	7H90	Barite 60xss		U.F. (kg/m ³)	2505
2 NMDC	231	76	7H90	Emul 1bbl		OF. (kg/m ³)	1360
1 DC JAR	230	76	7H90	OW 1bbl		VOL. (l/min.)	2
1 DC XO	228	76	7H90	FI 1bbl		HOURS	2.8
4 DC XO	168	73	5H90			SURVEYS	ANGLE DIRECTION
27 HWD	127	76	4 1/2 IF	DC \$ 2646	CC\$ 1117636	3032	m 44.9 ° 219.7
BHA LENGTH	342.01	m		JTS. D.P. ON RACKS	151		m °
HOOK LOAD	139,000	daN		: IN STRING	282		m °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		HARY	
DRILLING	6.25	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP	8.75	DRIP DRILL		LOADING		LOST CIRC.		18.25	3484.25
RIG SERVICE	.75	HANDLE TOOLS	2.25	TESTING		REAM & WASH		5.75	110.25
SURVEY	.25			CIRC. SAMPLE	5.75	Work junk sub			860.5
SLIP & CUT				HANDLE TOOLS		Circ. gas		24	6455
COND. MUD				TRIP				WEATHER	
NO. PLUG/ON				REAM RATE HOLE				TEMPERATURE:	
RUN CASING				CIRCULATE				ROADS	
								Lite snow	
								-5 °C	
								poor	

24 SUMMARY

Drill 311mm hole to 3050m. Circulate sample. Drill to 3050m and circulate sample. Bit torqued up. Mix trip pill
 And circulate out 6 stands. Pump pill and hoist. Lay out singles with worn hard band. Clean junk sub. lay out motor. Check
 MWD. Pick up new motor and bit. Hole was good on trip out.

Rotate -3048-3053m

Hole drag up-20/30000dan down-10-15000dan

Torque on bottom - 1350-1600 psi

Back ground gas - 700units.

And lost last 24 Hrs. -4.2m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97/10/07 REPORT NO.: 268
 DEPTH: 3048 m PROGRESS: 16 m FORMATION: Muskaw
 OPERATIONS AT 06:00 HOURS: Drilling (rotate)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 78911 CUM. COST: \$ 19,040,119 AFE NO: E&D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6200 kPa @: 90 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 1-7 MAXIMUM CASING HOLD BACK 4100 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	56			WEIGHT (kg/m ³)	1440	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	98	No. 1 STROKES PER MINUTE	89
TYPE	F2			EXCESS LIME	13	No. 2 LINER (mm)	140
SERIAL No.	LG4835			PV (mPa S)	43	20.5% 2 STROKES PER MINUTE	89
NOZZLES (mm)	OPEN			YP (Pa)	20	VOLUME (m ³)	2
DEPTH IN (m)	3017			GELS (Pa)	13/21	PRESSURE (kPa)	19400
METERS (m)	31			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	34
HOURS	36			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	23/24			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61
R.P.M.	35/90			FLUID LOSS (cc)	0.8	<u>SOLIDS CONTROL</u>	
CONDITION	in			CHLORIDES	296037	SHAKER SCREENS	110 - 140
<u>DRILLING ASSEMBLY</u>				OIL WATER	93/7	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.I. TYPE	ELECTRICAL STAB.	2000		
MTR XO	196	81	65/8 REG	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)	2420
MWD XO	203	71	7H90	Emul 1bbl		OF. (kg/m ³)	1350
2 NMDC	231	76	7H90	OW 1bbl		VOL. (l/min.)	2
1 DC JAR	230	76	7H90	Lime 15pts		HOURS	2.75
1 DC XO	228	76	7H90			<u>SURVEYS</u>	
4 DC XO	168	73	5H90			ANGLE	DIRECTION
27 HWDP	127	76	4 1/2 IF	DC \$ 1482	CC\$ 1,114,990	3023	m 45.20 ° 220.6
BHA LENGTH	342.01	m	JTS. D.P.: ON RACKS	154		m	°
HOOK LOAD	139,000	daN	IN STRING	279		m	°
AVAILABLE WOB	26,000	daN	TOTAL	433		m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	21.75	CEMENT		CORING		RIG REPAIR	25	TODAY	CUM.
TRIP		BYP DRILL		LOGGING		LOST CIRC.		23	5466
RIG SERVICE	.75	HANDLE TOOLS		TESTING		BEAM & WASH		75	104.5
SURVEY	.5			CIRC. SAMPLE	.75	Work junk sub		23	860.5
SLIP & CUT				HANDLE TOOLS		Circ. gas		24	6431
COND. MID				TRIP				WEATHER	
NIPPLE/TWON				BEAM RATHOLE				snowing	
RUN CASING				CIRCULATE				TEMPERATURE:	
								-1 °C	
								ROADS	
								wet	

24 SUMMARY

Drill 311mm hole with 1.83 degree Vector motor. Rig service and surveys. Work on #2 mud pump.

Rotate - 3032-3048m
 Hole drag up-20/30000dan down- 15/20000dan Checked BOP bolts and flare line flanges
 Torque on bottom -1300-1700 psi No more barge runs.
 Back ground gas -222 units. Haul mud products from the river. (bed truck, cat and loader) Truck stuck at KM 18
 Mud lost last 24 Hrs. -2.5m3
 SIGNED BY: John Faulkner MOBILE NO: (403)210-1202 (403) 424-8050

10/06/97 05:47 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97/10/06 REPORT NO.: 267
 DEPTH: 3032 m PROGRESS: 15 m FORMATION: Muskawaw
 OPERATIONS AT 06:00 HOURS: Circulate sample
 CONTRACTOR/RIG SUPT.: Precision Drllg rig #426E Terry Gorgichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 37043 CUM. COST: \$ 18,924,165 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6100 kPa @: 87 SP1.1
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m ACTUAL HOLE FILL: _____ m13
 BOP DRILLS: CONDUCTED WHILE Drilling WELL SECURED IN 2 MIN.
 CONDUCTED AT 1600 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 0-6 MAXIMUM CASING HOLD BACK 4100 kPa

DRILLING PARAMETERS

4229 CORRECTED

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	56	WEIGHT (kg/m ³)	1440	No. 1 LINER (mm)	140		
SIZE (mm)	311	VISCOSITY (s/l)	94	No. 1 STROKES PER MINUTE	85		
TYPE	F2	EXCESS LIME	11.8	No. 2 LINER (mm)	140		
SERIAL No.	LG4835	PV (mPa S)	46	20 No. 2 STROKES PER MINUTE	87		
NOZZLES (mm)	OPEN	YP (Pa)	19.5	VOLUME (m ³)	2		
DEPTH IN (m)	3017	GELS (Pa)	10/14	PRESSURE (kPa)	19000		
METERS (m)	15	SAND (%)	1r.	D.P. ANNULAR VEL. (m/min.)	34		
HOURS	14.25	SOLIDS (%)	29	D.C. ANNULAR VEL. (m/min.)	43		
WOB (1000 daN)	23/24	FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61		
R.P.M.	35/90	FLUID LOSS (cc)	0.8	SOLIDS CONTROL			
CONDITION	in	CHLORIDES	253034	SHAKER SCREENS	110 - 140		
DRILLING ASSEMBLY				DRYER SCREENS	140		
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000		
MTR XO	196	81	65/8REG	MUD ADDITIVES			
MWD XO	203	71	7H90	Emul 1bb			
2 NMDC	231	76	7H90	OW 1bb			
1 DC IAR	230	76	7H90	Lime 15sks			
1 DC XO	228	76	7H90	Walnut 5sks			
4 DC XO	168	73	5H90				
27 HWDP	127	76	41/2 IF	DC S 1571	CCS 1,113,508		
BHA LENGTH	342.01	m	JTS. D.P.	ON RACKS	154		
HOOK LOAD	139,000	daN		IN STRING	279		
AVAILABLE WOB	26,000	daN		TOTAL	433		

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	14.25	CRMENT		CORING		RIG REPAIR	.5	TODAY	CUM.
TRIP	5.75	BOP DRILL		LOGGING		LOST CIRC.		23	3443
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			103.75
SURVEY	.25			CIRC SAMPLE	2	Work junk sub	.5	1	860.25
SLIP & CUT				HANDLE TOOLS		Circ. gas		24	6407
COND MUD				TRIP				WEATHER	
NIPPLEUPDN				REAM RATHOLE				TEMPERATURE:	
RUN CASING				CIRCULATE				ROADS	

24 SUMMARY

Finish trip in hole. Wash and ream 2 stands to bottom. Work junk sub. Drill 311mm hole with a Vector low speed motor Set at 1.83 degrees. Rig service and survey. Change suction valves on #2 pump. Drill to 3032m and circulate sample.

Slide-

Rotate - 3017-3032m

Hole drag up-25-30000 dan down- 15-20000dan

Torque on bottom - 14-1700 psi

Back ground gas -200 units

Trip gas 2975 units

Mud lost last 24 Hrs. -1.0m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8030

10/05/97 05:55 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 10/05/97 REPORT NO.: 266
 DEPTH: 3017 m PROGRESS: 5 m FORMATION: Muskaw
 OPERATIONS AT 06:00 HOURS: Run in with bit #56
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gurgichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 57228 CUM COST: \$ 18,924,165 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6500 kPa @: 86 SPN:
 TRIP RECORDS: CALCULATED HOLE FILL: m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 8-5 MAXIMUM CASING HOLD BACK 4200 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	55	56		WEIGHT (kg/m ³)	1435	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (s/l)	95	No. 1 STROKES PER MINUTE	85
TYPE	GT18M	F2		EXCESS LIME	11.8	No. 2 LINER (mm)	140
SERIAL No.	G39YK	LG4835		PV (mPa S)	47	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	OPEN	OPEN		YP (Pa)	20.5	VOLUME (m ³)	2
DEPTH IN (m)	2977	3017		GELS (Pa)	11/14	PRESSURE (kPa)	19500
METERS (m)	40			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	34
HOURS	30.25			SOLIDS (%)	29	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	20/18			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61
R.P.M.	30/90			FLUID LOSS (cc)	8	SOLIDS CONTROL	
CONDITION	7.4-1/4			CHLORIDES	265938	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	93/7	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000	U.F. (kg/m ³)	D. SILT.
MTR XO	196	81	65/8REG	MUD ADDITIVES		OF. (kg/m ³)	CENT.
MWD XO	203	71	7H90	Barite 60pts		VOL. (l/min.)	
2 NMDC	231	76	7H90	Walnut 9pts		HOURS	
1 DC JAR	230	76	7H90	Lime 15pts		SURVEYS	ANGLE
1 DC XO	228	76	7H90	Ermul 1bbl			DIRECTION
4 DC XO	168	73	5H90	OW 1bbl		2998	m 44.80 ° 220.10
27 HWDP	127	76	41/3 IF	DC S 2228	CCS 1,111,937		m °
BHA LENGTH	341.56	m		JTS. D.P.: ON RACKS	157		m °
HOOK LOAD	132,000	daN		: IN STRING	276		m °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	6	CEMENT		CORING		RIG REPAIR		TODAY	CUM
TRIP	11.5	BOP DRILL		LOGGING		LOST CT RC.		21.25	5420
RIG SERVICE	75	HANDLE TOOLS	2.75	TESTING		REAM & WASH		2.75	103.75
SURVEY	25			CIRC. SAMPLE	2.75	Work junk sub			859.25
SLIP & CUT				HANDLE TOOLS		Circ. gas		24	6383
COND. MUD				TRIP				TOTAL	
WIPPLEUPON				REAM RATHOLE				WEATHER	
RUN CASING				CIRCULATE				TEMPERATURE	
								ROADS	

24 SUMMARY

Drill 311mm hole with rig service and survey to 3017m. Pressure and torque spikes. Circulate up bottom sample.
 Circulate and hoist to 2742m. Flow check and pump trip pill. Hoist and lay out 25 joints of XHE drill pipe. (worn hard bands)
 Change out motors, check MWD. Pick up new Vector motor and bit. Run in BHA. Pick up 25 joints of good hard banded XHE
 Pipe. Run in hole.
 Slide-
 Rotate - 3012-3017m
 Hole drag up- 20/30000dan down- 12-18000dan
 Torque on bottom - 1350-1550 psi
 Back ground gas -700 units
 Mud lost last 24 Hrs. -1.2m3
 SIGNED BY: John Faulkner MOBILE NO: (403)210-1202 (403) 424-8050

10/05/97 05:55 FAX

**BHA REPORT**

October 4, 1997

 Page 1
 10/5/97 3:25:53 am
 Version VER2.2.4 - BETA

 Job No.: 97D006
 Operator: RANGER OIL LIMITED
 Field: FT. LIARD
 Well: 97d006s4
 Run No.: 1

 AFE No.: E8D-015
 Location: P-86-A
 MWD Operator(s): FERGUSON, McNEIL
 Dir/ Driller(s): JIM McFARLANE
 BHA No.: 85

Hole Size: 311.000 mm

BOTTOM HOLE ASSEMBLY
 Assembly Type: Steerable System
 Objective: HOLD INC AND DIRECTION TO TD

Reason Pulled: <undefined>

Motor Size / Type: 198.000 mm / 7/8 LOBE

Serial No.: 775-17-015 Circulating: 0.00 hrs

No.	Serial No.	Tool Description	OD (mm)	ID (mm)	Length (m)	Total Length (m)	Connections Up	Down	Conn
1	LG 4835	(BIT) SMITH,F2,TCI	311.000		0.35	0.35	6 5/8 Reg		P
2	JUNK SUB	(SUB) Cross-Over Sub	241.000	74.000	0.89	1.24	6 5/8 Reg	6 5/8 Reg	B/P
3	775-17-015	(MTR) VECTOR,7/8 LOBE, 1.830" Bend	198.000	151.308	7.10	8.34	6 5/8 Reg	6 5/8 Reg	B/B
4	L-3306	(SUB) Cross-Over Sub	193.000	87.000	0.24	8.58	6 5/8 Reg	6 5/8 Reg	P/P
5	PC-8056	(MWD) PULSER COLLAR battery(b5474), daa(4704), gamma(ugs-7077), muleshoe stinger(mi-1185), inter. plug/tandem sub(dipl1293/1222), pulser, dis(lp-4189), collar(pc-8056), float sub(xs-6102), muleshoe sub(ms-6077)	203.200	171.000	4.76	13.34	6 5/8 Reg	6 5/8 Reg	B/B
6	XO-9062	(SUB) Non-Mag Cross-Over Sub	232.000	77.000	0.69	14.03	7 H-90	6 5/8 Reg	B/P
7	9030-7092	(DC) Slick Non-Mag Drill Collar	231.000	83.000	8.44	23.47	7 H-90	7 H-90	B/P
8	9030-7093	(DC) Slick Non-Mag Drill Collar	232.000	83.000	9.45	32.92	7 H-90	7 H-90	B/P
9	RIG-1	(DC) Slick Drill Collar	230.000	76.000	8.59	42.51	7 H-90	7 H-90	B/P
10	10153	(JAR) FASTER Jar	221.000	64.000	5.50	48.01	7 H-90	7 H-90	B/P
11	RIG-1B	(DC) Slick Drill Collar	228.000	74.000	9.59	57.60	7 H-90	7 H-90	B/P
12	9x6.75-2	(SUB) Cross-Over Sub	228.000	73.000	0.90	58.50	5 H-90	7 H-90	B/P
13	RIG-4x6 3/4	(DC) 4 jts, Slick Drill Collar	168.000	73.000	35.48	93.98	5 H-90	5 H-90	B/P
14	6.75DC-4.5DR	(SUB) Cross-Over Sub	176.000	72.000	0.85	94.93	4 1/2 IF	5 H-90	B/P
15	27 x HWDP	(HW) 27 jts, Havi-Wate Drill Pipe	127.000	76.200	247.08	342.01	4 1/2 IF	4 1/2 IF	B/P

BIT DATA
 Manufacturer: SMITH
 Bit Type: TCI
 Serial No.: LG 4835
 Hours On Bit: 0.00

 IADC: 617X
 Depth In: 3017.59 - 3017.59 (0.00) m
 Nozzles: 25.4(3) mm
 MTG On Bit: 0.00

 Length: 0.35 m
 Gage Length: 0.00 mm
 TFA: 1520.122 mm2

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 10/04/97 REPORT NO.: 265
 DEPTH: 3012 m PROGRESS: 28 m FORMATION: Muskaw
 OPERATIONS AT 06:00 HOURS: Drill (rotate)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgighuk CO SUPERVISOR: John Faulkner
 DAILY COST: \$ 42974 CUM. COST: \$ 18,866,937 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5500 kPa @: 85 SPV
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 7-4 MAXIMUM CASING HOLD BACK 4250 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	55			WEIGHT (kg/m ³)	1430	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (cP)	97	No. 1 STROKES PER MINUTE	85
TYPE	GT18M			EXCESS LIME	11.1	No. 2 LINER (mm)	140
SERIAL No.	G39YK			PV (mPa S)	46	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	OPEN			YP (Pa)	20	VOLUME (m ³)	2
DEPTH IN (m)	2977			GELS (Pa)	10/13	PRESSURE (kPa)	19300
METERS (m)	35			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	34
HOURS	24.25			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	20			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61
R.P.M.	30/90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	in			CHLORIDES	253034	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000		
MTR XO	196	81	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)	
MWD XO	203	71	7H90	Truvisc 5xrs		OF. (kg/m ³)	
2 NMDC	211	76	7H90	Emul 1bbl		VOL. (U/min)	
1 DC JAR	230	76	7H90	Ow 1bbl		HOURS	
1 DC XO	228	76	7H90	Lime 15xrs		SURVEYS	
4 DC XO	168	73	SH90	Walnut 9xrs		ANGLE	DIRECTION
27 HWD	127	76	41/2 IF	DC S 2415	CCS 1,109,709	2969	m 46.30 ° 220.90
BHA LENGTH	341.56	m	JTS. D.P. ON RACKS	157	2978	m 45.40 ° 220.60	
HOOK LOAD	132,000	daN	IN STRING	276	2988	m 44.80 ° 220.00	
AVAILABLE WOB	26,000	daN	TOTAL	433			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	20	CFMENT		CORING		RIG REPAIR	2.25	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		21.5	5398.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		.25	101
SURVEY	.75			CIRC. SAMPLE	.25	Work junk sub		2.25	859.25
SLIP & CUT				HANDLE TOOLS		Circ gas		24	6359
COND. MUD				TRIP				WEATHER	
NIPPLE UP/DN				REAM RATHOLE				Overcast	
RUN CASING				CIRCULATE				0 °C	
								ROADS	
								wet	

24 SUMMARY

Drill 311mm hole with rig service and survey to 2999.77m. Repair steel ring gasket on discharge tee #2 pump.
 Drill ahead. Change discharge valves #2 pump. Circulate 3012m sample.

Slide- 2989-2991m

Rotate - 2984-2989m 2991-3012m

Hole drag up-20-35000dan Hole drag down -12-18000dan

Torque on bottom - 1325-1550 psi

Back ground gas - 1600units Started the boiler at 0800 hrs Oct 2/97

Mud lost last 24 Hrs. -1.8m3 Returned 3 mud motors via Pe Ben and single axle fuel truck Oct 03/97

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems

Survey Report

Page 1

Job No: 97D006

Date: 04/10/97

Time: 1:59 am

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 04/10/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
2855.00	43.30	226.50	2504.54	-2044.65	876.60	617.55 S	622.15W	876.61@225.21	0.88
2864.00	43.10	226.10	2511.10	-2051.21	882.76	621.81 S	626.61W	882.77@225.22	1.13
2874.00	43.30	226.50	2518.39	-2058.50	889.61	626.54 S	631.56W	889.61@225.23	1.02
2883.00	43.40	226.40	2524.93	-2065.04	895.78	630.80 S	638.03W	895.79@225.24	0.40
2893.00	43.30	225.80	2532.20	-2072.31	902.65	635.56 S	640.98W	902.66@225.24	1.27
2903.00	43.70	224.80	2539.46	-2079.57	909.53	640.40 S	645.87W	909.54@225.24	2.39
2913.00	44.00	224.10	2546.67	-2086.78	916.46	645.34 S	650.72W	916.47@225.24	1.71
2921.00	44.80	222.40	2552.39	-2092.50	922.05	649.42 S	654.56W	922.06@225.23	5.38
2931.00	45.30	222.20	2559.45	-2099.56	929.12	654.66 S	659.32W	929.13@225.20	1.56
2940.00	45.80	223.80	2565.75	-2105.86	935.54	659.35 S	663.70W	935.55@225.19	4.16
2950.00	46.10	222.50	2572.71	-2112.82	942.72	664.60 S	668.82W	942.73@225.17	2.94
2959.00	46.40	222.10	2578.93	-2119.04	949.22	669.41 S	672.95W	949.22@225.15	1.39
2969.00	46.30	220.90	2585.83	-2125.94	956.44	674.82 S	677.78W	956.44@225.13	2.62
2978.00	45.40	220.60	2592.10	-2132.21	962.88	679.72 S	682.00W	962.88@225.10	3.08
2988.00	44.80	220.00	2599.16	-2139.27	969.94	685.12 S	686.52W	969.94@225.06	2.21

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 10/03/97 REPORT NO: 264
 DEPTH: 2984 m PROGRESS: 8 m FORMATION: Muskaw
 OPERATIONS AT 06:00 HOURS: Drilling (rotate)
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Terry Gorgighuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 70401 CUM. COST: \$ 18,823,963 AFE NO. E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6000 kPa @ 90 SI M
 TRIP RECORDS: CALCULATED HOLE FILL 17.49 m³ ACTUAL HOLE FILL: 19.81 m³
 BOP DRILLS: CONDUCTED WHILE Tripping WELL SECURED IN 1.5 M N.
 CONDUCTED AT 10.00 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 6-3 MAXIMUM CASING HOLD BACK 4250 Pa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	55	54		WEIGHT (kg/m ³)	1425	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (s/l)	95	No. 1 STROKES PER MINUTE	85
TYPE	GT18M	F-3-P		EXCESS LIME	11.5	No. 2 LINER (mm)	140
SERIAL No.	G39YK	LH6324		PV (mPa S)	45	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	OPEN	OPEN		YP (Pa)	19.5	VOLUME (m ³)	2
DEPTH IN (m)	2977	2936		GELS (Pa)	10/14	PRESSURE (kPa)	19700
METERS (m)	7	41		SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	34
HOURS	4.25	55.25		SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	20	28/38		FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	61
R.P.M.	20/90	20/90		FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	in	3-4-1/16		CHLORIDES	296037	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	93/7	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL, STAB.	2000		
MTR XO	196	81	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)	
MWD XO	203	71	7H90	Barite 228sxs		OF. (kg/m ³)	
2 NMDC	231	76	7H90	OW 2bbis		VOL. (l/min.)	
1 DC JAR	230	76	7H90	Walnut 6sxs		HOURS	
1 DC XO	228	76	7H90			SURVEYS	
4 DC XO	168	73	5H90			ANGLE	DIRECTION
27 HWDP	127	76	41/2 IF	DC \$ 3659 CCS 1,107,294		2950	m 46.10 ° 222.50
BHA LENGTH	341.56	m		JTS. D.P.: ON RACKS	166	2959	m 46.40 ° 222.10
HOOK LOAD	132,000	daN		: IN STRING	267		m °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	4.75	CEMENT		CORING		RIG REPAIR	.25	TODAY	CUM.
TRIP	12.25	BOP DRILL	.25	LOGGING		LOST CIRC.		22.75	5377.5
RIG SERVICE	.75	HANDLE TOOLS	2.5	TESTING		REAM & WASH			100.7
SURVEY	.25			CIRC. SAMPLE		Work junk sub		1.25	857
SLIP & CUT				HANDLE TOOLS		Circ gas	1	24	6335
COND MUD	2			TRIP				TOTAL	
NIPPLEUP/DN				REAM RATHOLE				WEATHER	
RUN CASING				CIRCULATE				TEMPERATURE	
								ROADS	

24 SUMMARY

Drill to 2977m. Circulate sample and work junk sub. Circulate 6 stands out and pull 6 stands. BOP drill. Pump trip pill and hoist. Hole was good. Lay out junk sub and motor. Service MWD and pick up new Dynadrill and set to 1.83 degrees. Run in hole, check MWD. stage motor in hole. Wash to bottom from 2935m. Drill 311mm hole. Circulate trip gas. 3300 Units. Drill with survey.
 Slide- 2979-2982m
 Rotate - 2976-2979m 2982-2984
 Hole drag up-20/30000dan Hole drag down -10/18000dan
 Torque on bottom - 1650 psi
 Back ground gas - 368units
 Mud lost last 24 Hrs. -1.0m3
 SIGNED BY: John Faulkner MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems

Survey Report

Page 1

Job No: 97D006

Date: 03/10/97

Time: 4:44 am

Wellpath ID: 97d006s1

Date Created: 27/01/97

Last Revision: 03/10/97

Calculated using the Minimum Curvature Method

Computed using PDS VER2.2.4 - SETA

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED

RANGER Fort Liard P - 66 - A

IN UNIT P SECTION 66

Cactus #26E KB: 459.89 m

97D006

UWI 300P66S040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)		DLS (dg/30m)
2804.00	42.20	229.20	2467.09	-2007.20	842.01	593.99 S	596.79W	842.01@225.13		1.21
2814.00	42.20	227.00	2474.50	-2014.61	848.72	598.52 S	601.75W	848.72@225.15		2.42
2827.00	42.40	226.80	2484.11	-2024.22	857.47	604.50 S	608.14W	857.47@225.17		0.56
2836.00	43.20	227.60	2490.72	-2030.83	863.58	608.66 S	612.62W	863.58@225.19		3.22
2845.00	43.40	226.90	2497.27	-2037.38	869.74	612.85 S	617.16W	869.75@225.20		1.73
2855.00	43.30	226.50	2504.54	-2044.65	876.60	617.55 S	622.15W	876.61@225.21		0.88
2864.00	43.10	226.10	2511.10	-2051.21	882.76	621.81 S	626.61W	882.77@225.22		1.13
2874.00	43.30	226.50	2518.39	-2058.50	889.61	626.54 S	631.56W	889.61@225.23		1.02
2883.00	43.40	226.40	2524.93	-2065.04	895.78	630.80 S	636.03W	895.75@225.24		0.40
2893.00	43.30	225.80	2532.20	-2072.31	902.65	635.56 S	640.98W	902.66@225.24		1.27
2903.00	43.70	224.80	2539.46	-2079.57	909.53	640.40 S	645.87W	909.54@225.24		2.39
2913.00	44.00	224.10	2546.67	-2086.78	916.46	645.34 S	650.72W	916.47@225.24		1.71
2921.00	44.80	222.40	2552.39	-2092.50	922.05	649.42 S	654.56W	922.06@225.23		5.38
2931.00	45.30	222.20	2559.45	-2099.56	929.12	654.66 S	659.32W	929.13@225.20		1.56
2940.00	45.80	223.80	2565.75	-2105.88	935.54	659.35 S	663.70W	935.55@225.19		4.16
2950.00	46.10	222.50	2572.71	-2112.82	942.72	664.60 S	668.62W	942.73@225.17		2.94
2959.00	46.40	222.10	2578.93	-2119.04	949.22	669.41 S	672.95W	949.22@225.15		1.39

RANGER OIL LIMITED

ANDY

WELL Ranger Fort Liard P-66-A DATE 10/02/97 REPORT NO.: 263
 DEPTH: 2976 m PROGRESS: 16 m FORMATION: _____
 OPERATIONS AT 06.00 HOURS. Drilling (rotate)
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Terry Gorgighuk CO SUPERVISOR: John Faulkner
 DAILY COST: \$ 41806 CUM. COST: \$ 18,753,562 AFE NO. E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6300 kPa @: 93 SP: 1
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS CONDUCTED WHILE _____ WELL SECURED IN _____ MI.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 4-1 MAXIMUM CASING HOLD BACK 4250 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	54	WEIGHT (kg/m ³)	1425	1415	No. 1 LINER (mm)	140	
SIZE (mm)	311	VISCOSITY (s/l)	95	94	No. 1 STROKES PER MINUTE	91	
TYPE	F-3-P	EXCESS LIME	11.1		No. 2 LINER (mm)	140	
SERIAL No.	LH6324	PV (mPa S)	42		No. 2 STROKES PER MINUTE	91	
NOZZLES (mm)	OPEN	YP (Pa)	18.5		VOLUME (m ³)	2.13	
DEPTH IN (m)	2936	GELS (Pa)	10/14		PRESSURE (kPa)	19300	
METERS (m)	40	SAND (%)	Trc		D.P. ANNULAR VEL. (m/min.)	35	
HOURS	54.75	SOLIDS (%)	28		D.C. ANNULAR VEL. (m/min.)	45	
WOB (1000 daN)	28/38	FILTER CAKE (mm desc.)	1		D.C. ANNULAR VEL. (m/min.)	63	
R.P.M.	20/90	FLUID LOSS (cc)	0.8		SOLIDS CONTROL		
CONDITION	in	CHLORIDES	296037		SHAKER SCREENS	110 - 140	
DRILLING ASSEMBLY				OIL WATER	93/7	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000		
MTR XO	196	81	65/8 REG	MUD ADDITIVES		U.F. (kg/m ³)	
MWD XO	203	71	7H90	Emul 3bbbls	Lime 15sxs	OF. (kg/m ³)	
2 NMDC	231	76	7H90	Ow 3bbbls		VOL. (l/min.)	
1 DC IAR	230	76	7H90	Truvis 10sxs		HOURS	
1 DC XO	228	76	7H90	Interdri S 25sxs		SURVEYS	
4 DC XO	168	73	5H90	Walnut 11sxs		ANGLE	DIRECTION
27 HWDP	127	76	41/2 IF	DC S 6790	CCS 1,103,635	2950	m 46.1 ° 222.5
BHA LENGTH	346.62	m	JTS. D.P.: ON RACKS	166		m	°
HOOK LOAD	132,000	daN	IN STRING	267		m	°
AVAILABLE WOB	26,000	daN	TOTAL	433		m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	19.25	CEMENT		CORING		RIG REPAIR		TIME	TIME
TRIP		BOP DRILL		LOGGING		LOST CIRC.		20.25	5354.
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		EVALUATION	100.7
SURVEY	.25			CIRC. SAMPLE		Work junk sub		PROBLEMS	3.75 855.7
SLIP & CUT				HANDLE TOOLS		Circ gas	3.75	TOTAL	24 6311
COND. MUD				TRIP				WEATHER	Snowing 3 in.
NIPPLE UP/DN				REAM RATHOLE				TEMPERATURE	0 °C
RUN CASING				CIRCULATE				ROADS	wet

24 SUMMARY

Drill 311mm hole with a Tru Dril slow speed motor. Set at 1.83 degrees. Survey and rig service. Drilled to 2975m.
 Circulate gas cut mud. 1250 units with the pumps running 120 strokes. The gas is coming from a fracture at 2973.6m
 Mix Barite and circulate out gas. Drill ahead

Slide- 2960m-2964m 2970-2975m

Rotate - 2964-2970m 2975-2976m

Hole drag up-20-30000dan Hole drag down -8-18000dan

Torque on bottom - 1200-1500 psi

Moved single axle fuel truck to the barge landing.

Back ground gas - 870units and decreasing.

max gas with pumps running at 180 spm-2800 units

Mud lost last 24 Hrs. -3.8m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 10/01/97 REPORT NO: 262
 DEPTH: 2960 m PROGRESS: 12 m FORMATION: Horn River
 OPERATIONS AT 06.00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Terry Gorgighuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 44531 CUM. COST: \$ 18,711,756 AFE NO. E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6300 kPa @: 90 SP 4
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ r 3
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MI 4
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 4-1 MAXIMUM CASING HOLD BACK 4300 kPa 2

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	54	WEIGHT (kg/m ³)	1415	No. 1 LINER (mm)	140		
SIZE (mm)	311	VISCOSITY (s/l)	93	No. 1 STROKES PER MINUTE	91		
TYPE	F-3-P	EXCESS LIME	11.5	No. 2 LINER (mm)	140		
SERIAL No.	LH6324	PV (mPa S)	43	No. 2 STROKES PER MINUTE	91		
NOZZLES (mm)	OPEN	YP (Pa)	19	VOLUME (m ³)	2.13		
DEPTH IN (m)	2936	GELS (Pa)	11/14	PRESSURE (kPa)	19200		
METERS (m)	24	SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	35		
HOURS	35.5	SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	45		
WOB (1000 daN)	28/38	FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63		
R.P.M.	20/90	FLUID LOSS (cc)	0.8	SOLIDS CONTROL			
CONDITION	in	CHLORIDES	291105	SHAKER SCREENS	110 - 140		
DRILLING ASSEMBLY				DRYER SCREENS	140		
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000	D. SILT	CENT.
MTR XO	196	81	65/8REG	MUD ADDITIVES			
MWD XO	203	71	7H90	Emul 1bbl			
2 NMDC	231	76	7H90	Ow 2bbl			
1 DC JAR	230	76	7H90	Walnut 14sxs			
1 DC XO	228	76	7H90				
4 DC XO	168	73	5H90				
27 HWD	127	76	41/2 IF	DC \$ 2412 CC\$ 1,096,845			
BHA LENGTH	346.62	m	JTS. D.P. ON RACKS	166			
HOOK LOAD	132,000	daN	: IN STRING	267			
AVAILABLE WOB	26,000	daN	: TOTAL	433			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	21.5	CEMENT		CORING		RIG REPAIR	1.25	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC		22.75	5334.5
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		1.25	100.7
SURVEY	.5			CIRC. SAMPLE		Work junk sub		24	6287
SLIP & CUT				HANDLE TOOLS					
COND. MUD				TRIP					
NIPPLE UP/DN				REAM RATIOLE					
RUN CASING				CIRCULATE					

24 SUMMARY

Drill 311mm hole with Tru drill motor set at 1.83 degrees. Rig service and surveys. Work on pump (valves).

Slide- 2960m

Rotate - 2948-2960m

Hole drag up-35-40000 dan Hole drag down-15-20000dan

Torque on bottom - 1200-1500 psi

Back ground gas - 180units

Mud lost last 24 Hrs. - 1.1m³

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-30 REPORT NO: 261
 DEPTH 2948 m PROGRESS 12 m FORMATION: Horn River
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 35,141 CUM. COST: \$ 18,667,225 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5900 kPa @: 90 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 3 - 3 MAXIMUM CASING HOLD BACK 4400 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	54			WEIGHT (kg/m ³)	1415	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	93	No. 1 STROKES PER MINUTE	92
TYPE	F-3 P			EXCESS LIME	11.1	No. 2 LINER (mm)	140
SERIAL No.	LH6324			PV (mPa S)	44	No. 2 STROKES PER MINUTE	92
NOZZLES (mm)	OPEN			YP (Pa)	20.5	VOLUME (m ³)	2.2
DEPTH IN (m)	2936			GELS (Pa)	11/15	PRESSURE (kPa)	19,600
METERS (m)	12			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	34
HOURS	16			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	44
WOB (1000 daN)	28/38			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	61
R P M	20/90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	291105	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92/08	DRYER SCREENS	140
				ELECTRICAL STAB.	2000	D. SILT.	CENT.
JS-MTR XO	197	151	65/8REG	MUD ADDITIVES			
MWD XO	203	87	7H90	2 - Interdrill OW		U.F. (kg/m ³)	
2 NMDC	231	76	7H90	1 - Interdrill EMUL		OF. (kg/m ³)	
1 DC JAR	230	73	7H90	4 - Walnut		VOL. (l/min.)	
1 DC XO	228	76	7H90	15 - Lime		HOURS	
4 DC XO	168	73	5H90	168 - Barite		SURVEYS	ANGLE DIRECTION
27 HWDP	127	76	41/2 IF	DC \$ 3990 CCS 1,141,030		2921	m 44.8 ° 222.4
BHA	342.60	m		JTS D.P. ON RACKS	166		m °
HOOK LOAD	129,000	daN		: IN STRING	267		m °
AVAILABLE WOB	29,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING	16	CEMENT		CORING		RIG REPAIR	0.5		TODAY	CUM.
TRIP	3.75	BOP DRILL		LOGGING		LOST CIRC.		DRILL OP	20.75	5311.5
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH	0.75	EVALUATION	0	100.75
SURVEY	0.25	INSPECT BHA		CIRC. SAMPLE		WORK PIPE	0.5	PROBLEMS	3.25	850.75
SLIP & CUT				HANDLE TOOLS		WORK JUNK sub	0.25	TOTAL	24	6263
COND. MUD				TRIP		CIRC. OUT GAS	1.25	WEATHER	CLOUD	
VIBBLEUP/DN				REAM RATHOLE				TEMPERATURE	+3 °C	
RUN CASING				CIRCULATE				ROADS	MUDDY	

24 SUMMARY

Trip in with bit - Wash to bottom 2919m - 2936m no fill - Directional drill 311mm hole with 197mm 1.83 degree
 Tri-Drill mud motor and survey with MWD log with Gamma 2936m - 2938m - Flow check - Circulate out trip gas 3656 units
 Directional drill 311mm hole 2938m - 2948m - Bit torque and rough drilling at 2947.7m - 2948m
 Changed valve and seat #1 pump
 Slide - 2941m - 2944m
 Rotate - 2936m - 2941m 2944m - 2948m
 Hole drag up-20-33000dan Hole drag down- 15-20000dan
 Torque on bottom - 1300-1500 psi
 Back ground gas - 131units Trip gas - 3656 units
 Mud lost last 24 Hrs. - 1.5 m3
 SIGNED BY: Art Schmitt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-29 REPORT NO.: 260
 DEPTH: 2936 m PROGRESS: 9 m FORMATION: Horn River
 OPERATIONS AT 06:00 HOURS: TRIP IN WITH BIT#54 AND DIRECTIONAL TOOLS
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 57,516 CUM. COST: \$ 18,632,084 AFE NO.: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5700 kPa @: 90 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 17.44 m³ ACTUAL HOLE FILL: 18.26 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 2 - 2 MAXIMUM CASING HOLD BACK 4600 kP.

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS											
BIT NUMBER	53	54		WEIGHT (kg/m ³)	1395	No. 1 LINER (mm)	140										
SIZE (mm)	311	311		VISCOSITY (s/d)	89	No. 1 STROKES PER MINUTE	92										
TYPE	GT20	F-3P		EXCESS LIME	10.4	No. 2 LINER (mm)	140										
SERIAL No.	F 01 YP	1H6324		PV (mPa S)	44	No. 2 STROKES PER MINUTE	92										
NOZZLES (mm)	3x22.2	OPEN		YP (Pa)	19.5	VOLUME (m ³)	2.2										
DEPTH IN (m)	2902	2936		GELS (Pa)	10/14	PRESSURE (kPa)	18800										
METERS (m)	34			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	34										
HOURS	26.75			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	44										
WOB (1000 daN)	32/90			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	61										
R.P.M.	20/90			FLUID LOSS (cc)	0.8	<u>SOLIDS CONTROL</u>											
CONDITION	6-3-0			CHLORIDES	220,789	SHAKER SCREENS	110 - 140										
<u>DRILLING ASSEMBLY</u>				OIL WATER	90/10	DRYER SCREENS	140										
				ELECTRICAL STAB.	2000	<table><tr><td>D. SILT.</td><td>CENT.</td></tr><tr><td></td><td>2500</td></tr><tr><td></td><td>1345</td></tr><tr><td></td><td>3.0</td></tr><tr><td></td><td>2.5</td></tr></table>		D. SILT.	CENT.		2500		1345		3.0		2.5
D. SILT.	CENT.																
	2500																
	1345																
	3.0																
	2.5																
IS-MTR XO	197	151	65/HREG	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)											
MWD XO	203	87	7H90	1 - Inerdrill OW		OF. (kg/m ³)											
2 NMDC	231	76	7H90	1 - Inerdrill EMUL		VOL. (l/min.)											
1 DC JAR	230	73	7H90	12 - Walnut		HOURS											
1 DC XO	228	76	7H90	5 - Trivia 3m3 - Sump water		<u>SURVEYS</u>	<u>ANGLE</u>	<u>DIRECTION</u>									
4 DC XO	168	73	5H90	60 - Barite		2913	m 44.0	° 224.1									
27 HWDP	127	76	41/2 IF	DC S 2864 CCS 1,137,040			m	°									
BHA	342.60	m		JTS. D.P.: ON RACKS		166	m	°									
HOOK LOAD	129,000	daN		: IN STRING		267	m	°									
AVAILABLE WOB	29,000	daN		: TOTAL		433	m	°									

TIME BREAKDOWN

DRILLING	8.5	CEMENT		CORING		RIG REPAIR	1.0	DRILL OF EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM
TRIP	9.75	BOP DRILL		LOGGING		LOST CIRC.			22.5	5290.7
RIG SERVICE	0.75	HANDLE TOOLS	2.25	TESTING		REAM & WASH			0	100.75
SURVEY	0.5	INSPECT BHA		CIRC. SAMPLE		WORK PIPE			1.5	847.5
SLIP & CUT	0.75			HANDLE TOOLS		WORK JUNK sub	0.5		24	6239
COND. MUD				TRIP					CLEAR	
NIPPLE UP/DN				REAM HATHOLE					+6 °C	
RUN CASING				CIRCULATE					MUDDY	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Vector mud motor and survey with MWD log with
 Gamma 2927m - 2736m - Work junk sub - Circulate out 6 stands - Pump pill - Trip out - Change mud motor and bit
 Service MWD - Make up BHA - Slip and cut drill line - Trip in with bit #54 and 197mm 1.83 degree Tra-Drill mud motor

Slide - 2932m - 2935m

Rotate - 2927m - 2932m 2935m - 2936m

Hole drag up-20-33000daN Hole drag down- 15-20000daN

Torque on bottom - 1300-1500 psi

Back ground gas - 104 units Trip gas

Mud lost last 24 Hrs. - 3.0 m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems**Survey Report**

Page 1

Job No: 97D006

Date: 28/09/97

Time: 8:13 pm

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 28/09/97

Calculated using the Minimum Curvature Method

Computed using PDS VER2.2.4 - BETA

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED

RANGER Fort Liard P - 66 - A

IN UNIT P SECTION 66

Cactus #26E KB: 459.89 m

97D006

UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
2756.00	45.40	229.30	2432.34	-1972.45	809.00	572.36 S	571.74W	809.00@224.97	3.09
2766.00	44.80	230.00	2439.40	-1979.51	816.06	576.94 S	577.14W	816.06@225.01	2.34
2776.00	43.80	229.30	2446.56	-1986.67	823.02	581.46 S	582.46W	823.02@225.05	3.34
2785.00	43.00	229.80	2453.09	-1993.20	829.18	585.48 S	587.17W	829.18@225.08	2.90
2795.00	42.50	227.90	2460.44	-2000.55	835.96	589.94 S	592.28W	835.96@225.11	4.15
2804.00	42.20	228.20	2467.09	-2007.20	842.01	593.99 S	596.79W	842.01@225.13	1.21
2814.00	42.20	227.00	2474.50	-2014.61	848.72	598.52 S	601.75W	848.72@225.15	2.42
2827.00	42.40	226.80	2484.11	-2024.22	857.47	604.50 S	608.14W	857.47@225.17	0.56
2836.00	43.20	227.60	2490.72	-2030.83	863.58	608.66 S	612.62W	863.58@225.19	3.22
2845.00	43.40	226.80	2497.27	-2037.38	869.74	612.85 S	617.16W	869.75@225.20	1.73
2855.00	43.30	226.50	2504.54	-2044.65	876.60	617.55 S	622.19W	876.61@225.21	0.88
2864.00	43.10	226.10	2511.10	-2051.21	882.76	621.81 S	626.61W	882.77@225.22	1.13
2874.00	43.30	226.50	2518.39	-2058.50	889.61	626.54 S	631.56W	889.61@225.23	1.02
2883.00	43.40	226.40	2524.93	-2065.04	895.78	630.80 S	636.03W	895.79@225.24	0.40
2893.00	43.30	225.80	2532.20	-2072.31	902.65	635.56 S	640.98W	902.66@225.24	1.27
2903.00	43.70	224.80	2539.46	-2079.57	909.53	640.40 S	645.87W	909.54@225.24	2.39
2913.00	44.00	224.10	2546.67	-2086.78	916.46	645.34 S	650.72W	916.47@225.24	1.71

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-28 REPORT NO.: 259
 DEPTH: 2927 m PROGRESS: 25 m FORMATION: Horn River
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Terry Gongichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 35,850 CUM. COST: \$ 18,574,568 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6400 kPa @: 92 SPN
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: _____ m
 BOP DRILLS: CONDUCTED WHILE DRILLING WELL SECURED IN 2 - 2 MIN
 CONDUCTED AT 02:00 13:00 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 1 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	53			WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	98	No. 1 STROKES PER MINUTE	92
TYPE	GT20			EXCESS LIME	11.8	No. 2 LINER (mm)	140
SERIAL No.	F 01 YP			PV (mPa S)	45	No. 2 STROKES PER MINUTE	92
NOZZLES (mm)	3x22.2			YP (Pa)	17	VOLUME (m ³)	2.2
DEPTH IN (m)	2902			GELS (Pa)	9/13	PRESSURE (kPa)	18800
METERS (m)	25			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	34
HOURS	18.25			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	44
WOB (1000 daN)	32/90			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	61
R.P.M.	20/90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	338,957	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92/08	DRYER SCREENS	140
				ELECTRICAL STAB.	2000		
				MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.
JS-MTR XO	197	151	65/8REG	1 - Interdrill OW 8m3 - Premix		OF. (kg/m ³)	CENT.
MWD XO	203	87	7H90	1 - Interdrill EMUL		VOL. (l/min.)	
2 NMDC	231	76	7H90	5 - Walnut		HOURS	
1 DC JAR	230	73	7H90	15 - Lime		SURVEYS	
1 DC XO	228	76	7H90	5 - Truvis		ANGLE	
4 DC XO	168	73	5H90	DC S 2270 CCs 1,134,176		DIRECTION	
27 HWDP	127	76	4 1/2 IF				
BHA	342.12	m	JTS. D.P. ON RACKS	166	2903	m 43.4 °	226.4
HOOK LOAD	129,000	daN	: IN STRING	267		m 43.3 °	225.8
AVAILABLE WOB	29,000	daN	: TOTAL	433		m 43.7 °	224.8
						m	°

TIME BREAKDOWN

DRILLING	<u>18.25</u>	CEMENT		CORING		RIG REPAIR	<u>0.5</u>	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	<u>1.5</u>	BOP DRILL		LOGGING		LOST CIRC.			<u>21.75</u>	<u>5244.5</u>
RIG SERVICE	<u>0.75</u>	HANDLE TOOLS		TESTING		REAM & WASH	<u>1.75</u>		<u>0</u>	<u>100.75</u>
SURVEY	<u>1.25</u>	INSPECT BHA		CIRC. SAMPLE		WORK PIPE			<u>2.25</u>	<u>845.75</u>
SLIP & CUT				HANDLE TOOLS		WORK JUNK sub			<u>24</u>	<u>6215</u>
COND MUD				TRIP					CLEAR	
NIPPLE/PTN				REAM RATHOLE					<u>+6 °C</u>	
RUN CASING				CIRCULATE					MUDDY	

24 SUMMARY

Trip in to 2846m - Wash and ream 2846m -2897m - Ream under gauge hole 2897m - 2902m no fill
 Survey - Directional drill 311mm hole with 197mm 1.83 degree Vector mud motor and survey with MWD
 Log with Gamma 2902m - 2927m - Change head on #2 pump
 Slide - 2902m - 2909m 2912m - 2919m 2922m - 2927m
 Rotate - 2909m - 2912m 2919m - 2922m
 Hole drag up-20-30000dan Hole drag down- 15-20000dan
 Torque on bottom - 1400 -1650 psi
 Back ground gas - 51 units Trip gas
 Mud lost last 24 Hrs. - 2.0 m3
 SIGNED BY: Art Schmitt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-27 REPORT NO.: 258
DEPTH: 2902 m PROGRESS: 0 m FORMATION: Horn River
OPERATIONS AT 06:00 HOURS: TRIP IN WITH BIT #53 AND DIRECTIONAL TOOLS
CONTRACTOR/RIG SUPT.: Precision Drilg rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
DAILY COST: \$ 53,372 CUM. COST: \$ 18,538,718 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6400 kPa @: 92 SPH
TRIP RECORDS: CALCULATED HOLE FILL 19.31 m³ ACTUAL HOLE FILL: 16.81 m³
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MD
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
DAYS SINCE BOP DRILL (EACH CREW): 8 - 3 MAXIMUM CASING HOLD BACK 4600 k a

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	52	53		WEIGHT (kg/m ³)	1395	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (cP)	85	No. 1 STROKES PER MINUTE	92
TYPE	GT18	GT 20		EXCESS LIME	11.5	No. 2 LINER (mm)	140
SERIAL No.	G18 YL	F01YP		PV (mPa S)	46	No. 2 STROKES PER MINUTE	92
NOZZLES (mm)	3x22.2	3x22.2		YP (Pa)	17	VOLUME (m ³)	2.2
DEPTH IN (m)	2851	2902		GELS (Pa)	9/13	PRESSURE (kPa)	19100
METERS (m)	51			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	34
HOURS	40.25			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	44
WOB (1000 daN)	32/90			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	61
R.P.M.	20/90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	8-8-0			CHLORIDES	276,828	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	90/10	DRYER SCREENS	140
				ELECTRICAL STAB.	2000	U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS SURVEYS	D. SILT. CENT. ANGLE DIRECTION
JS-MTR XO	197	151	65/8REG	MUD ADDITIVES			
MWD XO	203	87	7H90	6 - Walnut			
2 NMDC	231	76	7H90	5 - Truvia			
1 DC JAR	230	73	7H90	55 - Barite		m m m m	° ° ° °
1 DC XO	228	76	7H90	4m3 - Premix			
4 DC XO	168	73	5H90	3m3 - Sump water			
27 HWD	127	76	41/2 IF	DC \$ 1343 CC\$ 1,131,906			
BHA	342.12	m		JTS. D.P.: ON RACKS	169		
HOOK LOAD	128,000	daN		IN STRING	264		
AVAILABLE WOB	29,000	daN		TOTAL	433		

TIME BREAKDOWN

DRILLING		CEMENT		CORING		RIG REPAIR	0.25	DRILL OF EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	10.5	BOP DRILL		LOGGING		LOST CIRC.			23.75	5246.7
RIG SERVICE	0.75	HANDLE TOOLS	3.0	TESTING		REAM & WASH			0	100.7
SURVEY		INSPECT BHA		CIRC. SAMPLE		WORK PIPE			25	843.7
SLIP & CUT		PRESSURE TEST	9.5	HANDLE TOOLS		WORK JUNK sub			24	6191
COND. MUD				TRIP					RAIN	
NIPPLEDOWN				REAM RATHOLE					+10 °C	
RUN CASING				CIRCULATE					MUDDY	

24 SUMMARY

Work on top drive - Pump pill - Trip out - Lay down directional tools - Pull wear bushing - Pressure test upper and lower pipe rams, blind rams, BOP valves, stabbing valves and top drive valves to 1400 kpa and 14000 kpa
Pressure test annular BOP to 1400 kpa and 8500 kpa - Function test accumulator starting pressure 20500 kpa open HCR close annular and 2 pipe rams open lower pipe rams 11,800 kpa pressure - Recharge accumulator in 2 minutes - Precharge pressure 8050 kpa - Install wear bushing - Make up directional tools and bit - Trip in shallow test MWD at 1165m

Hole drag up-20-30000dan Hole drag down- 15-20000dan

Torque on bottom - 1400 -1600 psi

Back ground gas - 63 units Trip gas

Mud lost last 24 Hrs. - 2.4 m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-26 REPORT NO. 257
 DEPTH: 2902 m PROGRESS: 20 m FORMATION: Horn River ?
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drilling #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 139,118 CUM. COST: \$ 18,485,346 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6400 kPa @ 92 SPA
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN _____ MIN
CONDUCTED AT _____ HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 8-3 MAXIMUM CASING HOLD BACK 4600 kl a

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	52			WEIGHT (kg/m ³)	1395	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	81	No. 1 STROKES PER MINUTE	92
TYPE	GT18			EXCESS LIME	11.1	No. 2 LINER (mm)	140
SERIAL No.	G18 YL			PV (mPa S)	47	No. 2 STROKES PER MINUTE	92
NOZZLES (mm)	3x22.2			YP (Pa)	17	VOLUME (m ³)	2.2
DEPTH IN (m)	2851			GELS (Pa)	8/12	PRESSURE (kPa)	19100
METERS (m)	51			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min)	34
HOURS	40.25			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min)	44
WOB (1000 daN)	32/90			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min)	61
R.P.M.	20/90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	315,436	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92/08	DRYER SCREENS	140
				ELECTRICAL STAB	2000		
JS-MTR XO	197	151	65/BREG	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT
MWD XO	203	87	7H90	5 - Walnut		OF. (kg/m ³)	CENT.
2 NMDC	231	76	7H90	2 - Interdrill OW		VOL. (l/min.)	
1 DC JAR	230	73	7H90	1 - Interdrill EMUL		HOURS	
1 DC XO	228	76	7H90	10 - Travis		SURVEYS	ANGLE
4 DC XO	168	73	5H90			2864	m 43.1 ° 226.1
27 HWDP	127	76	41/2 IF	DC S 3645 CCS 1,130,563		2874	m 43.3 ° 226.5
BHA	342.12	m		JTS D.P.: ON RACKS	169		m °
HOOK LOAD	128,000	daN		IN STRING	264		m °
AVAILABLE WOB	29,000	daN		TOTAL	433		m °

TIME BREAKDOWN

DRILLING	18.75	CEMENT		CORING		RIG REPAIR	2.0	DRILL UP	TODAY	CUM.
TRIP	0.75	BOP DRILL		LOGGING		LOST CIRC.		EVALUATION	21.75	522.75
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH		PROBLEMS	0	100.75
SURVEY	1.5	INSPECT BHA		CIRC. SAMPLE		WORK PIPE	0.25	TOTAL	2.25	843.5
SLIP & CUT				HANDLE TOOLS		WORK JUNK sub		WEATHER	24	6167
COND MUD				TRIP				TEMPERATURE	CLEAR	
NIPPLE UP/DN				REAM RATHOLE				ROADS	+12 °C	
RUN CASINO				CIRCULATE					GOOD	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Vector mud motor and survey with MWD Log with
 Gamma 2882m - 2902m - Trip for bit - Circulate out 6 stands - Change valves and seats #1 and #2 pump
 Work tight hole 2893m - 2890m
 Slide - 2883m - 2888m 2893m - 2899m
 Rotate - 2882m - 2883m 2888m - 2893m 2899m - 2902m
 Hole drag up-20-30000dan Hole drag down- 15-20000dan
 Torque on bottom - 1400-1600 psi
 Back ground gas - 63 units Trip gas
 Mud lost last 24 Hrs. - 2.0 m3
 SIGNED BY: Art Schmitt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-25 REPORT NO.: 256
 DEPTH: 2882 m PROGRESS: 31 m FORMATION: Ft. Simpson
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drilling #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$37,158 CUM. COST: \$18,346,228 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6300 kPa @: 90 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 7 - 2 MAXIMUM CASING HOLD BACK 4400 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	52			WEIGHT (kg/m ³)	1410	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	91	No. 1 STROKES PER MINUTE	92
TYPE	GT18			EXCESS LIME	11.5	No. 2 LINER (mm)	140
SERIAL No.	G18 YL			PV (mPa S)	41	No. 2 STROKES PER MINUTE	92
NOZZLES (mm)	3x22.2			YP (Pa)	18	VOLUME (m ³)	2.2
DEPTH IN (m)	2851			GELS (Pa)	10//13	PRESSURE (kPa)	19100
METERS (m)	31			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	34
HOURS	21.5			SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	44
WOB (1000 daN)	32//90			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	61
R.P.M.	20//90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	298,141	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	89//11	DRYER SCREENS	140
				ELECTRICAL STAB.	2000	U.F. (kg/m ³)	D. SILT. CENT.
JS-MTR XO	197	151	65/8REG	MUD ADDITIVES			2505
MWD XO	203	87	7H90	Walnut - 6	20 - Lime		1350
2 NMDC	231	76	7H90	5 - Interdrill OW	18m3 - Diesel		3.0
1 DC JAR	230	73	7H90	3 - Interdrill EMUL	15 - Interdrill S	HOURS	3.0
1 DC XO	228	76	7H90	2 - Interdrill FL	4m3 - Sump water	SURVEYS	ANGLE
4 DC XO	168	73	5H90	15 - Truvis	2m3 - Brine	2836	m 43.2 ° 227.6
27 HWDP	127	76	41/2 IF	DC S	CCS 1,126,918	2845	m 43.4 ° 226.9
BHA	342.12	m		JTS. D.P.: ON RACKS	170	2855	m 43.3 ° 226.5
HOOK LOAD	127,000	daN		IN STRING	263		m °
AVAILABLE WOB	29,000	daN		TOTAL	433		m °

TIME BREAKDOWN

DRILLING	21.5	CEMENT		CORING		RIG REPAIR	0.5	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.			23	5201
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH			0	100.75
SURVEY	.75	INSPECT BHA		CIRC. SAMPLE		WORK PIPE	0.5		1.0	841.25
SLIP & CUT				HANDLE TOOLS		WORK JUNK sub			24	6143
COND MUD				TRIP					CLOUDY	
NIPPLEUP/DN				REAM HATHOLE					+10 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Vector mud motor and survey with MWD Log with
 Gamma 2851m - 2882m - Work pipe tight hole 2858m - 2852m - Change valves #1 pump - Suction rubbers #2 pump

Slide - 2851m - 2859m 2864m - 2869m 2874m - 2879m

Rotate - 2859m - 2864m 2869m - 2874m 2879m - 2882m

Hole drag up-20-30000dan Hole drag down- 15-20000dan

Torque on bottom - 1400 -1600 psi

Back ground gas - 68 units Trip gas

And lost last 24 Hrs. - 1.5 m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-24 REPORT NO. 255
 DEPTH: 2851 m PROGRESS: 3 m FORMATION: Ft. Simpson
 OPERATIONS AT 06:00 HOURS: WASH AND REAM TO BOTTOM
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 59880 CUM. COST: \$ 18,309,070 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6200 kPa @: 86 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 17.05 m³ ACTUAL HOLE FILL: 20.14 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 6 -- 1 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS									
BIT NUMBER	51	52		WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140								
SIZE (mm)	311	311		VISCOSITY (s/l)	104	No. 1 STROKES PER MINUTE	85								
TYPE	S83F	GT18		EXCESS LIME	14.4	No. 2 LINER (mm)	140								
SERIAL No.	647342	G18VL		PV (mPa S)	44	No. 2 STROKES PER MINUTE	85								
NOZZLES (mm)	3x22.2	3x22.2		YP (Pa)	19	VOLUME (m ³)	2.0								
DEPTH IN (m)	2833			GELS (Pa)	9//15	PRESSURE (kPa)	18.600								
METERS (m)	18			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	32								
HOURS	22.25			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43								
WOB (1000 daN)	20//32			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57								
R.P.M.	31//150			FLUID LOSS (cc)	0.4	SOLIDS CONTROL									
CONDITION	6-2-I			CHLORIDES	338,957	SHAKER SCREENS	110 - 140								
DRILLING ASSEMBLY				OIL WATER	93//07	DRYER SCREENS	140								
				ELECTRICAL STAB.	2000	<table><tr><td>D. SILT</td><td>CENT.</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>		D. SILT	CENT.						
D. SILT	CENT.														
JS-MTR XO	197	151	65/8 REG	MUD ADDITIVES		U.F. (kg/m ³)									
MWD XO	203	87	7H90	8 - Walnut		OF. (kg/m ³)									
2 NMDC	231	76	7H90	139 - Barite		VOL. (l/min.)									
1 DC JAR	230	73	7H90			HOURS									
1 DC XO	228	76	7H90			SURVEYS									
4 DC XO	168	73	5H90												
27 HWDP	127	76	4 1/2 IF	DC S 1360	CCS 1,126,918	2827									
BHA	342.12	m	ITS D.P. ON RACKS		172										
HOOK LOAD	127,000	daN	IN STRING		261										
AVAILABLE WOB	29,000	daN	TOTAL		433										

TIME BREAKDOWN

DRILLING	4.5	CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL	TODAY	CUM.
TRIP	<u>12.75</u>	BOP DRILL		LOGGING		LOST CIRC.			<u>21.5</u>	<u>5178</u>
RIG SERVICE	<u>0.75</u>	HANDLE TOOLS	<u>3.5</u>	TESTING		REAM & WASH	<u>1.25</u>		<u>0</u>	<u>100.75</u>
SURVEY		INSPECT BHA		CIRC. SAMPLE		WORK PIPE			<u>2.5</u>	<u>840.25</u>
SLIP & CUT				HANDLE TOOLS		WORK LINK sub	<u>0.25</u>	WEATHER TEMPERATURE ROADS	<u>24</u>	<u>6119.5</u>
COND. MUD				TRIP		TIE UP TARPS	<u>1.0</u>		CLOUDY	
NIPPLE UP/DN				REAM RATHOLE					<u>+16 °C</u>	
RUN CASINO				CIRCULATE					GOOD	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Halliburton mud motor and survey with MWD Log with
 Gamma 2848m - 2851m - Work junk sub - Circulate out 6 stands - Pump pill - Trip out Change out mud motor and bit
 Service MWD - Trip in BHA - Tie down rig tarps due to high winds - Trip in shallow test MWD at 1162m
 Wash and ream to bottom 2734m - 2851m 0.5m fill
 Slide - 2848m - 2850m
 Rotate - 2850m - 2851m
 Hole drag up-15-25000dan Hole drag down- 10-20000dan
 Torque on bottom - 1100 -1450psi
 Back ground gas - 30 units Trip gas
 Aud lost last 24 Hrs. - 4.0 m3
 SIGNED BY: Art Schmitt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-23 REPORT NO.: 254
 DEPTH 2848 m PROGRESS: 15 m FORMATION: Ft. Simpson
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 36299 CUM. COST: \$ 18,249,190 AFF. NO.: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 7000 kPa @. 86 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 5 - 8 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	51			WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	104	No. 1 STROKES PER MINUTE	85
TYPE	S83F			EXCESS LIME	14.4	No. 2 LINER (mm)	140
SERIAL No.	647342			PV (mPa S)	44	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	3x22.2			YP (Pa)	19	VOLUME (m ³)	2.0
DEPTH IN (m)	2833			GELS (Pa)	9/115	PRESSURE (kPa)	18,600
METERS (m)	15			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	32
HOURS	17.75			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	20/32			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57
R.P.M.	31/150			FLUID LOSS (cc)	0.4	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	338,957	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	93/07	DRYER SCREENS	140
				ELECTRICAL STAB.	2000		
IS-MTR XO	197	151	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)	
MWD XO	203	87	7H90	1 - Interdrill OW		OF. (kg/m ³)	
2 NMDC	231	76	7H90	1 - Interdrill EMUL		VOL. (l/min.)	
1 DC JAR	230	73	7H90	6 - Walnut		HOURS	
1 DC XO	228	76	7H90	60 - Barite		SURVEYS	
4 DC XO	168	73	5H90			2804	ANGLE
27 HWDP	127	76	41/2 IF	DC S 1998 CCS 1,125,558		2814	DIRECTION
BHA	342.36	m		JTS D.P.: ON RACKS	172	2827	
HOOK LOAD	127,000	daN		IN STRING	261		
AVAILABLE WOB	29,000	daN		TOTAL	433		

TIME BREAKDOWN

DRILLING	17.75	CEMENT		CORING		RIG REPAIR	0.5	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	2.25	BOP DRILL		LOGGING		LOST CIRC.			21.25	5156.5
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH	1.25		0	100.75
SURVEY	0.5	INSPECT BHA		CIRC. SAMPLE		WORK PIPE	0.75		2.75	837.75
SLIP & CUT				HANDLE TOOLS		WORK JUNK sub	0.25		24	6095
COND MUD				TRIP					CLEAR	
ND/PLEUP/DN				REAM RATHOLE					+10 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Trip in to 2725m - Wash and ream 2725m - 2833m no fill - Work junk sub - Survey - Directional drill 311mm hole with
 197mm 1.83 degree Halliburton mud motor and survey with MWD log with Gamma 2833m - 2848m
 Work right hole 2832m - 2830m - Change 2 valves on #2 pump

Slide - 2833m - 2839m 2846m - 2848m
 Rotate - 2839m - 2846m
 Hole drag up-15-25000dan Hole drag down- 10-20000dan
 Torque on bottom - 1150 -1450psi
 Back ground gas - 30 units Trip gas
 Mud lost last 24 Hrs. - 3.1 m³
 SIGNED BY: Art Schmitt MOBILE NO: (403)210-1202 (403) 424-8050

002

RANGER OIL LIMITED

WELL	Ranger Fort Liard P-66-A	DATE	1997-09-22	REPORT NO :	253
DEPTH:	2833 m	PROGRESS:	6 m	FORMATION.	Ft. Simpson
OPERATIONS AT 06:00 HOURS: TRIP IN WITH DIRECTIONAL TOOLS AND BIT #51					
CONTRACTOR/RIG SUPT.:	Precision Drilg rig #426E Terry Gorgichuk	CO. SUPERVISOR:	Art Schritt		
DAILY COST:	\$ 60,662	CUM. COST:	\$ 18,212,891	AFE NO:	E6D - 015

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	7200	kPa @:	84	SPM
TRIP RECORDS: CALCULATED HOLE FILL		16.89	m ³	ACTUAL HOLE FILL:		19.33	m ³	
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN				MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE				SATISFACTORY
DAYS SINCE BOP DRILL (EACH CREW):		5 - 7		MAXIMUM CASING HOLD BACK		4400	kPa	

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	50	51		WEIGHT (kg/m ³)	1405	No. 1 LINER (mm)	140	
SIZE (mm)	311	311		VISCOSITY (μl)	107	No. 1 STROKES PER MINUTE	85	
TYPE	HP13G	S83F		EXCESS LIME	12.0	No. 2 LINER (mm)	140	
SERIAL No.	Du2681	G47342		PV (mPa S)	49	No. 2 STROKES PER MINUTE	85	
NOZZLES (mm)	3x22.2	3x22.2		YP (Pa)	21	VOLUME (m ³)	2.0	
DEPTH IN (m)	2827	2833		GELS (Pa)	9//15	PRESSURE (kPa)	19100	
METERS (m)	6			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	32	
HOURS	6			SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	43	
WOB (1000 daN)	20			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57	
R.P.M.	31//150			FLUID LOSS (cc)	0.4	<u>SOLIDS CONTROL</u>		
CONDITION	7-2-4			CHLORIDES	292,870	SHAKER SCREENS	110 - 140	
<u>DRILLING ASSEMBLY</u>				OIL WATER	91//09	DRYER SCREENS	140	
				ELECTRICAL STAB.	2000			
				<u>MUD ADDITIVES</u>				
MTR XO	197	151	65/8REG	2 - Walnut		U.F. (kg/m ³)	D. SILT.	CENT
MWD XO	203	87	7H90	SS - Barite		OF. (kg/m ³)		
2 NMDC	231	76	7H90			VOL. (l/min.)		
1 DC JAR	230	73	7H90			HOURS		
1 DC XO	228	76	7H90			<u>SURVEYS</u>	<u>ANGLE</u>	<u>DIRECTION</u>
4 DC XO	168	73	5H90					
27 HWDP	127	76	41/2 IF	DC & 518	CCS 1,123,560			
BHA	342.47	m		JTS D.P.: ON RACKS	175			
HOOK LOAD	126,000	daN		: IN STRING	258			
AVAILABLE WOB	29,000	daN		: TOTAL	433			

TIME BREAKDOWN

DRILLING	6.0	CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	14.5	BOP DRILL		LOGGING		LAST CIRC.			23.5	5135.25
RIG SERVICE	0.75	HANDLE TOOLS	1.25	TESTING		REAM & WASH	0.5		0	100.75
SURVEY	1.0	INSPECT BHA		CIRC. SAMPLE		WORK PIPE			5	835
SLIP & CUT				HANDLE TOOLS					24	6071
COND. MUD				TRIP					CLEAR	
NIPPLE UP/DN				REAM KATHOLE					+6 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Trip in function test MWD at 1170m - Trip in to 2704m - Wash and ream 2704m - 2827m 2.5m fill
MWD failed - Drill 311mm hole with 197mm 1.83 degree Halliburton mud motor and log with GR. 2827m - 2833m
Attempt MWD survey - Circulate out 7 stands - Pump pill - Trip out - Change out MWD probe and bit - Make up BHA
Trip in - Function test MWD at 1168m - Trip in
Slide - 0m
Rotate - 2827m - 2833m
Hole drag up-20-25000dan Hole drag down- 10-20000dan
Torque on bottom - 1100-1450psi
Back ground gas - 60 units Trip gas
Mud lost last 24 Hrs. - 4.3 m3
SIGNED BY: Art Schmitt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-21 REPORT NO.: 252
 DEPTH: 2827 m PROGRESS: 5 m FORMATION: Ft. Simpson
 OPERATIONS AT 06:00 HOURS: TRIP IN WITH DIRECTIONAL TOOLS AND BIT #50
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 78,019 CUM. COST: \$ 18,152,229 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 7200 kPa @ 84 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 16.90 m³ ACTUAL HOLE FILL: 18.82 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 4 -- 6 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES		PUMPS	
BIT NUMBER	49	50	WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140
SIZE (mm)	311	311	VISCOSITY (s/l)	103	No. 1 STROKES PER MINUTE	82
TYPE	Fm2844	HP13G	EXCESS LIME	12.0	No. 2 LINER (mm)	140
SERIAL No.	971858	DU7681	PV (mPa S)	46	No. 2 STROKES PER MINUTE	82
NOZZLES (mm)	8x17.5	3x22.2	YP (Pa)	20	VOLUME (m ³)	2.0
DEPTH IN (m)	2697	2827	GELS (Pa)	11/15	PRESSURE (kPa)	19800
METERS (m)	130		SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	30
HOURS	84.5		SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	41
WOB (1000 daN)	6/19		FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	54
R.P.M.	31/150		FLUID LOSS (cc)	0.4	SOLIDS CONTROL	
CONDITION	8-6mm		CHLORIDES	292,870	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY			OIL WATER	91/09	DRYER SCREENS	140
			ELECTRICAL STAB.	2000	D. SILT	CENT.
MTR XO	197	151	65/8REG			
MWD XO	203	87	7H90	12 - Walnut 4mJ - Sump Water	U.F. (kg/m ³)	2440
2 NMDC	231	76	7H90	1 - Interdrill OW	OF. (kg/m ³)	1370
1 DC JAR	230	76	7H90	1 - Interdrill EMUL	VOL. (l/min.)	2.6
1 DC XO	228	76	7H90	2 - Interdrill FL	HOURS	6.0
4 DC XO	168	73	5H90	62 - Barite	SURVEYS	ANGLE DIRECTION
27 HWDP	127	76	4 1/2 IF	DC \$ CCS 1,119,378		m °
BHA	341.47	m	JTS. D.P.: ON RACKS	175		m °
HOOK LOAD	126,000	daN	: IN STRING	258		m °
AVAILABLE WOB	29,000	daN	: TOTAL	433		m °

TIME BREAKDOWN

DRILLING	6.75	CEMENT		CORING		RIG REPAIR	1.0	DRILL OP EVALUATION	TODAY	CUM.
TRIP	11.75	BOP DRILL		LOGGING		LOST CIRC.			23	5111.75
RIG SERVICE	0.75	HANDLE TOOLS	2.75	TESTING		REAM & WASH		PROBLEMS	0	100.75
SURVEY	0.25	INSPECT BHA		CIRC. SAMPLE		WORK PIPE		TOTAL	1.0	834.5
SLIP & CUT	0.75			HANDLE TOOLS				WEATHER	24	6047
COND. MUD				TRIP				TEMPERATURE	CLEAR	
NIPPLE UP/DN				REAM RATHOLE				ROADS	+6 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree tandem Halliburton mud motor and survey with MWD
 Log with GR. 2822m - 2827m - Work pipe - Circulate out 10 stands - Pump pill trip for bit and mud motor
 Change out bit, jars, mud motor and pulser collar - Trip in to 997m - Slip and cut drilling line - Repair Tesco top drive
 Trip in
 Slide - 2822m - 2823m
 Rotate - 2823m - 2827m
 Hole drag up-20-30000dan Hole drag down- 15-20000dan
 Torque on bottom - 1450-1650psi
 Back ground gas - 135 units Trip gas
 Mud lost last 24 Hrs. - 3.0 m³
 SIGNED BY: Art Schmitt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-20 REPORT NO: 251
DEPTH: 2822 m PROGRESS: 28 m FORMATION: Ft Simpson
OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
CONTRACTOR/RIG SUPT.: Precision Drilling #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
DAILY COST: \$ 162,992 CUM. COST: \$ 18,074,210 AFB NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 7400 kPa @: 92 SPM
TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
DAYS SINCE BOP DRILL (EACH CREW): 3 - 5 MAXIMUM CASING HOLD BACK 4400 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS												
BIT NUMBER	49			WEIGHT (kg/m³)	1410	No. 1 LINER (mm)	140											
SIZE (mm)	311			VISCOSITY (s/l)	96	No. 1 STROKES PER MINUTE	82											
TYPE	Fm2844			EXCESS LIME	9.8	No. 2 LINER (mm)	140											
SERIAL No.	971858			PV (mPa S)	44	No. 2 STROKES PER MINUTE	82											
NOZZLES (mm)	8x17.5			YP (Pa)	19.5	VOLUME (m³)	2.0											
DEPTH IN (m)	2697			GELS (Pa)	10/12.5	PRESSURE (kPa)	19200											
METERS (m)	125			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	30											
HOURS	77.75			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	41											
WOB (1000 daN)	6/119			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	54											
R.P.M.	31/150			FLUID LOSS (cc)	0.6	SOLIDS CONTROL												
CONDITION	IN			CHLORIDES	338,957	SHAKER SCREENS	110 - 140											
DRILLING ASSEMBLY				OIL WATER	93/07	DRYER SCREENS	140											
				ELECTRICAL STAB.	2000	<table><tr><th>D. SILT.</th><th>CENT.</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	D. SILT.	CENT.							MUD ADDITIVES		U.F. (kg/m³)	
D. SILT.	CENT.																	
MTR XO	197	151	65/8REG	12 - Walnut	20 - Lime	OF. (kg/m³)												
MWD XO	203	87	7H90	84 - Barite	15 - Truvis	VOL. (l/min.)												
2 NMDC	231	76	7H90	3 - Interdrill EMUL15	Interdrill S	HOURS												
1 DC JAR	230	76	7H90	7 - Interdrill OW	18m3 - Diesel	SURVEYS												
1 DC XO	228	76	7H90	2 - Interdrill FL	2m3 - Brine	2776	<table><tr><th>ANGLE</th><th>DIRECTION</th></tr><tr><td>in 43.8</td><td>° 229.3</td></tr></table>	ANGLE	DIRECTION	in 43.8	° 229.3							
ANGLE	DIRECTION																	
in 43.8	° 229.3																	
4 DC XO	168	73	5H90	DC S 19566	CCS 1,119,378	2785	<table><tr><td>m 43.0</td><td>° 229.8</td></tr></table>	m 43.0	° 229.8									
m 43.0	° 229.8																	
27 HWDP	127	76	41/2 IF															
BHA		346.02	m	JTS. D.P.: ON RACKS		175	<table><tr><td>m 42.5</td><td>° 227.9</td></tr></table>	m 42.5	° 227.9									
m 42.5	° 227.9																	
HOOK LOAD		126,000	daN	IN STRING		258	<table><tr><td>m</td><td>°</td></tr></table>	m	°									
m	°																	
AVAILABLE WOB		29,000	daN	TOTAL		433	<table><tr><td>m</td><td>°</td></tr></table>	m	°									
m	°																	

TIME BREAKDOWN

DRILLING	20.75	CEMENT		CORING		RIG REPAIR	1.0	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.			22.25	5088.75
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH			0	100.75
SURVEY	0.75	INSPECT IHA		CIRC. SAMPLE		WORK PIPE	0.75		1.75	833.5
SLIP & CUT				HANDLE TOOLS					24	6023.5
COND. MUD				TRIP					CLEAR	
NIPPLE/UP/DN				REAM BATHOLE					+13 °C	
RUN CASINO				CIRCULATE					FAIR	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree tandem Halliburton mud motor and survey with MWD
Log with GR. 2794m - 2822m - Work pipe at 2800m and 2809m - Change head and valves #1 and #2 pumps

Slide - 2800m - 2804m 2809m - 2811m 2819m - 2822m

Rotate - 2794m 2800m 2804m - 2809m 2811m - 2819m

Hole drag up- 20-30000daN Hole drag down- 15-20000daN

Torque on bottom - 1450-1650psi

Back ground gas - 96 units Trip gas

Mud lost last 24 Hrs - 3.0 m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>1997-09-19</u>	REPORT NO.:	<u>250</u>
DEPTH:	<u>2794</u> m	PROGRESS:	<u>23</u> m	FORMATION:	<u>Ft. Simpson</u>
OPERATIONS AT 06:00 HOURS: <u>DIRECTIONAL DRILL 311mm HOLE</u>					
CONTRACTOR/RIG SUPT.:	<u>Precision Drig rig #426E Terry Gorgichuk</u>	CO. SUPERVISOR:	<u>Art Schmitt</u>		
DAILY COST:	<u>\$ 45493</u>	CUM COST:	<u>\$ 17,911,218</u>	AFE NO.	<u>E6D - 015</u>

WELL CONTROL

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	7600	kPa @:	85	SPM
TRIP RECORDS: CALCULATED HOLE FILL				m' ACTUAL HOLE FILL:				m3
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN				MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE				SATISFACTORY
DAYS SINCE BOP DRILL (EACH CREW):	2-4			MAXIMUM CASING HOLD BACK	4500			kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	49			WEIGHT (kg/m ³)	1407	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	99	No. 1 STROKES PER MINUTE	82	
TYPE	Fm2844			EXCESS LIME	10.2	No. 2 LINER (mm)	140	
SERIAL No.	971858			PV (mPa S)	45	No. 2 STROKES PER MINUTE	82	
NOZZLES (mm)	8x17.5			YP (Pa)	20	VOLUME (m ³)	2.0	
DEPTH IN (m)	2697			GELS (Pa)	12/15	PRESSURE (kPa)	19200	
METERS (m)	97			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	30	
HOURS	57			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	41	
WOB (1000 daN)	6/19			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	54	
R.P.M.	311/150			FLUID LOSS (cc)	0.8	SOLIDS CONTROL		
CONDITION	IN			CHLORIDES	321,392	SHAKER SCREENS	110 - 140	
DRILLING ASSEMBLY				OIL WATER	92/108	DRYER SCREENS	140	
				ELECTRICAL STAB.	2000			
				MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.
MTR XO	197	151	65/8 REG	21 - Walnut		OF. (kg/m ³)		2420
MWD XO	203	87	7H90	2 - Interdrill OW		VOL. (l/min.)		1370
2 NMDC	231	76	7H90	1 - Interdrill EMUL		HOURS		3.2
1 DC JAR	230	76	7H90	2m3 - Sump water		SURVEYS	ANGLE	DIRECTION
1 DC XO	228	76	7H90	11m3 - Premix		2747	m 45.4	° 228.0
4 DC XO	168	73	5H90	DC S 1943 CC\$ 1,099,812		2756	m 45.4	° 229.3
27 HWDP	127	76	41/2 IF			2766	m 44.8	° 230.0
BHA	346.02		m	JTS. D.P.: ON RACKS	178		m	°
HOOK LOAD	126,000		daN	: IN STRING	255		m	°
AVAILABLE WOB	29,000		daN	: TOTAL	433		m	°

TIME BREAKDOWN

DRILLING	21.25	CEMENT		CORING		RIG REPAIR	1.0	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.			22.5	\$066.5
RIG SERVICE	0.75	HANDLE TOOLS		TESTING		REAM & WASH			0	100.75
SURVEY	0.5	INSPECT BHA		CIRC. SAMPLE		WORK PIPE	0.5		1.5	\$31.75
SLIP & CUT				HANDLE TOOLS					24	\$999
COND. MUD				TRIP					CLEAR	
NIPPLEUP/DN				REAM RATHOLE					+10 °C	
RUN CASING				CIRCULATE					MUDDY	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree tandem Halliburton mud motor and survey with MWD
Log with GR 2771m - 2794m - Change head and pony rod on #1 pump - Work tight hole 2786m - 2784m

Slide - 2771m - 2776m 2780m - 2786m 2790m - 2794m

Rotate - 2776m - 2780m 2786m - 2790m

Hole drag up-20-30000dan Hole drag down- 15-20000dan

Torque on bottom - 1450-1650psi

Back ground gas - 60 units Trip gas

Mud lost last 24 Hrs. — 2.5m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems**Survey Report**

Page 1
 Job No: 97D006
 Date: 19/09/97
 Time: 4:43 am
 Wellpath ID: 97d006s4
 Date Created: 27/01/97
 Last Revision: 19/09/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)		DLS (dg/30m)
2709.00	44.60	225.80	2399.10	-1939.21	775.80	549.70 S	547.44W	775.80@224.88		1.09
2718.00	44.70	225.40	2405.50	-1945.61	782.12	554.13 S	551.96W	782.12@224.89		0.89
2728.00	44.80	226.60	2412.61	-1952.72	789.16	559.02 S	557.02W	789.16@224.90		2.55
2738.00	45.10	227.60	2419.68	-1959.79	796.22	563.83 S	562.20W	796.22@224.92		2.30
2747.00	45.40	228.00	2426.02	-1966.13	802.60	568.12 S	566.93W	802.61@224.94		1.38
2756.00	45.40	229.30	2432.34	-1972.45	809.00	572.36 S	571.74W	809.00@224.97		3.09
2766.00	44.80	230.00	2439.40	-1979.51	816.06	576.94 S	577.14W	816.06@225.01		2.34

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-18 REPORT NO.: 249
 DEPTH: 2771 m PROGRESS: 23 m FORMATION: Ft. Simpson
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 45226 CUM. COST: \$ 17,865,725 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6600 kPa @: 96 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE TRIPPING WELL SECURED IN 2 MIN.
CONDUCTED AT 14:00 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 3 MAXIMUM CASING HOLD BACK 4600 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS							
BIT NUMBER	49			WEIGHT (kg/m ³)	1390	No. 1 LINER (mm)	140						
SIZE (mm)	311			VISCOSITY (s/l)	102	No. 1 STROKES PER MINUTE	82						
TYPE	Fm2844			EXCESS LIME	11.1	No. 2 LINER (mm)	140						
SERIAL No.	971858			PV (mPa S)	45	No. 2 STROKES PER MINUTE	82						
NOZZLES (mm)	8x17.5			YP (Pa)	18	VOLUME (m ³)	2.0						
DEPTH IN (m)	2697			GELS (Pa)	11.5//14	PRESSURE (kPa)	19,400						
METERS (m)	74			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	30						
HOURS	35.75			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	41						
WOB (1000 daN)	6-19			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	54						
R.P.M.	31//150			FLUID LOSS (cc)	0.4	SOLIDS CONTROL							
CONDITION	IN			CHLORIDES	321,392	SHAKER SCREENS	110 - 140						
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	140						
				ELECTRICAL STAB.	2000	<table><tr><td></td><td>D SILT.</td><td>CENT.</td></tr><tr><td></td><td></td><td>2400</td></tr></table>			D SILT.	CENT.			2400
	D SILT.	CENT.											
		2400											
MTR XO	197	151	6S/8REG	MUD ADDITIVES		U.F. (kg/m ³)							
MWD XO	203	87	7H90	7 - Walnut		OF. (kg/m ³)	1320						
2 NMDC	231	76	7H90	1 - Interdrill EMUL		VOL. (l/min.)	3.0						
1 DC JAR	230	76	7H90	1 - Interdrill OW		HOURS	6.0						
1 DC XO	228	76	7H90	2m3 - Sump water		SURVEYS	ANGLE						
4 DC XO	168	73	5H90			2728	m 44.8 ° 226.6						
27 HWD	127	76	41/2 IF	DC S 1691	CCS 1,097,869	2738	m 45.1 ° 227.6						
BHA	346.02	m	JTS. D.P.: ON RACKS	182			m °						
HOOK LOAD	126,000	daN	: IN STRING	251			m °						
AVAILABLE WOB	29,000	daN	: TOTAL	433			m °						

TIME BREAKDOWN

DRILLING	14.5	CEMENT		CORING		RIG REPAIR	2.25		
TRIP	<u>5.0</u>	BOP DRILL		LOGGING		LOST CIRC.		DRILL OP	TODAY CUM.
RIG SERVICE	<u>0.75</u>	HANDLE TOOLS		TESTING		REAM & WASH	<u>0.5</u>	EVALUATION	<u>20.75</u> <u>5044</u>
SURVEY	<u>0.5</u>	INSPECT BHA		CIRC. SAMPLE		WORK PIPE	<u>0.5</u>	PROBLEMS	<u>0</u> <u>100.75</u>
SLIP & CUT				HANDLE TOOLS				TOTAL	<u>3.25</u> <u>830.25</u>
COND. MUD				TRIP				WEATHER	<u>24</u> <u>5975</u>
NIPPLEUP/DN				REAM RATHOLE				TEMPERATURE	<u>CLEAR</u>
RUN CASINO				CIRCULATE				ROADS	<u>-1 °C</u>
									<u>MUDDY</u>

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree tandem Halliburton mud motor and survey with MWD
 Log with GR. 2748m - 2751m - Wiper trip 20 stands, circulate out 10 stands, tight hole at 2628m - 2635m
 Wash and ream in 2460m - 2451m 1.0m fill - Directional drill 311mm hole with 197mm 1.83 degree tandem Halliburton
 mud motor and survey with MWD log with GR. 2751m - 2771m - Changed 3 heads and liners 2 valves and seats #1 and #2 pump
 Slide - 2762m - 2767m
 Rotate - 2748m - 2762m 2767m - 2771m
 Hole drag up-20-30000dan Hole drag down- 15-20000dan
 Torque on bottom - 1400-1680psi
 Back ground gas - 64 units Trip gas
 Mud lost last 24 Hrs. - 3.5m3
 SIGNED BY: Art Schmitt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Lierd P-66-A DATE 1997-09-17 REPORT NO.: 248
 DEPTH: 2748 m PROGRESS: 46 m FORMATION: Ft. Simpson
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 50,175 CUM. COST: \$ 17,820,499 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 7200 kPa @: 85 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 2-6 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	49			WEIGHT (kg/m ³)	1405	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	102	No. 1 STROKES PER MINUTE	82
TYPE	Fm2844			EXCESS LIME	11.5	No. 2 LINER (mm)	140
SERIAL No.	971858			PV (mPa S)	44	No. 2 STROKES PER MINUTE	82
NOZZLES (mm)	8x17.5			YP (Pa)	16.5	VOLUME (m ³)	2.0
DEPTH IN (m)	2697			GELS (Pa)	9/13	PRESSURE (kPa)	19300
METERS (m)	51			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	30
HOURS	21.25			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	41
WOB (1000 daN)	7/22			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	54
R.P.M.	20/90			FLUID LOSS (cc)	0.4	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	372,777	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	93/17	DRYER SCREENS	140
				ELECTRICAL STAB.	2000		
				MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.
MTR XO	197	151	65/BREG	10 - Walnut		OF. (kg/m ³)	2446
MWD XO	203	87	7H90	1 - Interdrill OW		VOL. (l/min.)	1354
2 NMDC	231	76	7H90	1 - Interdrill EMUL		HOURS	3.2
1 DC JAR	230	76	7H90			SURVEYS	6.0
1 DC XO	228	76	7H90			ANGLE	DIRECTION
4 DC XO	168	73	5H90			2689	m 44.3 ° 224.7
27 HWD	127	76	41/2 IF	DC S 1745	CCS 1,096,178	2699	m 44.5 ° 225.3
BHA	346.02	m		JTS. D.P. ON RACKS	184	2709	m 44.6 ° 225.8
HOOK LOAD	126,000	daN		IN STRING	249	2718	m 44.7 ° 225.4
AVAILABLE WOB	29,000	daN		TOTAL	433		m °

TIME BREAKDOWN

DRILLING	19.0	CEMENT		CORING		RIG REPAIR	.5	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		80P DRILL		LOOKING		LOST CIRC.			20.75	5023.25
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			0	100.75
SURVEY	1.0	INSPECT BHA		CIRC. SAMPLE		WORK PIPE	2.75		3.25	827
SLIP & CUT				HANDLE TOOLS					24	5931
COND. MUD				TRIP					RAIN	
NIPPLEUP/DN				REAM RATHOLE					+6 °C	
RUN CASING				CIRCULATE					MUDDY	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree tandem Halliburton mud motor and survey with MWD
 Log with GR. 2702m - 2748m - Change 2 heads on #2 pump - Work pipe every 5m hole not cleaning properly

Slide - 0m

Rotate - 2702m - 2748m

Hole drag up-15-20000daN Hole drag down- 15-20000daN

Torque on bottom - 1400-1650psi

Back ground gas - 43 units Trip gas

Mud lost last 24 Hrs. - 2.0m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems**Survey Report**

Page 1

Job No: 97D006

Date: 17/09/97

Time: 4:02 am

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 17/09/97

Calculated using the Minimum Curvature Method

Computed using PDS VER2.2.4 - BETA

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED

RANGER Fort Liard P - 66 - A

IN UNIT P SECTION 66

Cactus #26E KB: 459.89 m

97D006

UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)		DLS (dg/30m)
2651.00	45.70	223.80	2357.78	-1897.89	735.10	520.61 S	518.96W	735.10@224.91		2.35
2660.00	44.90	223.40	2384.11	-1904.22	741.50	525.25 S	523.35W	741.50@224.90		2.83
2670.00	44.30	223.30	2371.23	-1911.34	748.52	530.35 S	528.21W	748.52@224.88		1.81
2680.00	44.30	224.70	2378.39	-1918.50	755.50	535.38 S	533.06W	755.50@224.88		2.93
2689.00	44.30	224.70	2384.83	-1924.94	761.79	539.84 S	537.48W	761.79@224.87		0.00
2699.00	44.50	225.30	2391.98	-1932.09	768.78	544.79 S	542.43W	768.78@224.88		1.40
2709.00	44.60	225.80	2399.10	-1939.21	775.80	549.70 S	547.44W	775.80@224.88		1.09
2718.00	44.70	225.40	2405.50	-1945.61	782.12	554.13 S	551.96W	782.12@224.89		0.99

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 9/16/97 REPORT NO.: 247
 DEPTH: 2702 m PROGRESS: 5 m FORMATION: Ft Simpson Shale
 OPERATIONS AT 06:00 HOURS: Drilling (rotate)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgighuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 46984 CUM. COST: \$ 17,770,324 AFE NO.: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: kPa @: SPM
 TRIP RECORDS: CALCULATED HOLE FILL 16.13 m³ ACTUAL HOLE FILL: 17.77 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 1-5 MAXIMUM CASING HOLD BACK 4400 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	48	49		WEIGHT (kg/m ³)	1410	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (s/l)	150	No. 1 STROKES PER MINUTE	95
TYPE	Msdgh	Fm2844		EXCESS LIME	11.5	No. 2 LINER (mm)	140
SERIAL No.	La0595	971858		PV (mPa S)	39	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	Open	8x17.5		YP (Pa)	20	VOLUME (m ³)	2.23
DEPTH IN (m)	2646	2697		GELS (Pa)	10/13	PRESSURE (kPa)	19600
METERS (m)	51	5		SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	35
HOURS	52	2.25		SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	45
WOB (1000 daN)	20/33	8000		FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	35/90	30/150		FLUID LOSS (cc)	0.4	SOLIDS CONTROL	
CONDITION	3-8-in	in		CHLORIDES	321392	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	140
ITEM	Q.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000	U.F. (kg/m ³)	D. SILT.
Tandem mtr	196	81	65/8REG	MUD ADDITIVES		OF. (kg/m ³)	CENT.
Xo/mwd	203	71	7H90	Barite 50sxs		VOL. (l/min.)	
2 NMDC	231	76	7H90	Walnut 6sxs		HOURS	
1 DC JAR	230	76	7H90			SURVEYS	ANGLE
1 DC XO	228	76	7H90				DIRECTION
4 DC XO	168	73	5H90			2680	m 44.30 ° 224.70
27 HWDP	127	76	41/2 IF	DC S 595	CCS 1,094,433		m °
BHA LENGTH	346.02	m		JTS. D.P.: ON RACKS	187		m °
HOOK LOAD	125000	daN		: IN STRING	246		m °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	2.75	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP	14	BOP DRILL		LOGGING		LOST CIRC.		21.75	5002.5
RIG SERVICE	1	HANDLE TOOLS	3.75	TESTING		REAM & WASH	1.5	0	100.75
SURVEY	.25			CIRC. SAMPLE		Work junk sub	.75	2.25	823.75
SLIP & CUT				HANDLE TOOLS				24	5927
COND. MUD				TRIP				WEATHER	
NIPPLEUP/DN				REAM RATHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								Cloudy	
								3 °C	
								fair	

24 SUMMARY

Drill 311mm hole to 2697.4m. Circulate and work pipe. Mix trip pill and circulate out 12 stands. Pump pill and hoist.
 Handle directional tools. Run in bha and service Tesco unit. Run into 1150m and check MWD. Run in to 1177m and ream bridge
 Run in and ream bridge at 1426m. Finish in to 2350m and wash and clean to bottom. Drill 311mm Halliburton tandem motor
 Set at 1.75 degrees.
 Slide-
 Rotate - 2697-2702m
 Hole drag up-15-20000 dan Hole drag down-15-30000dan
 Torque on bottom - 1400-1650 psi
 Back ground gas - 25umits
 Mud lost last 24 Hrs. -2m3
 SIGNED BY: John Faulkner MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 9/15/97 REPORT NO.: 246
 DEPTH: 2697 m PROGRESS: 22 m FORMATION: Ft Simpson Shale
 OPERATIONS AT 06:00 HOURS: Drilling (rotate) Prepare to trip
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgighuk CO. SUPERVISOR: John Faulkner
 DAILY COST \$ 39336 CUM. COST: \$ 17,723,340 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6800 kPa @ 98 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE drilling WELL SECURED IN 1.5 MIN.
 CONDUCTED AT 1615 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW) 0-4 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	<u>48</u>			WEIGHT (kg/m ³)	<u>1400</u>	No. 1 LINER (mm)	<u>140</u>	
SIZE (mm)	<u>311</u>			VISCOSITY (s/l)	<u>93</u>	No. 1 STROKES PER MINUTE	<u>95</u>	
TYPE	<u>Msdgh</u>			EXCESS LIME	<u>10.5</u>	No. 2 LINER (mm)	<u>140</u>	
SERIAL No.	<u>Ln0595</u>			PV (mPa S)	<u>40</u>	No. 2 STROKES PER MINUTE	<u>95</u>	
NOZZLES (mm)	<u>Open</u>			YP (Pa)	<u>16</u>	VOLUME (m ³)	<u>2.23</u>	
DEPTH IN (m)	<u>2646</u>			GELS (Pa)	<u>9/14</u>	PRESSURE (kPa)	<u>19300</u>	
METERS (m)	<u>51</u>			SAND (%)	<u>Tr.</u>	D.P. ANNULAR VEL. (m/min.)	<u>35</u>	
HOURS	<u>52</u>			SOLIDS (%)	<u>28</u>	D.C. ANNULAR VEL. (m/min.)	<u>45</u>	
WOB (1000 daN)	<u>20/33</u>			FILTER CAKE (mm desc.)	<u>1</u>	D.C. ANNULAR VEL. (m/min.)	<u>63</u>	
R.P.M.	<u>35/90</u>			FLUID LOSS (cc)	<u>0.4</u>	SOLIDS CONTROL		
CONDITION	<u>in</u>			CHLORIDES	<u>272309</u>	SHAKER SCREENS	<u>110 - 140</u>	
DRILLING ASSEMBLY				OIL WATER	<u>92/8</u>	DRYER SCREENS	<u>140</u>	
ITEM	Q.D.	I.D.	T.I. TYPE	ELECTRICAL STAB.	<u>2000</u>		D. SILT	CENT.
Junk Sub	<u>241</u>	<u>81</u>	<u>65/8 REG</u>	MUD ADDITIVES		U.F. (kg/m ³)		<u>2560</u>
Bit sub motor	<u>203</u>	<u>87</u>	<u>7H90</u>	Emul 1bbl		OF. (kg/m ³)		<u>1350</u>
2 NMDC	<u>231</u>	<u>76</u>	<u>7H90</u>	OW 1bbl		VOL. (l/min.)		<u>2</u>
1 DC IAR	<u>230</u>	<u>76</u>	<u>7H90</u>	Lime 10sxs		HOURS		<u>2.5</u>
1 DC XO	<u>228</u>	<u>76</u>	<u>7H90</u>	Walnut 12sxs		SURVEYS		
4 DC XO	<u>168</u>	<u>73</u>	<u>5H90</u>			ANGLE	DIRECTION	
27 HWDP	<u>127</u>	<u>76</u>	<u>4 1/2 IF</u>	DC \$ 1660 CCS 1,093,838		2660	m 44.90	° 223.40
BHA LENGTH	<u>342.25</u>	m	JTS D.P.: ON RACKS	<u>187</u>		2670	m 44.30	° 223.30
HOOK LOAD	<u>124000</u>	daN	IN STRING	<u>246</u>			m	°
AVAILABLE WOB	<u>26,000</u>	daN	TOTAL	<u>433</u>			m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	<u>20.25</u>	CEMENT		CORING		RIG REPAIR	<u>2</u>	TODAY	CUM.
TRIP		BOP DRILL	<u>.25</u>	LOGGING		LOST CIRC.		<u>22</u>	<u>4980.75</u>
RIG SERVICE	<u>.75</u>	HANDLE TOOLS		TESTING		REAM & WASH		<u>0</u>	<u>100.75</u>
SURVEY	<u>.75</u>			CIRC. SAMPLE		Work junk sub		<u>2</u>	<u>821.5</u>
SLIP & CUT				HANDLE TOOLS				<u>24</u>	<u>5903</u>
COND. MUD				TRIP				WEATHER	
NIPPLE/HWDP				REAM RATHOLE				TEMPERATURE	<u>5 °C</u>
RUN CASINO				CIRCULATE				ROADS	<u>wet</u>

24 SUMMARY

Drill 311mm hole with Tru Drill 1.8 degree motor. Rig service and surveys. Work on mud pumps (valves and suction)

Slide-2680-2682m 2692-2694m

Rotate - 2675-2680m 2682-2692m 2694-2697m

Hole drag up-15-20000 dan Hole drag down-12-17000dan

Torque on bottom - 1200-1450 psi

Back ground gas - 15units

Mud lost last 24 Hrs -4.2m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403)424-8050

Halliburton Drilling Systems

Survey Report

Page 1
 Job No: 97D006
 Date: 14/09/97
 Time: 9:54 pm
 Wellpath ID: 97d006s4
 Date Created: 27/01/97
 Last Revision: 14/09/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

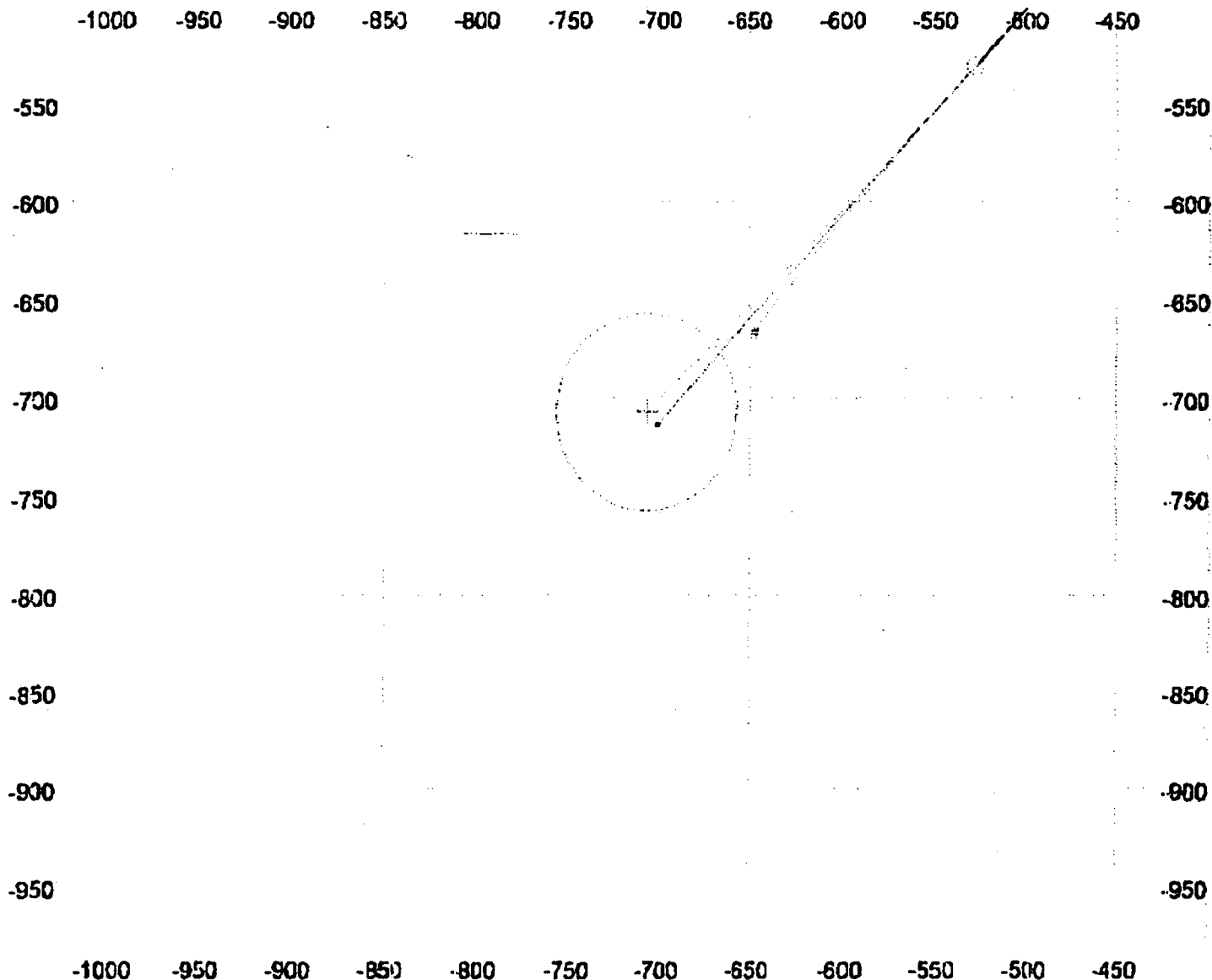
RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)		DLS (dg/30m)
2603.00	46.70	225.50	2324.71	-1864.82	700.32	495.65 S	494.74W	700.32@224.96		4.22
2612.00	46.70	224.10	2330.89	-1871.00	706.87	500.30 S	499.36W	706.87@224.95		3.40
2622.00	46.50	223.50	2337.76	-1877.87	714.13	505.55 S	504.36W	714.13@224.93		1.44
2632.00	46.60	224.10	2344.63	-1884.74	721.39	510.79 S	509.41W	721.39@224.92		1.34
2641.00	46.30	224.50	2350.84	-1890.95	727.91	515.45 S	513.97W	727.91@224.92		1.39
2651.00	45.70	223.80	2357.78	-1897.89	735.10	520.61 S	518.98W	735.10@224.91		2.35
2660.00	44.90	223.40	2364.11	-1904.22	741.50	525.26 S	523.35W	741.50@224.90		2.83
2670.00	44.30	223.30	2371.23	-1911.34	748.52	530.35 S	528.21W	748.52@224.88		1.81

09/15/97 MON 08:42 FAX 403 232 5200 RANGER OIL

LLIBURTON

14-09-97 958 pm



- o Current BHL
- + Min. DLS Projection
- **Straight Line Projection**
- # Present Trend Projection

Units:
 Distance m.
 D.L.S. deg/30m
 B/R W/R deg/30m
 Incl./Az. deg

Current Target									
	N/S	E/W	Current:	MD	INCL	AZ	TVD	N/S	E/W
Target Center	707.1 S	707.1 W	Project:	2670.0	44.30	223.30	2371.2	530.4 S	528.2 W
Hit Pt. Offs	0.0	0.0	C.L.:	3030.9	44.10	227.40	2630.0	707.1 S	707.1
				360.9 DL	0.24 Avg. B/R:		-0.02 Avg. W/R:		

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 9/14/97 REPORT NO.: 245
 DEPTH: 2675 m PROGRESS: 20 m FORMATION: Ft Simpson Shale
 OPERATIONS AT 06:00 HOURS: Drilling (rotate)
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Terry Gorgighuk CO. SUPERVISOR: John Faulkner
 DAILY COST: 35194 CUM. COST: \$ 17,684,004 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6900 kPa @: 100 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 2-3 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	<u>48</u>			WEIGHT (kg/m ³)	<u>1400</u>	No. 1 LINER (mm)	<u>140</u>	
SIZE (mm)	<u>311</u>			VISCOSITY (s/l)	<u>95</u>	No. 1 STROKES PER MINUTE	<u>95</u>	
TYPE	<u>Madgh</u>			EXCESS LIME	<u>10.2</u>	No. 2 LINER (mm)	<u>140</u>	
SERIAL No.	<u>Ln0595</u>			PV (mPa S)	<u>42</u>	No. 2 STROKES PER MINUTE	<u>95</u>	
NOZZLES (mm)	<u>Open</u>			YP (Pa)	<u>17</u>	VOLUME (m ³)	<u>2.23</u>	
DEPTH IN (m)	<u>2646</u>			GELS (Pa)	<u>9.5/13.5</u>	PRESSURE (kPa)	<u>19200</u>	
METERS (m)	<u>29</u>			SAND (%)	<u>Tr.</u>	D.P. ANNULAR VEL. (m/min.)	<u>35</u>	
HOURS	<u>31.25</u>			SOLIDS (%)	<u>27</u>	D.C. ANNULAR VEL. (m/min.)	<u>45</u>	
WOB (1000 daN)	<u>20/32</u>			FILTER CAKE (mm desc.)	<u>1</u>	D.C. ANNULAR VEL. (m/min.)	<u>63</u>	
R.P.M.	<u>30/90</u>			FLUID LOSS (cc)	<u>0.8</u>	SOLIDS CONTROL		
CONDITION	<u>in</u>			CHLORIDES	<u>303373</u>	SHAKER SCREENS	<u>110 - 140</u>	
DRILLING ASSEMBLY				OIL WATER	<u>92/8</u>	DRYER SCREENS	<u>140</u>	
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	<u>2000</u>		D. SILT.	CENT.
Junk Sub	<u>241</u>	<u>81</u>	<u>65/8 REG</u>	MUD ADDITIVES		U.F. (kg/m ³)		<u>2560</u>
Bit sub motor	<u>203</u>	<u>87</u>	<u>7H90</u>	Truvis 15sxs		OF. (kg/m ³)		<u>1390</u>
2 NMDC	<u>231</u>	<u>76</u>	<u>7H90</u>	Emul 1bbl		VOL. (l/min)		<u>2</u>
1 DC JAR	<u>230</u>	<u>76</u>	<u>7H90</u>	O W 1bbl		HOURS		<u>5</u>
1 DC XO	<u>228</u>	<u>76</u>	<u>7H90</u>	Lime 4sxs		SURVEYS	ANGLE	DIRECTION
4 DC XO	<u>168</u>	<u>73</u>	<u>5H90</u>	Walnut 11sxs		<u>2641</u>	m <u>46.30</u>	° <u>224.50</u>
27 HWDP	<u>127</u>	<u>76</u>	<u>41/2 1F</u>	DC \$ 3909 CCS 1,092,178		<u>2651</u>	m <u>45.70</u>	° <u>223.80</u>
BHA LENGTH	<u>342.25</u>	m	JTS. D.P.: ON RACKS	<u>196</u>			m	°
HOOK LOAD	<u>124000</u>	daN	IN STRING	<u>237</u>			m	°
AVAILABLE WOB	<u>26,000</u>	daN	TOTAL	<u>433</u>			m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	<u>21.75</u>	CEMENT		CORING		RIG REPAIR	<u>1.25</u>	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		<u>22.75</u>	<u>4958.75</u>
RIG SERVICE	<u>.75</u>	HANDLE TOOLS		TESTING		REAM & WASH		<u>0</u>	<u>100.75</u>
SURVEY	<u>.25</u>			CIRC. SAMPLE		Work junk sub		<u>1.25</u>	<u>819.5</u>
SLIP & CUT				HANDLE TOOLS				<u>24</u>	<u>5879</u>
COND. MUD				TRIP				WEATHER	
NIPPLE UP/DN				REAM RATHOLE				TEMPERATURE:	
RUN CASING				CIRCULATE				<u>2 °C</u>	
								ROADS	
								<u>wet</u>	

24 SUMMARY

Drill 311mm hole with Tru Drill 1.83 degree motor with rig service and survey. Work on #1 pump. (suction valves)
 Repair leak on #1 pump suction.

Slide- 2655-2656m 2661-2666m

Rotate - 2656-2661m 2666-2675m

Hole drag up-15/20000 dan Hole drag down-10-13000dan

Torque on bottom - 1250-1500 psi

Back ground gas -12 units

Mud lost last 24 Hrs. -2.5m3

SIGNED BY: John FaulknerMOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 9/13/97 REPORT NO: 244
 DEPTH: 2655 m PROGRESS: 9 m FORMATION: Ft Simpson Shale
 OPERATIONS AT 06:00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgighuk CO. SUPERVISOR: John Faulkner
 DAILY COST: 53,654 CUM. COST: \$17,648,810 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6700 kPa @ 98 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 1-2 MAXIMUM CASING HOLD BACK 4400 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES		PUMPS												
BIT NUMBER	48	47	WEIGHT (kg/m ³)	1410	No. 1 LINER (mm)	140											
SIZE (mm)	311	311	VISCOSITY (s/l)	105	No. 1 STROKES PER MINUTE	95											
TYPE	Msdgh	JG4	EXCESS LIME	11.1	No. 2 LINER (mm)	140											
SERIAL No.	Ln0595	38742	PV (mPa S)	37	No. 2 STROKES PER MINUTE	95											
NOZZLES (mm)	Open	open	YP (Pa)	17	VOLUME (m ³)	2.23											
DEPTH IN (m)	2646	2597	GELS (Pa)	9/12	PRESSURE (kPa)	19150											
METERS (m)	9	48	SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	35											
HOURS	9.5	58.5	SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	45											
WOB (1000 daN)	20/22	20/32	FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63											
R.P.M.	30/90	30/90	FLUID LOSS (cc)	0.6	SOLIDS CONTROL												
CONDITION	in	5-8-in	CHLORIDES	272,309	SHAKER SCREENS	110 - 140											
DRILLING ASSEMBLY			OIL WATER	92/9	DRYER SCREENS	140											
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000	<table><tr><td>D SILT.</td><td>CENT.</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>		D SILT.	CENT.								
D SILT.	CENT.																
Junk Sub	241	81	65/8REG	MUD ADDITIVES	U.F. (kg/m ³)												
Bit sub motor	203	87	7H90	nil	OF. (kg/m ³)												
2 NMDC	231	76	7H90		VOL. (l/min.)												
1 DC JAR	230	76	7H90		HOURS												
1 DC XO	228	76	7H90		SURVEYS	ANGLE	DIRECTION										
4 DC XO	168	73	5H90		2632	m 46.60	a 224.10										
27 HWDP	127	76	4 1/2 IF	DC 5	CCS 1,088,269	m	o										
BHA LENGTH	342.25	m	JTS. D.P. ON RACKS	196		m	o										
HOOK LOAD	124000	daN	: IN STRING	237		m	o										
AVAILABLE WOB	26,000	daN	: TOTAL	433		m	o										

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	9.5	CEMENT		CORING		RIG REPAIR	2.75	TODAY	CUM
TRIP	8.75	BOP DRILL		LOGGING		LOST CIRC.		20.25	4936
RIG SERVICE	.75	HANDLE TOOLS	1	TESTING		REAM & WASH		0	100.75
SURVEY	25			CIRC. SAMPLE		Work junk sub	1	3.75	818.25
SLIP & CUT				HANDLE TOOLS				24	5855
COND. MUD				TRIP				WEATHER	
NIPPLE/ON				REAM RATHOLE				Light rain	
RUN CASING				CIRCULATE				TEMPERATURE	
								7 °C	
								ROADS	
								wet	

24 SUMMARY

Lay out motor and mwd. Change out monel collars. Pick up tools and run in hole to casing shoe. Service and repair Tesco top drive (wiring for kelly cock valve). Check MWD finish in hole. Wash and clean from 2377m. Work junk sub and Drill with a 8" Tru Drill 1.8 degree motor. Survey and rig service.

Slide- 2651-2655m

Rotate - 2646-2651m

Hole drag up-15-20000 dan Hole drag down-10-17000dan

Torque on bottom - 1200-1450 psi

Back ground gas - 16units

Mud lost last 24 Hrs. -3.8m3 Lost 2.0m3 mud while tripping.

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 9/12/97 REPORT NO.: 243
 DEPTH: 2646 m PROGRESS: 8 m FORMATION: Ft Simpson Shale
 OPERATIONS AT 06:00 HOURS: Handle directional tools
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: 72477 CUM. COST: \$ 17,595,156 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6800 kPa @: 97 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 15.11 m³ ACTUAL HOLE FILL: 18.15 m³
 BOP DRILLS: CONDUCTED WHILE drilling WELL SECURED IN 2.5 MIN.
 CONDUCTED AT 1115 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 0-0 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	47		WEIGHT (kg/m ³)	1395		No. 1 LINER (mm)	140	
SIZE (mm)	311		VISCOSITY (s/l)	94		No. 1 STROKES PER MINUTE	95	
TYPE	JG4		EXCESS LIME	11.1		No. 2 LINER (mm)	140	
SERIAL No.	38742		PV (mPa S)	41		No. 2 STROKES PER MINUTE	95	
NOZZLES (mm)	open		YP (Pa)	23		VOLUME (m ³)	2.23	
DEPTH IN (m)	2597		GELS (Pa)	10/14.5		PRESSURE (kPa)	19600	
METERS (m)	48		SAND (%)	Tr.		D.P. ANNULAR VEL. (m/min.)	35	
HOURS	58.5		SOLIDS (%)	26		D.C. ANNULAR VEL. (m/min.)	45	
WOB (1000 daN)	20/32		FILTER CAKE (mm desc.)	1		D.C. ANNULAR VEL. (m/min.)	63	
R.P.M.	30/90		FLUID LOSS (cc)	0.6		SOLIDS CONTROL		
CONDITION	5-8-in		CHLORIDES	298141		SHAKER SCREENS	110 - 140	
DRILLING ASSEMBLY				OIL WATER	91/9	DRYER SCREENS	140	
ITEM	O.D.	I.D.	T.F. TYPE	ELECTRICAL STAB.	2000	U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS	D. SILT.	CENT.
Junk Sub	241	81	65/8REG	MUD ADDITIVES				
Bit sub motor	203	87	7H90	Premix	Lime 16sxs			
2 NMDC	231	76	7H90	Emul 2bbl	Barite 60sxs			
1 DC JAR	230	76	7H90	FL 2bbl	Walnut 8sxs			
1 DC XO	228	76	7H90	OW 3bbl		SURVEYS	ANGLE	DIRECTION
4 DC XO	168	73	5H90	Interdrill 15sxs				
27 HWDP	127	76	41/2 IF	DC S 6410	CCS 1,088,269	2622	m 46.50	° 223.50
BHA LENGTH	342.26	m	JTS. D.P.: ON RACKS	196		m	°	
HOOK LOAD	124000	daN	IN STRING	237		m	°	
AVAILABLE WOB	26,000	daN	TOTAL	433		m	°	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	10	CEMENT		CORING		RIG REPAIR	3	TODAY	CUM
TRIP	8.75	BOP DRILL	25	LOGGING		LOST CIRC.		21	4915.75
RIG SERVICE	.75	HANDLE TOOLS	1	TESTING		REAM & WASH		0	100.75
SURVEY	.25			CIRC. SAMPLE		WORK PIPE		3	814.5
SLIP & CUT				HANDLE TOOLS				24	5831
COND. MUD				TRIP				WEATHER	
NIPPLE UP/DN				REAM RATHOLE				Overcast	
RUN CASINO				CIRCULATE				TEMPERATURE	
								10 °C	
								ROADS	
								wet	

24 SUMMARY

Drill 311mm hole with Tru Drill 1.8 degree motor. Rig service and survey. Drill to 2646m. Circulate and work hole.
 Hoist for bit. Circulate and clean hole to 2339m. Work on top drive (kelly cock). Circulate and clean hole to 2340m.
 Finish out. Check monel seals. Lay out tools and motor.

Slide- 2642-2644m Do well cementer and 20 tonnes of G on location. Empty fuel truck stuck on road. (towed with the Hayes)
 Rotate - 2638-2642m 2644-2646m
 Hole drag up- 10-20000daN Hole drag down- 8-14000daN
 Torque on bottom - 1250-1550psi BOP drill and meeting with crew.
 Back ground gas - units Sent in 1 tire for repair and 1 to be replaced with a new tire for Ranger truck.
 Wind lost last 24 Hrs. - 5.6m3 Returned Security DBS PDC FM2943 for rebuild to DBS Nisku
 SIGNED BY: John Faulkner MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems

Survey Report

Page 1
 Job No: 97D006
 Date: 12/09/97
 Time: 2:48 am
 Wellpath ID: 97d006s4
 Date Created: 27/01/97
 Last Revision: 11/09/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)		DLS (dg/30m)
2555.00	45.20	230.30	2290.99	-1831.10	666.23	472.99 S	469.21W	666.24@224.77		0.27
2564.00	44.80	230.20	2297.35	-1837.46	672.57	477.06 S	474.10W	672.58@224.82		1.35
2574.00	44.80	229.00	2304.45	-1844.56	679.60	481.62 S	479.47W	679.60@224.87		2.54
2583.00	45.30	228.10	2310.81	-1850.82	685.95	485.84 S	484.24W	685.95@224.91		2.70
2593.00	45.90	227.10	2317.80	-1857.91	693.09	490.66 S	489.52W	693.09@224.93		2.80
603.00	46.70	225.50	2324.71	-1864.82	700.32	495.65 S	494.74W	700.32@224.95		4.22
2612.00	46.70	224.10	2330.89	-1871.00	706.87	500.30 S	499.36W	706.87@224.95		3.40
2622.00	46.50	223.50	2337.76	-1877.87	714.13	505.55 S	504.39W	714.13@224.93		1.44

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-09-11 REPORT NO.: 242
 DEPTH: 2638 m PROGRESS: 17 m FORMATION: Ft Simpson Shale
 OPERATIONS AT 06:00 HOURS: Drilling (rotating)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: 42916 CUM. COST: \$ 17,522,679 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6800 kPa @: 97 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE drilling WELL SECURED IN 2 MIN.
 CONDUCTED AT 0700 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 0-1 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES			PUMPS		
BIT NUMBER	47		WEIGHT (kg/m ³)	1395		No. 1 LINER (mm)	140	
SIZE (mm)	311		VISCOSITY (s/l)	88		No. 1 STROKES PER MINUTE	95	
TYPE	JG4		EXCESS LIME	10.2		No. 2 LINER (mm)	140	
SERIAL No.	38742		FV (mPa S)	38		No. 2 STROKES PER MINUTE	95	
NOZZLES (mm)	open		YP (Pa)	18.5		VOLUME (m ³)	2.23	
DEPTH IN (m)	2597		GELS (Pa)	10/14		PRESSURE (kPa)	19600	
METERS (m)	41		SAND (%)	Tr.		D.P. ANNULAR VEL. (m/min.)	35	
HOURS	49		SOLIDS (%)	27		D.C. ANNULAR VEL. (m/min.)	45	
WOB (1000 daN)	20/32		FILTER CAKE (mm desc.)	1		D.C. ANNULAR VEL. (m/min.)	63	
R.P.M.	30/90		FLUID LOSS (cc)	0.3		SOLIDS CONTROL		
CONDITION	in		CHLORIDES	226574		SHAKER SCREENS		110 - 140
DRILLING ASSEMBLY			OIL WATER	90/10		DRYER SCREENS		140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000			
Junk Sub	241	81	65/8 REG	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.
Bit sub motor	203	87	7H90	OW 1bbt		OF. (kg/m ³)		2490
2 NMDC	231	76	7H90	Emul 1bbt		VOL. (l/min.)		1310
1 FC JAW	230	76	7H90	Water 1bbt		HOURS		2
1 DC JO	226	70	7H90			ROCKS		2.5
4 DC JO	168	73	5H90			ROCKS	ANGLE	DEFLECTION
27 HWDP	127	76	41/2 IF	DC S 1527	CCS 1,081,859	2603	m 46.7	° 225.30
BHA LENGTH	342.26	m	JTS. D.P.: ON RACKS	199			m	°
HOOK LOAD	124000	daN	: IN STRING	234			m	°
AVAILABLE WOB	26,000	daN	: TOTAL	433			m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	20.5	CEMENT		CORING		RIG REPAIR	1.75	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		22	4894.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		0	100.75
SURVEY	.75			CIRC. SAMPLE		WORK PIPE	.25	2	811.5
SLIP & CUT				HANDLE TOOLS				24	5807
COND. MUD				TRIP				WEATHER	
NEPPELUMON				REAM RATHOLE				overcast	
RUN CASING				CIRCULATE				TEMPERATURE	
								10 °C	
								ROADS	
								fair	

24 SUMMARY

Drill 311mm hole with Tru Drill 1.8 degree motor. Rig service and surveys. Work on #1 and #2 mud pumps (valves)

Work pipe to clean up hole after survey.

Slide- 2623-2626m 2633-2635m

Rotate - 2621-2623m 2626-2633m 2635-2638m

Hole drag up-10-20000daN Hole drag down-8-16000daN

Torque on bottom - 1100-1450psi

Back ground gas -26 units

Mud lost last 24 Hrs. - 5.6m³

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403)424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-09-10 REPORT NO.: 241
 DEPTH: 2621 m PROGRESS: 17 m FORMATION: Ft Simpson Shale
 OPERATIONS AT 06:00 HOURS: Drilling (rotate)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKennie CO. SUPERVISOR: John Faulkner
 DAILY COST: 37516 CUM. COST: \$ 17,479,763 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6900 kPa @: 100 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE drilling WELL SECURED IN _____ MIN.
 CONDUCTED AT 1900 HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 7-0 MAXIMUM CASING HOLD BACK 4400 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	47	WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140		
SIZE (mm)	311	VISCOSITY (cP)	89	No. 1 STROKES PER MINUTE	95		
TYPE	IG4	EXCESS LIME	11.1	No. 2 LINER (mm)	140		
SERIAL No.	38742	PV (mPa S)	46	No. 2 STROKES PER MINUTE	95		
NOZZLES (mm)	open	YP (Pa)	21.5	VOLUME (m ³)	2.23		
DEPTH IN (m)	2597	GELS (Pa)	10/12	PRESSURE (kPa)	19500		
METERS (m)	24	SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	35		
HOURS	28.5	SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	45		
WOB (1000 daN)	20/32	FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63		
R.P.M.	30/90	FLUID LOSS (cc)	0.8	SOLIDS CONTROL			
CONDITION	in	CHLORIDES	275475	SHAKER SCREENS			
DRILLING ASSEMBLY				DRYER SCREENS			
ITEM	OD	ID	T.J. TYPE	ELECTRICAL STAB.	2000	D. SILT.	CENT.
Junk Sub	241	81	65/REG	MUD ADDITIVES			
Bit sub motor	203	87	7H90	Emul 1bbl		U.F. (kg/m ³)	2500
2 NMDC	231	76	7H90	Fl 1bbl		OF. (kg/m ³)	1370
1 DC JAR	230	76	7H90	Qw 1bbl		VOL. (l/min.)	2
1 DC XO	228	76	7H90	Line 1500		HOURS	5
4 DC XO	168	73	5H90	Walnut 12sxs		SURVEYS	ANGLE
27 HWDP	127	76	41/2 IF	DC \$ 2462	CC\$ 1,080,332	2583	228.10
BHA LENGTH	342.26	m	JTS. D.P.: ON RACKS	199		m	227.10
HOOK LOAD	124000	daN	: IN STRING	234		m	
AVAILABLE WOB	26,000	daN	: TOTAL	433		m	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	22.25	CEMENT		CORING		RIG REPAIR	.5	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		23.5	4872.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		0	100.75
SURVEY	.5			CIRC. SAMPLE		WORK junk sub		.5	809.5
SLIP & CUT				HANDLE TOOLS				24	5783
COND. MUD				TRIP				Cloudy	
NIPPLE UPEN				REAM RATHOLE				TEMPERATURE	10 °C
RUN CASING				CIRCULATE				ROADS	good

24 SUMMARY

Drill 311mm hole with Tru Drill 1.83degree motor and mwd. Rig service and surveys. Work on #2 mud pump(valve).

Slide-2604-2609m 2613-2617m

Rotate - 2610-2613m 2617-2621m

Hole drag up-20-25000daN Hole drag down-15-20000daN

Torque on bottom -1100-1400 psi

Back ground gas - 22mins

Mud lost last 24 Hrs. 4.5 -m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-09-09 REPORT NO.: 240
 DEPTH: 2604 m PROGRESS: 7 m FORMATION: Fr Simpson Shale
 OPERATIONS AT 06:00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: 29757 CUM. COST: \$ 17,442,247 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6900 kPa @: 100 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 14.71 m³ ACTUAL HOLE FILL: 16.55 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 5-4 MAXIMUM CASING HOLD BACK 4300 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES			PUMPS		
BIT NUMBER		47	WEIGHT (kg/m ³)		1415	No. 1 LINER (mm)		140
SIZE (mm)		311	VISCOSITY (cP)		110	No. 1 STROKES PER MINUTE		95
TYPE		IQ4	EXCESS LIME		11.5	No. 2 LINER (mm)		140
SERIAL No.		38742	PV (mPa S)		40	No. 2 STROKES PER MINUTE		95
NOZZLES (mm)		open	YP (Pa)		18.5	VOLUME (m ³)		2.23
DEPTH IN (m)		2597	GELS (Pa)		9/14	PRESSURE (kPa)		19650
METERS (m)		7	SAND (%)		Tr.	D.P. ANNULAR VEL. (m/min.)		35
HOURS		6.75	SOLIDS (%)		26	D.C. ANNULAR VEL. (m/min.)		45
WOB (1000 daN)		20/32	FILTER CAKE (mm desc.)		1	D.C. ANNULAR VEL. (m/min.)		63
R.P.M.		30.90	FLUID LOSS (cc)		0.4	SOLIDS CONTROL		
CONDITION		in	CHLORIDES		265938	SHAKER SCREENS		110 - 140
DRILLING ASSEMBLY			OIL WATER		91/9	DRYER SCREENS		140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000			
Junk Sub	241	81	65/8 REG	MUD ADDITIVES			D. SILT.	CENT.
Bis sub motor	203	87	7H90	Barite 42 sts			U.F. (kg/m ³)	
2 NMDC	231	76	7H90				OF. (kg/m ³)	
1 DC JAR	230	76	7H90				VOL. (l/min.)	
1 DC XO	228	76	7H90				HOURS	
4 DC XO	168	73	5H90				SURVEY	ANGLE DIRECTION
27 HWDP	127	76	4 1/2 IF	DC S 410	CCS 1,077,870	2583	m 45.30	° 228.10
BHA LENGTH	342.26	m	JTS. D.P.: ON RACKS	199			m	°
HOOK LOAD	123,000	daN	: IN STRING	234			m	°
AVAILABLE WOB	26,000	daN	: TOTAL	433			m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	6.75	CEMENT		CORING		RIG REPAIR	1.25	TODAY	CUM
TRIP	12	BOP DRILL		LOGGING		LOST CIRC.		21.75	4849.25
RIG SERVICE	.75	HANDLE TOOLS	1.5	TESTING		REAM & WASH			100.75
SURVEY				CIRC. SAMPLE		WORK junk sub	1	2.25	809
SLIP & CUT	.75			HANDLE TOOLS				24	5759
COND. MUD				TRIP				WEATHER	
NIPPLE UP/DN				REAM RATHBLE				clear	
RUN CASINO				CIRCULATE				TEMPERATURE	
								10 °C	
								ROADS	
								good	

24 SUMMARY

Work junk sub and drill 1m of new hole. Hoist. Circulate 5 stands out. Pump trip pill and finish out with junk sub.
 Clean and inspect junk sub. Pick up directional tools. Run in BHA. Slip and cut drilling line. Service top drive. Run in hole
 And check MWD at 1167m. Stage motor in hole to 2450m. Circulate in to bottom. Work junk sub. Drill 311mm hole
 With a Trudrill 203mm 7/8 lobe 1.83degree bend.
 Slide-2598-2602m
 Rotate - 2597-2598m 2602-2604
 Hole drag up-20-25000dan Hole drag down-10-15000dan
 Torque on bottom - 1200-1500psi
 Back ground gas - 31units new jar serial number is 10159
 Mud lost last 24 Hrs -4.5m3
 SIGNED BY: John Faulkner MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems**Survey Report**

Page 1
 Job No: 97D006
 Date: 09/09/97
 Time: 5:40 am
 Wellpath ID: 97d006s4
 Date Created: 27/01/97
 Last Revision: 09/09/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #28E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
2457.00	46.00	225.50	2222.31	-1762.42	596.47	426.54 S	417.0CW	596.51@224.35	3.51
2467.00	45.70	225.90	2229.28	-1769.39	603.64	431.55 S	422.13W	603.66@224.37	1.25
2477.00	45.40	226.80	2236.28	-1776.39	610.78	436.48 S	427.3CW	610.81@224.39	2.13
2487.00	45.50	228.20	2243.29	-1783.40	617.90	441.28 S	432.59W	617.93@224.43	3.01
2496.00	45.50	228.20	2249.60	-1789.71	624.31	445.57 S	437.34W	624.34@224.47	0.00
506.00	45.40	228.10	2256.62	-1796.73	631.42	450.33 S	442.64W	631.45@224.51	0.37
2516.00	45.60	229.70	2263.63	-1803.74	638.54	455.01 S	448.02W	638.56@224.56	3.48
2525.00	45.60	229.40	2269.92	-1810.03	644.95	459.19 S	452.91W	644.97@224.61	0.71
2535.00	45.50	229.00	2276.93	-1817.04	652.07	463.85 S	458.32W	652.08@224.66	0.91
2544.00	45.30	230.30	2283.25	-1823.36	658.46	468.00 S	463.2CW	658.46@224.70	3.16
2555.00	45.20	230.30	2290.99	-1831.10	666.23	472.99 S	469.21W	666.24@224.77	0.27
2564.00	44.80	230.20	2297.35	-1837.46	672.57	477.06 S	474.1CW	672.56@224.82	1.35
2574.00	44.80	229.00	2304.45	-1844.56	679.60	481.62 S	479.47W	679.60@224.87	2.54
2583.00	45.30	228.10	2310.81	-1850.92	685.95	485.84 S	484.24W	685.95@224.91	2.70

Need 47.5° incl. and 219.02° az to target centre.

RANGER OIL LIMITED

WELL: Ranger Fort Liard P-66-A DATE: 97-09-08 REPORT NO.: 239
 DEPTH: 2597 m PROGRESS: 2 m FORMATION: Fr Simpson Shale
 OPERATIONS AT 06:00 HOURS: Work junk sub
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: \$2924 CUM. COST: \$17,372,975 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6900 kPa @: 100 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: 14.95 m³ ACTUAL HOLE FILL: 16.92 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 4-3 MAXIMUM CASING HOLD BACK: 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	46	47		WEIGHT (kg/m ³)	1405	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (cP)	90	No. 1 STROKES PER MINUTE	95
TYPE	EHP4H	JG4		EXCESS LIME	11.1	No. 2 LINER (mm)	140
SERIAL No.	LH9085	38742		PV (mPa S)	37	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	open	open		YP (Pa)	15.5	VOLUME (m ³)	2.23
DEPTH IN (m)	2567	2597		GELS (Pa)	9/14	PRESSURE (kPa)	15100
METERS (m)	30			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	35
HOURS	43.5			SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	45
WOB (1000 daN)	20/32			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	35/90			FLUID LOSS (cc)	0.4	SOLIDS CONTROL	
CONDITION	6-4/16	in		CHLORIDES	315436	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	1300	U.F. (kg/m ³)	D. SILT.
Junk Sub	241	81	65/8REG	MUD ADDITIVES		OF. (kg/m ³)	CENT.
BIT SUB XO	203	87	7H90	Barite 60sxs Walnut 8sxs		VOL. (l/min.)	
2 NMDC	231	76	7H90	Truvis 10sxs		HOURS	
1 DC IAR	230	76	7H90	Emul 1bbl		SURVEYS	ANGLE
1 DC XO	228	76	7H90	FI 1bbl			DIRECTION
4 DC XO	168	73	5H90	Lima 20sxs		m	°
27 HWDP	127	76	41/2 IF	DC S 3762 CCS 1,077,460		m	°
BHA LENGTH	341.59	m		JTS D.P.: ON RACKS	202	m	°
HOOK LOAD	123,000	daN		: IN STRING	231	m	°
AVAILABLE WOB	26,000	daN		: TOTAL	433	m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	5	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP	14.75	BOP DRILL		LOGGING		LOST CIRC.		22.75	4827.5
RIG SERVICE	.75	HANDLE TOOLS	2.25	TESTING		REAM & WASH		0	100.75
SURVEY				CIRC. SAMPLE		WORK junk sub	1.25	1.25	806.75
SLIP & CUT				HANDLE TOOLS				24	5735
COND. MUD				TRIP				WEATHER	
WIPPLEUPON				REAM RATHOLE				Cloudy	
RUN CASING				CIRCULATE				TEMPERATURE	
								14 °C	
								ROADS	
								good	

24 SUMMARY

Drill 311mm hole to 2597m. Trip for motor. Circulate out to 2425m. Lay out washed drill pipe, Washed at seal.
 Finish out, repair pipe spinner. Change out drilling jars and lay out directional tools. Make up bit and junk sub. Run in to 2250m.
 Circulate from 2250m to bottom, work junk sub to clean up broken inserts.

Slide-2593-2597m

Tosato - Spread 325 kg of 34-5-00 fertilizer on land farm Sept. 07/97

Hole drag up-10-25000dan Hole drag down-15-20000dan

Torque on bottom -1200-1500 psi

Back ground gas -45 units

Fud lost last 24 Hrs. -4.5m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-09-07 REPORT NO.: 238
 DEPTH: 2595 m PROGRESS: 9 m FORMATION: Ft Simpson Shale
 OPERATIONS AT 06:00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: 39515 CUM. COST: \$ 17,320,051 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.P.: 6900 kPa @: 100 SPM
 TAIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 3-2 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	46			WEIGHT (kg/m ³)	1405	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	82	No. 1 STROKES PER MINUTE	95	
TYPE	EHP4H			EXCESS LIME	11.1	No. 2 LINER (mm)	140	
SERIAL No.	LH9085			PV (mPa S)	38	No. 2 STROKES PER MINUTE	95	
NOZZLES (mm)	OPEN			YP (Pa)	16.5	VOLUME (m ³)	2.23	
DEPTH IN (m)	2567			GELS (Pa)	10/15	PRESSURE (kPa)	19900	
METERS (m)	27			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	35	
HOURS	37.75			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	45	
WOB (1000 daN)	20/32			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63	
R.P.M.	35/90			FLUID LOSS (cc)	0.4	SOLIDS CONTROL		
CONDITION	in			CHLORIDES	287561	SHAKER SCREENS	110 - 140	
DRILLING ASSEMBLY				OIL WATER	90/10	DRYER SCREENS	140	
ITEM	Q.D.	L.D.	T.J. TYPE	ELECTRICAL STAB.	1775	U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS	D. SILT.	CENT.
MTR XO	190	151	65/8REG	MUD ADDITIVES				2430
MWD XO	203	87	7H90	Emul 2bbl				1400
2 NMDC	231	76	7H90	Fl 2bbl				1410
1 DC JAR	230	76	7H90	Ow 2bbl		SURVEYS	ANGLE	DIRECTION
1 DC XO	228	76	7H90	Walnut 6cxs				
4 DC XO	168	73	5H90					
27 HWDP	127	76	41/2 IF	DC S 4476 CCS 1,073,698				
BHA LENGTH	341.59	m		JTS. D.P.: ON RACKS	202			
HOOK LOAD	123,000	daN		: IN STRING	231			
AVAILABLE WOB	26,000	daN		: TOTAL	433			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	15.75	CEMENT		CORING		RIG REPAIR	1.25	TODAY	CUM.
TRIP	4.5	BOP DRILL		LOGGING		LOST CIRC.		21.5	4804.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		0	100.75
SURVEY	.5			CIRC. SAMPLE		WORK PIPE	1.25	2.5	805.5
SLIP & CUT				HANDLE TOOLS				24	5711
COND. MUD				TRIP				WEATHER	
NIPPLE UP/DN				REAM HATHOLE				Clear	
RUN CASING				CIRCULATE				TEMPERATURE	
								7 °C	
								ROADS	
								good	

24 SUMMARY

Drill to 2592m with 1.8 degree motor. Rig service and survey. Work tight hole and wiper trip to 2250m circulate out
 And back in to clean up the low side of the well. Drill ahead.

Slide-2586-2591m 2593-2595

Totals -2591-2593m

hole drag up-15/20dan Hole drag down-15-17dan

torque on bottom - 1200-1500psi

back ground gas - 45units

fluid lost last 24 Hrs. -5m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-09-06 REPORT NO.: 237
 DEPTH: 2586 m PROGRESS: 18 m FORMATION: Pt Simpson Shale
 OPERATIONS AT 06:00 HOURS: Drilling (sliding)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 40068 CUM. COST: \$ 17,320,051 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6600 kPa @: 98 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 2-1 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS									
BIT NUMBER	46			WEIGHT (kg/m ³)	1410	No. 1 LINER (mm)	140								
SIZE (mm)	311			VISCOSITY (cP)	86	No. 1 STROKES PER MINUTE	95								
TYPE	EHP4H			EXCESS LIME	12.2	No. 2 LINER (mm)	140								
SERIAL No.	LH9085			PV (mPa S)	39	No. 2 STROKES PER MINUTE	95								
NOZZLES (mm)	OPEN			YP (Pa)	16.5	VOLUME (m ³)	2.23								
DEPTH IN (m)	2567			GELS (Pa)	10/15	PRESSURE (kPa)	19300								
METERS (m)	18			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	35								
HOURS	22			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	45								
WOB (1000 daN)	20/32			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63								
R.P.M.	35/90			FLUID LOSS (cc)	0.4	SOLIDS CONTROL									
CONDITION	in			CHLORIDES	265938	SHAKER SCREENS	110 - 140								
DRILLING ASSEMBLY				OIL WATER	90/10	DRYER SCREENS	140								
ITEM	O.D.	I.D.	T.I. TYPE	ELECTRICAL. STAB.	1885	<table><tr><td>D. SILT.</td><td>CENT.</td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>		D. SILT.	CENT.						
D. SILT.	CENT.														
MTR XO	190	151	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)									
MWD XO	203	87	7H90	Emul 1bbl		OF. (kg/m ³)									
2 NMDC	231	76	7H90	Fl 1bbl		VOL. (l/min.)									
1 DC JAR	230	76	7H90	Qw 1bbl		HOURS									
1 DC XO	228	76	7H90	Lime 15srs		SURVEYS	ANGLE DIRECTION								
4 DC XO	168	73	5H90	Walnut m 6srs		2555	m 54.20 ° 230.30								
27 HWDP	127	76	41/2 LF	DC S 2355 CCS 1,069,222		2564	m 44.80 ° 230.20								
BHA LENGTH	341.59	m		JTS. D.P.: ON RACKS	202		m °								
HOOK LOAD	123,000	daN		: IN STRING	231		m °								
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °								

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	22	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CTC.		23	4783.25
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH	1	0	100.75
SURVEY	.25			CIRC. SAMPLE				1	803
SLIP & CUT				HANDLE TOOLS					5687
COND. MUD				TRIP				TOTAL	
SUPPLEMEN				REAM RATHOLE				WEATHER	
RUN CASING				CIRCULATE				TEMPERATURE	
								ROADS	
								Cloudy	
								9 °C	
								good	

24 SUMMARY

Ream and wash 2459 to 2567m. Drill 311mm hole with Tru Drill 1.83 degree motor. Surveys and rig service.

Slide-2567m-2569m 2573-2581m 2584-2586m

Rotate -2569-2573m 2581-2584m

Hole drag up-20-25000dan Hole drag down-10-20000dan

Torque on bottom -13-1500psi

Back ground gas -35units

Fluid lost last 24 Hrs. -6.5m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403)424-8050

Halliburton Drilling Systems**Survey Report**

Page 1
 Job No: 97D006
 Date: 06/09/97
 Time: 4:43 am
 Wellpath ID: 97d006s4
 Date Created: 27/01/97
 Last Revision: 06/09/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
2403.00	45.70	224.50	2185.05	-1725.16	557.39	398.50 S	389.77W	557.43@224.37	4.03
2419.00	46.30	224.10	2196.16	-1736.27	568.90	406.74 S	397.81W	568.94@224.36	1.25
2429.00	46.80	223.50	2203.04	-1743.15	576.18	411.98 S	402.83W	576.19@224.36	1.99
2439.00	46.80	224.10	2209.89	-1750.00	583.45	417.24 S	407.88W	583.46@224.35	1.31
2448.00	46.30	224.10	2216.07	-1756.18	589.98	421.93 S	412.42W	590.02@224.35	1.67
2457.00	46.00	225.50	2222.31	-1762.42	596.47	426.54 S	417.00W	596.51@224.35	3.51
2467.00	45.70	225.90	2229.28	-1769.39	603.64	431.55 S	422.13W	603.65@224.37	1.25
2477.00	45.40	226.80	2236.28	-1776.39	610.78	436.48 S	427.30W	610.81@224.39	2.13
2487.00	45.50	228.20	2243.29	-1783.40	617.90	441.29 S	432.55W	617.93@224.43	3.01
2496.00	45.50	228.20	2249.60	-1789.71	624.31	445.57 S	437.34W	624.34@224.47	0.00
2506.00	45.40	228.10	2256.62	-1796.73	631.42	450.33 S	442.64W	631.45@224.51	0.37
2516.00	45.60	229.70	2263.63	-1803.74	638.54	455.01 S	448.02W	638.56@224.56	3.48
2525.00	45.60	229.40	2269.92	-1810.03	644.95	459.19 S	452.91W	644.97@224.61	0.71
2535.00	45.50	229.00	2276.93	-1817.04	652.07	463.85 S	458.32W	652.08@224.66	0.91
2544.00	45.30	230.30	2283.25	-1823.36	658.46	468.00 S	463.20W	658.46@224.70	3.16
2555.00	45.20	230.30	2290.99	-1831.10	666.23	472.99 S	469.21W	666.24@224.77	0.27
2564.00	44.80	230.20	2297.35	-1837.46	672.57	477.06 S	474.10W	672.58@224.82	1.35

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-09-05 REPORT NO.: 236
 DEPTH: 2567 m PROGRESS: 2 m FORMATION: Ft Simpson Shale
 OPERATIONS AT 06:00 HOURS: Wash and ream to bottom
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 59476 CUM. COST: \$ 17,278,983 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6600 kPa @: 98 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 15.21 m³ ACTUAL HOLE FILL: 17.52 m³
 BOP DRILLS: CONDUCTED WHILE Tripping WELL SECURED IN 2 MIN.
 CONDUCTED AT 12.15 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 1-0 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	46	45		WEIGHT (kg/m ³)	1405	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (mPa)	83	No. 1 STROKES PER MINUTE	95
TYPE	EHP4H	Fm2943		EXCESS LIME	10.4	No. 2 LINER (mm)	140
SERIAL No.	LH9085	35424		PV (mPa S)	42	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	OPEN	8x17.5		YP (Pa)	15.3	VOLUME (m ³)	2.23
DEPTH IN (m)	2567	2434		GELS (Pa)	9/14	PRESSURE (kPa)	18100
METERS (m)		131		SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	35
HOURS		93		SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	45
WOB (1000 daN)		8/22		FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.		20/90		FLUID LOSS (cc)	0.4	SOLIDS CONTROL	
CONDITION	In	2-1/16		CHLORIDES	246501	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	89/11	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	1625		
MTR XO	190	151	65/8 REG	MUD ADDITIVES		U.F. (kg/m ³)	
MWD XO	203	87	7H90	Barite 50sxs		OF. (kg/m ³)	
2 NMDC	231	76	7H90	Travis 5sxs		VOL. (l/min.)	
1 DC JAR	230	76	7H90	Egnul 1bb1		HOURS	
1 DC XO	228	76	7H90	Fl 1bb1		SURVEYS	
4 DC XO	168	73	5H90	Walnut M 6sxs		ANGLE	DIRECTION
27 HWD	127	76	41/2 IF	DC S 2702 CCS 1,066,867		m	°
BHA LENGTH	341.59	m		JTS. D.P.: ON RACKS	202	m	°
HOOK LOAD	122,000	daN		: IN STRING	231	m	°
AVAILABLE WOB	26,000	daN		: TOTAL	433	m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	2.75	CEMENT		CORING		RIG REPAIR	3.25	TODAY	CUM
TRIP	12.75	BOP DRILL		LOGGING		LOST CIRC.		19.5	4760.25
RIG SERVICE	.75	HANDLE TOOLS	3	TESTING		REAM & WASH	1.25	0	100.75
SURVEY	.25			CIRC. SAMPLE				4.5	802
SLIP & CUT				HANDLE TOOLS				24	5663
COND. MUD				TRIP				WEATHER	
NIPPLE/UDN				REAM RATHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								Overcast	
								13 °C	
								good	

24 SUMMARY

Drill 311mm hole with 197mm 1.83-degree vector mud motor with survey and rig service. Hoist for bit at 2567m.
 Hole pulled tight from 2407 to 2123m. Finish out. Lay out tools. Service top drive, change grabber dies, saver sub and hoses.
 Picked up new Tru Drill 7/8 lobe 1.830-degree motor and MWD. Run in. Repair hydraulic hose check MWD. Finish in to 2284m. Wash and ream from 2284m to 2459m
 Slide- 2565-2567m
 Rotate -
 Hole drag up-20-40000dan Hole drag down-15-20000 dan
 Torque on bottom -psi
 Back ground gas -17units recalibrate gas detector
 And lost last 24 Hrs. -3.7m³ on trip
 SIGNED BY: John Faulkner MOBILE NO: (403)210-1202 (403) 424-8050

**BHA REPORT**

September 4, 1997

 Page 1
 9/4/97 8:31:30 pm
 Version VER2.2.4 - BETA

 Job No.: 97D006
 Operator: RANGER OIL LIMITED
 Field: FT. LIARD
 Well: 97d006a4
 Run No.: 1

 AFE No.: E6D-016
 Location: P-86-A
 MWD Operator(s): PETERSON, FERGUSON
 Dir'l Driller(s): MCFARLANE, HUBENSKY
 BHA No.: 74

Hole Size: 311.000 mm

BOTTOM HOLE ASSEMBLY

Motor Size / Type: 204.000 mm / 7/8LOBE

Serial No.: 80034

Circulating : 0.00 hrs

No.	Serial No.	Tool Description	OD (mm)	ID (mm)	Length (m)	Total Length (m)	Connections Up	Down	Conn
1	LH9085	(BIT) REED,EHP41H,TCI	311.000		0.40	0.40	6 5/8 Reg		P
2	80034	(MTR) TRUE DRIL,7/8LOBE, 1.830" Band	204.000	151.308	7.71	8.11	6 5/8 Reg	6 5/8 Reg	B/B
3	L-3308	(SUB) Cross-Over Sub	193.000	87.000	0.24	8.35	6 5/8 Reg	6 5/8 Reg	P/P
4	PC-6056	(MWD) DATADRIL LOW FLOW battery(b 5474), das(das-4704), inter. plug/tandem sub(diph5004/5088), muleshoe stinger(mi-001), pulser, dis(tp-4334), collar(pc-6056), float sub(xs-8102), muleshoe sub(ms-8077), gamma(uga-1153)	203.200		4.76	13.11	6 5/8 Reg	6 5/8 Reg	B/B
5	XO9062	(SUB) Cross-Over Sub	232.000	77.000	0.68	13.80	7 H-90	6 5/8 Reg	B/P
6	NM 90001	(DC) Slick Non-Mag Drill Collar	231.000	76.000	9.42	23.22	7 H-90	7 H-90	B/P
7	NM 90008	(DC) Slick Non-Mag Drill Collar	230.000	76.000	9.42	32.64	7 H-90	7 H-90	B/P
8	RIG-1	(DC) Slick Drill Collar	230.000	76.000	9.59	42.23	7 H-90	7 H-90	B/P
9	10156	(JAR) FASTER Jar	224.000	68.000	5.36	47.59	7 H-90	7 H-90	B/P
10	RIG-1B	(DC) Slick Drill Collar	228.000	74.000	9.59	57.18	7 H-90	7 H-90	B/P
	8x6.75-2	(SUB) Cross-Over Sub	228.000	73.000	0.90	58.08	5 H-90	7 H-90	B/P
	RIG-4x6 3/4	(DC) 4 jts, Slick Drill Collar	168.000	73.000	35.48	93.56	5 H-90	5 H-90	B/P
	6.75DC-4.5DR	(SUB) Cross-Over Sub	176.000	72.000	0.95	94.51	4 1/2 IF	5 H-90	B/P
14	27 x HWDP	(HW) 27 jts, Hevi-Wate Drill Pipe	127.000	76.200	247.08	341.59	4 1/2 IF	4 1/2 IF	B/P

BIT DATA
 Manufacturer: REED
 Bit Type: TCI
 Serial No.: LH9085
 Hours On Bit : 0.00

 IADC: 417
 Depth in: 2567.00 - 2567.00 (0.00) m
 Nozzles: 25.4(3) mm
 MTG On Bit : 0.00

 Length: 0.40 m
 Gage Length: 0.00 mm
 TFA: 1620.122 mm2

Dull Code: 0-0-NO-C-BX-BX-BX-I-NO

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-09-04 REPORT NO.: 235
 DEPTH: 2565 m PROGRESS: 18 m FORMATION: Ft Simpson Shale
 OPERATIONS AT 06:00 HOURS: Work on mud pump
 CONTRACTOR/RIG SUPT.: Precision Drilling rig #424E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 45579 CUM. COST: \$ 17,219,507 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6600 kPa @: 98 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE drilling WELL SECURED IN 2-2 MIN.
 CONDUCTED AT 0800 2300 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 0-0 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES				PUMPS					
BIT NUMBER	45			WEIGHT (kg/m ³)	1395			No. 1 LINER (mm)	140				
SIZE (mm)	311			VISCOSITY (m)	80			No. 1 STROKES PER MINUTE	95				
TYPE	Fm2943			EXCESS LIME	10.4			No. 2 LINER (mm)	140				
SERIAL No.	35424			PV (mPa S)	41			No. 2 STROKES PER MINUTE	95				
NOZZLES (mm)	8x17.5			YP (Pa)	16			VOLUME (m ³)	2.23				
DEPTH IN (m)	2434			GELS (Pa)	9/14			PRESSURE (kPa)	19800				
METERS (m)	131			SAND (%)	Tr.			D.P. ANNULAR VEL. (m/min.)	35				
HOURS	93			SOLIDS (%)	28			D.C. ANNULAR VEL. (m/min.)	45				
WOB (1000 daN)	8/22			FILTER CAKE (mm desc.)	1			D.C. ANNULAR VEL. (m/min.)	63				
R.P.M.	20/90			FLUID LOSS (cc)	0.4			SOLIDS CONTROL					
CONDITION	in			CHLORIDES	276828			SHAKER SCREENS	110 - 140				
DRILLING ASSEMBLY				OIL WATER	90/10			DRYER SCREENS	140				
ITEM	G.D.	L.D.	T.I. TYPE	ELECTRICAL STAB.	1810			U.F. (kg/m³) OF. (kg/m³) VOL. (l/min.) HOURS SURVEYS ANGLE DIRECTION					
MTR XO	190	151	65/BREG	MUD ADDITIVES									
MWD XO	203	87	7H90	Truvia 5sm Walnut M 10sm									
2 NMDC	231	76	7H90	Emul 2bbi									
1 DC JAR	230	76	7H90	Fl 2bbi									
1 DC XO	228	76	7H90	Ow 3bbi									
4 DC XO	168	73	SH90	Lime 15sm									
27 HWDP	127	76	41/2 IF	DC S 6123 CCS 1,064,165									
BHA LENGTH	341.10	m	JTS. D.P.: ON RACKS	202									
HOOK LOAD	122,000	daN	: IN STRING	231									
AVAILABLE WOB	26,000	daN	: TOTAL	433									

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	<u>20</u>	CEMENT		CORING		RIG REPAIR	<u>2.75</u>	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		<u>21.25</u>	<u>4740.75</u>
RIG SERVICE	<u>.75</u>	HANDLE TOOLS		TESTING		REAM & WASH		<u>0</u>	<u>100.75</u>
SURVEY	<u>.5</u>			CIRC. SAMPLE				<u>2.75</u>	<u>797.5</u>
SLIP & CUT				HANDLE TOOLS				<u>24</u>	<u>5639</u>
COND. MUD				TRIP				WEATHER	<u>clear</u>
NIFFLEUP/DN				REAM BATHOLE				TEMPERATURE	<u>10 °C</u>
RUN CASING				CIRCULATE				ROADS	<u>Good</u>

24 SUMMARY

Drill 311mm hole with 197mm 1.83-degree vector mud motor with surveys and rig service. Work on #1 mud pump.
 Change discharge valve. Work on #2 pump, change valves and pony rod.

Slide - 2547-2551m 2554-2561m 2564-2565m

Rotate - 2551-2554m 2561-2564m

Hole drag up-20-27000daN Hole drag down-16-19000 daN

Force on bottom -1100-1400 psi

Back ground gas -55units

And lost last 24 Hrs. -7.3 m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 97-09-03 REPORT NO.: 234
 DEPTH: 2547 m PROGRESS: 27 m FORMATION: Ft Simpson
 OPERATIONS AT 06:00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 116,119 CUM. COST: \$ 17,173,928 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6600 kPa @: 98 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 5 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES			PUMPS																	
BIT NUMBER	45		WEIGHT (kg/m ³)	1395		No. 1 LINER (mm)	140																
SIZE (mm)	311		VISCOSITY (s/l)	76		No. 1 STROKES PER MINUTE	95																
TYPE	Fm2943		EXCESS LIME	11.1		No. 2 LINER (mm)	140																
SERIAL No.	35424		PV (mPa S)	48		No. 2 STROKES PER MINUTE	95																
NOZZLES (mm)	8x17.5		YP (Pa)	10		VOLUME (m ³)	2.23																
DEPTH IN (m)	2434		GELS (Pa)	10/14		PRESSURE (kPa)	18700																
METERS (m)	113		SAND (%)	0.		D.P. ANNULAR VEL. (m/min.)	35																
HOURS	73		SOLIDS (%)	26		D.C. ANNULAR VEL. (m/min.)	45																
WOB (1000 daN)	7/22		FILTER CAKE (mm desc.)	1		D.C. ANNULAR VEL. (m/min.)	63																
R.P.M.	20/90		FLUID LOSS (cc)	0.4		SOLIDS CONTROL																	
CONDITION	in		CHLORIDES	254891		SHAKER SCREENS 110 - 140																	
DRILLING ASSEMBLY			OIL WATER	91/9		DRYER SCREENS 140																	
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	1685	<table><tr><td>U.F. (kg/m³)</td><td>D. SILT.</td><td>CENT.</td></tr><tr><td>OF. (kg/m³)</td><td></td><td></td></tr><tr><td>VOL. (l/min.)</td><td></td><td></td></tr><tr><td>HOURS</td><td></td><td></td></tr><tr><td>SURVEYS</td><td>ANGLE</td><td>DIRECTION</td></tr></table>			U.F. (kg/m ³)	D. SILT.	CENT.	OF. (kg/m ³)			VOL. (l/min.)			HOURS			SURVEYS	ANGLE	DIRECTION
U.F. (kg/m ³)	D. SILT.	CENT.																					
OF. (kg/m ³)																							
VOL. (l/min.)																							
HOURS																							
SURVEYS	ANGLE	DIRECTION																					
MTR XO	190	151	65/BREG	MUD ADDITIVES																			
MWD XO	203	87	7H90	Barite 84sca line 17ms																			
2 NMDC	231	76	7H90	Truvis 5sca walnut 11sca																			
1 DC JAR	230	76	7H90	Emul 4 bbls																			
1 DC XO	228	76	7H90	Fl 2bbls																			
4 DC XO	168	73	5H90	Ow 8bbls																			
27 HWDP	127	76	41/2 IF	DC S 12090 CCS 1,058,042																			
BHA LENGTH	341.10	m	JTS. D.P.: ON RACKS	205	2525	m	45.40	° 228.10															
HOOK LOAD	121,000	daN	: IN STRING	228		m	45.60	° 229.70															
AVAILABLE WOB	26,000	daN	: TOTAL	433		m	45.60	° 229.40															

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	<u>21.75</u>	CEMENT		CORING		RIG REPAIR	<u>.75</u>	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		<u>23.25</u>	<u>4719.5</u>
RIG SERVICE	<u>.75</u>	HANDLE TOOLS		TESTING		REAM & WASH		<u>0</u>	<u>100.75</u>
SURVEY	<u>.75</u>			CIRC. SAMPLE				<u>.75</u>	<u>794.75</u>
SLIP & CUT				HANDLE TOOLS				<u>24</u>	<u>5615</u>
COND. MUD				TRIP				WEATHER	
NIPPLEUP/DN				REAM RATHOLE				Clear	
RUN CASING				CIRCULATE				TEMPERATURE	
								16 °C	
								ROADS	
								good	

24 SUMMARY

Drill 311mm hole with 197mm 1.83 degree vector mud motor with surveys and rig service. Change pony rod in #2 mud pump.

Slide- 2525-2530m 2535-2540m 2545-2547m

Rotate - 2520-2525m 2530-2535m 2540-2545m

Hole drag up-20-25000daN Hole drag down- 15-20000daN

Torque on bottom - 1200-1500psi

Back ground gas - 60units

Mud lost last 24 Hrs. - 3.5m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-02 REPORT NO.: 233
DEPTH: 2520 m PROGRESS: 36 m FORMATION: Fr. Simpson
OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: Art Schmitt
DAILY COST: \$ 40,340 CUM. COST: \$ 17,057,809 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6100 kPa @ 95 RPM
TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
DAYS SINCE BOP DRILL (EACH CREW): 5 - 4 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	45			WEIGHT (kg/m ³)	1395	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (cP)	77	No. 1 STROKES PER MINUTE	95
TYPE	Fm2943			EXCESS LIME	10.0	No. 2 LINER (mm)	140
SERIAL No.	35424			PV (mPa S)	36	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	8x17.5			YP (Pa)	16.0	VOLUME (m ³)	2.23
DEPTH IN (m)	2434			GELS (Pa)	10/14	PRESSURE (kPa)	18800
METERS (m)	86			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	35
HOURS	52.5			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	45
WOB (1000 daN)	71/22			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	20/90			FLUID LOSS (cc)	0.4	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	291105	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	140
				ELECTRICAL STAB.	1650	D. SILT. CENT.	
MTR XO	197	151	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)	2440
MWD XO	203	87	7H90	7 - Interdrill OW	5 - Travis	OF. (kg/m ³)	1370
2 NMDC	231	76	7H90	2 - Interdrill FL	19 - Walnut	VOL. (l/min.)	3.2
1 DC IAR	230	76	7H90	4 - EMUL		HOURS	7.5
1 DC XO	228	76	7H90	147 - Barite		SURVEYS	ANGLE
4 DC XO	168	73	5H90	2m3 - Sump water		2467	m 45.7 ° 225.9
27 HWD	127	76	41/2 IF	DC S 11690	CCS 1,049,952	2477	m 45.4 ° 226.8
BHA	341.10	m		JTS. D.P.: ON RACKS	205	2487	m 45.5 ° 228.2
HOOK LOAD	120,000	daN		: IN STRING	228	2496	m 45.5 ° 228.2
AVAILABLE WOB	29,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING	21.0	CEMENT		CORDING		RIG REPAIR	1.25	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.			22.75	4696.25
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			0	100.75
SURVEY	1.0	INSPECT BHA		CIRC. SAMPLE					1.25	794
SLIP & CUT				HANDLE TOOLS					24	5991
COND. MUD				TRIP					CLEAR	
NOFFLEUPON				REAM RATHOLE					14 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Vector mud motor and survey with MWD	
Log with GR. 2484m - 2520m - Lay down washed drill pipe - Repair Pason recorder	
Slide- 2488m - 2491m 2496m - 2501m 2505m - 2513m 2515m - 2520m	
Rotals - 2484m - 2488m 2491m - 2496m 2501m - 2505m 2513m - 2515m	
Hole drag up-15-25000dan Hole drag down- 15-20000dan	
Torque on bottom - 1200-1500psi	
Back ground gas - 65units Trip gas	
Mud lost last 24 Hrs. - 2.0m3	
SIGNED BY: Art Schmitt	
MOBILE NO: (403)210-1202 (403) 424-8050	

Halliburton Drilling Systems

Survey Report

Page 1

Job No: 97D006

Date: 02/09/97

Time: 2:33 am

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 02/09/97

Calculated using the Minimum Curvature Method

Computed using PDS VER2.2.4 - BETA

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED

RANGER Fort Liard P - 66 - A

IN UNIT P SECTION 66

Cactus #26E KB: 459.89 m

97D006

UWI 300P886040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
2307.00	48.00	225.70	2119.14	-1659.25	487.66	350.89 S	338.98W	487.73@224.02	2.13
2317.00	48.00	225.50	2125.83	-1685.94	495.09	355.89 S	344.27W	495.16@224.05	0.45
2327.00	47.70	226.00	2132.54	-1672.65	502.50	361.07 S	349.58W	502.57@224.07	1.43
2336.00	47.60	226.70	2138.60	-1678.71	509.15	365.66 S	354.35W	509.21@224.10	1.76
2346.00	47.10	227.50	2145.38	-1685.49	516.50	370.67 S	359.78W	516.56@224.15	2.32
2356.00	46.60	227.80	2152.22	-1692.33	523.79	375.58 S	365.17W	523.84@224.19	1.64
2365.00	46.10	228.60	2158.43	-1698.54	530.29	379.92 S	370.02W	530.34@224.24	2.55
2375.00	45.70	227.40	2165.99	-1705.50	537.46	384.73 S	375.36W	537.50@224.29	2.85
2384.00	45.20	226.70	2171.70	-1711.81	543.87	389.10 S	380.08W	543.91@224.33	2.35
2393.00	45.30	226.30	2178.04	-1718.15	550.26	393.50 S	384.69W	550.26@224.35	1.00
2403.00	45.70	224.50	2185.05	-1725.16	557.39	398.50 S	389.77W	557.43@224.37	4.03
2419.00	46.30	224.10	2196.16	-1736.27	568.90	406.74 S	397.81W	568.94@224.36	1.25
2429.00	46.80	223.50	2203.04	-1743.15	576.16	411.98 S	402.83W	576.16@224.36	1.99
2439.00	46.80	224.10	2209.89	-1750.00	583.45	417.24 S	407.88W	583.45@224.35	1.31
2448.00	46.30	224.10	2216.07	-1756.18	589.98	421.93 S	412.42W	590.02@224.35	1.67
2457.00	46.00	225.50	2222.31	-1762.42	596.47	426.54 S	417.00W	596.51@224.35	3.51
2467.00	45.70	225.90	2229.28	-1769.39	603.64	431.55 S	422.13W	603.68@224.37	1.25
2477.00	45.40	226.80	2236.28	-1776.39	610.78	436.48 S	427.30W	610.81@224.39	2.13
2487.00	45.50	228.20	2243.29	-1783.40	617.90	441.28 S	432.55W	617.93@224.43	3.01
2496.00	45.50	228.20	2249.60	-1789.71	624.31	445.57 S	437.34W	624.34@224.47	0.00

SEP-02-1997 09:00

403 232 5200

P. 03

09/01/97 07:58 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-09-01 REPORT NO.: 232
 DEPTH: 2484 m PROGRESS: 33 m FORMATION: Ft. Simpson
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 38,900 CUM. COST: \$ 17,017,469 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6800 kPa @: 98 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 4 - 3 MAXIMUM CASING HOLD BACK 4600 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES				PUMPS																												
BIT NUMBER	45			WEIGHT (kg/m ³)	1390			No. 1 LINER (mm)	140																											
SIZE (mm)	311			VISCOSITY (s/l)	81			No. 1 STROKES PER MINUTE	95																											
TYPE	Fm2943			EXCESS LIME	9.6			No. 2 LINER (mm)	140																											
SERIAL No.	35424			PV (mPa S)	40			No. 2 STROKES PER MINUTE	95																											
NOZZLES (mm)	8x17.5			YP (Pa)	17.0			VOLUME (m ³)	2.23																											
DEPTH IN (m)	2434			GELS (Pa)	12/17			PRESSURE (kPa)	18800																											
METERS (m)	50			SAND (%)	Tr			D.P. ANNULAR VEL. (m/min.)	35																											
HOURS	31.5			SOLIDS (%)	28			D.C. ANNULAR VEL. (m/min.)	45																											
WOB (1000 daN)	71/22			FILTER CAKE (mm desc.)	1			D.C. ANNULAR VEL. (m/min.)	63																											
R.P.M.	20/90			FLUID LOSS (cc)	0.4			SOLIDS CONTROL																												
CONDITION	IN			CHLORIDES	303,373			SHAKER SCREENS	110 - 140																											
DRILLING ASSEMBLY				OIL WATER	92/8			DRYER SCREENS	140																											
				ELECTRICAL STAB.	1700			<table><tr><td rowspan="4">U.F. (kg/m³) OF. (kg/m³) VOL. (l/min.) HOURS</td><td colspan="2">D. SILT.</td><td>CENT.</td></tr><tr><td colspan="2"></td><td>2420</td></tr><tr><td colspan="2"></td><td>1330</td></tr><tr><td colspan="2"></td><td>3.2</td></tr><tr><td colspan="2"></td><td colspan="2"></td><td>5.5</td></tr><tr><td colspan="2"></td><td colspan="2">ANGLE</td><td>DIRECTION</td></tr></table>						U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS	D. SILT.		CENT.			2420			1330			3.2					5.5			ANGLE		DIRECTION
U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS	D. SILT.		CENT.																																	
			2420																																	
			1330																																	
			3.2																																	
				5.5																																
		ANGLE		DIRECTION																																
MTR XO	197	151	65/8REG	MUD ADDITIVES																																
MWD XO	203	87	7H90	8 - Interdrill OW	10 - Truvia																															
2 NMDC	231	76	7H90	2 - Interdrill FL	40 - Lime																															
1 DC JAR	230	76	7H90	5 - EMUL	6 - Walnut																															
1 DC XO	228	76	7H90	2m3 - Brine	15 - Interdrill S																															
4 DC XO	168	73	5H90	18m3 - Diesel																																
27 HWDP	127	76	41/2 IF	DC S 21865	CCS 1,034,262																															
BHA	341.10		m	JTS. D.P.: ON RACKS		211		2439		m	46.8	°	224.1																							
HOOK LOAD	119,000		daN	: IN STRING		222		2448		m	46.3	°	224.1																							
AVAILABLE WOB	29,000		daN	: TOTAL		433		2457		m	46.0	°	225.5																							

TIME BREAKDOWN

DRILLING	21.25	CEMENT		CORING		BIG REPAIR	1.25	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.			22.75	4673.5
RIG SERVICE	75	HANDLE TOOLS		TESTING		REAM & WASH			0	100.75
SURVEY	75	INSPECT BHA		CIRC. SAMPLE					1.25	791.5
SLIP & CUT				HANDLE TOOLS					24	5343
COND. MUD				TRIP					CLEAR	
NIPPLEUP/DN				REAM RATHOLE					9 °C	
RUN CASING				CIRCULATE					MUDDY	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Vector mud motor and survey with MWD
 Log with GR. 2451m - 2484m - Repair mud pumps #1 and #2 valves and seats

Slide- 2451m - 2455m 2459m - 2464 2467m - 2471m 2476m - 2482m
 Rotate - 2455m - 2459m 2464m - 2467m 2471m - 2476m 2482m - 2484m
 Hole drag up-15-20000dan Hole drag down- 7-12000dan
 Torque on bottom - 1200-1500psi
 Back ground gas - 50units Trip gas
 Mud lost last 24 Hrs - 1.9m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403)424-8050

RANGER OIL

RANGER OIL LIMITED
DAILY CONSTRUCTION/CLEANUP REPORT

DATE	AFE	AFE APPROVED AMOUNT
Aug 29 30 31 - Sept 1/97	E60-015	
WEATHER	PROJECT OR LOCATION	AFE COMMITTED AMOUNT
	Ft. Liard P-66	
CONTRACTOR	MANPOWER	
BEAVER / LIT		
EQUIPMENT		
D6 GRADER, 325 HPS, Box Truck		
SUPERVISOR		
ORVILLE KOPAL		

ROAD	LEASE	PIPELINE	COST	DAILY
___ km to build	___ % cleared	___ % ROW cleared	Bid:	
___ km to rough in	___ % graded	___ % pipe strung	Supervision:	1700 ⁰⁰
___ km final grade	___ % pad complete & level	___ % pipe welded	1. BEAVER	4735 ⁰⁰
___ km gravelled	___ % sump complete	___ % backfilled	2. LIT	1666
		Date Tested:	3. _____	
			4. _____	
			5. _____	
			TOTAL	8101
			PREVIOUS	
			CUMULATIVE	

NOTE: All cost information to be detailed on cost log and forwarded daily and complete package sent to office at end of job.

RAIN - Aug 29 - 30 - WET -
 - HOS Ditching & Draining Around Well-site
 TRAILERS, TALLGRASS Sump - Loading Truck
 RE GRAVEL FOR MAIN ACCESS RE REPAIRS,
 Piling up - Receiving soil for Insect mix
 RE LAND FARMING,
 - GRADER WORKING MAIN ACCESS ROAD -

Construction costs will include survey, construction, supervision and materials.

RANGER OIL LIMITED
DAILY DRILLING AND COMPLETION COST LOG

WELL NAME: Ft. Lisco P-66 AFE NO.: E6D-015

SUPERVISOR: ORVILLE Kersch DATE: SEP 1/97

DAILY TOTAL COST: _____ INCLUDED ON DAILY DRILLING/COMPLETION REPORT NO.: _____

[illegible]

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-31 REPORT NO.: 231
DEPTH: 2451 m PROGRESS: 17 m FORMATION: Pt. Simpson
OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: Art Schrit
DAILY COST: \$ 34122 CUM. COST: \$ 16,978,569 AFE NO: EGD - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6400 kPa @: 98 SPM
TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT SATISFACTORY
DAYS SINCE BOP DRILL (EACH CREW): 3 - 2 HRS. CREW PERFORMANCE SATISFACTORY
MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	45			WEIGHT (kg/m ²)	1405	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (cP)	106	No. 1 STROKES PER MINUTE	95	
TYPE	Fm2943			EXCESS LIME	8.9	No. 2 LINER (mm)	140	
SERIAL No.	39424			PV (mPa S)	40	No. 2 STROKES PER MINUTE	95	
NOZZLES (mm)	8x17.5			YP (Pa)	19.0	VOLUME (m ³)	2.23	
DEPTH IN (m)	2434			GELS (Pa)	12/17	PRESSURE (kPa)	18800	
METERS (m)	17			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	35	
HOURS	10.25			SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	45	
WOB (1000 daN)	7/16			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63	
R.P.M.	20/90			FLUID LOSS (cc)	0.4	<u>SOLIDS CONTROL</u>		
CONDITION	IN			CHLORIDES	265,938	SHAKER SCREENS	110 - 140	
<u>DRILLING ASSEMBLY</u>				OIL WATER	92/8	DRYER SCREENS	140	
				ELECTRICAL STAB.	1575			
				<u>MUD ADDITIVES</u>				
MTR XO	197	151	65/8RBG			U.F. (kg/m ³)	D. S.E.T.	CENT.
MWD XO	203	87	7H90			OF. (kg/m ³)		
2 NMDC	231	76	7H90			VOL. (l/min.)		
1 DC IAR	230	76	7H90			HOURS		
1 DC XO	228	76	7H90			SURVEYS	ANGLE	DIRECTION
4 DC XO	168	73	5h90			2419	m 46.3	° 224.1
27 HWDP	127	76	41/2 IF	DC S O	CCS 1,012,397	2429	m 46.8	° 223.5
BHA	341.10 m			JTS. D.P.: ON RACKS	214		m	°
HOOK LOAD	118,000 daN			: IN STRING	219		m	°
AVAILABLE WOB	29,000 daN			: TOTAL	433		m	°

TIME BREAKDOWN

DRILLING	10.25	CEMENT		CORING		RIG REPAIR		DRILL OF EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	<u>5.0</u>	<u>BOP DRILL</u>		<u>LOGGING</u>		<u>LOST CIRC.</u>			<u>19.25</u>	<u>4650.75</u>
RIG SERVICE	<u>.75</u>	<u>HANDLE TOOLS</u>	<u>2.0</u>	<u>TESTING</u>		<u>REAM & WASH</u>	<u>4.75</u>		<u>0</u>	<u>100.75</u>
SURVEY	<u>.5</u>	<u>INSPECT BHA</u>		<u>CIRC. SAMPLE</u>					<u>4.75</u>	<u>791.5</u>
SLIP & CUT	<u>.75</u>			<u>HANDLE TOOLS</u>					<u>24</u>	<u>5543</u>
COND. MUD				<u>TRIP</u>					CLEAR	
NOBLEFLOAM				<u>REAM BATHOLE</u>					<u>7 °C</u>	
RUN CASING				<u>CIRCULATE</u>					MUDDY	

24 SUMMARY

Pick up directional tools - Lay down 2 - 228mm DCs, pick up 10 - 127mm HWDP - Slip and cut drill line
Trip in to 1128m shallow test MWD - Trip in to 2080m - Wash and ream 2080m - 2434m - 2.5m fill - Directional drill 311mm
hole with 197mm 1.83 degree Vector mud motor and survey with MWD log with GR. 2434m - 2451m

Slide- 2438m - 2444m 2448m - 2451m

Rotate - 2434m - 2438m 2444m - 2448m

Hole drag up-12-25000dan Hole drag down- 10-15000dan

Torque on bottom - 1120-1400psi

Back ground gas - 51units Trip gas

Mud lost last 24 Hrs. - 3.0m3

SIGNED BY: Art Schrit

MOBILE NO: (403)210-1202 (403) 424-8050

08/30/97 11:03 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-30 REPORT NO.: 230
 DEPTH: 2434 m PROGRESS: 10 m FORMATION: Fr. Simpson
 OPERATIONS AT 06.00 HOURS: Make up directional tools
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Ward McKenzie CO. SUPERVISOR: Art Schrit
 DAILY COST: \$ 54522 CUM. COST: \$ 16,944,447 AFE NO.: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6800 kPa @: 88 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 15.47 m³ ACTUAL HOLE FILL: 17.76 m³
 BOP DRILLS: CONDUCTED WHILE PRESSURE TESTING BOP WELL SECURED IN 1.5 MIN.
 CONDUCTED AT 04:00 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 2 - 1 MAXIMUM CASING HOLD BACK 4600 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	44	45		WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (s/l)	86	No. 1 STROKES PER MINUTE	85
TYPE	HP13G	Fm2943		EXCESS LIME	8.1	No. 2 LINER (mm)	140
SERIAL No.	BA1776	39434		PV (mPa S)	40	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	3X19.1	8x17.5		YP (Pa)	18.0	VOLUME (m ³)	2.10
DEPTH IN (m)	2357	2434		GELS (Pa)	9/15	PRESSURE (kPa)	18100
METERS (m)	77			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	32
HOURS	48			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	41
WOB (1000 daN)	20/35			FILTER CAKE (mm deac.)	1	D.C. ANNULAR VEL. (m/min.)	57
R.P.M.	25/150			FLUID LOSS (cc)	0.6	SOLIDS CONTROL	
CONDITION	6-5-I			CHLORIDES	303,373	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	140
				ELECTRICAL STAR.	1650	D. SILT.	CENT.
MTR XO	190	151	63/MREG	MUD ADDITIVES		U.F. (kg/hr ²)	
MWD XO	203	87	7H90	203 - Barite	10 - Lime	OF. (kg/hr ²)	
2 NMDC	231	76	7H90	5 - Interdrill OW	4m3 - Fresh water	VOL. (l/min.)	
1 DC IAR	230	76	7H90	5 - Walnut		HOURS	
1 DC XO	228	76	7H90	2 - Interdrill FL		SURVEYS	ANGLE
4 DC XO	168	73	5H90	4 - Interdrill EMUL			
27 HWDP	127	76	41/2 IF	DC \$ 9699	CCS 1,012,397		
BHA				JTS. D.P.: ON RACKS	216		
HOOK LOAD	119,000	daN		: IN STRING	217		
AVAILABLE WOB	28,000	daN		: TOTAL	433		

TIME BREAKDOWN

DRILLING	8.5	CEMENT		CORING		RO REPAIR	.5	DRILL OP EVALUATION	TODAY	CUM.
TRIP	5.75	BOP DRILL	25	LOGGING		LOST CIRC.			23.5	4631.5
RO SERVICE	.75	HANDLE TOOLS	3.0	TESTING		BEAM & WASH		PROBLEMS	0	100.75
SURVEY	.25	INSPECT BHA		CIRC. SAMPLE				TOTAL	5	786.75
SLIP & CUT		PRESS. TEST	5.0	HANDLE TOOLS				WEATHER	24	5519
COND. MUD				TRIP				TEMPERATURE		
NIPPLE UP/DN				BEAM/RAITOLE				ROADS	8 °C	
RUN CASING				CIRCULATE					MUDDY	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree low speed Halliburton mud motor and survey
 with MWD log with GR. 2424m - 2434m - Circulate out 2 stands - Pump pill trip out - Handle directional tools - Pull wear
 bushing - Pressure test blind end pipe runs BOP valves, manifold, Kelly valves to 1400 kpa and 14000 kpa - Test annular
 BOP to 1400 kpa and 8500 kpa - BOP drill - Function test accumulator, start 20500 kpa, open HCR close pipe runs and
 Annular open 1 pipe run 11300 kpa remaining - Recharge time 2.5 minutes - Precharge 7700 kpa - Install wear bushing
 Pick up directional tools - Slide - 2424m - 2426m Rotate - 2426m - 2434m
 Hole drag up-15-25000dan Hole drag down-12-17000dan
 Torque on bottom - 1100-1320psi
 Back ground gas - 40 units Trip gas
 Mud lost last 24 Hrs - 1.4m3
 SKINED BY: Art Schrit MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-29 REPORT NO.: 229
 DEPTH: 2424 m PROGRESS: 34 m FORMATION: Mid Besa River
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drilling rig #426E Ward McKenzie CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 189,560 CUM. COST: \$ 16,889,925 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6400 kPa @: 90 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE DRILLING WELL SECURED IN 2 MIN.
CONDUCTED AT 15:30 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 1-7 MAXIMUM CASING HOLD BACK 4600 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	<u>44</u>			WEIGHT (kg/m ³)	<u>1390</u>	No. 1 LINER (mm)	<u>140</u>
SIZE (mm)	<u>311</u>			VISCOSITY (s/l)	<u>78</u>	No. 1 STROKES PER MINUTE	<u>85</u>
TYPE	<u>HP13G</u>			EXCESS LIME	<u>10.0</u>	No. 2 LINER (mm)	<u>140</u>
SERIAL No.	<u>BA1776</u>			PV (mPa S)	<u>36</u>	No. 2 STROKES PER MINUTE	<u>85</u>
NOZZLES (mm)	<u>3X19.1</u>			YP (Pa)	<u>15.5</u>	VOLUME (m ³)	<u>2.10</u>
DEPTH IN (m)	<u>2357</u>			GELS (Pa)	<u>11/18</u>	PRESSURE (kPa)	<u>18100</u>
METERS (m)	<u>67</u>			SAND (%)	<u>Tr</u>	D.P. ANNULAR VEL. (m/min.)	<u>32</u>
HOURS	<u>39.5</u>			SOLIDS (%)	<u>28</u>	D.C. ANNULAR VEL. (m/min.)	<u>41</u>
WOB (1000 daN)	<u>20/35</u>			FILTER CAKE (mm desc.)	<u>1</u>	D.C. ANNULAR VEL. (m/min.)	<u>57</u>
R.P.M.	<u>25/150</u>			FLUID LOSS (cc)	<u>0.6</u>	SOLIDS CONTROL	
CONDITION	<u>IN</u>			CHLORIDES	<u>435,486</u>	SHAKER SCREENS	
DRILLING ASSEMBLY				OIL WATER	<u>94/6</u>	DRYER SCREENS	
				ELECTRICAL STAB.	<u>2000</u>		
MTR XO	<u>190</u>	<u>151</u>	<u>65/SREG</u>	MUD ADDITIVES		U.F. (kg/m ³)	
MWD XO	<u>203</u>	<u>87</u>	<u>7H90</u>	<u>287 - Barite</u>	<u>2 - Interdrill FL</u>	OF. (kg/m ³)	
2 NMDC	<u>231</u>	<u>76</u>	<u>7H90</u>	<u>4 - Interdrill OW</u>	<u>2 - Interdrill EMUL</u>	VOL. (l/min.)	
1 DC IAR	<u>230</u>	<u>76</u>	<u>7H90</u>	<u>6 - Walnut</u>		HOURS	
3 DC XO	<u>228</u>	<u>76</u>	<u>7H90</u>	<u>3 - Fiber Fluid</u>		SURVEYS	
4 DC XO	<u>168</u>	<u>73</u>	<u>5H90</u>	<u>21 - Lime</u>		ANGLE	
17 HWDP	<u>127</u>	<u>76</u>	<u>41/2 IF</u>	<u>DC \$ 8753</u>	<u>CCS 1,002,698</u>	2375	<u>m 45.7 ° 227.4</u>
BHA	<u>267.88</u>	<u>m</u>		JTS. D.P.: ON RACKS	<u>208</u>	2384	<u>m 45.2 ° 226.7</u>
HOOK LOAD	<u>118,000</u>	<u>daN</u>		IN STRING	<u>225</u>	2393	<u>m 45.3 ° 226.3</u>
AVAILABLE WOB	<u>26,000</u>	<u>daN</u>		TOTAL	<u>433</u>	2403	<u>m 45.7 ° 224.5</u>

TIME BREAKDOWN

DRILLING	22.5	CEMENT		CORING		RIG REPAIR		DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.			24	4608
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			0	100.75
SURVEY	.75	INSPECT BHA		CIRC. SAMPLE					0	786.25
SLIP & CUT				HANDLE TOOLS					24	5495
COND. MUD				TRIP					RAIN	
NIPPLEUPON				REAM RATHOLE					9 °C	
RUN CASING				CIRCULATE					MUDDY	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Halliburton mud motor and survey with MWD
 Log with GR. 2390m - 2424m

Slide- 2394m-2398m 2403m-2407m 2412m-2417m 2423m-2424m
 Rotate - 2390m-2394m 2398m-2403m 2407m-2412m 2417m-2423m
 Hole drag up-18-30000dan Hole drag down- 12-17000dan
 Torque on bottom - 1180-1400psi
 Back ground gas - 46units Trip gas
 Mud lost last 24 Hrs. - 2.3m³
 SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-28 REPORT NO.: 228
 DEPTH: 2390 m PROGRESS: 33 m FORMATION: Mid Bess River
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Ward McKenzie CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 182036 CUM. COST: \$ 16,700,36 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6500 kPa @: 88 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 6 - 6 MAXIMUM CASING HOLD BACK 4600 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	44			WEIGHT (kg/m ³)	1410	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	95	No. 1 STROKES PER MINUTE	85	
TYPE	HP13G			EXCESS LIME	11.47	No. 2 LINER (mm)	140	
SERIAL No.	BA1776			PV (mPa S)	43	No. 2 STROKES PER MINUTE	85	
NOZZLES (mm)	3X19.1			YP (Pa)	19.5	VOLUME (m ³)	2.10	
DEPTH IN (m)	2357			GELS (Pa)	11//18	PRESSURE (kPa)	18100	
METERS (m)	33			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	32	
HOURS	17.25			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	41	
WOB (1000 daN)	20/35			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	57	
R.P.M.	25/150			FLUID LOSS (cc)	0.6	SOLIDS CONTROL		
CONDITION	IN			CHLORIDES	366150	SHAKER SCREENS	110 - 140	
DRILLING ASSEMBLY				OIL WATER	93//7	DRYER SCREENS	140	
				ELECTRICAL STAB.	2000			
MTR XO	190	151	65/8 REG	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.
MWD XO	203	87	7H90	50 - Barite		OF. (kg/m ³)		2400
2 NMDC	231	76	7H90	2 - Interdrill OW		VOL. (l/min.)		1360
1 DC JAR	230	76	7H90	2 - Walnut		HOURS		2.8
3 DC XO	228	76	7H90	2 - Fiber Fluid		SURVEYS		5.5
4 DC XO	168	73	5h90				ANGLE	DIRECTION
17 HWDP	127	76	41/2 IF	DC \$ 2158	CC\$ 993,945	2336	m 47.6	° 226.7
BHA	267.88		m	JTS. D.P.: ON RACKS	210	2346	m 47.1	° 227.5
HOOK LOAD	118,000		daN	: IN STRING	223	2356	m 46.6	° 227.8
AVAILABLE WOB	26,000		daN	: TOTAL	433	2363	m 46.1	° 228.6
							m	°

TIME BREAKDOWN

DRILLING	17.25	CEMENT		CORING		RIG REPAIR		DRILL OP	TODAY	CUM.
TRIP	<u>4.0</u>	BOP DRILL		LOGGING		LOST CIRC.		EVALUATION	<u>23.0</u>	<u>4584</u>
RIG SERVICE	<u>.75</u>	HANDLE TOOLS		TESTING		REAM & WASH	<u>1.0</u>	PROBLEMS	<u>0</u>	<u>100.75</u>
SURVEY	<u>1.0</u>	INSPECT BHA		CIRC. SAMPLE				TOTAL	<u>1.0</u>	<u>786.25</u>
SLIP & CUT				HANDLE TOOLS				WEATHER	<u>24</u>	<u>5471</u>
COND. MUD				TRIP				TEMPERATURE	<u>CLEAR</u>	
NIPPLE UP/DN				REAM RATHOLE				ROADS	<u>13 °C</u>	
RUN CASING				CIRCULATE					<u>MUDDY</u>	

24 SUMMARY

Trip in - Clean bridge at 2154m - 2160m - Trip in - Ream bridge at 2241m - Wash and ream 2241m - 2357m
 .5m Fill - Survey - Directional drill 311mm hole with 197mm low speed 1.83 degree Haliburton mud motor and survey
 with MWD log with GR. 2357m - 2390m

Slide- 2357m - 2360 2365m - 2369m 2375m - 2380m 2384m - 2390m
 Rotate - 2360m - 2365m 2369m - 2375m 2380m - 2384m
 Hole drag up-12-25000dan Hole drag down- 12-17000dan
 Torque on bottom - 1180-1400psi
 Back ground gas - 38units Trip gas
 Mud lost last 24 Hrs. - 1.5m3

SIGNED BY: Art Schmitt MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-27 REPORT NO.: 227
 DEPTH: 2357 m PROGRESS: 14 m FORMATION: Mid Bena River
 OPERATIONS AT 06:00 HOURS: TRIP IN WITH DIRECTIONAL TOOLS AND BIT#44
 CONTRACTOR/RIG SUPT.: Precision Drilling #426E Ward McKenzie CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 52,838 CUM. COST: \$ 16,518,329 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6400 kPa @ 98 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 6 - 6 MAXIMUM CASING HOLD BACK 4600 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	43	44		WEIGHT (kg/m ³)	1395	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (cP)	88	No. 1 STROKES PER MINUTE	95
TYPE	HP13G	HP13G		EXCESS LIME	12.0	No. 2 LINER (mm)	140
SERIAL No.	BA1774	BA1776		PV (mPa S)	40	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3X19.1	3X19.1		YP (Pa)	18.0	VOLUME (m ³)	2.10
DEPTH IN (m)	2269	2357		GELS (Pa)	12//16	PRESSURE (kPa)	19200
METERS (m)	88			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	35
HOURS	56			SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	45
WOB (1000 daN)	20/35			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	25/90			FLUID LOSS (cc)	0.6	SOLIDS CONTROL	
CONDITION	5-7-3	NEW		CHLORIDES	321,392	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92//8	DRYER SCREENS	140
				ELECTRICAL STAB.	2000	D. SILT.	CENT.
				MUD ADDITIVES			
MTR XO	190	151	65/REG	3 - Truvia		U.F. (kg/m ³)	
MWD XO	203	87	7H90	3 - Interdrill OW		OF. (kg/m ³)	
2 NMDC	231	76	7H90	6 - Walnut		VOL. (l/min.)	
1 DC JAR	230	76	7H90	6 - Fiber Fluid		HOURS	
3 DC XO	228	76	7H90	15 - Lime		SURVEYS	ANGLE DIRECTION
4 DC XO	168	73	5H90	DC S 3334 CCS 991787		2327	m 47.7 ° 226.0
17 RWDP	127	76	41/2 IF			2327	m 47.6 ° 226.7
BHA	268.76	m		JTS. D.P.: ON RACKS	214		m °
HOOK LOAD	118,000	daN		: IN STRING	219		m °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING	10.25	CEMENT		CORING		RIG REPAIR	2.5	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	9.0	BOP DRILL		LOGGING		LOST CIRC.			21.5	4561
RIG SERVICE	.75	HANDLE TOOLS	1.0	TESTING		REAM & WASH			0	100.75
SURVEY	.5	INSPECT BHA		CIRC. SAMPLE					2.5	785.25
SLIP & CUT				HANDLE TOOLS					24	3447
COND. MUD				TRIP					CLEAR	
NIPPLEUP/DN				REAM RATHOLE					13 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Directional drill 311mm hole with 196mm low speed 1.83 degree Vector mud motor and survey with
 MWD log with GR. 2343m - 2357m - Repair #1 main electrical plug ins and brushes on pump traction motors
 Circulate out 6 stands - Pump pill trip out - Change out mud motor and bit service MWD - Trip in - Shallow test MWD
 at 1096m - Trip in
 Slide- 2347m - 2351m 2356m - 2357m
 Rotate - 2343m - 2347m 2351m - 2356m
 Hole drag up-12-25000dan Hole drag down- 12-17000dan
 Torque on bottom - 1180-1400psi
 Back ground gas - 40units Trip gas
 Mud lost last 24 Hrs. - 1.5m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

08/26/97 08:25 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-56-A DATE 1997-08-26 REPORT NO.: 226
 DEPTH: 2343 m PROGRESS: 33 m FORMATION: Mid Bear River
 OPERATIONS AT 08:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schrit
 DAILY COST: \$ 105390 CUM. COST: \$ 15,465,491 AFE NO: B6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6400 kPa @: 99 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 6 - 6 MAXIMUM CASING HOLD BACK 4600 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	43			WEIGHT (kg/m ³)	1395	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (mPa)	81	No. 1 STROKES PER MINUTE	95
TYPE	HP13G			EXCESS LIME	7.4	No. 2 LINER (mm)	140
SERIAL No.	BA1774			PV (mPa S)	41	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3X19.1			YP (Pa)	17.0	VOLUME (m ³)	2.10
DEPTH IN (m)	2269			GELS (Pa)	12/17	PRESSURE (kPa)	18700
METERS (m)	74			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	35
HOURS	45.25			SOLIDS (%)	25	D.C. ANNULAR VEL. (m/min.)	45
WOB (1000 daN)	20/35			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	25/90			FLUID LOSS (cc)	0.6	SOLIDS CONTENT	
CONDITION	IN			CHLORIDES	333,984	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	91/9	DRYER SCREENS	140
				ELECTRICAL STAB.	2000		
MTR XO	190	171	171			U.F. (kg/m ³)	D. S.L.T. CENT.
MWD XO	203	87	7H90	80 - Barite		OF. (kg/m ³)	2410
2 NMDC	231	76	7H90	1 - Inzardrill OW		VOL. (l/min.)	1325
1 DC IAR	230	76	7H90	5 - Walnut		HOURS	3.0
3 DC XO	228	76	7H90	6 - Fiber Stone			4.25
4 DC XO	168	73	5b90			SURVEYS	
17 HWD	127	76	41/2 IF	DC \$ 1843	CCS 988,453	2298	m 47.4 ° 225.4
BHA	268.76	m		JTS. D.P.: ON RACKS	217	2317	m 48.0 ° 225.5
HOOK LOAD	117,000	daN		: IN STRING	216		m °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING	21	CEMENT	LOGGING	LOST CIRC.	DRILL OP	TOTAL	TIME
TRIP		BOP DRILL	LOGGING	LOST CIRC.	EVALUATION	22.5	4539.5
RIG SERVICE	75	HANDLE TOOLS	TESTING	SPAM & WASH	PROBLEMS	0	100.75
SURVEY	75	INSPECT BHA	CIRC. SAMPLE		TOTAL	1.5	782.75
SLIP & CUT			HANDLE TOOLS		WEATHER	24	5423
COND. MUD			TRIP		TEMPERATURE		CLEAR
NIPPLE UPON			REAM RATHOLE		ROADS		12 °C
RUN CASING			CIRCULATE				GOOD

24 SUMMARY

Directional drill 311mm hole with 195mm low speed 1 1/2 degree Vector mud motor and survey with							
MWD log with GR. 2310m - 2343m - Repair #1 and #2 mud pump valves and seals							
Slide 2310m - 2312m 2316m - 2322m 2327m - 2331m 2337m - 2341m -							
Prestate - 2312m - 2316m 2327m - 2327m 2331m - 2337m 2341m - 2343m							
Hole drag up-10-18000dan Hole drag down-10-15000dan							
Torque on bottom - 1180-1400 psi							
Back ground gas - 38units Trip gas							
Mud lost last 24 Hrs. - 2.2m3							
SIGNED BY: Art Schrit				MOBILE NO: (403) 210-1202 (403) 424-8050			

08/26/97 08:41 FAX

03

Halliburton Drilling Systems**Survey Report**

Page 1

Job No: 97D006

Date: 26/08/97

Time: 3:15 am

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 26/08/97

Calculated using the Minimum Curvature Method

Computed using PDS VER2.2.4 - BETA

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
2201.00	46.60	232.90	2044.60	-1584.71	412.63	301.66 S	281.88W	412.86@223.06	2.26
2211.00	46.20	233.00	2051.49	-1591.60	419.80	306.02 S	287.66W	420.00@223.23	1.22
2221.00	45.60	232.10	2058.45	-1598.56	426.92	310.39 S	293.37W	427.09@223.38	2.65
2231.00	45.00	231.60	2065.49	-1605.60	433.98	314.78 S	298.95W	434.12@223.52	2.09
2240.00	44.40	231.80	2071.88	-1611.99	440.26	318.70 S	303.92W	440.35@223.64	2.05
2249.00	43.90	230.20	2078.34	-1618.45	446.50	322.65 S	308.75W	446.60@223.74	4.07
2259.00	43.60	228.70	2085.57	-1625.68	453.39	327.14 S	314.05W	453.45@223.83	3.24
2269.00	43.90	227.90	2092.79	-1632.90	460.29	331.74 S	319.21W	460.36@223.90	1.89
2278.00	44.90	226.60	2099.22	-1639.33	466.59	336.02 S	323.83W	466.67@223.94	4.51
2288.00	46.10	226.00	2106.23	-1646.34	473.72	340.95 S	328.95W	473.75@223.98	3.82
2298.00	47.40	225.40	2113.08	-1653.19	481.00	346.03 S	334.20W	481.07@224.00	4.11
2307.00	48.00	225.70	2119.14	-1659.25	487.66	350.69 S	338.96W	487.73@224.02	2.13
2317.00	48.00	225.50	2125.83	-1665.94	495.09	355.89 S	344.27W	495.16@224.05	0.45

AUG-26-1997 08:40

403 261 7007

P.04

08/25/97 08:23 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-25 REPORT NO.: 225
 DEPTH: 2310 m PROGRESS: 34 m FORMATION: Mid Bess River
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Ddg rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 38065 CUM. COST: \$ 16,360,101 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6200 kPa @: 95 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 5 - 5 MAXIMUM CASING HOLD BACK 4600 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	43			WEIGHT (kg/m ³)	1390	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (mPa S)	78	No. 1 STROKES PER MINUTE	95
TYPE	HP13G			EXCESS LIME	7.4	No. 2 LINER (mm)	140
SERIAL No.	BA1774			PV (mPa S)	38	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3X19.1			YP (Pa)	17.0	VOLUME (m ³)	2.10
DEPTH IN (m)	2269			GELS (Pa)	12/15	PRESSURE (kPa)	18700
METERS (m)	41			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	35
HOURS	24.25			SOLIDS (%)	25	D.C. ANNULAR VEL. (m/min.)	45
WOB (1000 daN)	20/35			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	25/90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	321,392	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY				OIL WATER	92//8	DRYER SCREENS	140
				ELECTRICAL STAB.	1536		
MTR XO	190	151	65/8 REG	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.
MWD XO	203	87	7H90	10 - Travis	1 - Interdrill OW	OF. (kg/m ³)	
2 NMDC	231	76	7H90	2 - Interdrill FL		VOL. (l/min.)	
1 DC JAR	230	76	7H90	5 - Walnut		HOURS	4.25
3 DC XO	228	76	7H90	5 - Fiber Fluid		SURVEYS	ANGLE DIRECTION
4 DC XO	168	73	5h90	1 - Interdrill EMUL		2259	m 43.6 ° 228.7
17 HWDP	127	76	41/2 IF	DC S 4155 CCS 986610		2269	m 43.9 ° 227.9
BHA	268.76	m		JTS. D.P.: ON RACKS	220	2278	m 44.9 ° 226.6
HOOK LOAD	115,000	daN		: IN STRING	213	2288	m 46.1 ° 226.0
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING	19.5	CEMENT		CORING		RIG REPAIR	3.0	DRILL OP	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		EVALUATION	21	4517
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		PROBLEMS	0	100.75
SURVEY	.75	INSPECT BHA		CIRC. SAMPLE				TOTAL	3.0	781.25
SLIP & CUT				HANDLE TOOLS				WEATHER	24	5399
COND. MUD				TRIP				TEMPERATURE		CLEAR
NIPPLE UPDN				REAM RATHOLE				ROADS	12 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Directional drill 311mm hole with 196mm low speed 1.83 degree Vector mud motor and survey with
 MWD log with GR. 2276m - 2310m - Repair #1 mud pump pony rod, head and liner

Slide-2279m - 2284 2289m - 2302m 2308m - 2310m

Rotate - 2284m - 2289 2302m - 2308m

Hole drag up-10-18000dan Hole drag down- 10-15000dan

Torque on bottom - 1180-1350 psi

Back ground gas - 40units Trip gas

Mud lost last 24 Hrs. - 1.9m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

08/24/97 07:11 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-24 REPORT NO.: 224
 DEPTH: 2276 m PROGRESS: 11 m FORMATION: Mid Bess River
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schrit
 DAILY COST: \$ 42897 CUM. COST: \$ 16,322,036 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6300 kPa @: 102 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 14.95 m³ ACTUAL HOLE FILL: 16.93 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 4 - 4 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES		PUMPS	
BIT NUMBER	42	43	WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140
SIZE (mm)	311	311	VISCOSITY (cP)	81	No. 1 STROKES PER MINUTE	95
TYPE	F-2	HP13G	EXCESS LIME	7.4	No. 2 LINER (mm)	140
SERIAL No.	LC2869	BA1774	PV (mPa S)	40	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3X19.1	3X19.1	YP (Pa)	15.0	VOLUME (m ³)	2.10
DEPTH IN (m)	2203	2269	GELS (Pa)	9.5/15	PRESSURE (kPa)	18700
METERS (m)	66	7	SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	35
HOURS	71.75	4.75	SOLIDS (%)	24	D.C. ANNULAR VEL. (m/min.)	45
WOB (1000 daN)	20/35	20 //30	FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	25/90	25/95	FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	7-4-1	IN	CHLORIDES	275475	SHAKER SCREENS	110 - 140
DRILLING ASSEMBLY			OIL WATER	89/11	DRYER SCREENS	140
			ELECTRICAL STAB.	1931	U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS	D. SLT. CENT.
MTR XO	190	151	65/8 REG			
MWD XO	203	87	7H90	1 - Interdrill OW		
2 NMDC	231	76	7H90	50 - Barite		
1 DC JAR	230	76	7H90	4 - Walnut	SURVEY	ANGLE DIRECTION
3 DC XO	228	76	7H90	4 - Fiber Fluid		
4 DC XO	168	73	5H90			
17 HWDP	127	76	41/2 IF	DC \$ 1501 CCS 982,455		
BHA	268.76	m	JTS. D.P.: ON RACKS	223		
HOOK LOAD	115,000	daN	: IN STRING	210		
AVAILABLE WOB	26,000	daN	: TOTAL	433		

TIME BREAKDOWN

DRILLING	9.0	CEMENT		CORING		RIG REPAIR	1.25	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	9.0	BOP DRILL		LOGGING		LOST CIRC.			21.5	4496
RIG SERVICE	.75	HANDLE TOOLS	2.0	TESTING		REAM & WASH	1.25		0	100.75
SURVEY	.75	INSPECT BHA		CIRC. SAMPLE					2.5	778.25
SLIP & CUT				HANDLE TOOLS					24	5375
COND. MUD				TRIP					CLEAR	
NIPPLE UP/DN				REAM RATHOLE					14 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Directional drill 311mm hole with 196mm low speed 1.83 degree Trudrill mud motor and survey with
 MWD log with GR. 2265m - 2269m - Circulate out 6 stands - Pump pill - Trip out change bit and mud motor, service MWD
 and Tesco top drive - Trip in to 1095m shallow test MWD - Trip in - Wash and ream 2240m - 2269m 1m fill - Survey
 Directional drill 311mm hole with 197mm low speed 1.83 degree Vector mud motor and survey with MWD Log with GR.
 2269m - 2276m - Repair #1 pump
 Slide - 2268m - 2274m Rotate - 2274m - 2276m
 Hole drag up-10-15000dan Hole drag down- 10-15000dan
 Torque on bottom - 1125-1400 psi
 Back ground gas - 22 units Trip gas - 36
 Mud lost last 24 Hrs - 1.5m³
 SIGNED BY: Art Schrit MOBILE NO: (403)210-1202 (403) 424-8050

08/23/97 12:22 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-23 REPORT NO.: 223
 DEPTH: 2265 m PROGRESS: 22 m FORMATION: Mid Besa River
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPPLY: Precision Drllg rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 41866 CUM. COST: \$ 16,279,139 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6800 kPa @: 102 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 3-3 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	42			WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (cP)	76	No. 1 STROKES PER MINUTE	95	
TYPE	F-2			EXCESS LIME	11.1	No. 2 LINER (mm)	140	
SERIAL No.	LC2869			PV (mPa S)	35	No. 2 STROKES PER MINUTE	95	
NOZZLES (mm)	3X19.1			YP (Pa)	17.0	VOLUME (m ³)	2.10	
DEPTH IN (m)	2203			GELS (Pa)	9/19	PRESSURE (kPa)	18700	
METERS (m)	62			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	35	
HOURS	66.5			SOLIDS (%)	27	D.C. ANNULAR VEL. (m/min.)	45	
WOB (1000 daN)	20/35			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63	
R.P.M.	25/90			FLUID LOSS (cc)	0.8	SOLIDS CONTROL		
CONDITION	IN			CHLORIDES	308,568	SHAKER SCREENS	110 - 140	
DRILLING ASSEMBLY				OIL WATER	90/10	DRYER SCREENS	140	
				ELECTRICAL STAB.	1739			
MTR XO	190	151	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.
MWD XO	203	87	7H90	10 - Truvis	2 - Interdrill OW	OF. (kg/m ³)		
2 NMDC	231	76	7H90	89 - Barite		VOL. (l/min.)		
1 DC JAR	230	76	7H90	6 - Walnut		HOURS		
3 DC XO	228	76	7H90	6 - Fiber Fluid		SURVEYS	ANGLE	DIRECTION
4 DC XO	168	73	5H90	1 - Interdrill EMUL		2231	m 45.0	° 231.6
17 HWDP	127	76	41/2 IF	DC S 4735	CCS 980,954	2240	m 44.4	° 231.8
BHA	268.37	m		JTS. D.P.: ON RACKS	226		m	°
HOOK LOAD	115,000	daN		: IN STRING	207		m	°
AVAILABLE WOB	26,000	daN		: TOTAL	433		m	°

TIME BREAKDOWN

DRILLING	22	CEMENT		CORING		RIG REPAIR	.5	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.			23.5	4474.5
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			0	100.75
SURVEY	.75	INSPECT BHA		CIRC. SAMPLE					.5	775.75
SLIP & CUT				HANDLE TOOLS					24	5351
COND. MUD				TRIP					CLEAR	
NIPPLEUP/DN				REAM RATHOLE					14 °C	
RUN CASING				CIRCULATE					GOOD	

24 SUMMARY

Directional drill 311mm hole with 196mm low speed 1.83 degree Trudrill mud motor and survey with
 MWD log with GR. 2243m - 2265m

Slide-2243m - 2246m 2250m - 2256m 2259m - 2264m
 Rotate - 2246m - 2250m 2256m - 2259m 2264m - 2265m
 Hole drag up-10-15000dan Hole drag down- 10-15000dan
 Torque on bottom - 1125-1350 psi
 Back ground gas - 9 units Trip gas
 Mud lost last 24 Hrs. - 1.5m3

SIGNED BY: Art Schmitt

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-22 REPORT NO.: 222
DEPTH: 2243 m P 21 m FORMATION: Mid Besa River
OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schritt
DAILY COST: \$ 38675 CUM. COST: \$ 16,237,273 AFE NO: E&D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6600 kPa @: 104 SPM
TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
DAYS SINCE BOP DRILL (EACH CREW): 2 - 2 MAXIMUM CASING HOLD BACK 4600 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	42			WEIGHT (kg/m ³)	1390	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	72	No. 1 STROKES PER MINUTE	95
TYPE	F-2			EXCESS LIME	13.0	No. 2 LINER (mm)	140
SERIAL No.	LC2869			PV (mPa S)	35	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3X19.1			YP (Pa)	14.5	VOLUME (m ³)	2.23
DEPTH IN (m)	2203			GELS (Pa)	9.5/13	PRESSURE (kPa)	19200
METERS (m)	40			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	35
HOURS	44.5			SOLIDS (%)	24	D.C. ANNULAR VEL. (m/min.)	45
WOB (1000 daN)	20/35			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	25/90			FLUID LOSS (cc)	0.8	<u>SOLIDS CONTROL</u>	
CONDITION	IN			CHLORIDES	270191	SHAKER SCREENS	110 - 140
<u>DRILLING ASSEMBLY</u>				OIL WATER	88/12	DRYER SCREENS	140
				ELECTRICAL STAB.	1473		
				<u>MUD ADDITIVES</u>			
MTR XO	190	151	65/8REG	15 - Truvia	2 - Interdrill FL	U.F. (kg/m ³)	D. SILT. CENT.
MWD XO	203	87	7H90	3 - Walnut	18m3 - Diesel	OF. (kg/m ³)	2450
2 NMDC	231	76	7H90	3 - Fiber Fluid	2m3 - Brine	VOL. (l/min.)	1335
1 DC JAR	230	76	7H90	15 - Interdrill S	2 - Interdrill OW	HOURS	3.2
3 DC XO	228	76	7H90	2 - EMUL	20 - Lime	SURVEYS	2.25
4 DC XO	168	73	5b90	DC S 10807	CCS 976,219		ANGLE DIRECTION
17 HWDF	127	76	41/2 IF			2211	m 46.2 ° 233.0
BHA	268.37	m		ITS D.P.: ON RACKS	226	2221	m 45.6 ° 232.1
HOOK LOAD	114,000	daN		: IN STRING	207		m °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING	22.5	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		24	4451
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		0	100.75
SURVEY	.75	INSPECT BHA		CIRC. SAMPLE				0	775.25
SLIP & CUT				HANDLE TOOLS				24	5327
COND. MUD				TRIP				WEATHER CLEAR	
NIPPLE UP/DN				REAM/RAITHOLE				TEMPERATURE 16 °C	
RUN CASING				CIRCULATE				ROADS FAIR	

24 SUMMARY

Directional drill 311mm hole with 196mm low speed 1.83 degrees Trudrill mud motor and survey with	
MWD log with GR. 2222m - 2243m	
Slide- 2221m - 2227m 2230m - 2238m 2240m - 2243m	
Route - 2227m - 2230m 2238m - 2240m	
Hole drag up-10-20000dan Hole drag down- 10-12000dan	
Torque on bottom - 1150-1325 psi	
Back ground gas - 10 units Trip gas	
Mud lost last 24 Hrs. - 1.4m3	
SIGNED BY: <u>Art Schritt</u>	
MOBILE NO: <u>(403)210-1202 (403) 424-8050</u>	

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-21 REPORT NO.: 221
 DEPTH: 2222 m PROGRESS: 19 m FORMATION: Mid Beta River
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 44060 CUM. COST: \$ 16,198,598 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6300 kPa @: 100 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE DRILLING WELL SECURED IN 1.5 1.75 MIN.
 CONDUCTED AT 14:15 06:15 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 1 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	42			WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (cP)	79	No. 1 STROKES PER MINUTE	90	
TYPE	F-2			EXCESS LIME	11.1	No. 2 LINER (mm)	140	
SERIAL No.	LC2869			PV (mPa S)	42	No. 2 STROKES PER MINUTE	90	
NOZZLES (mm)	3X19.1			YP (Pa)	15.5	VOLUME (m ³)	2.10	
DEPTH IN (m)	2203			GELS (Pa)	12//13	PRESSURE (kPa)	18700	
METERS (m)	19			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34	
HOURS	22			SOLIDS (%)	24	D.C. ANNULAR VEL. (m/min.)	43	
WOB (1000 daN)	20/35			FILTER CAKE (mm dense)	1	D.C. ANNULAR VEL. (m/min.)	62	
R.P.M.	25/90			FLUID LOSS (cc)	0.8	<u>SOLIDS CONTROL</u>		
CONDITION	IN			CHLORIDES	298,797	SHAKER SCREENS	110 - 84	
<u>DRILLING ASSEMBLY</u>				OIL WATER	89/11	DRYER SCREENS	140	
				ELECTRICAL STAB.	1320			
MTR XO	190	151	65/BREG	<u>MUD ADDITIVES</u>		U.F. (kg/m ³)		
MWD XO	203	87	7H90	2 - Interdrill OW		OF. (kg/m ³)		
2 NMDC	231	76	7H90	1 - EMUL		VOL. (l/min.)		
1 DC JAR	230	76	7H90	3 - Fiber Fluid		HOURS		
3 DC XO	228	76	7H90	3 - Walnut		<u>SURVEYS</u>	<u>ANGLE</u>	<u>DIRECTION</u>
4 DC XO	168	73	5b90			2191	m 46.4	° 233.9
17 HWDP	127	76	41/2 IF	DC \$ 2367	CCS 965,412	2201	m 46.6	° 232.9
BHA	268.37	m		JTS. D.P.: ON RACKS	229		m	°
HOOK LOAD	114,000	daN		: IN STRING	204		m	°
AVAILABLE WOB	26,000	daN		: TOTAL	433		m	°

TIME BREAKDOWN

DRILLING	22	CEMENT		CORING		RIG REPAIR		TODAY	CUM
TRIP		BOP DRILL	.5	LOGGING		LOST CIRC.		24	4427
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		0	100.75
SURVEY	.75	INSPECT BHA		CIRC. SAMPLE				0	775.25
SLIP & CUT				HANDLE TOOLS				24	5303
COND. MUD				TRIP				<u>CLEAR</u>	
NIPPLE UP/DN				REAM RATHOLE				<u>9 °C</u>	
RUN CASING				CIRCULATE				<u>FAIR</u>	

24 SUMMARY

Directional drill 311mm hole with 196mm low speed 1.83 degree Trudril mud motor and survey with	
MWD log with GR. 2203m - 2222m	
Held BOP drills with both crews	
Slide- 2203m - 2206m 2210m - 2217m 2221m - 2222m	
Rotate - 2206m - 2210m 2217m - 2221m	
Hole drag up- 10-15000dan Hole drag down- 10-12000dan	
Torque on bottom - 1100-1350 psi	
Back ground gas - 10 units Trip gas	
Mud lost last 24 Hrs. - 1.5m3	
SIGNED BY: Art Schmitt	MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems

Survey Report

Page 1

Job No: 97D006

Date: 21/08/97

Time: 6:20 am

Wellpath ID: 97d006e4

Date Created: 27/01/97

Last Revision: 21/08/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist (m)	Dir. (deg.)	DLS (dg/30m)
2104.00	47.50	230.20	1978.37	-1518.48	342.31	258.13 S	225.98W	343.07	@221.20	2.58
2113.00	47.40	231.40	1984.46	-1524.57	348.91	262.32 S	231.12W	349.61	@221.38	2.97
2123.00	47.20	230.50	1991.24	-1531.35	356.22	266.95 S	236.82W	356.86	@221.58	2.07
2133.00	47.20	230.80	1998.04	-1538.16	363.52	271.60 S	242.50W	364.10	@221.76	0.66
2142.00	47.80	231.50	2004.13	-1544.24	370.11	275.76 S	247.66W	370.64	@221.93	2.17
2152.00	47.80	232.60	2010.86	-1550.97	377.45	280.30 S	253.45W	377.92	@222.12	2.51
2162.00	46.90	232.70	2017.63	-1557.74	384.74	284.77 S	259.34W	385.16	@222.32	2.71
2171.00	46.90	232.90	2023.84	-1563.95	391.19	288.71 S	264.53W	391.57	@222.50	3.37
2181.00	46.00	233.00	2030.79	-1570.90	398.31	293.04 S	270.26W	398.64	@222.68	0.37
2191.00	46.40	233.90	2037.71	-1577.82	405.45	297.34 S	276.06W	405.73	@222.88	2.29
2201.00	46.60	232.90	2044.60	-1584.71	412.63	301.66 S	281.85W	412.85	@223.06	2.26

RANGER OIL LIMITED

WELL Ranger Fort Lard P-66-A DATE 1997-08-20 REPORT NO.: 220
DEPTH: 2203 m PROGRESS: 0 m FORMATION: Mid Besa River
OPERATIONS AT 06.00 HOURS: Wash to bottom
CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schrit
DAILY COST: \$ 58650 CUM. COST: \$ 16,154,538 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6000 kPa @: 94 SPM
TRIP RECORDS: CALCULATED HOLE FILL 14.36 m³ ACTUAL HOLE FILL: 16.71 m³
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE
DAYS SINCE BOP DRILL (EACH CREW): 1 - 6 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	42	41		WEIGHT (kg/m ³)	1410	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (cP)	124	No. 1 STROKES PER MINUTE	90
TYPE	F-2	G-83f		EXCESS LIME	13.3	No. 2 LINER (mm)	140
SERIAL No.	LC2869	677599		PV (mPa S)	36	No. 2 STROKES PER MINUTE	90
NOZZLES (mm)	3X19.1	Open		YP (Pa)	18.0	VOLUME (m ³)	2.10
DEPTH IN (m)	2203	2156		GELS (Pa)	11/15	PRESSURE (kPa)	18700
METERS (m)		47		SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34
HOURS		41		SOLIDS (%)	24	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)		18/21		FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	62
R.P.M.		30/90		FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	IN	6-6-3		CHLORIDES	270,191	SHAKER SCREENS	110 - 84
DRILLING ASSEMBLY				OIL WATER	88/12	DRYER SCREENS	140
				ELECTRICAL STAB.	1650	D. SILT.	CENT.
				MUD ADDITIVES			
MTR XO	190	151	6S/BREG	40 - Barite		U.F. (kg/m ³)	
MWD XO	203	87	7H90	15 - Lime		OF. (kg/m ³)	
2 NMDC	231	76	7H90	1 - Emul		VOL. (l/min.)	
1 DC IAR	230	76	7H90	1 - Fiber Fluid		HOURS	
3 DC XO	228	76	7H90	1 - Walnut		SURVEYS	
4 DC XO	168	73	5h90				
17 HWDP	127	76	41/2 IF	DC \$ 1100	CCS 963,045		
BHA	276.70	m		JTS. D.P.: ON RACKS	231		
HOOK LOAD	114,000	daN		IN STRING	202		
AVAILABLE WOB	26,000	daN		TOTAL	433		

TIME BREAKDOWN

DRILLING	CEMENT	CORING	REG REPAIR	1.5	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM
TRIP	6.5	BOP DRILL	LOGGING	LOST CIRC		21.0	4403
RIG SERVICE	75	HANDLE TOOLS	TESTING	REAM & WASH		0	100.75
SURVEY		INSPECT BHA	CIRC. SAMPLE			3.0	775.25
SLIP & CUT			HANDLE TOOLS			24	5279
COND. MUD			TRIP			CLOUDY	
NIPPLEDOWN			REAM RATHOLE			12 °C	
RUN CASING			CIRCULATE			MUDDY	

24 SUMMARY

Trip out for bit - Inspect BHA - Repair torque line - Finish inspect BHA - Rig down Tesco Top Drive and
inspect same - Rig up top drive - 1 cracked box on 127mm HWDP - Pick up directional tools - Trip in to 1128m
Function test MWD and GR. - Trip in to 2078m - Wash and ream 2078m - 2203m

Slide-

Rotate -

Hole drag up-10-15000dan Hole drag down- 10-13000dan

Torque on bottom - 1100-1350 psi

Back ground gas - 5 units Trip gas

Mud lost last 24 Hrs. - 0.5m³

SIGNED BY: Art Schrit

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Lind P-66-A DATE 1997-08-19 REPORT NO.: 219
 DEPTH: 2203 m PROGRESS: 20 m FORMATION: Med Bass River
 OPERATIONS AT 06:00 HOURS: Trip for bit
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 128,624 CUM. COST: \$ 16,958,888 AFE NO: EED-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6000 kPa @ 94 SP34
 TRIP RECORDS: CALCULATED HOLE FILL: m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 1-6 MAXIMUM CASING HOLD BACK kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	41	WEIGHT (kg/m ³)	1410	No. 1 LINER (mm)	140		
SIZE (mm)	311	VISCOSITY (cP)	80	No. 1 STROKES PER MINUTE	90		
TYPE	G-03F	EXCESS LIME	7.4	No. 2 LINER (mm)	140		
SERIAL No.	677598	TV (mPa S)	32	No. 2 STROKES PER MINUTE	20		
NOZZLES (mm)	Open	YP (Pa)	18.5	VOLUME (m ³)	2.10		
DEPTH IN (m)	2156	GELS (Pa)	12/15	PRESSURE (kPa)	18700		
METERS (m)	47	SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34		
HOURS	41	SOLIDS (%)	28	D.C. ANNULAR VEL. (m/min.)	43		
WOB (1000 daN)	18.21	FILTER CAKE (mm 30min.)	1	D.C. ANNULAR VEL. (m/min.)	66		
R.P.M.	30/90	FLUID LOSS (cc)	1.0	SOLIDS CONTROL			
CONDITION	In	CHLORIDES	308,568	SHAKER SCREENS	140 140		
DRILLING ASSEMBLY				OIL WATER	90/10	DRYER SCREENS	110
ITEM	O.D.	I.D.	T.I. TYPE	ELECTRICAL STAB.	1319	D. S.E.T.	CENT.
MTR XO	190	151	65/BREG	MUD ADDITIVES		U.F. (kg/m ³)	
MWD XO	203	87	7H90	On 3bbs		OF. (kg/m ³)	
2 NMDC	231	76	7H90	Fiberfluid 7ms		VOL. (l/min.)	
1 DC JAR	230	76	7H90	Walnut 7ms		HOURS	
3 DC XO	228	76	71290			SURVEYS	ANGLE DIRECTION
4 DC XO	168	73	5b90			2171	m 45.9 ° 232.9
18 HWDP	127	76	41/2 IF	DC S 2868 CCS 961,945	2181	m 46.0 ° 233.0	
	276.70	m	JTS. D.P. ON RACKS	232		m °	
HOOK LOAD	114,000	daN	IN STRING	201		m °	
AVAILABLE WOB	26,000	daN	TOTAL	433		m °	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	20	CEMENT		CONING		RIG REPAIR	.75	TODAY	CUM.
TRIP	1.75	BOP DRILL		LOGGING		LOST CIRC.		23.25	4382
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		0	100.75
SURVEY	.75			CIRC. SAMPLE				.75	772.25
SLIP & CUT				HANDLE TOOLS				24	5255
CUMUL. MUD				TRIP				WEATHER	
NIFFLEUP/DN				REAM RATHOLE				TEMPERATURE:	
WIN CASING				CIRCULATR				10 °C	
								Wet	

24 SUMMARY

Drill 311mm hole. Change discharge valve and seat on pump #1. Drill ahead with rig service and surveys to 2203m.
 Pump trip pill and hoist for bit.

Slide-2183-2186m 2190-2196m 2200-2203

Rotate - 2186-2190m 2196-2200

Hole drag up-10-15000daN Hole drag down- 10-13000daN

Torque on bottom - 1100-1350 psi

Back ground gas - 5umicr

Mud lost last 24 Hrs. -2.2m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

08/19/97 05:57 FAX

Halliburton Drilling Systems

Survey Report

Page 1

Job No: 97D006

Date: 19/08/97

Time: 6:10 am

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 19/08/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)		DLS (dg/30m)
2010.00	48.30	232.40	1914.60	-1454.71	273.59	214.12 S	172.79W	275.14@218.90		1.00
2019.00	47.80	232.30	1920.61	-1460.72	280.22	218.21 S	178.05W	281.66@219.22		1.69
2028.00	47.40	231.30	1926.68	-1466.79	286.82	222.32 S	183.31W	288.15@219.51		2.80
2038.00	47.70	231.30	1933.43	-1473.54	294.16	226.93 S	189.07W	295.37@219.80		0.90
2048.00	47.90	230.50	1940.15	-1480.26	301.53	231.60 S	194.82W	302.65@220.07		1.88
2065.00	47.40	229.60	1951.60	-1491.71	314.04	238.67 S	204.49W	315.03@220.47		1.47
2075.00	46.50	229.30	1958.43	-1498.54	321.33	244.42 S	210.00W	322.25@220.67		2.78
2084.00	45.90	228.50	1964.66	-1504.77	327.81	248.69 S	214.90W	328.65@220.83		2.78
2094.00	46.70	229.80	1971.57	-1511.68	335.02	253.42 S	220.37W	335.83@221.01		3.70
2104.00	47.50	230.20	1978.37	-1518.48	342.31	258.13 S	225.98W	343.07@221.20		2.56
2113.00	47.40	231.40	1984.46	-1524.57	348.91	262.32 S	231.12W	349.61@221.38		2.97
2123.00	47.20	230.50	1991.24	-1531.35	356.22	266.95 S	236.82W	356.86@221.58		2.07
2133.00	47.20	230.80	1998.04	-1538.15	363.52	271.60 S	242.50W	364.10@221.76		0.66
2142.00	47.80	231.50	2004.13	-1544.24	370.11	275.76 S	247.66W	370.64@221.93		2.17
2152.00	47.80	232.60	2010.86	-1550.97	377.45	280.30 S	253.49W	377.92@222.12		2.51
2162.00	46.90	232.70	2017.63	-1557.74	384.74	284.77 S	259.34W	385.16@222.32		2.71
2171.00	45.90	232.90	2023.84	-1563.95	391.19	288.71 S	264.53W	391.57@222.50		3.37
2181.00	46.00	233.00	2030.79	-1570.90	398.31	293.04 S	270.26W	398.64@222.68		0.37

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-18 REPORT NO.: 218
 DEPTH: 2183 m PROGRESS: 23 m FORMATION: Mid Beam River
 OPERATIONS AT 06:00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #4268 Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 34473 CUM. COST: \$15,916,376 AFE NO: EGD - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5900 kPa @: 92 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 4-5 MAXIMUM CASING HOLD BACK 4405 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES			PUMPS		
BIT NUMBER	41		WEIGHT (kg/m ³)	1410		No. 1 LINER (mm)	140	
SIZE (mm)	311		VISCOSITY (cP)	88		No. 1 STROKES PER MINUTE	90	
TYPE	Gs83f		EXCESS LIME	8.3		No. 2 LINER (mm)	140	
SERIAL No.	677599		PV (mPa S)	35		No. 3 STROKES PER MINUTE	90	
NOZZLES (mm)	Open		YP (Pa)	19.5		VOLUME (m ³)	2.10	
DEPTH IN (m)	2156		GELS (Pa)	12/18		PRESSURE (kPa)	18500	
METERS (m)	27		SAND (%)	Tr		D.P. ANNULAR VEL. (m/min.)	34	
HOURS	23.75		SOLIDS (%)	26		D.C. ANNULAR VEL. (m/min.)	43	
WOB (1000 daN)	18/21		FILTER CAKE (mm desc.)	1		D.C. ANNULAR VEL. (m/min.)	62	
R.P.M.	30/40		FLUID LOSS (cc)	1.6		SOLIDS CONTROL		
CONDITION	Good		CHLORIDES	372777		SHAKER SCREENS		
DRILLING ASSEMBLY			OIL WATER	93/07		DRYER SCREENS		
ITEM	O.D.	I.D.	T.I. TYPE	ELECTRICAL STAB.	2000			
MTR XO	190	151	65/8 REG	MUD ADDITIVES		U.F. (kg/m ³)		
MWD XO	203	87	7H90	OW 1bbi		OF. (kg/m ³)		
2 NMDC	231	76	7H90	Fiberfilled 2ccc		VOL. (l/min.)		
1 DC JAR	230	76	7H90	Walnut 2ccc		HOURS		
3 DC XO	228	76	7H90			SURVEYS	ANGLE	DIRECTION
4 DC XO	166	73	5h90			2142	m 47.60	° 231.50
18 HWDP	127	76	41/2 IF	DC S 897	CCS 959,077	2152	m 47.80	° 233.60
	276.70	m	JTS. D.P.: ON RACKS	235	2162	m 46.90	° 232.70	
HOOK LOAD	113,000	daN	IN STRING	198		m	°	
AVAILABLE WOB	26,000	daN	TOTAL	433		m	°	

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	18.75	CEMENT		CORING		RIG REPAIR	.75	TODAY	CUM.
TRIP	3	BOP DRILL		LOGGING		LOST CIRC.		23.25	4358.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			100.75
SURVEY	.75			CRC. SAMPLE				.75	771.5
SLP & CUT				HANDLE TOOLS				24	5231
COND. MUD				TRIP				WEATHER	
NEUTRON				REAM BATHOLE				Cloudy	
RUN CASING				CIRCULATE				TEMPERATURE	
								13 °C	
								ROADS	
								fair	

24 SUMMARY

Finish staging motor in to 2024m. Wash to bottom. Log to 2160m. Drill 311mm hole. Replace suction valve and seat
 On #2 pump. Drill with rig service and surveys.

Slide- 2161-2167m 2174-2177m 2181-2183m

Rotate - 2167 - 2181m

Hole drag up-10-12000daN Hole drag down- 10-12000daN

Torque on bottom - 1100-13000 psi

Back ground gas - 25units

One battery pack was dead on the previous MWD ✓

Mud lost last 24 Hrs. -2.1m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems

Survey Report

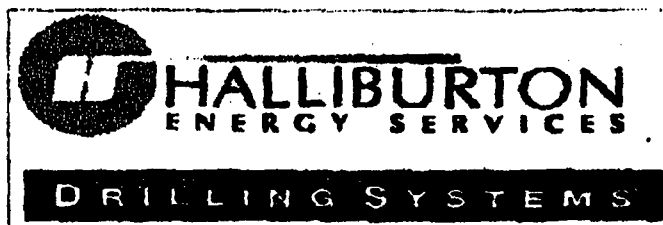
Page 1
 Job No: 97D006
 Date: 18/08/97
 Time: 5:17 am
 Wellpath ID: 97d006s4
 Date Created: 27/01/97
 Last Revision: 18/08/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
2010.00	48.30	232.40	1914.60	-1454.71	273.59	214.12 S	172.75W	275.14@218.90	1.00
2019.00	47.80	232.30	1920.61	-1460.72	280.22	218.21 S	178.05W	281.66@219.22	1.69
2028.00	47.40	231.30	1926.68	-1466.79	286.82	222.32 S	183.31W	288.15@219.51	2.80
2038.00	47.70	231.30	1933.43	-1473.54	294.16	226.93 S	189.07W	295.37@219.80	0.90
2048.00	47.90	230.50	1940.15	-1480.26	301.53	231.60 S	194.82W	302.65@220.07	1.88
2065.00	47.40	229.60	1951.60	-1481.71	314.04	239.67 S	204.45W	315.03@220.47	1.47
2075.00	46.50	229.30	1958.43	-1488.54	321.33	244.42 S	210.00W	322.25@220.67	2.78
2084.00	45.90	228.50	1964.66	-1504.77	327.81	248.69 S	214.90W	328.86@220.83	2.78
2094.00	46.70	229.80	1971.57	-1511.68	335.02	253.42 S	220.37W	335.83@221.01	3.70
2104.00	47.50	230.20	1978.37	-1518.48	342.31	258.13 S	225.98W	343.07@221.20	2.56
2113.00	47.40	231.40	1984.46	-1524.57	348.91	262.32 S	231.12W	349.61@221.38	2.97
2123.00	47.20	230.50	1991.24	-1531.35	366.22	266.95 S	236.82W	356.86@221.58	2.07
2133.00	47.20	230.80	1998.04	-1538.15	363.52	271.60 S	242.50W	364.10@221.76	0.66
2142.00	47.60	231.50	2004.13	-1544.24	370.11	275.76 S	247.86W	370.64@221.93	2.17
2152.00	47.80	232.60	2010.86	-1550.97	377.45	280.30 S	253.49W	377.92@222.12	2.51
2162.00	46.90	232.70	2017.63	-1557.74	384.74	284.77 S	259.34W	385.16@222.32	2.71



PERSONNEL ON LOCATION

DIR: JIM MCFARLANE-TERRY HUBENSKY
MWD: NELSON PETERSON-JASON FERGUSON

RANGER OIL LIMITED
Ft. LIARD P-66-A
ENGINEER: JOHN FAULKNER

17-Aug-97

DAILY COSTS: \$ 10,748.50
COST SINCE LAST TICKET: \$ 83,710.55
TOTAL COST TODATE \$ 1,900,501.13

MOTOR HOURS

7 3/4" BLACK MAX, SN# 8019 @ 1.83
TODAY 16.17
ACC. HOURS 27.09
BRT. HOURS 44.25

DRAG UP 128000
DRAG DOWN 100500
STRING WEIGHT 113000
WT. OF BLOCKS AND TOP DRIVE 35000

DAILY MUD REPORT

WELL NAME		RANGER FT. LIARD		LOCATION #46-2		DATE		17-Aug-97	
OPERATOR		RANGER OIL LTD		CONTRACTOR CACTUS RIG 26-E		REPORT No		218	
REPORT FOR Mr.		JOHN FAULKNER		REPORT FOR Mr.		TERRY GORGICHUK		SPUD DATE	
		12-Jan-97							

ASSEMBLY		CASING		MUD VOL. (m3)		PUMP OUTPUT		ANNULAR VEL. m/min	
BIT SIZE (mm)	311	LENGTH (m)	SIZE (mm)	LENGTH (m)	TANKS	68.5	PUMP #1	140 X 254	OPPOSITE DP
BIT NUMBER	41-C		508.0	263	HOLE	173.6	M3/STK	0.0117	OPPOSITE DC
DRILL PIPE #1 (mm)	127.0	1898	339.7	1007	TOTAL	262.1	PUMP #2	140 X 254	CIRC. TIME
DRILL PIPE #2 (mm)	127.0	184	LINER	TOP/BOT.	STAND BY	24.5	M3/STK	0.0117	BOTTOMS UP
COLLAR #1 (mm)	198.0	45					S.P.M	180	
COLLAR #2 (mm)	238.0	68					M3/MIN	2.1103	

HOLE DATA		DEGASSER DESILTER		CENTRIFUGE		DRILLING FLUID SPECIFICATIONS	
MUD TYPE - INVERT	FLOWLINE WT.		kg/m3		kg/m3	MUD WT.	1400 kg/m3
HOLE COND. - Good to top of seam	UNDERFLOW WT.		kg/m3		kg/m3	VISCOSITY	80 - 85 cP
DEVIATION 47.2	OVERFLOW WT.		kg/m3		kg/m3	FILTRATE	< 8.0 cm3/30 min.
CURRENT OP. ON BANK, TRIPPING	UNDERFLOW RT.		m3/min		m3/min	pH	N/C

EQUIPMENT:		X DEGASSER		DESILTER		DESANDEJ		X CENTRIFUGE	
		DOUBLE DECK SHAKER				XX HIGH SPEED SHAKER			

MUD PROPERTIES				INVENTORY							
TIME SAMPLE TAKEN	13:45			MATERIALS	MATERIALS	MATERIALS	MATERIALS	MATERIALS	MATERIAL	DAILY	CUMULATIVE
SAMPLE FROM	SHAKER			RECEIVED	INVENTORY	RECORD	USED TO	REMAINING	COST	COST	
PRESENT DEPTH	2180			TO DATE	PHYSICAL COUNT	BALANCE	DATE	ON LOCATION			
FLOWLINE TEMPERATURE (C)	84			BARITE	14960		10030	4930		\$195,595.00	
DENSITY	1410			CALCI (BAG)	983		255	336		\$14,280.00	
FUNNEL VISCOSITY (cP)	88			INVERT	208		208			\$187,200.00	
600 READING	109			TRUDRILL	423		423			\$380,700.00	
300 READING	74			TRUVIS	810		321	289		\$160,780.00	
APPARENT VISCOSITY (mPa.s)	54.5			INTER - "B"	1000		543	457		\$38,381.00	
PLASTIC VISCOSITY (mPa.s)	35			INTER - EMUL	138		82	56		\$89,480.00	
YIELD POINT (Pa)	19.5			INTER - FL	92		30	22		\$45,900.00	
GELS @ 10 min. (Pa)	12 / 18			INTER - OM	168		133	35		\$211,470.00	
pH	STRIP	METER		FIBER FLUID (P)	700		484	216		\$49,368.00	
TRATE (cm3)	API	HTMP	X	FIBER FLUID (C)	200		13	287		\$1,326.00	
FILTER CAKE (mm)	1			CALCI (BAG)	53		62	10		\$25,200.00	
				INTER - EXK	2		2			\$4,400.00	
Ppm	2			ELSONITE	175		175			\$15,400.00	
EXCESS LIME (kg/m3)	7.4			LIME	1484		1024	440		\$15,872.00	
TOTAL HARDNESS (mg/l)		Ca		WALNUT (F)	400		177	223		\$6,372.00	
CHLORIDES (mg/L)	X	NaCl	291,105	WALNUT (M)	1100		768	334		\$27,578.00	
SAND CONTENT	%X	FR	trace	VEN FIBER 281	80			80			
SOLIDS CONTENT	%X	FR	26	FLOOR DRY	124		12	112		\$384.00	
OIL CONT	X	FR	68	SANDUST	1400		580	810		\$3,835.00	
WATER CONT	X	FR	6.0	PREVIOUS COST		\$1,473,508.80		TOTAL FLUID DELIVERED STARTING VOLUME		695	
ELECTRICAL STABILITY	1869			DAILY COST				Premix 24.5 Water VOL. BUILT OR ADDED		4.0	
OIL WATER RATIO	92 / 08			CUM. COST		\$1,473,508.80		VOL. DIFFERENCE ON SURFACE		1.4	
CHCZ MW%	34.28			DISCOUNTED COST		\$737,754.80		VOL. DIFFERENCE ON SUB SURFACE		1	
"n"	0.73			CUM. ENG. COST		\$89,070.00		HOLE + TANKS + STORAGE END VOLUME		267	
"K"	12.41			TOTAL COST		\$836,824.80		VOL. LOST / GAINED + centrifuged solids removal		3.8	
RECOMMENDATIONS:								TOTAL LOSSES SURFACE AND SUBSURFACE		532.7	
1. ADD ANOTHER 5m3 OF "FRESH" WATER FROM SUMP RECOVERY. OVER TWO FULL CIRCULATIONS. DO NOT ADD FASTER THAN 20 L / min. ADD ALONG WITH INTERDRILL OW. AS BELOW.								COMMENTS: (since last report)			
2. CONTINUE TO ADD ONE DRUM INTERDRILL OW OVER A FULL CIRCULATION, EACH TOUR. IF THE SCREENS CONTINUE TO SEVERELY BLIND OFF, ADD A SECOND DRUM IN A TOUR.								Physical inventory count taken of materials on location. Some material was on the tanks and has been counted as used in this inventory check. If not used during today's tour, a minor correction of a couple of sacks may be necessary. Changes noted in tour book.			
3. CONTINUE TO ADD: 8 SACKS WALNUT MEDIUM @ 4 HRS / SACK. ALSO ADD 8 SACKS FIBER FLUID FINE @ 4 HRS / SACK. MAKE SURE THAT FINE / MEDIUM IS INDICATED IN THE TOUR BOOK.								Finish R.I.H.: wash to bottom, no fill noted, no problems noted. Slide drill ahead, survey. Added 4 m3 "fresh" water for oil/water ratio.			
4. ADD ONE DRUM EMUL EVERY SECOND DAY. IF SHAKER SCREENS CONTINUE TO SEVERELY BLIND OFF, ADD AN EXTRA DRUM.								Thanks, David			
5. DENSITY IS RUNNING A BIT OVER THE REQUESTED 1400 kg / m3 RIGHT NOW. DO NOT ADD ANY EXTRA BARITE. IT MAY BECOME NECESSARY TO RUN THE CENTRIFUGE FOR ONE FULL CIRCULATION EACH DAY. IF THE DENSITY CLIMBS HIGHER THAN 1415 kg / m3 RUN THE CENTRIFUGE.											
6. CONTINUE TO SHEER THE PREMIX TANK AT LEAST TWO HOURS EACH TOUR USING GUNS.											
7. NOTE: USE UP ANY BROKEN BAGS BEFORE OPENING A GOOD BAG. THERE ARE SOME BROKEN INTERDRILL AND WALNUT BAGS. PLEASE CHECK.											
STOCK POINT		GRANDE PRAIRIE (FORMULA TRUCKING LTD.)		DOWELL ENGINEER		DAVID CRONE		MOBILE #			
PHONE		532-3078		PHONE NUMBER		ROOM 5		PAGE #			
THE INFORMATION IN THIS REPORT IS BASED ON OUR EXPERIENCE. REPRESENTS OUR BEST JUDGEMENT IN THE MATTER AND IS INTENDED TO BE HELPFUL BUT WE CANNOT ASSUME RESPONSIBILITY FOR ANY LOSS OR ACCIDENT THAT MAY RESULT FROM ITS USE. FURTHERMORE, NOTHING CONTAINED HEREIN SHALL BE CONSIDERED AS A RECOMMENDATION TO USE ANY PRODUCT IN CONFLICT WITH EXISTING PATENTS COVERING ANY MATERIALS OR USE.											

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-17 REPORT NO.: 217
 DEPTH: 2160 m PROGRESS: 4 m FORMATION: Mid Bear River
 OPERATIONS AT 06:00 HOURS: Run in hole
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 53628 CUM. COST: \$15,881,903 AFE NO.: B&D - 013

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5800 kPa @: 100 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 14.18 m³ ACTUAL HOLE FILL: 16.04 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MON.
CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 3-4 MAXIMUM CASING HOLD BACK kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS											
BIT NUMBER	41			WEIGHT (kg/m ³)	1410	No. 1 LINER (mm)	140										
SIZE (mm)	311			VISCOSITY (cP)	74	No. 1 STROKES PER MINUTE	90										
TYPE	Ge83J			EXCESS LIME	8.3	No. 2 LINER (mm)	140										
SERIAL No.	677599			PV (mPa.s)	35	No. 2 STROKES PER MINUTE	90										
NOZZLES (mm)	Open			YP (Pa)	19.5	VOLUME (m ³)	2.10										
DEPTH IN (m)	2156			GELS (Pa)	12/18	PRESSURE (kPa)	17700										
METERS (m)	4			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34										
HOURS	2			SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	43										
WOB (1000 daN)	17.18			FILTER CAKE (mm disc.)	1	D.C. ANNULAR VEL. (m/min.)	62										
R.P.M.	30/90			FLUID LOSS (cc)	1.6	SOLIDS CONTROL											
CONDITION	Good			CHLORIDES	372777	SHAKER SCREENS	110 110										
DRILLING ASSEMBLY				OH. WATER	93/7	DRYER SCREENS	110										
ITEM	Q.D.	I.D.	Y.S. TYPE	ELECTRICAL STAB.	2000	<table><tr><th>D. S.L.T.</th><th>CENT.</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>		D. S.L.T.	CENT.								
D. S.L.T.	CENT.																
MTR XO	190	151	65/8 REG	MUD ADDITIVES		U.F. (kg/m ³)											
MWD XO	203	87	7H90	Barite 50mts		OF. (kg/m ³)											
2 NMDC	231	76	7H90	Emul 1bbl		VOL. (l/min.)											
1 DC JAR	230	76	7H90	Ow 2bbls		HOURS											
3 DC XO	228	76	7H90			SURVEYS	<table><tr><th>ANGLE</th><th>DIRECTION</th></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></table>	ANGLE	DIRECTION								
ANGLE	DIRECTION																
4 DC XO	168	73	5h90														
16 HWDP	127	76	41/2 IF	DC 5 2648	OCS 958,180												
276.70 m			JTS. D.P.: ON RACKS		238												
HOOK LOAD 113,000 daN			: IN STRING		195												
AVAILABLE WOB 26,000 daN			: TOTAL		433												

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	2	CEMENT		CORING		RIG REPAIR	1.5	TODAY	CUM.
TRIP	12.5	BOP DRILL		LOGGING		LOST CIRC.		17.25	4318.25
RIG SERVICE	.75	HANDLE TOOLS	.75	TESTING		BEAM & WASH	5.25	EVALUATION	100.75
SURVEY				CHRC SAMPLE				PROBLEMS	6.75
S.P. & CLIT	1			HANDLE TOOLS				TOTAL	24
COND. MUD	.25			TRIP				WEATHER	Cloudy
NIPPLE UPON				REAM RATEHOLE				TEMPERATURE	9 °C
RUN CASING				CIRCULATE				ROADS	Dir

24 SUMMARY

Run in, wash to 2142m and ream from 2142 to bottom. Replace MWD transducer and test tools. MWD did not start up.
 Drill to 2160m, check MWD. Circulate up sample. Circulate 5 stands out, pump trip pill and hoist with required flow checks.
 Change out MWD and battery pack. Check bit and run in BHA. Slip and cut line. Run in to 1015m check MWD. Run in.

Slide-

Rotate - 2156-2160m

Hole drag up-10-12000daN Hole drag down- 10-12000daN

Torque on bottom - 1100-1250 psi

Jack ground gas - 45umins

400 bbl storage tanks for hay river #4259A and #4260.

4nd lost last 24 Hrs. - 3.2m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL	<u>Ranger Fort Liard P-66-A</u>	DATE	<u>1997-08-16</u>	REPORT NO.:	<u>216</u>
DEPTH	<u>2156</u> m	IN PROGRESS:	<u>9</u> m	FORMATION:	<u>Md Basa River</u>
OPERATIONS AT 06:00 HOURS: <u>Run in with new bit and motor</u>					
CONTRACTOR/RIG SUPT.:	<u>Precision Dril rig #426E Terry Gordchuk</u>	CO. SUPERVISOR:	<u>John Faulkner</u>		
DAILY COST:	<u>\$ 36168</u>	CUM. COST:	<u>\$15,828,275</u>	AFE NO.:	<u>E6D-015</u>

WELL CONTROL

DAILY RIG CHECK: YES	DAILY BOP CHECK: YES	R.S.S.P.: 5400	kPa @: 92	SPM
TRIP RECORDS: CALCULATED HOLE FILL	14.18	m ³ ACTUAL HOLE FILL:	16.02	m ³
BOP DRILLS: CONDUCTED WHILE		WELL SECURED IN		MIN.
CONDUCTED AT		HRS. CREW PERFORMANCE		
DAYS SINCE BOP DRILL (EACH CREW):	2-3	MAXIMUM CASING HOLD BACK	4690	kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	40	41		WEIGHT (kg/m ³)	1395	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (s/l)	77	No. 1 STROKES PER MINUTE	90
TYPE	GT18	Gs83f		EXCESS LIME	11.1	No. 2 LINER (mm)	140
SERIAL No.	R82CF	877599		PV (mPa S)	54	No. 2 STROKES PER MINUTE	90
NOZZLES (mm)	3X19.1	Open		YP (Pa)	16	VOLUME (m ³)	2.10
DEPTH IN (m)	2086	2156		GELS (Pa)	10.5/17	PRESSURE (kPa)	18600
METERS (m)	70			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34
HOURS	61			SOLIDS (%)	25	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	23/35			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	62
R.P.M.	14			FLUID LOSS (cc)	1.6	SOLIDS CONTROL	
CONDITION	7-8-1/2			CHLORIDES	121392	SHAKER SCREENS	110 110
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	110
ITEM	O.D.	I.D.	T.I. TYPE	ELECTRICAL STAB.	2000		
MTR XO	190	151	65/BREG	MUD ADDITIVES		U.F. (kg/m ³)	D. S.L.T.
MWD XO	203	87	7H90	Barite 130		OF. (kg/m ³)	CENT.
2 NMDC	231	76	7H90	Travis Gass		VOL. (V/min.)	
1 DC IAR	230	76	7H90	Ow 164		HOURS	
3 DC XO	228	76	7H90	Fiberfluid Gass		SURVEY	ANGLE
4 DC XO	168	73	5H90	Walnut 7sus		2113	DIRECTION
18 HWDP	127	76	41/2 IF	DC S 3420 CCS 955,532		2123	m 47.40 ° 231.40
	276.70	m		JTS. D.P.: ON RACKS	238	2133	m 47.20 ° 230.50
HOOK LOAD	113,000	daN		: IN STRING	195		m °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-15 REPORT NO.: 215
 DEPTH: 2147 m PROGRESS: 21 m FORMATION: Mid Bear River
 OPERATIONS AT 06:00 HOURS: Drill (sliding)
 CONTRACTOR/RIG SUPT.: Precision Drig Rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 49998 CUM. COST: \$15,842,105 AFE NO: E&D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5800 kPa @: 95 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 2-3 MAXIMUM CASING HOLD BACK 4690 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	40			WEIGHT (kg/m ³)	1385	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	79	No. 1 STROKES PER MINUTE	90
TYPE	GT18			EXCESS LIME	11.1	No. 2 LINER (mm)	140
SERIAL No.	R82CF			PV (mPa S)	38	No. 2 STROKES PER MINUTE	90
NOZZLES (mm)	3X19.1			YP (Pa)	18	VOLUME (m ³)	2.10
DEPTH IN (m)	2086			GELS (Pa)	17/17	PRESSURE (kPa)	18500
METERS (m)	61			SAND (%)	Tr.	D.P. ANNULAR VEL. (m/min.)	34
HOURS	51.25			SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	23			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	62
R.P.M.	14			FLUID LOSS (cc)	1.4	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	282214	SHAKER SCREENS	110 110
DRILLING ASSEMBLY				OIL WATER	91/9	DRYER SCREENS	110
ITEM	O.D.	I.D.	T.I. TYPE	ELECTRICAL STAB.	1980	U.F. (kg/m ³)	D. SILT.
MTR XO	190	151	65/BREG	MUD ADDITIVES		OF. (kg/m ³)	CENT.
MWD XO	203	87	7H90	Emul 2bbls	Travis 5000	VOL. (l/min.)	
2 NMDC	231	76	7H90	Ow 3bbls	Barite 190000	HOURS	
1 DC IAR	230	76	7H90	Fiberfluid 5000		SURVEYS	ANGLE
3 DC XO	228	76	7H90	Walnut 6000		2113	m 47.40 ° 231.40
4 DC XO	168	73	5H90	Lime 15000		2123	m 47.20 ° 230.50
18 HWDP	127	76	41/2 IF	DC S 6577	OCS 958,689		m °
	276.59	m		JTS. D.P.: ON RACKS	241		m °
HOOK LOAD	112,000	daN		: IN STRING	192		m °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	20.75	CEMENT		CORING		RIG REPAIR	1.75	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		21.25	4294.5
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			100.75
SURVEY	.75			CIRC. SAMPLE				1.75	763.75
SLIP & CUT				HANDLE TOOLS				24	5135
COND. MUD				TRIP				WEATHER	
NIPPLE UPDN				REAM RATHOLE				Clear	
RUN CASING				CIRCULATE				TEMPERATURE	
								11 °C	
								ROADS	
								wet	

24 SUMMARY

Drill 311mm hole with rig service and surveys. Replace discharge valves in #1 and #2 pumps, change shaker screens.

Slide- 2132-2138

Towed Dowell cement bulk truck from barge landing to location

Rotme - 2126-2132m 2138-2142

Hole drag up-10-13000 daN Hole drag down- 8-11000 daN

Torque on bottom 1100-1300 psi

101 jts of 177.8 x 38.69 kg/m (1409m/threads on)

Back ground gas - 102units

144 jts of 3 1/2" pipe 21 4 1/2" drill collars 1550 m

Mud lost last 24 Hrs. -4.8m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

08/14/97 05:47 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-14 REPORT NO.: 214
 DEPTH: 2126 m PROGRESS: 26 m FORMATION: Mid Bess River
 OPERATIONS AT 06:00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 44075 CUM. COST: \$15,792,107 AFE NO.: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5400 kPa @: 92 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 1-2 MAXIMUM CASING HOLD BACK 4670 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	40			WEIGHT (kg/m ³)	1370	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (cP)	72	No. 1 STROKES PER MINUTE	90
TYPE	GT18			EXCESS LIME	7.4	No. 2 LINER (mm)	140
SERIAL No.	R82CF			PV (mPa S)	37	No. 2 STROKES PER MINUTE	90
NOZZLES (mm)	3X19.1			YP (Pa)	17.5	VOLUME (m ³)	2.10
DEPTH IN (m)	2086			GELS (Pa)	9.5/12/5	PRESSURE (kPa)	18800
METERS (m)	50			SAND (%)	tr	D.P. ANNULAR VEL. (m/min.)	34
HOURS	30.5			SOLIDS (%)	25	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	23			FILTER CAKE (mm deac.)	1	D.C. ANNULAR VEL. (m/min.)	62
R.P.M.	14			FLUID LOSS (cc)	1.0	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	308568	SHAKER SCREENS	140 140
DRILLING ASSEMBLY				OIL WATER	91/09	DRYER SCREENS	110
ITEM	O.D.	I.D.	T.I. TYPE	ELECTRICAL STAB.	1980	U.F. (kg/m ³)	D. SILT. CENT.
MTR XO	190	151	65/BREG	MUD ADDITIVES		OF. (kg/m ³)	
MWD XO	203	87	7H90	Truvis 22mc Sborfluid 5mc		VOL. (l/min.)	
2 NMDC	231	76	7H90	Interdrill S 25mc lime 15mc		HOURS	
1 DC IAR	230	76	7H90	Emul 2bbl walnut 7mc		SURVEYS	ANGLE DIRECTION
3 DC XO	228	76	7H90	Fl 2bbl		2084	m 45.90 ° 228.50
4 DC XO	168	73	5H90	Ow 6bbl		2094	m 46.70 ° 229.80
18 HWDP	127	76	41/2 IF	DC S 12170 CCS 952,112		2104	m 47.50 ° 230.20
	276.59	m		JTS. D.P.: ON RACKS	241		m °
HOOK LOAD	112,000	daN		: IN STRING	192		m °
AVAILABLE WOB	28,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	22.75	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		24	4272.25
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			180.75
SURVEY	.5			CIRC. SAMPLE					762
SLIP & CUT				HANDLE TOOLS				TOTAL	5135
COND. MUD				TRIP				WEATHER	Rain
WIPPLEUP/DN				REAM RATE/HOLE				TEMPERATURE	14 °C
RUN CASING				CIRCULATE				ROADS	wet

24 SUMMARY

Drill 311mm hole with rig service and surveys.

Slide- 2113-2118m 2122-2126m

Rotate - 2100-2118m 2118-2122m

Hole drag down- 7-11000daN Hole drag up -10-13000daN

Torque on bottom 100-1300psi

Back ground gas - units

Mud lost last 24 Hrs. -5.2m³

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-13 REPORT NO.: 213
DEPTH: 2100 m PROGRESS: 14 m FORMATION: Mid Bear River
OPERATIONS AT 06:00 HOURS: Drilling (rotating)
CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
DAILY COST: \$ 75808 CUM. COST: \$15,748,032 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5400 kPa @: 92 SPM
TRIP RECORDS: CALCULATED HOLE FILL 13.04 m³ ACTUAL HOLE FILL: 14.74 m³
BOP DRILLS: CONDUCTED WHILE tripping WELL SECURED IN 2 MIN.
CONDUCTED AT 2015 HRS. CREW PERFORMANCE good
DAYS SINCE BOP DRILL (EACH CREW): 0-1 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	40	RR39		WRIGHT (kg/m ³)	1395	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (cP)	89	No. 1 STROKES PER MINUTE	90
TYPE	GT18	Fm2844		EXCESS LIME	10.17	No. 2 LINER (mm)	140
SERIAL No.	R82CF	5971858		PV (mPa S)	38	No. 2 STROKES PER MINUTE	90
NOZZLES (mm)	3X19.1	8x14.3		YP (Pa)	16	VOLUME (m ³)	2.10
DEPTH IN (m)	2086	2070		GELS (Pa)	12/16	PRESSURE (kPa)	17800
METERS (m)	14	16		SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34
HOURS	7.75	14.75		SOLIDS (%)	25	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	23	12/15		FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	62
R.P.M.	14	20/90		FLUID LOSS (cc)	0.7	SOLIDS CONTROL	
CONDITION	IN	4-IN		CHLORIDES	356082	SHAKER SCREENS	140 140
DRILLING ASSEMBLY				OIL WATER	95/5	DRYER SCREENS	110
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2020	U.F. (kg/m ³)	D. SILT.
MTR XO	190	151	65/8 REG	MUD ADDITIVES		OF. (kg/m ³)	CENT.
MWD XO	203	87	7H90	Barite 40ms OW 1bbl		VOL. (l/min.)	
2 NMDC	231	76	7H90	Truvia 10ms		HOURS	
1 DC JAR	230	76	7H90	Emul 1bbl		SURVEYS	ANGLE DIRECTION
3 DC XO	228	76	7H90	Fl 1bbl		2065	m 47.40 ° 229.60
4 DC XO	168	73	5b90	Lime 10ms		2075	m 4650 ° 229.30
18 HWDP	127	76	41/2 IF	DC 5 4140 CCS 939,942			m ° °
	276.59	m		JTS. D.P.: ON RACKS	244		m ° °
HOOK LOAD	111,000	daN		: IN STRING	189		m ° °
AVAILABLE WOB	26,000	daN		: TOTAL	433		m ° °

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	7.75	CEMENT		CORING		RIG REPAIR	5	TODAY	CUM.
TRIP	11.75	BOP DRILL		LOGGING		LOST CIRC.		23	4248.25
RIG SERVICE	.75	HANDLE TOOLS	2.5	TESTING		REAM & WASH		.5	100.75
SURVEY	.25			CIRC. SAMPLE	.5			.5	762
SLIP & CUT				HANDLE TOOLS				24	5111
COND. MUD				TRIP				WEATHER Cloudy	
NUFFLEUPON				REAM RATHOLE				TEMPERATURE 20 °C	
RUN CASING				CIRCULATE				ROADS good	

24 SUMMARY

Circulate sample and mix trip pill. Lay out one single and circulate out 5 stands. Pump trip pill and hoist with required flow checks. Change out motors and bit. Service MWD tools and run in to 1131m. break circulation and test MWD. Change suction valve in #1 pump. Run in (stage motor every 10 stands. Wash to bottom from 1925m. Check survey and drill ahead.

Slide- 2086-2090m

Rotate - 2090-2100m

Hole drag down- 10-12000dan Hole drag up -7-10000dan

Torque on bottom 1050-1200psi

Back ground gas - 1.25units

Mud lost last 24 Hrs. -4m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-12 REPORT NO.: 212
 DEPTH: 2086 m PROGRESS: 16 m FORMATION: Mid Bess River
 OPERATIONS AT 06:00 HOURS: Circulate sample and prepare to hoist
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 75,657 CUM. COST: \$15,672,224 AFE NO.: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5200 kPa @: 92 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 3-1 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	RR39			WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	79	No. 1 STROKES PER MINUTE	90	
TYPE	Fm2844			EXCESS LIME	9.62	No. 2 LINER (mm)	140	
SERIAL No.	5971858			PV (mPa S)	39	No. 2 STROKES PER MINUTE	90	
NOZZLES (mm)	8x14.3			YP (Pa)	16	VOLUME (m ³)	2.10	
DEPTH IN (m)	2070			GELS (Pa)	10/14	PRESSURE (kPa)	18400	
METERS (m)	16			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34	
HOURS	14.75			SOLIDS (%)	24	D.C. ANNULAR VEL. (m/min.)	43	
WOB (1000 daN)	12/15			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	62	
R.P.M.	20/90			FLUID LOSS (cc)	0.7	SOLIDS CONTROL		
CONDITION	in			CHLORIDES	356082	SHAKER SCREENS	80 - 80	
DRILLING ASSEMBLY				OIL WATER	93/7	DRYER SCREENS	110	
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2010	U.F. (kg/m ³)	D. SILT.	CENT.
MTR XO	190	151	65/8REG	MUD ADDITIVES		OF. (kg/m ³)		
MWD XO	203	87	7H90	Emul 1bbl		VOL. (l/min.)		
2 NMDC	231	76	7H90	FL 1bbl		HOURS		
1 DC JAR	230	76	7H90	Ow 4bbl		SURVEYS	ANGLE	DIRECTION
3 DC XO	228	76	7H90	Fiberfluid 5ccs		2048	m 47.90	° 230.50
4 DC XO	168	73	5h90	Walnut 7ccs		2065	m 47.40	° 229.60
18 HWDP	127	76	41/2 IF	DC \$ 4896	CCS 935,802			
276.69 m				JTS. D.P.: ON RACKS	244		m	°
HOOK LOAD	111,000	daN		: IN STRING	189		m	°
AVAILABLE WOB	26,000	daN		: TOTAL	433		m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING	14.75	CEMENT		CORING		RIG REPAIR	3.25	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP		BOP DRILL		LOGGING	4.5	LOST CIRC.			16.25	4225.25
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			4.5	100.25
SURVEY	.75			CIRC. SAMPLE					3.25	761.5
SLIP & CUT				HANDLE TOOLS					24	5087
COND. MUD				TRIP					Clear	
NIPPLE UP/DN				REAM RATHOLE					17 °C	
RUN CASING				CIRCULATE					Good	

24 SUMMARY

Log gamma ray into hole from 1850 to 2070m. Change out washpipe. Drill 311mm hole. Change shaker screens.
 Drill to 2077m. Work on #1 mud pump(shaker backing in valves). Reamover and change out discharge seat and valve # 1 pump.
 Drill ahead.

Slide- 2070-2079m 2084-2086

Rotate - 2079-2084

Hole drag down-10-12000dan Hole drag up -14-18000dan

Torque on bottom 1250-1400psi

Sent Do well skid cement unit to Ft Simpson via Formula Transport

Back ground gas - .83units

Returned explosive trailer to Ft Nelson via Arctic Yamaha

Mud lost last 24 Hrs. -4.7m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-11 REPORT NO.: 211
 DEPTH: 2070 m PROGRESS: 2 m FORMATION: Med Besa River
 OPERATIONS AT 06:00 HOURS: Log gamma tool in hole at 1968m.
 CONTRACTOR/RIG SUPT.: Precision Drilling rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 33,746 CUM. COST: \$15,596,567 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5200 kPa @: 92 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 12.90 m³ ACTUAL HOLE FILL: 14.46 m³
 BOP DRILLS: CONDUCTED WHILE tripping WELL SECURED IN 2 MIN.
 CONDUCTED AT 1300 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 2-0 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	39	RR		WEIGHT (kg/m ³)	1395	No. 1 LINER (mm)	140	
SIZE (mm)	311	311		VISCOSITY (cP)	76	No. 1 STROKES PER MINUTE	90	
TYPE	Fm2844	Fm2844		EXCESS LIME	9.99	No. 2 LINER (mm)	140	
SERIAL No.	597185A	597185B		PV (mPa S)	40	No. 2 STROKES PER MINUTE	90	
NOZZLES (mm)	8x14.3	8x14.3		YP (Pa)	18	VOLUME (m ³)	2.10	
DEPTH IN (m)	1863	2069		GELS (Pa)	12/17	PRESSURE (kPa)	17300	
METERS (m)	207			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34	
HOURS	70.25			SOLIDS (%)	24	D.C. ANNULAR VEL. (m/min.)	43	
WOB (1000 daN)	12/17			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	62	
R.P.M.	20/90			FLUID LOSS (cc)	0.7	<u>SOLIDS CONTROL</u>		
CONDITION	Good	in		CHLORIDES	372,777	SHAKER SCREENS	140—140	
<u>DRILLING ASSEMBLY</u>				OIL WATER	93/7	DRYER SCREENS	140	
ITEM	OD	ID	T.I. TYPE	ELECTRICAL STAB.	2000	U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS <u>SURVEYS</u>	D. SILT.	CENT.
MTR XO	190	151	65/8REG	MUD ADDITIVES				
MWD XO	203	87	7H90	Barite 40 mcs				
2 NMDC	231	76	7H90	Walnut 6mcs				
1 DC JAR	230	76	7H90	Fiberblend 5mcs				
3 DC XO	228	76	7H90					
4 DC XO	168	73	5b90					
18 HWDP	127	76	41/2 IF	DC S 2028	CCS 930,906			
276.69 m				JTS. D.P.: ON RACKS	247			
HOOK LOAD	111,000	daN		IN STRING	186			
AVAILABLE WOB	26,000	daN		TOTAL	433			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	1.75	CEMENT		CORING		RIG REPAIR	1.25	TODAY	CUM.
TRIP	13.25	BOP DRILL		LOGGING	3.5	LOST CIRC.		19.25	4209
RIG SERVICE	.75	HANDLE TOOLS	2.75	TESTING		REAM & WASH		3.5	95.75
SURVEY	.25			CIRC. SAMPLE				1.25	738.25
SLIP & CUT				HANDLE TOOLS				24	5063
CONDA MUD	.5			TRIP				WEATHER	
NIPPLE UP/DN				REAM RATHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								Cloudy	
								14 °C	
								good	

24 SUMMARY

Drill to 2069m, pump pressure increased. Circ mix trip pill and hoist 5 stands with one pump on the well. Pump trip pill
 And hoist into casing. Bop drill. Finish out. Change out jars and motor. Pick up new motor, jars and gamma tool. Rerun
 PDC. Strap in BHA Replace seals on top drive actuator valve. Finish in to 1850m. Break circulation and check gamma tool.
 Log in to 1968m.
 Slide- 2068-2070m
 Rotate -
 Hole drag down- 8-11000 dan Hole drag up - 12-17000dan
 Torque on bottom 1150-1350 psi Return faster jar #775-17-002
 Back ground gas - 15 units PDC has one broken insert. Run new faster jar #775-17-001 Aug 10/97
 Mud lost last 24 Hrs. - m3
 SIGNED BY: John Faulkner MOBILE NO: (403)210-1202 (403)424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-10 REPORT NO.: 210
 DEPTH: 2068 m PROGRESS: 49 m FORMATION: Mid Bear River
 OPERATIONS AT 06:00 HOURS: Drilling (sliding)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 54,761 CUM. COST: \$15,562,821 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5200 kPa @: 92 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 1-5 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	39			WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (cP)	81	No. 1 STROKES PER MINUTE	90
TYPE	Fm2844			EXCESS LIME	10.36	No. 2 LINER (mm)	140
SERIAL No.	5971838			PV (mPa S)	39	No. 2 STROKES PER MINUTE	90
NOZZLES (mm)	8x14.3			YP (Pa)	17.5	VOLUME (m ³)	2.10
DEPTH IN (m)	1863			GELS (Pa)	17/20	PRESSURE (kPa)	17700
METERS (m)	205			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34
HOURS	68.3			SOLIDS (%)	25	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	12/17			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	20/90			FLUID LOSS (cc)	0.7	SOLIDS CONTROL	
CONDITION	in			CHLORIDES	356082	SHAKER SCREENS	140-140
DRILLING ASSEMBLY				OIL WATER	03/7	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.I. TYPE	ELECTRICAL STAB.	2000	D. SILT.	CENT.
MTR XO	190	151	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)	
MWD XO	203	87	7H90	FL 2bbl		OF. (kg/m ³)	
2 NMDC	231	76	7H90	Truvia 15sax		VOL. (l/min.)	
1 DC IAR	230	76	7H90	Walnut 14sax		HOURS	
3 DC XO	228	76	7H90			SURVEYS	
4 DC XO	168	73	5b90			ANGLE	DIRECTION
18 HWDP	127	76	41/2 IF	DC S 5686 CCS 928,878		2010	m 48.3 ° 232.40
	276.95	m		JTS. D.P.: ON RACKS	247	2019	m 47.80 ° 232.30
HOOK LOAD	111,000	daN		: IN STRING	186	2028	m 47.40 ° 231.3
AVAILABLE WOB	26,000	daN		: TOTAL	433	2038	m 47.70 ° 231.30
						2048	m 47.90 ° 230.50

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	21.75	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		24	4189.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			92.25
SURVEY	1.5			CIRC. SAMPLE					757
SLIP & CUT				HANDLE TOOLS				24	5039
COND. MUD				TRIP				WEATHER	Cloudy
NOZZLEUP/DN				BEAM PATH HOLE				TEMPERATURE	15 °C
RUN CASING				CIRCULATE				ROADS	good

24 SUMMARY

Drill 311mm hole with Vector low speed motor and DBS MWD. Hole good on connections.

Slide- 2019-2023m 2027-2031m 2036-2042m 2056-2061m 2063-2068m

Rotate - 2023-2027m 2031-2036m 2042-2045m 2048-2056m 2061-2065m

Hole drag down- 8-10000 dan Hole drag up - 10-15000dan

Torque on bottom 1100-1300 psi

Back ground gas - 90 units

Mud lost last 24 Hrs - 1.7m³

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403)424-8050

Halliburton Drilling Systems

Survey Report

Page 1
Job No: 97D006
Date: 10/08/97
Time: 4:26 am
Wellpath ID: 97d006s4
Date Created: 27/01/97
Last Revision: 10/08/97

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.4 - BETA
Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

RANGER OIL LIMITED
RANGER Fort Liard P - 66 - A
IN UNIT P SECTION 66
Cactus #26E KB: 459.89 m
97D006
UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
1952.00	48.50	231.20	1876.09	-1416.20	230.52	187.28 S	138.72W	233.06@216.53	0.54
1962.00	48.60	231.20	1882.71	-1422.82	237.97	191.98 S	144.56W	240.32@216.98	0.30
1971.00	49.00	231.60	1888.64	-1428.75	244.70	196.21 S	149.85W	246.89@217.37	1.67
1981.00	48.50	231.70	1895.23	-1435.34	252.17	200.87 S	155.75W	254.18@217.79	1.52
1990.00	47.90	231.70	1901.23	-1441.34	258.83	205.03 S	161.02W	260.70@218.14	2.00
2000.00	48.00	232.60	1907.93	-1448.04	266.20	209.58 S	166.88W	267.91@218.53	2.03
2010.00	48.30	232.40	1914.60	-1454.71	273.59	214.12 S	172.79W	275.14@218.90	1.00
2019.00	47.80	232.30	1920.61	-1460.72	280.22	218.21 S	178.09W	281.66@219.22	1.69
2028.00	47.40	231.30	1926.68	-1466.79	286.82	222.32 S	183.31W	288.15@219.51	2.80
2038.00	47.70	231.30	1933.43	-1473.54	294.16	226.93 S	189.07W	295.37@219.80	0.90
2048.00	47.90	230.50	1940.15	-1480.26	301.53	231.60 S	194.82W	302.65@220.07	1.88

DON

2017-2023 - 6m slide

2027-2031 - 4m "

2036-2042 - 6m "

2045-2048 - 3m "

2048-2050 - 5m "

2050-2071 - 6m "

Halliburton Drilling Systems

Survey Report

Page 1
Job No: 97D006
Date: 09/08/97
Time: 5:05 am
Wellpath ID: 97d006s4
Date Created: 27/01/97
Last Revision: 09/08/97

Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.4 - BETA
Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

RANGER OIL LIMITED
RANGER Fort Liard P - 66 - A
IN UNIT P SECTION 66
Cactus #26E KB: 459.89 m
97D006
UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
1803.00	40.80	225.00	1770.93	-1311.04	125.28	115.56 S	61.61W	130.96@208.07	4.28
1813.00	41.60	223.90	1778.45	-1318.56	131.87	120.26 S	66.23W	137.25@208.84	3.24
1826.00	43.10	224.50	1788.06	-1328.17	140.62	126.54 S	72.33W	145.75@209.75	3.58
1836.00	43.40	224.20	1795.34	-1335.45	147.47	131.44 S	77.12W	152.35@210.40	1.09
1847.00	43.40	225.40	1803.33	-1343.44	155.03	136.80 S	82.45W	159.72@211.08	2.25
1857.00	43.70	224.70	1810.58	-1350.69	161.92	141.67 S	87.32W	166.42@211.65	1.70
1866.00	44.60	225.90	1817.04	-1357.15	168.19	146.08 S	91.78W	172.52@212.14	4.09
1876.00	44.90	225.60	1824.14	-1364.25	175.23	150.99 S	98.82W	179.37@212.67	1.10
1885.00	45.70	226.40	1830.47	-1370.58	181.62	155.43 S	101.42W	185.50@213.13	3.27
1895.00	46.20	228.20	1837.42	-1377.53	188.81	160.30 S	106.71W	192.57@213.65	4.16
1904.00	46.50	228.80	1843.64	-1383.75	195.31	164.62 S	111.58W	198.87@214.13	1.76
1914.00	46.80	228.50	1850.50	-1390.61	202.56	169.42 S	117.04W	205.92@214.64	1.11
1923.00	47.10	229.40	1856.65	-1396.76	209.12	173.74 S	122.00W	212.30@215.08	2.41
1933.00	47.50	231.30	1863.43	-1403.54	216.44	178.43 S	127.66W	219.40@215.58	4.36
1942.00	48.40	231.40	1869.46	-1409.57	223.08	182.61 S	132.88W	225.84@216.04	3.01
1952.00	48.50	231.20	1876.09	-1416.20	230.52	187.28 S	138.72W	233.06@216.53	0.54
1962.00	48.60	231.20	1882.71	-1422.82	237.97	191.98 S	144.56W	240.32@216.98	0.30
1971.00	49.00	231.60	1888.64	-1428.75	244.70	196.21 S	149.85W	246.85@217.37	1.67
1981.00	48.50	231.70	1895.23	-1435.34	252.17	200.87 S	155.75W	254.18@217.79	1.52
1990.00	47.90	231.70	1901.23	-1441.34	258.83	205.03 S	161.02W	260.70@218.14	2.00
2000.00	48.00	232.60	1907.93	-1448.04	266.20	209.58 S	166.86W	267.91@218.53	2.03

Don
1969-1973 - S.L.d.c
1979-1981 - S.L.d.c
1988-1993 - S.L.d.c

RANGER OIL LIMITED

WELL: Ranger Fort Liard P-66-A DATE: 1997-08-09 REPORT NO.: 209
 DEPTH: 2019 m PROGRESS: 49 m FORMATION: Mid Beta River
 OPERATIONS AT 06:00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: Precision Drilling rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 80215 CUM. COST: \$15,508,060 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5200 kPa @: 92 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE drilling WELL SECURED IN 1.5 MIN.
 CONDUCTED AT 0015 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 0-4 MAXIMUM CASING HOLD BACK 4500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	39			WEIGHT (kg/m ³)	1395	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (cP)	75	No. 1 STROKES PER MINUTE	90
TYPE	Fm2844			EXCESS LIME	9.62	No. 2 LINER (mm)	140
SERIAL No.	5971858			PV (mPa S)	40	No. 2 STROKES PER MINUTE	90
NOZZLES (mm)	8x14.3			YP (Pa)	16.5	VOLUME (m ³)	2.10
DEPTH IN (m)	1863			GELS (Pa)	9/16	PRESSURE (kPa)	17780
METERS (m)	156			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34
HOURS	46.75			SOLIDS (%)	25	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	12/17			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	62
R.P.M.	20/90			FLUID LOSS (cc)	0.7	SOLIDS CONTROL	
CONDITION	in			CHLORIDES	310636	SHAKER SCREENS	140-140
DRILLING ASSEMBLY				OIL WATER	93/7	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	1995	U.F. (kg/m ³)	D. SILT.
MTR XO	190	151	65/8REG	MUD ADDITIVES		OF. (kg/m ³)	CENT.
MWD XO	203	87	7H90	Barite 280mc OW 5bbl		VOL. (l/min.)	
2 NMDC	231	76	7H90	Travis 15mc Fiberfluid 5mc		HOURS	
1 DC IAR	230	76	7H90	Interdri 25mc Lime 15mc		SURVEYS	ANGLE
3 DC XO	228	76	7H90	Equal 2bbl Walnut 7mc			
4 DC XO	168	73	5H90	FL 2bbl		1962	m 48.60 ° 231.20
18 HWDP	127	76	41/2 IF	DC S 13024 CCS 23192		1971	m 49.00 ° 231.60
	276.95	m		JTS. D.P.: ON RACKS	267	1981	m 48.50 ° 231.70
HOOK LOAD	110000	daN		: IN STRING	166	1990	m 47.90 ° 231.70
AVAILABLE WOB	26,000	daN		: TOTAL	433	2000	m 48.00 ° 232.60

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	18.25	CEMENT		CORING		RIO REPAIR	.75	TODAY	CUM
TRIP	3.25	BOP DRILL		LOGGING		LOST CIRC.		23.25	4165.75
RIO SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH		92.25	
SURVEY	1			CIRC. SAMPLE				.75	757
SLIP & CUT				HANDLE TOOLS				24	5015
COND. MUD				TRIP				WEATHER	
NIPPLEUP/DN				REAM/ATHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								Cloudy	
								17 °C	
								Fair	

24 SUMMARY

Drill to 1998m with rig service and surveys. Work on pump. Wiper trip to 1690m. Repair top drive, grabber dies
 Hole pulled tight at 1864m. Drill ahead

Slide- 1970-1973m 1979-1981m 1988-1993m 2018-2019m

Rotam - 1973-1979m 1981-1988m 1993-2018m

Hole drag down- 8-10000 Hole drag up - 10-12000

Torque on bottom 1200-1300 psi

Back ground gas - units

Mud lost last 24 Hrs. - 8.2m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403)424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-08 REPORT NO.: 208
 DEPTH: 1970 m PROGRESS: 86 m FORMATION: Mid Boss River
 OPERATIONS AT 06:00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 57810 CUM. COST: \$15,427,845 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5200 kPa @: 92 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 7—3 MAXIMUM CASING HOLD BACK 4300 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	39			WEIGHT (kg/m ³)	1400	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (cP)	94	No. 1 STROKES PER MINUTE	90
TYPE	Fm2844			EXCESS LIME	9.99	No. 2 LINER (mm)	140
SERIAL No.	5971858			PV (mPa S)	35	No. 2 STROKES PER MINUTE	90
NOZZLES (mm)	8x14.3			YP (Pa)	16.5	VOLUME (m ³)	2.10
DEPTH IN (m)	1863			GELS (Pa)	9/16	PRESSURE (kPa)	17400
METERS (m)	107			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34
HOURS	28.75			SOLIDS (%)	25	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	12/17			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	62
R.P.M.	20/90			FLUID LOSS (cc)	0.7	SOLIDS CONTROL	
CONDITION	in			CHLORIDES	310636	SHAKER SCREENS	140—140
DRILLING ASSEMBLY				OIL WATER	99/1	DRYER SCREENS	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	1980		
MTR XO	190	151	65/REG	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.
MWD XO	203	87	7H90	Lime 35sccs cast2 10sccs		OF. (kg/m ³)	
2 NAMC	231	76	7H90	Truvis 10sccs walnut 7sccs		VOL. (l/min.)	
1 DC JAR	230	76	7H90	Interdrill S 25sccs barite 40sccs		HOURS	
3 DC XO	228	76	7H90	OW 5 bbls diesel 18m3		SURVEYS	ANGLE DIRECTION
4 DC XO	168	73	5h90	Emul 2bbls		1876	m 44.90 ° 225.60
18 HWDP	127	76	41/2 IF	DC S 8563 CCS 910,168		1895	m 46.20 ° 228.20
	276.95	m		JTS. D.P.: ON BACKS	267	1913	m 46.80 ° 228.50
HOOK LOAD	107000	daN		: IN STRING	166	1933	m 47.50 ° 231.30
AVAILABLE WOB	26,000	daN		: TOTAL	433	1952	m 48.50 ° 231.20

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	21.75	CEMENT		CORING		RIG REPAIR	5	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		23.5	4142.5
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			92.25
SURVEY	1			CIRC. SAMPLE				5	756.25
SLIP & CUT				HANDLE TOOLS				24	4991
COND. MUD				TRIP				WEATHER Cloudy	
WIPPLEUPIN				REAM RATHOLE				TEMPERATURE 10 °C	
RUN CASING				CIRCULATE				ROADS wet	

24 SUMMARY

Work on #1 pump (washed head). Drill 311mm hole with rig service and surveys.

Slide - 1884-1893m 1951-1954m

Rotate - 1887-1951m 1954-1970m

Hole drag down - 8-10000daN Hole drag up - 10-17000 daN

Torque on bottom 1300-1400 psi

Back ground gas - 88 units

Mud lost last 24 Hrs. - 6.5 m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

08/07/97 08:02 FAX

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-08-07 REPORT NO.: 207
 DEPTH: 1884 m PROGRESS: 21 m FORMATION: Mid Bess River
 OPERATIONS AT 06:00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 64081 CUM. COST: \$15,370,035 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 6200 kPa @: 96 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 12.75 m³ ACTUAL HOLE FILL: 14.21 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 6-2 MAXIMUM CASING HOLD BACK 4300 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	39	38C		WEIGHT (kg/m ³)	1415	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (cP)	91	No. 1 STROKES PER MINUTE	90
TYPE	Fm2844	Hp43b		EXCESS LIME	9.25	No. 2 LINER (mm)	140
SERIAL No.	5971834	1L8630		PV (mPa S)	43	No. 2 STROKES PER MINUTE	90
NOZZLES (mm)	8x14.3	3x19.1		YP (Pa)	17.5	VOLUME (m ³)	2.10
DEPTH IN (m)	1863	1837		GELS (Pa)	11/17	PRESSURE (kPa)	18200
METERS (m)	21	11		SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	34
HOURS	7	10.5		SOLIDS (%)	29	D.C. ANNULAR VEL. (m/min.)	43
WOB (1000 daN)	12/17	19/27		FILTER CAKE (mm dense)	1	D.C. ANNULAR VEL. (m/min.)	62
R.P.M.	20/90	20/90		FLUID LOSS (cc)	0.8	SOLIDS CONTROL	
CONDITION	in	2-2-in		CHLORIDES	281140	SHAKER SCREENS	140-140
DRILLING ASSEMBLY				OIL WATER	93/7	DRYER SCREENS	140
ITEM	Q.D.	Y.D.	T.I. TYPE	ELECTRICAL STAB.	1880	D. SILT. CENT.	
MTR XO	190	151	65/8 REG	MUD ADDITIVES		U.F. (kg/m ³)	
MWD XO	203	87	7H90			OF. (kg/m ³)	
2 NMDC	231	76	7H90			VOL. (l/min.)	
1 DC IAR	230	76	7H90			HOURS	
3 DC XO	228	76	7H90			SURVEY	
4 DC XO	168	73	5H90			ANGLE	DIRECTION
18 HWDP	127	76	41/2 IF	DC S	CCS 901,605	1847	m 43.40 ° 225.40
BHA LENGTH	276.95	m	JTS. D.P.: ON RACKS	267	1857	m 43.70 ° 224.70	
HOOK LOAD	107000	daN	: IN STRING	166	1866	m 44.6 ° 225.90	
AVAILABLE WOB	26,000	daN	: TOTAL	433			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	7	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP	10.25	BOP DRILL		LOGGING		LOST CIRC.		21	4119
RIG SERVICE	1	HANDLE TOOLS	1.75	TESTING		REAM & WASH	3		92.25
SURVEY	.25			CIRC. SAMPLE				3	739.75
SLIP & CUT	.75			HANDLE TOOLS				24	4967
COND. MUD				TRIP				Weather	
NOZZLE UP/DN				REAM RATHOLE				TEMPERATURE	
RUN CASINO				CIRCULATE				ROADS	
								Overcast	
								18 °C	
								good	

24 SUMMARY

Hoist with bit. Service tools and change out motor. Run in with new PDC bit to casing shoe, slip and cut line.
 Service Tesco top drive. Run in to 1048 m. Break circulation and clean bridge. Check MWD. Clean bridge at 1420m. Run in to 1670m. Wash to bottom. Ream at 1796m to 1831 and 1856 to 1863m. Drill with rig service.

Slide- 1864-1867m 1883-1884m

Route - 1863-1864m 1867-1883m

Hole drag down -5-7000 daN Hole drag up 8-12000 daN

Torque on bottom 1250-1375 psi

Back ground gas - 66 units

Mud lost last 24 Hrs. - 6.4 m3

SIGNED BY: John Faulkner

MOBILE FAX (403) 210-1707 (403) 474-8040

AUG-07-1997 08:36

403 232 5200

77%

P.02

RANGER OIL LIMITED

WELL: Ranger Fort Liard P-66-A DATE: 1997-08-05 REPORT NO.: 206
 DEPTH: 1863 m PROGRESS: 15 m FORMATION: Md Bear River
 OPERATIONS AT 06:00 HOURS: Trip for pump pressure increase (Expect static problem)
 CONTRACTOR/RIG SUPT.: Precision Drilling #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 36,820 CUM. COST: \$15,303,954 AFE NO: E6D-015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.F.: 4900 kPa @: 107 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE drilling WELL SECURED IN 1.5 MIN.
 CONDUCTED AT 1615 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 5-0 MAXIMUM CASING HOLD BACK 4300 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES			PUMPS		
BIT NUMBER		<u>38C</u>	WEIGHT (kg/m ³)		<u>1415</u>	No. 1 LINER (mm)		<u>140</u>
SIZE (mm)		<u>311</u>	VISCOSITY (mPa)		<u>92</u>	No. 1 STROKES PER MINUTE		<u>95</u>
TYPE		<u>Hp43h</u>	EXCESS LIME		<u>8.88</u>	No. 2 LINER (mm)		<u>140</u>
SERIAL No.		<u>Lb8630</u>	PV (mPa S)		<u>49</u>	No. 2 STROKES PER MINUTE		<u>95</u>
NOZZLES (mm)		<u>3x19.1</u>	YP (Pa)		<u>20.5</u>	VOLUME (m ³)		<u>2.22</u>
DEPTH IN (m)		<u>1837</u>	GELS (Pa)		<u>19/23</u>	PRESSURE (kPa)		<u>17300</u>
METERS (m)		<u>11</u>	SAND (%)		<u>Tr</u>	D.P. ANNULAR VEL. (m/min.)		<u>35</u>
HOURS		<u>10.5</u>	SOLIDS (%)		<u>29</u>	D.C. ANNULAR VEL. (m/min.)		<u>44</u>
WOB (1000 daN)		<u>19/27</u>	FILTER CAKE (mm desc.)		<u>1</u>	D.C. ANNULAR VEL. (m/min.)		<u>63</u>
R.P.M.		<u>20/90</u>	FLUID LOSS (cc)		<u>0.8</u>	SOLIDS CONTROL		
CONDITION		<u>In</u>	CHLORIDES		<u>296037</u>	SHAKER SCREENS		<u>140-140</u>
DRILLING ASSEMBLY			OIL WATER		<u>93/7</u>	DRYER SCREENS		<u>140</u>
ITEM	Q.D.	LB	TYPE	ELECTRICAL STAM	<u>1875</u>	U.F. (kg/m ³)	D. SIFT.	CENT.
MTR XO	<u>190</u>	<u>151</u>	<u>65/BREG</u>	MUD ADDITIVES		OF. (kg/m ³)		<u>2560</u>
MWD XO	<u>203</u>	<u>87</u>	<u>7H90</u>	Lime 30mc		VOL. (l/min.)		<u>1370</u>
NMDC	<u>231</u>	<u>76</u>	<u>7H90</u>	Walnut 21mc		HOURS		<u>2</u>
DC JAR	<u>230</u>	<u>76</u>	<u>7H90</u>			SURVEYS	ANGLE	DIRECTION
DC XO	<u>228</u>	<u>76</u>	<u>7H90</u>			<u>1826</u>	<u>m 43.10</u>	<u>° 224.50</u>
DC XO	<u>168</u>	<u>73</u>	<u>5H90</u>			<u>1836</u>	<u>m 43.40</u>	<u>° 224.20</u>
8 HWDP	<u>127</u>	<u>76</u>	<u>4.5ch</u>	DC S 610 CCS 901,605				
SHA LENGTH	<u>277.38</u>		<u>m</u>	ITS. D.P. ON RACKS	<u>268</u>			
HOOK LOAD	<u>107000</u>		<u>daN</u>	: IN STRING	<u>165</u>			
AVAILABLE WOB	<u>26,000</u>		<u>daN</u>	: TOTAL	<u>433</u>			

TIME BREAKDOWN

DRILLING OPERATIONS			EVALUATION			PROBLEMS			SUMMARY	
DRILLING	<u>20.25</u>	<u>CEMENT</u>		<u>CORING</u>		<u>NO REPAIR</u>	<u>1.5</u>		TODAY	CUM
UP	<u>1</u>	<u>BOP DRILL</u>		<u>LOGGING</u>		<u>LOST CIRC.</u>		DRILL OP	<u>22.5</u>	<u>4098</u>
ON SERVICE	<u>.75</u>	<u>HANDLE TOOLS</u>		<u>TESTING</u>		<u>REAM & WASH</u>		EVALUATION		<u>92.25</u>
SURVEY	<u>.5</u>			<u>CIRC. SAMPLE</u>				PROBLEMS	<u>1.5</u>	<u>752.75</u>
IP & CUT				<u>HANDLE TOOLS</u>				TOTAL	<u>24</u>	<u>4943</u>
IND. MUD				<u>TRIP</u>				WEATHER	<u>Clear</u>	
PLEURON				<u>REAM RATHOLE</u>				TEMPERATURE	<u>21</u>	<u>°C</u>
ON CASINO				<u>CIRCULATE</u>				ROADS	<u>good</u>	

24 SUMMARY

Drill with rig service, surveys and bop drill. Replace A/C module on #1 generator. Work on pumps and check
 reams for pump pressure increase. Hoist 5 stands with pump on, flow check and pump trip pill.

1856-1860m

1848-1855m 1859-1863

drag down - 7-12000daN Hols drag up - 10-16000daN

gas on bottom 1120-1300b psi

ground gas - 25 units

lost last 24 Hrs. - 6.2m3

INSTR BY: John Faulkner

MONITORING: (403) 710-1707 (403) 474-8040

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Liard P-66 DATE: 97-08-05 REPORT NO.: 205
 DEPTH: 1848 m PROGRESS: 11 m FORMATION: MID BESA RIVER
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drilling 426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 68924 CUM. COST: \$15,269,134 AFE NO: E6A 048

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5800 kPa @: 102 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 7 - 4 MAXIMUM CASING HOLD BACK 4300 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	38 C			WEIGHT (kg/m ³)	1410	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	100	No. 1 STROKES PER MINUTE	95
TYPE	chp43h			EXCESS LIME	7.4	No. 2 LINER (mm)	140
SERIAL No.	LB8630			PV (mPa S)	47	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3x19.1			YP (Pa)	19.5	VOLUME (m ³)	2.22
DEPTH IN (m)	1837			GELS (Pa)	15/19	PRESSURE (kPa)	12200
METERS (m)	11			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	35
HOURS	10.5			SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	44
WOB (1000 daN)	18			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	21/90			FLUID LOSS (cc)	8	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES (mg/l)	379337	SHAKER SCREENS	140 - 140
DRILLING ASSEMBLY				OIL WATER ..	93/7	DRYER	140
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRIC STAB..	1675		
Mud Motor.	190		6 5/8 Reg.	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.
MWD	203	87	7 H90	160 - Barite		U.F. (kg/m ³)	CENT.
2 NMDC	231	76	7 H90	20 - Lime		VOL. (l/min.)	
1 DC-Jars	228	76	7 H90	10 - Truvis		HOURS	
3 DCs.	228	76	7 H90	7 - Walnut		SURVEYS	
4 DCs.	168	73	5 H90	1 - Interdrill OW		1813	m 41.6
18 HWDP.	127	76	5 XH	DC S 3850	CCS 900,995	1826	m 43.1
BHA LENGTH	277.38	m		JTS. D.P.: ON RACKS	269		m
HOOK LOAD	107000	daN		: IN STRING	164		m
AVAILABLE WOB	26000	daN		: TOTAL	433		m

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING	10.5	CEMENT		CORENG		RIG REPAIR	5	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER FOG TEMPERATURE ROADS MUDDY	TODAY	CUMM
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.			11.75	4075.5
RIG SERVICE	.75			TESTING		REAM & WASH	10.5			92.25
SURVEY	.5			CIRC. SAMPLE		WORK PIPE			12.25	751.25
SLIP & CUT				HANDLE TOOLS		FISH			24	4919
COND. MUD				TRIP		TRIP				
NIPPLE UP/DN				REAM RATHOLE		CIRCULATE	1.25			
RUN CASING										

24 HOUR SUMMARY

Wash and ream 1147m - 1611m - Circulate hole clean - Hole unloading - Wash 1611m - 1731m - Ream 1731m - 1738m
 1796m - 1837m - Directional drill 311mm hole with 195mm 1.5 degree Trudrill mud motor and survey with MWD
 1837m - 1848m - Repair #2 pump suction
 Held fire drill in camp
 Slide - 0m
 Rotate - 11.0m
 Hole drag up - 10-15000 dm
 Torque on bottom - 960 - 1305 P.S.I.
 Back ground gas - 25 mits
 Mud lost last 24 Hrs. - 2.5m3
 SIGNED BY: ART SCHRITT MOBILE No.: (403) 210-1202 (403) 424-8050

Halliburton Drilling Systems**Survey Report**

Page 1

Job No: 97D006

Date: 05/08/97

Time: 5:08 am

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 05/08/97

*Calculated using the Minimum Curvature Method**Computed using PDS VER2.2.4 - BETA*

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED**RANGER Fort Liard P - 66 - A****IN UNIT P SECTION 66****Cactus #26E KB: 459.89 m****97D006****UWI 300P666040123300**

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
1707.00	29.60	227.20	1692.37	-1232.48	70.40	77.07 S	22.4EW	80.25@196.26	2.47
1717.00	30.50	226.90	1701.03	-1241.14	75.40	80.49 S	26.15W	84.63@198.00	2.74
1727.00	31.20	226.50	1709.61	-1249.72	80.53	84.00 S	29.8EW	89.16@199.58	2.19
1736.00	32.50	226.60	1717.26	-1257.37	85.27	87.27 S	33.32W	93.42@200.90	4.34
1746.00	33.80	226.70	1725.63	-1265.74	90.74	91.02 S	37.3CW	98.37@202.28	3.90
1755.00	35.10	226.20	1733.05	-1273.16	95.83	94.53 S	40.95W	103.04@203.44	4.43
1764.00	36.10	225.50	1740.37	-1280.48	101.07	98.18 S	44.75W	107.90@204.50	3.60
1774.00	37.20	224.00	1748.39	-1288.50	107.04	102.42 S	48.95W	113.52@205.55	4.25
1784.00	38.40	223.50	1756.29	-1296.40	113.16	106.85 S	53.15W	119.35@206.46	3.72
1793.00	39.60	223.80	1763.29	-1303.40	118.83	110.95 S	57.10W	124.76@207.23	4.05
1803.00	40.80	225.00	1770.93	-1311.04	125.28	115.56 S	61.61W	130.96@208.07	4.28
1813.00	41.60	223.90	1778.45	-1318.56	131.87	120.26 S	66.23W	137.25@208.84	3.24
1826.00	43.10	224.50	1788.06	-1328.17	140.62	126.54 S	72.33W	145.75@209.75	3.58

KING, C.

WELL CONTROL

DRILLING PARAMETERS

TIME BREAKDOWN

24 HOUR SUMMARY

MOBILE No.: (403) 210-1202 (403) 424-8050

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Liard P-66 DATE: 97-08-03 REPORT NO.: 203
 DEPTH: 1833 m PROGRESS: 32 m FORMATION: MID BESA RIVER
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drilling 426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$46124 CUM. COST: \$15,146,688 AFE NO: E6A 048

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5800 kPa @: 101 SPM
 TRIP RECORDS: CALCULATED HOLE FILL _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 5 - 2 MAXIMUM CASING HOLD BACK 4600 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	37 C			WEIGHT (kg/m ³)	1380	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	87	No. 1 STROKES PER MINUTE	98	
TYPE	GT - 1			EXCESS LIME	10.36	No. 2 LINER (mm)	140	
SERIAL No.	X32XN			PV (mPa S)	41	No. 2 STROKES PER MINUTE	98	
NOZZLES (mm)	3x19.1			YP (Pa)	16.5	VOLUME (m ³)	2.27	
DEPTH IN (m)	1801			GELS (Pa)	9/14	PRESSURE (kPa)	15900	
METERS (m)	32			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	36	
HOURS	20.25			SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	46	
WOB (1000 daN)	16/24			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	65	
R.P.M.	20/90			FLUID LOSS (cc)	0	SOLIDS CONTROL		
CONDITION	IN			CHLORIDES (mg/l)	265,938	SHAKER SCREENS		
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER		
				ELECTRIC STAB.	1652			
ITEM	QD	LD	TJ TYPE	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT.	CENT.
Mud Motor.	190		6 5/8 Reg.	165 - Barite		U.F. (kg/m ³)		
MWD	203	87	7 H90	13 - Walnut		VOL. (l/min.)		
2 NMDC	231	76	7 H90	20 - Lime		HOURS		
1 DC-Jars	228	76	7 H90			SURVEYS		
6 DCs.	228	76	7 H90			1784	m 38.4	o 223.5
3 DCs.	168	73	5 H90			1793	m 39.6	o 223.8
9 HWDP.	127	76	5 XH	DC \$ 1808 CCS \$95,608		1803	m 40.8	o 225.0
BHA LENGTH	214.89	m		JTS. D.P.: ON RACKS	265	1813	m 41.6	o 223.9
HOOK LOAD	110,000	daN		: IN STRING	168		m	o
AVAILABLE WOB	28000	daN		: TOTAL	433			

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING	20.25	CEMENT		CORING		RIG REPAIR	1.0	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER CLEAR TEMPERATURE +11 °C ROADS FAIR	TODAY	CUMUL
TRIP		HANDLE TOOLS		LOADING		LOST CIRC.			21.5	4042.5
RIG SERVICE	.75			TESTING		REAM & WASH	1.5			92.25
SURVEY	.5			CIRC. SAMPLE		WORK PIPE			2.5	736.25
SLP & CUT				HANDLE TOOLS		FISH			24	4871
COND. MUD				TRIP		TRIP				
NIPPLE UP/DN				REAM RATHOLE		CIRCULATE				
RUN CASING										

24 HOUR SUMMARY

Wash and ream 1634m - 1801m - 8m fill- Directional drill 311mm hole with 196mm low speed 1.83 degree Trudrill mud motor and survey with MWD 1801m - 1833m - Repair pop valve and #2 pump section

Slide - 15.0m

Rotate - 17.0m

Hole drag up - 5-15000 daN

Hole drag down - 10-12000 daN

Torque on bottom - 1250 - 1450 P.S.I.

Back ground - 32 units

Mud lost last 24 Hrs. - 3.4m3

SIGNED BY: ART SCHRITTMOBILE No.: (403) 210-1202 (403) 424-8050

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Liard P-66 DATE: 97-08-02 REPORT NO.: 202
 DEPTH: 1801 m PROGRESS: 0 m FORMATION: MID BESA RIVER
 OPERATIONS AT 06:00 HOURS: Trip in with directional tools
 CONTRACTOR/RIG SUPT.: Precision Drilling 426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 72179 CUM. COST: \$15,100,564 AFE NO.: E6A 048

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4200 kPa @: 101 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 5.71 m³ ACTUAL HOLE FILL: 8.51 m³
 BOP DRILLS: CONDUCTED WHILE TRIPPING WELL SECURED IN 2 MIN.
 CONDUCTED AT 11:00 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 4 - 1 MAXIMUM CASING HOLD BACK 4800 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES		PUMPS	
BIT NUMBER	36C	37C	WEIGHT (kg/m ³)	1360	No. 1 LINER (mm)	140
SIZE (mm)	311	311	VISCOSITY (s/l)	95	No. 1 STROKES PER MINUTE	95
TYPE	FDGH	GT-1	EXCESS LIME	10.17	No. 2 LINER (mm)	140
SERIAL No.	LG9867	X32 XN	PV (mPa S)	38	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3x19.1	3x19.1	YP (Pa)	14	VOLUME (m ³)	2.22
DEPTH IN (m)	1801	1801	GELS (Pa)	10/16	PRESSURE (kPa)	12200
METERS (m)			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	35
HOURS			SOLIDS (%)	24	D.C. ANNULAR VEL. (m/min.)	44
WOB (1000 daN)	85		FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	5/10		WATER LOSS (cc)	0	SOLIDS CONTROL	
CONDITION	IN		CHLORIDES (mg/l)	203848	SHAKER SCREENS	140 - 140
DRILLING ASSEMBLY			OIL WATER	88/12	DRYER	140
ITEM	O.D.	I.D.	ELECTRIC STAR	1648	U.F. (kg/m ³)	D. SILT.
Mud Motor	190		MUD ADDITIVES		U.F. (kg/m ³)	CENT.
MWD	203	87	206 - Barite	15 - CaCl ₂	VOL. (l/min.)	
2 NMDC	231	76	5 - Truvis	1 - FL	HOURS	
1 DC-Jars	228	76	1 - Interdrill OW		SURVEYS	
6 DCs	228	76	1 - ESX			
3 DCs	168	73	20 - Lime			
9 HWDP	127	76	DC S 5530	CCS 893,800		
BHA LENGTH	214.89	m	JTS. D.P.: ON RACKS	268		
HOOK LOAD	107000	daN	: IN STRING	165		
AVAILABLE WOB	28000	daN	: TOTAL	433		

TIME BREAKDOWN

DRILLING OPERATIONS		EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		DRILL OP EVALUATION PROBLEMS TOTAL	TODAY
TRIP	7.5	HANDLE TOOLS	2.0	LOGGING			10.25
RIG SERVICE	.75			TESTING			91.25
SURVEY				CIRC. SAMPLE			13.75
SLIP & CUT				HANDLE TOOLS		WEATHER FOG TEMPERATURE +11 °C ROADS MUDDY	733.75
COND. MUD				TRIP			24
NIPPLE UP/DN				REAM RATHOLE			4847
RUN CASING							

24 HOUR SUMMARY

Repair Tesco Top Drive - Trip in to 1393m - Wash 1393m - 1605m - Wash and ream 1605m - 1801m
 Hard reaming 1770m - 1801m - Circulate and work pipe - Pump out 1801m - 1604m - Pump pill - Trip out
 Make up directional tools - Trip in - Shallow test MWD at 1086m - Trip in to 1485m - Wash 1485m - 1634m

Hole drag up - 5-10000 daN

Hole drag down - 3-5000 daN

Mud lost last 24 Hrs - 3.5m³SIGNED BY: ART SCHRITTMOBILE No.: (403) 210-1202 (403) 424-8050

08/01/97 08:45 FAX

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Liard P-66 DATE: 97-08-01 REPORT NO.: 201
 DEPTH: 1801 m PROGRESS: 0 m FORMATION: MID BESA RIVER
 OPERATIONS AT 06:00 HOURS: Wiper trip condition hole for directional tools
 CONTRACTOR/RIG SUPT.: Precision Drilling 426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$67749 CUM. COST: \$15028385 AFE NO: E6A 048

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5100 kPa @: 90 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 10.99 m³ ACTUAL HOLE FILL: 12.20 m³
 BOP DRILLS: CONDUCTED WHILE _____ WELL SECURED IN _____ MIN.
 CONDUCTED AT _____ HRS. CREW PERFORMANCE _____
 DAYS SINCE BOP DRILL (EACH CREW): 3 - 3 MAXIMUM CASING HOLD BACK 5100 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	36C			WEIGHT (kg/m ³)	1330	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (u/l)	104	No. 1 STROKES PER MINUTE	95
TYPE	FDGH			EXCESS LIME	10.17	No. 2 LINER (mm)	140
SERIAL No.	LG9867			PV (mPa S)	38	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3x19.1			YP (Pa)	13	VOLUME (m ³)	2.22
DEPTH IN (m)	1801			GELS (Pa)	9/15	PRESSURE (kPa)	12200
METERS (m)				SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	35
HOURS				SOLIDS (%)	23	D.C. ANNULAR VEL. (m/min.)	44
WOB (1000 daN)	85			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	5/10			WATER LOSS (cc)	0	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES (mg/l)	203848	SHAKER SCREENS	140 - 140
DRILLING ASSEMBLY				OIL WATER	88/12	DRYER	140
ITEM	OD	ID	TJ TYPE	ELECTRIC STAB	1087	D. SILT. CENT.	
Mud Motor	197		6 5/8 Reg.	MUD ADDITIVES			
MWD	203	71	7 H90	120 - Barite		U.F. (kg/m ³)	
2 NMDCs	231	76	7 H90	5 - Truvis		U.F. (kg/m ³)	
1 DC	228	76	7 H90	2 - Interdrill OW		VOL. (l/min.)	
Jars	228	63	7 H90			HOURS	
6 DCs	228	76	7 H90			SURVEYS	
3 DCs	168	73	5 H90	DC \$ 3318 CCS 888270		DIRECTION	
BHA LENGTH	174.15	m		JTS. D.P.: ON RACKS	265	m	o
HOOK LOAD	101000	daN		: IN STRING	168	m	o
AVAILABLE WOB	22000	daN		: TOTAL	433	m	o

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING		CEMENT		CORING		RIG REPAIR	1.0	DRILL OP	TODAY
TRIP		HANDLE TOOLS	1.0	LOGGING		LOST CIRC.			CUM
RIG SERVICE	.75			TESTING		REAM & WASH	7.25	EVALUATION	1.75
SURVEY				CIRC. SAMPLE		WORK PIPE		PROBLEMS	92.25
SLIP & CUT				HANDLE TOOLS		FISH		TOTAL	22.25
COND. MUD				TRIP		TRIP	11.75	WEATHER	24
NIPPLE UP/DN				REAM RATHOLE		CIRCULATE	2.25	FOG	4823
RUN CASING								TEMPERATURE	+11 °C
								ROADS	MUDDY

24 HOUR SUMMARY

Wash and ream 1510m - 1512m - Pump out to 1404m - Pump pill trip out - Lay down directional tools
 Trip in with bit - Wash and ream 1426m - 1801m - Hole sloughing 1510m - 1523m - Circulate condition hole and mud
 Circulate out 13 stands - Pump pill - Trip out to casing shoe - Repair Tesco top drive swivel and #2 pump

SIGNED BY: ART SCHRITTMOBILE No.: (403) 210-1202 (403) 424-8050

AUG-01-1997 08:25

403 232 5200

78%

P.02

DAILY DRILLING REPORT

WELL NAME: Ranger Fort Lind P-66 DATE: 97-07-30 REPORT NO.: 199
 DEPTH: 1790 m PROGRESS: 44 m FORMATION: MID BESA RIVER
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drilling 426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$41732 CUM. COST: \$14914242 AFE NO: E6D 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5600 kPa @: 99 SPM
 TRIP RECORDS: CALCULATED HOLE FILL: _____ m³ ACTUAL HOLE FILL: _____ m³
 BOP DRILLS: CONDUCTED WHILE DRILLING WELL SECURED IN 2.0 2.0 MIN.
 CONDUCTED AT 23:00 06:15 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 1 MAXIMUM CASING HOLD BACK 5500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	35C			WEIGHT (kg/m ³)	1300	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	84	No. 1 STROKES PER MINUTE	95
TYPE	HP13G			EXCESS LIME	10.17	No. 2 LINER (mm)	140
SERIAL No.	BA1773			PV (mPa S)	36	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3x19.1			YP (Pa)	13.5	VOLUME (m ³)	2.22
DEPTH IN (m)	1668			GELS (Pa)	8/14	PRESSURE (kPa)	16300
METERS (m)	122			SAND (%)	Trace	D.P. ANNULAR VEL. (m/min.)	35
HOURS	62.75			SOLIDS (%)	23	D.C. ANNULAR VEL. (m/min.)	44
WOB (1000 daN)	15/25			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	20/100			WATER LOSS (cc)	1.2	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES (mg/l)	185219	SHAKER SCREENS	140 - 184
DRILLING ASSEMBLY				OIL WATER ..	87/13	DRYER	184
ITEM	Q.D.	I.D.	T.J. TYPE	ELECTRIC STAB.	1298	U.F. (kg/m ³)	D. SILT.
Mud Motor	197		6 5/8 Reg.	MUD ADDITIVES			CENT.
MWD	203	71	7 H90	11 - Walnut			2440
2 NMDCs	231	76	7 H90	2 - Fiber Fluid			1295
1 DC	228	76	7 H90	3 - Interdrill OW			3.0
Jars	228	63	7 H90				9.5
6 DCs.	228	76	7 H90				
3 DCs.	168	73	5 H90	DC \$2735 CCS 877,798			
BHA LENGTH	215.08	m		JTS. D.P.: ON RACKS	268	1746	m 31.2 o 226.5
HOOK LOAD	110000	daN		: IN STRING	165	1755	m 32.5 o 226.6
AVAILABLE WOB	28000	daN		: TOTAL	433	1764	m 33.8 o 226.7
							m 35.1 o 226.2
							m 36.1 o 225.5

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	22.0	CEMENT		CORING		RIG REPAIR	.25	DRILL OP EVALUATION PROBLEMS TOTAL	TODAY
TRIP		HANDLE TOOLS		LOGGING		LOST CIRC.			CUM
RIG SERVICE	.75			TESTING		REAM & WASH			23.75
SURVEY	1.0			CIRC. SAMPLE		WORK PIPE			3991.75
SLIP & CUT				HANDLE TOOLS		FISH		25	92.25
COND. MUD				TRIP		TRIP		24	691
NIPPLE UP/DN				REAM RATHOLE				WEATHER MIST	4775
RUN CASINO								TEMPERATURE	+10 °C
								ROADS	Good

24 HOUR SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Vector mud motor and survey with MWD 1746m - 1790m
 Change suction valve on #1 pump

Slide - 24.0m

Rotate - 20.0m

Hole drag up - 10-15000 dan Hole drag down - 5-10000 dan

Torque on bottom - 1050 - 1150 P.S.I.

Back ground gas - 25 units

Mud lost last 24 hrs - 2.7m³SIGNED BY: ART SCHRITTMOBILE No.: (403) 210-1202 (403) 424-8050

07/30/97 06:31 FAX

Halliburton Drilling Systems**Survey Report**

Page 1

Job No: 97D006

Date: 30/07/97

Time: 4:04 am

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 30/07/97

Calculated using the Minimum Curvature Method

Computed using PDS VER2.2.4 - BETA

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m) (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
1602.00	18.10	225.30	1595.86	-1135.97	29.64	48.87 S	6.95 E	49.36@171.91	0.82
1612.00	18.10	225.60	1605.37	-1145.48	32.75	51.05 S	4.73 E	51.27@174.70	0.28
1621.00	18.60	225.00	1613.91	-1154.02	35.58	53.04 S	2.72 E	53.11@177.06	1.78
1631.00	19.70	225.60	1623.36	-1163.47	38.86	55.35 S	0.39 E	55.35@179.60	3.35
1640.00	20.60	226.80	1631.81	-1171.92	41.96	57.49 S	1.85W	57.52@181.84	3.30
1650.00	21.40	226.00	1641.14	-1181.25	45.54	59.96 S	4.44W	60.13@184.24	2.55
1659.00	22.70	226.00	1649.49	-1189.60	48.92	62.31 S	6.87W	62.65@186.30	4.33
1668.00	24.10	225.80	1657.74	-1197.85	52.50	64.80 S	9.44W	65.48@188.29	4.67
1677.00	25.90	226.70	1665.90	-1206.01	56.30	67.43 S	12.15W	68.52@190.25	6.13
1687.00	27.60	226.80	1674.83	-1214.94	60.80	70.51 S	15.47W	72.15@192.37	5.10
1697.00	28.80	226.80	1683.64	-1223.75	65.52	73.75 S	18.91W	76.13@194.38	3.60
1707.00	29.60	227.20	1692.37	-1232.48	70.40	77.07 S	22.48W	80.25@196.26	2.47
1717.00	30.50	226.90	1701.03	-1241.14	75.40	80.49 S	26.15W	84.63@198.00	2.74
1727.00	31.20	226.50	1709.61	-1249.72	80.53	84.00 S	29.88W	89.16@199.58	2.19
1736.00	32.50	226.60	1717.26	-1257.37	85.27	87.27 S	33.32W	93.42@200.90	4.34
1746.00	33.80	226.70	1725.63	-1265.74	90.74	91.02 S	37.30W	98.37@202.28	3.90
1755.00	35.10	226.20	1733.05	-1273.16	95.83	94.53 S	40.95W	103.04@203.44	4.43
1764.00	36.10	225.50	1740.37	-1280.48	101.07	98.18 S	44.75W	107.90@204.50	3.60

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-29 REPORT NO.: 198
 DEPTH: 1746 m PROGRESS: 23 m FORMATION: Mid Besa River Lime
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 73525 CUM. COST: \$14,872,510 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4900 kPa @: 95 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 12.26 m³ ACTUAL HOLE FILL: 13.45 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 6 - 6 MAXIMUM CASING HOLD BACK 5400 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	35C			WEIGHT (kg/m ³)	1315	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s/l)	111	No. 1 STROKES PER MINUTE	95
TYPE	HP13G			EXCESS LIME	11.1	No. 2 LINER (mm)	140
SERIAL No.	BA1773			PV (mPa S)	37	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3x19.1			YP (Pa)	18.0	VOLUME (m ³)	2.22
DEPTH IN (m)	1668			GELS (Pa)	12/17	PRESSURE (kPa)	16500
METERS (m)	78			SAND (%)	trace	D.P. ANNULAR VEL. (m/min.)	35
HOURS	40.75			SOLIDS (%)	22	D.C. ANNULAR VEL. (m/min.)	44
WOB (1000 daN)	16/24			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	20/100			FLUID LOSS (cc)	1.6	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	185220	SHAKER SCREENS	140-184
DRILLING ASSEMBLY				OIL WATER	87/13	DRYER SCREENS	210
ITEM	OD	ID	T-TYPE	ELECTRICAL STAB.	1250	D. SILT.	CENT.
MTR XO	196	151	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)	2470
MWD XO	203	71	7H90	90 - Barite		OF. (kg/m ³)	1280
2 NMDC	231	77	7 H90	1 - Interdrill EMUL		VOL. (l/min.)	3.5
1 DC JAR	230	65	7 H90	1 - Interdrill OW		HOURS	10
6 DC XO	228	74	7 H90	5 - Travis		SURVEYS	
3 DC XO	168	73	41/2IF			ANGLE	DIRECTION
9 HWDP	127	76	41/2IF	DC \$ 2394 CCS 875,063		m 28.8	° 226.8
BHA LENGTH	215.08	m		JTS. D.P.: ON RACKS	274	m 29.6	° 227.2
HOOK LOAD	106000	daN		: IN STRING	159	m 30.5	° 226.9
AVAILABLE WOB	28,000	daN		: TOTAL	433		

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	11.0	CEMENT		CORING		RIG REPAIR	1.2	TODAY	CUM.
TRIP	7.5	BOP DRILL		LOGGING		LOST CIRC.		21.5	3968
RIG SERVICE	.75	HANDLE TOOLS	1.25	TESTING		REAM & WASH	1.5		92.25
SURVEY	.75			CIRC. SAMPLE				2.5	690.75
SLIP & CUT				HANDLE TOOLS				24	4751
COND. MUD				TRIP				WEATHER	
NIPPLE UP/DN				REAM RATHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								LIGHT RAIN	
								+11 °C	
								MUDDY	

24 SUMMARY

Directional drill 311mm hole with 197mm 2.12 degree Vector mud motor and survey with
 MWD 1723m - 1724m - Circulate out 2 stands - Pump pill - Trip out - Tight hole 1665m - 1657m - Set mud motor to 1.83
 degrees, change out MWD and jars - Trip in BHA - Repair Tesco top drive - Trip in test MWD at 1126m - Trip in to 1640m
 Wash and ream 1640m - 1724m - Survey at 1697m and 1706m - Orient tool - Directional drill 311mm hole with 197mm 1.83
 degree Vector mud motor and survey with MWD 1724m - 1746m - Change valve and seat on #2 mud pump
 Slide - 16.0m
 Rotate - 7.0m
 Hole drag down - 5-10000dan Hole drag up - 10-18000dan
 Torque on bottom - 1080-1110 P.S.I.
 Back ground gas - 10 units Trip gas - 110 units
 Mud lost last 24 Hrs. - 3.5 m³
 SIGNED BY: ART SCHRITT MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Lind P-66-A DATE 1997-07-28 REPORT NO.: 197
 DEPTH: 1723 m PROGRESS: 42 m FORMATION: Mid Boss River Lime
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Dril rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schritt
 DAILY COST: \$ 38117 CUM. COST: \$14,798,985 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5200 kPa @: 92 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 5 - 5 MAXIMUM CASING HOLD BACK 5500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	35C			WEIGHT (kg/m ³)	1295	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (s)	92	No. 1 STROKES PER MINUTE	95
TYPE	HPL3G			EXCESS LIME	12.0	No. 2 LINER (mm)	140
SERIAL No.	BA1773			PV (mPa S)	36	No. 2 STROKES PER MINUTE	95
NOZZLES (mm)	3x19.1			YP (Pa)	13.5	VOLUME (m ³)	2.22
DEPTH IN (m)	1668			GELS (Pa)	8/16	PRESSURE (kPa)	16200
METERS (m)	55			SAND (%)	trace	D.P. ANNULAR VEL. (m/min.)	35
HOURS	29.75			SOLIDS (%)	22	D.C. ANNULAR VEL. (m/min.)	44
WOB (1000 daN)	16/22			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	63
R.P.M.	20/100			FLUID LOSS (cc)	2.0	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	200963	SHAKER SCREENS	140-184
DRILLING ASSEMBLY				OIL WATER	90/10	DRYER SCREENS	140
ITEM	Q.D.	LD	LI TYPE	ELECTRICAL STAB.	1295	U.F. (kg/m ³)	D. SILT. CENT.
MTR XO	196	151	65/BREG	MUD ADDITIVES		OF. (kg/m ³)	
MWD XO	203	71	7H90	73 - Barite 5m3 - Premix		VOL. (l/min.)	
2 NMDC	231	77	7H90	4 - Fiber Fluid		HOURS	
1 DC IAR	230	65	7H90	4 - Walnut		SURVEY	ANGLE DIRECTION
6 DC XO	228	74	7H90	2 - Interdrill OW		1668	m 24.1 ° 225.8
3 DC XO	168	73	41/2IF	2 - Interdrill EMUL		1677	m 25.9 ° 226.7
9 HWDP	127	76	41/2IF	DC \$ 3652 CC3 872669		1687	m 27.6 ° 226.8
BHA LENGTH	214.84	m		JTS. D.P.: ON RACKS	277		
HOOK LOAD	107000	daN		: IN STRING	156		
AVAILABLE WOB	28,000	daN		: TOTAL	433		

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	21.25	CEMENT		CORING		RIG REPAIR	.75	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		23.25	3946.5
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			92.25
SURVEY	1.25			CIRC. SAMPLE				.75	688.25
SLIP & CUT				HANDLE TOOLS				24	4727
COND. MUD				TRIP				TOTAL	
NIPPLEUP/DN				REAM RATHOLE				WEATHER	
RUN CASING				CIRCULATE				TEMPERATURE	
								ROADS	

24 SUMMARY

Directional drill 311mm hole with 197mm 2.12 degree Vector mud motor and survey with
 MWD 1681m - 1723m - Pulsar failed on MWD prepare to trip out

Slide- 16.0m

Rotate - 26.0m

Hole drag down - 5-10000 daN Hole drag up - 10-15000 daN

Torque on bottom - 1100-1125P.S.I

Back ground gas - 11 units Trip gas - units

Mud lost last 24 Hrs - 1.5 m3

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-27 REPORT NO.: 196
 DEPTH: 1681 m PROGRESS: 14 m FORMATION: Mid Becca River Limestone
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drilling #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 42202 CUM. COST: \$14,760,868 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5800 kPa @: 95 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 11.45 m³ ACTUAL HOLE FILL: 12.51 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 4 - 4 MAXIMUM CASING HOLD BACK 5500 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS																	
BIT NUMBER	34C	35C		WEIGHT (kg/m ³)	1295	No. 1 LINER (mm)		140															
SIZE (mm)	311	311		VISCOSITY (cP)	114	No. 1 STROKES PER MINUTE		90															
TYPE	FDGH	HP13G		EXCESS LIME	14.8	No. 2 LINER (mm)		140															
SERIAL No.	LF5140	ba1773		PV (mPa S)	35	No. 2 STROKES PER MINUTE		90															
NOZZLES (mm)	3x19.1	3x19.1		YP (Pa)	12.5	VOLUME (m ³)		2.11															
DEPTH IN (m)	1613	1668		GELS (Pa)	8/16	PRESSURE (kPa)		15300															
METERS (m)	55	13		SAND (%)	trace	D.P. ANNULAR VEL. (m/min.)		33															
HOURS	33	8.5		SOLIDS (%)	20	D.C. ANNULAR VEL. (m/min.)		41															
WOB (1000 daN)	15/21	16/22		FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)		60															
R.P.M.	20/130	20/100		FLUID LOSS (cc)	1.6	SOLIDS CONTROL																	
CONDITION	3-4-I	IN		CHLORIDES	303373	SHAKER SCREENS		140-184															
DRILLING ASSEMBLY				OIL WATER	94/6	DRYER SCREENS		210															
ITEM	QD	LD	TJ TYPE	ELECTRICAL STAB.	1892	<table><tr><td></td><td>D. SILT.</td><td>CENT.</td></tr><tr><td>U.F. (kg/m³)</td><td></td><td>2450</td></tr><tr><td>OF. (kg/m³)</td><td></td><td>1260</td></tr><tr><td>VOL. (l/min.)</td><td></td><td>3.5</td></tr><tr><td>HOURS</td><td></td><td>24</td></tr></table>				D. SILT.	CENT.	U.F. (kg/m ³)		2450	OF. (kg/m ³)		1260	VOL. (l/min.)		3.5	HOURS		24
	D. SILT.	CENT.																					
U.F. (kg/m ³)		2450																					
OF. (kg/m ³)		1260																					
VOL. (l/min.)		3.5																					
HOURS		24																					
MTR XO	196	151	65/8REG	MUD ADDITIVES																			
MWD XO	203	71	7H90	40 - Barite																			
2 NMDC	231	77	7 H90	1 - Fiber Fluid																			
1 DC JAR	230	65	7 H90	1 - Walnut																			
6 DC XO	228	74	7 H90	1.5m3 - Brine		SURVEY																	
3 DC XO	168	73	41/2IF			1650	m 21.4	° 226.0															
9 HWDP	127	76	41/2IF	DC S	CCS 859,089	1659	m 22.7	° 226.0															
BHA LENGTH	214.84	m		JTS. D.P.: ON RACKS	280		m	°															
HOOK LOAD	106000	daN		: IN STRING	153		m	°															
AVAILABLE WOB	28,000	daN		: TOTAL	433		m	°															

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	10.5	CEMENT		CORING		RIG REPAIR	2.2	TODAY	CUM.
TRIP	8.0	BOP DRILL		LOGGING		LOST CIRC.		21.25	3923.25
RIG SERVICE	.75	HANDLE TOOLS	1.75	TESTING		REAM & WASH	.5		92.25
SURVEY	25			CIRC. SAMPLE				2.75	687.5
SLIP & CUT				HANDLE TOOLS				24	4703
COND. MUD				TRIP				WEATHER	
NIPPLE UP/DN				REAM RATHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								DRILL OP EVALUATION	
								PROBLEMS	
								TOTAL	
								WEATHER	
								TEMPERATURE	
								ROADS	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Halliburton mud motor and survey
 with MWD 1667m - 1668m - Mud motor stalling stator rubber failed - Circulate out 2 stands - Pump pill
 Trip out change out mud motor and bit service MWD - Trip in to 1003m - Repair #2 pump and service
 Tesco top drive - Trip in and test MWD at 1125m - Wash and ream 1648m - 1668m 3m fill - Directional drill 311mm
 hole with 197mm 2.12 degree Vector mud motor and survey with MWD 1668m - 1681m
 Slide - 11.0m
 Rotate - 2.0m
 Hole drag down - 5-7000 daN Hole drag up - 8-15000 daN
 Torque on bottom - 980-1050 P.S.I.
 Back ground gas - 15 units Trip gas - 111 units
 Mud lost last 24 Hrs. - 1.0 m³

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems**Survey Report**

Page 1
Job No: 97D006
Date: 27/07/97
Time: 5:12 am
Wellpath ID: 97d006s4
Date Created: 27/01/97
Last Revision: 27/07/97

*Calculated using the Minimum Curvature Method
Computed using PDS VER2.2.4 - BETA
Vertical Section Plane: 225.00 deg.*

Survey Reference: WELLHEAD
Vertical Section Reference: WELLHEAD
Closure Reference: WELLHEAD
TVD Reference: WELLHEAD

RANGER OIL LIMITED
RANGER Fort Liard P - 66 - A
IN UNIT P SECTION 66
Cactus #26E KB: 459.89 m
97D006
UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
1503.00	12.80	220.00	1500.41	-1040.52	3.61	29.45 S	24.34 E	38.20@140.43	0.84
1513.00	12.90	220.20	1510.16	-1050.27	5.83	31.15 S	22.91 E	38.67@143.67	0.33
1523.00	13.30	219.40	1519.90	-1060.01	8.09	32.89 S	21.46 E	39.27@146.88	1.32
1533.00	13.70	219.60	1529.63	-1069.74	10.41	34.69 S	19.97 E	40.03@150.07	1.21
1543.00	14.50	220.60	1539.33	-1079.44	12.84	36.56 S	18.40 E	40.93@153.28	2.51
1553.00	15.10	221.00	1548.99	-1089.10	15.38	38.49 S	16.73 E	41.97@156.50	1.83
1562.00	15.80	223.20	1557.67	-1097.78	17.78	40.27 S	15.12 E	43.01@159.41	3.04
1572.00	16.70	222.30	1567.27	-1107.38	20.57	42.32 S	13.22 E	44.34@162.65	2.80
1582.00	17.50	222.80	1576.83	-1116.94	23.51	44.49 S	11.24 E	45.85@165.83	2.44
1592.00	17.90	224.70	1586.35	-1126.46	26.55	46.68 S	9.13 E	47.57@168.93	2.11
1602.00	18.10	225.30	1595.86	-1135.97	29.64	48.87 S	6.95 E	49.36@171.91	0.82
1612.00	18.10	225.60	1605.37	-1145.48	32.75	51.05 S	4.73 E	51.27@174.70	0.28
1621.00	18.60	225.00	1613.91	-1154.02	35.58	53.04 S	2.72 E	53.11@177.06	1.78
1631.00	19.70	225.60	1623.36	-1163.47	38.86	55.35 S	0.39 E	55.35@179.60	3.35
1640.00	20.60	226.80	1631.81	-1171.92	41.96	57.49 S	1.85W	57.52@181.84	3.30
1650.00	21.40	226.00	1641.14	-1181.25	45.54	59.96 S	4.44W	60.13@184.24	2.55
1659.00	22.70	226.00	1649.49	-1189.60	48.92	62.31 S	6.87W	62.69@186.30	4.33

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-26 REPORT NO.: 195
DEPTH: 1667 m PROGRESS: 40 m FORMATION: Mid Besa River Lims
OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gorgichuk CO. SUPERVISOR: Art Schmitt
DAILY COST: \$ 47747 CUM. COST: \$14,718,666 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5400 kPa @: 92 SPM
TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE
DAYS SINCE BOP DRILL (EACH CREW): 1 - 3 MAXIMUM CASING HOLD BACK 5400 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES			PUMPS		
BIT NUMBER	34C		WEIGHT (kg/m ³)	1305		No. 1 LINER (mm)	140	
SIZE (mm)	311		VISCOSITY (s/l)	98		No. 1 STROKES PER MINUTE	85	
TYPE	FDQH		EXCESS LIME	14.8		No. 2 LINER (mm)	140	
SERIAL No.	LF5140		PV (mPa S)	34		No. 2 STROKES PER MINUTE	85	
NOZZLES (mm)	3x19.1		YP (Pa)	12.5		VOLUME (m ³)	2.0	
DEPTH IN (m)	1613		GELS (Pa)	10/15		PRESSURE (kPa)	15200	
METERS (m)	64		SAND (%)	trace		D.P. ANNULAR VEL. (m/min.)	32	
HOURS	31		SOLIDS (%)	23		D.C. ANNULAR VEL. (m/min.)	38	
WOB (1000 daN)	15/21		FILTER CAKE (mm desc.)	1.0		D.C. ANNULAR VEL. (m/min.)	57	
R.P.M.	20/130		FLUID LOSS (cc)	1.6		SOLIDS CONTROL		
CONDITION	IN		CHLORIDES	303373		SHAKER SCREENS	210-175	
DRILLING ASSEMBLY			OIL WATER	94/6		DRYER SCREENS	140	
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	2000	U.F. (kg/m ³)	D. S.L.T.	CENT.
MTR XO	196	151	65/8REG	MUD ADDITIVES		OF. (kg/m ³)		2400
MWD XO	203	71	7H90	3 - EMUL	7 - Walnut	VOL. (l/min.)		1290
2 NMDC	231	77	7 H90	4 - Interdrill OW	25 - Interdrill S	HOURS		3.5
1 DC JAR	230	65	7 H90	2 - Interdrill FL	8 - Fiber Fluid	SURVEY	ANGLE	DIRECTION
6 DC XO	228	74	7 H90	10 - Truvia	4m3 - Fresh Water	1612	m 18.1	° 225.6
3 DC XO	168	73	41/2BF	15 - Lime		1621	m 18.6	° 225.0
9 HWDP	127	76	41/2IF	DC S 9335	CCS 868,424	1631	m 19.7	° 225.6
BHA LENGTH	214.63	m	JTS. D.P.: ON RACKS	283			m 20.6	° 226.8
HOOK LOAD	106000	daN	: IN STRING	150				
AVAILABLE WOB	28,000	daN	: TOTAL	433				

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	22.5	CEMENT		CORING		RIG REPAIR		TODAY	CUM
TRIP		BOP DRILL		LOGGING		LOST CIRC.		24	3902
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			92.25
SURVEY	.75			CIRC. SAMPLE					684.75
SLIP & CUT				HANDLE TOOLS				24	4679
COND. MUD				TRIP				CLOUDY	
NIPPLEUP/DN				REAM BATHOLE				+15 °C	
RUN CASING				CIRCULATE				MUDDY	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Halliburton mud motor and survey
with MWD 1627m - 1667m

Slide- 39.0m

Rotate - 1.0m

Hole drag down - 3-6000 daN Hole drag up - 5-10000 daN

Torques on bottom - 975-1000P.S.I.

Back ground gas - 20 units Trip gas - units

Mud lost last 24 Hrs. - 1.0m3

SIGNED BY: ART SCHMITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-25 REPORT NO.: 194
DEPTH: 1627 m PROGRESS: 16 m FORMATION: Mid Bena River Lime
OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Dennis Brown CO. SUPERVISOR: Art Schmitt
DAILY COST: \$ 40712 CUM. COST: \$14,670919 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5100 kPa @: 91 SPM
TRIP RECORDS: CALCULATED HOLE FILL: 10.49 m³ ACTUAL HOLE FILL: 11.75 m³
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE
DAYS SINCE BOP DRILL (EACH CREW): 2 - 2 MAXIMUM CASING HOLD BACK 5400 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	31 D	33C		WEIGHT (kg/m ³)	1310	No. 1 LINER (mm)	140	
SIZE (mm)	311	311		VISCOSITY (s/l)	121	No. 1 STROKES PER MINUTE	85	
TYPE	ERA13	FDGH		EXCESS LIME	14.8	No. 2 LINER (mm)	140	
SERIAL No.	690875	LF5140		PV (mPa S)	33	No. 2 STROKES PER MINUTE	85	
NOZZLES (mm)	3x19.1	3x19.1		YP (Pa)	12.0	VOLUME (m ³)	2.0	
DEPTH IN (m)	1541	1613		GELS (Pa)	8/16	PRESSURE (kPa)	15200	
METERS (m)	72	14		SAND (%)	trace	D.P. ANNULAR VEL. (m/min.)	32	
HOURS	56.75	8.5		SOLIDS (%)	22	D.C. ANNULAR VEL. (m/min.)	38	
WOB (1000 daN)	15/21	15/20		FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57	
R.P.M.	20/130	20/150		FLUID LOSS (cc)	1.8	SOLIDS CONTROL		
CONDITION	4-7-I	IN		CHLORIDES	303373	SHAKER SCREENS	84-84	
DRILLING ASSEMBLY				OIL WATER	94/6	DRYER SCREENS	140	
ITEM	OD	ID	T.J. TYPE	ELECTRICAL STAB.	2000	U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS SURVEYS	D. SILT.	CENT.
MTR XO	196	151	65/8REG	MUD ADDITIVES				2490
MWD XO	203	71	7H90	40 - Barite				1250
2 NMDC	231	77	7 H90					3.5
1 DC JAR	230	65	7 H90	Premix				12
6 DC XO	228	74	7 H90	18m3 - Diesel			ANGLE	DIRECTION
3 DC XO	168	73	41/2IF	2m3 - Brine		1602	m 18.1	° 225.3
9 HWDP	127	76	41/2IF	DC \$ 7974 CCS 859,089			m	°
BHA LENGTH	214.63	m	JTS. D.P.: ON RACKS	286			m	°
HOOK LOAD	105000	daN	: IN STRING	147			m	°
AVAILABLE WOB	28,000	daN	: TOTAL	433			m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING	10.5	CEMENT		CORING		RIG REPAIR	2.0	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	8.25	BOP DRILL		LOGGING		LOST CIRC.			21	3878
RIG SERVICE	.75	HANDLE TOOLS	1.0	TESTING		REAM & WASH	1.0			92.25
SURVEY	.5			CIRC. SAMPLE					3.0	684.75
SLIP & CUT				HANDLE TOOLS					24	4655
COND. MUD				TRIP					CLEAR	
NIPPLE UP/DN				REAM RATHOLE				+12 °C		
RUN CASING				CIRCULATE				MUDDY		

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Halliburton mud motor and survey	
with MWD 1611m - 1613m - Trip for bit pump out 2 stands - Pump pill trip out - Change bits and service MWD	
Trip in to 987m - Change seals and saver sub on Tesco top drive - Trip in test MWD at 1125m	
Wash and ream to bottom 1554m - 1613m 4m fill - Orient tool - Directional drill 311mm hole with 197mm	
1.83 degree Halliburton mud motor and survey with MWD 1613m - 1627m	
Slide - 15.0m	
Rotate - 1.0m	
Hole drag down - 5-7000 daN Hole drag up - 5-10000 daN	
Torque on bottom - 930-970 P.S.I.	
Back ground gas - 18 units Trip gas - 259 units	
Mud lost last 24 Hrs. - 3.5 m3	
SIGNED BY: ART SCHMITT	
MOBILE NO: (403)210-1202 (403)424-8050	

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-24 REPORT NO.: 193
 DEPTH: 1611 m PROGRESS: 29 m FORMATION: Mid Besa River Lime
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Dennis Brown CO. SUPERVISOR: Art Schritt
 DAILY COST: \$ 53882 CUM. COST: \$14,630,207 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5200 kPa @: 94 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE DRILLING WELL SECURED IN 2-0 2-10 MIN.
 CONDUCTED AT 18:00 - 22:00 HRS. CREW PERFORMANCE SATISFACTORY
 DAYS SINCE BOP DRILL (EACH CREW): 1 - 1 MAXIMUM CASING HOLD BACK 5100 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	31 D			WEIGHT (kg/m ³)	1335	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	101	No. 1 STROKES PER MINUTE	85	
TYPE	ERA13			EXCESS LIME	12.0	No. 2 LINER (mm)	140	
SERIAL No.	690875			PV (mPa S)	34	No. 2 STROKES PER MINUTE	85	
NOZZLES (mm)	3x19.1			YP (Pa)	15.0	VOLUME (m ³)	2.0	
DEPTH IN (m)	1541			GELS (Pa)	11/18	PRESSURE (kPa)	15200	
METERS (m)	70			SAND (%)	trace	D.P. ANNULAR VEL. (m/min.)	32	
HOURS	54.5			SOLIDS (%)	24	D.C. ANNULAR VEL. (m/min.)	38	
WOB (1000 daN)	15/21			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57	
R.P.M.	20/130			FLUID LOSS (cc)	1.8	SOLIDS CONTROL		
CONDITION	IN			CHLORIDES	303373	SHAKER SCREENS	84-84	
DRILLING ASSEMBLY				OIL WATER	93/7	DRYER SCREENS	140	
ITEM	OD	ID	T.J. TYPE	ELECTRICAL STAB.	2000	U.F. (kg/m ³) OF. (kg/m ³) VOL. (l/min.) HOURS	D. SILT.	CENT.
MTR XO	196	151	65/8REG	MUD ADDITIVES				2470
MWD XO	203	71	7H90	9 - Walnut				1260
2 NMDC	231	77	7 H90					3.5
1 DC JAR	230	65	7 H90	10 - Fiber Fluid				14
6 DC XO	228	74	7 H90			SURVEYS	ANGLE	DIRECTION
3 DC XO	168	73	41/2IF					
9 HWDP	127	76	41/2IF	DC S 713	CCS 851,830	1572	m 16.7	° 222.3
BHA LENGTH	214.63		m	JTS. D.P.: ON RACKS	286	1582	m 17.5	° 222.8
HOOK LOAD	105000		daN	: IN STRING	147		m	°
AVAILABLE WOB	28,000		daN	: TOTAL	433		m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	22.0	CEMENT		CORING		RIG REPAIR	.5	TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		23.5	3857
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			92.25
SURVEY	.75			CIRC. SAMPLE				.5	681.75
SLIP & CUT				HANDLE TOOLS				24	4631
COND. MUD				TRIP				WEATHER	
NIPPLEUP/DN				REAM RATHOLE				TEMPERATURE	
RUN CASING				CIRCULATE				ROADS	
								RAIN-Windy	
								+13 °C	
								MUDDY	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Halliburton mud motor and survey
 with MWD 1582m - 1611m - Change suction valve on #2 pump

Slide- 26.0m

Rotate - 3.0m

Hole drag down - 5-7000 dan Hole drag up - 5-10000 dan

Torque on bottom - 930-970 P.S.I.

Back ground gas -25 units Trip gas -

Mud lost last 24 Hrs. - 2.4 m3

SIGNED BY: ART SCHRITT

MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-23 REPORT NO.: 192
 DEPTH: 1582 m PROGRESS: 30 m FORMATION: Mid Besa River Lime
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drilg rig #426E Dennis Brown CO. SUPERVISOR: Art Schmitt
 DAILY COST: \$ 160381 CUM. COST: \$14,576,325 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5300 kPa @: 98 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 7 - 7 MAXIMUM CASING HOLD BACK 4900 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	31 D			WEIGHT (kg/m ³)	1355	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (cP)	88	No. 1 STROKES PER MINUTE	85
TYPE	ERA13			EXCESS LIME	13.0	No. 2 LINER (mm)	140
SERIAL No.	690875			PV (mPa S)	38	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	3x19.1			YP (Pa)	12.0	VOLUME (m ³)	2.0
DEPTH IN (m)	1541			GELS (Pa)	8/17	PRESSURE (kPa)	15200
METERS (m)	41			SAND (%)	trace	D.P. ANNULAR VEL. (m/min.)	32
HOURS	32.5			SOLIDS (%)	24	D.C. ANNULAR VEL. (m/min.)	38
WOB (1000 daN)	15/21			FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57
R.P.M.	20/130			FLUID LOSS (cc)	1.6	SOLIDS CONTROL	
CONDITION	IN			CHLORIDES	291,105	SHAKER SCREENS	84-84
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	110
HEM	G.D.	L.D.	T.J. TYPE	ELECTRICAL STAB.	2000	U.F. (kg/m ³)	D. SILT.
MTR XO	196	151	65/8REG	MUD ADDITIVES		OF. (kg/m ³)	CENT.
MWD XO	203	71	7H90	9 - Walnut		VOL. (l/min.)	
2 NMDC	231	77	7 H90	1 - Interdrill OW		HOURS	
1 DC JAR	230	65	7 H90	10 - Fiber Fluid		SURVEYS	
6 DC XO	228	74	7 H90	1 - EMUL		1543	ANGLE
3 DC XO	168	73	41/2IF			1553	DIRECTION
9 HWDP	127	76	41/2IF	DC S 2080	CCS 851,117	m 14.5	° 220.6
BHA LENGTH	214.63	m		JTS. D.P.: ON RACKS	289	m 15.1	° 221.0
HOOK LOAD	105000	daN		: IN STRING	144	m 15.8	° 223.2
AVAILABLE WOB	28,000	daN		: TOTAL	433	m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	21.5	CEMENT		CORING		RIG REPAIR	1.0	TODAY	CUM
TRIP		BOP DRILL		LOGGING		LOST CIRC.		23	3833.5
RIG SERVICE	.75	HANDLE TOOLS	2.0	TESTING		REAM & WASH			92.25
SURVEY	.75			CIRC. SAMPLE				1.0	681.25
SLIP & CUT				HANDLE TOOLS				24	4607
COND. MUD				TRIP				TOTAL	
NIPPLEUP/DN				REAM RATHOLE				WEATHER	
RUN CASING				CIRCULATE				TEMPERATURE	
								ROADS	
								RAINY-Windy	
								+15 °C	
								MUDDY	

24 SUMMARY

Directional drill 311mm hole with 197mm 1.83 degree Halliburton mud motor and survey
 with MWD 1552m - 1582m - Repair air union rubber on #1 pump section
 Shipped out 171mm Halliburton directional tools - 2 197mm mud motors for repair - DBS core barrels and accessories
 171mm Faster jars and shoock tool - 2 228mm jars for repair
 Dowell Div. - 200 mud pallets
 Slide- 25.0
 Rotate - 5.0m
 Hole drag down - 5-7000 daN Hole drag up - 5-8000 daN
 Torque on bottom - 930-970 P.S.I.
 Back ground gas -18 units Trip gas -
 Mud lost last 24 Hrs - 5.0 m³
 SIGNED BY: ART SCHRITT MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-22 REPORT NO.: 191
DEPTH: 1552 m PROGRESS: 11 m FORMATION: Mid Bear River Line
CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Dennis Brown CO. SUPERVISOR: Art Schmitt
DAILY COST: \$ 53302 CUM. COST: \$14,415,944 AFE NO: B6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5000 kPa @: 92 SPM
TRIP RECORDS: CALCULATED HOLE FILL 10.91 m³ ACTUAL HOLE FILL: 13.46 m³
BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
CONDUCTED AT HRS. CREW PERFORMANCE
DAYS SINCE BOP DRILL (EACH CREW): 0 - 0 MAXIMUM CASING HOLD BACK 4900 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	31 D		30D	WEIGHT (kg/m ³)	1355	No. 1 LINER (mm)	140
SIZE (mm)	311		311	VISCOSITY (mPa S)	115	No. 1 STROKES PER MINUTE	85
TYPE	BRA13		FIPC	EXCESS LIME	10.2	No. 2 LINER (mm)	140
SERIAL No.	690875		LG2549	PV (mPa S)	42	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	3x19.1		3x19	YP (Pa)	15.5	VOLUME (m ³)	2.0
DEPTH IN (m)	1541		1475	GELS (Pa)	9/17	PRESSURE (kPa)	15800
METERS (m)	11		66	SAND (%)	trace	D.P. ANNULAR VEL. (m/min.)	32
HOURS	10		49.25	SOLIDS (%)	24	D.C. ANNULAR VEL. (m/min.)	38
WOB (1000 daN)	15/21		15/23	FILTER CAKE (mm desc.)	1.0	D.C. ANNULAR VEL. (m/min.)	57
R.P.M.	20/130		20/100	FLUID LOSS (cc)	2.0	SOLIDS CONTROL	
CONDITION	IN		4-2-I	CHLORIDES	259,513	SHAKER SCREENS	
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	
				ELECTRICAL STAR.	2000		
				MUD ADDITIVES			
MTR XO	196	151	65/8REG	3 - Walnut	U.F. (kg/m ³)	D. SILT. CENT.	
MWD XO	203	71	7H90	1 - Interdrill OW	OF. (kg/m ³)		
2 NMDC	231	77	7 H90	3 - Fiber Fluid	VOL. (V/min.)		
1 DC JAR	230	63	7 H90	10 - Truvis	HOURS		
6 DC XO	228	74	7 H90	40 - Barite	SURVEYS	ANGLE	DIRECTION
3 DC XO	168	73	41/2IF	DC \$ 2755	1523	m 13.3	° 219.4
9 HWDF	127	76	41/2IF	CCS 849,137	1533	m 13.7	° 219.6
BHA LENGTH	214.63		m	JTS. D.P.: ON RACKS	295	m	°
HOOK LOAD	105000		daN	: IN STRING	138	m	°
AVAILABLE WOB	28,000		daN	: TOTAL	433	m	°

TIME BREAKDOWN

DRILLING	10.0	CEMENT		CORDING		RIG REPAIR		TODAY	CUM.
TRIP	8.75	HOP DRILL		LOGGING		LOST CIRC.		22.75	3810.5
HOB SERVICE	.75	HANDLING TOOLS	2.0	TESTING		REAM & WASH	1.25	92.25	
SURVEY	.5			CIRC. SAMPLE				1.25	480.25
SLIP & CUT	.75			HANDLING TOOLS				24	4583
CONG. MUD				TRIP				WEATHER	
NIPPLE UP/DN				REAM RATEHOLE				RAIN	
RUN CASING				CIRCULATE				TEMPERATURE	
								+14 °C	
								ROADS	
								MUDDY	

24 SUMMARY

Trip for bit and mud motor pump out 6 stands - Pump pill - Trip out - Change out mud motor and bit
service MWD - Trip in BHA - Slip and cut drilling line - Trip in test MWD at 1100m and 1495m
Wash and ream to bottom 1495m - 1541m 10m fill - Work pipe survey and orient tool
Directional drill 311mm hole with 197mm 1.83 degree Halliburton mud motor and survey with MWD 1541m - 1552
Slide- 7.0m
Route - 4.0m
Hole drag down - 8-10000 daN Hole drag up - 7-10000 daN
Torque on bottom - 930-1050 P.S.I.
Back ground gas - 14 units Trip gas - 104 units
Mud lost last 24 Hrs. - 2.0 m³
SIGNED BY: ART SCHMITT MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems

Job No: 97D008

Date: 22/07/97

Time: 5:51 am

Wellpath ID: 97d008a4

Date Created: 27/01/97

Last Revision: 22/07/97

Survey Report

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plans: 225.00 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 86
 Cactus #26E KB: 459.89 m
 97D008
 UWI 300P668040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	NLS (dg/30m)
1408.00	4.40	189.70	1408.73	-946.84	-10.80	16.85 S	31.64 E	35.75 @ 117.75	4.47
1417.00	5.20	182.00	1415.70	-955.61	-10.10	17.39 S	31.69 E	36.14 @ 118.77	4.33
1427.00	6.20	190.40	1425.65	-965.76	-9.33	18.38 S	31.57 E	36.53 @ 120.20	3.90
1438.00	6.90	197.40	1434.60	-974.71	-8.45	19.37 S	31.32 E	36.83 @ 121.74	3.54
1448.00	8.00	205.30	1444.51	-984.62	-7.26	20.57 S	30.84 E	37.08 @ 123.71	4.60
1458.00	9.30	211.40	1454.40	-994.51	-5.62	21.89 S	30.13 E	37.24 @ 126.01	4.77
1465.00	10.70	214.80	1463.28	-1003.37	-4.29	23.20 S	29.27 E	37.35 @ 128.40	5.06
1474.00	11.60	217.20	1472.09	-1012.20	-2.57	24.61 S	28.25 E	37.46 @ 131.06	3.37
1484.00	12.40	218.80	1481.87	-1021.98	-0.61	26.24 S	26.96 E	37.63 @ 134.22	2.80
1494.00	12.60	219.30	1491.63	-1031.74	1.64	27.83 S	25.80 E	37.86 @ 137.49	0.68
1503.00	12.80	220.00	1500.41	-1040.52	3.61	29.45 S	24.34 E	38.20 @ 140.43	0.84
1513.00	12.90	220.20	1510.16	-1050.27	5.83	31.15 S	22.91 E	38.67 @ 143.67	0.33
1523.00	13.30	219.40	1519.90	-1060.01	8.09	32.89 S	21.46 E	39.27 @ 146.88	1.32
1533.00	13.70	219.80	1529.63	-1069.74	10.41	34.69 S	19.97 E	40.03 @ 150.07	1.21

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-21 REPORT NO.: 190
 DEPTH: 1541 m PROGRESS: 30 m FORMATION: Mid Deas River Llim
 OPERATIONS AT 06:00 HOURS: DIRECTIONAL DRILL 311mm HOLE
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Dennis Brown CO. SUPERVISOR: Art Schrit
 DAILY COST: \$ 40576 CUM. COST: \$14,362,642 AFE NO: E&D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5200 kPa @: 92 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 5 5 MAXIMUM CASING HOLD BACK 4900 kPa

DRILLING PARAMETERS

BIT PERFORMANCE			MUD PROPERTIES		PUMPS	
BIT NUMBER		<u>30D</u>	WEIGHT (kg/m ³)	<u>1355</u>	No. 1 LINER (mm)	<u>140</u>
SIZE (mm)		<u>311</u>	VISCOSITY (cP)	<u>74</u>	No. 1 STROKES PER MINUTE	<u>95</u>
TYPE		<u>FIPC</u>	EXCESS LIME	<u>14.8</u>	No. 2 LINER (mm)	<u>140</u>
SERIAL No.		<u>LC2549</u>	PV (mPa S)	<u>28</u>	No. 2 STROKES PER MINUTE	<u>95</u>
NOZZLES (mm)		<u>3x19</u>	YP (Pa)	<u>10</u>	VOLUME (m ³)	<u>2.23</u>
DEPTH IN (m)		<u>1475</u>	GELS (Pa)	<u>3.5/10</u>	PRESSURE (kPa)	<u>16470</u>
METERS (m)		<u>66</u>	SAND (%)	<u>trace</u>	D.P. ANNULAR VEL. (m/min.)	<u>35</u>
HOURS		<u>49.25</u>	SOLIDS (%)	<u>22</u>	D.C. ANNULAR VEL. (m/min.)	<u>41</u>
WOB (1000 daN)		<u>15/25</u>	FILTER CAKE (mm desc.)	<u>1.0</u>	D.C. ANNULAR VEL. (m/min.)	<u>63</u>
R.P.M.		<u>20/100</u>	FLUID LOSS (cc)	<u>1.6</u>	SOLIDS CONTROL	
CONDITION		<u>in</u>	CHLORIDES	<u>291105</u>	SHAKER SCREENS	<u>24-84</u>
DRILLING ASSEMBLY			OIL WATER	<u>92/8</u>	DRYER SCREENS	<u>110</u>
			ELECTRICAL RTAD		U.F. (kg/m ³)	<u>2110</u>
MTR XO	<u>196</u>	<u>151</u>	<u>65/RREG</u>	MUD ADDITIVES	OF. (kg/m ³)	<u>1203</u>
MWD XO	<u>202</u>	<u>71</u>	<u>75H90</u>	<u>6 - Walout</u>	VOL. (l/min.)	<u>4.0</u>
2 NMDC	<u>231</u>	<u>77</u>	<u>5H90</u>	<u>1 - Interdrill OW</u>	HOURS	<u>3.5</u>
1 DC IAR	<u>230</u>	<u>65</u>	<u>5H90</u>	<u>6 - Fiber Fluid</u>	SURVEY	<u>ANGLE</u> <u>DIRECTION</u>
6 DC XO	<u>228</u>	<u>74</u>	<u>5H90</u>	<u>10 - Truvia</u>	<u>1494</u>	<u>m 12.6</u> <u>° 219.3</u>
3 DC XO	<u>168</u>	<u>73</u>	<u>41/2IF</u>		<u>1503</u>	<u>m 12.8</u> <u>° 220.0</u>
9 HWDF	<u>127</u>	<u>76</u>	<u>41/2IF</u>	<u>DC S 2631</u>	<u>1513</u>	<u>m 12.9</u> <u>° 220.2</u>
BHA LENGTH	<u>215.14</u>	<u>m</u>	FTS IN P. ON RACKS	<u>285</u>		
HOOK LOAD	<u>105000</u>	<u>daN</u>	IN STRING	<u>138</u>		
AVAILABLE WOB	<u>29,000</u>	<u>daN</u>	TOTAL	<u>423</u>		

TIME BREAKDOWN

EVALUATION			PROBLEMS			DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM		
DRILLING	21.0	CEMENT		CORING			1.5	22.5	3787.75	
TRIP		BOP DRILL		LOGGING			LOST CIRC.		92.25	
RIG SERVICE	.75	HANDLE TOOLS		TESTING			REAM & WASH		1.5	679
SURVEY	.75			CIRC. SAMPLE					24	4150
SLIP & CUT				HANDLE TOOLS					CLEAR	
COND. MUD				TRIP					+14 °C	
NEEPLERDOWN				REAM RATHOLE					MUDDY	
RUN CASINO				CIRCULATE						

24 SUMMARY

Directional drill 311mm hole with 197mm low speed 1.5 degree Trudrill mud motor and survey with
 MWD 1511m - 1541m - Changed wash valves and seats in #1 pump
 Slide - 27m
 Rotate - 3m
 Hole drag down - 5-12000 daN Hole drag up - 7-10000 daN
 Torque on bottom - 950-1050 P.S.I.
 Back ground gas - 24 units
 Mud lost last 24 Hrs. - 4.2 m³
 SIGNED BY: ART SCHRITT MOBILE NO: (403)210-1202 (403) 424-8050

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-20 REPORT NO.: 189
 DEPTH: 1511 m PROGRESS: 28 m FORMATION: Mid Bess River Lime
 OPERATIONS AT 06:00 HOURS: Drill (rotating)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gardichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 39626 CUM. COST: \$14,322,066 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4500 kPa @: 88 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 4 4 MAXIMUM CASING HOLD BACK 4895 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS		
BIT NUMBER	30D			WEIGHT (kg/m ³)	1355	No. 1 LINER (mm)	140	
SIZE (mm)	311			VISCOSITY (s/l)	71	No. 1 STROKES PER MINUTE	85	
TYPE	F1PC			EXCESS LIME	14.8	No. 2 LINER (mm)	140	
SERIAL No.	LG2549			PV (mPa S)	27	No. 2 STROKES PER MINUTE	85	
NOZZLES (mm)	3x19			YP (Pa)	5.5	VOLUME (m ³)	1.995	
DEPTH IN (m)	1475			GELS (Pa)	4/8	PRESSURE (kPa)	13200	
METERS (m)	8			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	32	
HOURS	5.75			SOLIDS (%)	22	D.C. ANNULAR VEL. (m/min.)	57	
WOB (1000 daN)	12/21			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)		
R.P.M.	20/100			FLUID LOSS (cc)	1.9	SOLIDS CONTROL		
CONDITION	in			CHLORIDES	291105	SHAKER SCREENS	84-84	
DRILLING ASSEMBLY				OIL WATER	92/08	DRYER SCREENS	110	
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	1890		D. SILT.	CENT.
MTR XO	196	151	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)		2260
MWD XO	203	71	7H90	Barite 80 sxs		OF. (kg/m ³)		1310
2 NMDC	231	77	5H90	Walnut 5 sxs		VOL. (l/min.)		2
1 DC JAR	230	65	5H90	Fiberseal 5 sxs		HOURS		3
6 DC XO	228	74	5H90	Truvis 10sxs		SURVEYS	ANGLE	DIRECTION
3 DC XO	168	73	41/2IF	OW 1bbl		1434	m 11.6	° 217.2
9 HWDP	127	76	41/2IF	DC 3500 CCS 843,651		1484	m 12.4	° 218.8
BHA LENGTH	215.14	m	JTS. D.P.: ON RACKS				m	°
HOOK LOAD	103,000	daN	: IN STRING	132			m	°
AVAILABLE WOB	28,000	daN	: TOTAL	433			m	°

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	<u>22.5</u>	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP		BOP DRILL		LOGGING		LOST CIRC.		24	3765.25
RIG SERVICE	<u>.75</u>	HANDLE TOOLS		TESTING		REAM & WASH			92.25
SURVEY	<u>.75</u>			CIRC. SAMPLE					677.5
BLP & CUT				HANDLE TOOLS				24	4535
COND. MUD				TRIP				Clear	
NIPPLE UP/DN				REAM RATHOLE				17 °C	
RUN CASING				CIRCULATE				good	

24 SUMMARY

Drill 311mm hole with rig service and surveys.

Slide- 1480-1488m 1492-1497m 1503-1508m

Rotate - 1488-1492 1497-1503m 1508-1511m

Hole drag down - 5/10dan Hole drag up - 5/10dan Culligan R.O. Water System

Torque on bottom 900-950 P.S.J. 2 filter system with 1 membrane filter

Back ground gas - 15 units Trip gas - units Aquon Water Systems #1-403-571-1755

Mud lost last 24 Hrs. - 4m3

SIGNED BY: John Faulkner

MOBILE NO: (403)210-1202 (403) 424-8050

Halliburton Drilling Systems

Survey Report

Page 1

Job No: 97D006

Date: 20/07/97

Time: 6:28 am

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 20/07/97

Calculated using the Minimum Curvature Method

Computed using PDS VER2.2.4 - BETA

Vertical Section Plane: 225.00 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED

RANGER Fort Liard P - 56 - A

IN UNIT P SECTION 66

Cactus #25E KB: 459.89 m

97D006

UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
1262.00	1.40	107.80	1260.86	-800.97	-9.81	13.53 S	27.40 E	30.56@116.27	0.35
TIE-IN FOR SIDETRACK #4									
1291.00	1.10	112.40	1289.86	-829.97	-10.08	13.74 S	28.00 E	31.19@116.14	0.33
1310.00	0.40	110.50	1308.86	-848.97	-10.18	13.84 S	28.23 E	31.44@116.11	1.11
1320.00	1.20	117.10	1318.85	-858.96	-10.23	13.90 S	28.36 E	31.55@116.11	2.41
INTERPOLATED - KICK OFF POINT									
1327.00	1.66	125.42	1325.85	-865.96	-10.26	13.99 S	28.50 E	31.75@116.14	2.16
1329.00	1.80	127.00	1327.85	-867.96	-10.27	14.02 S	28.55 E	31.81@116.16	2.22
1339.00	2.50	120.40	1337.84	-877.95	-10.35	14.23 S	28.87 E	32.16@116.24	2.22
1349.00	2.90	115.50	1347.83	-887.94	-10.49	14.45 S	29.28 E	32.65@116.26	1.38
1358.00	3.10	114.40	1356.82	-896.93	-10.65	14.65 S	29.71 E	33.12@116.24	0.69
1368.00	3.20	118.40	1366.81	-906.92	-10.83	14.89 S	30.20 E	33.67@116.25	0.72
1378.00	3.00	123.50	1376.79	-916.90	-10.96	15.17 S	30.67 E	34.21@116.32	1.02
1388.00	3.20	136.50	1386.78	-926.89	-11.00	15.51 S	31.08 E	34.73@116.53	2.19
1398.00	3.60	151.50	1396.76	-936.87	-10.91	15.99 S	31.42 E	35.25@116.98	2.92
1408.00	4.40	169.70	1406.73	-946.84	-10.60	16.65 S	31.64 E	35.75@117.75	4.47
1417.00	5.20	182.00	1415.70	-955.81	-10.10	17.39 S	31.68 E	36.14@118.77	4.33
1427.00	6.20	190.40	1425.65	-965.76	-9.33	18.38 S	31.57 E	36.53@120.20	3.90
1436.00	6.90	197.40	1434.60	-974.71	-8.45	19.37 S	31.32 E	36.83@121.74	3.54
1446.00	8.00	205.30	1444.51	-984.62	-7.26	20.57 S	30.84 E	37.05@123.71	4.50
1456.00	9.30	211.40	1454.40	-994.51	-5.82	21.89 S	30.13 E	37.24@125.01	4.77
1465.00	10.70	214.80	1463.26	-1003.37	-4.29	23.20 S	29.27 E	37.35@128.40	5.06
1474.00	11.60	217.20	1472.09	-1012.20	-2.57	24.61 S	28.25 E	37.45@131.06	3.37
1484.00	12.40	218.80	1481.87	-1021.98	-0.51	26.24 S	26.98 E	37.63@134.22	2.60
1494.00	12.60	219.30	1491.63	-1031.74	1.64	27.93 S	25.60 E	37.86@137.49	0.68

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-19 REPORT NO.: 188
 DEPTH: 1483 m PROGRESS: 16 m FORMATION: Mid Boss River Lime
 OPERATIONS AT 06:00 HOURS: Drill (sliding)
 CONTRACTOR/RIG SUPT.: Precision Drig rig #426E Terry Gordichuk CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 40533 CUM. COST: \$14,282,440 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 4600 kPa @: 87 SPM
 TRIP RECORDS: CALCULATED HOLE FILL 10.58 m³ ACTUAL HOLE FILL: 11.88 m³
 BOP DRILLS: CONDUCTED WHILE WELL SECURED IN MIN.
 CONDUCTED AT HRS. CREW PERFORMANCE
 DAYS SINCE BOP DRILL (EACH CREW): 3 3 MAXIMUM CASING HOLD BACK 4895 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	29D	30D		WEIGHT (kg/m ³)	1365	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (s/l)	77	No. 1 STROKES PER MINUTE	85
TYPE	HP43H	F1PC		EXCESS LIME	12.95	No. 2 LINER (mm)	140
SERIAL No.	MA350	LG2549		PV (mPa S)	30	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	2X17.5	3x19		YP (Pa)	3	VOLUME (m ³)	1.995
DEPTH IN (m)	1327	1475		GELS (Pa)	3/7	PRESSURE (kPa)	13600
METERS (m)	148	8		SAND (%)		D.P. ANNULAR VEL. (m/min.)	32
HOURS	71.25	5.75		SOLIDS (%)	23	D.C. ANNULAR VEL. (m/min.)	57
WOB (1000 daN)	9/16	18		FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	
R.P.M.	18/160	20/100		FLUID LOSS (cc)	1.6	SOLIDS CONTROL	
CONDITION	2-7-IN	in		CHLORIDES	291105	SHAKER SCREENS	84-84
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	110
ITEM	O.D.	I.D.	T.I. TYPE	ELECTRICAL STAB.	1754		
MTR XO	196	151	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)	D. SILT. CENT.
MWD XO	203	71	7H90	Barite 33sxs		OF. (kg/m ³)	2270
2 NMDC	231	77	5H90	Walnut 3sxs		VOL. (l/min.)	1310
1 DC JAR	230	65	5H90	Fiberfluid 3sxs		HOURS	2
6 DC XO	228	74	5H90			SURVEYS	
3 DC XO	168	73	41/2IF			ANGLE	DIRECTION
9 HWDP	127	76	41/2IF	DC S 530	CCS 40,151	1456	m 9.30 ° 211.40
BHA LENGTH	215.14	m		JTS. D.P.: ON RACKS		1465	m 10.70 ° 214.80
HOOK LOAD	103,000	daN		: IN STRING	132		m °
AVAILABLE WOB	28,000	daN		: TOTAL	433		m °

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	11.25	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP	7	BOP DRILL		LOGGING		LOST CIRC.		23.5	3741.25
RIG SERVICE	.5	HANDLE TOOLS	3.5	TESTING		REAM & WASH	.5		92.25
SURVEY	25			CIRC. SAMPLE				.5	677.5
SLP & CUT				HANDLE TOOLS				24	4511
COND. MUD	1			TRIP				Clear	
NIPPLE UP/DN				REAM HATHOLE				17 °C	
RUN CASINO				CIRCULATE				wet	

24 SUMMARY

Drill 311mm hole to 1475m. Circulate and mix trip pill. Circulate pipe out to 1316m. Pump trip pill and hoist.
 Change out motor and jars, make up new bit and run in. Shallow test MWD. Wash 2 stands to bottom. 1m of fill.
 Drill with Trudril slow speed 1.5 degree motor.

Slide - 1467-1471m 1473-1475m 1475-1480m

Rotate - 1471-1473m 1480-1483m

Hole drag down - 5000dan Hole drag up - 5000dan

Torque on bottom - 950-1050 P.S.I.

Back ground gas - 13 units Trip gas - 13units

Mud lost last 24 Hrs. - 8m3

**BHA REPORT**

July 18, 1997

Page 1
7/18/97 9:51:45 pm
Version VER2.2.4 - BETA

Job No.: 97D006
Operator: RANGER OIL LIMITED
Field: FT. LIARD
Well: 97d006s4
Run No.: 1

AFE No.: ESD-015
Location: P-88-A
MWD Operator(s): DALE SCHOMAKER
Dir'l Driller(s): FRANK VAN NOORD
BHA No.: 58

Company Man: JOHN FAULKNER
Hole Size: 311.000 mm

BOTTOM HOLE ASSEMBLY

Assembly Type: Steerable System
Motor Size / Type: 203.000 mm / 8" @ 7/8 LOBE

Reason Pulled: <undefined>
Serial No.: c7m791

Circulating: 0.00 hrs

No.	Serial No.	Tool Description	OD (mm)	ID (mm)	Length (m)	Total Length (m)	Connections Up	Down	Conn
1	LG 2549	(BIT) Smith Tool, F1 PC, TCI	311.000		0.35	0.35	6 5/8 Reg		P
2	c7m791	(MTR) TRUDRIL 8" @ 7/8 LOBE, 1.500" Bend	203.000	151.308	7.61	7.66	6 5/8 Reg	6 5/8 Reg	B/B
3	XO 8005	(SUB) Cross-Over Sub	205.000	76.000	0.71	8.57	6 5/8 Reg	6 5/8 Reg	P/P
4	PC-6223	(MWD) DATADRIL LOW FLOW battery(b5450), das(das4780), inter. plug/tandem sub(diph5074), muleshoe stinger(mi1181), pulser, dis(tp4334), collar(pc6056), float sub(xs6102), muleshoe sub(ms6077)	201.000	6.753	4.88	13.45	6 5/8 Reg	6 5/8 Reg	B/B
5	XO9062	(SUB) Cross-Over Sub	232.000	77.000	0.69	14.14	7 H-90	6 5/8 Reg	B/P
6	NM 90001	(DC) Slick Non-Mag Drill Collar	231.000	76.000	9.42	23.56	7 H-90	7 H-90	B/P
7	NM 90008	(DC) Slick Non-Mag Drill Collar	230.000	76.000	9.42	32.98	7 H-90	7 H-90	B/P
8	RIG-1	(DC) Slick Drill Collar	230.000	76.000	9.59	42.57	7 H-90	7 H-90	B/P
9	in July 18	(JAR) FASTER Jar	224.000	63.000	5.50	48.07	7 H-90	7 H-90	B/P
10	RIG-6	(DC) 6 jts, Slick Drill Collar	228.000	74.000	56.77	104.84	7 H-90	7 H-90	B/P
11	9x6.75-2	(SUB) Cross-Over Sub	228.000	73.000	0.90	105.74	5 H-90	7 H-90	B/P
12	RIG-3x6 3/4	(DC) 3 jts, Slick Drill Collar	198.000	73.000	25.74	132.48	5 H-90	5 H-90	B/P
13	6.75DC-4.5DC	(SUB) Cross-Over Sub	176.000	72.000	0.95	133.43	4 1/2 IF	5 H-90	B/P
14	9xHWDP	(HW) 9 jts, Hevi-Wate Drill Pipe	127.000	76.200	81.71	215.14	4 1/2 IF	4 1/2 IF	B/P

BIT DATA

Manufacturer: Smith Tool
Bit Type: TCI
Serial No.: LG 2549
Hours On Bit: 0.00

IADC: 437X
Depth In: 1430.00 - 1430.00 (0.00) m
Nozzles: 19(3) mm
MTG On Bit: 0.00

Length: 0.35 m
Gage Length: 0.00 mm
TFA: 850.586 mm²

Halliburton Drilling Systems

Survey Report

Page 1
 Job No: 97D006
 Date: 18/07/97
 Time: 3:47 am
 Wellpath ID: 97d006s4
 Date Created: 27/01/97
 Last Revision: 18/07/97

Calculated using the Minimum Curvature Method
 Computed using PDS VER2.2.4 - BETA
 Vertical Section Plane: 226.14 deg.

Survey Reference: WELLHEAD
 Vertical Section Reference: WELLHEAD
 Closure Reference: WELLHEAD
 TVD Reference: WELLHEAD

RANGER OIL LIMITED
 RANGER Fort Liard P - 66 - A
 IN UNIT P SECTION 66
 Cactus #26E KB: 459.89 m
 97D006
 UWI 300P666040123300

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m)		Closure Dist. Dir. (m) (deg.)	DLS (dg/30m)
1262.00	1.40	107.80	1260.86	-800.97	-10.39	13.53 S	27.40 E	30.56@116.27	0.35
TIE-IN FOR SIDETRACK #4									
1291.00	1.10	112.40	1289.86	-829.97	-10.67	13.74 S	28.00 E	31.15@116.14	0.33
1310.00	0.40	110.50	1308.86	-848.97	-10.77	13.84 S	28.23 E	31.44@116.11	1.11
1320.00	1.20	117.10	1318.85	-858.96	-10.82	13.90 S	28.36 E	31.55@116.11	2.41
INTERPOLATED - KICK OFF POINT									
1327.00	1.66	125.42	1325.85	-865.96	-10.86	13.99 S	28.50 E	31.75@116.14	2.16
1329.00	1.80	127.00	1327.85	-867.96	-10.87	14.02 S	28.55 E	31.81@116.16	2.22
1339.00	2.50	120.40	1337.84	-877.95	-10.95	14.23 S	28.87 E	32.16@116.24	2.22
1349.00	2.90	115.50	1347.83	-887.94	-11.10	14.45 S	29.28 E	32.65@116.26	1.38
1358.00	3.10	114.40	1356.82	-896.93	-11.27	14.65 S	29.71 E	33.12@116.24	0.69
1368.00	3.20	118.40	1366.81	-906.92	-11.46	14.89 S	30.20 E	33.67@116.25	0.72
1378.00	3.00	123.50	1376.79	-916.90	-11.60	15.17 S	30.67 E	34.21@116.32	1.02
1388.00	3.20	136.50	1386.78	-926.89	-11.66	15.51 S	31.08 E	34.73@116.53	2.19
1398.00	3.60	151.50	1396.76	-936.87	-11.57	15.99 S	31.42 E	35.25@116.98	2.92
1408.00	4.40	169.70	1406.73	-946.84	-11.28	16.65 S	31.64 E	35.75@117.75	4.47
1417.00	5.20	182.00	1415.70	-955.81	-10.79	17.39 S	31.68 E	36.14@118.77	4.33
1427.00	6.20	190.40	1425.65	-965.76	-10.03	18.38 S	31.57 E	36.53@120.20	3.90
1436.00	6.90	197.40	1434.60	-974.71	-9.16	19.37 S	31.32 E	36.83@121.74	3.54
1446.00	8.00	205.30	1444.51	-984.62	-7.98	20.57 S	30.84 E	37.06@123.71	4.50

RANGER OIL LIMITED

WELL Ranger Fort Liard P-66-A DATE 1997-07-16 REPORT NO.: 185
 DEPTH: 1388 m PROGRESS: 49 m FORMATION: Mid Besa River Lime
 OPERATIONS AT 06:00 HOURS: Drilling (slide)
 CONTRACTOR/RIG SUPT.: CACTUS 26E TERRY GORGUCHUK CO. SUPERVISOR: John Faulkner
 DAILY COST: \$ 57002 CUM. COST: \$14,113,884 649 AFE NO: E6D - 015

WELL CONTROL

DAILY RIG CHECK: YES DAILY BOP CHECK: YES R.S.S.P.: 5000 kPa @: 100 SPM
 TRIP RECORDS: CALCULATED HOLE FILL m³ ACTUAL HOLE FILL: m³
 BOP DRILLS: CONDUCTED WHILE drilling WELL SECURED IN 1.5 MIN.
 CONDUCTED AT 1600 0015 HRS. CREW PERFORMANCE good
 DAYS SINCE BOP DRILL (EACH CREW): 0 0 MAXIMUM CASING HOLD BACK 4895 kPa

DRILLING PARAMETERS

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	29d			WEIGHT (kg/m ³)	1350	No. 1 LINER (mm)	140
SIZE (mm)	311			VISCOSITY (cP)	68	No. 1 STROKES PER MINUTE	85
TYPE	HP43H			EXCESS LIME	20	No. 2 LINER (mm)	140
SERIAL No.	MA350			PV (mPa S)		No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	2X17.5			YP (Pa)		VOLUME (m ³)	1.995
DEPTH IN (m)	1327			GELS (Pa)		PRESSURE (kPa)	14500
METERS (m)	61			SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	32
HOURS	27.75			SOLIDS (%)	26	D.C. ANNULAR VEL. (m/min.)	57
WOB (1000 daN)	9/14			FILTER CAKE (mm desc.)	1	D.C. ANNULAR VEL. (m/min.)	
R.P.M.	18/160			FLUID LOSS (cc)	1.8	SOLIDS CONTROL	
CONDITION	in			CHLORIDES		SHAKER SCREENS	84-84
DRILLING ASSEMBLY				OIL WATER	88/12	DRYER SCREENS	110
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	1276	U.F. (kg/m ³)	D. SILT.
MTR XO	196	151	65/8REG	MUD ADDITIVES		OF. (kg/m ³)	CENT.
MWD XO	203	71	7H90	Barite 240 mcs		VOL. (l/min.)	
2 NMDC	231	77	5H90	OW 1 bbl bbl		HOURS	
1 DC IAR	230	65	5H90	Lime 45 mcs		SURVEYS	ANGLE DIRECTION
6 DC XO	228	74	5H90	Diesel 13 m3		1320	m 1.20 ° 117.10
3 DC XO	168	73	41/2IF			1329	m 1.80 ° 127.00
9 HWDP	127	76	41/2IF	DC \$ 3,479 CCS 837,748		1339	m 2.50 ° 120.40
BHA LENGTH	346.73	m		JTS. D.P.: ON RACKS		1349	m 2.90 ° 115.50
HOOK LOAD	100,000	daN		: IN STRING	117	1368	m 3.20 ° 118.40
AVAILABLE WOB	28,000	daN		: TOTAL	433		

TIME BREAKDOWN

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY	
DRILLING	21.75	CEMENT		CORING		RIG REPAIR		TODAY	CUM.
TRIP		BOP DRILL	.5	LOGGING		LOST CT RC.		24	3671.75
RIG SERVICE	.75	HANDLE TOOLS		TESTING		REAM & WASH			92.25
SURVEY	1	REAM & WASH		CTRC SAMPLE		TIGHT HOLE			675
SLIP & CUT		PRESSURE TEST		HANDLE TOOLS				24	4415
COND. MUD		CIRCULATE		TRIP				Weather	
NIPPLEUP/DN		W.O.C.		REAM RATHOLE				TEMPERATURE	
RUN CASINO		INSPECT BHA		CIRCULATE				ROADS	

24 SUMMARY

Drill with Dyna drill medium speed motor set at 1.5 degrees. Rig service, surveys and bop drills. Hole has been good on connections.

Slide - 1339-1342m 1346-1350m 1357-1388

Rotate 1343-1346m

Hole drag down - 5000 daN Hole drag up - 5000 daN

Torque on bottom - 750/850 P.S.I.

Back ground gas - 15 units Trip gas - units

Mud lost last 24 Hrs. - 1.8m3.

SIGNED BY: John Faulkner

JUL-16-1997 08:45

403 232 5200

MOBILE NO: (403) 210-1202 (403) 424-8050

78%

P.02

WELL	<u>Ranger Fort Liard F-66 A</u>	DATE	<u>1997-07-15</u>	REPORT NO.:	<u>184</u>
DEPTH:	<u>1339</u> m	PROGRESS:	<u>12</u> m	FORMATION:	<u>Mid Bear River Limestone</u>
OPERATIONS AT 06:00 HOURS: <u>Drilling (slide)</u>					
CONTRACTOR/BAG SUPT.:	<u>CACTUS 26E</u>	<u>TERRY GORGICHUK</u>	CO. SUPERVISOR:	<u>John Faulkner</u>	
DAILY COST:	<u>\$ 48711</u>	CUM. COST:	<u>\$14,056,222</u>	AFE NO:	<u>E6D - 015</u>

DAILY RIG CHECK:	YES	DAILY BOP CHECK:	YES	R.S.S.P.:	5000	kPa @:	100	SPM
TRIP RECORDS: CALCULATED HOLE FILL	9.27			m ³ ACTUAL HOLE FILL:	11.48			m ³
BOP DRILLS: CONDUCTED WHILE				WELL SECURED IN				MIN.
CONDUCTED AT				HRS. CREW PERFORMANCE				
DAYS SINCE BOP DRILL (EACH CREW):	6	6		MAXIMUM CASING HOLD BACK	4895			kPa

BIT PERFORMANCE				MUD PROPERTIES		PUMPS	
BIT NUMBER	29d	RR28C		WEIGHT (kg/m ³)	1355	No. 1 LINER (mm)	140
SIZE (mm)	311	311		VISCOSITY (s/l)	67	No. 1 STROKES PER MINUTE	85
TYPE	HP43H	HP51H		EXCESS LIME	11.1	No. 2 LINER (mm)	140
SERIAL No.	MA350	Ph3848		PV (mPa S)	19	No. 2 STROKES PER MINUTE	85
NOZZLES (mm)	2X17.5	3x17.5		YP (Pa)	5.5	VOLUME (m ³)	1.995
DEPTH IN (m)	1327	1243		GELS (Pa)	2/4	PRESSURE (kPa)	14500
METERS (m)	12	82		SAND (%)	Tr	D.P. ANNULAR VEL. (m/min.)	32
HOURS	6	16.5		SOLIDS (%)	21	D.C. ANNULAR VEL. (m/min.)	57
WOB (1000 daN)	9/14	10/16		FILTER CAKE (mm desc.)	2	D.C. ANNULAR VEL. (m/min.)	
R.P.M.	85	55/65		FLUID LOSS (cc)	3.6	SOLIDS CONTROL	
CONDITION	in	2 2 2m		CHLORIDES	291105	SHAKER SCREENS	84-84
DRILLING ASSEMBLY				OIL WATER	92/8	DRYER SCREENS	110
ITEM	O.D.	I.D.	T.J. TYPE	ELECTRICAL STAB.	1740		
MTR XO	196	151	65/8REG	MUD ADDITIVES		U.F. (kg/m ³)	
MWD XO	203	71	7H90	Barite 220 sss		OF. (kg/m ³)	
2 NMDC	231	77	5H90	OW 2 bbl		VOL. (l/min.)	
1 DC JAR	230	65	5H90	Emul 2 bbl		HOURS	
6 DC XO	228	74	5H90			SURVEYS	
3 DC XO	168	73	41/2IF				
9 HWDP	127	76	41/2IF	DC S 4875 CCS 34,269			
BHA LENGTH	346.73	m	JTS. D.P.: ON RACKS				
HOOK LOAD	99000	daN	: IN STRING	117			
AVAILABLE WOB	28000	daN	: TOTAL	433			

DRILLING OPERATIONS				EVALUATION		PROBLEMS		SUMMARY		
DRILLING	8	CEMENT		CORING		RIG REPAIR	3.5	DRILL OP EVALUATION PROBLEMS TOTAL WEATHER TEMPERATURE ROADS	TODAY	CUM.
TRIP	7.75	BOF DRILL		LOGGING		LOST C.I.B.			19.75	3647.75
RIG SERVICE	.75	HANDLE TOOLS	2	TESTING		REAM & WASH				92.25
SURVEY		REAM & WASH		CIRC. SAMPLE		TIGHT HOLE	.75		4.25	675
SLIP & CUT		PRESSURE TEST		HANDLE TOOLS					24	4391
COND. MUD		CIRCULATE	1.25	TRIP						
NIPPLEUPON		W.O.C.		REAM RATHOLE						
RUN CASINO		INSPECT BHA		CIRCULATE						
									Cloudy	
									15 °C	
									wet	

Drill cement to 1327m. Circulate and hoist for directional tools. Work tight hole at 1300m. Circulate and clean up shale. Hoist to casing shoe, pump trip pill and hoist. Change out hydraulic mud valve on top drive. Pick up and make up Halliburton Directional tools. Low speed motor set at 1.5 degrees. Repair hydraulic hose for torque ram. Run in hole to 1075m, test MWD. Finish in and wash to bottom. Survey and orient motor. Drill ahead with survey.

Mud lost last 24 Hrs. ~m3.

P.02

Halliburton Drilling Systems**Survey Report**

Page 1

Job No: 97D006

Date: 15/07/97

Time: 5:59 am

Wellpath ID: 97d006s4

Date Created: 27/01/97

Last Revision: 15/07/97

Calculated using the Minimum Curvature Method

Computed using PDS VER2.2.4 - BETA

Vertical Section Plane: 226.14 deg.

Survey Reference: WELLHEAD

Vertical Section Reference: WELLHEAD

Closure Reference: WELLHEAD

TVD Reference: WELLHEAD

RANGER OIL LIMITED**RANGER Fort Liard P - 66A****IN UNIT P SECTION 66****Cactus #26E KB: 459.89 m****97D006****UWI 300P666040123300**

Measured Depth (m)	Incl (deg.)	Drift Dir. (deg.)	TVD (m)	Subsea Depth (m)	Vertical Section (m)	TOTAL Rectangular Offsets (m) (m)		Closure Dist. Dir. (m) (deg.)		DLS (dg/30m)
TIE-IN FOR SIDETRACK # 3										
1203.00	1.20	94.50	1201.88	-741.99	-9.56	13.35 S	26.09 E	29.30@	117.10	0.37
1233.00	1.30	94.10	1231.87	-771.98	-10.00	13.40 S	26.74 E	29.91@	116.61	0.10
1262.00	1.40	107.80	1260.86	-800.97	-10.39	13.53 S	27.40 E	30.56@	116.27	0.35
TIE-IN FOR SIDETRACK #4										
1291.00	1.10	112.40	1289.86	-829.97	-10.67	13.74 S	28.00 E	31.15@	116.14	0.33
1310.00	0.40	110.50	1308.86	-848.97	-10.77	13.84 S	28.23 E	31.44@	116.11	1.11
1320.00	1.20	117.10	1318.85	-858.96	-10.82	13.90 S	28.36 E	31.58@	116.11	2.41

BHA REPORT

July 14, 1997

Page 1

7/14/97 5:58:17 pm

Version VER2.2.4 - BETA



Job No.: 97D006
Operator: RANGER OIL LIMITED
Field: FT. LIARD
Well: 97d006s4
Run No.: 1

AFE No.: E6D-015
Location: P-68A
MWD Operator(s): DALE SCHOMAKER
Dir'l Driller(s): FRANK VAN NOORD
BHA No.: 55

Company Man: JOHN FAULKNER

Hole Size: 311.000 mm

BOTTOM HOLE ASSEMBLY

Assembly Type: Steerable System
Objective: SIDETRACK TO NEW TARGET

Reason Pulled: <undefined>

Motor Size / Type: 196.850 mm / F2000S

Serial No.: L76168X

Circulating: 0.00 hrs

No.	Serial No.	Tool Description	OD (mm)	ID (mm)	Length (m)	Total Length (m)	Connections Up	Down	Conn
1	MA 3450	(BIT) Reed Tool, EHP43H, TCI	311.000		0.35	0.35	6 5/8 Reg		P
2	L76168X	(MTR) Halliburton, F2000S, 1.500" Bend	196.850	151.308	7.23	7.58	5 1/2 Reg	6 5/8 Reg	B/B
3	XO 8008	(SUB) Cross-Over Sub	203.000	71.000	0.51	8.09	6 5/8 Reg	5 1/2 Reg	P/P
4	PC-6056	(MWD) DATADRIL LOW FLOW battery(b5450), das(das4780), inter. plug/tandem sub(hf004), muleshoe stinger(mi1181), pulser, dis(lp4334), collar(pc6056), float sub(xs6102), muleshoe sub(ms6077)	203.200	6.753	4.76	12.85	6 5/8 Reg	6 5/8 Reg	B/B
5	XO9062	(SUB) Cross-Over Sub	232.000	77.000	0.68	13.54	7 H-90	6 5/8 Reg	B/P
6	NM 90001	(DC) Slick Non-Mag Drill Collar	231.000	76.000	9.42	22.96	7 H-90	7 H-90	B/P
7	NM 90008	(DC) Slick Non-Mag Drill Collar	230.000	76.000	9.42	32.38	7 H-90	7 H-90	B/P
8	RIG-1	(DC) Slick Drill Collar	230.000	76.000	9.59	41.97	7 H-90	7 H-90	B/P
9	10164	(JAR) FASTER Jar	225.000	65.000	5.18	47.15	7 H-90	7 H-90	B/P
10	RIG-6	(DC) 6 jts, Slick Drill Collar	228.000	74.000	56.77	103.92	7 H-90	7 H-90	B/P
11	9x6.75-2	(SUB) Cross-Over Sub	228.000	73.000	0.90	104.82	5 H-90	7 H-90	B/P
12	RIG-3x6 3/4	(DC) 3 jts, Slick Drill Collar	168.000	73.000	26.74	131.56	5 H-90	5 H-90	B/P
13	6.75DC-4.5DR	(SUB) Cross-Over Sub	176.000	72.000	0.95	132.51	4 1/2 IF	5 H-90	B/P
14	9xHWOP	(HW) 9 jts, Hevi-Wate Drill Pipe	127.000	76.200	81.71	214.22	4 1/2 IF	4 1/2 IF	B/P

BIT DATA

Manufacturer: Reed Tool
Bit Type: TCI
Serial No.: MA 3450
Hours On Bit: 0.00

IADC: 437X
Depth in: 1327.00 - 1327.00 (0.00) m
Nozzles: 17.5(2), 19.0 mm
MTG On Bit: 0.00

Length: 0.35 m
Gage Length: 0.00 mm
TFA: 764.585 mm²