



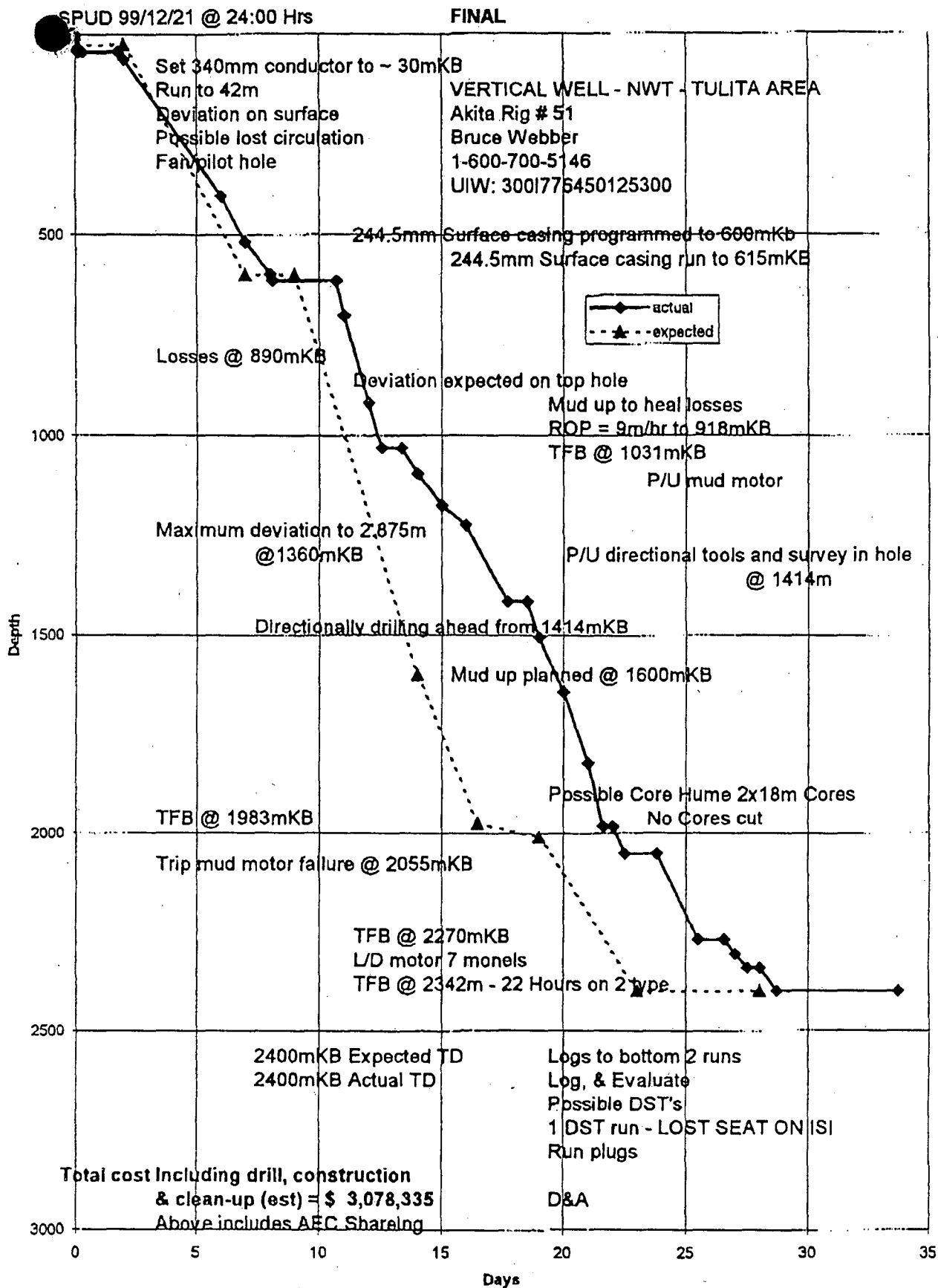
NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 34
Total Days 43

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 24/00									
2400		2400TD		Prog.		Operation 08:00:		RR & Tear Out		Formation:		Bear Rock							
Orig. Fluid Type: Gel Chem				Mud Eng. Will Larson				Mud Company: CFS											
Log Book Check										PPM									
Time				Fann				Salinity				Mud Pressure Gradient:							
Density				600				Chloride				Mud Cycle Main Hole:							
Viscosity				300				Calcium				Bottoms Up Time:							
W.L.				P.V.				MBT - Kg/m ³				Vol. Mud Tanks:							
P.H.				Y.P.				Temp C				Vol. Main Hole:							
F.C.				Gels				ES				TOTAL:							
MUD ADDITIVES:				Gel				Soda Ash				Staflor				Kelzan			
				Sawdust				Caustic				Barite				Envirofloc			
				Lignite				Lime				Polysafe				Gypsum			
MUD COSTS:				DAILY:				\$0				TOTAL:				\$28,500			
SOLIDS CONTROL										VOLUMES ADDED									
Item		Make		UF		OF		M ³ /M		SDS %		Hrs		M ³		REMARKS			
CENTRIFUGE		WADECO												Water (Fresh)					
														Water (Brine)					
														Mud					
														Loss to Formation:					
BIT DATA																			
No.	Size	Type	S.N.	Jets (MM)		From	To	m	Hrs.	M/Hr	Cum	T	B	G					
No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs			
											Stabilizer								
											JARS								
DRILLING ASSEMBLY:																			
SURVEYS:																			
Time Breakdown				Circ.				L/D tools				L/D pipe				H. Tools			
Move Rig Up		12.50		Tripping		4.75		Break Circ.				Cement		1.25		Safety M			
Drilling				Rig Service		0.50		Run Casing + Cement				DST				Mix LCM			
Reaming				Rig Repairs				WOC		5.00		Fishing				WOO			
Coring				Slip + Cut				Nipple Up BOP's				W.Tight Hole				Total Hrs 24.00			
REMARKS																			
Lay down DP, pump plug # 3, & pull 10 stands																			
rig service, & WOC. RIH & tag plug @ 588mKB. Pull up & pump plug # 4 @ surface.																			
Plug # 4 : 10m - surface. Tear out BOP's and clean mud tanks																			
Start tear out rig to Fallstone location 00/01/25																			
Expect to spud Fallstone - 00/01/28-29																			
Release Rig 00/01/24 @ 24:00 Hrs																			
CUT/FILL: 0.00 GRD. ELV.: 197.10 NEW GRD. ELV. 198.10 KB to GRD.: 4.25 KB: 202.35 KB to CF 0.00																			
Weather clear		Temp: -10		Wind: light		Visibility: good		Road Cond. fair											
Rig: Akita 51		Rick Parker						Sat Phone: 1-600-700-7370											
Location Directions:																			
Report from:		Gary Capanluk								Sat Phone: 1-800-700-5148									
Taken by:		Kevin Kerwin								SPUD DATE: 99/12/21		RR DATE: 00/01/24							
DAILY COST		\$106,134.00								COST TO DATE		\$1,581,336.00							

NORTHROCK ET AL MACKAY I-77



Constuction Est. = \$ 1,517,000
(Includes \$200k for clean-up,
& 350k to AEC)

RR 00/01/24 @ 24:00 Hrs
Final field Est. = \$ 1,561,335
(drilling only)



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 33
Total Days 42

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 23/00	
2400 to 2400TD		Prog.		Operation 08:00:		L/D pipe		Formation: Bear Rock			
Drig. Fluid Type: Gel Chem		Mud Eng.		Will Larson		Mud Company: CFS					

Log Book				Check				PPM							
Time		Fann		Salinity				Mud Pressure Gradient:		11.1					
Density	1130	600	82	Chloride	200	% by Volume		Mud Cycle Main Hole:							
Viscosity	48	300	59	Calcium		Sand		Bottoms Up Time:		62					
W.L.	10	P.V.	23	MBT - Kg/m ³	70	Solid		Capacity: (m ³)		Vol. Mud Tanks:					
P.H.	9.5	Y.P.	18	Temp C		Oil		Sump:		Vol. Main Hole:					
F.C.	1	Gels	7/17	ES				Pump:		TOTAL:					

MUD ADDITIVES:		Gel		Soda Ash		Staflor		Kelzan	
		Sawdust		Caustic		Barite		Envirofloc	
		Lignite		Lime		Polysafe		Gypsum	

MUD COSTS:		DAILY:		\$0		TOTAL:		\$28,500	
------------	--	--------	--	-----	--	--------	--	----------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO						Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA														
No.	Size	Type	S.N.	Jets (MM)		From	To	m	Hrs.	M/Hr	Cum	T	B	G
No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.
											Stabilizer			
											JARS			

DRILLING ASSEMBLY: BIT, BIT SUB, X/O, s/s, X/O, 18x159mm Dc's, 15xHWDP,
114mm DP to surface, Kelly

SURVEYS:

Time Breakdown		Circ.	2.50	L/D tools		L/D pipe	1.50	H. Tools	
Move Rig Up		Tripping	6.25	Break Circ.		BOP drill	1.00	Safety M	0.25
Drilling		Rig Service	0.25	Run Casing + Cement		DST		Mix LCM	
Reaming		Rig Repairs		WOC	12.25	Flashing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

RIM open ended for plugs

#1: 1750 - 1650m, cement w/5.7 tonnes

Displace w/mud and WOC 6 hours to feel plug

Set 9000 daN @ 1641m - Held OK

Pump plug #2: 1250m - 1150m, w/ 5.6 m3 slurry.

Displace w/ mud and WOC 6 hours to feel plug

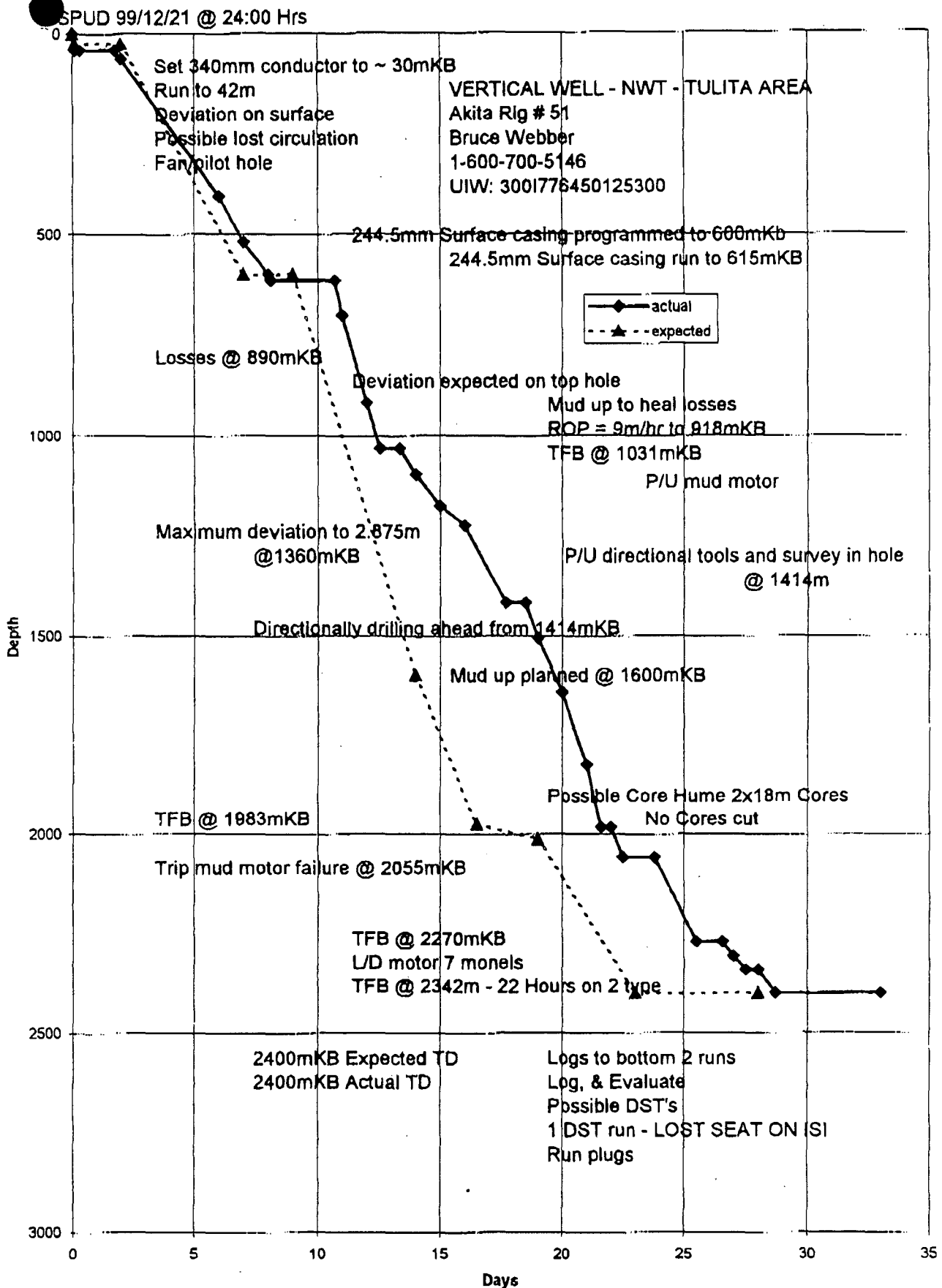
Feel top of plug @ 1121mKB, set 9000 dan on plug - Held OK

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-2	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	Operator:	0 Rick Parker	0	Sat Phone:		1-600-700-7370				

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5146
Taken by:	Kevin Kerwin	SPUD DATE:	09/12/21
DAILY COST		\$28,784.00	COST TO DATE
			\$1,455,201.00

NORTHROCK ET AL MACKAY I-77



**BAKER
HUGHES****TEST TOOL & PIPE RECORD****Baker Oil Tools**Well Name: **NORTHROCK ET AL E.** Location: **64-46-41-610/124-43.** Date: **2000-01-22** Ticket # **809939**Interval Tested: from **2175.00** to **2204.00** Total Depth **2400.00** Test No **1****CONVENTIONAL**

Tool Length

DRILL COLLARS

JOINT	LENGTH	JOINT	LENGTH	DRILL PIPE	JOINT	LENGTH	JOINT	LENGTH	JOINT	LENGTH
1	0.62	11	19.18	1	19.00	11	18.24	21	18.80	
2	18.61	12	0.52	2	19.04	12	19.39	22	19.20	
3	18.81	13		3	19.22	13	19.12	23	18.53	
4	18.07	14		4	18.91	14	18.42	24	18.73	
5		15		5	18.75	15	18.64	25	19.16	
6		16		6	19.05	16	19.07	26	19.06	
7		17		7	19.28	17	19.16	27	19.05	
8		18		8	18.93	18	19.08	28	19.15	
9		19		9	19.37	19	19.24	29	18.72	
10		20		10	18.88	20	19.22	30	19.30	
1st TOTAL	56.11	2nd TOTAL	19.70	3rd TOTAL	189.93	4th TOTAL	189.58	5th TOTAL	189.70	
31	18.85	41	19.27	61	18.66	71	18.74	81	19.14	
32	19.31	42	19.26	62	19.15	72	18.67	82	18.70	
33	19.22	43	19.24	63	19.14	73	19.16	83	19.08	
34	18.84	44	19.08	64	18.36	74	19.16	84	18.62	
35	18.07	45	18.63	65	18.79	75	18.43	85	19.15	
36	18.92	46	18.52	66	18.39	76	19.14	86	19.15	
37	18.59	47	19.26	67	19.13	77	19.13	87	19.21	
38	19.13	48	18.95	68	19.12	78	19.12	88	19.20	
39	19.09	49	19.28	69	18.17	79	19.09	89	19.18	
40	18.76	50	19.22	70	19.11	80	19.11	90	18.73	
6th TOTAL	188.28	7th TOTAL	190.71	8th TOTAL	187.92	9th TOTAL	189.70	10th TOTAL	190.16	
81	18.60	91	19.13	101	18.82					
82	18.71	92	19.13	102	19.15					
83	18.48	93	19.23	103	19.03					
84	18.98	94	19.14	104	19.11					
85	18.17	95	18.84	105	19.13					
86	18.67	96	19.16	106	19.19					
87	19.16	97	19.17	107	19.15					
88	18.74	98	19.12	108	19.18					
89	19.17	99	19.11	109	19.15					
90	19.12	100	19.05	110	19.11					
11th TOTAL	187.80	12th TOTAL	191.03	13th TOTAL	191.02					

Top Packer
Seal Depth**BEFORE TEST IN DERRICK**

TOTAL DRILL COLLARS	3
TOTAL DRILL PIPE	122

TESTING

	IN	OUT	TOTAL
DRILL COLLARS	3	0	3
DRILL PIPE	111	11	122

Bottom Packer
Seal Depth**CONVENTIONAL PIPE TALLY**

BELOW BOTTOM PACKER SEAL	
BETWEEN PACKER SEALS	
TOOL ABOVE PACKER SEAL	
DRILL COLLARS	
DRILL PIPE	
TOTAL STRING	
TOTAL DEPTH	
TOP SINGLE ABOVE TABLE	

INFLATE PIPE TALLY

TOOL ABOVE INTERVAL	15.25
DRILL COLLARS	75.81
DRILL PIPE	2085.83
TOTAL STRINGS ABOVE INTERVAL	2176.89
BOTTOM OF TOP PACKER SEAL DEPTH	2175.00
TOP SINGLE ABOVE TABLE	1.89

INFLATABLE

Tool Length

POS	0.33
XOS	0.30
POS	0.83
Car	1.38
CSub	0.31
Hydr	1.50
BRS	1.03
Car	1.38
Jar	2.22
SJ	0.65
Pump	2.38
Scr	1.16
TPack	1.78
Top Packer Seal Depth	2175.0
ESD	0.82
PS	0.31
Car	2.04
XOS	0.30
DC	18.10
XOS	0.30
Sdu	6.71
PSU	0.42
Bottom Packer Seal Depth	2204.0
BPack	1.90

Tester Signature

Approved by Oil Co. Rep.



NORTHROCK ET AL EAST MacKAY I-77

64-46-41.610/125-43-10.277

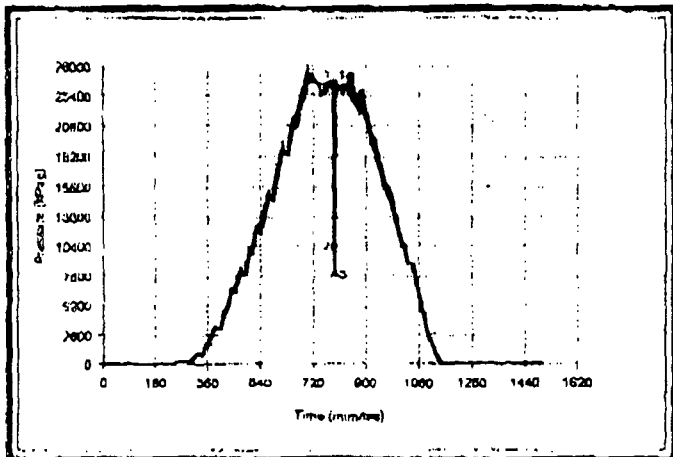
DST# 1

Baker Oil Tools

Formation: ARNICA

Interval - from: 2175.00 to: 2204.00 m

Recorder# 70360 at 2178.00 m



Test Date:

2000-01-22

Test Type:

INFLATE STRADDLE

Tester Name:

MARC SAMPIETRO

Drill Pipe O.D.:

114.00 mm

Drill Collar I.D.:

74.00 mm

Drill Collar Length:

75.81 m

Hole Size:

222.00 mm

Blow Description:

PREFLOW - CLOSED CHAMBER WITH DELTA-P. NO SEAT WHEN TIME TO SHUT-IN TOOL. PUMPED FOR 20 MIN, NO SEAT MOVED UP 1 METER PUMPED 20 MIN, NO SEAT. P.O.O.H

Remarks:

SAMPLES LEFT WITH GEOLOGIST SAMPLER DRAINED ON LOCATION

Maximum Btm Hole Temperature @ FSI: 71.3 C

	Pressure (kPag)	Time (min)	Extrapolated Pressure (kPag)
1 Initial Hydrostatic	24234		
2 Start of 1st Flow	10315		
3 End of 1st Flow	7818	2.5	
14 Final Hydrostatic	24117		

Liquid Recovery of 170.00 m

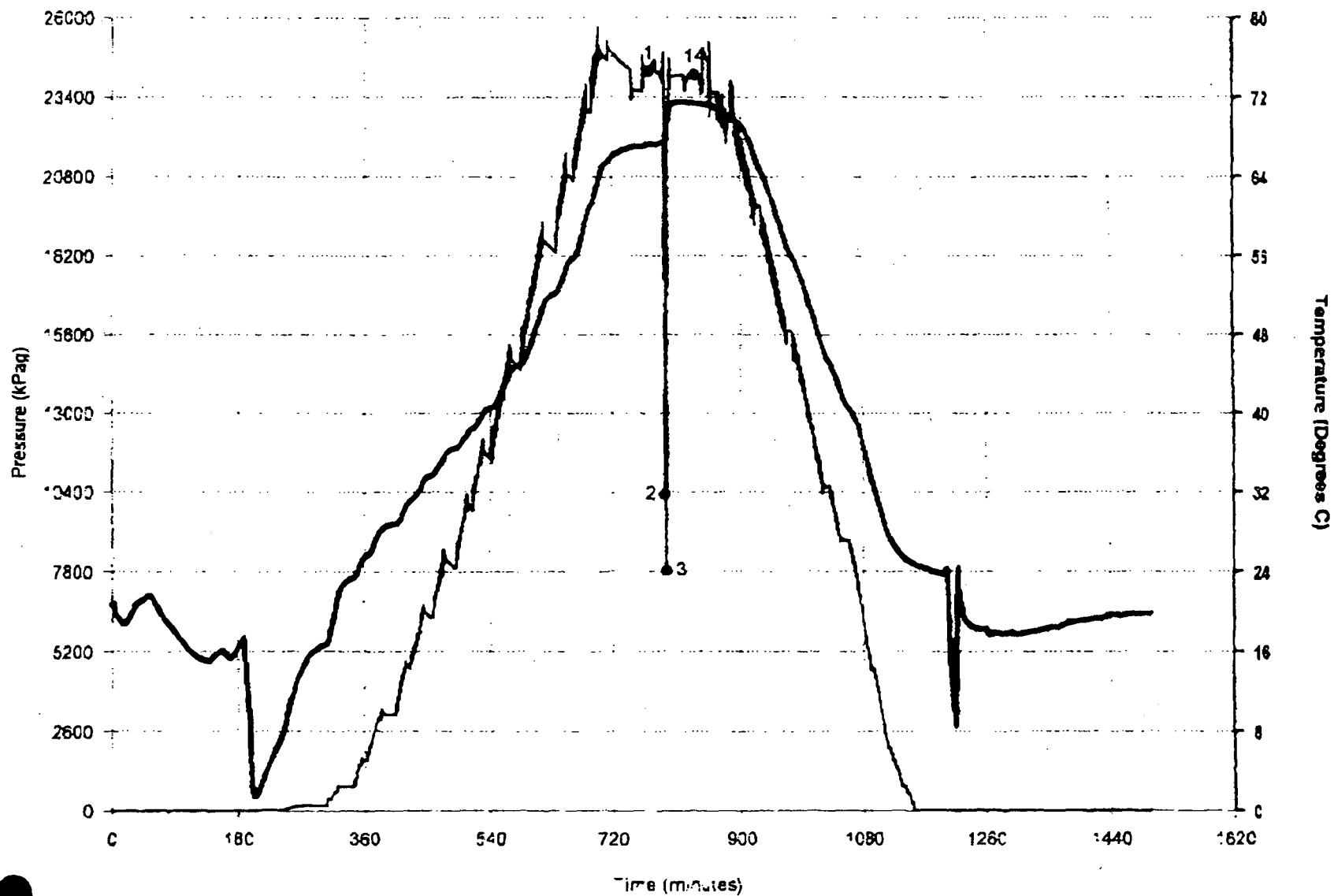
Recovery	Description	Salinity
40.00 m	MUD	
74.00 m	MUD CUT SALT WATER	
56.00 m	SALT WATER	80000

Baker Oil Tools Drill Stem Testing

Baker Oil Tools Drill Stem Testing

NORT-ROCK ET AL EAST MacKAY i-77
64-48-41 610/125-43-10.277
DST # :
Recorder: 70360

Pressure (kPag) at Critical Points:
1: 24234 14: 24117
2: 10315
3: 7818



PRESSURE AND TEMPERATURE VS DELTA TIME

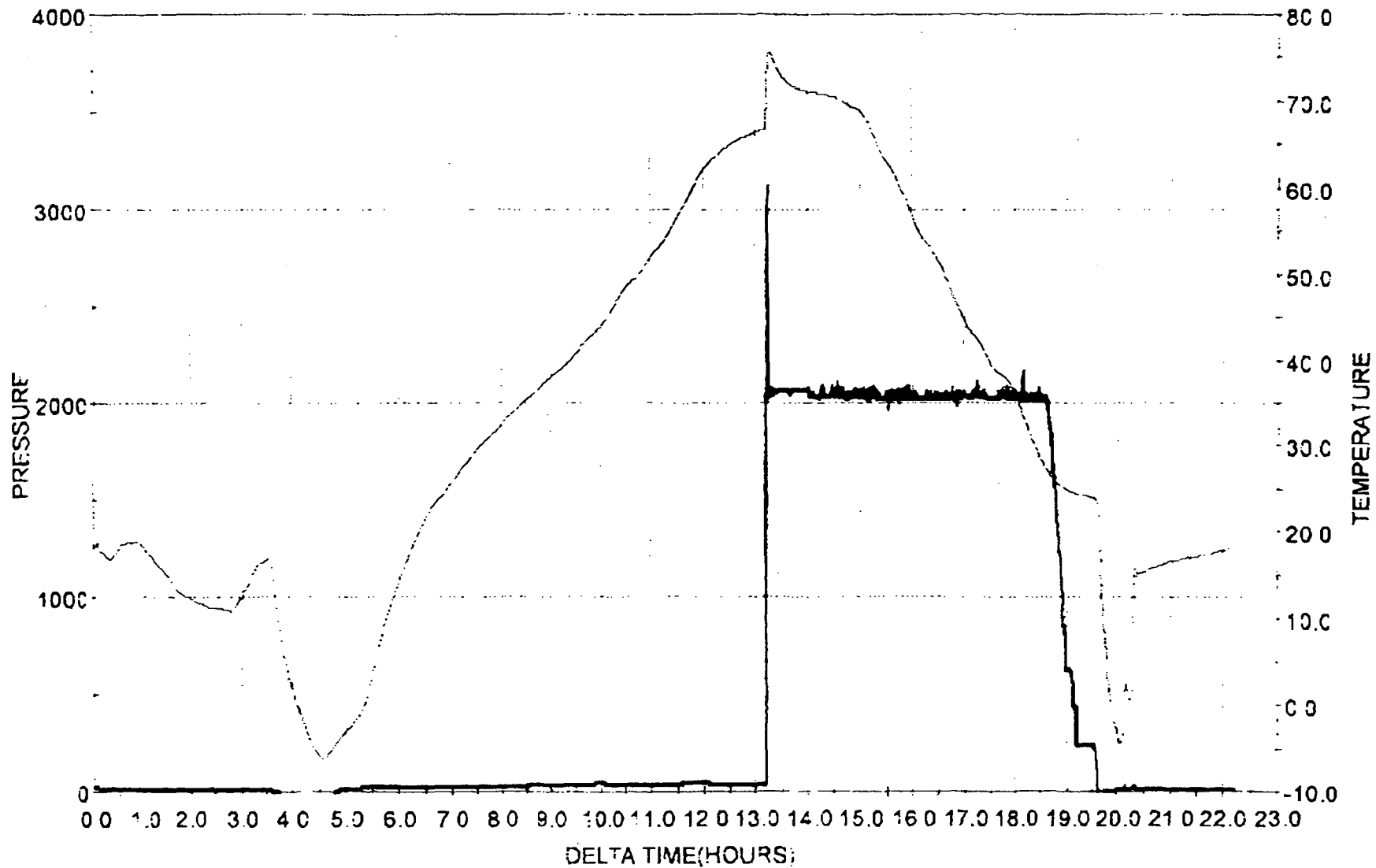
Company: NORTHROCK RESOURCES LTD

Location: LAT:64-46-41.610 / LON:125-43-10.277

Date: 01/22/2000

Serial# 70359

Max. Pressure: 3116.784 kPag Max. Temperature: 75.700 C





NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 32
Total Days 41

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 22/00	
2400 to 2400TD		Prog.		Operation 08:00:		RIH		Formation:		Bear Rock	
Drig. Fluid Type: Gel Chem		Mud Eng.		Will Larson		Mud Company:		CFS			

Log Book				Check				PPM							
Time				Fann				Salinity				Mud Pressure Gradient: 11.1			
Density	1130			600	82			Chloride	200			Mud Cycle Main Hole:			
Viscosity	80			300	59			Calcium				Bottoms Up Time: 62			
W.L.	6.8			P.V.	23			MBT - Kg/m ³	70			Vol. Mud Tanks:			
P.H.	9.5			Y.P.	18			Temp C				Vol. Main Hole:			
F.C.	1			Gels	7/17			ES				TOTAL:			

MUD ADDITIVES:		Gel		41		Soda Ash		2		Staflor				Kelzan	
		Sawdust				Caustic				Barite		20		Envirofloc	
		Lignite		2		Lime				Polysafe				Gypsum	

MUD COSTS:		DAILY:		\$1,000		TOTAL:		\$28,500	
------------	--	--------	--	---------	--	--------	--	----------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO						Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G
8RR	222	J44		10.3	10.3	10.3	2342	2400	58	18	3	288.5	7	3	2

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs	
8RR	20	150	67000	152	115	10,000	1.2	45	67							

DRILLING ASSEMBLY: *BIT, BIT SUB, X/O, s/s, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly*

SURVEYS:

Time Breakdown		Circ.		L/D tools	5.00	L/D pipe	2.00	H. Tools	2.00
Move Rig Up		Tripping	14.00	Break Circ.		BOP drill		Safety M	
Drilling		Rig Service	0.25	Run Casing + Cement		DST	0.75	Mix LCM	
Reaming		Rig Repairs		WOC		Fishing		WOC	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

Run DST # 1, 2175.0 - 2204.0mKB

Inflate paker and then lost seat after ~ 4 minutes

Attempt to re seat failed

POOH, recover test tools, charts, & load out same.

RIH w/remaining collars and L/D same

RIH open ended for plugs as per NEB approved plugging program:

1: 1750 - 1650m (100m plug)

2: 1250 - 1150 (100m plug)

3: 630 - 585m (30m plug) surface csg @ 615mKB

10m surface plug

CUT/FILL:	0.00/GRD. ELV.:	197.10/NEW GRD. ELV.	198.10/KB to GRD.:	4.26/KB:	202.35/KB to CF	0.00
-----------	-----------------	----------------------	--------------------	----------	-----------------	------

Weather	clear	Temp:	-20	Wind:	light	Visibility:	good	Road Cond.	good
Rlg:	Akita 51	o	Rick Parker	o	Sat Phone:	1-600-700-7370			

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5146
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
		RR DATE:	

DAILY COST	\$37,793.00	COST TO DATE	\$1,426,437.00
------------	-------------	--------------	----------------



NORTHROCK RESOURCES
 3500, 700 - 2nd Street S.W.
 Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
 Midnight to Midnight

Days (MI&RU) 9
 Days (fr Spud) 31
 Total Days 40

WELL: NORTHROCK ET/AL MACKAY 177										Date: Jan 21/00	
2400 to 2400TD		Prog.		Operation 08:00:		PIU DST #1		Formation: Bear Rock			
Drig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS							

Log Book		Check		PPM				Mud Pressure Gradient: 11.1	
Time	0400	Fann		Salinity				Mud Cycle Main Hole:	
Density	1130	600	98	Chloride	200	% by Volume		Bottoms Up Time: 62	
Viscosity	91	300	59	Calcium	TR	Sand 0.001		Vol. Mud Tanks:	
W.L.	7.5	P.V.	23	MBT - Kg/m ³	60	Solid 0%		Vol. Main Hole:	
P.H.	9.5	Y.P.	19	Temp C		Oil 0		TOTAL:	
F.C.	1	Gels	7/17	ES		Capacity: (m ³)			
						Sump:			
						Pump:			

MUD ADDITIVES:		Gel		Soda Ash		Staflo		Kelzan	
		Sawdust		Caustic		Barite		18 Envirofloc	
		Lignite		Lime		Polysafe		Gypsum	

MUD COSTS:		DAILY: \$1,000		TOTAL: \$26,500	
------------	--	----------------	--	-----------------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO						Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA																
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G	
8RR	222	J44		10.3	10.3	10.3	2342	2400	59	19	3	288.5	7	3	2	
No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
8RR	20	150	67000	152	115	10,000	1.2	45	67		Stabilizer					
											JARS					

DRILLING ASSEMBLY: BIT, BIT SUB, X/O, s/s, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly

SURVEYS:

Time Breakdown		Circ.	3.00	P/U tools	4.75	Test BOP'S		H. Tools	
Move Rig Up		Tripping	11.75	Break Circ.	3.50	BOP drill		Safety M	
Drilling		Rig Service	0.50	Run Casing + Cement		Plug Back		Mix LCM	
Reaming	0.50	Rig Repairs		WOC		Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

Finish log w/ Schlumberger

RIH w/DC's & HWDP - lay down same

slip & cut

RIH wash 7m to bottom- no fill circulate

POOH and P/U tools for DST #1 (2175.0 - 2204.0 mKB)

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	cloudy	Temp:	-22	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	o	Rick Parker	o	Sat Phone:		1-600-700-7370				

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
DAILY COST		\$114,231.00	COST TO DATE
			\$1,388,644.00

NORTHROCK et al E. MacKay I-77

64-50-125-30

DATE: 21-Jan-2K DEPTH: 2400m @0700 PROGRESS: TD m REPORT #: 20

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Rig up loggers. Run sonic log TD-SC with GR to surface. Run AIT/CNL-LDT. Rig out loggers. Run in drill collars and lay down same.

MUD PROPERTIES: MD: 1140 Vis: 71 WL: 7.0

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	@ 1449m
Devonian Imperial	@ 1521m
Ramparts SH & SS	@ 1715m
Hume	@ 2006m
Headless	@ 2278m
Final Total Depth	@ 2400m

OTHER:

Transmitted full well sonic digits TD-SC at 2200hrs
20/JAN/00.

WAITING for confirmation of DST interval. Have faxed depth corrected N/D log over interval to JH at home also to 213-7487.

GL: 198.10m and KB: 202.35m (4.25m)

Dave Roberts - 764508 Alberta Limited - 600-700-2957



NORTHROCK RESOURCES
 3500, 700 - 2nd Street S.W.
 Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
 Midnight to Midnight

Days (MI&RU) 9
 Days (fr Spud) 30
 Total Days 39

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 20/00									
2400 to 2400TD		Prog.		Operation 08:00:		RIH to clean out		Formation:		Bear Rock									
Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS															

Log Book		Check		PPM						Mud Pressure Gradient: 11.1	
Time	0400	Fann		Salinity						Mud Cycle Main Hole:	
Density	1140	600	91	Chloride	200	% by Volume				Bottoms Up Time: 62	
Viscosity	78	300	82	Calcium	TR	Sand 0.001				Vol. Mud Tanks:	
W.L.	7	P.V.	29	MBT - Kg/m ³	60	Solid 0%		Capacity: (m ³)		Vol. Main Hole:	
P.H.	10	Y.P.		Temp C		Oil 0		Sump:		TOTAL:	
F.C.	1	Gels	8/15	ES				Pump:		m ³ /hrk	

MUD ADDITIVES:		Gel		Soda Ash		Staflo		Kelzan	
		Sawdust		Caustic		Barite		Envirofloc	
		Lignite		Lime		Polysafe		Gypsum	

MUD COSTS:		DAILY: \$1,200		TOTAL: \$24,500	
-------------------	--	-----------------------	--	------------------------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1940	1120			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G
8RR	222	J44		10.3	10.3	10.3	2342	2400	58	19	3	288.5	7	3	2

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
	20	150	87000	152	115	10,000	1.2	45	87		Stabilizer					
											JARS					

DRILLING ASSEMBLY: *BIT, BIT SUB, X/O, s/s, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly*

SURVEYS: 2397m - 1 degree

Time Breakdown		Circ.		1.50	Survey		0.25	Test BOP'S		H. Tools		
Move Rig Up		Tripping		10.60	Break Circ.		11.26	BOP drill		Safety M		
Drilling		Rig Service		0.50	Run Casing + Cement			Plug Back		Mix LCM		
Reaming		Rig Repairs			WOC			Fishing		WOC		
Coring		Slip + Cut			Nipple Up BOP's			W.Tight Hole		Total Hrs		24.00

REMARKS

POOH to log w/ Schlumberger

Logs to bottom - no problem - 2 runs

Hole good

Finished logging @ 4 am

Currently RIH w/bit to clean out for DST (Closed Chamber)

Testers - Baker/Delta P on location approximately 2 PM

Expect to be running in with test tools early evening

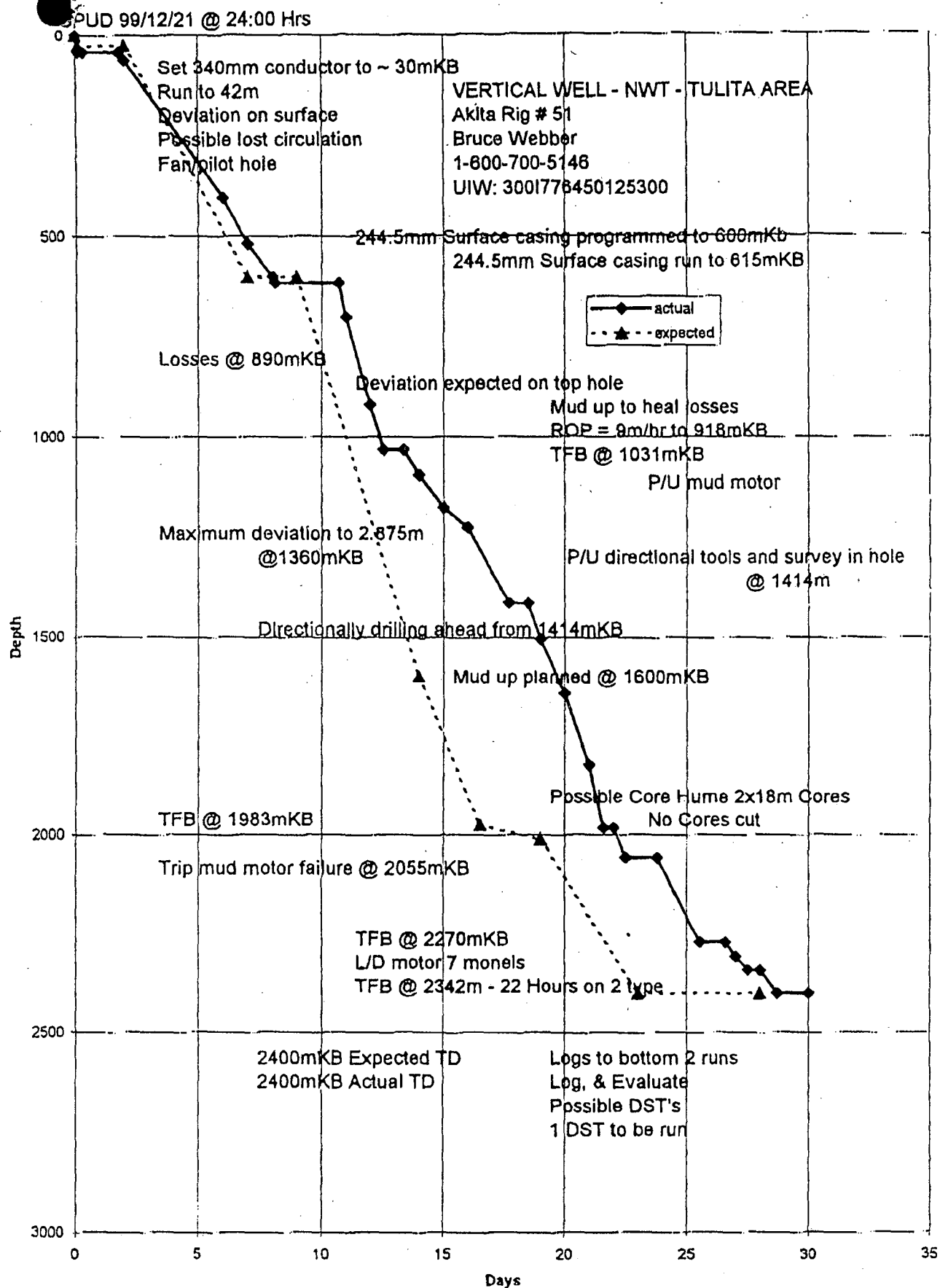
On bottom pumped up - early morning

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Other	snov	Temp:	-25	Wind:	light	Visibility:	good	Road Cond.	good		
Log.	Akita 51	o	Rick Parker	o			Sat Phone:	1-600-700-7370			

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-800-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	88/12/21
DAILY COST	\$27,038.00	COST TO DATE	\$1,274,413.00

NORTHROCK ET AL MACKAY I-77



DATE: 20-Jan-2K DEPTH: 2400m @0700 PROGRESS: 44 m REPORT #: 19

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Drill to TD at 2400m. Circulate sample. Condition mud. Wiper Trip. Circulate and condition mud. Drop survey. POOH to log. Strap out. Loggers called for 1000hrs. Will have bit to surface by noon.

MUD PROPERTIES: MD: 1140 Vis: 71 WL: 7.0

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	@ 1449m
Devonian Imperial	@ 1521m
Ramparts SH & SS	@ 1715m
Hume	@ 2006m
Headless	@ 2278m
Bear Rock	

GAS and SHOWS: No shows.

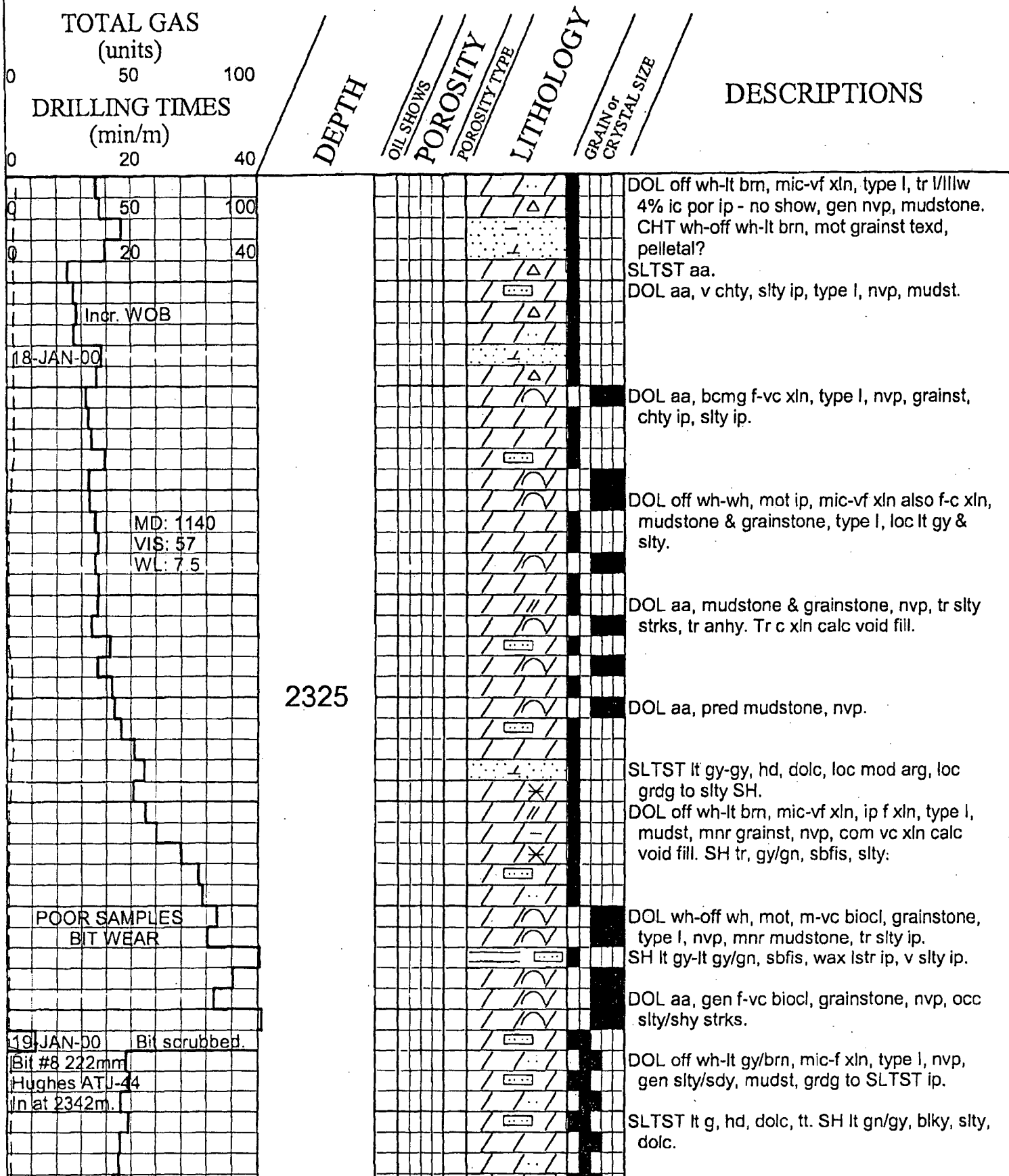
Final lithology: DOL vf-f xln, ip mic xln, type I/III-I, nvp, strky Fe staining, sl slty, tr SH & tr SLTST.

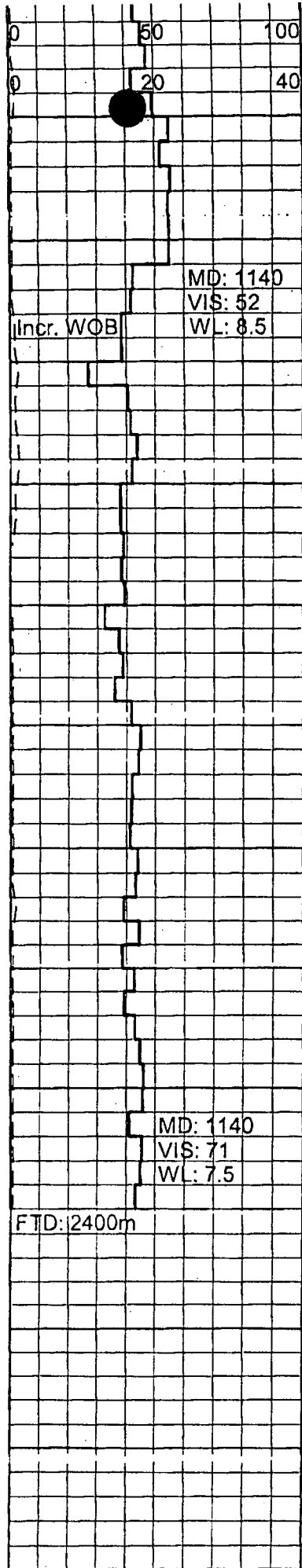
OTHER:

GL: 198.10m and KB: 202.35m (4.25m)

CANSTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

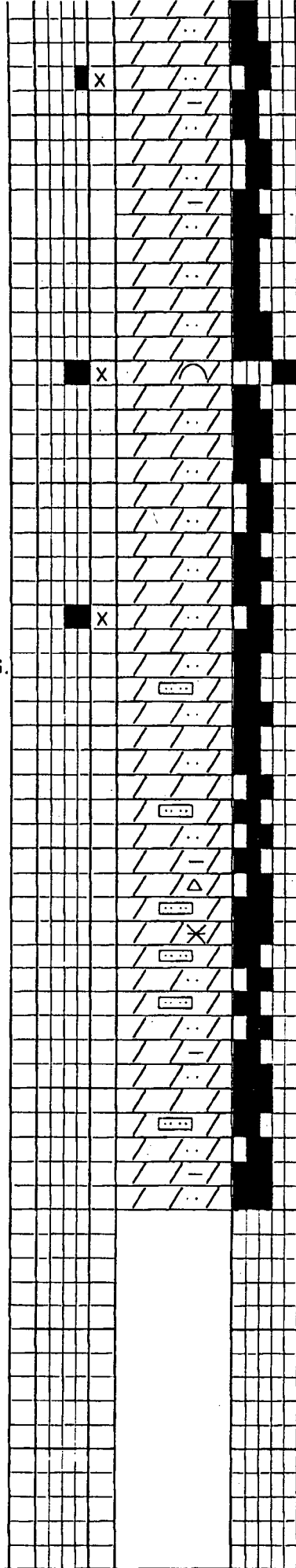
SCALE 1:240





2375
IRON STNG.

2400



DOL aa, tr dism pyr ip, com slty/sdy.

DOL aa, v rare glauc gr, rr pyr, tr ic por ip? gen slty/sdy.

DOL wh-off wh, mic-f xln, type I/III-I, nvp, tr dism pyr, mudst, loc v slty, pos grainst ip, tr c xln calc void lining.

DOL aa, loc m-c biocl grainst, type I/III-III/I, 6% ic por ip?

DOL aa, dism pyr ip.

DOL wh-off wh, mic-f xln, type I/III-I, nvp - 6-8% ic por, mudstone (?), tr slty strks, dism pyr ip, tr sl slty/sdy.

SLTST lt gy-gy, dolc, hd, tt, sl arg.

DOL aa, ip w redish cast = Fe stng, gen sl slty, com sltst strks.

SLTST lt gy, hd, dolc, sl arg, tt.

DOL wh-off wh, mic-f xln, type I/III-I, nvp, mudst (?), sl slty/sdy, tr redish cast = Fe stng, rare cht pbl? Tr c xln euh calc void lining. SH lt gy-lt gn/gy, sbfis, slty, dolc.

DOL aa, com pinkish cast = Fe stng, gen I/III, sl slty, tr gn sh ip, mudst (?).

DOL off wh-wh, pink ip, vf-f xln, mnr micxln, type I/III-I, nvp, mudst (?), sl slty. SH tr, lt gn/gy, pale gn, gn; sbfis, slty, dolc. SLTST aa, dolc, tt.

FTD reached at 2215hrs 19-JAN-00.

NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 29
Total Days 38

WELL: NORTHROCK ET AL MACKAY 177

2342 to 2400 Prog. 58 Operation 08:00: POOH to log Date: Jan 19/00
Drig. Fluid Type: Gel Chem Mud Eng. Will Larson Mud Company: CFS Formation: Bear Rock

Log Book				Check				PPM				Mud Pressure Gradient: 11.1			
Time	2240			Fann				Salinity							
Density	1140			600	68			Chloride	200	% by Volume					
Viscosity	72			300	44			Calcium	TR	Sand	0.001				
W.L.	8.5			P.V.	22			MBT - Kg/m ³	60	Solid	0%	Capacity: (m ³)			
P.H.	9.5			Y.P.	11			Temp C		Oil	0	Sump:			
F.C.	1			Gels	5/12			ES				Pump:			

MUD ADDITIVES: Gel 40 Soda Ash 2 Staffo 2 Kelzan
Sawdust Caustic 2 Barite Envirofloc
Lignite 3 Lime Polysafe Gypsum

MUD COSTS: DAILY: \$1,300 TOTAL: \$23,300

SOLIDS CONTROL							VOLUMES ADDED		M ³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)	Water (Brine)	Mud	Loss to Formation:		
CENTRIFUGE	WADECO	1940	1120			24						

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G
8RR	222	J44		10.3	10.3	10.3	2342	2400	58	19	3	288.5			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.	Make	S.N.	Size	hrs
8RR	20	150	87000	152	115	10,000	1.2	45	67		Stabilizer JARS				

DRILLING ASSEMBLY: BIT, BIT SUB, X/O, a/s, X/O, 18x159mm Dc's, 15xHWDP,
114mm DP to surface, Kelly

SURVEYS:

Time Breakdown		Circ.	1.50	Survey	0.50	Test BOP'S	H. Tools
Move Rig Up		Tripping	1.50	Break Circ.		BOP drill	Safety M
Drilling	18.00	Rig Service	0.75	Run Casing + Cement		Plug Back	Mix LCM
Reaming	0.75	Rig Repaire		WOC		Fishing	WOO
Coring		Silp + Cut		Nipple Up BOP's		W.Tight Hole	Total Hrs

REMARKS

Drill ahead to 2400mKB TD. Penetration - 3 m/Hr
Circulate bottom hole sample & condition mud

Hole good on connections

Currently POOH to P/U logging tools.
Loggers on location @ 10 am.

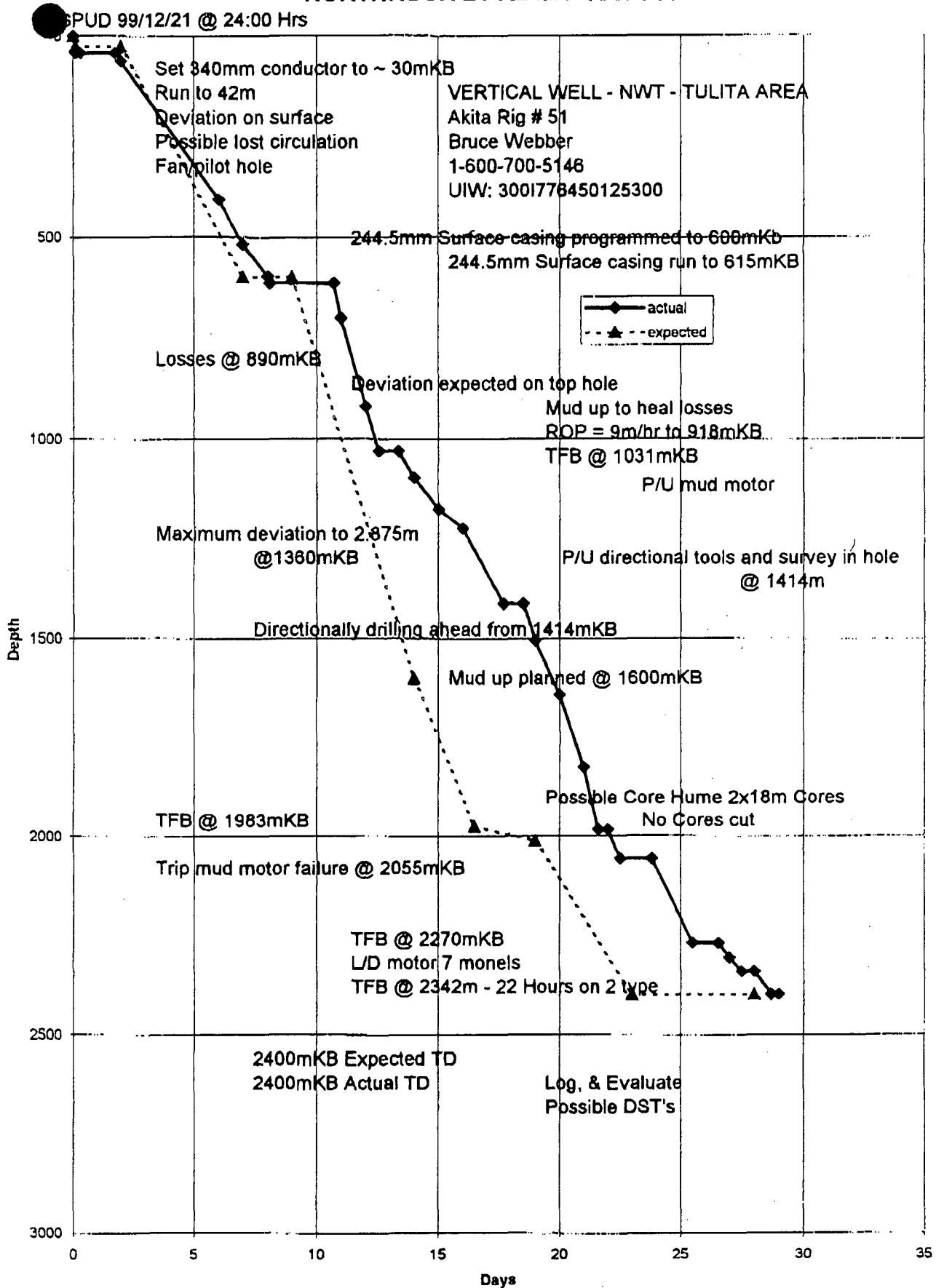
Is DST hand required on location?

CUT/FILL: 0.00 GRD. ELV.: 197.10 NEW GRD. ELV.: 198.10 KB to GRD.: 4.25 KB: 202.35 KB to CF: 0.00
Weather cloudy Temp: -30 Wind: light Visibility: good Road Cond. good
Rig: Akita 51 0 Rick Parker 0 Sat Phone: 1-600-700-7370

Location Directions:

Report from: Bruce Webber Sat Phone: 1-800-700-5148
Taken by: Kevin Kerwin SPUD DATE: 89/12/21 RR DATE:
DAILY COST \$28,178.00 COST TO DATE \$1,247,377.00

NORTHROCK ET AL MACKAY I-77



NORTHROCK et al E. MacKay I-77

64-50-125-30

DATE: 19-Jan-2K DEPTH: 2356m @0700 PROGRESS: 24 m REPORT #: 18

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Drill to 2342m. ROP: 1.5m/hr at trip. Trip for bit at. Bit scrubbed, most teeth broken off, metal polished. RIH with "harder" bit. OB & drilling at 0230hrs. ROP: 3.2m/hr.

MUD PROPERTIES: MD: 1140 Vis: 56 WL: 7.5

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	@ 1449m
Devonian Imperial	@ 1521m
Ramparts SH & SS	@ 1715m
Hume	@ 2006m
Headless	@ 2278m
Bear Rock	

GAS and SHOWS: No shows.

Trip gas at 2342m: 9u/2u BG

DOL mudst & grainst interbedded with minor SLTST & SH. Becoming mostly grainst below 2335m. No visable porosity. DOL becoming v slty below 2342m with abnt SLTST. (Light colored.)

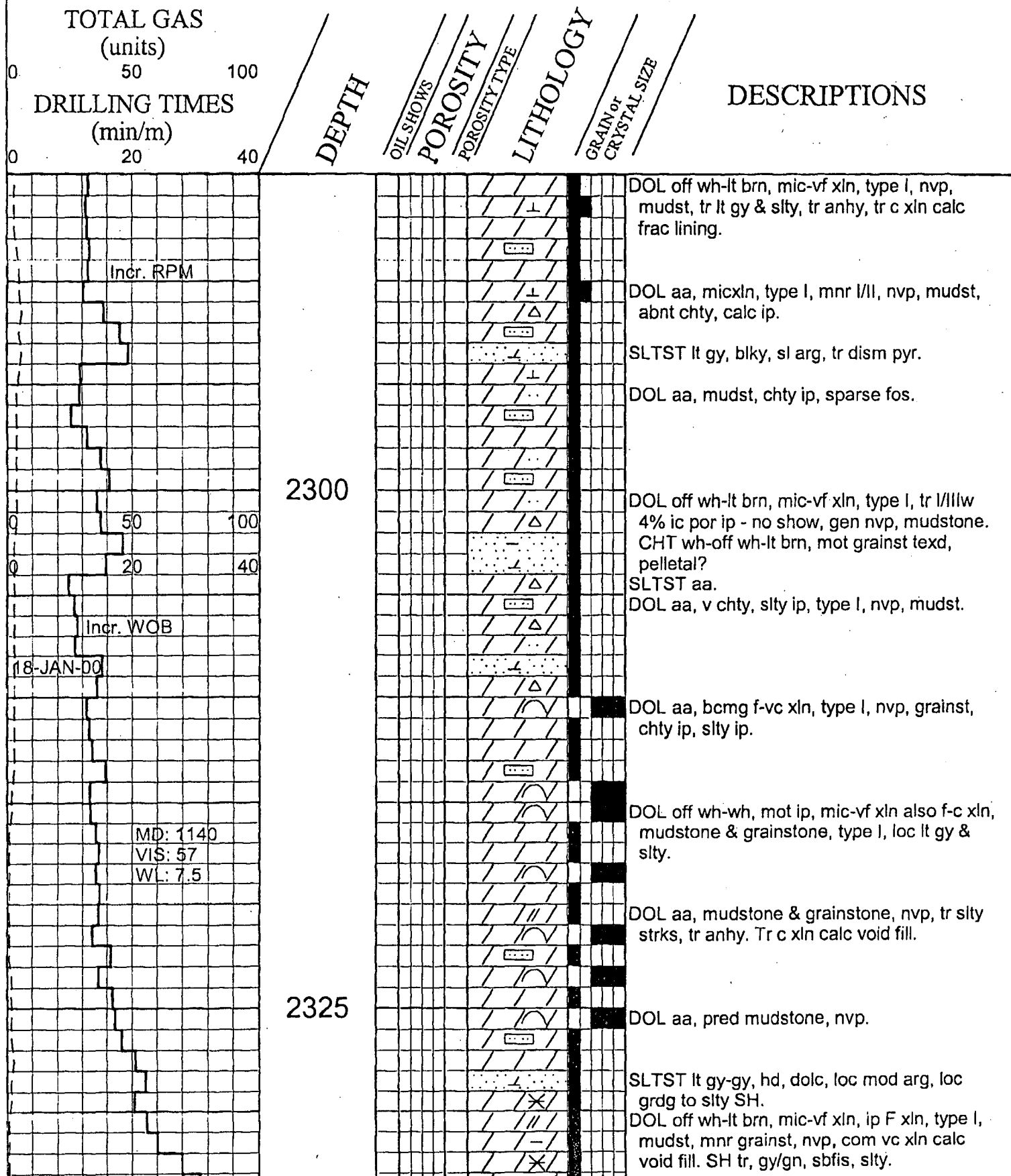
OTHER:

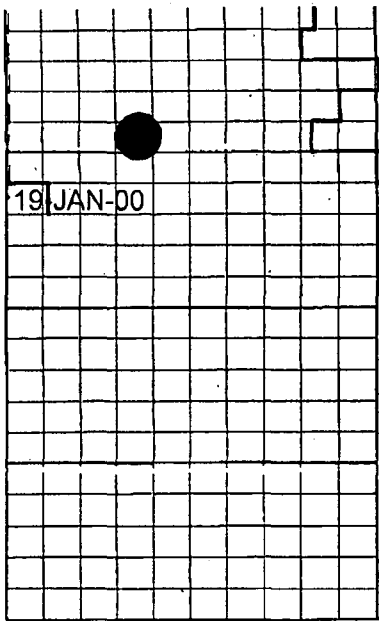
GL: 198.10m and KB: 202.35m (4.25m)

Dave Roberts - 764508 Alberta Limited - 600-700-2957

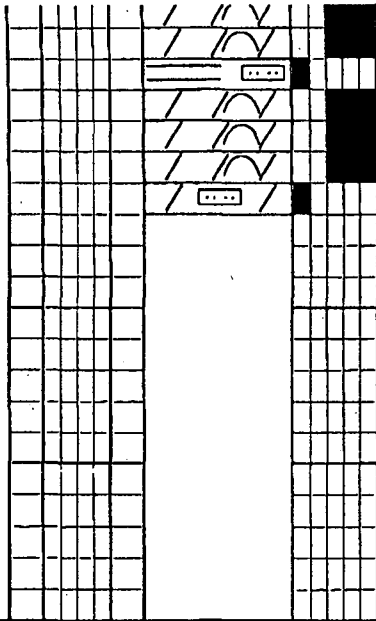
CANSTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

SCALE 1:240





2350



DOL wn-ott wn, mot, m-vc biocl, grainstone,
type I, nvp, mnr mudstone, tr slty ip.
SH lt gy-lt gy/gn, sbfis, wax lstr ip, v slty ip.

DOL aa, gen f-vc biocl, grainstone, nvp, occ
slty/shy strks.



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
 Days (fr Spud) 28
 Total Days 37

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 18/00	
2307 to 2342		Prog. 35		Operation 08:00:		Drilling @ 2360mKB		Formation: Bear Rock			
Drig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS							

Log Book				Check				PPM				Mud Pressure Gradient: 11.1			
Time	2300		Fann		Solinity			Chloride	200	% by Volume		Mud Cycle Main Hole:			
Density	1140		600	88	Calcium	TR		Sand	0.001	Capacity: (m³)		Bottoms Up Time:	62		
Viscosity	58		300	44	MBT - Kg/m³	60		Solid	0%	Sump:		Vol. Mud Tanks:			
W.L.	7.5		P.V.	22	Temp C			Oil	0	Pump:		Vol. Main Hole:			
P.H.	9.8		Y.P.	11	ES					m³/ash		TOTAL:			
F.C.	1		Gels	5/12											

MUD ADDITIVES:		Gel 25		Soda Ash		Staflor		3		Kalzan	
		Sawdust		Caustic 1		Barite				Envirofloc	
		Lignite 3		Lime		Polysafe				Gypsum	

MUD COSTS:		DAILY: \$1,550		TOTAL: \$22,000	
------------	--	----------------	--	-----------------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M³/M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1940	1120			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G
8RR	222	J44		10.3	10.3	10.3	2342								
7	222	GT20		14.3	14.3	14.3	2270	2342	72	22.75	3.1	289.5	7	3	2

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M³/M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs	
8RR	20	150	88000	152	115											
7	16-20	85	88000	152	105	9,350	1.1	43	87							

DRILLING ASSEMBLY: BIT, BIT SUB, X/O, s/s, X/O, 18x159mm Dc's, 15xHWDP,
 114mm DP to surface, Kelly

SURVEYS:

Time Breakdown		Circ.	1.00	Survey		Test BOP'S		H. Tools	
Move Rig Up		Tripping	9.75	DO		BOP drill		Safety M	
Drilling	12.75	Rig Service	0.50	Run Casing + Cement		Plug Back		Mix LCM	
Reaming		Rig Repairs		WOC		Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

Drill ahead to 2342m. Penetration down to ~ 1 m/Hr

POOH, bit buttons flat

Rerun J44 to drill approximately 58m to expected TD

Hole good on trip out

Currently drilling @ 2360m @ 3-4 m/hr

Loggers in Norman Wells - ready

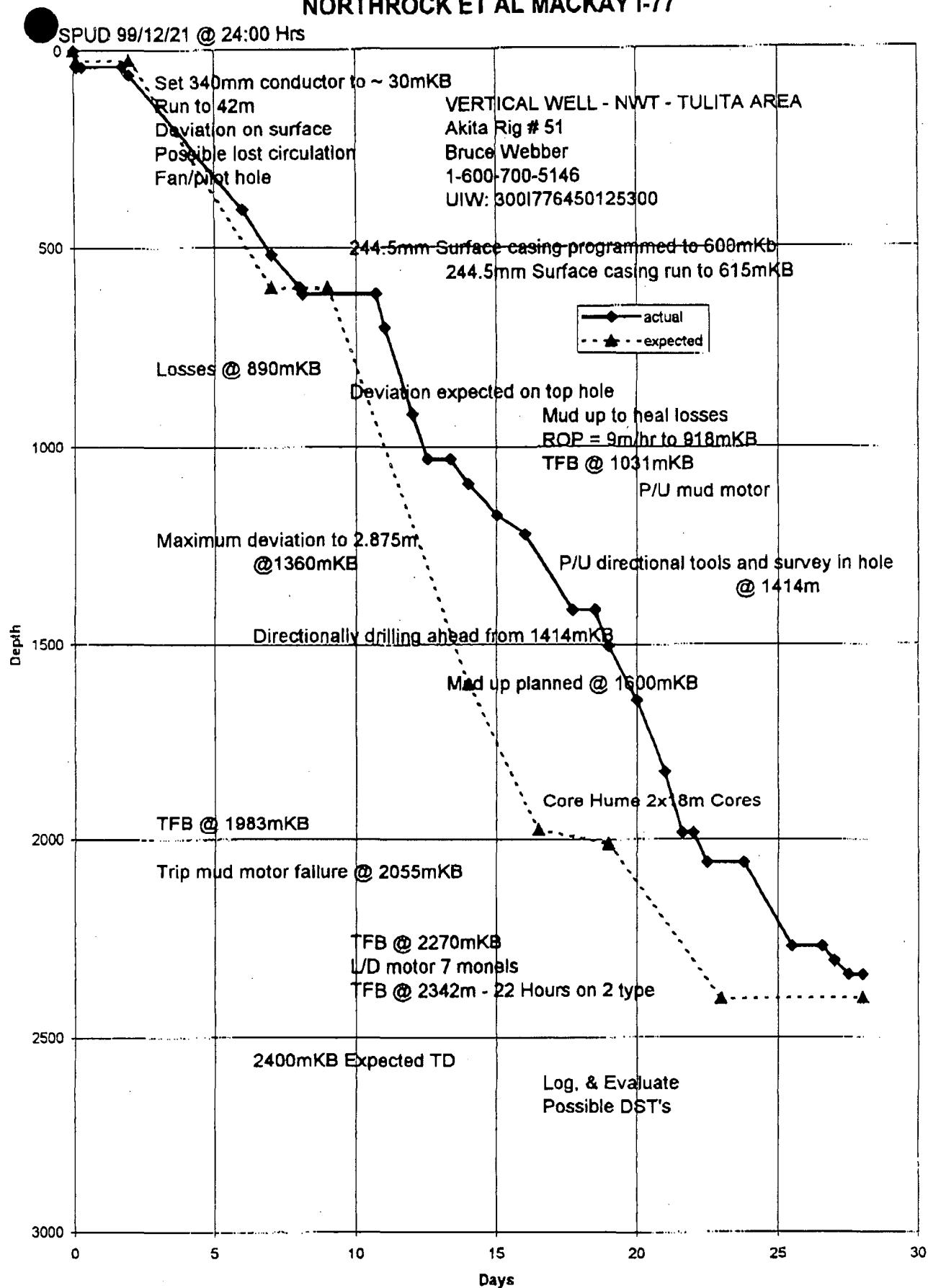
TD expected @ 2400mKB

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-38	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	o Rick Parker		o		Sat Phone:	1-600-700-7370				

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-800-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
DAILY COST		\$28,425.00	COST TO DATE
			\$1,219,198.00

NORTHROCK ET AL MACKAY I-77



NORTHROCK et al E. MacKay I-77

64-50-125-30

DATE:18-Jan-2K DEPTH: 2332m @0700 PROGRESS: 63m REPORT #: 17

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: RIH. Wash to bottom. Drill ahead. ROP is creeping to the right. Samples powdery. I think we will TD shallow or trip for bit today. ROP: was 5-6m/hr, now 2.5m/hr.

MUD PROPERTIES: MD: 1140 Vis: 57 WL: 8.5

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	@ 1449m
Devonian Imperial	@ 1521m
Ramparts SH & SS	@ 1715m
Hume	@ 2006m
Headless	
Bear Rock	

GAS and SHOWS:

No shows. Trace background.
Trip gas at 2270m 9u/3u BG

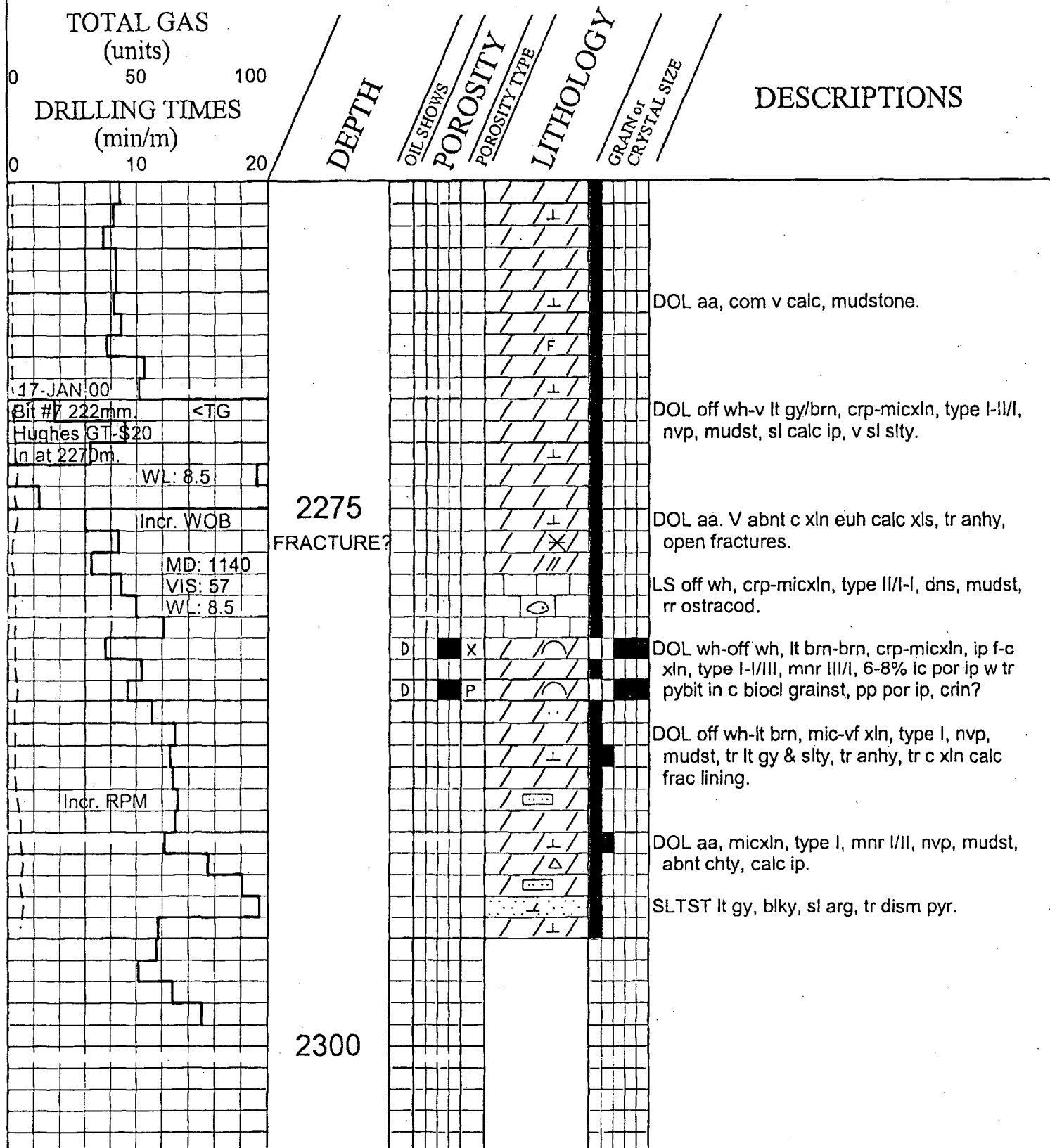
Saw a thin bioclastic (crinoidal) grainstone DOLOMITE in the 2280m sample.

OTHER:

GL: 198.10m and KB: 202.35m (4.25m)

CANSTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

SCALE 1:240





NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
 Days (fr Spud) 27
 Total Days 36

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 17/00	
2270 to 2307		Prog. 37		Operation 08:00:		Drilling @ 2333m		Formation: Bear Rock			
Orig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS							

Log Book				Check				PPM							
Time				Fann				Salinity				Mud Pressure Gradient: 11.1			
Density	1140			600	88			Chloride	200	% by Volume		Mud Cycle Main Hole:			
Viscosity	58			300	44			Calcium	TR	Sand	0.001	Bottoms Up Time: 62			
W.L.	8.5			P.V.	24			MBT - Kg/m ³	60	Solid	0%	Capacity: (m ³)	Vol. Mud Tanks:		
P.H.	9.5			Y.P.	10			Temp C		Oil	0	Sump:	Vol. Main Hole:		
F.C.	1			Gels	4/11			ES				Pump:	TOTAL:		

MUD ADDITIVES:		Gel		Soda Ash		Staflor		2		Kelzan	
		Sawdust		Caustic		Barite				Envirofloc	
		Lignite		2		Lime				Polysafe	
										Gypsum	

MUD COSTS:		DAILY:		\$1,000		TOTAL:		\$20,450	
------------	--	--------	--	---------	--	--------	--	----------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1870	1135			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G
6	222	J44		14.3	14.3	14.3	2055	2270	215	38.75	6	248.75			
7	222	GT20		14.3	14.3	14.3	2270	2307	37	10	3.7	258.75			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs	
6	20	150	66000	152	115	10,500	1.35	45	77							
7	16-20	85	66000	152	106	8,350	1.1	43	67							

DRILLING ASSEMBLY: BIT, BIT SUB, X/O, s/s, X/O, 18x159mm Dc's, 15xHWDP,
 114mm DP to surface, Kelly

SURVEYS:

Time Breakdown		Circ.	0.50	Survey	0.50	Test BOP'S		H. Tools	
Move Rig Up		Tripping	8.50	DO		BOP drill		Safety M	
Drilling	10.00	Rig Service		Run Casing + Cement		Plug Back		Mix LCM	
Reaming	3.75	Rig Repairs		WOC		Fishing		WOO	
Coring		Silp + Cut	0.75	Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

Finish in hole and circulate / ream to bottom from 2215m

Drill ahead to 2307m @ midnight

Drill ahead @ 2333m @ 08:00 Hrs

Drilling 2 - 4 m/Hr w/ 16 - 20000 daN

Expect to TD late tonight or early morning

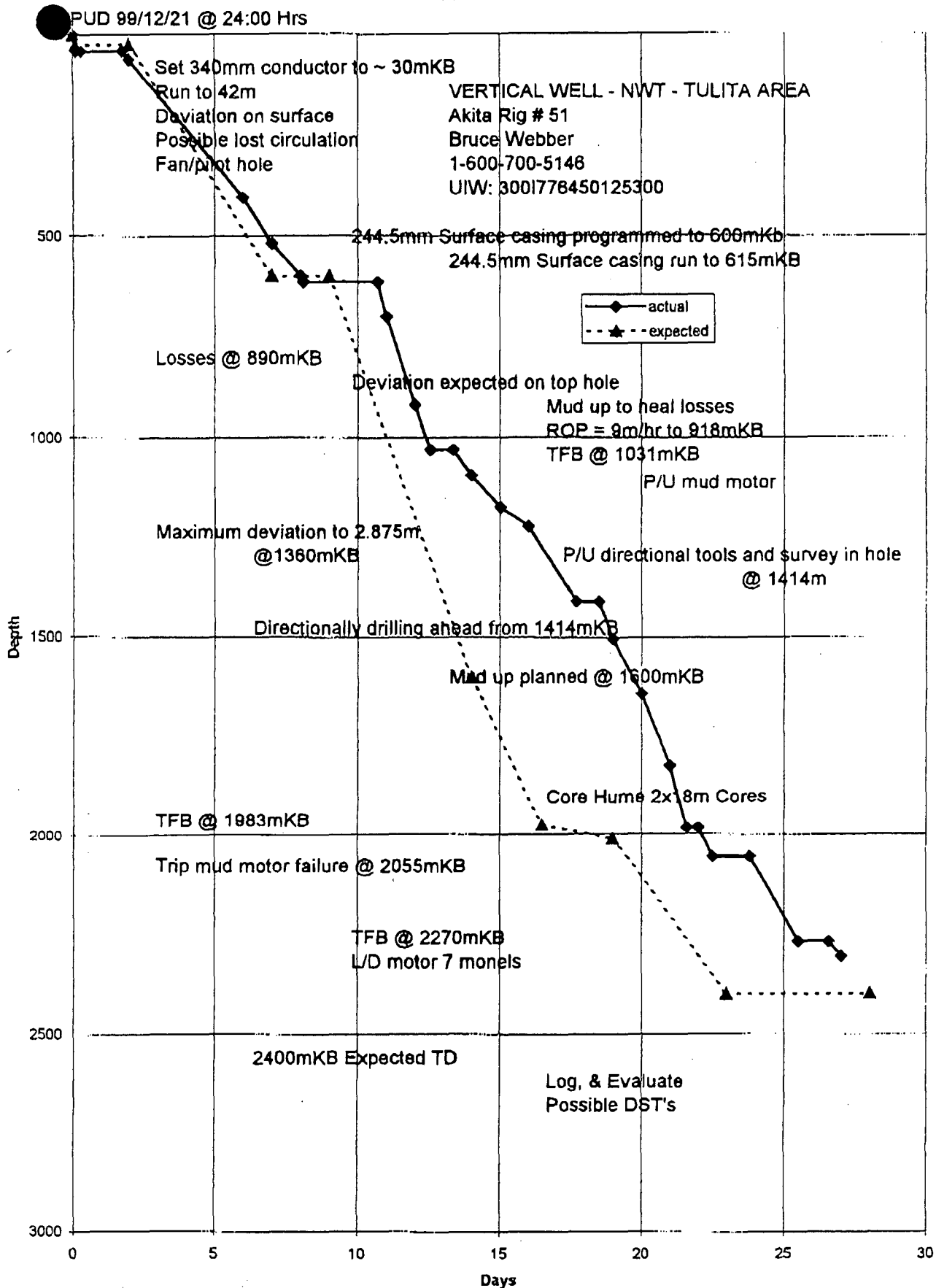
Loggers in Norman Wells - ready

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-30	Wind:	light	Visiblity:	good	Road Cond.	good		
Rig:	Akita 51		Rick Parker			Sat Phone:	1-600-700-7370				

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5146
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
DAILY COST		\$27,881.00	COST TO DATE
			\$1,190,773.00

NORTHROCK ET AL MACKAY I-77



NORTHROCK et al E. MacKay I-77

64-50-125-30

DATE:17-Jan-2K DEPTH: 2270m @0700 PROGRESS: 45m REPORT #: 16

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey. Trip for bit at 2270m. Work tight hole near bottom. POOH. Lay down MWD tools and mud-motor. RIH. At 1125m at 0700hrs. Drilling by late AM.

MUD PROPERTIES: MD: 1140 Vis: 53 WL: 8.5

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	@ 1449m
Devonian Imperial	@ 1521m
Ramparts SH & SS	@ 1715m
Hume	@ 2006m
Headless	
Bear Rock	@ 2184m?

GAS and SHOWS: No shows. Trace background.

OTHER:

Faxed final surveys. (MWD laid down.)

GL: 198.10m and KB: 202.35m (4.25m)

Dave Roberts - 764508 Alberta Limited - 600-700-2957

CANSTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

SCALE 1:240

TOTAL GAS
(units)DRILLING TIMES
(min/m)

0 50 100
0 10 20

DEPTH

OIL SHOWS

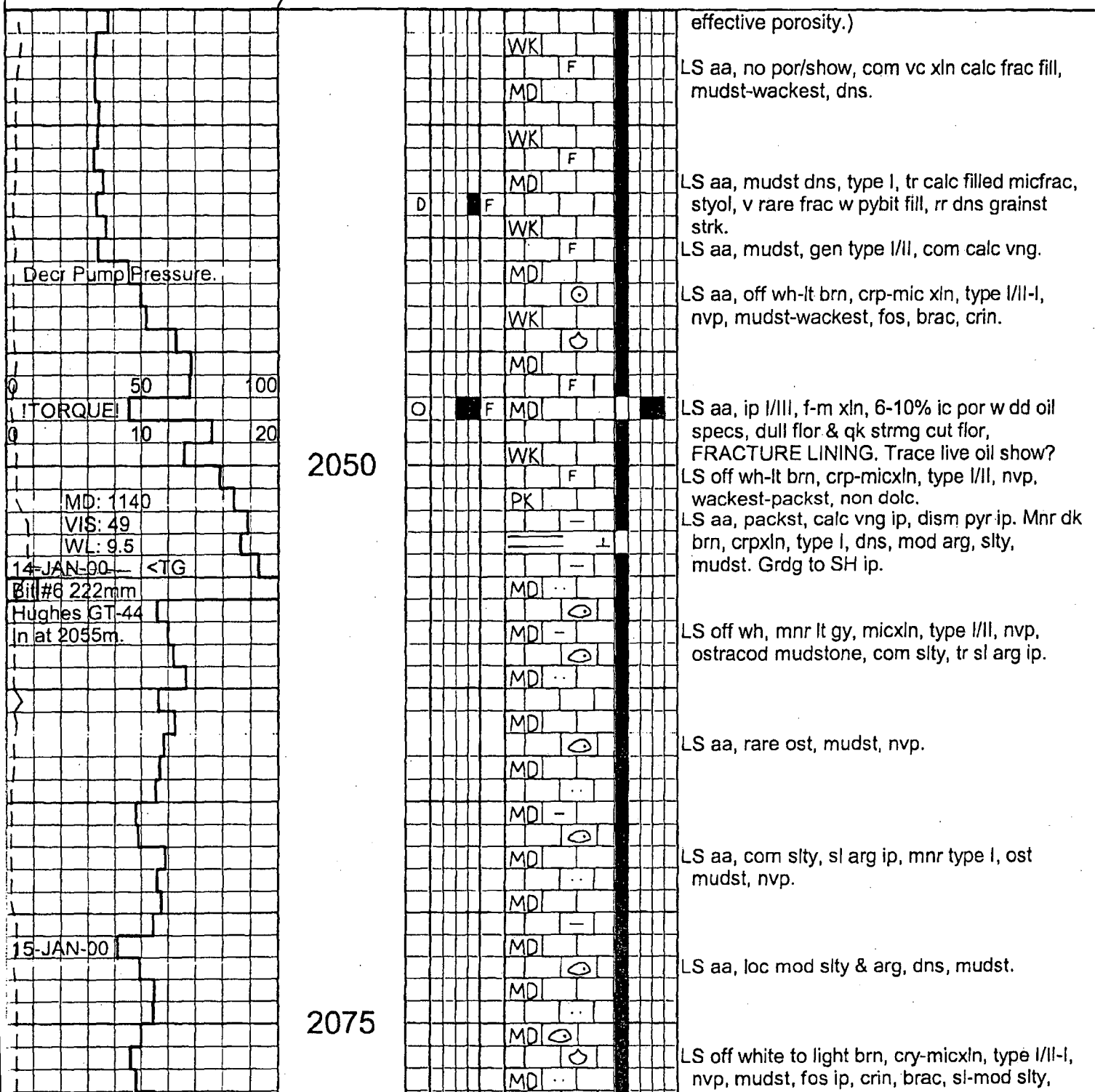
POROSITY

POROSITY TYPE

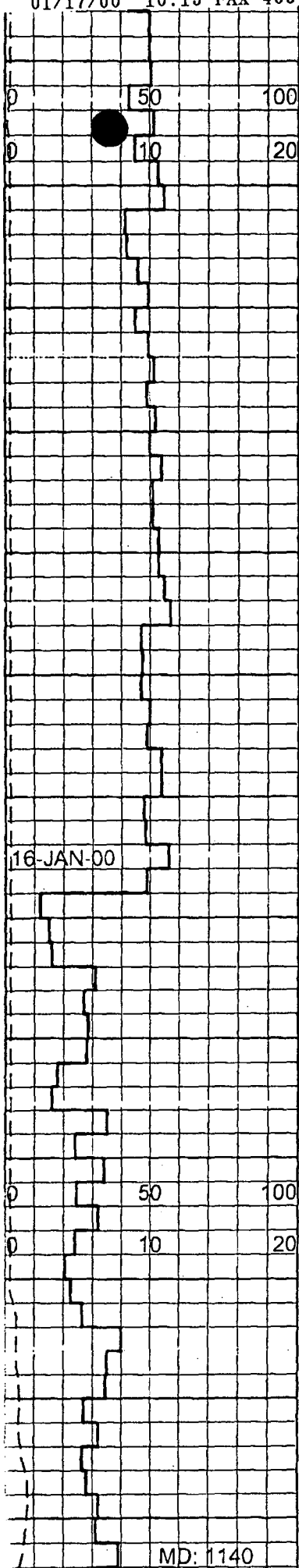
LITHOLOGY

GRAIN or
CRYSTAL SIZE

DESCRIPTIONS



2150

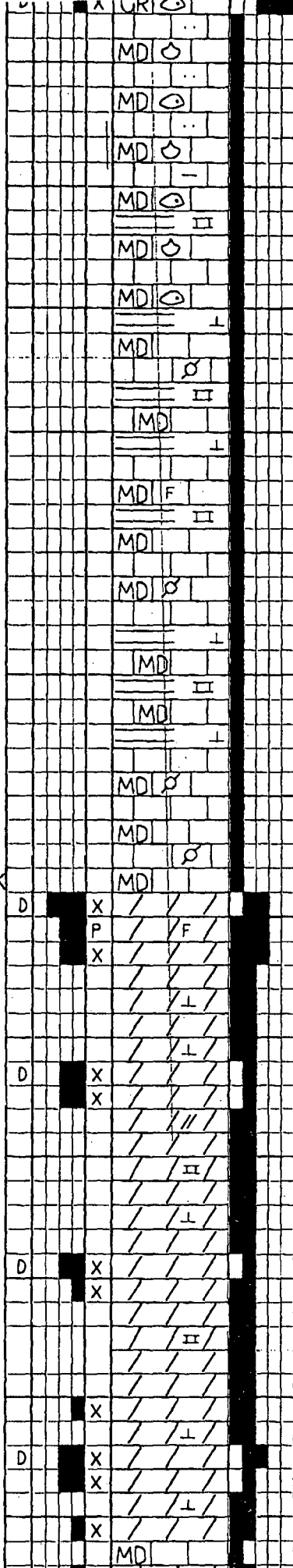


2175

BEAR ROCK
@ 2184m

2200

MD: 1140



LS aa, rare grainst w tr ic por w pybit fill, no effective por.

LS off wh-lt brn, crp-micxln, type I/II, nvp, mudst, loc packst, ost, brac, com lt gy & v slty.

LS aa, com dk brn, type I, v arg grdng to SH ip, rare calc vng.

SH dk brn, blk, v calc.

LS aa, tr v arg aa, pos pelletal? nvp, mudst.

LS off wh-lt gy/brn, lt gy, crp-micxln, nvp, type I/II, mudst, fos ip.
2168 -2169 SH dk brn, blk, v calc, tr calc vng.

LS aa, gen v slty & sl arg, rare pelletal, nvp, mudst.

SH aa, abnt calc vng.

LS aa, tr pelletal.

DOL lt brn, mic-vf xln, tr f xln, type I/III-III/I, 6-10% ic & pp por, tr pybit fill ip, mudst, crin, no flor, no cut flor.

DOL lt brn, mic-vf xln, type I-I/III, rare 6% ic por ip, gen nvp, sl calc, com calc vng.

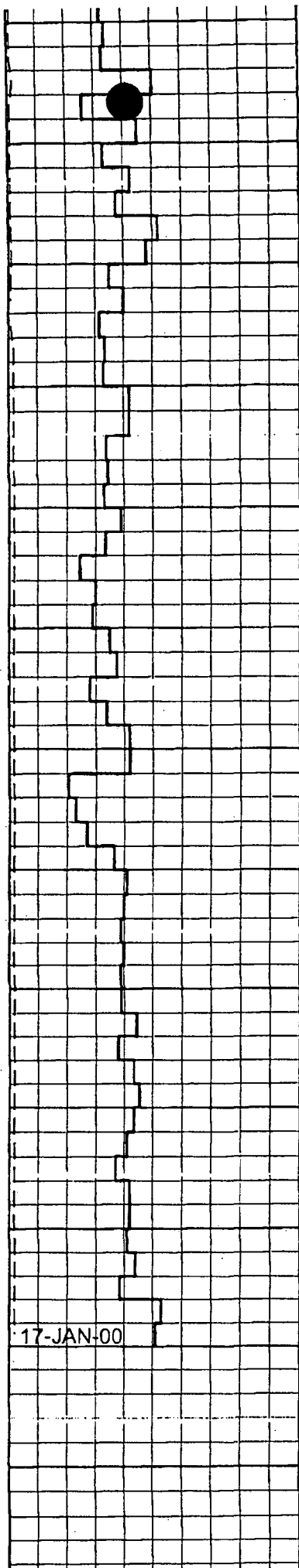
DOL aa, 6-8% ic por ip, rr pybit fill, sl calc, com c xln calc frac fill, tr anhy, com calc vng.

DOL aa, bcmg mod calc ip, mic-vf xln, type I rare I/III, com calc vng.

DOL lt brn-gy/brn, pred type I, crp-f xln, nvp, mudst, v calc ip.

DOL lt brn, mot, crp-micxln, ip mic-vf xln, type I-I/III, 6-8% ic por com dead oil stng on frac fill, com v calc, calc vng ip.

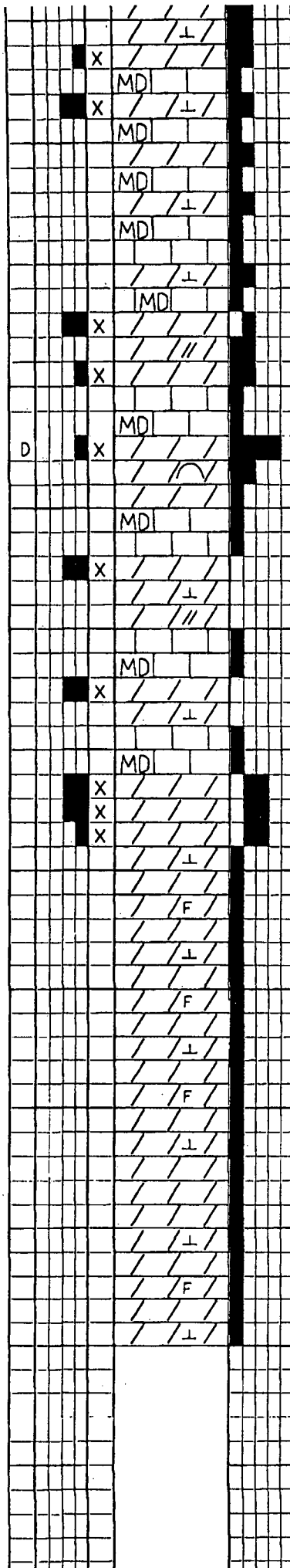
DOL aa, v calc, gen tt, ip type I/III mic-vf xln, 6% ic por w tr pybit. Interbedded with- LS



2225

2250

2275



DOL lt brn-gy/brn, mic-vf xln, ip f xln, type I-II/I, ip III/I, 6-10% ic por w/o pybit fill, no flor, no cut flor.

DOL lt gy/brn, mic-vf xln, type I-II/I, mudst? pel ip, rare ic por w pybit fill, v calc ip.

LS off wh-lt brn, crp-mic xln, type II/I, nvp, mudst, com coarse euhedral xln calc frac lining w rr pybit ip.

DOL aa, loc vf xln, type III/I, 8% ic por, tr anhy.

LS aa, com c xln euh frac lining.

DOL lt brn, mic-vf xln, type I-I/III, mot texd, biocl grainst, v calc ip, tt-6% ic por w pybit fill ip.

LS aa, tr c xln calc vug (void?) lining.

DOL lt brn aa, tr mic xln, type I/III w 4-6 % ic por w/o pybit, tr anhy.

LS aa, dns.

DOL lt brn, mic-vf xln, type I, mntr type I/III, 4-6% ic por ip w pybit fill ip, com-gen v calc, com calc vng.

DOL lt gy/brn-mnr brn, mic-f xln, type I-I/III, tr III/I, 6-8% ic por in vf-f xln, mntr pp por, tr pybit ip, com vc xln calc frac lining com calc vng.

DOL lt brn-lt gy/brn, crp-micxln, type I-II/I, mot texd, mudst-packst, gen v calc, nvp.

DOL off wh-v lt gy/brn, crp-micxln, type I, gen cac, loc calc microfrac, mudst, prob ghost ostracods.

DOL aa, com v calc, mudstone.

17-JAN-00



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) **9**
 Days (fr Spud) **26**
 Total Days **35**

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 16/00	
2180 to 2270		Prog. 90		Operation 08:00:		Finish RIH		Formation: Bear Rock			
Orig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS							

Log Book				Check				PPM					
Time		Fann		Salinity				Mud Pressure Gradient:		11.1			
Density	1140	600	68	Chloride	200	% by Volume		Mud Cycle Main Hole:					
Viscosity	65	300	44	Calcium	TR	Sand 0.001		Bottoms Up Time:		58			
W.L.	7.5	P.V.	24	MBT - Kg/m ³	60	Solid 0%		Capacity: (m ³)		Vol. Mud Tanks:			
P.H.	10	Y.P.	10	Temp C		Oil 0		Sump:		Vol. Main Hole:			
F.C.	1	Gels	4/11	ES				Pump:		TOTAL:			

MUD ADDITIVES:		Gel		Soda Ash		Staflor		1		Kelzan		1	
		Sawdust		Caustic		1		Barite		30		Envirofloc	
		Lignite		1		Lime		Polysafe		1		Gypsum	

MUD COSTS:		DAILY:		\$1,700		TOTAL:		\$19,450	
------------	--	---------------	--	----------------	--	---------------	--	-----------------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1870	1135			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G
6	222	J44		14.3	14.3	14.3	2055	2270	215	36.75	6	246.75			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs
6	20	150	68000	152	115	10,500	1.35	45	77						

DRILLING ASSEMBLY: **BIT, BIT SUB, X/O, s/s, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly**

SURVEYS:

Time Breakdown		Circ.	3.00	Survey	0.50	Test BOP'S		H. Tools	
Move Rig Up		Tripping	6.50	DO		BOP drill		Safety M	
Drilling	11.50	Rig Service	0.50	Run Casing + Cement		Plug Back		Mix LCM	
Reaming		Rig Repairs		WOC		Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole	2.00	Total Hrs	24.00

REMARKS

Drill ahead w/motor to 2270m, POOH

P/U S/S and lay down motor & monel

RIH, work tight hole from 2180m - 2210m.

REVISED

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	cloudy	Temp:	-40	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	0	Rick Parker	0	Sat Phone:		1-600-700-7370				

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-800-700-5146
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
RR DATE:			

DAILY COST	\$38,323.00	COST TO DATE	\$1,182,912.00
------------	-------------	--------------	----------------



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 26
Total Days 32

WELL: NORTHROCK ET AL MACKAY 177

Date: Jan 16/00

2 to 2270 Prog. 90 Operation 08:00: Drill Ahead Formation: Bear Rock

Orig. Fluid Type: Gel Chem Mud Eng. Will Larson Mud Company: CFS

Log Book				Check				PPM				Mud Pressure Gradient: 11.1			
Time				Fann				Salinity							
Density	1140			600	68			Chloride	200	% by Volume					
Viscosity	55			300	44			Calcium	TR	Sand	0.001				
W.L.	7.5			P.V.	24			MBT - Kg/m ³	60	Solid	0%	Capacity: (m ³)		Bottoms Up Time: 58	
P.H.	10			Y.P.	10			Temp C		Oil	0	Sump:		Vol. Mud Tanks:	
F.C.	1			Gels	4/11			ES				Pump:		Vol. Main Hole:	
MUD ADDITIVES:				Gel				Soda Ash		Stafo	1			TOTAL:	
				Sawdust				Caustic	1	Barite	30			Kelzan	
				Lignite	1			Lime		Polysafe	1			Envirofloc	
														Gypsum	

MUD COSTS: DAILY: \$1,700 TOTAL: \$19,450

SOLIDS CONTROL							VOLUMES ADDED		M ³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)	Water (Brine)	Mud	Loss to Formation:		
CENTRIFUGE	WADECO	1870	1135			24						

BIT DATA																
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G	
8	222	J44		14.3	14.3	14.3	2055	2270	215	36.75	8	246.75				
No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS		Make	S.N.	Size	hrs
8	20	150	66000	152	115	10,500	1.35	45	77							

DRILLING ASSEMBLY: BIT, BIT SUB, X/O, s/s, X/O, 18x159mm Dc's, 15xHWDP,
114mm DP to surface, Kelly

SURVEYS: 1980m - 0.7, 2027m - 0.6, 2040m - 0.6

Time Breakdown		Circ.		Survey		Test BOP'S		H. Tools	
Move Rig Up		Tripping	3.00	DO	0.50	BOP drill		Safety M	
Drilling	11.50	Rig Service	0.50	Run Casing + Cement		Plug Back		Mix LCM	
Reaming		Rig Repairs		WOC		Fishing		WOC	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole	2.00	Total Hrs	24.00

REMARKS

Drill ahead w/motor to 2270m, POOH

P/U S/S and lay down motor & monel

RIH, work tight hole from 2180m - 2210m.

CUT/FILL: 0.00 GRD. ELV.: 197.10 NEW GRD. ELV.: 198.10 KB to GRD.: 4.25 KB: 202.35 KB to CF: 0.00

Weather cloudy Temp: -40 Wind: light Visibility: good Road Cond. good

Rig: Akita 51 0 Rick Parker 0 Sat Phone: 1-600-700-7370

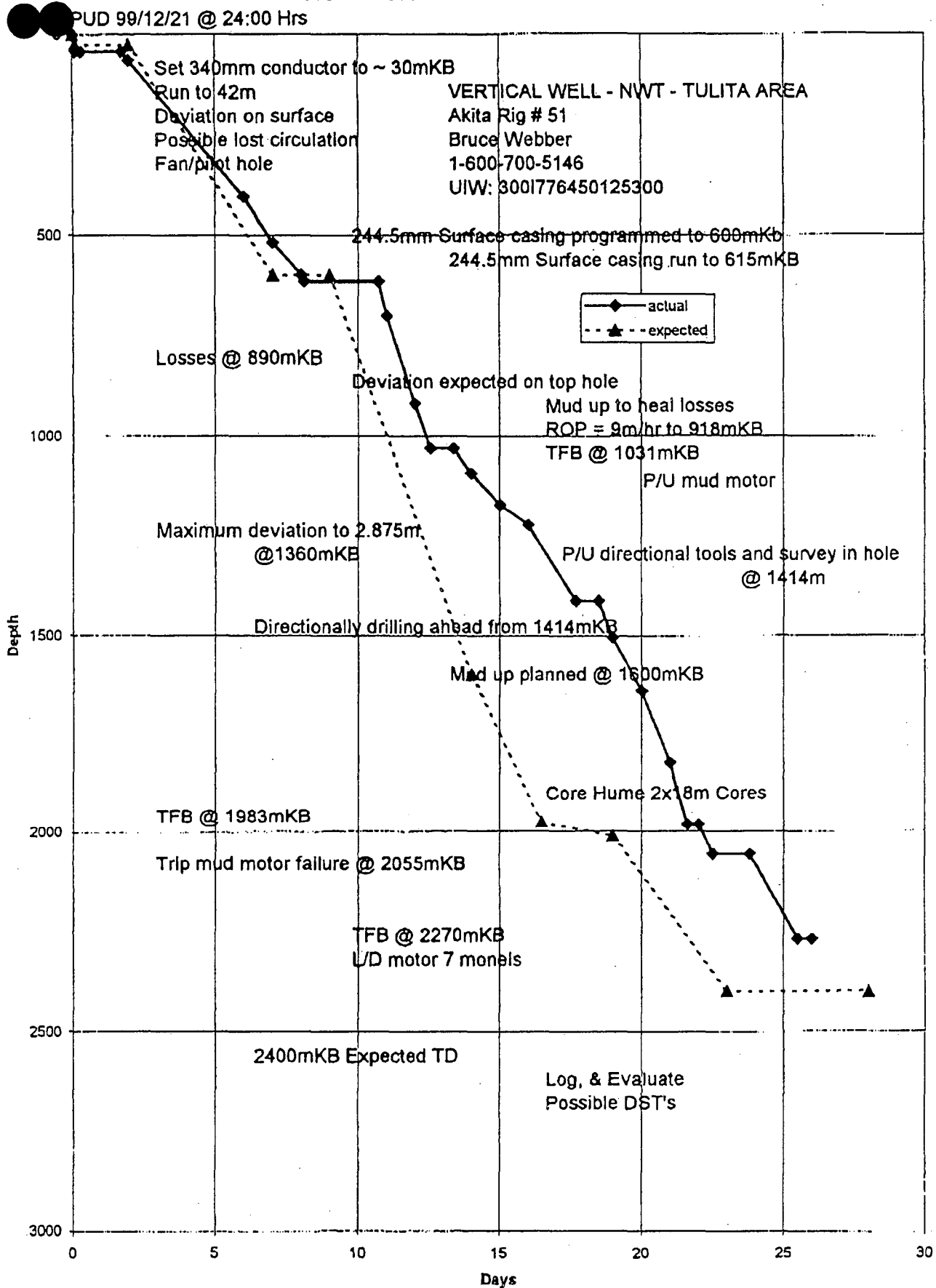
Location Directions:

Report from: Bruce Webber Sat Phone: 1-600-700-5146

Taken by: Kevin Kerwin SPUD DATE: 99/12/21 RR DATE:

DAILY COST \$38,323.00 COST TO DATE \$1,162,912.00

NORTHROCK ET AL MACKAY I-77



January 16, 2000

PathTracker 4.0

Page 3 of 3

2:30 PM

Survey Calculation Program
NORTHROCK et al E MACKAY I-77

Customer: NORTHROCK RESOURCES LTD.
WellName: NORTHROCK et al east MACKAY I-77
Location: I 7764-50-125-30

Vertical Section Calculated on: 0.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\PATHTRK\NORTH.SR3

#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	North Meters	East Meters	Section Meters	Dogleg /30m
68	1989.30	1.20	284.80	1988.65	-2.06	8.90	-2.06	1.67
69	1998.90	0.90	285.80	1998.25	-2.01	8.73	-2.01	0.94
70	2008.40	1.20	280.90	2007.75	-1.97	8.56	-1.97	0.99
71	2017.60	0.80	318.90	2016.95	-1.91	8.42	-1.91	2.46
72	2027.10	0.50	307.60	2026.45	-1.83	8.34	-1.83	1.03
73	2036.70	0.60	313.30	2036.05	-1.77	8.27	-1.77	0.36
74	2040.00	0.60	315.40	2039.35	-1.75	8.25	-1.75	0.20
75	2046.30	0.50	299.20	2045.85	-1.71	8.20	-1.71	0.88
76	2055.90	0.40	322.40	2055.25	-1.66	8.14	-1.66	0.64
77	2065.50	0.70	318.20	2064.85	-1.59	8.09	-1.59	0.95
78	2075.00	0.40	328.10	2074.34	-1.52	8.03	-1.52	0.99
79	2084.60	0.30	347.00	2083.94	-1.47	8.01	-1.47	0.47
80	2094.20	0.60	21.50	2093.54	-1.40	8.02	-1.40	1.22
81	2103.80	0.60	51.70	2103.14	-1.32	8.08	-1.32	0.88
82	2113.30	0.40	42.50	2112.64	-1.26	8.14	-1.26	0.68
83	2122.90	0.50	50.30	2122.24	-1.21	8.19	-1.21	0.37
84	2132.60	0.90	67.20	2131.94	-1.16	8.30	-1.16	1.38
85	2142.10	0.90	59.40	2141.44	-1.09	8.43	-1.09	0.39
86	2151.70	1.00	67.90	2151.04	-1.02	8.57	-1.02	0.54
87	2161.20	1.30	68.60	2160.54	-0.95	8.75	-0.95	0.95
88	2170.80	1.30	81.90	2170.14	-0.89	8.96	-0.89	0.84
89	2180.40	1.40	80.50	2179.73	-0.86	9.18	-0.86	0.33
90	2190.00	1.30	84.70	2189.33	-0.83	9.40	-0.83	0.44
91	2199.60	1.10	84.00	2198.93	-0.81	9.60	-0.81	0.63
92	2209.20	1.10	84.00	2208.53	-0.79	9.79	-0.79	0.00
93	2218.80	1.40	79.10	2218.12	-0.76	9.99	-0.76	0.99
94	2228.40	1.20	84.70	2227.72	-0.73	10.21	-0.73	0.74
95	2237.90	1.50	94.60	2237.22	-0.73	10.43	-0.73	1.20
96	2247.10	1.60	96.00	2246.42	-0.75	10.68	-0.75	0.35
97	2257.10	1.60	98.80	2256.41	-0.79	10.98	-0.79	0.23

Closure is 10.9859 Meters on an azimuth of 94.1116



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) **9**
 Days (fr Spud) **25**
 Total Days **34**

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 15/00	
2070 to 2180		Prog. 110		Operation 08:00:		Drill @ 2240mKB		Formation:			
Orig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS							

Log Book				Check				PPM				Mud Pressure Gradient: 11.1			
Time			Fann		Salinity					% by Volume			Mud Cycle Main Hole:		
Density	1135		600	43	Chloride	200				Sand	0.001		Bottoms Up Time:	58	
Viscosity	48		300	28	Calcium	TR				Solid	0%	Capacity: (m³)	Vol. Mud Tanks:		
W.L.	8		P.V.	15	MBT - Kg/m³	55				Oil	0	Sump:	Vol. Main Hole:		
P.H.	9.5		Y.P.	8.5	Temp C							Pump:	m³/ask	TOTAL:	
F.C.	1		Gels	4/8	ES										

MUD ADDITIVES:		Gel 40		Soda Ash		Staflor		3		Kelzan		1	
		Sawdust		Caustic		Barite				Envirofloc			
		Lignite		Lime		Polysafe				Gypsum			

MUD COSTS:		DAILY:		\$2,000		TOTAL:		\$17,750	
------------	--	--------	--	---------	--	--------	--	----------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M³/M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1870	1135			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA																
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G	
6	222	J44		14.3	14.3	14.3	2085	2180	125	25.25	5	235.25				
No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M³/M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
6	20	150	64000	152	115	10.600	1.35	45	77		Stabilizer					
											JARS					

DRILLING ASSEMBLY: **BIT, BIT SUB, X/O, mud motor, monel, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly**

SURVEYS: **2085m - 0.3, 2123m - 0.5, 2163m - 1.3**

Time Breakdown		Circ.		Survey		0.75		Test BOP'S		H. Tools	
Move Rig Up		Tripping		Handle Tools				BOP drill		Safety M	
Drilling		Rig Service		Run Casing + Cement				Plug Back		Mix LCM	
Reaming		Rig Repairs		WOC				Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's				W.Tight Hole		Total Hrs	
										24.00	

REMARKS

Drill ahead w/motor @ 5m/Hr

Hole good on connections

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-30	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	0	Rick Parker	0	Sat Phone:			1-600-700-7370			
Location Directions:											
Report from:						Sat Phone:					
Taken by:						SPUD DATE:					
DAILY COST						COST TO DATE					
\$37,883.00						\$1,124,589.00					

NORTHROCK et al MacKay I-77

64-50-125-

3

DATE:16-Jan-2K DEPTH: 2225m @0700 PROGRESS:120 m REPORT #: 15

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey. ROP: 5-7m/hr.

MUD PROPERTIES: MD: 1135 Vis: 43 WL: 11.5

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	@ 1449m
Devonian Imperial	@ 1521m
Ramparts SH & SS	@ 1715m
Hume	@ 2006m
Headless	
Bear Rock	@ 2184m

GAS and SHOWS: 2-4units.

2184-2187m 6-10% IC por in mic-vf xln DOL, archie type I/III-III/I, rare dead oil staining. Circulated drill break, 20m/hr vs 6m/hr, no show seen. No gas response. (Tested gas detector 4 hours before.)

Similar drill breaks seen at; 2191-2193m, 2198-2201m, 2218-2219m, 2228.5-2229.5m.

OTHER:

GL: 198.10m and KB: 202.35m (4.25m)



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT

Midnight to Midnight

Days (MI&RU)	9
Days (fr Spud)	24
Total Days	33

[illegible]

NORTHROCK et al MacKay I-77

64-50-125-

30

DATE:15-Jan-2K DEPTH: 2105m @0700 PROGRESS: 50m REPORT #: 14

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: RIH. Wash to bottom. Start drilling at 2000hrs. Drill and survey.

MUD PROPERTIES: MD: 1135 Vis: 43 WL: 11.5

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	@ 1449m
Devonian Imperial	@ 1521m
Ramparts SH & SS	@ 1715m
Hume	@ 2006m
Headless	
Bear Rock	

GAS and SHOWS: 2-4u in dense mudstones some ostracods and crinoids.

OTHER:

Surveys to be faxed later.

GL: 198.10m and KB: 202.35m (4.25m)

Dave Roberts - 764508 Alberta Limited - 600-700-2957



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) **9**
 Days (fr Spud) **23**
 Total Days **32**

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 13/00	
1883		2055		Prog. 72		Operation 08:00:		TRIP @ 2055m		Formation:	
Drig. Fluid Type: Gel Chem				Mud Eng. Will Larson		Mud Company: CFS					

Log Book				Check				PPM							
Time				Fann				Salinity				Mud Pressure Gradient:	11.1		
Density	1135			600	40			Chloride	200	% by Volume		Mud Cycle Main Hole:			
Viscosity	46			300	26			Calcium	40	Sand	0.001	Bottoms Up Time:	54		
W.L.	8.5			P.V.	13			MBT - Kg/m ³	55	Solid	0%	Capacity: (m ³)			
P.H.	8.5			Y.P.	8			Temp C		Oil	0	Sump:			
F.C.	1.5			Gels	4/7			ES				Pump:			

MUD ADDITIVES:				Gel 35		Soda Ash		Staflo		1		Alcomer	
				Sawdust		Caustic		Barite		15		Envirofloc	
				Lignite 1		Lime		Polysafe				Gypsum	

MUD COSTS:				DAILY: \$1,200				TOTAL: \$15,750			
------------	--	--	--	-----------------------	--	--	--	------------------------	--	--	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1870	1135			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G
4	222	G1S20	E212A	14.3	14.3	14.3	1414	1983	689	65	8.7	200	3	4	1
5	222	S08C		14.3	14.3	14.3	1983	2055	72	10	7.2	210			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
6	15	150	55000	152	115	10,500	1.35	45	77		Stabilizer					
											JARS					

DRILLING ASSEMBLY: **BIT, BIT SUB, X/O, mud motor, monel, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly**

SURVEYS: **1980m - 0.7, 2027m - 0.6, 2040m - 0.6**

Time Breakdown		Circ. 2.25		Survey 0.75		Test BOP'S 0.75		H. Tools	
Move Rig Up		Tripping 7.75		DO		BOP drill		Safety M	
Drilling 10.00		Rig Service 0.75		Run Casing + Cement		Plug Back		Mix LCM	
Reaming 1.00		Rig Repair		WOC		Fishing		WOO	
Coring		Slip + Cut 0.75		Nipple Up BOP's		W.Tight Hole		Total Hrs 24.00	

REMARKS

Drill ahead to 2055mKB

Mud motor failed, POOH to chang out motor

Hole pulling tight - work and clean hole

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-45	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	Ray Coleman				C	Sat Phone:		1-600-700-7370		

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
		RR DATE:	
DAILY COST	\$35,049.00	COST TO DATE	\$1,089,728.00

NORTHROCK et al MacKay I-77

64-50-125-

30

DATE:14-Jan-2K DEPTH: 2055m @0700 PROGRESS: 72m REPORT #: 13

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey. Trip for mudmotor at 2055m. Bit scrubbed. PU mudmotor and start to run in at 0630hrs. Drilling by late morning. (?)

MUD PROPERTIES: MD: 1140 Vis: 49 WL: 11.5

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	@ 1449m
Devonian Imperial	@ 1521m
Ramparts SH & SS	@ 1715m
Hume	@ 2006m

Headless

Bear Rock

GAS and SHOWS: No gas response from the Hume.

A live oil show was seen from 2047-2048m associated with a fracture.

A "lacy" fractured (?) f-m xln LS with 6-10% IC por with scattered pybit specs, a faint fluorescence with a quick streaming cut fluorescence was seen. High torque was experienced while drilling this meter and the mudmotor stalled.

Traces of pyrobitumen where seen in trace IC por in thin grainstone streaks here and there. Pyrobitumen was also seen associated with calcite filled fractures. No effective "matrix" porosity was seen. Dominant lithology is (LS) wackestone and packstone.

OTHER: Surveys sent earlier.

GL: 198.10m and KB: 202.35m (4.25m)

01/14/2000 07:21

6007009252

ROBERTS/KNOWLING GEO

PAGE 01

January 13, 2000
10:09 pmPathTracker 4.0
Survey Calculation Program
NORTHROCK et al N MACKAY I-77

Page 1 of 1

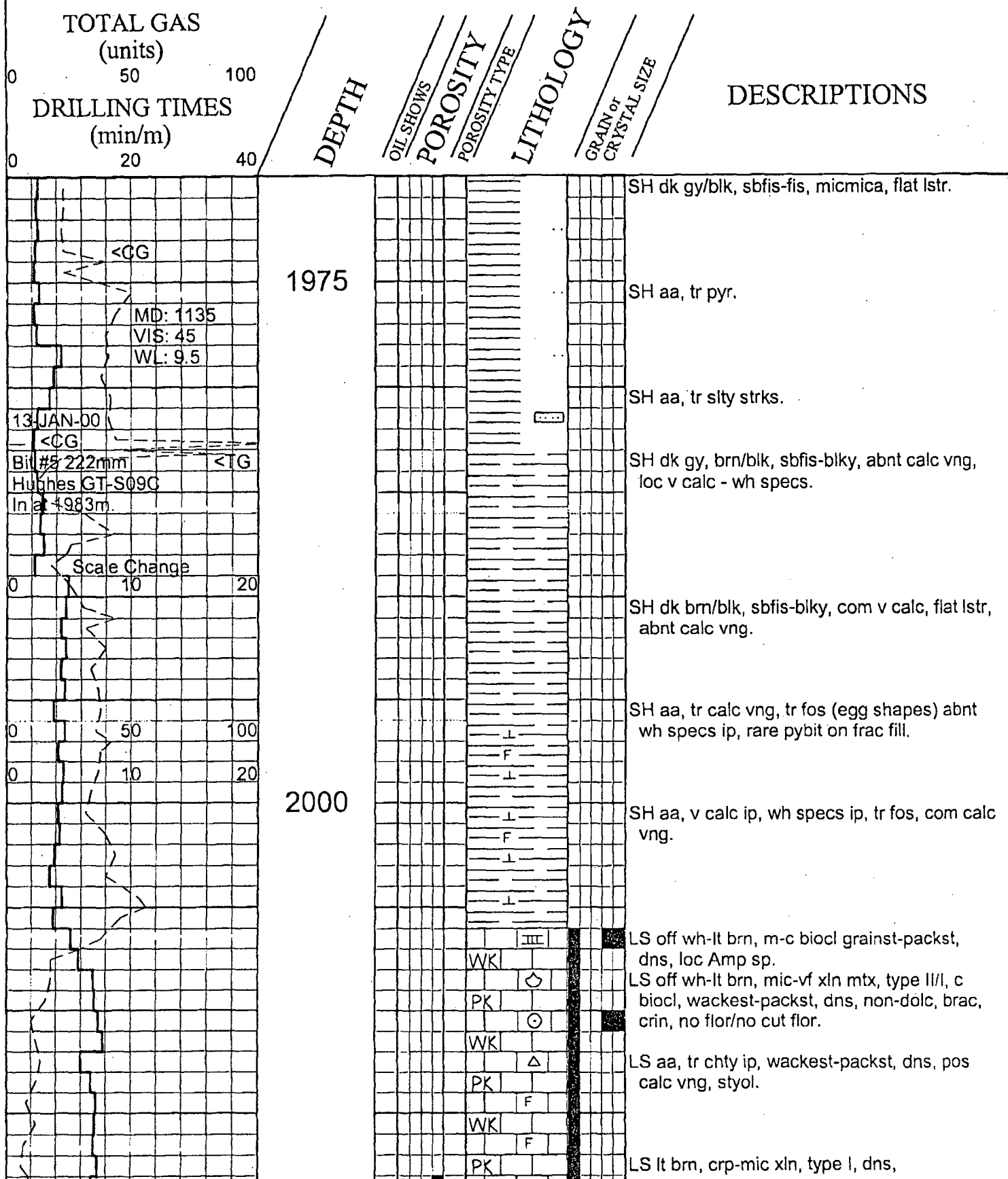
Customer: NORTHROCK RESOURCES CO.
WellName: N MACKAY I-77
Location: I-7784-50-125-30Vertical Section Calculated on: 0.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\PATHTRKR\NORTH.SR3

#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	North Meters	East Meters	Section Meters	Dogleg /30m
54	1856.80	2.60	10.20	1856.20	-1.78	6.95	-1.78	1.45
55	1866.30	2.80	36.20	1865.69	-1.39	7.13	-1.39	3.88
56	1875.90	2.30	89.30	1875.28	-1.13	7.44	-1.13	4.78
57	1885.50	2.10	81.20	1884.88	-1.03	7.80	-1.03	1.55
58	1894.60	2.00	95.30	1893.97	-1.02	8.12	-1.02	1.69
59	1903.20	1.80	109.30	1902.57	-1.08	8.40	-1.08	1.76
60	1913.60	1.10	150.80	1912.96	-1.22	8.60	-1.22	3.51
61	1923.20	1.10	143.80	1922.56	-1.38	8.70	-1.38	0.42
62	1932.40	0.90	164.20	1931.76	-1.52	8.77	-1.52	1.32
63	1942.00	1.10	165.60	1941.36	-1.68	8.82	-1.68	0.63
64	1951.00	1.10	155.10	1950.36	-1.84	8.87	-1.84	0.67
65	1961.10	1.30	134.00	1960.45	-2.01	9.00	-2.01	1.43
66	1970.70	0.20	139.60	1970.05	-2.10	9.09	-2.10	3.44
67	1980.30	0.70	293.70	1979.65	-2.10	9.04	-2.10	2.72
68	1989.30	1.20	284.80	1988.65	-2.06	8.90	-2.06	1.67
69	1998.90	0.90	285.80	1998.25	-2.01	8.73	-2.01	0.94
70	2008.40	1.20	280.90	2007.75	-1.97	8.66	-1.97	0.99
71	2017.60	0.80	318.90	2016.95	-1.91	8.42	-1.91	2.46
72	2027.10	0.50	307.60	2026.45	-1.83	8.34	-1.83	1.03
73	2036.70	0.60	313.30	2036.05	-1.77	8.27	-1.77	0.36

Closure is 8.4610 Meters on an azimuth of 102.0870

CONTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

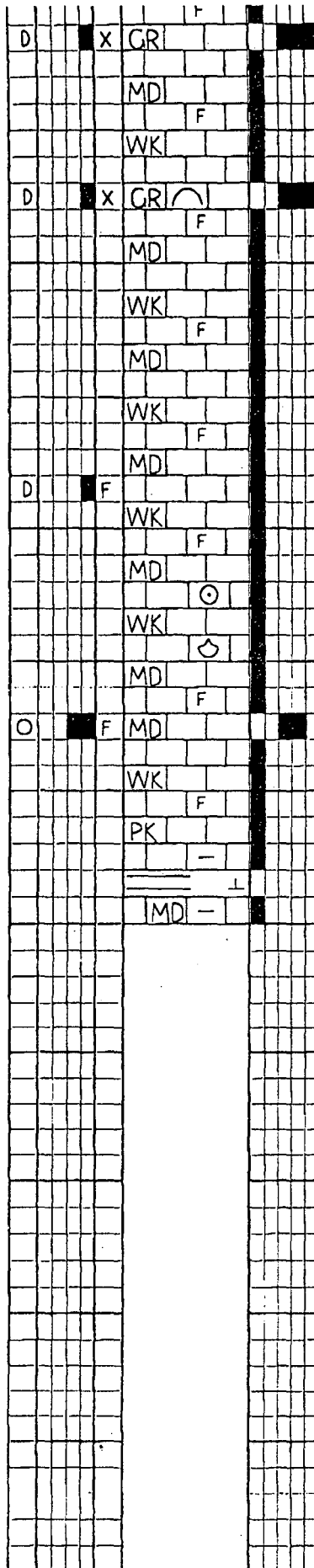
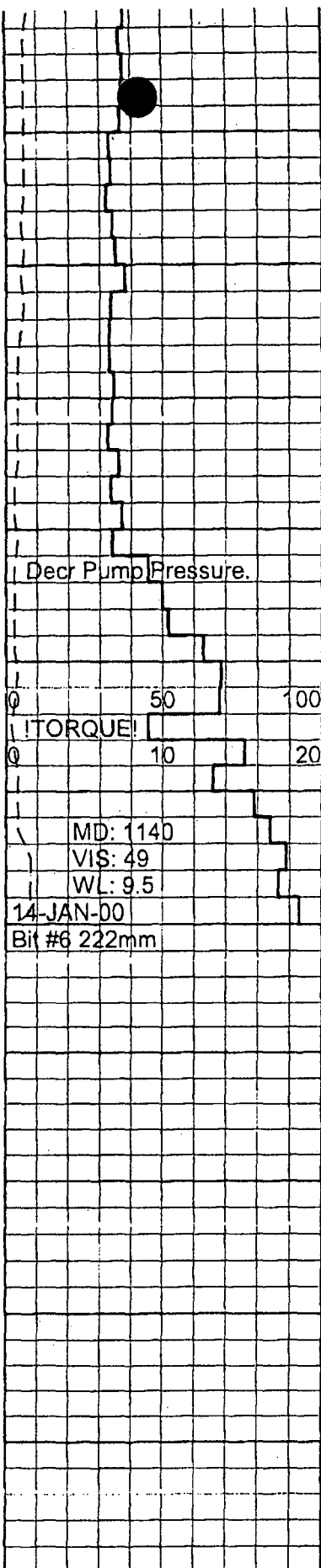
SCALE 1:240



2025

2050

2075



LS aa, wackest-mudst, rare calc vng w pybit ip, rare grainst, f-c biocl, type I/III w pybit fill. (No effective porosity.)

LS off wh-lt brn, crp-mic xln, type I-I/I, mudst-wackest, rare grainst w 6% ic por w pybit fill, rare calc vng w pybit fill. (No effective porosity.)

LS aa, no por/show, com vc xln calc frac fill, mudst-wackest, dns.

LS aa, mudst dns, type I, tr calc filled micfrac, styol, v rare frac w pybit fill, rr dns grainst strk.

LS aa, mudst, gen type I/II, com calc vng.

LS aa, off wh-lt brn, crp-mic xln, type I/II-I, nvp, mudst-wackest, fos, brac, crin.

LS aa, ip I/III, f-m xln, 6-10% ic por w dd oil specs, dull flor & qk strmg cut flor, FRACTURE LINING. Trace live oil show?

LS off wh-lt brn, crp-micxln, type I/II, nvp, wackest-packst, non dolc.

LS aa, packst, calc vng ip, dism pyr ip. Mnr dk brn, crpxln, type I, dns, mod arg, slty, mudst. Grdg to SH ip.



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 22
Total Days 31

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 12/00									
1822 to 1883		Prog. 161		Operation 08:00: DDA @ 2002m				Formation:											
Drig. Fluid Type: Gel Chem				Mud Eng. Will Larson				Mud Company: CFS											

Log Book		Check				PPM						Mud Pressure Gradient: 11.1	
Time			Fann			Salinity							
Density	1135		600	34		Chloride	200	% by Volume					Mud Cycle Main Hole:
Viscosity	46		300	28		Calcium	40	Sand	0.001				Bottoms Up Time: 44
W.L.	8.5		P.V.	13		MBT - Kg/m ³	55	Solid	0%	Capacity: (m ³)			Vol. Mud Tanks:
P.H.	10		Y.P.	0.5		Temp C		Oil	0	Sump:			Vol. Main Hole:
F.C.	1.5		Gels	4/8		ES				Pump:		m ³ /hr	TOTAL:

MUD ADDITIVES:		Gel		Soda Ash		Staflor		2		Alcomer	
		Sawdust		Caustic		Barite				Envirofloc	
		Lignite		3		Lime		Polysafe		Gypsum	

MUD COSTS:		DAILY: \$700		TOTAL: \$14,550	
-------------------	--	---------------------	--	------------------------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1870	1135			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G
4	222	G1S20	E212A	14.3	14.3	14.3	1414	1983	508	66	8.7	200	3	4	1
5	222	S09C		14.3	14.3	14.3	1983								

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
4	15	150	55000	152	115	10,500	1.35	45	77	44	Stabilizer					
											JARS					

DRILLING ASSEMBLY: BIT, BIT SUB, X/O, mud motor, monel, X/O, 18x159mm Dc's, 15xHWD, 114mm DP to surface, Kelly

SURVEYS: 1866m - 2.8, 1971m - 2

Time Breakdown		Circ.		Survey 2.25		Test BOP'S		H. Tools	
Move Rig Up		Tripping	7.25	DO		BOP drill		Safety M	
Drilling	13.75	Rig Service	0.75	Run Casing + Cement		Plug Back		Mix LCM	
Reaming		Rig Repairs		WOC		Flashing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

Drill ahead to 1983mKB

No hole problems

POOH - change motor & bit

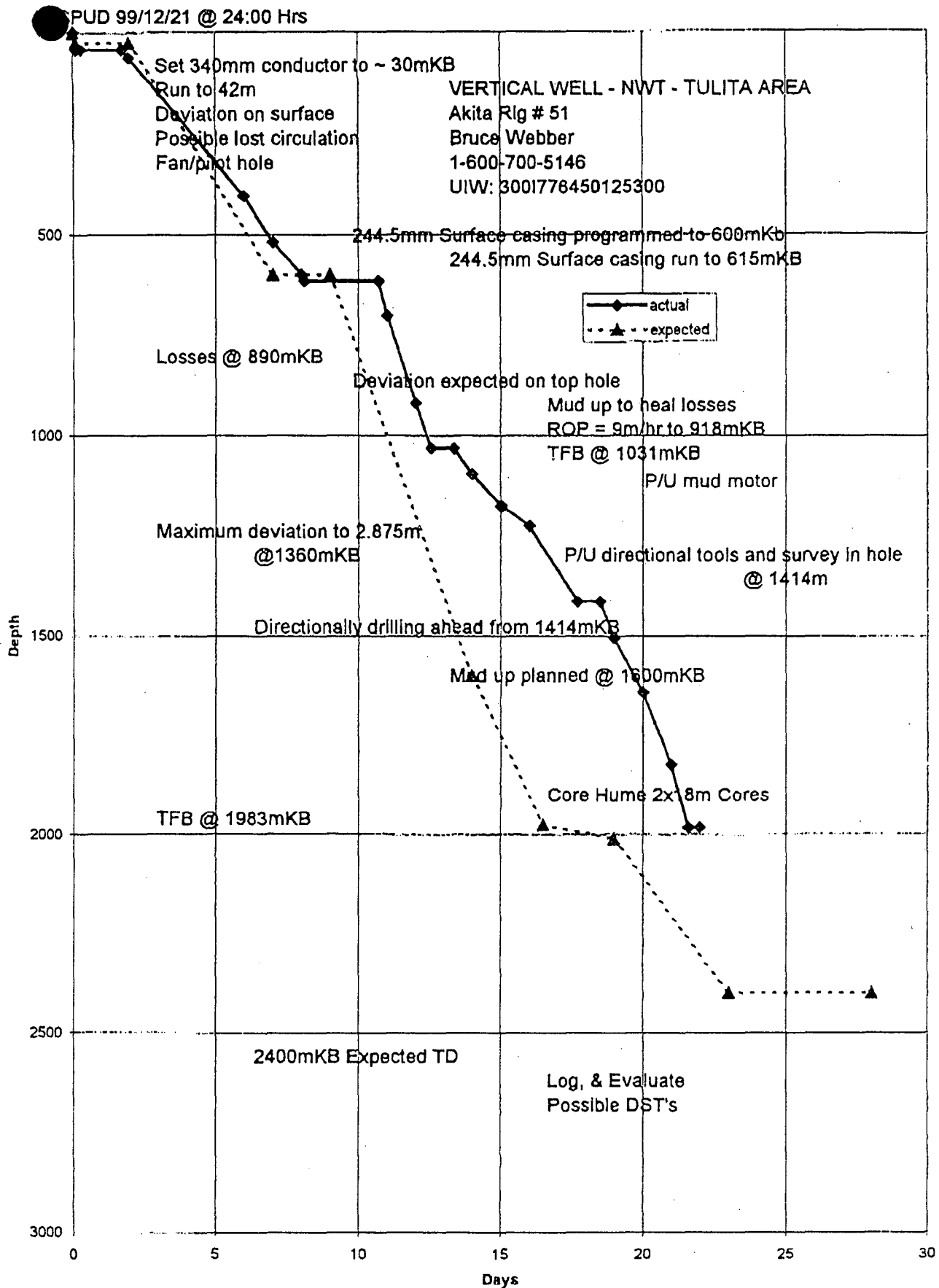
Currently drilling 9.7 m/hr

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	cloudy	Temp:	-30	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	Ray Coleman	0	Sat Phone:	1-600-700-7370						

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5146
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
DAILY COST	\$48,878.00	COST TO DATE	\$1,054,677.00

NORTHROCK ET AL MACKAY I-77



January 13, 2000
12:02 am

PathTracker 4.0
Survey Calculation Program
NORTHROCK et al N MACKAY I-77

Page 1 of 1

Customer: NORTHROCK RESOURCES CO.
WellName: N MACKAY I-77
Location: I-7764-50-125-30

Vertical Section Calculated on: 0.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\PATHTRKR\NORTH.SR3

#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	North Meters	East Meters	Section Meters	Dogleg /30m
47	1790.20	2.40	60.10	1789.64	-3.42	6.01	-3.42	1.17
48	1799.80	1.90	49.60	1799.23	-3.21	6.31	3.21	1.98
49	1809.40	1.60	52.40	1808.82	-3.03	6.54	-3.03	0.97
50	1819.00	1.30	51.00	1818.42	-2.88	6.73	-2.88	0.94
51	1828.10	1.20	22.20	1827.52	-2.73	6.84	-2.73	2.07
52	1837.60	1.60	0.40	1837.02	-2.50	6.88	-2.50	2.08
53	1847.20	2.20	4.60	1846.61	-2.18	6.90	-2.18	1.92
54	1856.80	2.60	10.20	1856.20	-1.78	6.95	-1.78	1.45
55	1866.30	2.80	36.20	1865.69	1.39	7.13	-1.39	3.88
56	1875.90	2.30	69.30	1875.28	-1.13	7.44	-1.13	4.78
57	1885.50	2.10	81.20	1884.88	-1.03	7.80	-1.03	1.55
58	1894.60	2.00	85.30	1893.97	-1.02	8.12	-1.02	1.69
59	1903.20	1.80	109.30	1902.57	-1.08	8.40	-1.08	1.76
60	1913.60	1.10	150.80	1912.96	-1.22	8.60	-1.22	3.51
61	1923.20	1.10	143.80	1922.56	-1.38	8.70	-1.38	0.42
62	1932.40	0.90	164.20	1931.76	-1.52	8.77	-1.52	1.32
63	1942.00	1.10	165.60	1941.36	-1.68	8.82	-1.68	0.63
64	1951.00	1.10	155.10	1950.36	1.84	8.87	-1.84	0.87
65	1961.10	1.30	134.00	1960.45	-2.01	9.00	-2.01	1.43
66	1970.70	0.20	139.80	1970.05	-2.10	9.09	-2.10	3.44

Closure is 9.3252 Meters on an azimuth of 102.9966

NORTHROCK et al MacKay I-77

64-50-125-

30

DATE:13-Jan-2K DEPTH: 1991m @0700 PROGRESS: 202m REPORT #: 12

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey ahead. Trip for bit at 1983m. RIH. Wash to bottom. Drilling ahead.

MUD PROPERTIES: MD: 1135 Vis: 46 WL: 8.5

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	@ 1449m
Devonian Imperial	@ 1521m
Ramparts SH & SS	@ 1715m
Hare Indian SH	
Bluefish	
Hume	Prog at 1984m

GAS and SHOWS: Shale gasses only.

OTHER: Surveys sent earlier.

Have not picked Hare Indian or Bluefish tops.

GL: 198.10m and KB: 202.35m (4.25m)

January 12, 2000
10:17 pm

PathTracker 4.0
Survey Calculation Program
NORTHROCK et al N MACKAY I-77



Customer: NORTHROCK RESOURCES CO.
WellName: N MACKAY I-77
Location: I-7784-50-125-30

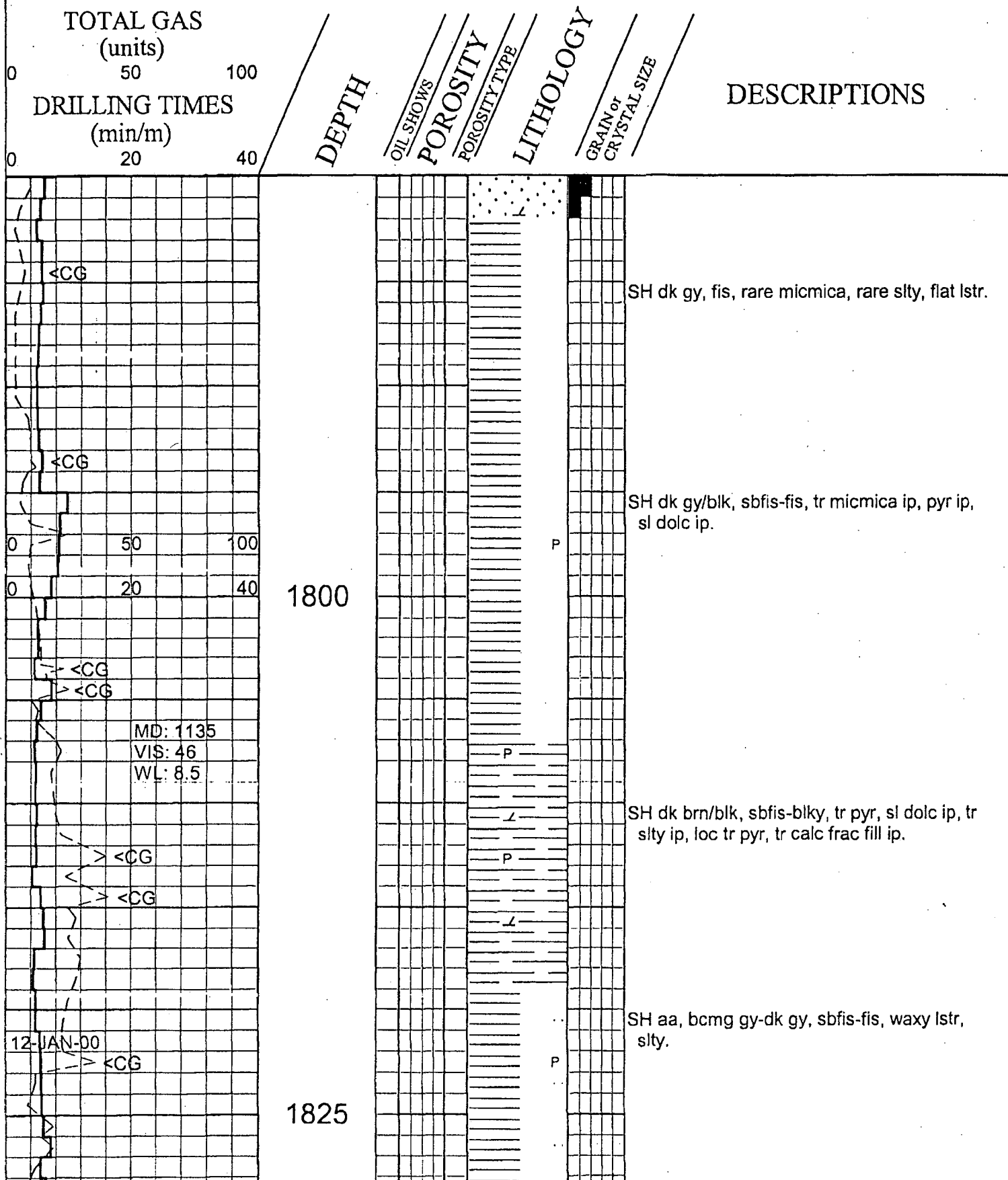
Vertical Section Calculated on: 0.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\PATHTRKR\NORTH.SR3

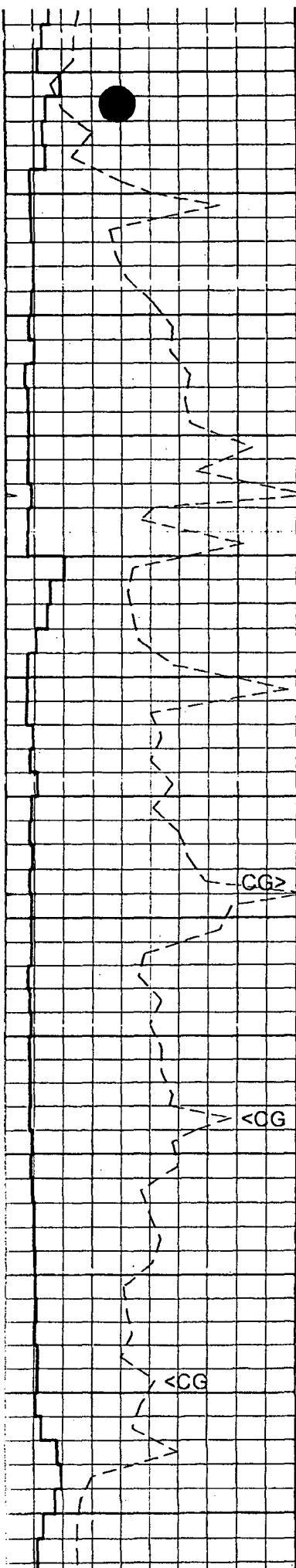
#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	North Meters	East Meters	Section Meters	Dogleg /30m
34	1666.90	0.70	3.20	1666.41	-6.48	4.27	-6.48	0.95
35	1676.50	1.00	341.40	1676.01	-6.34	4.25	-6.34	1.36
36	1685.80	0.90	346.30	1685.40	-6.19	4.21	-6.19	0.41
37	1695.00	1.10	349.10	1694.50	-6.04	4.17	-6.04	0.68
38	1704.60	1.50	355.40	1704.10	-5.82	4.15	-5.82	1.33
39	1714.20	1.50	6.70	1713.70	-5.57	4.15	-5.57	0.92
40	1723.70	2.00	18.80	1723.19	-5.29	4.22	-5.29	1.94
41	1733.30	2.20	20.80	1732.79	-4.96	4.34	-4.96	0.67
42	1742.90	2.50	30.60	1742.38	-4.61	4.51	-4.61	1.56
43	1752.50	2.90	39.00	1751.97	-4.24	4.77	-4.24	1.76
44	1761.50	2.50	41.80	1760.98	-3.91	5.04	-3.91	1.40
45	1771.10	2.00	72.10	1770.55	-3.71	5.34	-3.71	3.97
46	1780.70	2.20	67.90	1780.14	-3.58	5.67	-3.58	0.79
47	1790.20	2.40	60.10	1789.64	-3.42	6.01	-3.42	1.17
48	1799.80	1.90	49.60	1799.23	-3.21	6.31	-3.21	1.98
49	1809.40	1.60	52.40	1808.82	-3.03	6.54	-3.03	0.97
50	1819.00	1.30	51.00	1818.42	-2.88	6.73	-2.88	0.94
51	1828.10	1.20	22.20	1827.52	-2.73	6.84	-2.73	2.07
52	1837.60	1.60	0.40	1837.02	-2.50	6.88	-2.50	2.08
53	1847.20	2.20	4.60	1846.61	-2.18	6.90	-2.18	1.92
54	1856.80	2.60	10.20	1856.20	-1.78	6.95	-1.78	1.45
55	1866.30	2.80	36.20	1865.69	-1.39	7.13	-1.39	3.88
56	1875.90	2.30	89.30	1875.28	-1.13	7.44	-1.13	4.78
57	1885.50	2.10	81.20	1884.88	-1.03	7.80	-1.03	1.55
58	1894.60	2.00	95.30	1893.97	-1.02	8.12	-1.02	1.69
59	1903.20	1.80	109.30	1902.57	-1.08	8.40	-1.08	1.76
60	1913.60	1.10	150.80	1912.96	-1.22	8.60	-1.22	3.51
61	1923.20	1.10	143.80	1922.56	-1.38	8.70	-1.38	0.42
62	1932.40	0.90	164.20	1931.76	-1.52	8.77	-1.52	1.32
63	1942.00	1.10	165.80	1941.36	-1.68	8.82	-1.68	0.63
64	1951.00	1.10	155.10	1950.36	-1.84	8.87	-1.84	0.67
65	1961.10	1.30	134.00	1960.45	-2.01	9.00	-2.01	1.43
66	1970.70	0.20	139.60	1970.05	-2.10	9.09	-2.10	3.44

Closure is 9.3252 Meters on an azimuth of 102.9966

CANSTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

SCALE 1:240





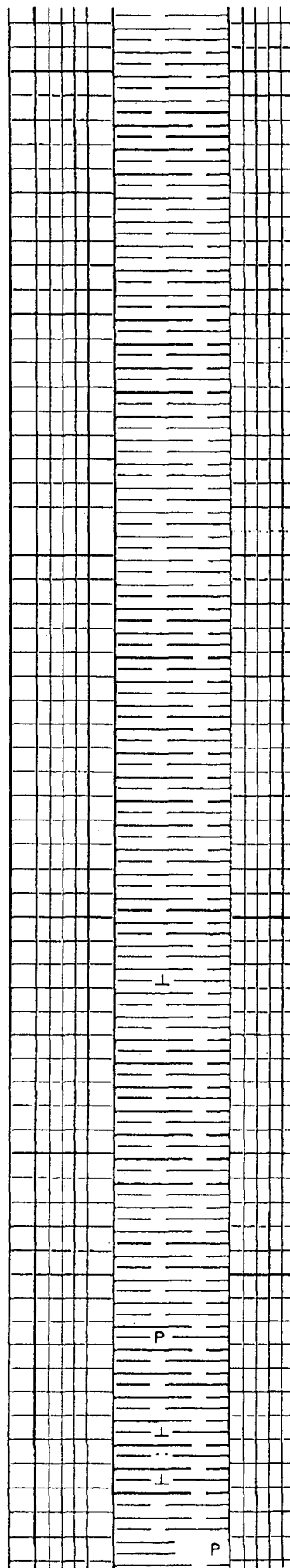
1900

OPEN
FRAC ?

1925

OPEN
FRAC ?

1950

SH blk-brn/blk, sbfis-blky, tr micmica ip, rr
pyr, tr calc vng, tr c xln calc frac fill.

SH aa, tr calc vng.

SH dk brn/blk, sbfis-blky, micmica ip, tr calc
vng.

SH aa, abnt calc vng, trace slickd.

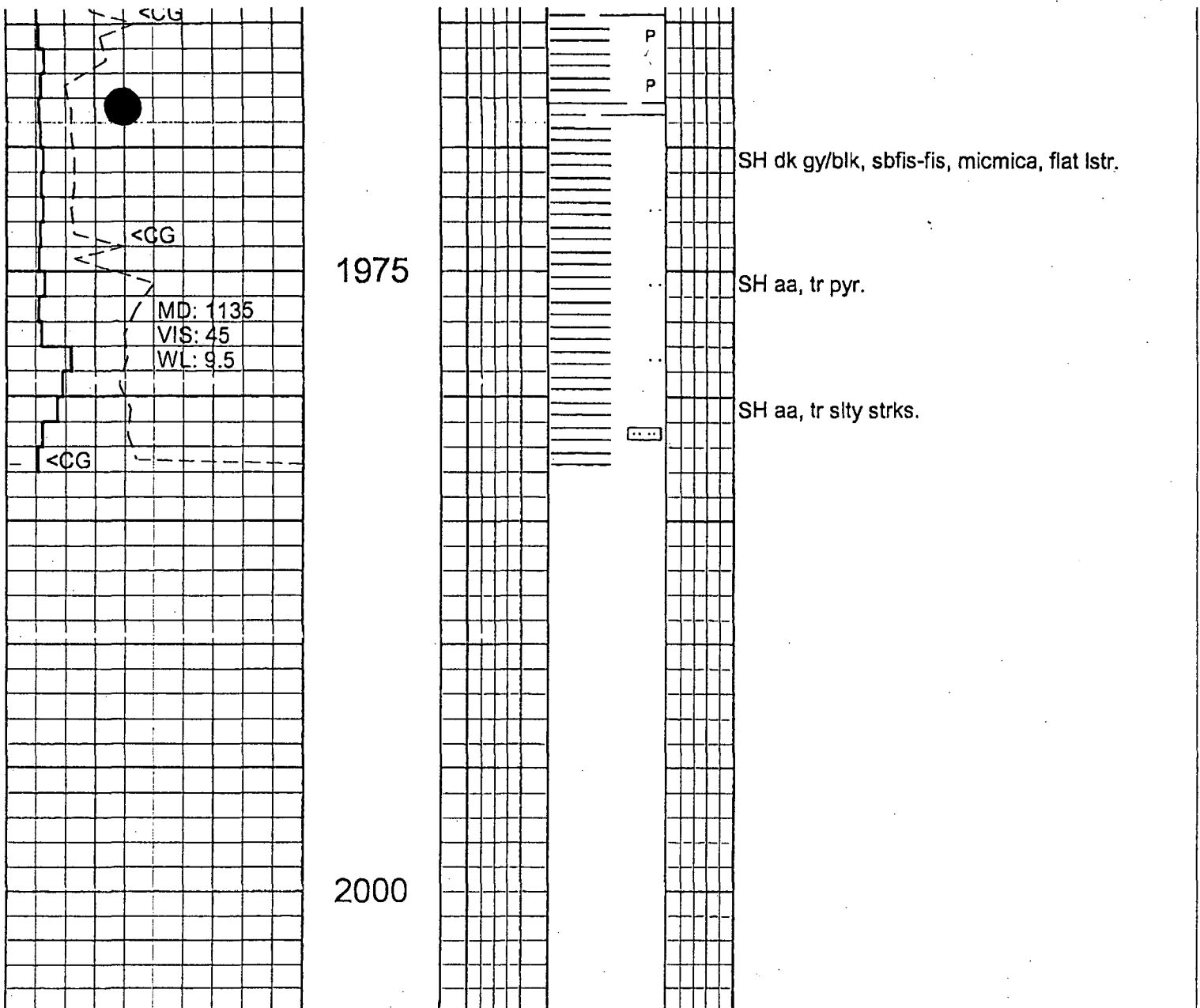
SH aa com calc vng.

SH dk brn/blk, sbfis-blky, micmica ip, com
calc vng.

SH aa, bcmg dk gy/blk, tr pyr, tr calc vng.

SH aa, loc sity ip, wh specks p, com calc vng.

SH aa, com calc vng, abnt pyr.



NORTHROCK et al MacKay I-77

64-50-125-

30

DATE: 12-Jan-2K DEPTH: 1884m @0700 PROGRESS: 195m REPORT #: 11

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey ahead.

MUD PROPERTIES: MD: 1135 Vis: 46 WL: 8.5

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	@ 1449m
Devonian Imperial	@ 1521m
Ramparts SH & SS	@ 1715m +/- vague pick.
Hare Indian SH	
Bluefish	
Hume	

GAS and SHOWS: Shale gas in Ramparts. No carbonate development.
Trace porosity in part in vf-m gr, mod srted, SS.

OTHER: Surveys sent earlier.

GL: 198.10m and KB: 202.35m (4.25m)

TRANSMITTED DATA: Surveys +STRIPLOG to 1610m + THIS PAGE

Dave Roberts - 764508 Alberta Limited - 600-700-2957

01/11/2000 23:45 6007009252

January 11, 2000
10:21 pmPathTracker 4.0
Survey Calculation Program
NORTHROCK et al N MACKAY I-77

Page 1 of 1

Customer: NORTHROCK RESOURCES CO.
WellName: N MACKAY I-77
Location: I-7764-50-125-30Vertical Section Calculated on: 0.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\PATHTRKR\NORTH.SR3

#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	North Meters	East Meters	Section Meters	Dogleg /30m
28	1610.80	0.70	333.40	1610.31	-6.88	4.29	-6.86	3.76
29	1620.30	0.30	318.20	1619.81	-8.79	4.25	-6.79	1.32
30	1629.80	0.30	12.30	1629.31	-6.75	4.24	-6.75	0.86
31	1639.40	0.40	10.90	1638.91	-8.69	4.25	-6.69	0.31
32	1648.50	0.40	7.40	1648.01	-6.63	4.26	-6.63	0.08
33	1657.40	0.40	4.60	1656.91	-6.57	4.27	-6.57	0.07
34	1668.90	0.70	3.20	1666.41	-6.48	4.27	-6.48	0.95
35	1676.50	1.00	341.40	1676.01	-6.34	4.25	-6.34	1.36
36	1685.90	0.90	346.30	1685.40	-6.19	4.21	-6.19	0.41
37	1695.00	1.10	349.10	1694.50	-8.04	4.17	-6.04	0.68
38	1704.60	1.50	355.40	1704.10	-5.82	4.15	-5.82	1.33
39	1714.20	1.50	6.70	1713.70	-5.57	4.15	-5.57	0.92
40	1723.70	2.00	18.60	1723.19	-5.29	4.22	-5.29	1.94
41	1733.30	2.20	20.80	1732.79	-4.96	4.34	-4.96	0.67
42	1742.90	2.50	30.60	1742.38	-4.61	4.51	-4.61	1.56
43	1752.50	2.90	39.00	1751.97	-4.24	4.77	-4.24	1.78
44	1761.50	2.50	41.80	1760.96	-3.91	5.04	-3.91	1.40
45	1771.10	2.00	72.10	1770.55	-3.71	5.34	-3.71	3.97
46	1780.70	2.20	87.90	1780.14	-3.58	5.67	-3.58	0.79
47	1790.20	2.40	80.10	1789.64	-3.42	6.01	-3.42	1.17

Closure is 6.9163 Meters on an azimuth of 119.6056

01/12/2000 06:54 6007009252

ROBERTS/KNOWLING GEO

PAGE 01

January 12, 2000
2:45 amPathTracker 4.0
Survey Calculation Program
NORTHROCK et al N MACKAY I-77

Page 1 of 1

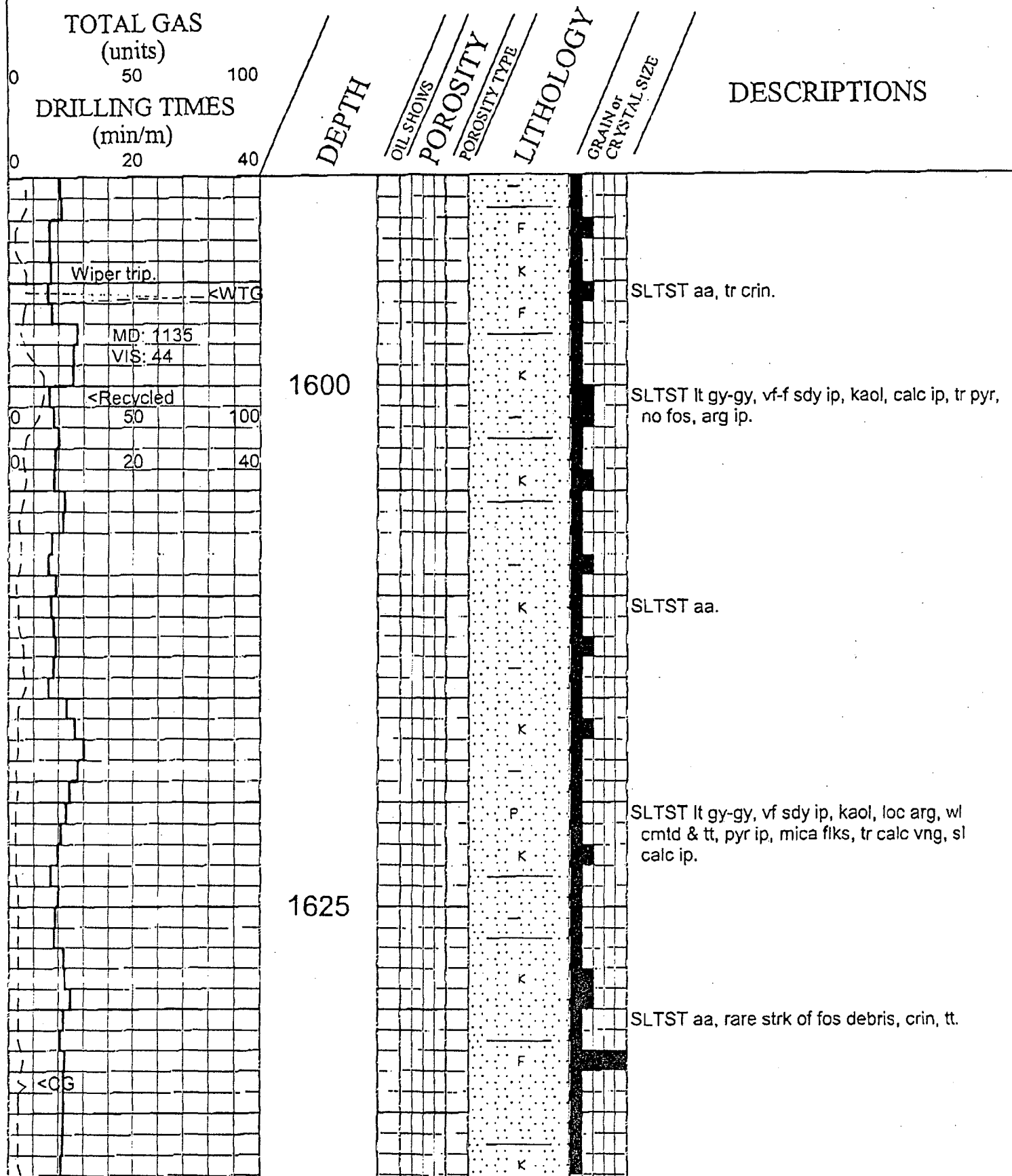
Customer: NORTHROCK RESOURCES CO.
WellName: N MACKAY I-77
Location: I-7764-50-125-30Vertical Section Calculated on: 0.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\PATHTRKR\NORTH.SR3

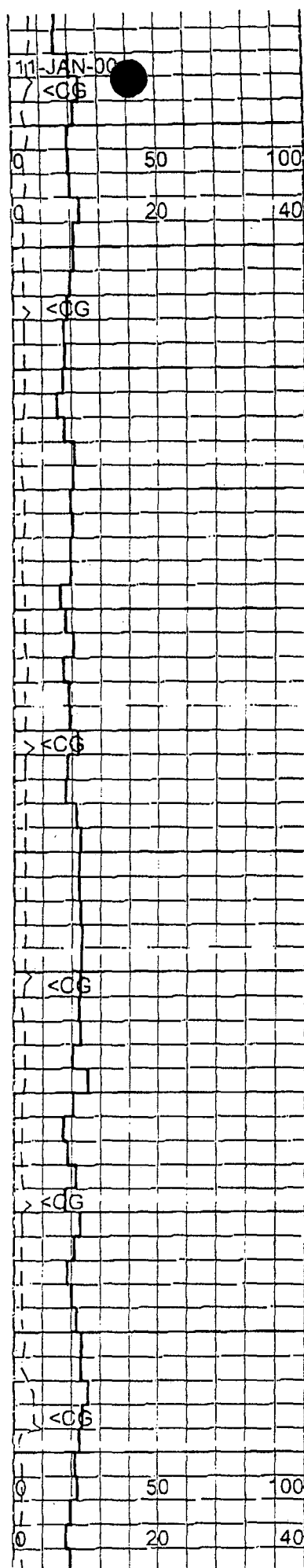
#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	North Meters	East Meters	Section Meters	Dogleg /30m
42	1742.90	2.50	30.60	1742.38	-4.61	4.51	-4.61	1.56
43	1752.50	2.90	39.00	1751.97	-4.24	4.77	-4.24	1.76
44	1761.50	2.50	41.80	1760.98	-3.91	5.04	-3.91	1.40
45	1771.10	2.00	72.10	1770.55	-3.71	5.34	-3.71	3.97
46	1780.70	2.20	67.90	1780.14	-3.58	5.67	-3.58	0.79
47	1790.20	2.40	60.10	1789.64	-3.42	6.01	-3.42	1.17
48	1799.80	1.90	49.60	1799.23	-3.21	6.31	-3.21	1.98
49	1809.40	1.60	52.40	1808.82	-3.03	6.54	-3.03	0.97
50	1819.00	1.30	51.00	1818.42	-2.88	6.73	-2.88	0.94
51	1828.10	1.20	22.20	1827.52	-2.73	6.84	-2.73	2.07

Closure is 7.3659 Meters on an azimuth of 111.7132

CONTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

SCALE 1:240

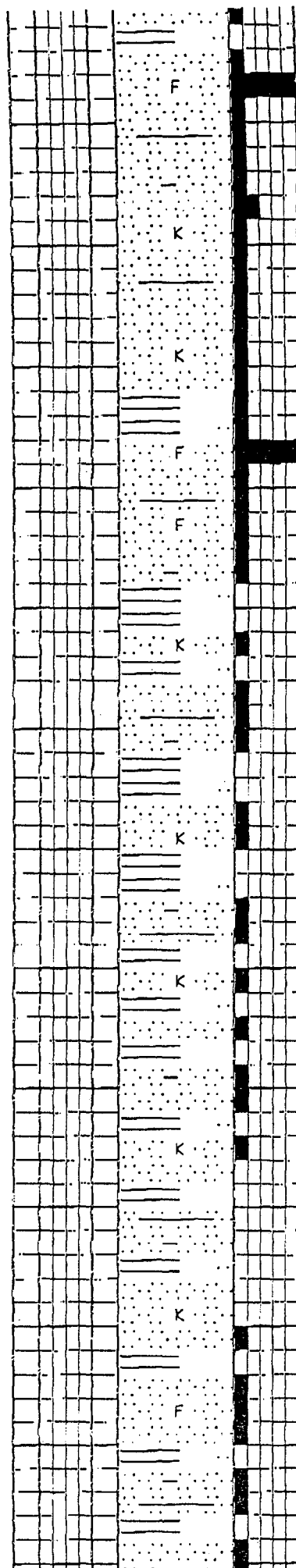




1650

1675

1700



SLTST aa, rare tos debris.

SH gy, sbfis-blky, micmica slty.

SLTST aa, com shy ptgs ip.

SH aa.

SLTST lt gy-gy, vf sdy ip, sl arg, kaol, mica
fiks, rare fossil debris.

SH gy, blky, slty, micmica.

SLTST aa.

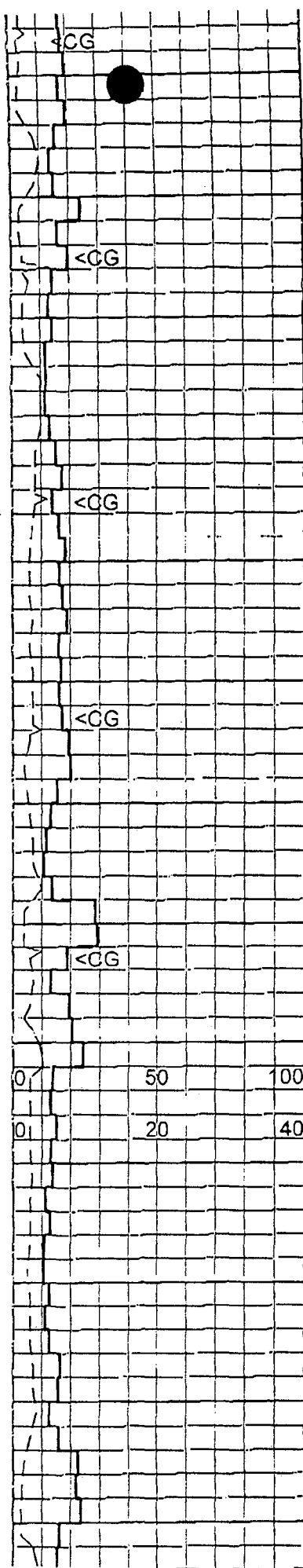
SH gy, dk gy ip, blky-fis, micmica, slty ip.

SLTST aa, vf sdy ip, tr pyr, no fos.

SH gy, blky, slty, micmica.

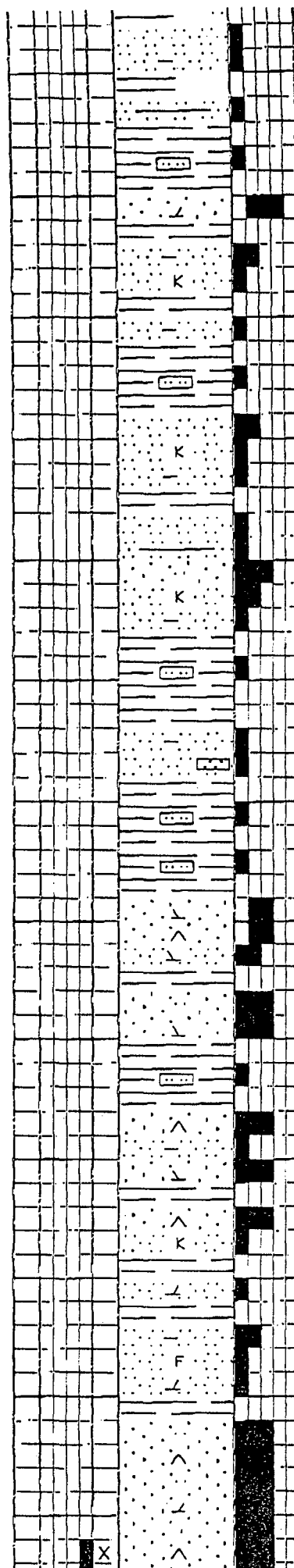
SLTST aa, com dolc fos debris ip, tt.

SLTST aa, com shy ptgs ip.



1725

1750



SLTST lt gy, vf sdy ip, sl arg ip, shy ptgs ip, kaol, tt, mica flks.

SH dk gy, fis-sbfis, rr micmica ip, flat lstr.

SS off wh, qtzc, vf-m gr, mod-wl srtg, wl cmtd w sil & dol, tt.

SH aa.

SLTST lt gy-gy, com vf-f sdy, kaol, arg ip, wl cmtd, dolc, tt, grd to SS ip.

SS wh-lt gy, slt-f gr, mod srtg, A, wl cmtd w sil & dol, tt.

SH dk gy, sbfis-fis, tr slty ip, flat lstr, micmica ip.

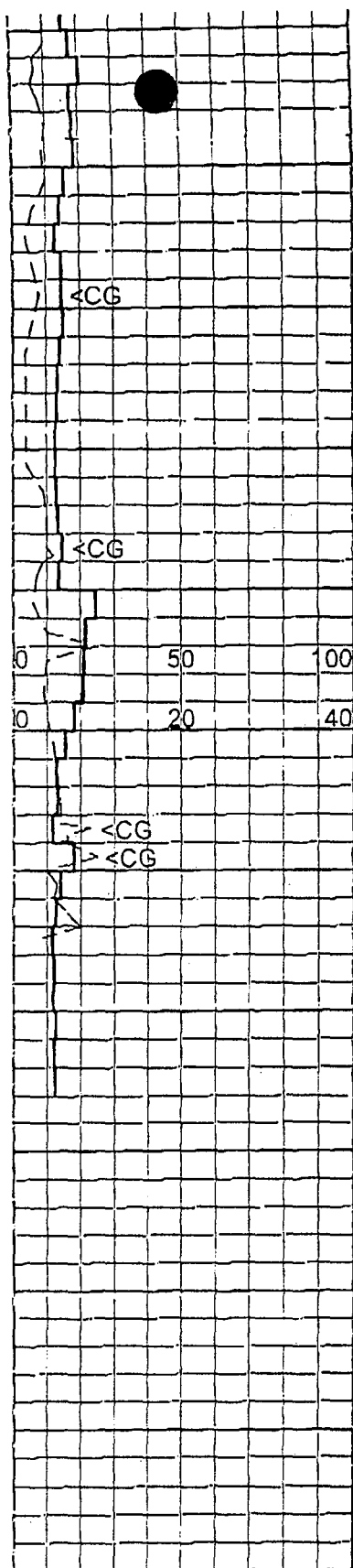
SLTST aa, grd to SS ip, dolc ip.

SH aa.

SS aa, wl cmt & tt.

SLTST lt gy, com vf sdy, wl cmtd w sil & dol, tt, kaol, trace fos debris, crin.

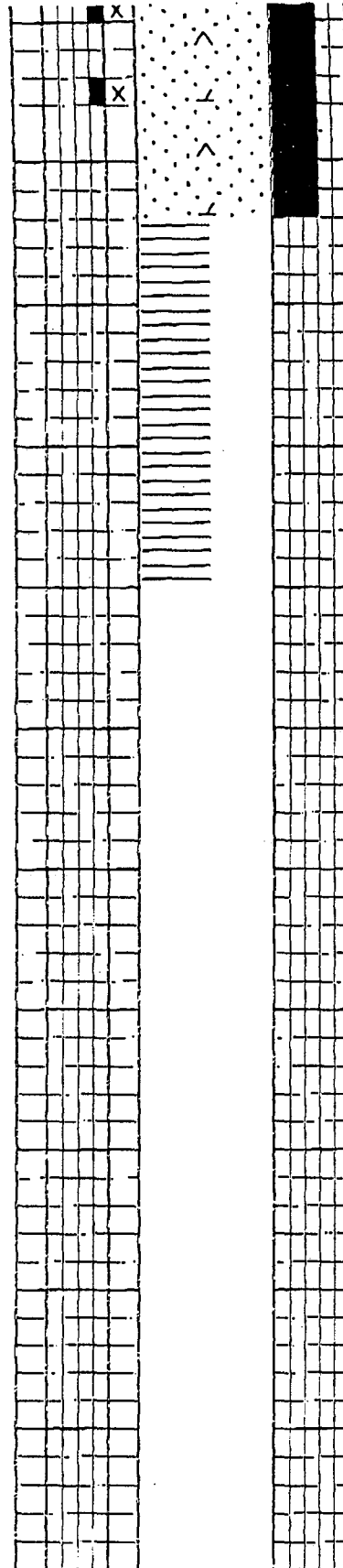
SS off wh, qtzc, vf-f gr & slty, p-mod srtg, mod cmtd w sil & dol, tr por ip, mica flks.



1775

1800

1825





NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 21
Total Days 30

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 11/00	
164 to 1822		Prog. 180		Operation 08:00: DDA @ 1896m		Formation: Ramparts					
Orig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS							

Log Book		Chack		PPM				Mud Pressure Gradient: 11.1	
Time		Fann		Salinity				Mud Cycle Main Hole:	
Density	1125	600	34	Chloride	200	% by Volume		Bottoms Up Time: 44	
Viscosity	43	300	22	Calcium	40	Sand	0.001	Capacity: (m³)	
W.L.	9	P.V.	12	MBT - Kg/m³	55	Solid	0%	Sump:	Vol. Mud Tanks:
P.H.	10	Y.P.	5	Temp C		Oil	0	Pump:	Vol. Main Hole:
F.C.	1.5	Gels	3/6	ES				m³/mk	TOTAL:

MUD ADDITIVES:		Gal	12	Soda Ash		Stafo	1	Alcomar
		Sawdust		Caustic	1	Barite		Envirofloc
		Lignite		Lime		Polysafe		Gypsum

MUD COSTS:		DAILY:	\$500	TOTAL:	\$13,850
------------	--	--------	-------	--------	----------

SOLIDS CONTROL							VOLUMES ADDED		M³	REMARKS
Item	Make	UF	OF	M²/M	SDS %	Hrs	Water (Fresh)			
CENTRIFUGE	WADECO	1870	1120			24	Water (Brine)			
							Mud			
							Loss to Formation:			

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G
4	222	G1S20	E212A	14.3	14.3	14.3	1414	1822	408	51.25	7.9	186.25			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M³/M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs
4	15	150	55000	152	116	10,500	1.35	45	77	44					

DRILLING ASSEMBLY: BIT, BIT SUB, X/O, mud motor, monel, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly

SURVEYS: See Attached survey sheet

Time Breakdown			Circ.		Survey	2.25	Test BOP'S		H. Tools	
Move Rig Up			Tripping		DO		BOP drill		Safety M	
Drilling		21.00	Rig Service	0.75	Run Casing + Cement		Plug Back		Mix LCM	
Reaming			Rig Repairs		WOC		Fishing		WOO	
Coring			Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

Drill ahead to 1822mKB

No hole problems

Connections good, no lost circulation

Directionally survey

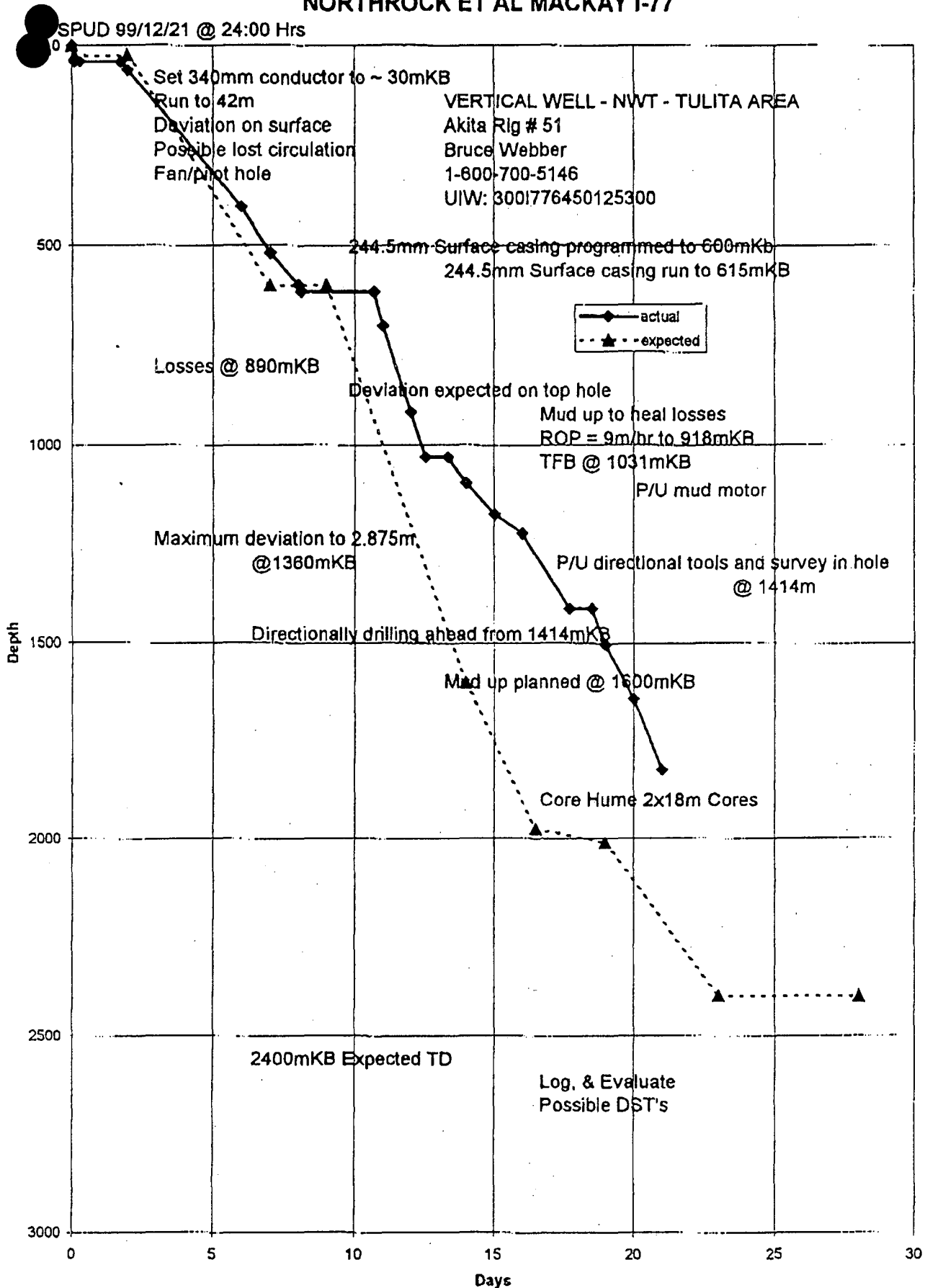
Currently drilling 12 m/hr

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.26	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-30	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	o	Ray Coleman	o	Sat Phone:			1-600-700-7370			

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
DAILY COST		\$38,031.00	COST TO DATE
			\$1,005,999.00

NORTHROCK ET AL MACKAY I-77



Schlumberger

[illegible]

January 1, 2000
11:12 pm

PathTracker 4.0
Survey Calculation Program
NORTHROCK et al N MACKAY I-77

Page 1 of 1

Customer: NORTHROCK RESOURCES CO.
WellName: N MACKAY I-77
Location: I-7764-50-125-30

Vertical Section Calculated on: 0.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\PATHTRKR\NORTH.SR3

#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	North Meters	East Meters	Section Meters	Dogleg /30m
28	1610.80	0.70	333.40	1610.31	-6.86	4.29	-6.88	3.76
29	1620.30	0.30	318.20	1619.81	-6.79	4.25	-6.79	1.32
30	1629.80	0.30	12.30	1629.31	-6.75	4.24	-6.75	0.88
31	1639.40	0.40	10.90	1638.91	-6.69	4.25	-6.69	0.31
32	1648.50	0.40	7.40	1648.01	-6.63	4.26	-6.63	0.08
33	1657.40	0.40	4.60	1658.91	-6.57	4.27	-6.57	0.07
34	1666.90	0.70	3.20	1666.41	-6.48	4.27	-6.48	0.95
35	1676.50	1.00	341.40	1676.01	-6.34	4.25	-6.34	1.38
36	1685.90	0.90	346.30	1685.40	-6.19	4.21	-6.19	0.41
37	1695.00	1.10	349.10	1694.50	-6.04	4.17	-6.04	0.68
38	1704.60	1.50	355.40	1704.10	-5.82	4.15	-5.82	1.33
39	1714.20	1.50	6.70	1713.70	-5.57	4.15	-5.57	0.92
40	1723.70	2.00	18.80	1723.19	-5.29	4.22	-5.29	1.94
41	1733.30	2.20	20.80	1732.79	-4.96	4.34	-4.96	0.67
42	1742.90	2.50	30.60	1742.38	-4.61	4.51	-4.61	1.56
43	1752.50	2.90	39.00	1751.97	-4.24	4.77	-4.24	1.76
44	1761.50	2.50	41.80	1760.96	-3.91	5.04	-3.91	1.40
45	1771.10	2.00	72.10	1770.55	-3.71	5.34	-3.71	3.97
46	1780.70	2.20	67.90	1780.14	-3.58	5.67	-3.58	0.79
47	1790.20	2.40	60.10	1789.64	-3.42	6.01	-3.42	1.17

Closure is 6.9163 Meters on an azimuth of 119.6056

NORTHROCK et al MacKay I-77

64-50-125-

20

DATE: 11-Jan-2K DEPTH: 1689m @0700 PROGRESS: 133m REPORT #: 10

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey ahead.

ROP 7-8m/hr in Devonian Imperial.

MUD PROPERTIES: MD: 1135 Vis: 42 WL: 12.0

FORMATION TOPS:

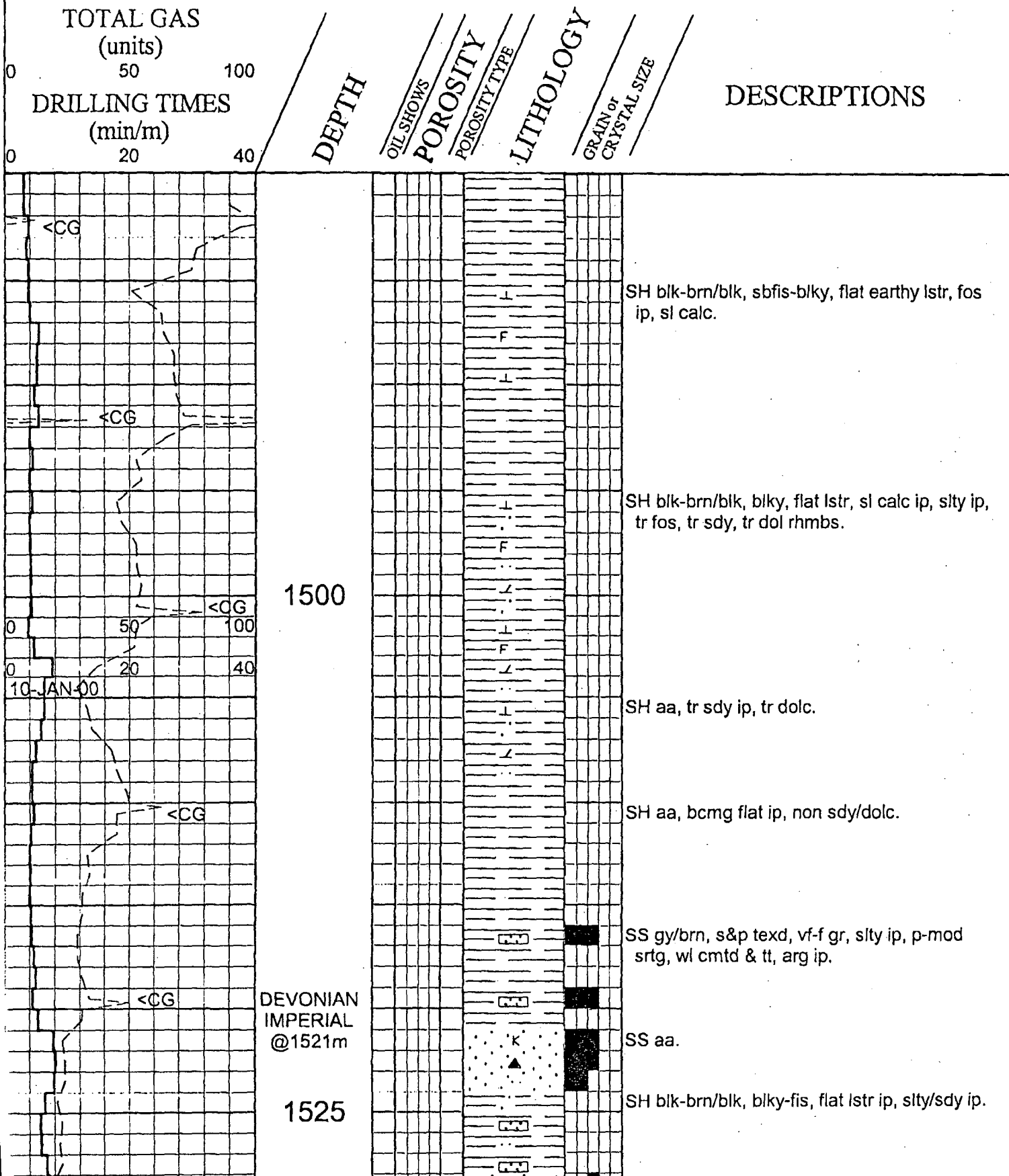
K Little Bear	@ 790m	
Basal L Bear SS	@ 1184m	
K Slater River	@ 1207m	
K R/A Shale	@ 1449m	
Devonian Imperial	@ 1521m	(May change.)
Ramparts		
Hare Indian SH		
Bluefish		
Hume		

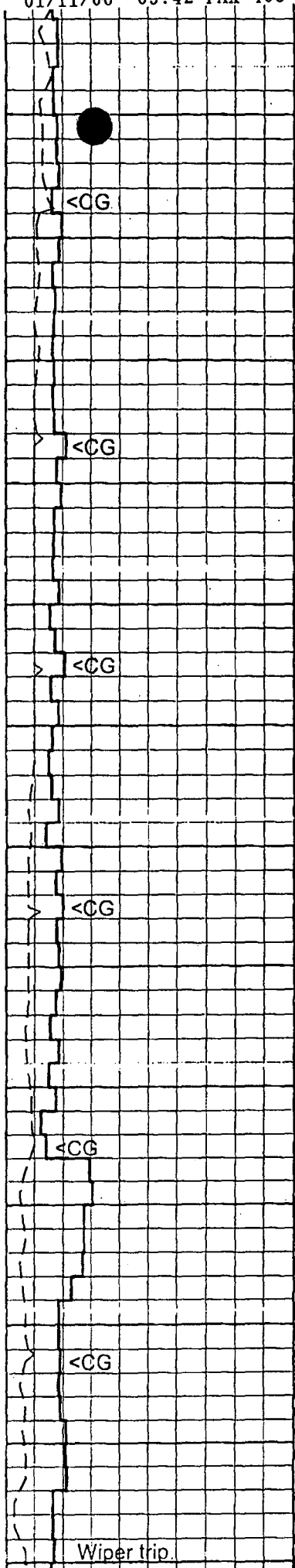
GAS and SHOWS:

OTHER: Surveys sent earlier.

CANSTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

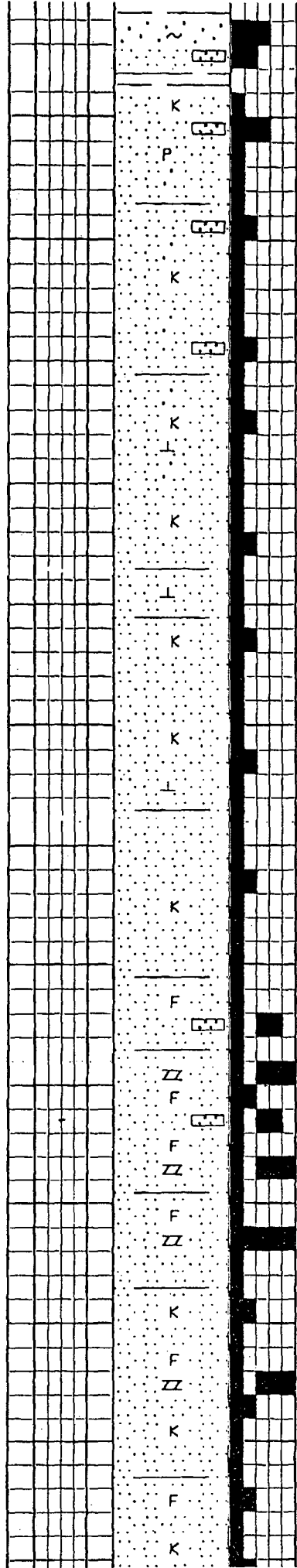
SCALE 1:240





1550

1575



srtg, A-a, wl cmtd & tt.
 SS lt gy, vf gr & slty, p-mod srtg, sl arg/kaol, tr glauc, grdg to SLTST.
 SLTST lt gy, com vf-f sdy, kaol, tt, tr pyr, grdg to SS ip.
 SLTST aa, tr shy lam.
 SLTST lt gy, vf sdy ip, arg/kaol, tt, sl calc ip.
 SLTST aa, tr mica flks.
 SLTST aa.
 SLTST lt gy, vf sdy ip, kaol, tt, abnt dolc fos debris, crin, brac, loc f gr sdy strks.
 SS wh/clr, blk, s&p texd, f-m gr, wl srtg, A-a, wl cmtd w sil & dol, asc w dolc, fos debris, tt.
 SLTST aa, abnt dolc fos debris, tt crin.
 SLTST aa, com dolc fos debris, tt, crin.
 SLTST lt gy-gy, vf gr ip, wl cmtd & tt, kaol, sl arg ip, rare f gr, tr dolc fos debris, brac, crin.

MD: 1135
VIS: 44

<Recycled

1600

1625

1650

k

k

SLTST lt gy-gy, vf-f sdy ip, kaol, calc ip, tr pyr,
no fos, arg ip.



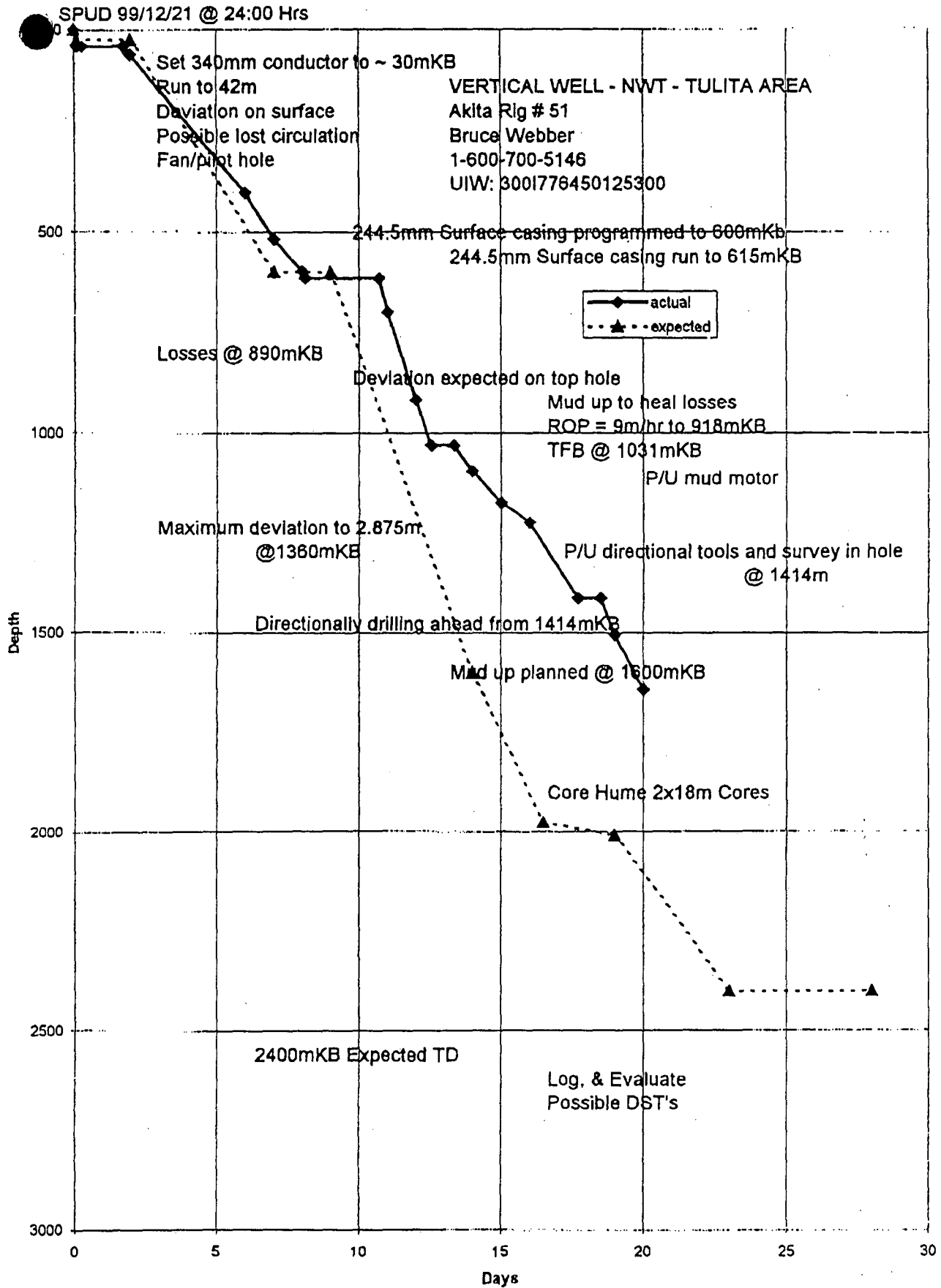
NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 20
Total Days 29

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 10/00									
15		to		1842		Prog. 137		Operation 08:00:		DDA @ 1894m		Formation:		Devonian Imperial					
Orig. Fluid Type: Gel Chem				Mud Eng. Will Larson				Mud Company: CFS											
Log Book		Check		Fann		PPM		Salinity		Mud Pressure Gradient:		10.9							
Density		1120		600		38		Chloride		200		% by Volume							
Viscosity		48		300		22		Calcium		40		Sand		0.001					
W.L.		12		P.V.		16		MBT - Kg/m ³		55		Solid		0%					
P.H.		9		Y.P.		5		Temp C				Oil		0					
F.C.		1.5		Gels		3/4		ES				Capacity: (m ³)							
MUD ADDITIVES:				Gel				Soda Ash				Staflor				1			
				Sawdust				Caustic				1				Barite			
				Lignite				1				Lime				Polysafe			
MUD COSTS:				DAILY:				\$0				TOTAL:				\$13,350			
SOLIDS CONTROL										VOLUMES ADDED									
Item		Make		UF		OF		M ³ /M		SDS %		Hrs		M ³		REMARKS			
CENTRIFUGE		WADECO		1880		1120						24		Water (Fresh)					
														Water (Brine)					
														Mud					
														Loss to Formation:					
BIT DATA																			
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G				
4	222	G1S20	E212A	14.3	14.3	14.3	1414	1842	228	30.25	7.6	185.25							
No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size				
4	15	150	50000	162	115	10,500	1.35	45	77	44	Stabilizer								
											JARS								
DRILLING ASSEMBLY: BIT, BIT SUB, X/O, mud motor, monel, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly																			
SURVEYS: See Attached survey sheet																			
Time Breakdown		Circ.		Tripping		3.00		Survey		1.50		Test BOP'S		H. Tools					
Move Rig Up				Rig Service		0.75		DO				BOP drill		Safety M					
Drilling		18.75		Rig Repairs				Run Casing + Cement				Plug Back		Mix LCM					
Reaming				Slip + Cut				WOC				Fishing		WOO					
Coring								Nipple Up BOP's				W.Tight Hole		Total Hrs					
REMARKS																			
Drill ahead to 1595mKB																			
Make 20 stand wiper trip																			
Work bridges @ 1525m & 1554m																			
Hole in good shape																			
Currently drilling 6.3 m/hr																			
CUT/FILL: 0.00 GRD. ELV.: 187.10 NEW GRD. ELV. 198.10 KB to GRD.: 4.25 KB: 202.35 KB to CF 0.00																			
Weather snow		Temp: -22		Wind: light		Visibility: good		Road Cond. good											
Rig: Akita 51		Ray Coleman		0		0		Sat Phone: 1-600-700-7370											
Location Directions:																			
Report from: Bruce Webber								Sat Phone: 1-600-700-5148											
Taken by: Kevin Kerwin								SPUD DATE: 99/12/21				RR DATE:							
DAILY COST \$87,728.00								COST TO DATE \$968,968.00											

NORTHROCK ET AL MACKAY I-77



December 10, 1999
10.49 pm

PathTracker 4.0
Survey Calculation Program
NORTHROCK et al N MACKAY I-77

Page 1 of 1

Customer NORTHROCK RESOURCES CO.
WellName: N MACKAY I-77
Location: I-7764-50-125-30

Vertical Section Calculated on: 0.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\PATHTRKR\NORTH.SR3

#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	North Meters	East Meters	Section Meters	Dogleg /30m
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	637.00	0.70	267.70	636.98	-0.16	-3.89	-0.16	0.03
2	775.00	0.80	253.70	774.97	-0.46	-5.65	-0.46	0.05
3	921.60	1.00	184.80	921.56	-2.02	-6.74	-2.02	0.21
4	1057.00	1.60	161.20	1056.92	-4.99	-6.23	-4.99	0.18
5	1189.80	2.20	132.60	1189.65	-8.47	-3.78	-8.47	0.25
6	1401.10	3.30	84.70	1400.73	-10.65	5.28	-10.65	0.35
7	1411.70	3.20	85.40	1411.31	-10.60	5.88	-10.60	0.30
8	1420.80	2.50	85.40	1420.40	-10.57	6.33	-10.57	2.31
9	1430.40	2.50	82.60	1429.99	-10.52	6.75	-10.52	0.38
10	1440.00	2.10	77.00	1439.59	-10.46	7.13	-10.46	1.43
11	1449.50	0.70	27.80	1449.08	-10.36	7.32	-10.36	5.45
12	1459.10	0.70	287.20	1458.68	-10.30	7.30	-10.30	3.37
13	1468.70	1.10	287.20	1468.28	-10.25	7.15	-10.25	1.25
14	1478.20	1.50	290.00	1477.78	-10.18	6.95	-10.18	1.28
15	1487.80	1.90	297.10	1487.38	-10.07	6.69	-10.07	1.41
16	1496.90	1.90	298.50	1496.47	-9.93	6.42	-9.93	0.15
17	1506.50	1.80	316.80	1506.07	-9.74	6.18	-9.74	1.86
18	1516.00	1.90	326.60	1515.56	-9.50	5.99	-9.50	1.05
19	1525.60	1.80	333.60	1525.16	-9.23	5.83	-9.23	0.77
20	1535.00	1.80	323.80	1534.55	-8.98	5.68	-8.98	0.98
21	1544.50	1.90	324.50	1544.05	-8.73	5.50	-8.73	0.32
22	1554.10	1.90	321.00	1553.64	-8.48	5.31	-8.48	0.36
23	1563.70	2.20	326.60	1563.23	-8.20	5.11	-8.20	1.13
24	1573.20	2.20	324.50	1572.73	-7.90	4.90	-7.90	0.25
25	1582.40	2.00	334.30	1581.92	-7.61	4.73	-7.61	1.34
26	1592.00	2.00	326.60	1591.52	-7.32	4.56	-7.32	0.84
27	1601.20	1.90	330.10	1600.71	-7.05	4.40	-7.05	0.51
28	1610.80	0.70	333.40	1610.31	-6.86	4.29	-6.86	3.76
29	1620.30	0.30	318.20	1619.81	-6.79	4.25	-6.79	1.32

Closure is 8.0142 Meters on an azimuth of 147.9598

NORTHROCK et al MacKay I-77

64-50-125-

30

DATE:10-Jan-2K DEPTH: 1556m @0700 PROGRESS: 142m REPORT #: 09

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Survey to bottom. Drill and survey ahead.
Ave ROP: 5m/hr prior to R/A Shale 10-15m/hr after. 7-8m/hr
in Devonian Imperial.

MUD PROPERTIES: MD: 1120 Vis: 46 WL: 14.0

FORMATION TOPS:

K Little Bear	@ 790m	
Basal L Bear SS	@ 1184m	
K Slater River	@ 1207m	
K R/A Shale	@ 1449m	
Devonian Imperial	@ 1521m	(May change.)
Ramparts		
Hare Indian SH		
Bluefish		
Hume		

GAS and SHOWS: Shale gas, 50-90u, from R/A Shale.
Regular connection gasses 5-25u over BG in R/A SH.
10-20u in Devonian Imperial and declining.

OTHER: Will fax surveys shortly.

KNOWLING GEOLOGICAL

512-32nd Street N.W.
 CALGARY, Alberta
 T2P 1G5

(403) 860-6400

COMPOSITE WELL HISTORY
DRILLING TIME
LITHOLOGY LOG

COMPANY: Northrock Resources Ltd.
 WELL: NORTHROCK et al Mackay I-77
 FIELD:
 PROVINCE: N.W.T.
 LOCATION: 300I77645012530

COORDINATES: Lat:64.46.4
 ELEVATIONS: GD 198.1 m
 KB 202.4 m
 WELL TYPE: Exploratory
 SPUD DATE: 23-Dec-99 @ 2130hr
 LICENCE No.:

Lon:125.43.
 LOG MEASURED FROM KB
 4.3 m ABOVE GROUND
 TOTAL DEPTH: 2400?
 T.D. DATE:
 AFE No.:

CONTRACTOR: Akita/Sahtu Ptnshp.
 MUD TYPE: Gel/chem
 MUD UP @: 960m
 SAMPLES:

DSTs:

CORES:

OPEN HOLE LOGS:

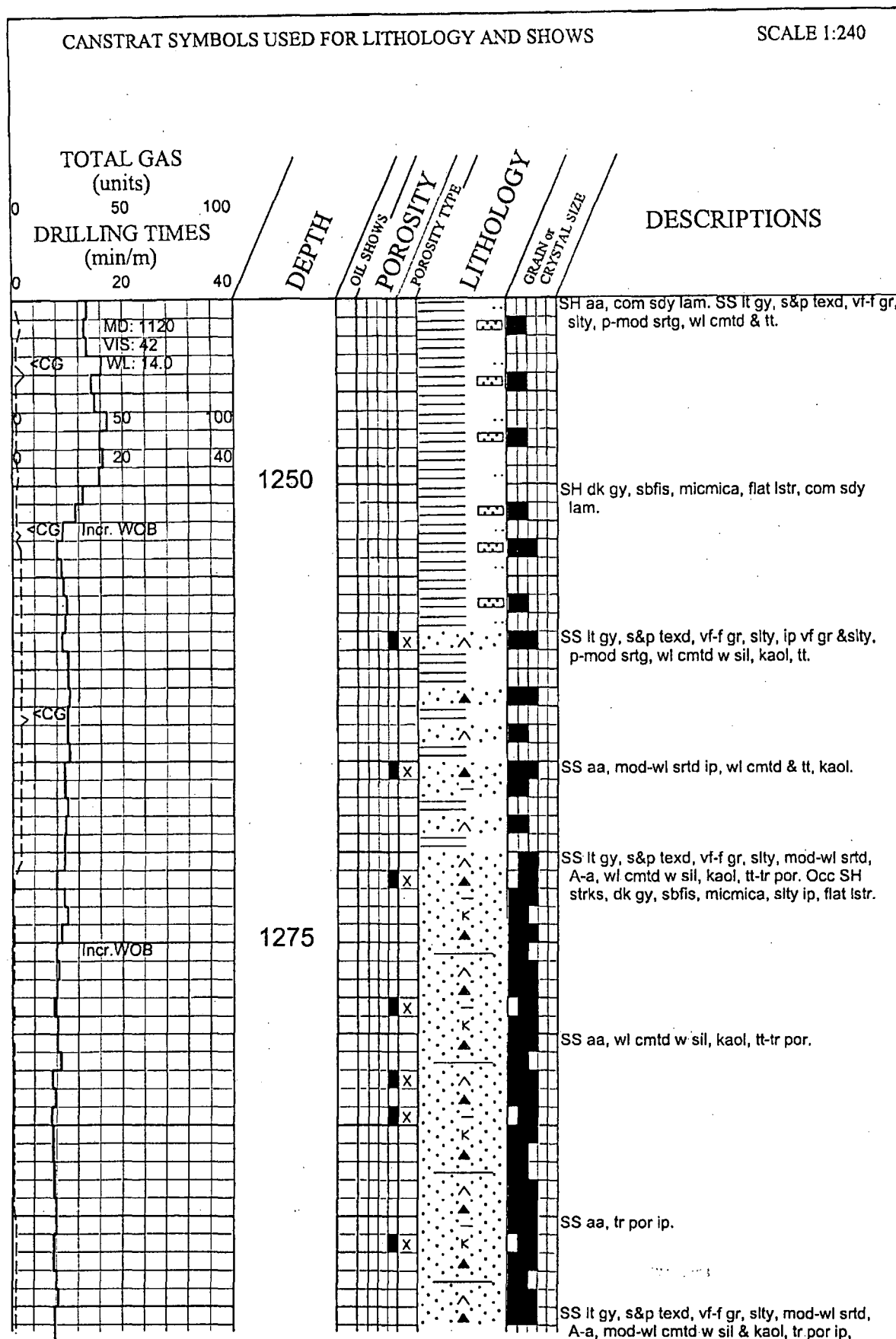
SUPERVISION

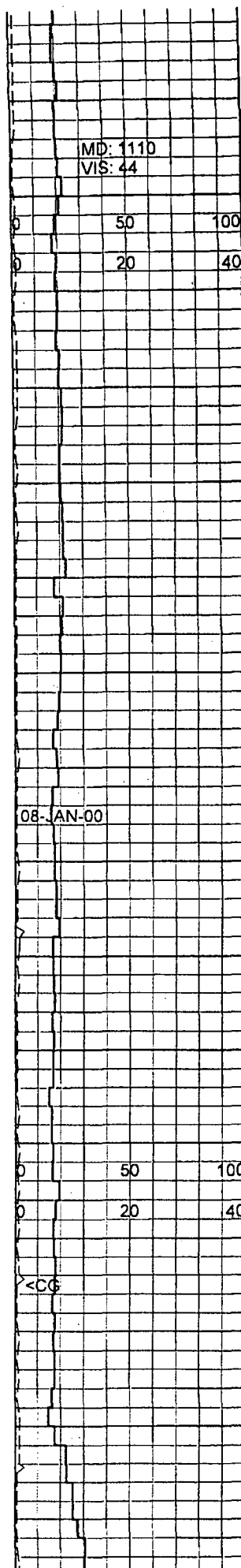
GEOLOGICAL: Dave Roberts

DRILLING: Bruce Webber

CASING DEPTH	SURFACE:	615.0	m
	INTERMEDIATE:		m
	MAIN:		m
CASING SIZE	SURFACE:	244.5	mm
	INTERMEDIATE:		mm
	MAIN:		mm
HOLE SIZE	SURFACE:	311	mm
	INTERMEDIATE:		mm
	MAIN:		mm

REMARKS:

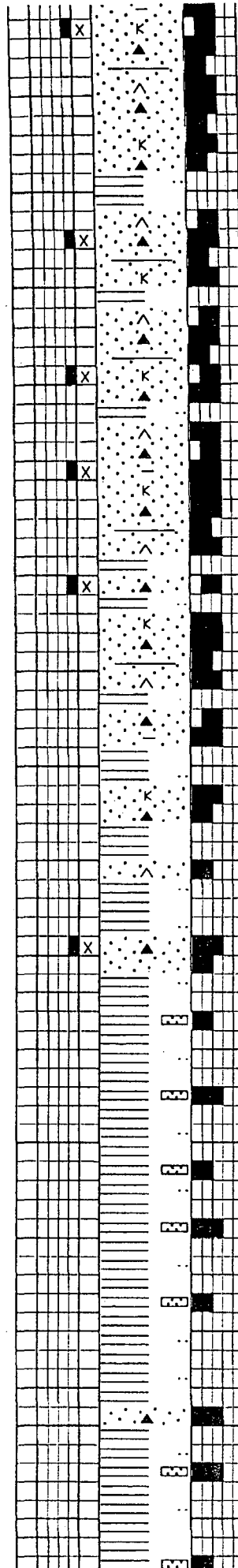




1300

1325

1350



SS aa, tr por ip.

SS lt gy, s&p texd, vf-f gr, slty, mod-wl srtg,
A-a, mod-wl cmted w sil & kaol, tr por ip,
bcmg vf gr & slty ip.

SH dk gy, blk-y-sbfis, micmica, slty ip.

SS aa.

SS aa, loc pyr.

SH dk gy, fis-sbfis, micmica, slty ip.

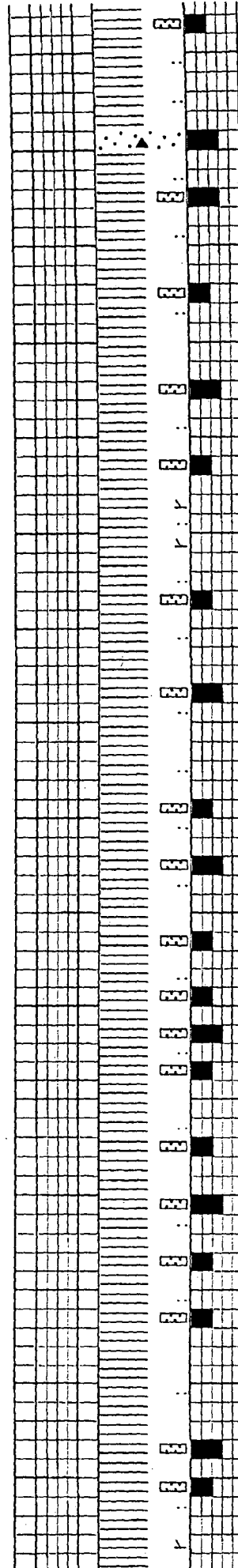
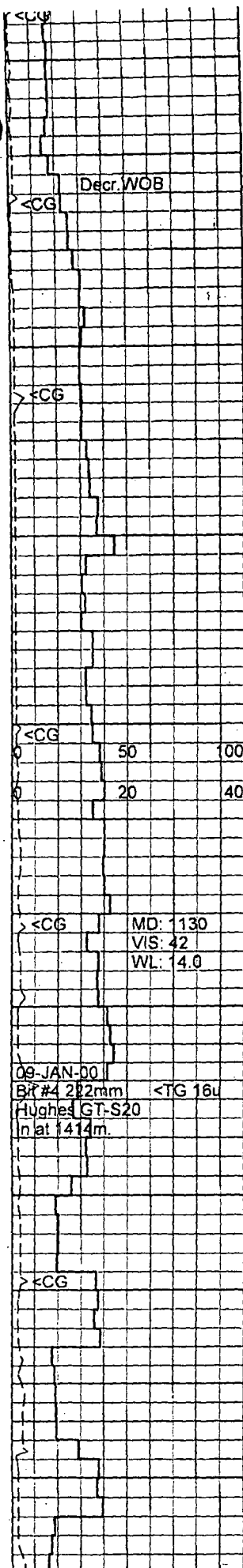
SS lt gy, s&p texd, vf-f gr, slty, com vf gr &
slty, p-mod srtg, wl cmted & tt, kaol.

SS aa.

SH dk gy-blk, sbfis-fis, micmica, slty ip.

SS aa.

SS lt gy, s&p texd, vf-f gr, slty, com vf gr &
slty, wl cmted & tt, kaol.





NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 19
Total Days 28

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 09/00									
1414 to 1505		Prog. 91		Operation 08:00:		DDA @ 1501		Formation: Radioactive Shale											
Drig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS															

Log Book		Check		Fann		Salinity		PPM		Mud Pressure Gradient: 10.9	
Time											
Density	1120		600	47		Chloride	200	% by Volume			Mud Cycle Main Hole:
Viscosity	43		300	27		Calcium	40	Sand	0.001		Bottoms Up Time: 38
W.L.	14		P.V.	14		MBT - Kg/m³	55	Solid	0%	Capacity: (m³)	Vol. Mud Tanks:
P.H.	9		Y.P.	8.5		Temp C		Oil	0	Sump:	Vol. Main Hole:
F.C.	1.5		Gels	3/8		ES				Pump:	m³/stk TOTAL:

MUD ADDITIVES:		Gel		Soda Ash		Desco		Alcomer	
		Sawdust		Caustic		Barite		Envirofloc	
		Lignite		Lime		Polysafe		Gypsum	

MUD COSTS:		DAILY: \$0		TOTAL: \$13,350	
------------	--	------------	--	-----------------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M³/M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1855	1125			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	m	Hrs.	M/Hr	Cum	T	B	G
4	222	G1S20	E212A	14.3	14.3	14.3	1414	1505	91	11.5	8				
3													2	1	1

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M³/M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs
4	15	140	50000	152	115	10,500	1.35	45	77	44					

DRILLING ASSEMBLY: BIT, BIT SUB, X/O, mud motor, monel, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly

SURVEYS: See Attached survey sheet

Time Breakdown		Circ.		Survey		4.00	Test BOP'S		H. Tools	
Move Rig Up		Tripping		DO			BOP drill		Safety M	
Drilling		Rig Service		Run Casing + Cement			Plug Back		Mix LCM	
Reaming		Rig Repairs		WOC			Fishing		WOD	
Coring		Slip + Cut		Nipple Up BOP's			W.Tight Hole		Total Hrs	
									24.00	

REMARKS

RIH w/MWD, break circulation @ 650 & test MWD

Continue in hole and survey every 5 stands

Pull 21 stands to retrieve screen left in DP

Directionally drill ahead to 1505m with 15 to 17000 dan on bit

Currently drilling 8 - 10 m/hr

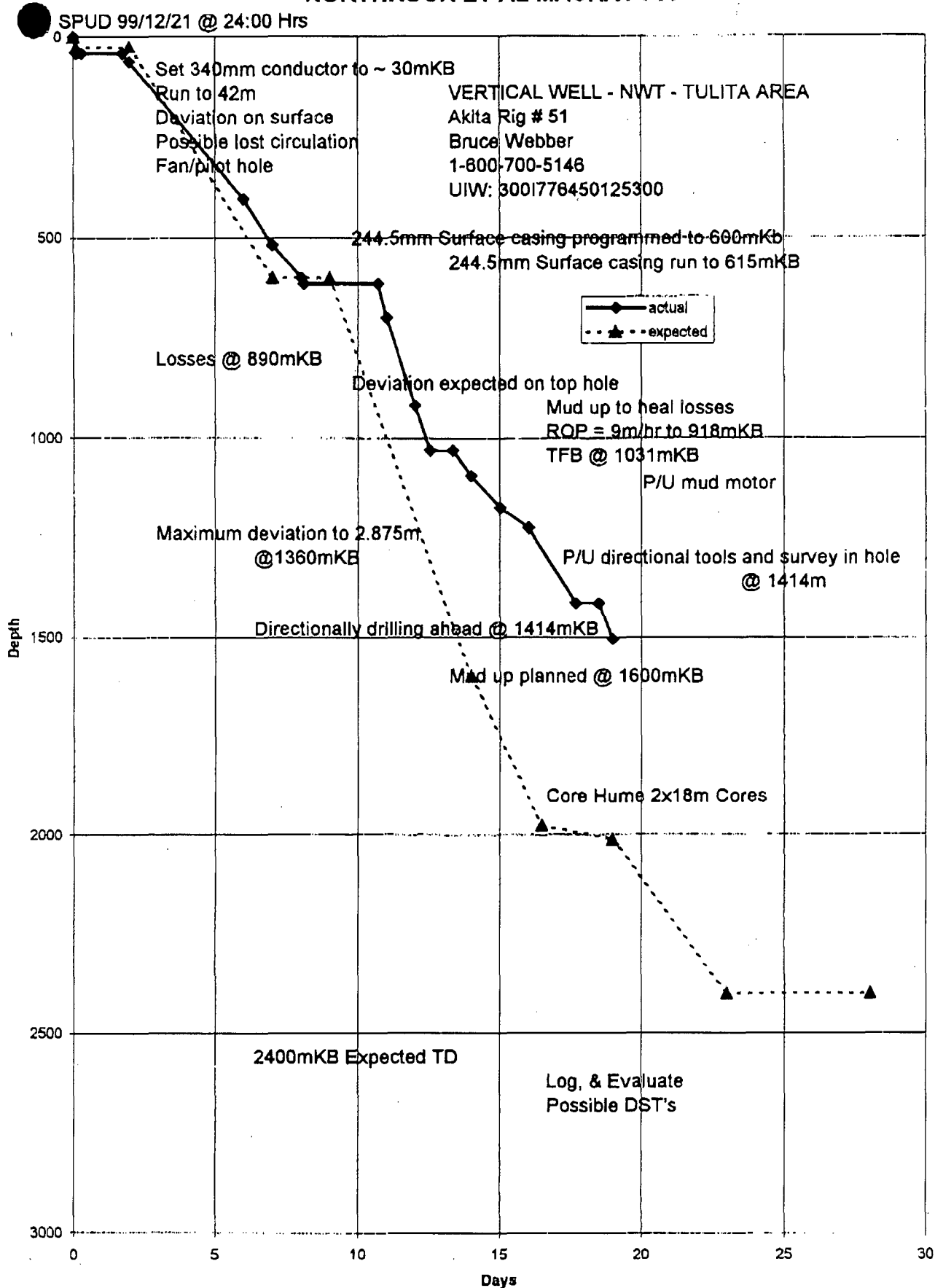
Bottom hole surveyed @ 1478mMD: 9.93mS 0.43mE

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	snow	Temp:	-30	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	Ray Coleman			Sat Phone:	1-600-700-7370					

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
DAILY COST		\$41,131.00	COST TO DATE
			\$902,240.00

NORTHROCK ET AL MACKAY I-77



Survey

Schlumberger

Client:	Field-33782	Survey Computation Method:	Minimum Curvature
Field:	Field-33782	DLS Computation Method:	Lubinski
Structure:	New Structure	Vertical Section Azimuth:	0.000°
Well:	New Well	Vertical Section Origin:	N 0.000 m, E 0.000 m
Borehole:	New Borehole	TVD Reference:	Borehole
UWI/APW:			200.6 m above
Date:	January 08, 2000	Magnetic Declination:	30.379°
Grid Convergence:	-7.90124280°	Total Field Strength:	58940.263 nT
Scale Factor:	1.00169587	Dip:	88.814°
		Declination Date:	January 08, 2000
Location:	N 84 48 39.409, W 125 43 18.035	Magnetic Declination Model:	IGSM 1989
	: N 7212838.514 m, E 88305.424 m	North Reference:	Grid North
Coordinate System:	Universal Transverse Mercator, Zone 11 North, Meter	Coordinate Reference To:	Wellhead (Grid)

Comment	MD (m)	Incl (°)	Azim (°)	TVD (m)	VSec (m)	NR (m)	EW (m)	Closure (m)	CI Azim (°)	DI 8 (°/30m)
	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.0	—
	837.00	0.70	267.7	836.98	-0.16	-0.16	-3.89	3.89	267.7	0.03
	175.00	0.80	253.7	774.97	-0.48	-0.46	-5.85	5.87	285.3	0.05
	921.80	1.00	184.8	921.56	2.02	-2.02	-8.74	7.04	253.3	0.21
	1057.00	1.60	161.2	1058.02	-4.99	-4.99	-8.23	7.98	231.3	0.18
	1189.80	2.20	137.8	1189.65	-8.47	-8.47	-3.76	0.27	203.9	0.25
	1323.00	2.40	95.3	1322.75	-10.48	-10.46	0.80	10.50	175.1	0.33
	1401.10	3.30	84.7	1400.76	-10.40	-10.40	4.77	11.44	155.4	0.40
	1411.70	3.20	85.4	1411.34	-10.35	10.35	5.36	11.68	152.8	0.30
	1420.80	2.50	85.4	1420.43	-10.31	10.31	5.82	11.84	150.6	2.31
	1430.40	2.50	82.8	1430.02	-10.27	10.27	6.23	12.01	148.8	0.38
	1440.00	2.10	77.0	1439.61	-10.20	-10.20	8.61	12.16	147.1	1.43
	1449.50	0.70	27.8	1449.11	-10.11	10.11	6.81	12.19	146.1	5.45
	1459.10	0.70	287.2	1458.71	-10.04	10.04	6.78	12.12	146.0	3.37
	1468.70	1.10	287.2	1468.31	-10.00	-10.00	6.63	12.00	146.4	1.25
	1478.20	1.60	290.0	1477.80	-9.93	-9.93	0.43	11.83	147.1	1.28

NORTHROCK et al MacKay I-77

64-50-125-

30

DATE:09-Jan-2K DEPTH: 1414m @0700 PROGRESS: 39m REPORT #: 08

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey. Trip to PU MWD tools at 1414m. RIH and survey on way in. On bottom by mid morning.

MUD PROPERTIES: MD: 1110 Vis: 42 WL: 18.0

FORMATION TOPS:

K Little Bear @ 790m

Basal L Bear SS @ 1184m

K Slater River @ 1207m

K R/A Shale

Devonian Imperial

Ramparts

Hare Indian SH

Bluefish

Hume

GAS and SHOWS: Trace of gas 1-4units.

Connection gas a few units over background.

OTHER:

NORTHROCK et al MacKay I-77

64-50-125-

30

DATE: 08-Jan-2K DEPTH: 1375m @0700 PROGRESS: 130m REPORT #: 07

*** Morning Report ***

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey. ROP: 5-8m/hr

MUD PROPERTIES: MD: 1110 Vis: 42 WL: 18.0

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m
K Slater River	@ 1207m
K R/A Shale	
Devonian Imperial	
Ramparts	
Hare Indian SH	
Bluefish	
Hume	

GAS and SHOWS: Trace of gas 1-3units.

Occasional connection gas a few units over background.

OTHER:

Dave Roberts - 764508 Alberta Limited - 600-700-2957

MACKAY I-77

10-JAN-99

Survey

Schlumberger

Client:	Field: Field-33752	Survey Computation Method:	Minimum Curvature
Structure:	New Structure	DLS Computation Method:	Leibniz
Well:	New Well	Vertical Section Azimuth:	0.000°
Borehole:	New Borehole	Vertical Section Origin:	N 0.000 m, E 0.000 m
UWVAPM:		TYD Reference:	Borehole: 200.5 m above
Date:	January 08, 2000	Magnetic Declination:	30.379°
Grid Convergence:	-7.80124280°	Total Field Strength:	58840.260 aT
Scale Factor:	1.00188987	Dip:	80.914°
Location:	N 64 48 38.489, W 125 43 18.036	Declination Date:	January 08, 2000
	: N 7212038.514 m, E 88305.424 m	Magnetic Declination Model:	BOGM 1988
Coordinate System:	Universal Transverse Mercator, Zone 11 North, Meter	North Reference:	Grid North
		Coordinate Reference To:	Wellhead (Grid)

Comment	MD (m)	Incl (°)	Azimuth (°)	TYD (m)	VSec (m)	NS (m)	EW (m)	Closure (m)	CI Azimuth (°)	DLS (°/30m)
	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.0	—
	637.00	0.70	267.7	636.88	-0.16	-0.16	-3.69	3.69	267.7	0.03
	775.00	0.80	253.7	774.97	-0.46	-0.46	-5.65	5.67	285.3	0.05
	921.80	1.00	184.8	921.56	-2.02	-2.02	-6.74	7.04	253.3	0.21
	1057.00	1.60	161.2	1056.92	-4.99	-4.99	-6.23	7.98	231.3	0.18
	1189.80	2.20	132.6	1189.65	-8.47	-8.47	-3.76	9.27	203.9	0.25
	1323.00	2.40	95.3	1322.75	-10.46	-10.46	0.90	10.50	175.1	0.33
	1401.10	3.30	84.7	1400.78	-10.40	-10.40	4.77	11.44	155.4	0.40
	1411.70	3.20	85.4	1411.34	-10.35	-10.35	5.36	11.86	152.8	0.30
	1420.80	2.50	85.4	1420.43	-10.31	-10.31	5.82	11.84	150.8	2.31
	1430.40	2.50	82.6	1430.02	-10.27	-10.27	6.23	12.01	148.8	0.38
	1440.00	2.10	77.0	1439.81	-10.20	-10.20	6.81	12.16	147.3	1.43
	1449.50	0.70	27.8	1449.11	-10.11	-10.11	6.81	12.19	148.1	5.45
	1459.10	0.70	287.2	1458.71	-10.04	-10.04	6.78	12.12	146.0	3.37
	1468.70	1.10	287.2	1468.31	-10.00	-10.00	6.83	12.00	148.4	1.25
	1478.20	1.50	290.0	1477.80	-9.93	-9.93	6.43	11.83	147.1	1.28
	1487.80	1.90	297.1	1487.40	-9.81	-9.81	6.17	11.59	0.0	1.41
	1496.90	1.90	288.5	1496.49	-9.67	-9.67	5.90	11.33	267.7	0.15
	1508.50	1.80	316.8	1508.09	-9.49	-9.49	5.66	11.05	265.3	1.88
	1516.00	1.90	328.8	1515.58	-9.25	-9.25	5.47	10.74	253.3	1.05
	1525.80	1.80	333.6	1525.18	-8.98	-8.98	5.32	10.44	231.3	0.77
	1535.00	1.80	323.8	1534.58	-8.73	-8.73	5.18	10.14	203.9	0.98
	1544.50	1.90	324.5	1544.07	-8.48	-8.48	4.99	9.84	175.1	0.32

NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) **9**
 Days (fr Spud) **18**
 Total Days **27**

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 08/00	
1333 to 1414		Prog. 81		Operation 08:00:		Survey in hole		Formation: Slater River			
Orig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS							

Log Book				Check				PPM							
Time				Fann				Salinity				Mud Pressure Gradient: 10.9			
Density	1130			600	35			Chloride	200			Mud Cycle Main Hole:			
Viscosity	42			300	27			Calcium	40			Bottoms Up Time: 38			
W.L.	14			P.V.	14			MBT - Kg/m ³	55			Vol. Mud Tanks:			
P.H.	9			Y.P.	6.5			Temp C				Vol. Main Hole:			
F.C.	1.5			Gels	3/8			ES				TOTAL:			
MUD ADDITIVES:		Gel		37		Soda Ash		Descro				Alcomer			
		Sawdust				Caustic		Barite		15		Envirofloc			
		Lignite				Lime		Polysafe				Gypsum			

MUD COSTS:		DAILY:		\$1,000		TOTAL:		\$13,350	
------------	--	--------	--	---------	--	--------	--	----------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1840	1120			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
3	222	GT		12.7	12.7	12.7	1224	1414	180	38.6	5	135			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
3	10-14	150	48000	152	118	7,800	1.4	48	78	92	Stabilizer					
											JARS					

DRILLING ASSEMBLY: *BIT, BIT SUB, X/O, mud motor, monel, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly*

SURVEYS: **1360m - 2.875**

Time Breakdown		Circ.		0.75		Survey		0.50		Test BOP'S		H. Tools	
Move Rig Up		Tripping		5.00		DO				BOP drill		Safety M	
Drilling		Rig Service		0.75		Run Casing + Cement				Plug Back		Mix LCM	
Reaming		Rig Repairs				WOC				Fishing		WOO	
Coring		Slip + Cut				Nipple Up BOP's				W.Tight Hole		Total Hrs 24.00	

REMARKS

Drill ahead & survey to 1414mKB
 Wt to 10000 to 14000 daN
 Survey out to 2.875 @ 1360mKB
 Drill to 1414m KB

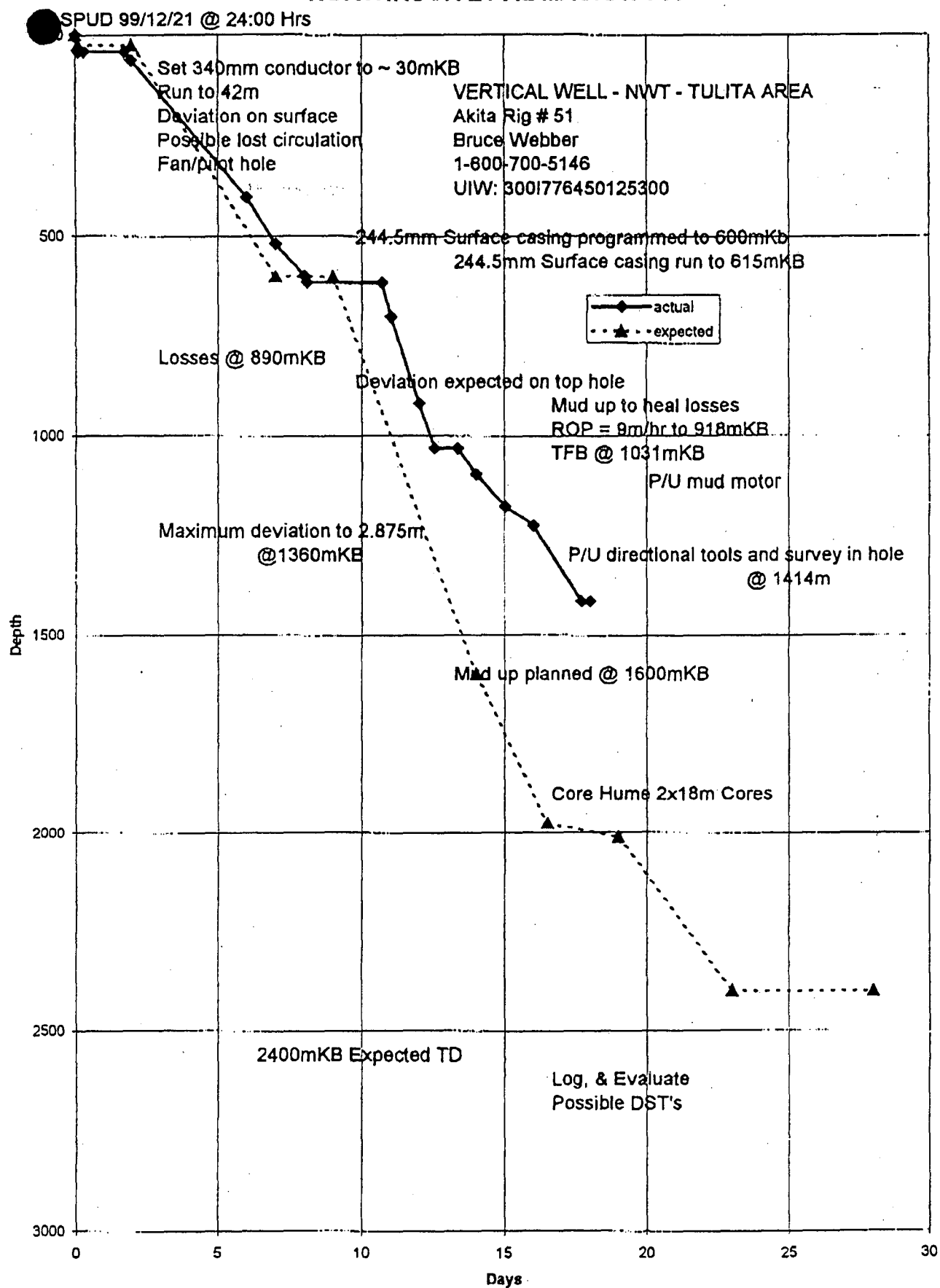
POOH to P/U directional tools and set up mud motor
 Directionally survey in the hole

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	snow	Temp:	-30	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	0	Ray Coleman	0				Sat Phone:	1-600-700-7370		

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
DAILY COST		\$27,913.00	COST TO DATE
			\$881,109.00

NORTHROCK ET AL MACKAY I-77



[illegible]

DATE: 07-Jan-2K DEPTH: 1245m @ 0700 PROGRESS: 40m REPORT #: 06

*** Morning Report ***

NORTHROCK et al MacKay I-77

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey. Trip for bit at 1224m.
Wash to bottom. Drill ahead. ROP: 2.5-4m/hr.

MUD PROPERTIES: MD: 1120 Vis: 42 WL: 18.0

FORMATION TOPS:

K Little Bear @ 790m

Basal L Bear SS @ 1184m

K Slater River @ 1207m

K R/A Shale

Devonian Imperial

Ramparts

Hare Indian SH

Bluefish

Hume

GAS and SHOWS: Trace of gas 1-3units.

Trip Gas @ 1224m 234u/2u BG

Conn. Gas @ 1242m 6u/2u BG

OTHER:

GL: 198.10m and KB: 202.35m (4.25m)

TRANSMITTED DATA: STRIPLOG + THIS PAGE

Dave Roberts - 764508 Alberta Limited - 600-700-2957

Incr. SPM

1150

SH gy, blk, gen v sdy, com sdy lam.

SH dk gy, blk-sbfis, slty ip.

SS lt gy, s&p texd, vf-f gr, ip m gr, wl srt, A-a, wl cmt w sil, tr sid, sl calc, tt, tr mica flks.

SS aa, vf-f gr, tr mica flks, non calc, tt.

SS lt gy-gy, s&p texd, vf-f gr, bcmg vf gr & slty, mod-wl srt, wl cmt & tt.

SS gy, s&p texd, vf gr & slty, mod srtg, wl cmt & tt.

SH gy, blk, v slty, com sdy.

SH gy-dk gy, blk, slty, v sdy ip.

SH dk gy, blk-sbfis, slty, occ sdy ip.

SH dk gy-blk, sbfis, micmica, flat lstr, tr pyr.

1175

Decr. WOB

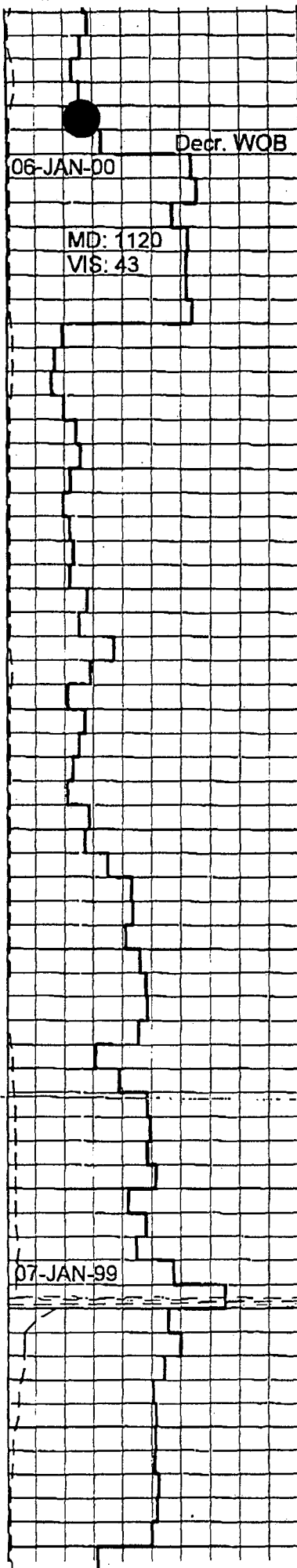
06-JAN-00

MD: 1120

VIS: 43

SS wh/clr, blk, s&p texd, f-c gr, vc gr ip, wl srt, A-r, wl cmt w sil & calc, sid ip, fair-good por ip?

SS aa, f-c gr, ip vc gr, fair-good por, tr qtz ovghs, tr pyr mtx.



1175

1200

SLATER
RIVER
@ 1207m

1225

SH dk gy-blk, sbfis, micmica, flat lstr, tr pyr.

SS wh/clr, blk, s&p texd, f-c gr, vc gr ip, wl
srted, A-r, wl cmted w sil & calc, sid ip,
fair-good por ip?
SS aa, f-c gr, ip vc gr, fair-good por, tr qtz
ovgths, tr pyr mtx.

SS aa, fair-good por ip, tr qtz ovgths, tr pyr
mtx.

SS wh/clr, blk, s&p texd, f-m gr ip c gr, wl
srted, mod-wl cmted w sil, tr-fair por ip, tr qtz
ovgths, tr pyr.

SH dk gy, blkgy-sbfis, micmica, slty ip, vf &
slty sdy lam.

SH dk gy, blkgy-sbfis, micmica, slty ip, sdy
lam.

SS lt gy, s&p texd, vf gr & slty, wl cmted & tt.

SS it gy, s&p texa, vt gr & sity, wt cmta & n.

07-JAN-99

Bit #3 222mm TG: 234u

Hughes GT-G1

In at 1224m.

1225

Incr. WOB

MD: 1120

VIS: 42

>CG WL: 14.0

1250

>CG Incr. WOB

End of log.

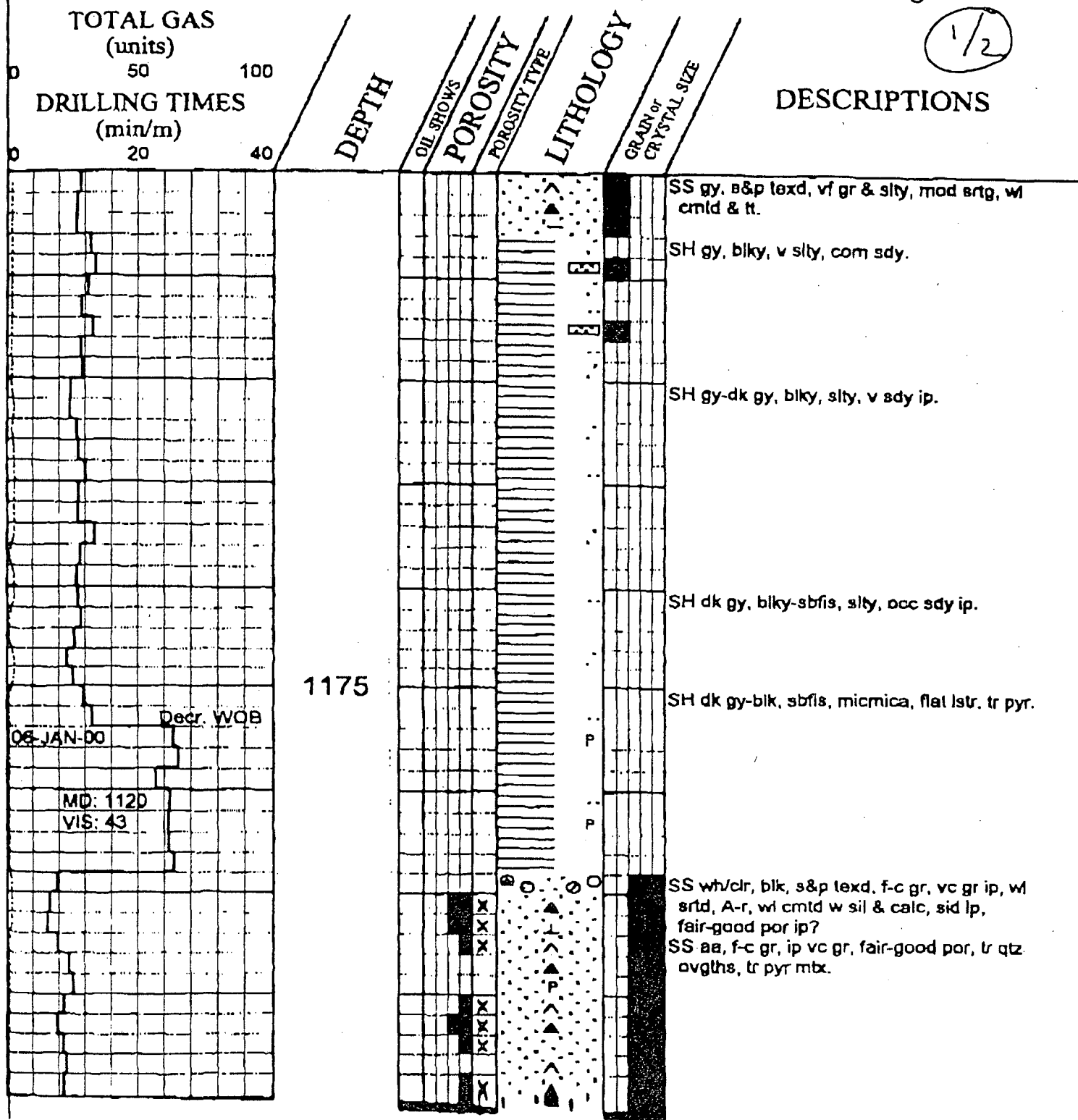
1275

CONSTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

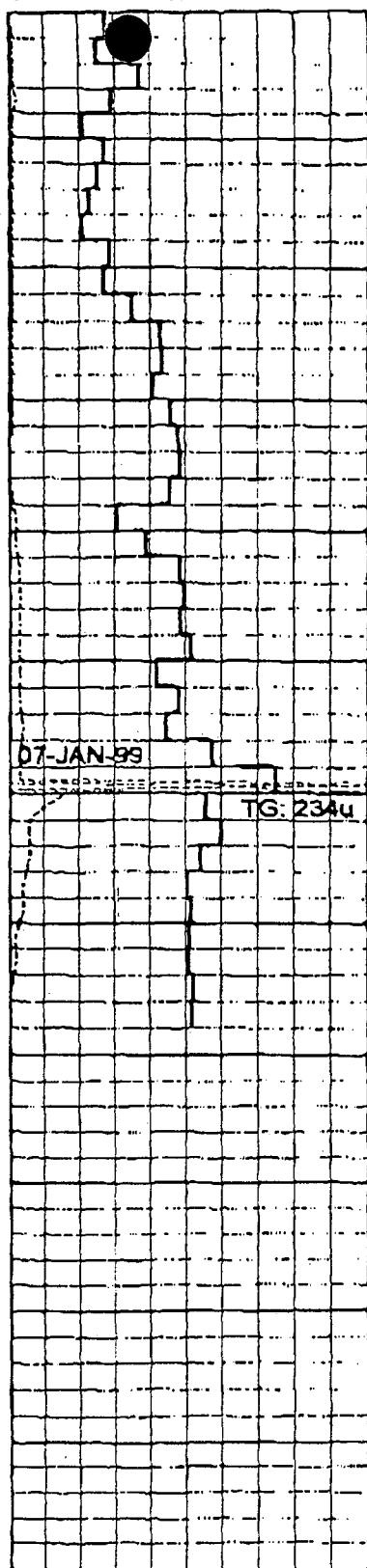
SCALE 1:240

MACKAY I-77

(1/2)



0 20 40

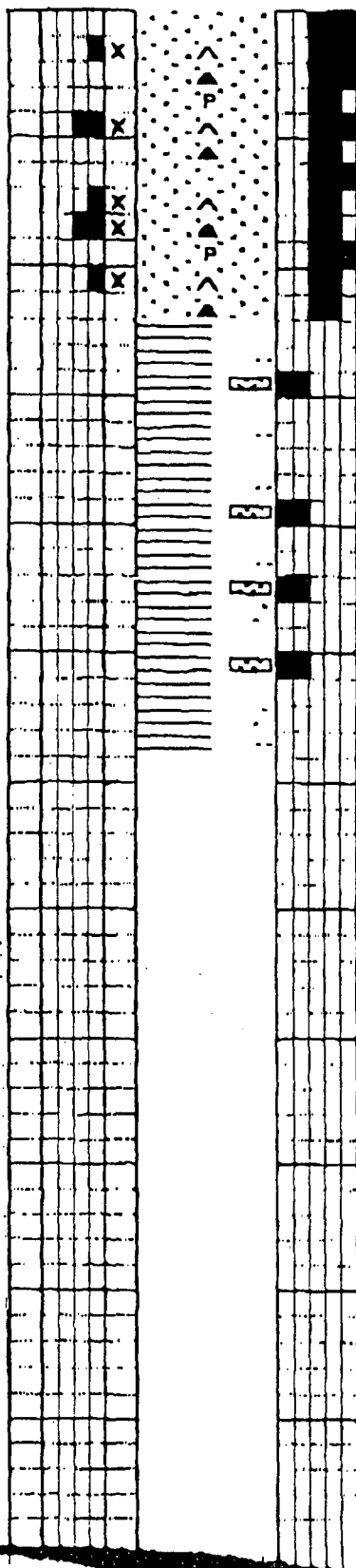


1200

SLATER
RIVER
@ 1207m

1225

1250

SS aa. fair-good por ip, tr qtz ovghs, tr pyr
mtx.

I-77 (2/2)

SS wh/cir. blk. s&p texd. f-m gr ip c gr, wl
srted, mod-wl cmted w sil, tr-fair por ip, tr qtz
ovghs, tr pyr.SH dk gy. blk-y-sbfis, micmica, slty ip, vf &
slty sdy lam.SH dk gy. blk-y-sbfis, micmica, slty ip, sdy
lam.

SS lt gy. s&p texd, vf gr & slty, wl cmted & tt.



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 16
Total Days 25

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 08/00	
1178 to 1224		Prog. 48		Operation 08:00:		Drilling @ 1250m		Formation: Slater River			
Orig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS							

Log Book		Check		PPM				Mud Pressure Gradient: 10.9	
Time		Fann		Salinity		% by Volume		Mud Cycle Main Hole:	
Density	1120	600	38	Chloride	200	Sand	0.001	Bottoms Up Time: 31	
Viscosity	43	300	27	Calcium	48	Solid	0%	Vol. Mud Tanks:	
W.L.	18	P.V.	7	MBT - Kg/m ³	55	Oil	0	Vol. Main Hole:	
P.H.	8.5	Y.P.	4	Temp C		Capacity: (m ³)		TOTAL:	
F.C.	1.5	Gels	3/7	ES		Sump:			
						Pump:			

MUD ADDITIVES:		Gel 105		Soda Ash		Desco		Alcomer	
		Sawdust 5		Caustic 1		Barite 15		Envirofloc	
		Lignite		Lime		Polysafe		Gypsum	

MUD COSTS:		DAILY: \$500		TOTAL: \$12,000	
------------	--	--------------	--	-----------------	--

SOLIDS CONTROL							VOLUMES ADDED		M ³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1840	1215			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
2	222	GT9G1		12.7	12.7	12.7	1031	1224	183	47.75	4.1	95.5	2	2	1
3	222	GT		12.7	12.7	12.7	1224								

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
2	6-10	140	40000	152	80	5,900	1.2	47	86	82	Stabilizer					
2	6-12	150	41000	152	118	7,000	1.4				JARS					

DRILLING ASSEMBLY: BIT, BIT SUB, X/O, mud motor, X/O, 18x159mm Dc's, 15xHWDP,
114mm DP to surface, Kelly

SURVEYS: 1208m - 2.125, 1218m - 2.125

Time Breakdown		Cto. 0.50		Survey 1.00		Test BOP'S		H. Tools	
Move Rig Up		Tripping 8.75		DO		BOP drill		Safety M	
Drilling 13.00		Rig Service 0.75		Run Casing + Cement		Plug Back		Mix LCM	
Reaming		Rig Repairs		WOC		Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs 24.00	

REMARKS

Drill ahead to 1224m & survey

POOH change bit & RIH

No hole problems

FORECAST:

P/U weight gradually to 15 - 16000 daN

Continue to survey

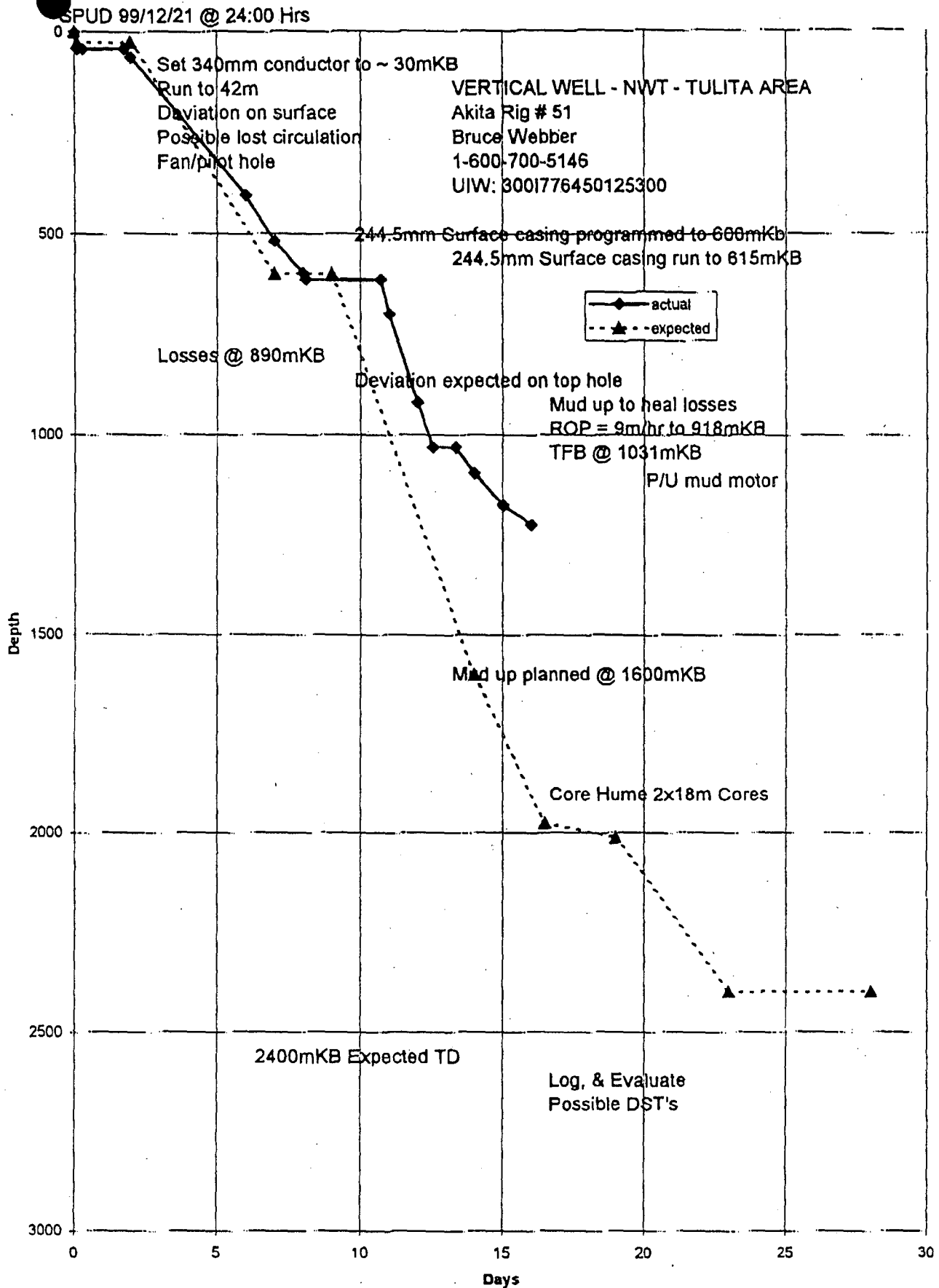
Send in directional drillers.

CUT/FILL:	0.00	GRD. ELV.:	187.10	NEW GRD. ELV.	188.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-35	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	Ray Coleman	0	Sat Phone:	1-600-700-7370						

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	08/12/21
DAILY COST	\$37,181.00	COST TO DATE	\$805,863.00

NORTHROCK ET AL MACKAY I-77



DATE: 05-Jan-2K DEPTH: 1107m @0700 PROGRESS: 76m REPORT #: 04

*** Morning Report ***

NORTHROCK et al MacKay I-77

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey. (Wireline.)

ROP: 3-10m/hr. Currently at 3 m/hr.

MUD PROPERTIES: MD: 1115 Vis: 37 (@1065m)

FORMATION TOPS:

K Little Bear @ 790m

K Slater River

K R/A Shale

Devonian Imperial

Ramparts

Hare Indian SH

Bluefish

Hume

GAS and SHOWS: No gas. Checked detector today - OK!
1-2units

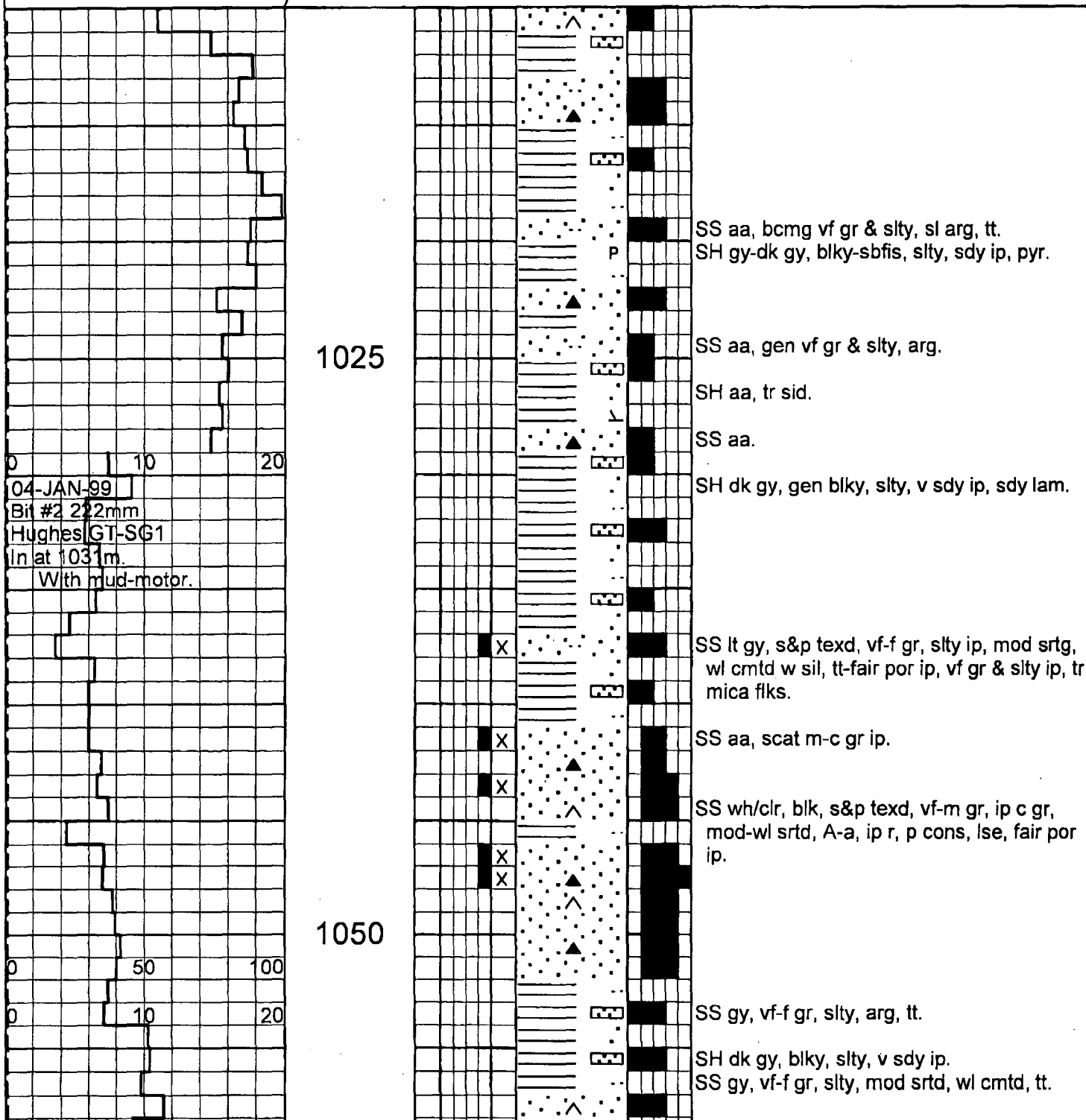
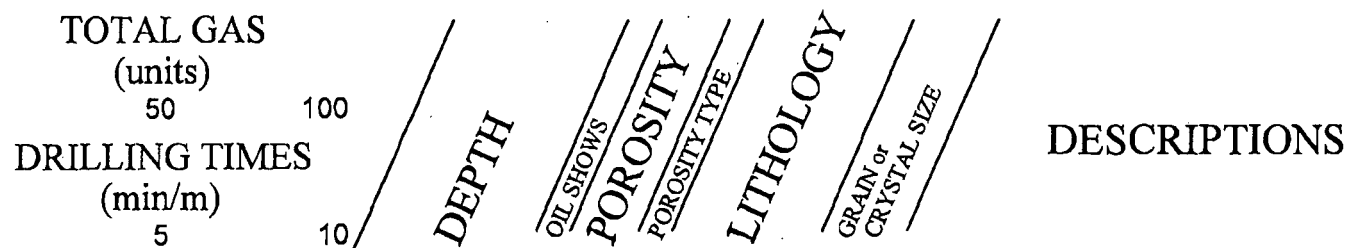
OTHER:

GL: 198.10m and KB: 202.35m (4.25m)

TRANSMITTED DATA: STRIPLOG + THIS PAGE

CAT STRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

SCALE 1:240





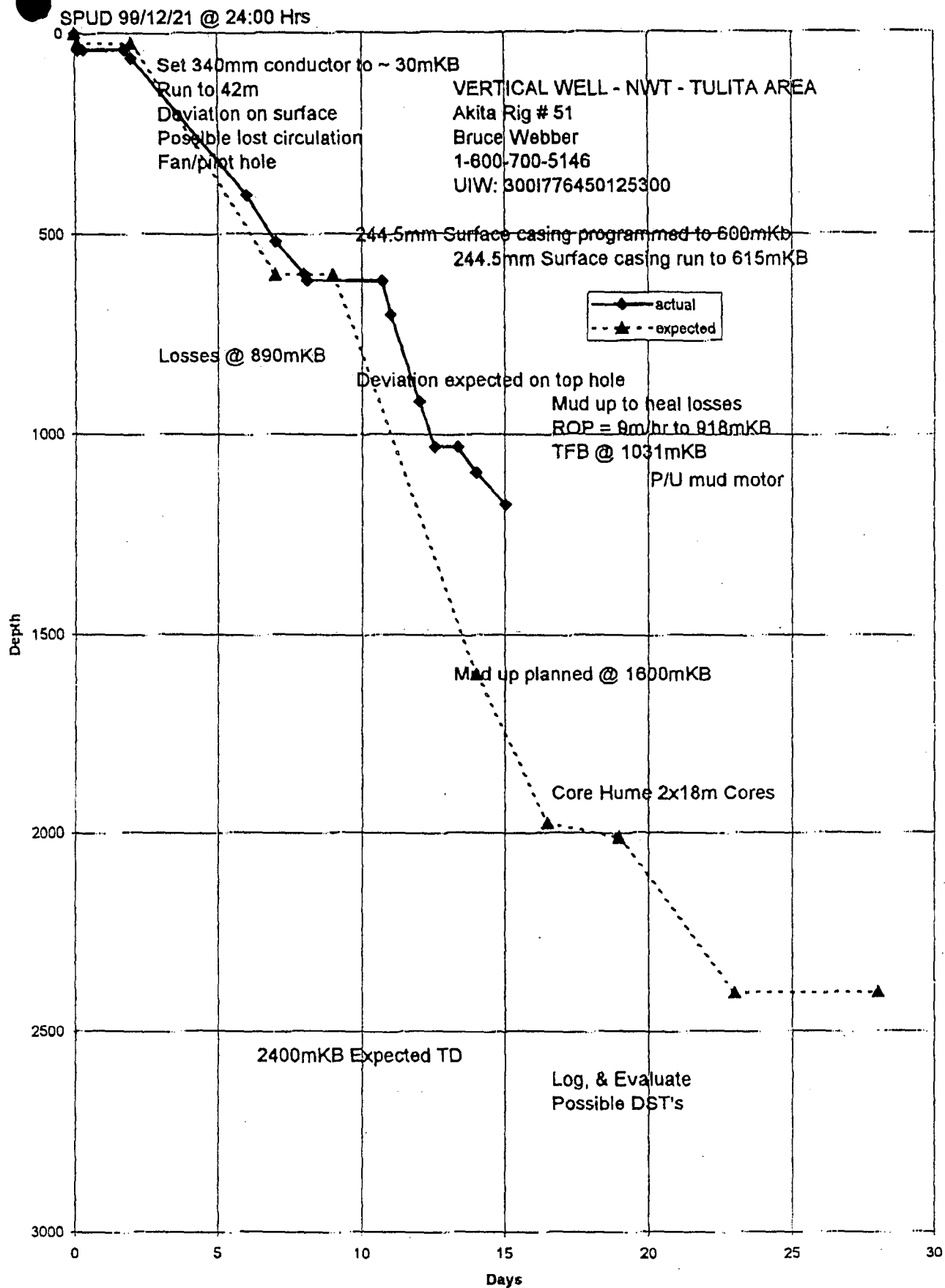
NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 15
Total Days 24

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 05/00									
1096 to 1178		Prog. 80		Operation 08:00:		Drilling @ 1208m		Formation: Little Bear											
Orig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS															
Log Book Check										PPM									
Time		Fann		Salinity	200	Mud Pressure Gradient: 10.9													
Density	1120	600	20	Chloride	200	% by Volume				Mud Cycle Main Hole:									
Viscosity	44	300	13	Calcium	60	Sand 0.001				Bottoms Up Time: 27									
W.L.	19	P.V.	7	MBT - Kg/m ³	50	Solid 0%				Capacity: (m ³)				Vol. Mud Tank:					
P.H.	9	Y.P.	4	Temp C		Oil 0				Sump:				Vol. Main Hole:					
F.C.	1.5	Gels	2/8	ES						Pump:				TOTAL:					
MUD ADDITIVES:																			
Gel		105		Soda Ash		1		Desco				Alcomer							
Sawdust		5		Caustic		2		Barite				Envirofloc							
Lignite				Lime				Polysafe				Gypsum							
MUD COSTS: DAILY: \$1,500										TOTAL: \$11,500									
SOLIDS CONTROL										VOLUMES ADDED									
Item	Make	UF	OF	M ³ /M	SDS %	Hrs					M ³	REMARKS							
CENTRIFUGE	WADECO	1880	1110			24						Water (Fresh)							
												Water (Brine)							
												Mud							
												Loss to Formation:							
BIT DATA																			
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G				
2	222	GTSG1		12.7	12.7	12.7	1031	1176	145	34.76	4.1	82.5							
No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs			
2	6-10	140	40000	152	90	5,900	1.2	47	66	82	Stabilizer								
											JARS								
DRILLING ASSEMBLY: BIT, BIT SUB, 2X228mm DC'S, X/O, 18x159mm Dc's, 15xHWDP,																			
114mm DP to surface, Kelly																			
SURVEYS: 1096m - 1.5, 1120m - 1.5, 1172m - 2																			
Time Breakdown																			
Move Rig Up				Circ.			Survey	2.25	Test BOP'S		H. Tools								
Drilling	21.00			Tripping			DO		BOP drill		Safety M								
Reaming				Rig Service	0.75		Run Casing + Cement		Plug Back		Mix LCM								
Coring				Rig Repairs			WOC		Fishing		WOO								
				Slip + Cut			Nipple Up BOP's		W.Tight Hole		Total Hrs		24.00						
REMARKS																			
Drill ahead w/6-8000 to control deviation																			
Increase to 8-10000, deviation went from 1.5 to 2 degrees.																			
Back off to 6-8000																			
ROP = 3.5 m/hr w/ 6-8000																			
ROP = 5.0 m/hr w/ 8-10000																			
CUT/FILL: 0.00 GRD. ELV.: 197.10 NEW GRD. ELV.: 198.10 KB to GRD.: 4.25 KB: 202.35 KB to CF: 0.00																			
Weather clear Temp: -38 Wind: light Visibility: good Road Cond. good																			
Rig: Akita 51 0 Rick Parker 0 Sat Phone: 1-600-700-7370																			
Location Directions:																			
Report from: Bruce Webber Sat Phone: 1-600-700-5148																			
Taken by: Kevin Kerwin SPUD DATE: 99/12/21 RR DATE:																			
DAILY COST \$28,497.00 COST TO DATE \$788,492.00																			

NORTHROCK ET AL MACKAY I-77



DATE:06-Jan-2K DEPTH: 1205m @0700 PROGRESS: 98m REPORT #: 05

*** Morning Report ***

NORTHROCK et al MacKay I-77

Attn: Geoff Ireland

24 HR OPERATIONS: Drill and survey. ROP: 4-5m/hr. Slowing to 2.5m/hr at 1177m reduced WOB due to deviation. Picking up to 5m/hr in the Basal L Bear SS.

MUD PROPERTIES: MD: 1110 Vis: 38

FORMATION TOPS:

K Little Bear	@ 790m
Basal L Bear SS	@ 1184m Good pick.
K Slater River	Shaping up to come in slightly high to prog.
K R/A Shale	
Devonian Imperial	
Ramparts	
Hare Indian SH	
Bluefish	
Hume	

GAS and SHOWS: Trace gas 1-2units.

Verified gas trap is not obstructed - disassembled plumbing - found no restriction. Always have had a good "bubble" at the jar.

OTHER:

A print at 1:600 scale shows a strong correlation with the I-55 well.

GL: 198.10m and KB: 202.35m (4.25m)

TRANSMITTED DATA: *STRIPLOG + THIS PAGE
TO FOLLOW



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&AU) 9
Days (fr Spud) 14
Total Days 23

NORTHROCK ET AL MACKAY 177

Date: Jan 04/00

1031 10 1098 Prog. 66 Operation 08:00 Drilling @ 1109m Formation: Little Bear
Drill Mud Type: Gel Chem Mud Eng. Will Larson Mud Company: CFS

Log Book		Check		PPM							
Time			Fann		Salinity	200		Mud Pressure Gradient:	10.9		
Density	1125		600	27	Chloride	200	% by Volume	Mud Cycle Main Hole:			
Viscosity	44		300	18	Calcium	85	Sand	0.001	Bottoms Up Time:	27	
W.L.	19		P.V.	10	MBT - Kg/m ³	51	Solid	0%	Capacity: (m ³)	Vol. Mud Tanks:	
P.H.	9.5		Y.P.	4	Temp C		Oil	0	Sump:	Vol. Main Hole:	
F.C.	1.5		Gels	4/8	ES				Pump:	m ³ /stk	TOTAL:
MUD ADDITIVES:		Gel		35	Soda Ash		Desco		Alcomer		
		Sawdust			Caustic	1	Barite		Envirofloc		
		Lignite			Limite		Polysafe		Gypsum		

MUD COSTS: DAILY: \$500 TOTAL: \$10,000

SOLIDS CONTROL							VOLUMES ADDED		M ³	REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)				
CENTRIFUGE	WADECO	1710	1090			24	Water (Brine)				
							Mud				
							Loss to Formation:				

BIT DATA													
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T
2	222	GT		12.7	12.7	12.7	1031	1088	68	13.75	5	61.5	
No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		
	6-10	140	40000	152	90	5,900	1.2	47	68	82	Stabilizer		
											JARS		

DRILLING ASSEMBLY: BIT, BIT SUB, 2X228mm DC'S, X/O, 18x159mm Dc's, 15xHWDP,
114mm DP to surface, Kelly

SURVEYS: 1050m - 1.87, 1065m - 1.75

Time Breakdown		Circ.		Survey		Test BOP'S		H. Tools	
Move Rig Up		Tripping	5.75	DO		BOP drill		Safety M	
Drilling	13.75	Rig Service	0.60	Run Casing + Cement		Plug Back		Mix LCM	
Reaming	1.50	Rig Repaire		WOC		Fishing		WOO	
Coring		Slip + Cut	1.25	Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

P/U motor and RIH. Slip & Cut

Finish in and ream bridge 1005 - 1021mKB

Clean to bottim and drill ahead

CUT/FILL: 0.00 GRD. ELV.: 197.10 NEW GRD. ELV.: 198.10 KB to GRD.: 4.25 KB: 202.35 KB to CF: 0.00

Weather clear Temp: -42 Wind: light Visibility: good Road Cond. good

Akita 51 0 Rick Parker 0 Sat Phone: 1-600-700-7370

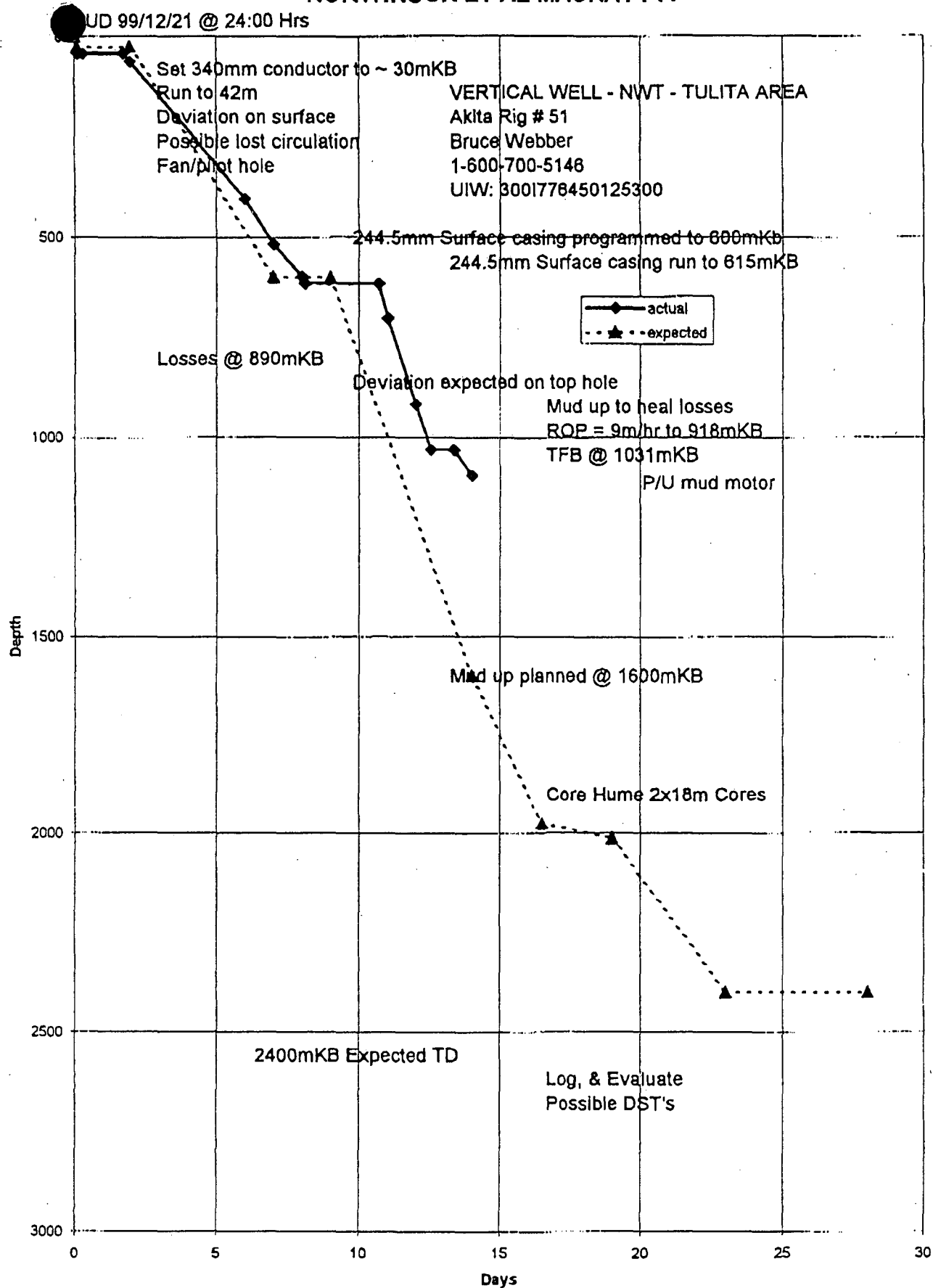
On Directions:

Report from: Bruce Webber Sat Phone: 1-800-700-5148

Taken by: Kevin Kerwin SPUD DATE: 89/12/21 RR DATE:

DAILY COST \$22,731.00 COST TO DATE \$739,995.00

NORTHROCK ET AL MACKAY I-77



KNOWLING GEOLOGICAL

512-32nd Street N.W.
 CALGARY, Alberta
 T2P 1G5

(403) 860-6400

COMPOSITE WELL HISTORY
DRILLING TIME
LITHOLOGY LOG

COMPANY: Northrock Resources Ltd.

WELL: NORTHROCK et al Mackay 1-77

FIELD:

PROVINCE: N.W.T.

LOCATION: 300I77645012530

COORDINATES: Lat:64.46.4

Lon:125.43.

ELEVATIONS: GD 198.1 m

LOG MEASURED FROM KB

KB 202.4 m

4.3 m ABOVE GROUND

WELL TYPE: Exploratory

TOTAL DEPTH: 2400?

SPUD DATE: 23-Dec-99 @ 2130hr

T.D. DATE:

LICENCE No.:

AFE No.:

CONTRACTOR: Akita/Sahtu Ptnshp.

CORES:

MUD TYPE: Gel/chem

MUD UP @: 960m

SAMPLES:

OPEN HOLE LOGS:

DSTs:

SUPERVISION

GEOLOGICAL: Dave Roberts

DRILLING: Bruce Webber

CASING DEPTH

SURFACE: 615.0 m
 INTERMEDIATE: m
 MAIN: m

CASING SIZE

SURFACE: 244.5 mm
 INTERMEDIATE: mm
 MAIN: mm

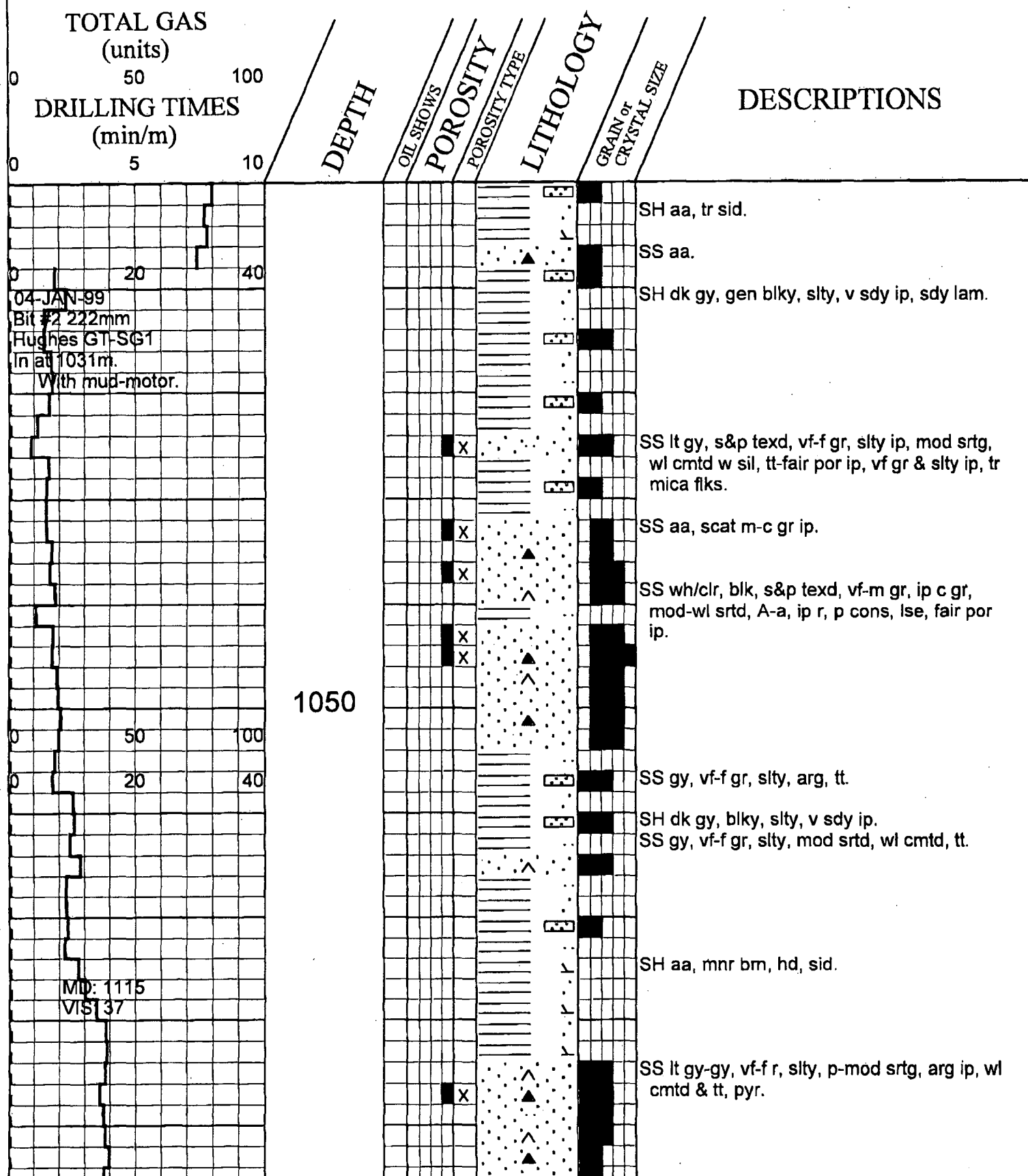
HOLE SIZE

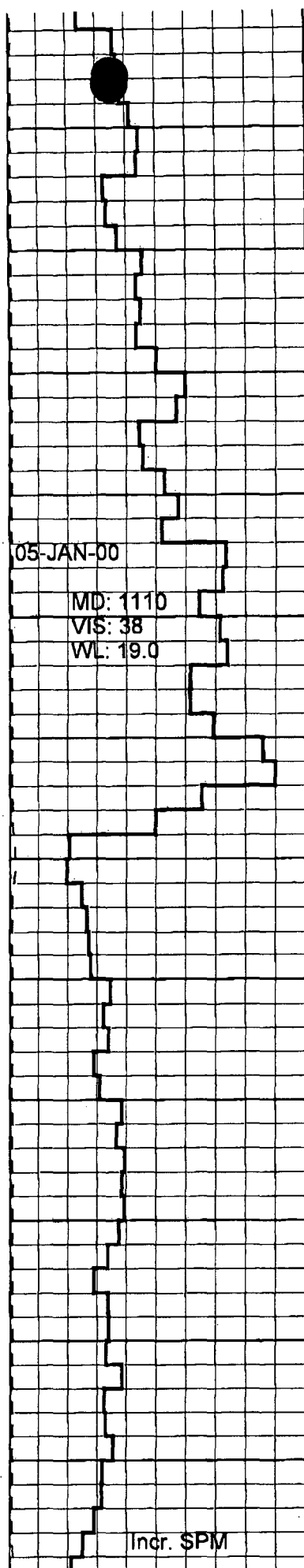
SURFACE: 311 mm
 INTERMEDIATE: mm
 MAIN: mm

REMARKS:

CONSTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

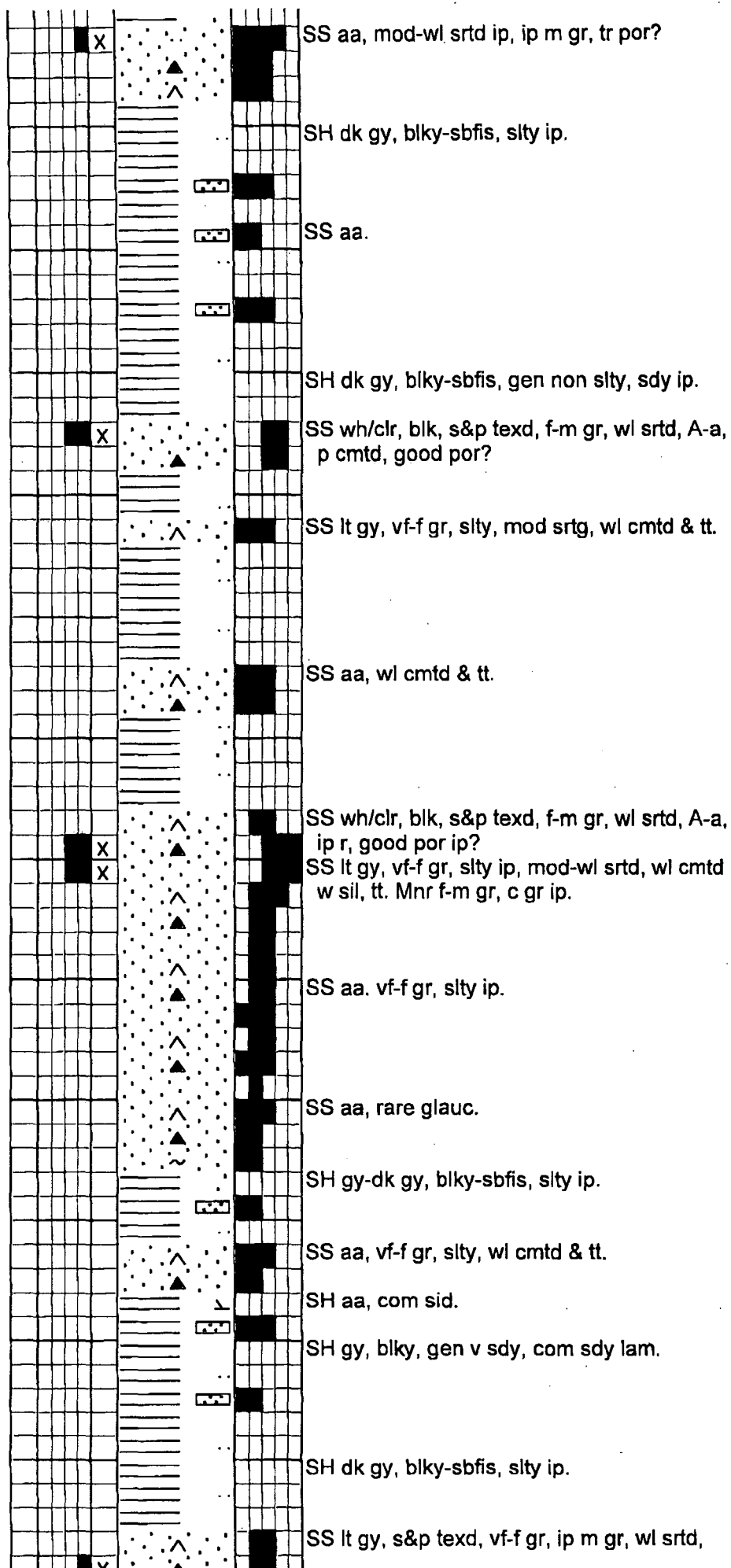
SCALE 1:240

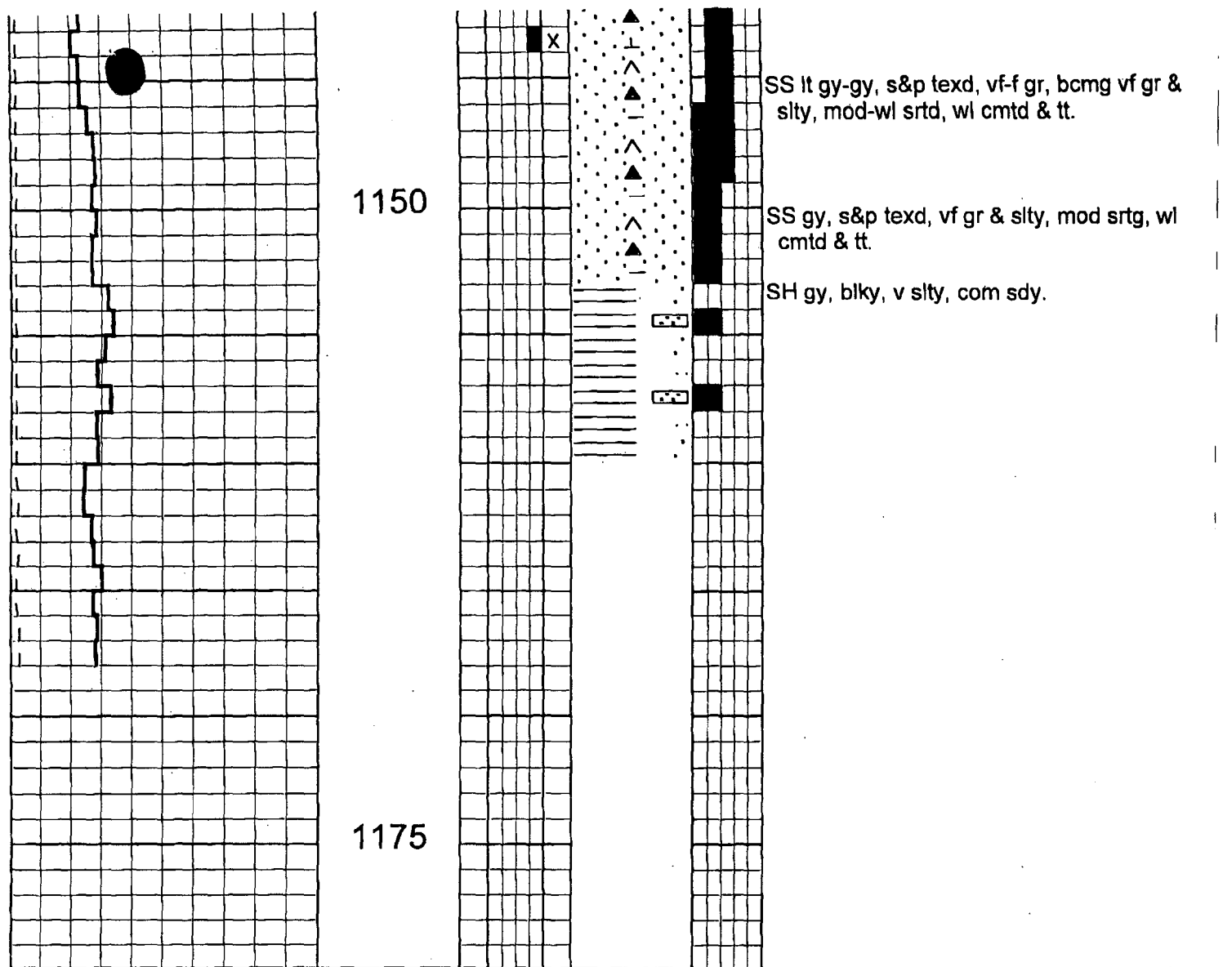




1100

1125







NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 12
Total Days 21

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 03/00									
700 to 918		Prog. 218		Operation 08:00:				Drilling @ 960m				Formation: TOP							
Drig. Fluid Type: Gel Chem				Mud Eng. Will Larson				Mud Company: CFS											

Log Book		Check		Fann		Salinity		PPM		% by Volume		Mud Pressure Gradient: 10.6	
Time													
Density	1090			600			Chloride	200					Mud Cycle Main Hole:
Viscosity	47			300			Calcium	740					Bottoms Up Time:
W.L.	N/A			P.V.			MBT - Kg/m ³			Sand	0.001		25
P.H.	9.5			Y.P.			Temp C			Solid	0%	Capacity: (m ³)	Vol. Mud Tanks:
F.C.	1.5			Gels			ES			Oil	0	Sump:	Vol. Main Hole:
										Pump:		m ³ /hrk	TOTAL:

MUD ADDITIVES:		Gel 60		Soda Ash 1		Desco		Alcomer 10	
		Sawdust 30		Caustic 2		Primaseal		Envirofloc 3	
		Lignite		Liime		Polysafe 1		Gypsum 2	

MUD COSTS:		DAILY: \$1,759		TOTAL: \$8,194	
-------------------	--	-----------------------	--	-----------------------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M³/M	SDS %	Hrs						
CENTRIFUGE	WADECO	1740	1030			24	Water (Fresh)					
							Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
1	222	GT	A888180	10.3	10.3	10.3	815	818	303	35	8	35			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs	
1	14	90	35000	152	90	8,200	1.2	47	68	82						

DRILLING ASSEMBLY: BIT, BIT SUB, 2X228mm DC'S, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly

SURVEYS: 720m - 0.25, 765m - 0.75, 810m - 0.875, 858m - 0.875

Time Breakdown		Circ.		Survey 2.00		Test BOP'S		H. Tools	
Move Rig Up		Tripping	2.25	DO		BOP drill	0.50	Safety M	
Drilling	15.00	Rig Service	0.75	Run Casing + Cement		Plug Back		Mix LCM	3.50
Reaming		Rig Repairs		WOC		Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

Drill ahead to 890m. Loose circulation.

Pump LCM pill and pull up into casing to mix up pill.

Rih and pump 5 m3 LCM pill

Start to mud up system to heal losses.

Drill ahead mudded up w/ slight losses.

CUT/FILL: 0.00	GRD. ELV.: 197.10	NEW GRD. ELV. 198.10	KB to GRD.: 4.26	KB: 202.35	KB to CF 0.00
Weather clear	Temp: -20	Wind: light	Visibility: good	Road Cond. good	
Rig: Akita 51	o Rick Parker	0	Sat Phone: 1-600-700-7370		

Location Directions:

Report from: Bruce Webber	Sat Phone: 1-800-700-5148
Taken by: Kevin Kerwin	SPUD DATE: 99/12/21
DAILY COST \$28,925.00	COST TO DATE \$676,837.00



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 11
Total Days 20

WELL: NORTHROCK ET AL MACKAY 177										Date: Jan 02/00									
815 to 700		Prog. 85		Operation 08:00:				Drilling		Formation: TOP									
Drig. Fluid Type: Floo Water				Mud Eng. Will Larson				Mud Company: CFS											

Log Book		Check		PPM									
Time		Fann		Salinity		% by Volume				Mud Pressure Gradient: 9.8			
Density	1000	600		Chloride						Mud Cycle Main Hole:			
Viscosity	28	300		Calcium		Sand 0.001				Bottoms Up Time: 17			
W.L.	N/A	P.V.		MBT - Kg/m ³		Solid 0%				Capacity: (m ³)			
P.H.	10.5	Y.P.		Temp C		Oil 0				Sump:			
F.C.		Gels		ES						Pump: m ³ /min			
MUD ADDITIVES:				Gel		Soda Ash	2	Desco		Alcomer 10			
				Sawdust		Caustic		Primaseal		Envirofloc 5			
				Lignite		Lime		Polysafe	1	Gypsum 6			
MUD COSTS:				DAILY: \$700		TOTAL: \$8,435							

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO						Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
1	222	GT	A888180	10.3	10.3	10.3	815	700	85	5.75	15	15			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs
1	14	90	31000	152	90	4,780	1.1	40	62	79					

DRILLING ASSEMBLY: BIT, BIT SUB, 2X228mm DC'S, X/O, 18x159mm Dc's, 15xHWDP,
114mm DP to surface, Kelly

SURVEYS: 620m - .5, 670m - .5

Time Breakdown		Circ.		Survey		1.00	Test BOP'S		12.25	H. Tools	
Move Rig Up		Tripping		DO		1.00	BOP drill			Safety M	
Drilling		Rlg Service		Run Casing + Cement			Plug Back			Leak off 1.00	
Reaming		Rlg Repairs		WOC			Fishing			WOO	
Coring		Slip + Cut		Nipple Up BOP's			W.Tight Hole			Total Hrs 24.00	

REMARKS

Pressure test blind rams, choke & kill lines and all manifold valves
from 1400 kPa low, 21000 kPa high - 10 minutes each. RIH and pressure test
upper and lower pipe rams 1400 kPa low, 21000 kPa high - 10 minutes each.
Pressure test stabbing valve, upper & lower kelly cock 1400 kPa low 21000 kPa high - 10 min
Accumulator check OK.
Drill out float collar, cement, and shoe. Drill to 622m and run leak off test.
Leak off gradient @ 19.5 kPa/m performed by Dowell. Chart to follow.

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-20	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	Operator:	Rick Parker	Phone:	0	Sat Phone:			1-600-700-7370		

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-600-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	88/12/21
DAILY COST	\$48,818.00	COST TO DATE	\$847,912.00



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

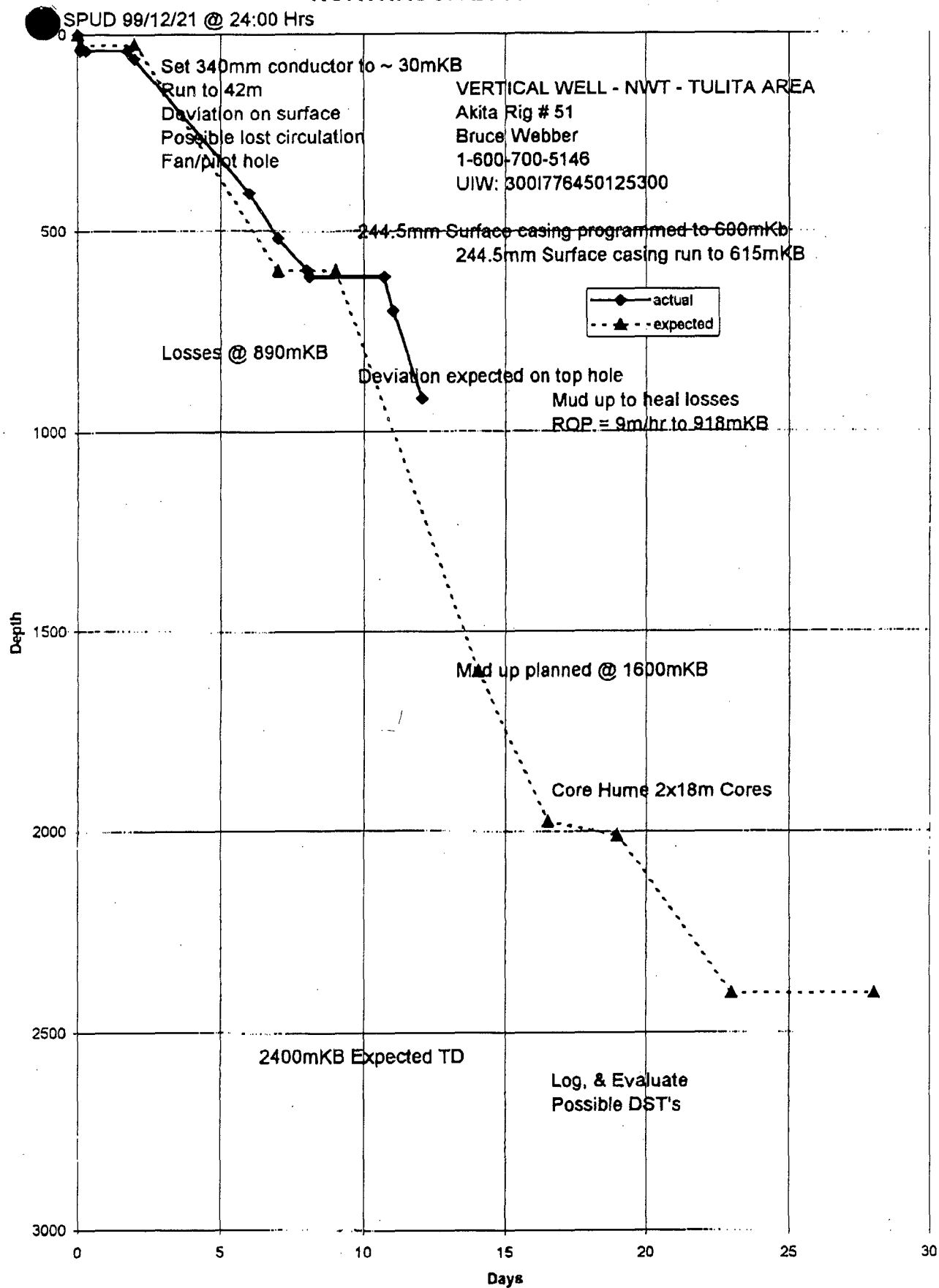
DAILY DRILLING REPORT

Midnight to Midnight

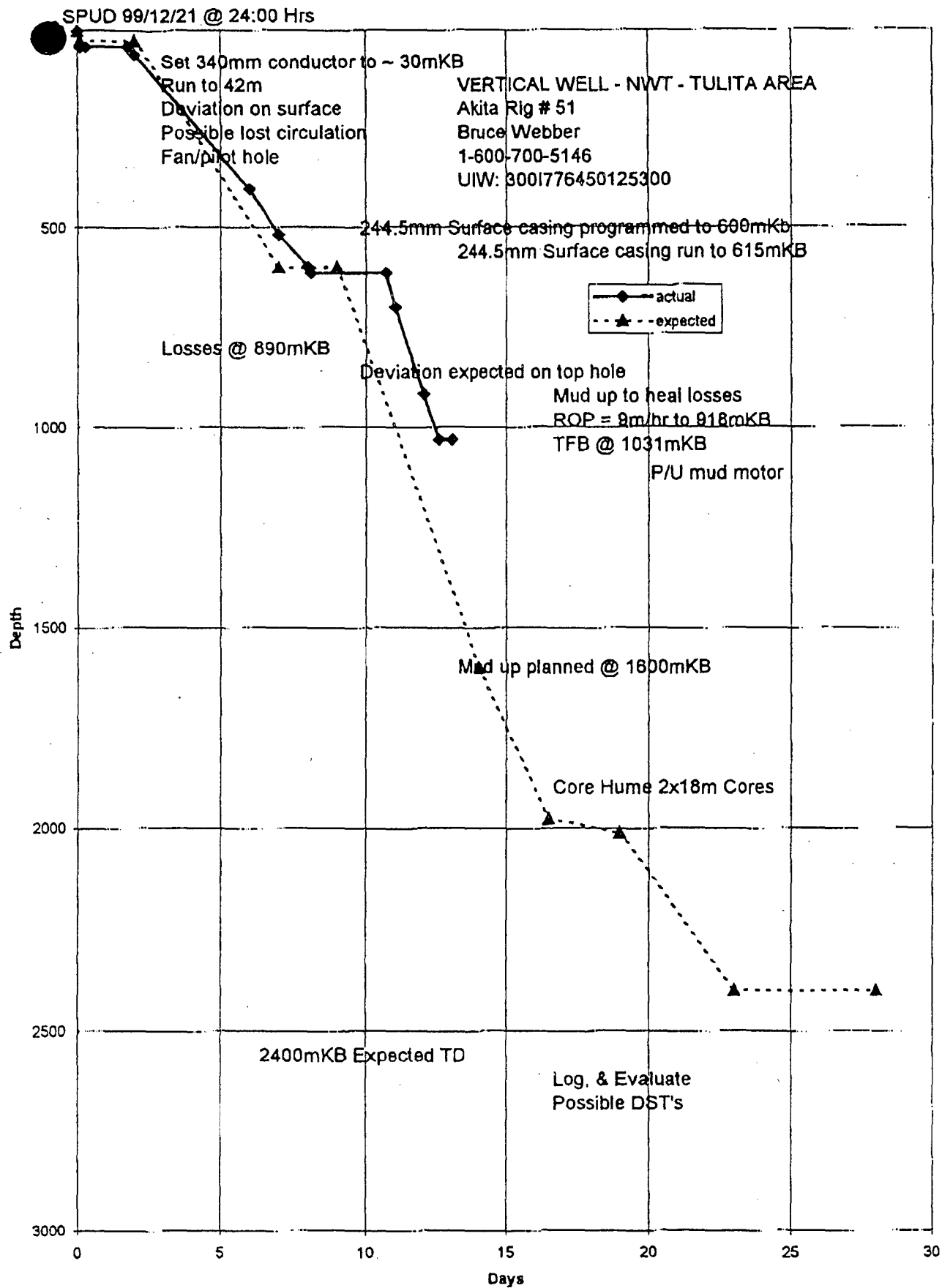
Days (MI&RU)	9
Days (fr Spud)	10
Total Days	19

[illegible]

NORTHROCK ET AL MACKAY I-77



NORTHROCK ET AL MACKAY I-77



DATE: 02-Jan-2K DEPTH: 786m @0700 PROGRESS: 171m REPORT #: 01

*** Morning Report ***

NORTHROCK et al MacKay I-77

Attn: Geoff Ireland

24 HR OPERATIONS: Pressure test BOP & related equipment.
Drill out cement & shoe. Leak off test. Drill ahead from
615m. ROP: 20-30m/hr.

MUD PROPERTIES: Water.

FORMATION TOPS:

K Little Bear @ 825m prognosis
K Slater River
K R/A Shale
Devonian Imperial
Ramparts
Hare Indian SH
Bluefish
Hume

GAS and SHOWS: No gas to speak of! Detector working fine.
1-3units

OTHER:

GL: 190.4m and KB: 194.0m (From Prog.) Will confirm!!

FAXED DATA: STRIPLOG 0 + THIS PAGE = 1 PAGE(S)

DATE: 03-Jan-2K DEPTH: 960m @0700 PROGRESS: 176m REPORT #: 02

*** Morning Report ***

NORTHROCK et al MacKay I-77

Attn: Geoff Ireland

24 HR OPERATIONS: Drill (and survey every 50m) Rop: 20m/hr to 844m 8-10m/hr from 844m. Wiper trip and pump LCM pill at 902m due to high seepage losses. Mix mud and mud up. Drill ahead.

MUD PROPERTIES: Mud up at 902m. MD: 1130 Vis: 38

FORMATION TOPS:

K Little Bear @ 790m

K Slater River

K R/A Shale

Devonian Imperial

Ramparts

Hare Indian SH

Bluefish

Hume

GAS and SHOWS: No gas to speak of! Detector working fine.
1-6units

OTHER:

*

*

GL: 198.10m and KB: 202.35m (4.25m) Confirmed w/BW.

DATE: 04-Jan-2K DEPTH: 1031m @0700 PROGRESS: 71m REPORT #: 03

*** Morning Report ***

NORTHROCK et al MacKay I-77

Attn: Geoff Ireland

24 HR OPERATIONS: Drill (and survey every 50m) ROP: 6-10m/hr
Trip for bit and pick up mudmotor at 1031m. Slip & cut line.
Wash to bottom. Drill ahead by 0800hrs?

MUD PROPERTIES: MD: 1120 Vis: 42 (@1016m)

FORMATION TOPS:

K Little Bear @ 790m

K Slater River

K R/A Shale

Devonian Imperial

Ramparts

Hare Indian SH

Bluefish

Hume

GAS and SHOWS: No gas! Detector working fine.
1-2units

OTHER:

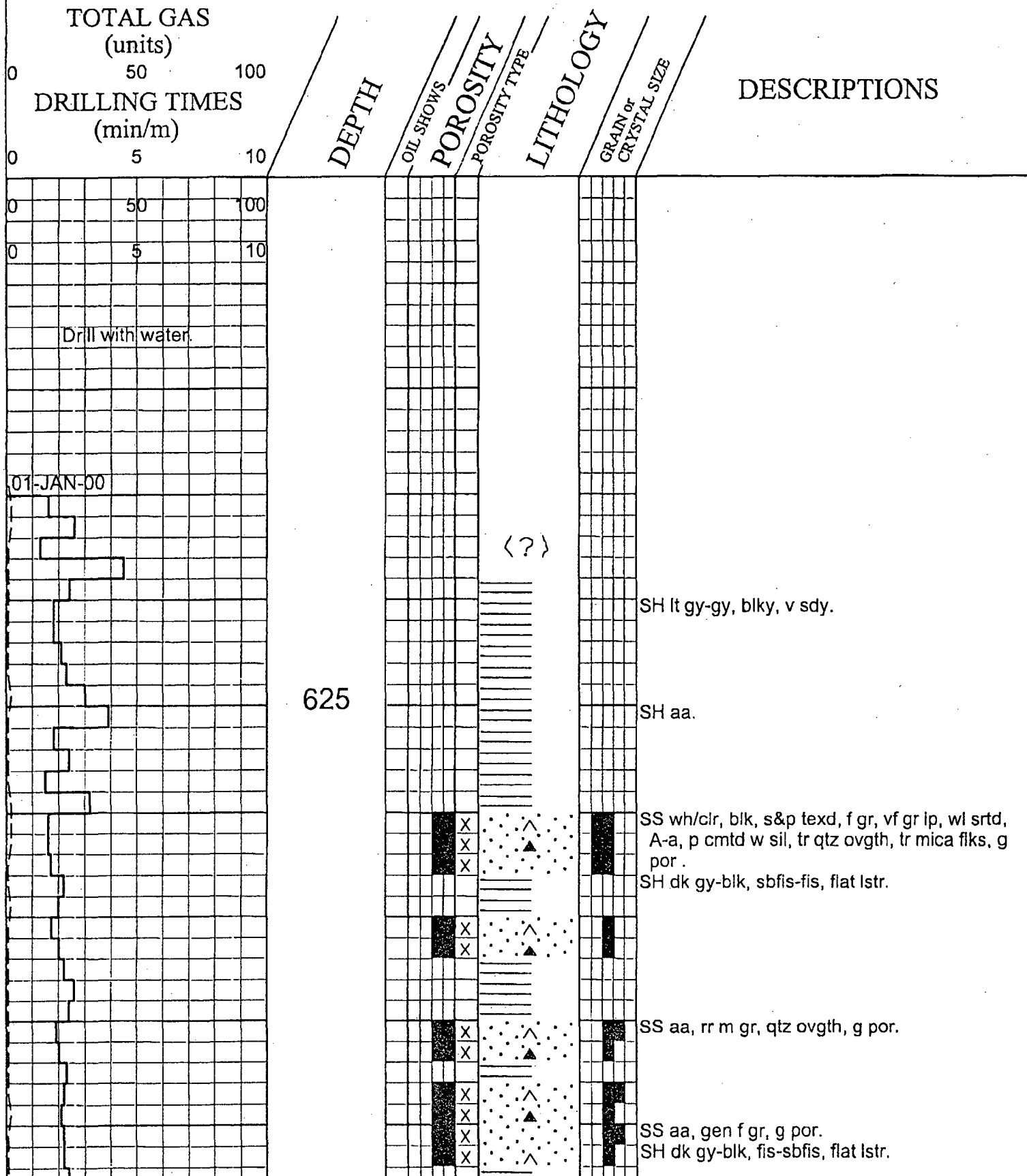
(From today the number in the file name refers to the date.)

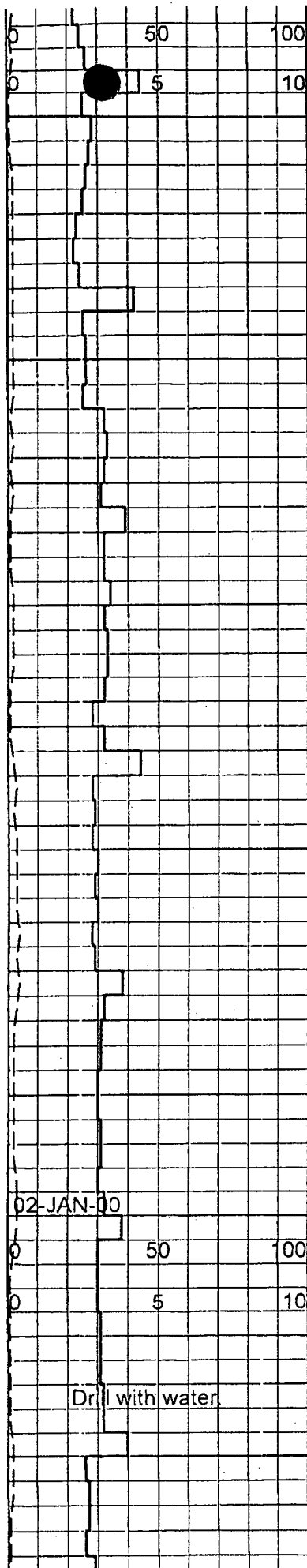
GL: 198.10m and KB: 202.35m (4.25m)

KNOWLING GEOLOGICAL 512-32nd Street N.W. CALGARY, Alberta T2P 1G5 (403) 860-6400		COMPOSITE WELL HISTORY DRILLING TIME LITHOLOGY LOG		CASING DEPTH SURFACE: 615.0 m INTERMEDIATE: m MAIN: m	
COMPANY: Northrock Resources Ltd. WELL: NORTHROCK et al Mackay I-77 FIELD: PROVINCE: N.W.T. LOCATION: 300177645012530					
COORDINATES: Lat:64.46.4 ELEVATIONS: GD 198.10 m KB 202.35 m WELL TYPE: Exploratory SPUD DATE: LICENCE No.:		Lon:125.43. LOG MEASURED FROM KB 0.0 m ABOVE GROUND TOTAL DEPTH: 2400? T.D. DATE: AFE No.:			CASING SIZE SURFACE: 244.5 mm INTERMEDIATE: mm MAIN: mm
CONTRACTOR: Akita/ MUD TYPE: Gel/chem MUD UP @: SAMPLES: DSTs:		CORES: OPEN HOLE LOGS:			
SUPERVISION GEOLOGICAL: Dave Roberts DRILLING: Bruce Webber				HOLE SIZE SURFACE: 311 mm INTERMEDIATE: mm MAIN: mm REMARKS:	

CONSTRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

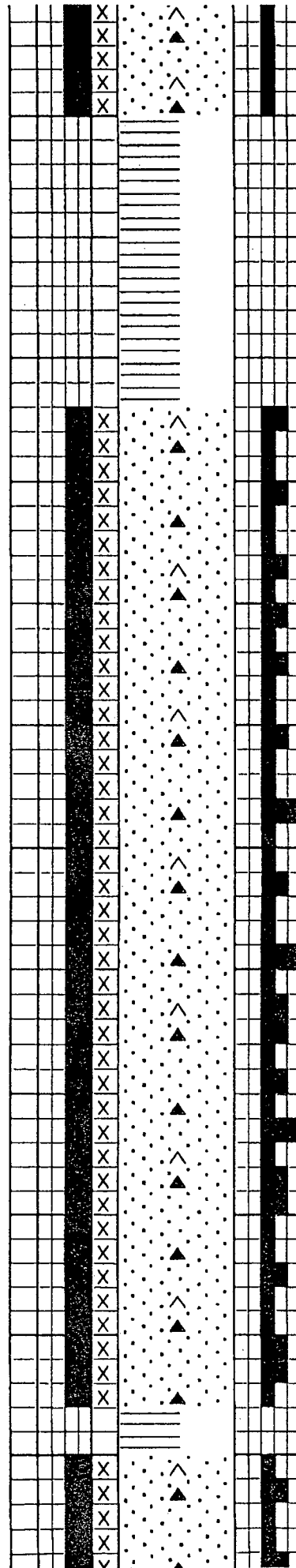
SCALE 1:240





675

700



SS aa.

SH aa, com gy & soft.

SH dk gy, fis.

SS wh/clr, blk, s&p texd, f gr, ip m gr, wl srted, A-a, poor cmted w sil, good por, tr cht gran & pbl.

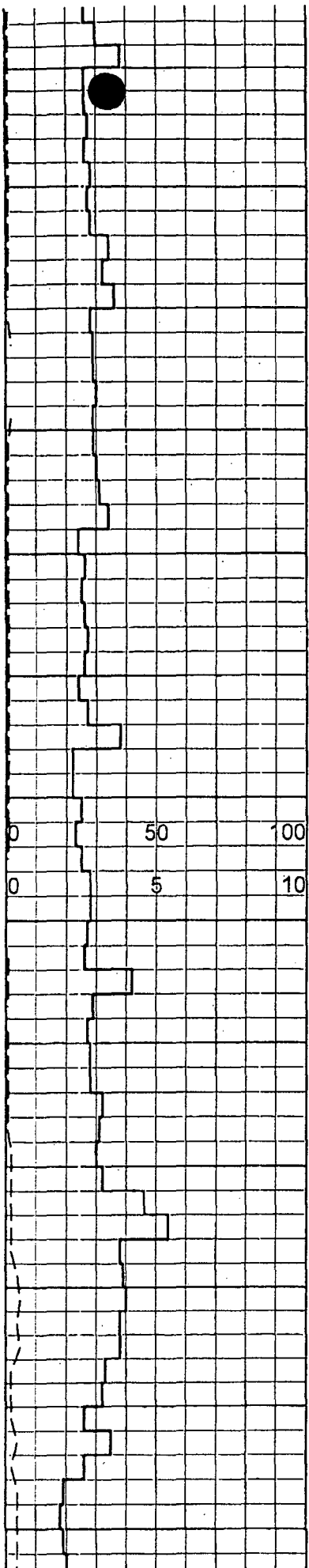
SS aa.

SS wh/clr, blk, s&p texd, f gr, ip m gr, rr c gr, wl srted, A-a, p cmted, good por.

SS aa.

SH dk gy-blk, fis-sbfis, flat lstr.

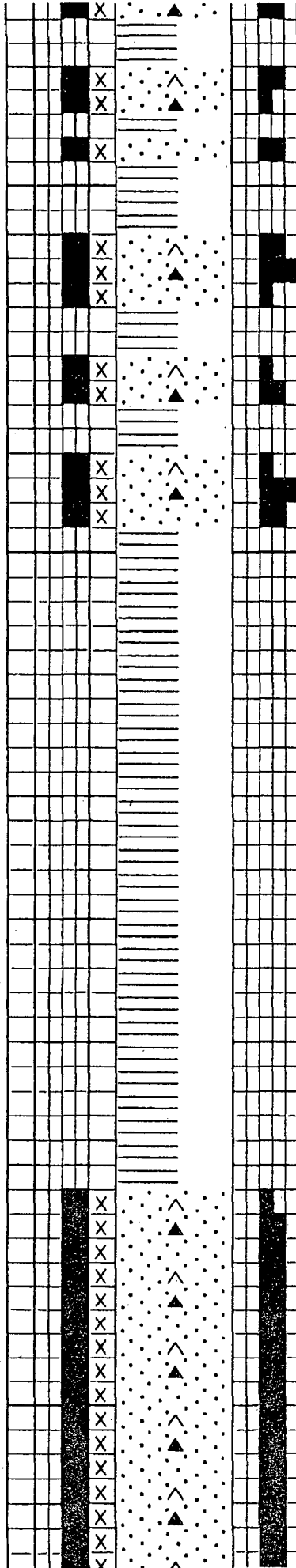
SS aa.



725

750

775



SH gy, soft.

SS aa.

SH lt gy & soft.

SS aa.

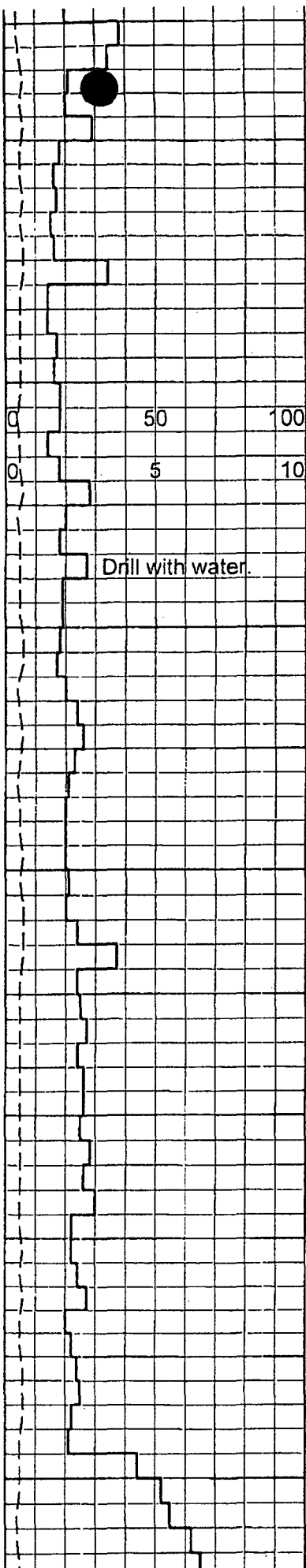
SH gy-dk gy, sbfis-fis, flat lstr.

SH aa.

SH gy-dk gy, blk-ysb-ys, micmica ip.

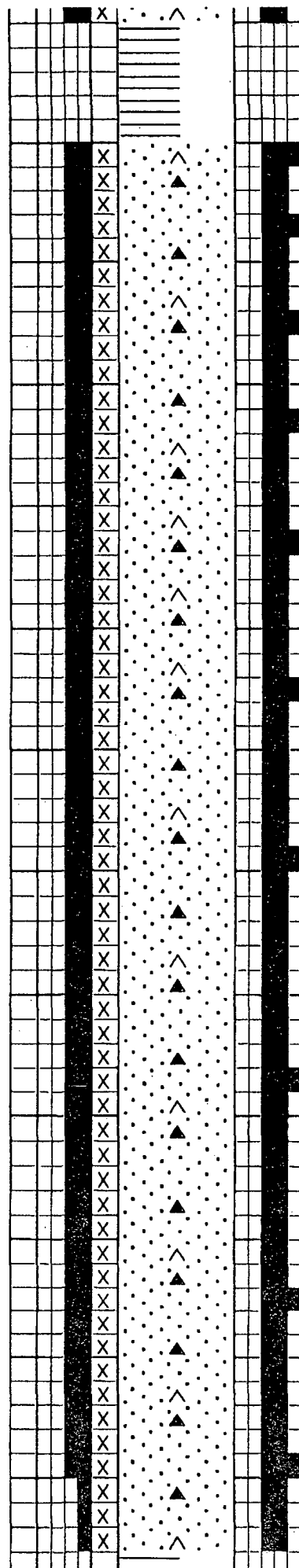
SS wh/clr, blk, s&p texd, f-m gr, wl srtd,
A-a-r, p cmtd w sil, good por.

SS aa, ip c gr.



800

825



SS wh/clr, blk, s&p texd, f-m gr, wl srted, com
cht pbl, wl srted, A-a, ip r, p cmted w sil, good
por, wh-gy-yel & orng cht pbl.

SS aa, abnt cht pbl, bcmg mod cmted ip.

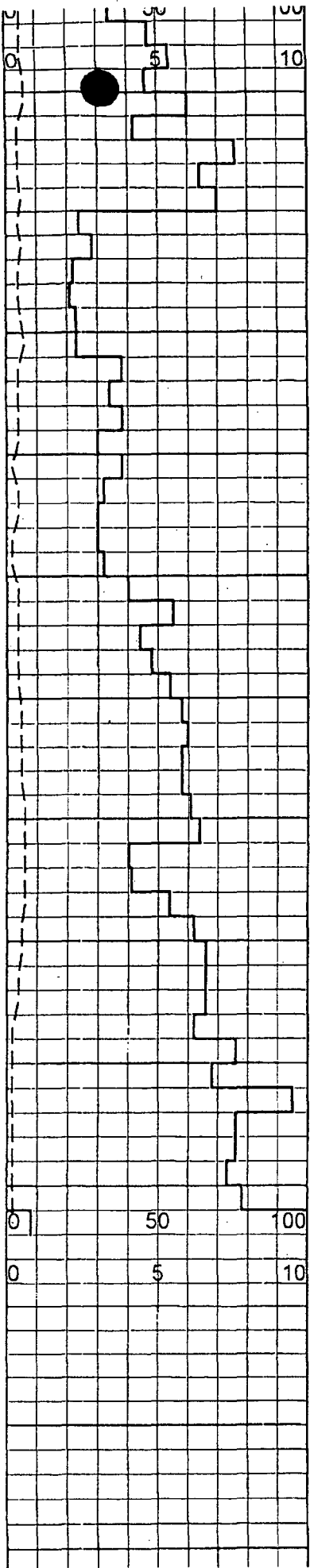
SS wh/clr, blk, s&p texd, f-m gr, tr cht pbl, wl
cmted, A-a, mod cmted w sil ip, f-good por.

SS aa, tr cht pbl.

SS aa, f-g por.

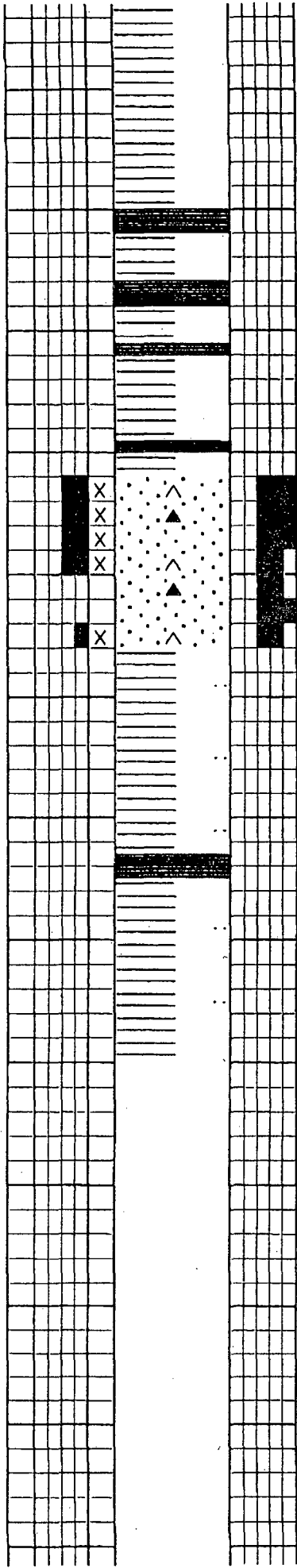
SS aa.

SS wh/clr, blk, s&p texd, f-m gr, wl srted, A-a,
p-mod cmted w sil, f-good por, tr cht pbl.



875

900



COAL blk, vit-sbvit, shy ip.

SH dk gy-blk, sbfis, carb ip.

SS wh/clr, blk, s&p texd, f-m gr, ip c gr, wl
srted, a, p cmtd w sil, good por.

SS aa, f-c gr, wl srted, a-r, p cmtd, good por,
pbl ip.

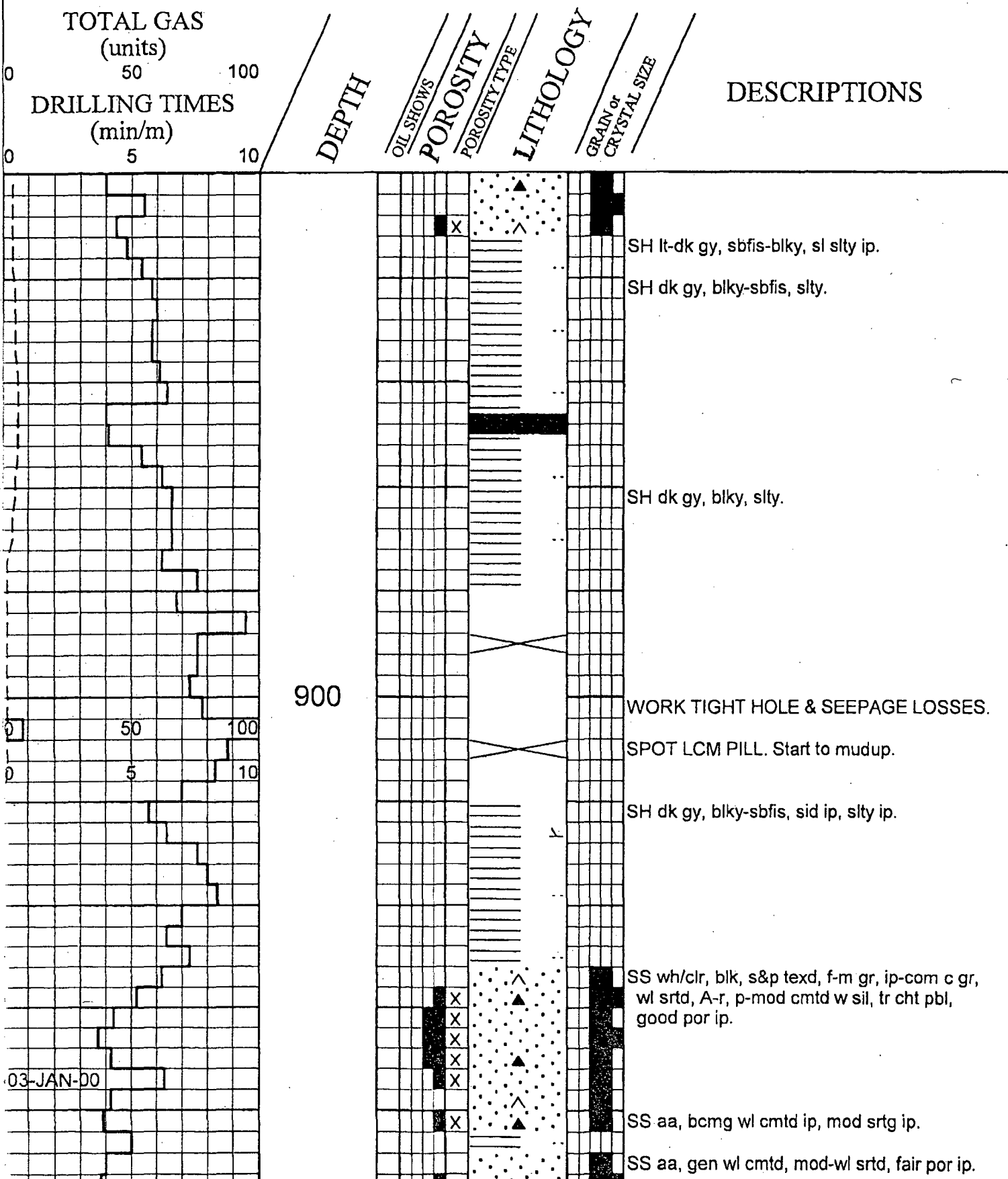
SH lt-dk gy, sbfis-blky, sl slty ip.

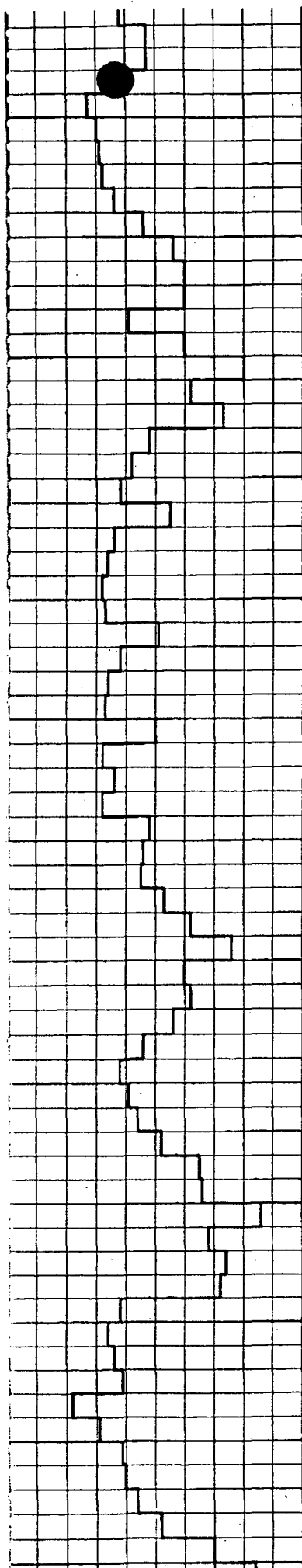
SH dk gy, blky-sbfis, slty.

SH dk gy, blky, slty.

C STRAT SYMBOLS USED FOR LITHOLOGY AND SHOWS

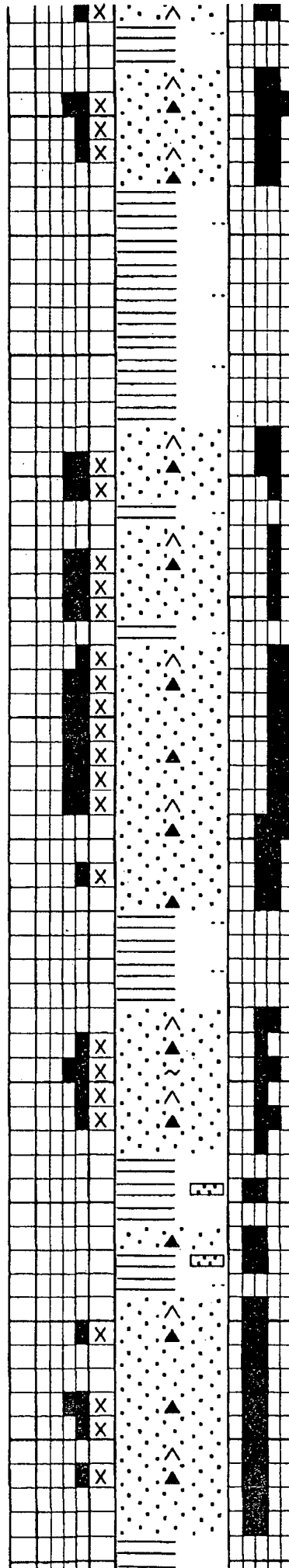
SCALE 1:240





950

975



SS lt gy, s&p texd, f-m gr, ip c gr, mod-wl
srted, A-a, wl cmted w sil, tt-fair por.

SH dk gy, blk, slty.

SS aa, gen wl srted, mod cmted w sil, good por
ip.

SS wh/clr, s&p texd, m gr, A-a, wl srted, mod
cmted w sil, fair-good por ip.

SS wh/clr, blk, s&p texd, m-c gr, wl srted, A-a,
r ip, mod-wl cmted w sil, qtz ovghs,
fair-good por ip.

SS aa, f-m gr.

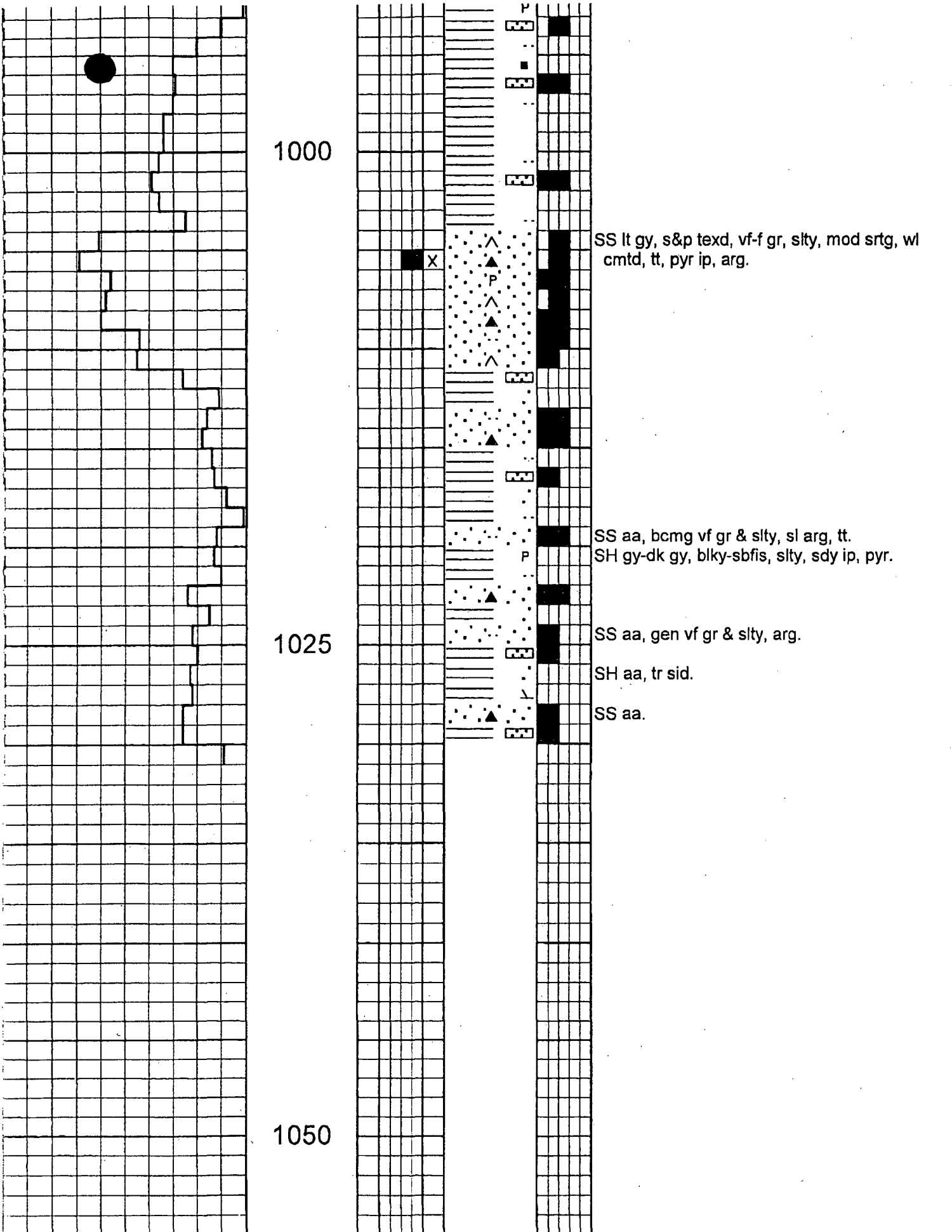
SH dk gy, sb fis-blky, slty ip.

SS aa, f gr, com m gr, mod-wl cmted w sil,
tt-fair por, scat c gr, rr glauc.

SS lt gy, s&p texd, vf-f gr, wl cmted & tt.

SS lt gy, s&p texd, vf-f gr, wl srted, A, wl cmted
w sil, tt-tr por ip.

SH gy-dk gy, fis-blky, slty ip, pyr ip, carb





NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (fr Spud) 9
Total Days 18

WELL: NORTHROCK ET AL MACKAY 177										Date: Dec 31/99	
588 to 615		Prog. 16		Operation 08:00:		NU BOP's @ 615mKB		Formation: SURFACE			
Orig. Fluid Type: Gel Chem		Mud Eng. Will Larson		Mud Company: CFS							

Log Book		Check		PPM				Mud Pressure Gradient: 11	
Time		Fann		Salinity				Mud Cycle Main Hole:	
Density	1140	600		Chloride	200	% by Volume		Bottoms Up Time:	28
Viscosity	41	300		Calcium	TR	Sand	0.001	Vol. Mud Tanks:	
W.L.	N/A	P.V.	8	MBT - Kg/m ³	50	Solid	0%	Capacity: (m ³)	
P.H.	9.5	Y.P.	8	Temp C		Oil	0	Sump:	
F.C.	1.5	Gels	3/8	ES				Pump:	

MUD ADDITIVES:		Gel 31		Soda Ash		Descro		Alcomer	
		Sawdust		Caustic		Primaseal		Crude	
		Lignite		Lime		Percol 728			

MUD COSTS:		DAILY:		\$509		TOTAL:		\$5,735	
-------------------	--	---------------	--	-------	--	---------------	--	---------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1685	1140			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
5A	311			12.7	12.7	12.7	465	615	134	28.75	5				

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
5A	12	52	28000	152	78	8,010	1.9	38	56		Stabilizer					
											JARS					

DRILLING ASSEMBLY: *BIT, BIT SUB, 2X228mm DC'S, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly*

SURVEYS: 615m - 1

Time Breakdown		Circ.	2.25	Survey	0.25	Test BOP'S		H. Tools	
Move Rig Up		Tripping	3.50	Weld		BOP drill		Safety M	0.50
Drilling	4.75	Rig Service	0.50	Run Casing + Cement	11.75	Plug Back		MH&RH	
Reaming		Rig Repairs		WOC	0.50	Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

Drill 311mm hole to 615mKB.

Run 49 joints 244.5mm, 53.6 kg/m, J55, casing c/w guide shoe, float collar, 14 centralizers.

Land casing @ 615mKB

Cement w/ 35 tonnes Arctic cement + 12%DWOW + 0.5% D65 + 0.5% D13 + 0.2%D46

Plug down @ 23:16 Hrs

3m3 good cement returns

Casing/cement summary to follow

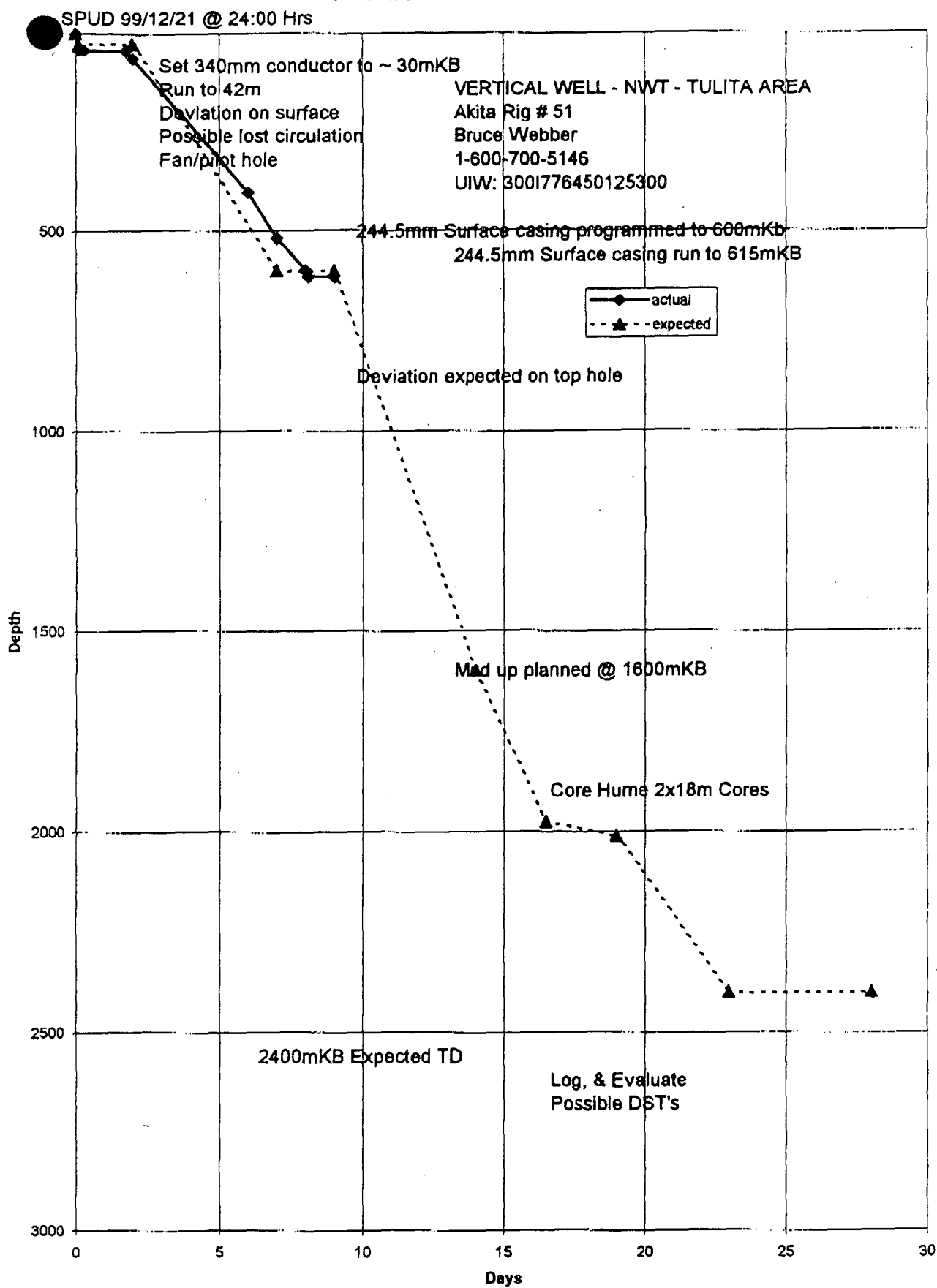
CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
-----------	------	------------	--------	---------------	--------	-------------	------	-----	--------	----------	------

Weather	clear	Temp:	-34	Wind:	light	Visiblity:	good	Road Cond.	good
Rig:	Akita 51	0	Rick Parker	0		Sat Phone:	1-600-700-7370		

Location Directions:

Report from:	Bruce Webber	Sat Phone:	1-800-700-5146
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
		RR DATE:	

DAILY COST	\$27,050.00	COST TO DATE	\$532,368.00
-------------------	-------------	---------------------	--------------

NORTHROCK ET AL MACKAY I-77



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (from Spud) 8
Total Days 17

WELL: NORTHROCK ET AL MACKAY 177										Date: Dec 30/99	
519	10	589	Prog.	80	Operation 08:00:		Prep. to run 244 Ccg		Formation: SURFACE		
Drig. Fluid Type: Gel Chem			Mud Eng.		Will L		Mud Company: CFS				

Log Book				Check				PPM							
Time			Fann		Salinity			Mud Pressure Gradient:	11						
Density	1140		600		Chloride	200	% by Volume	Mud Cycle Main Hole:							
Viscosity	41		300		Calcium	TR	Sand	0.001	Bottoms Up Time:	28					
W.L.	N/A		P.V.	8	MBT - Kg/m ³	50	Solid	0%	Capacity: (m ³)	Vol. Mud Tanks:					
P.H.	9.5		Y.P.	8	Temp C		Oil	0	Sump:	Vol. Main Hole:					
F.C.	1.5		Gels	3/8	ES				Pump:	m ³ /min TOTAL:					

MUD ADDITIVES:		Gel	25	Soda Ash	1	Desco		Alcomer
		Sawdust		Caustic	1	Primaseal		Crude
		Lignite		Lime		Percol 728		

MUD COSTS:		DAILY:	\$370	TOTAL:	\$5,226
------------	--	--------	-------	--------	---------

SOLIDS CONTROL							VOLUMES ADDED		M³	REMARKS
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)			
CENTRIFUGE	WADECO	1715	1120			24	Water (Brine)			
							Mud			
							Loss to Formation:			

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
5A	311			12.7	12.7	12.7	485	588	134	25	8				

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs	
5A	12	52	28000	152	78	8,010	1.9	38	56							

DRILLING ASSEMBLY: BIT, BIT SUB, 2X228mm DC'S, XJO, 18x159mm Dc's, 15xHWDP,
114mm DP to surface, Kelly

SURVEYS: 519m - 1, 547m - 0.75, 572m - 0.75

Time Breakdown		Circ.	0.50	Survey	1.00	Test BOP'S		H. Tools	
Move Rig Up		Tripping	5.75	Weld		BOP drill		Safety M	
Drilling	18.00	Rig Service	0.75	Run Casing + Cement		Plug Back		MH&RH	
Reaming		Rig Repairs		WOC		Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

Drill 311mm hole to 594mKB. Wiper trip & strap pipe

RIH and drill to 599mKB

Drill and survey to 519mKB

Tally 594.78

SLM 594.66

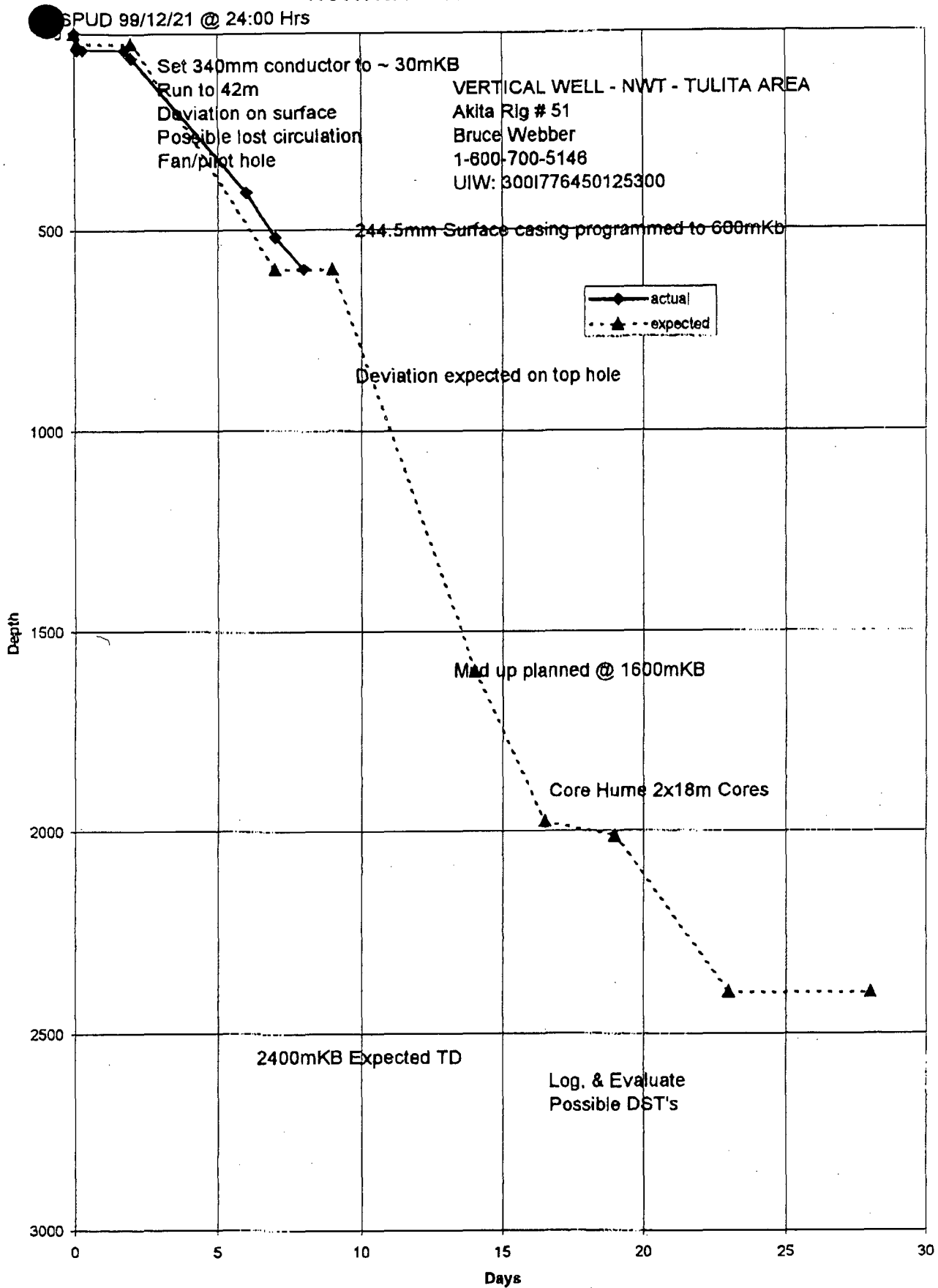
Diff .12 No correction

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	snowing	Temp:	-30	Wind:	light	Visibility:	fair	Road Cond.	good		
Rig:	Akita 51	0	Rick Parker	0				Radio Phone:	0		

Location Directions:

Report from:	Bruce Webber	Radio Phone:	1-800-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
		RR DATE:	
DAILY COST	\$28,811.00	COST TO DATE	\$505,318.00

NORTHROCK ET AL MACKAY I-77





NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (from Spud) 7
Total Days 16

WELL: NORTHROCK ET AL MACKAY 177										Date: Dec 29/99									
405 to 519		Prog. 114		Operation 08:00:		Drill Ahead @ 558m		Formation: SURFACE											
Drig. Fluid Type: Gel Chem		Mud Eng. Will L		Mud Company: CFS															

Log Book		Check		PPM				Mud Pressure Gradient: 11	
Time		Fann		Salinity				Mud Cycle Main Hole:	
Density	1125	600		Chloride	200	% by Volume		Bottoms Up Time: 12	
Viscosity	42	300		Calcium	TR	Sand	0.001	Vol. Mud Tanks: 42	
W.L.	N/A	P.V.	13	MBT - Kg/m ³	50	Solid	0%	Capacity: (m ³)	Vol. Main Hole: 24
P.H.	9	Y.P.	8	Temp C		Oil	0	Sump:	TOTAL: 66
F.C.	1.5	Gels	3/9	ES				Pump:	

MUD ADDITIVES:		Gel	15	Soda Ash	2	Desco		Alcomer
		Sawdust		Caustic		Primaseal		Crude
		Lignite		Lime		Percol 728		

MUD COSTS:		DAILY:	\$235	TOTAL:	\$4,858
------------	--	--------	-------	--------	---------

SOLIDS CONTROL							VOLUMES ADDED		M ³	REMARKS
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)			
CENTRIFUGE	WADECO	1640	1120			24	Water (Brine)			
							Mud			
							Loss to Formation:			

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
4A	311			12.7	12.7	12.7	238	485	229	28	8.2				
5A	311			12.7	12.7	12.7	485	519	54	8	8				

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
4A		80	28000	152	85	8,410	1.78	38	58		Stabilizer					
5A		52	28000	152	78	8,010	1.9	38	58		JARS					

DRILLING ASSEMBLY: BIT, BIT SUB, 2X228mm DC'S, X/O, 18x159mm Dc's, 15xHWDP, 114mm DP to surface, Kelly

SURVEYS: 424m - 1, 452m - 0.75, 477m - 0.75

Time Breakdown		Circ.		0.75	Survey		1.00	Test BOP'S		H. Tools	
Move Rig Up		Tripping		4.75	Weld			BOP drill		Safety M	
Drilling		17.00	Rig Service		0.50	Run Casing + Cement		Plug Back		MH&RH	
Reaming			Rig Repairs			WOC		Fishing		WOO	
Coring			Slip + Cut			Nipple Up BOP's		W.Tight Hole		Total Hrs 24.00	

REMARKS

Drill 311mm hole to 465mKB. Circulate hole clean & trip for bit

One cone locked up

Drill and survey to 519mKB

Surveys good

Hole good on trip. No fill on bottom

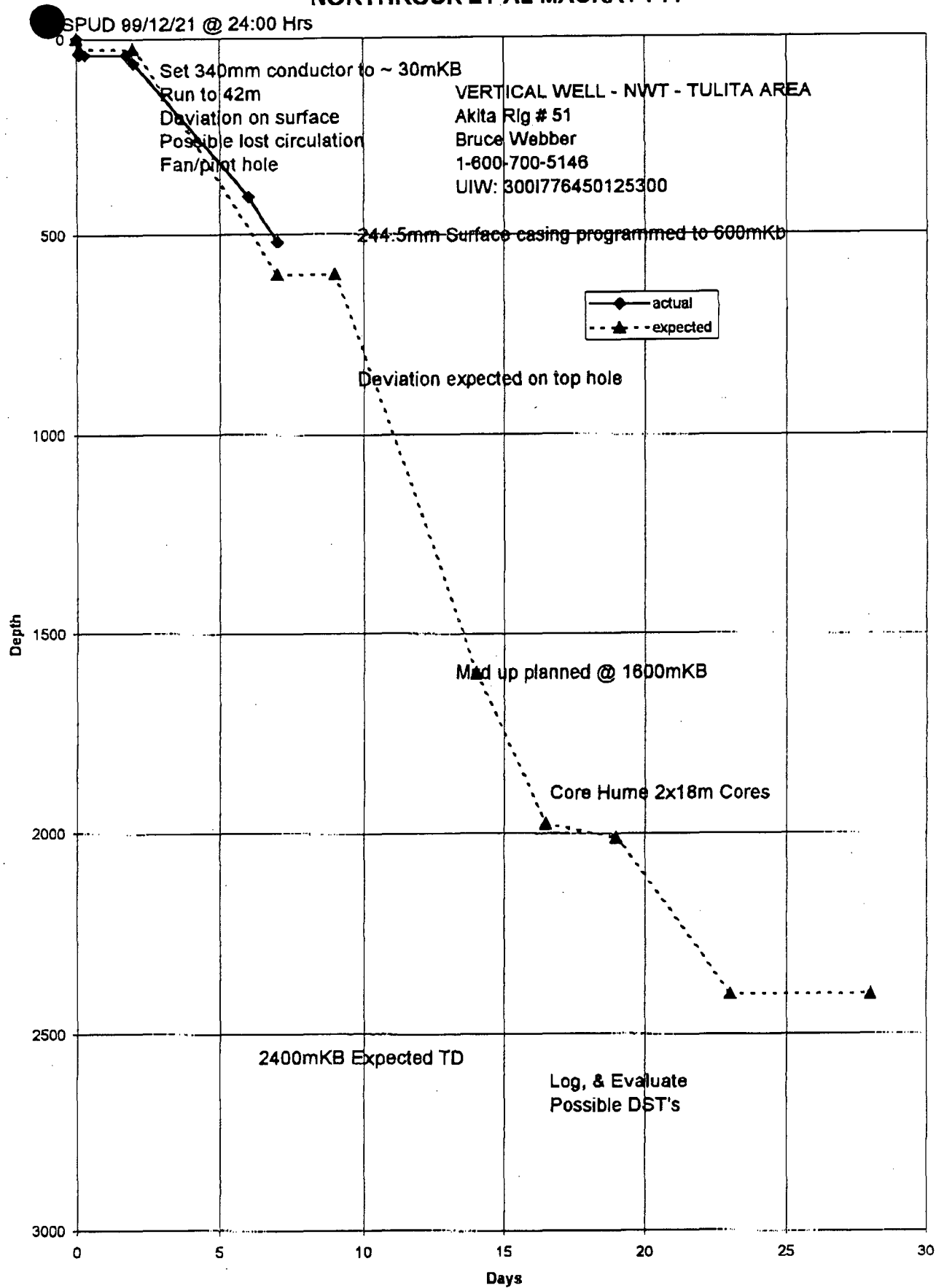
REPORTS FROM MIDNIGHT TO MIDNIGHT

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
-----------	------	------------	--------	---------------	--------	-------------	------	-----	--------	----------	------

Weather	mild	Temp:	-20	Wind:	light	Visibility:	good	Road Cond.	good
Rig:	Akita 51		0	Rick Parker			0	Radio Phone:	0

Location Directions:

Report from:	Bruce Webber	Radio Phone:	1-800-700-5148
Taken by:	Kevin Kerwin	SPUD DATE:	89/12/21
		RR DATE:	
DAILY COST	\$36,078.00	COST TO DATE	\$478,407.00

NORTHROCK ET AL MACKAY I-77



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
 Days (from Spud) 6
 Total Days 15

WELL: NORTHROCK ET AL MACKAY 177										Date: Dec 28/99	
311 to 405		Prog. 94		Operation 08:00:		Drill Ahead @ 480m		Formation: SURFACE			
Drig. Fluid Type: Gel Chem		Mud Eng. Will L		Mud Company: CFS							

Log Book		Check		PPM					
Time		Fann		Salinity		Mud Pressure Gradient:		11	
Density	1125	600		Chloride	200	Mud Cycle Main Hole:			
Viscosity	42	300		Calcium	TR	Bottoms Up Time:		12	
W.L.	N/A	P.V.	13	MBT - Kg/m ³	50	Vol. Mud Tanks:			
P.H.	9	Y.P.	8	Temp C		Vol. Main Hole:			
F.C.	1.5	Gels	3/8	ES		TOTAL:			

MUD ADDITIVES:		Gel 10		Soda Ash		Desco 1		Alcomer	
		Sawdust		Caustic 2		Primaseal		Cruda	
		Lignite 1		Lime		Percol 728			

MUD COSTS:		DAILY:		TOTAL:		64,621	
-------------------	--	---------------	--	---------------	--	--------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1640	1120			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA																
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G	
4A	311			12.7	12.7	12.7	296	405	188	20	8.5					
No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
4A		60	28000	152	85	8,410	1.78	38	58		Stabilizer					
											JARS					

DRILLING ASSEMBLY: *BIT, BIT SUB, 2X228mm DC'S, X/O, 18x159mm Dc's, HWDP to surface, KELLY*

SURVEYS: 293m - .5, 302m - 1, 311m - 1.25, 320m - 1.25, 334m - 1, 367m - 1

Time Breakdown		Circ.		Survey 1.75		Test BOP'S		H. Tools	
Move Rig Up		Tripping		Weld		BOP drill		Safety M	
Drilling 20.00		Rig Service 0.75		Run Casing + Cement		Plug Back		MH&RH	
Reaming 1.50		Rig Repairs		WOC		Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs 24.00	

REMARKS

Ream rat hole 247m to 290mKB

Drill and survey to 405mKB

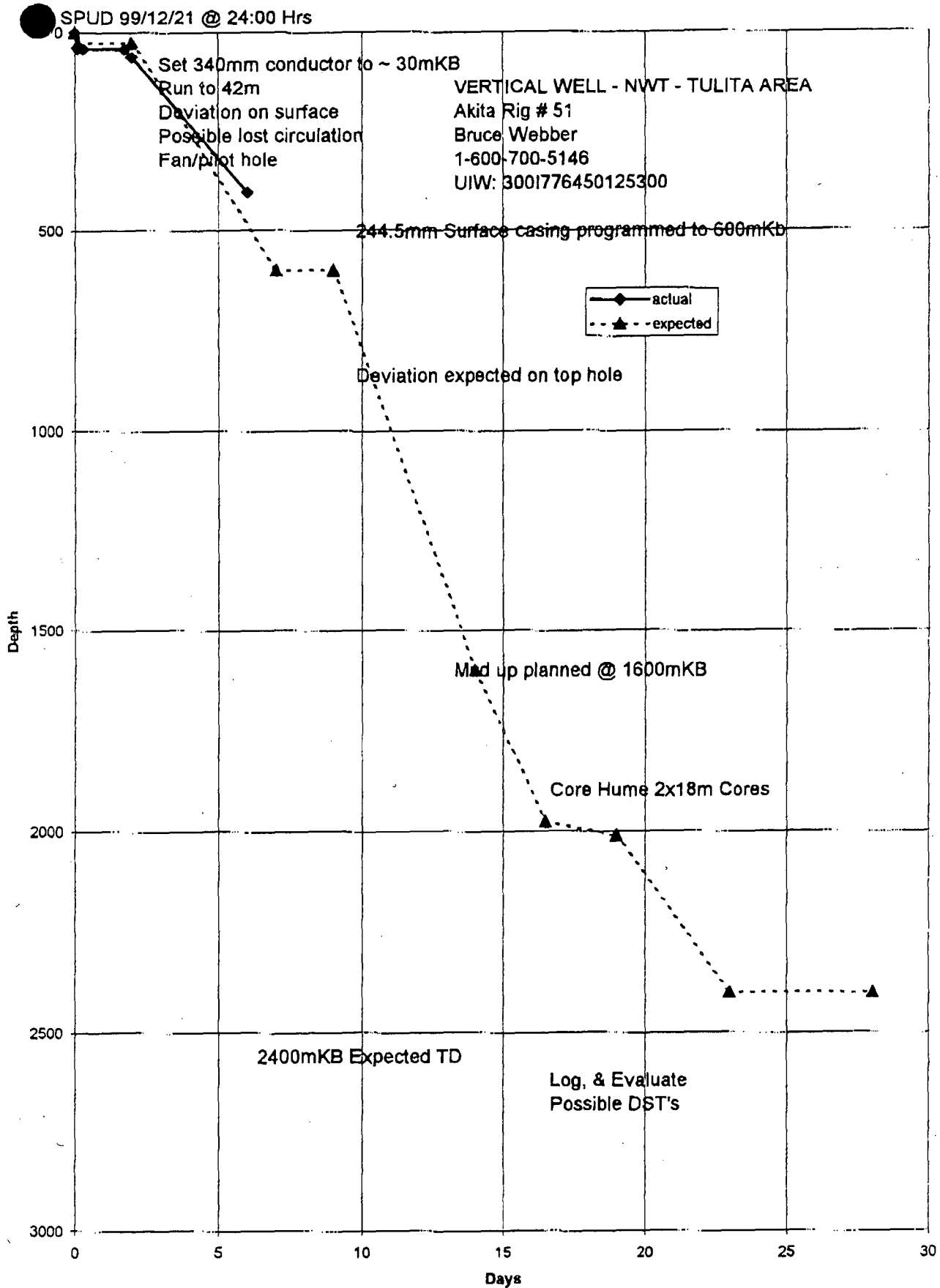
Survey seems to be under control

REPORTS TO BE FROM MIDNIGHT TO MIDNIGHT

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	cloudy	Temp:	-10	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	Operator:	Rick Parker	0			Radio Phone:	0			

Location Directions:

Report from: Bruce Webber		Radio Phone: 1-800-700-5148	
Taken by: Kevin Kerwin		SPUD DATE: 89/12/21 RR DATE:	
DAILY COST 625,176.00		COST TO DATE 6442,331.00	

NORTHROCK ET AL MACKAY I-77



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
 Days (from Spud) 5
 Total Days 14

WELL: NORTHROCK ET AL MACKAY 177										Date: Dec 27/99	
238 to 290		Prog. 54		Operation 08:00:		Drill Ahead @ 311m		Formation: SURFACE			
Orig. Fluid Type: Gel Chem		Mud Eng. Will L		Mud Company: CFS							

Log Book				Check				PPM							
Time				Fann				Salinity				Mud Pressure Gradient:		10.7	
Density	1090			600				Chloride	200	% by Volume		Mud Cycle Main Hole:		59	
Viscosity	43			300				Calcium	TR	Sand	0.001	Bottoms Up Time:		17	
W.L.	N/A			P.V.	15			MBT - Kg/m ³	55	Solid	0%	Capacity: (m ³)	Vol. Mud Tanks:		
P.H.	8.5			Y.P.	11			Temp C		Oil	0	Sump:	Vol. Main Hole:		
F.C.	1.5			Gels	5/17			ES				Pump:	TOTAL:		

MUD ADDITIVES:		Gel 10		Soda Ash		Desco 1		Alcomer	
		Sawdust		Caustic 2		Primaseal		Crude	
		Lignite 1		Lime		Parcol 728			

MUD COSTS:		DAILY: \$700		TOTAL: \$4,821	
------------	--	--------------	--	----------------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SD6 %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1765	1070			24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
2A	311			12.7	12.7	12.7	122	238	114	30	3.8	81.5			
3A	222	HC		10.3	10.3	10.3	238	290	54	13.25	4	65.5			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
2A		160	24000	162	90	7,150	1.5				Stabilizer					
3A		160	24000	152	100		1.2				JARS					

DRILLING ASSEMBLY: *BIT, BIT SUB, 2X228mm DC'S, X/O, 18x159mm Dc's, HWDP to surface, KELLY*

SURVEYS:

Time Breakdown		Circ.	1.00	Survey	1.25	Test BOP'S		H. Tools	
Move Rig Up		Tripping	7.25	Weld		BOP drill		Safety M	
Drilling	13.25	Rig Service	0.75	Run Casing + Cement		Plug Back		MH&RH	
Reaming	0.50	Rig Repairs		WOC		Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

RIH w/222mm bit to drill pilot hole from 238 - 290mKB

POOH and P/U 228mm DC's and 311mm bit and ream out to 247mKB

Continue to ream

REPORTS TO BE FROM MIDNIGHT TO MIDNIGHT

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-20	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51		0	Rick Parker		0	Radio Phone:		0		

Location Directions:

Report from:	Bruce Webber	Radio Phone:	1-800-700-5146
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
		RR DATE:	

DAILY COST	\$35,257.00	COST TO DATE	\$417,155.00
------------	-------------	--------------	--------------



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) **9**
 Days (from Spud) **4**
 Total Days **13**

WELL: NORTHROCK ET AL MACKAY 177										Date: Dec 28/98									
16 to 236 Prog. 74										Operation 08:00: Drill Ahead @ 251m Formation: SURFACE									
Orig. Fluid Type: Gel Chem Mud Eng.										Mud Company: CFS									

Log Book				Check				PPM							
Time				Fann				Salinity					Mud Pressure Gradient:	10.4	
Density	1080			600				Chloride	200	% by Volume			Mud Cycle Main Hole:	58	
Viscosity	41			300				Calcium	TR	Sand	0.001		Bottoms Up Time:	6	
W.L.	N/A			P.V.	18			MBT - Kg/m ³	55	Solid	0%	Capacity: (m ³)	Vol. Mud Tanks:	42	
P.H.	9			Y.P.	10			Temp C		Oil	0	Sump:	Vol. Main Hole:	26	
F.C.	1.5			Gels	4/18			ES				Pump:	TOTAL:	68	

MUD ADDITIVES:				Gel 30				Soda Ash				Desco				Alcomer			
				Sawdust				Caustic				Primaseal				Crude			
				Lignite				Lime				Percol 728							

MUD COSTS:				DAILY: \$384				TOTAL: \$3,821							
-------------------	--	--	--	---------------------	--	--	--	-----------------------	--	--	--	--	--	--	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO	1760	1060	62		24	Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
2A	311			12.7	12.7	12.7	122	236	114	30	3.8	61.5			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.	Size	hrs
2A		160	24000	152	90	7,180	1.5				Stabilizer					
											JARS					

DRILLING ASSEMBLY: BIT, BIT SUB, 2X228mm DC'S, X/O, 18x159mm Dc's, HWDP to surface, KELLY

SURVEYS: 162m - 1.0, 190m - 1.0, 227m - 1.25, 236m - 1.25

Time Breakdown		Circ.		Survey		1.25		Test BOP'S		H. Tools	
Move Rig Up		Tripping		Weld				BOP drill		Safety M	
Drilling	18.75	Rig Service		Run Casing + Cement				Plug Back		MH&RH	
Reaming		Rig Repairs		WOC				Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's				W.Tight Hole		Total Hrs	
										24.00	

REMARKS

Drill ahead to 178m - trip for plugged nozzles.

Drill ahead to 190m survey @ 1 degree

Drill ahead

REPORTS TO BE FROM MIDNIGHT TO MIDNIGHT

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-24	Wind:	light	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	0	Rick Parker	0	Radio Phone:			0			

Location Directions:

Report from:	Bruce Webber	Radio Phone:	1-800-700-5146
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
DAILY COST	\$25,159.00	COST TO DATE	\$381,898.00



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
Midnight to Midnight

Days (MI&RU) 9
Days (from Spud) 3
Total Days 12

WELL: NORTHROCK ET AL MACKAY 177										Date: Dec 25/99	
62 to 182		Prog. 100		Operation 08:00: Drill Ahead @ 188m		Formation: SURFACE					
Orig. Fluid Type: Gel Chem		Mud Eng.		Mud Company: CFS							

Log Book Check				PPM							
Time		Fann		Salinity				Mud Pressure Gradient:	10.4		
Density	1085	600		Chloride	700	% by Volume		Mud Cycle Main Hdr:	53		
Viscosity	42	300		Calcium	40	Sand	0.001	Bottoms Up Time:	6		
W.L.	N/A	P.V.	11	MBT - Kg/m ³	55	Solid	0%	Capacity: (m ³)	Vol. Mud Tanks: 42		
P.H.	8.5	Y.P.	5.5	Temp C		Oil	0	Sump:	Vol. Main Hole: 26		
F.C.	1.5	Gels	3/8	ES				Pump:	TOTAL: 68		

MUD ADDITIVES:		Gel	49	Soda Ash	4	Desco		Alcomer
		Sawdust		Caustic		Primaseal		Crude
		Lignite		Lime		Percol 728		

MUD COSTS:		DAILY:	\$1,112	TOTAL:	\$3,557
------------	--	--------	---------	--------	---------

SOLIDS CONTROL							VOLUMES ADDED		M ³	REMARKS
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)			
CENTRIFUGE	WADECO	1715	1055	75		24	Water (Brine)			
							Mud			
							Loss to Formation:			

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
1A	311			15.9	15.9	15.9	42	122	80	17.25	4.5	31.5	3	2	1
2A	311			12.7	12.7	12.7	122	162	40	10.25	3.9	10.25			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs	
1A		140	12000	152	90	1,230	1.1									
2A		140					1.9									

DRILLING ASSEMBLY: *BIT, BIT SUB, 2X228mm DC'S, X/O, 159mm Dc's to surface, KELLY*

SURVEYS: 116m - 1.0, 134 - .5

Time Breakdown			Circ.		Survey	1.25	Test BOP'S		H. Tools	
Move Rig Up			Tripping	2.50	Weld		BOP drill	0.50	Safety M	
Drilling	19.00		Rig Service	0.75	Run Casing + Cement		Plug Back		MH&RH	
Reaming			Rig Repairs		WOC		Flahing		WOO	
Coring			Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	24.00

REMARKS

Drill ahead to 116m - survey @ 1 degree.

Trip for bit - hole good

Drill ahead with new bit

REPORTS TO BE FROM MIDNIGHT TO MIDNIGHT

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.26	KB:	202.35	KB to CF	0.00
Weather	cloudy	Temp:	-10	Wind:	60	Visibility:	good	Road Cond.	good		
Rig:	Akita 51		o Rick Parker		0	Radio Phone:	0				

Location Directions:

Report from:	Bruce Webber	Radio Phone:	1-800-700-6146
Taken by:	Kevin Kerwln	SPUD DATE:	88/12/21
		RR DATE:	
DAILY COST	\$38,453.00	COST TO DATE	\$356,738.00



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT
8:00 a.m. to 8:00 a.m.

Days (MI & RU) 9
Days (from Spud) 2
Total Days 11

WELL: NORTHROCK ET AL MACKAY 177										Date: Dec 24/99	
42 to 62		Prog. 20		Operation: Drill Ahead		Formation: SURFACE					
Orig. Fluid Type: water				Mud Eng.		Mud Company: CFS					

Log Book		Check		PPM							
Time		Fann		Salinity		Mud Pressure Gradient:		10.5			
Density	1081	600		Chloride	180	% by Volume		Mud Cycle Main Hole:		25	
Viscosity	40	300		Calcium		Sand	0.005	Bottoms Up Time:		2	
W.L.	N/A	P.V.	8	MBT - Kg/m ³	55	Solid	0%	Capacities: (m ³)	Vol. Mud Tanks:		
P.H.	10	Y.P.	3.5	Temp C		Oil	0	Sump:		Vol. Main Hole:	19.2
F.C.		Gels	2/45	ES		Pump:		m ³ /hrk	TOTAL:		

MUD ADDITIVES:		Gel 20		Soda Ash		Desco 1		Alcomer	
		Sawdust		Caustic 1		Primaseal 4		Crude	
		Lignite		Lime		Percol 728			

MUD COSTS:		DAILY: \$331		TOTAL: \$2,445	
-------------------	--	---------------------	--	-----------------------	--

SOLIDS CONTROL							VOLUMES ADDED		M³		REMARKS	
Item	Make	UF	OF	M³/M	SDS %	Hrs	Water (Fresh)					
CENTRIFUGE	WADECO						Water (Brine)					
							Mud					
							Loss to Formation:					

BIT DATA															
No.	Size	Type	S.N.	Jets (MM)			From	To	M.	Hrs.	M/Hr	Cum	T	B	G
1AA	445	IRB					0	42	42	4.8					
1A	311			15.9	15.9	15.9	42	62	20	3.75	5.3	14.25			

No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub. Stabilizer JARS	Make	S.N.	Size	hrs	
1A	####	140	12000	152	80	1,230	1.1									

DRILLING ASSEMBLY: BIT, BIT SUB, 2X228MM DC'S, X/O, 3X159MM DC, KELLY

SURVEYS: 54m - 1.0625

Time Breakdown		Clrc. 0.25		Survey 0.25		Test BOP'S 0.50		H. Tools	
Move Rig Up		Tripping		Weld		D.S.T.		Safety M	
Drilling	3.75	Rig Service		Run Casing + Cement		Plug Back		MH&RH	
Reaming		Rig Repairs		WOC		Fishing		WOO	
Coring		Slip + Cut		Nipple Up BOP's		W.Tight Hole		Total Hrs	
				4.00				18.00	

REMARKS

Unable to get 311mm bit past swedge on diverter, welded to 340mm casing.

Cut off same and re-weld diverter. RIH and re pressure test.

Drill out cement from 37m to 43m and drill ahead.

Drill 311mm hole from 43m to 62m at midnight.

NOTE REPORT FROM 08:00 HRS TO MIDNIGHT - 18 HOURS

REMAINING REPORTS TO BE FROM MIDNIGHT TO MIDNIGHT

NOTE CORRECTION IN KB ELEVATION

CUT/FILL:	0.00	GRD. ELV.:	197.10	NEW GRD. ELV.	198.10	KB to GRD.:	4.25	KB:	202.35	KB to CF	0.00
Weather	clear	Temp:	-10	Wind:	lite	Visibility:	good	Road Cond.	good		
Rig:	Akita 51	o	Rick Parker	o				Radio Phone:	0		

Location Directions:

Report from:	Bruce Webber	Radio Phone:	1-800-700-6148
Taken by:	Kevin Kerwin	SPUD DATE:	99/12/21
DAILY COST	\$28,581.00	COST TO DATE	\$320,286.00



NORTHROCK RESOURCES
3500, 700 - 2nd Street S.W.
Calgary, Alberta T2P 2W2

DAILY DRILLING REPORT

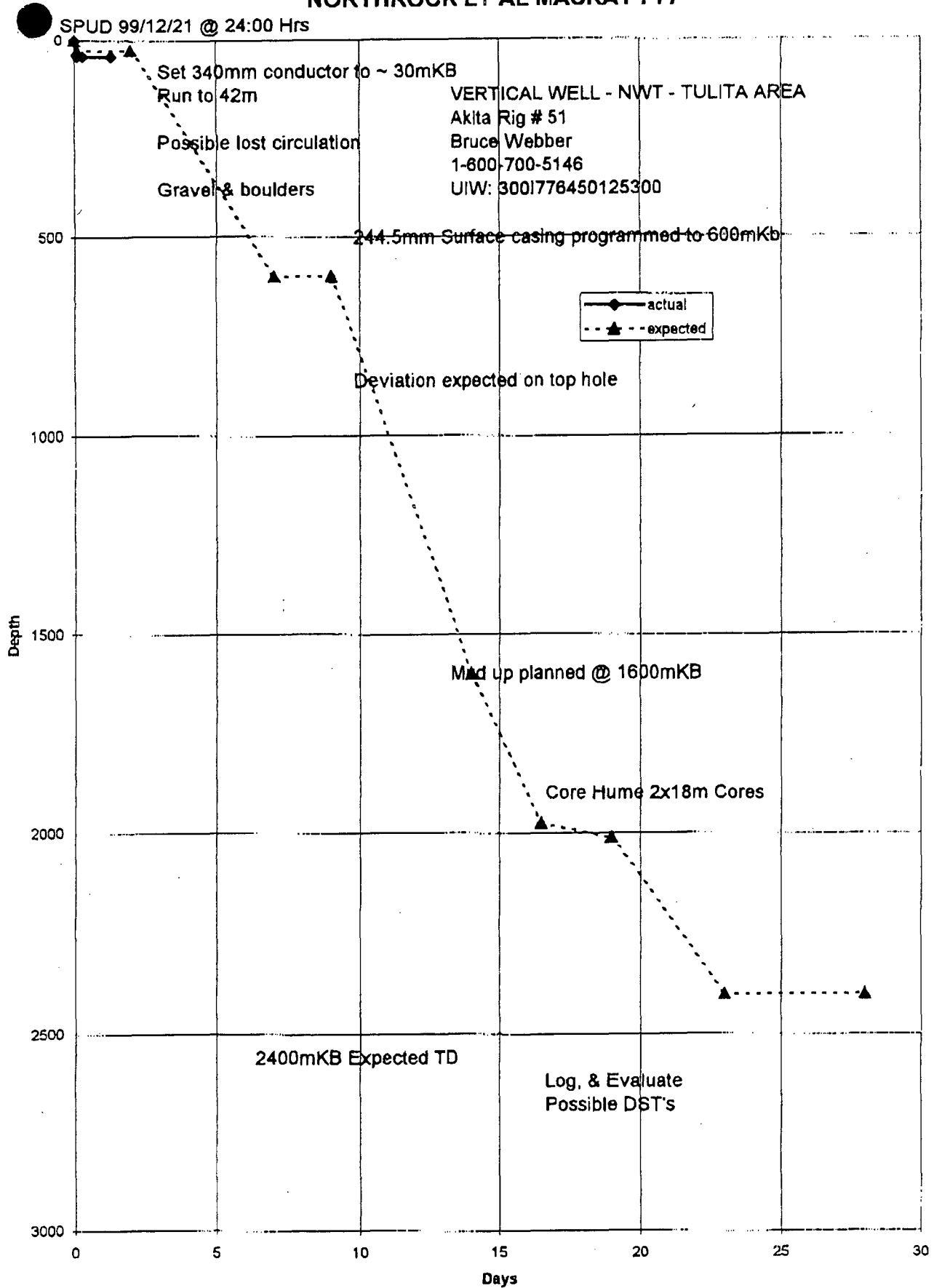
8:00 a.m. to 8:00 a.m.

Days (MI & RU) 9

Days (from Spud)	1
------------------	---

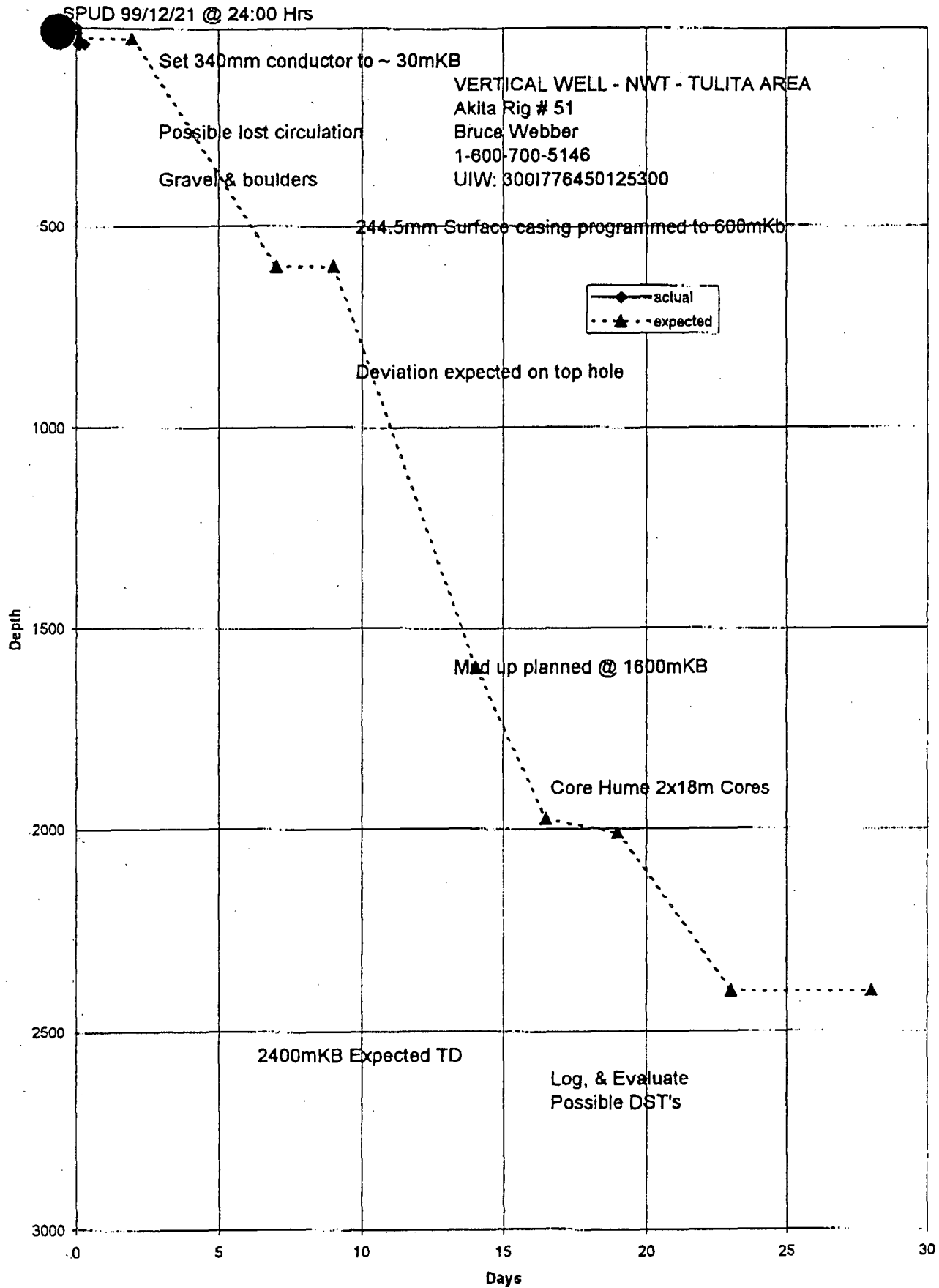
Total Days 10

WELL: NORTHROCK ET AL MACKAY 177										Date: Dec 23/99				
42		to		42		Prog. 0		Operation: P. Test Diverter		Formation: SURFACE				
Orig. Fluid Type: water				Mud Eng.				Mud Company: CFS						
Log Book		Check		PPM										
Time			Fann		Salinity			% by Volume		Mud Pressure Gradient:				
Density			600		Chloride			Sand		Mud Cycle Main Hole:				
Viscosity			300		Calcium			Solid		Bottoms Up Time:				
W.L.			P.V.		MBT - Kg/m ³			Oil		Vol. Mud Tanks:				
P.H.			Y.P.		Temp C			Sump:		Vol. Main Hole:				
F.C.			Gels		ES			Pump:		TOTAL:				
MUD ADDITIVES:				Gal		66		Soda Ash		Desco 1				
				Sawdust		20		Caustic		Primaseal 4				
				Lignite				Lime		Percol 728				
MUD COSTS:				DAILY:		\$1,148		TOTAL:		\$2,114				
SOLIDS CONTROL							VOLUMES ADDED		M ³		REMARKS			
Item	Make	UF	OF	M ³ /M	SDS %	Hrs	Water (Fresh)							
CENTRIFUGE	WADECO						Water (Brine)							
							Mud							
							Loss to Formation:							
BIT DATA														
No.	Size	Type	S.N.	Jets (MM)		From	To	M.	Hrs.	M/Hr	Cum	T	B	G
1AA	445	IRB				0	42	42	4.5					
1A	311													
No.	Wt.	RPM	S.Wt.	Liner	SPM	PP.	M ³ /M	VDP	VDC	NOZ	Shock Sub.		Make	S.N.
											Stabilizer			Size
											JARS			hrs
DRILLING ASSEMBLY: BIT, BIT SUB, 2X228MM DC'S, X/O, 1X159MM DC, KELLY														
SURVEYS: 41M - .75														
Time Breakdown				Circ.	3.00	Survey			Test BOP'S		2.00	H. Tools		
Move Rig Up				Tripping	2.50	Log			D.S.T.			Safety M		0.50
Drilling				Rig Service	0.50	Run Casing + Cement		3.50	Plug Back			MH&RH		
Reaming				Rig Repairs		WOC		8.00	Fishing			WOO		
Coring				Slip + Cut		Nipple Up BOP's		4.00	W.Tight Hole			Total Hrs		24.00
REMARKS														
Run 3 jts of 340mm, 71.4 Casing, landed @ 42m. Cement w/ 4 Tonnes of Anodic cement. Slurry wt 1885 kg/m3.														
Displace w/3m3 of H2O. 0.5 m3 of cement to surface. Full returns throughout.														
WOC, Weld on diverter & Pressure test														
CUT/FILL: 0.00 GRD. ELV.: 197.10 NEW GRD. ELV. 198.10 KB to GRD.: 4.25 KB: 201.35 KB to CF 0.00														
Weather clear		Temp: -15		Wind: lite		Visibility: good		Road Cond. good						
Rig: Akita 51		0 Rick Parker		0		Radio Phone: 0								
Location Directions:														
Report from: Bruce Webber						Radio Phone: 1-800-700-5148								
Taken by: Kevin Kerwin						SPUD DATE: 99/12/21				RR DATE:				
DAILY COST \$18,039.00						COST TO DATE				\$293,695.00				

NORTHROCK ET AL MACKAY I-77

[illegible]

NORTHROCK ET AL MACKAY I-77



[illegible]