AUTHORITY TO DRILL A WELL

Office national
de l'énergie

Exploratory X Delineation ☐
Development ☐ Service ☐

APPROVAL TO DRILL A WELL

This application is submitted under Section 82 of the *Canada Oil and Gas Drilling Regulations*. When approved under Section 83 of the Regulations, it is the requisite approval for the commencement of drilling operations.

Well Name: AEC (West) Renaissance Tate G-18
Operator: AEC OIL & GAS
Contractor: Akita Drilling Ltd.
Drilling Rig or Unit: Rig #51
Location-Unit: G Section: 18
Coordinates: Lat.: 64 27' 17.30666"
Area: Tulita / Tate Lake
Elevation-KB/RT: 385.88 (ASL)
Approx. Spud Date: February 2.,2000
Anticipated Total Depth: 2200m

Drilling Program No.:
Interest Identifier:
Estimated Well Cost: $2,200,000
Grid Area: 64 30', 125 15'
Long.: 125 17' 33.14821"
Field / Pool: Exploratory
GL / Seafloor: 381.71
Est. Days on Location: 16-20
Target Horizons: Hume , Arnica, Franklin Mtn

EVALUATION PROGRAM

Ten-metre sample intervals: 580m to TD
Five-metre sample intervals: 580m to TD
Canned sample intervals: None
Conventional cores at: Hume on penetration, approx. 1676m --18m
Logs and Tests: DLTE/MSFL/LDTD/CNTH/SGTL/BHC/GR; 580m to TD, 1-DST in the Hume

CASING AND CEMENTING PROGRAM

O.D. (mm)	Weight (kg/m)	Grade	Setting Depth (m KB)	Cementing Program
244.5	53.57	J-55	580m	Arctic Set
139.7	23.07	IK-70	2200m	RFC + add.

Cement by DOWELL SCHLUMBER

B.O.P. Equipment: 11" 3000psi Shaffer Annular Preventer, 11" 3000psi Shaffer LWS Ram Preventer, Spool, 11" 3000psi Shaffer LWS Blind Ram Preventer, Spool, 11" 3000psi Shaffer LWS Ram Preventer, X/O/ spool

Other Information:

Signed: *Responsible Officer*
Name: Guy James
Date: 2000/01/07

Title: Vice-President, Western Region
New Ventures Business Unit
Company: AEC Oil & Gas
Phone: (403) 213-2629

APPROVAL

An approved copy of this notice is to be posted at each wellsite.

Date: Feb 11/2000
File: 9211-A061-1-1
WID: 1887
LWI: 300G186430125150

Signed: *Chief Conservation Officer*

Canada
444 Seventh Avenue SW
Calgary, Alberta T2P 0X8
444 Septième Avenue S.-O.

Telephone/Téléphone : (403) 292-4800
Facsimile/Télécopieur : (403) 292-5876
http://www.neb.gc.ca

WELL TERMINATION RECORD (with attachment)

Office national
de l'énergie

WELL TERMINATION RECORD

This record is submitted in compliance with Section 184 of the *Canada Oil and Gas Drilling Regulations*.

Well Name: AEC (West) Renaissance Tate G-18 Area: Tulita/Tate Lake

Grid Area: 64 30', 125 15' Field / Pool: Exploratory

Interest Identifier: Final Coordinates: Lat: 64 27' 17.30666" Long: 125 17' 33.1482

Drilling Unit: Rig #51 Elevations-KB/RT: 385.88 (ASL) GL/Seafloor: 381.71

Spud Date: Feb 17/00 R.R.: March 9/00 Total Depth: 2030m

O.D. (mm)	Weight (kg/m)	Grade	Depth Set (m KB)	Cement (m^3)
339.7	81.1	K-55	51	6
244.5	53.57	J-55	586	34

PLUGGING PROGRAM

Approval of the following program was obtained by (person) Robert C. (Bob) Tupper

from (person) T.M. Baker of the National Energy Board

by means of a written request on March 7, 2000.

Type of Plug	Interval (m KB)	Felt	Cement (m^3)
Single	2030m – 1965m	Not required	4.6
Single	1510m – 1410m	At 1412m	5.6
Single	1200m – 1100m	At 1119m	6.3
Single	650m – 550m	At 540m	8.8

Lost Circulation/Overpressure Zones: Lost circulation @ 934m. Minimal losses to TD.

Equipment left on Seafloor (Describe):

Provision for Re-entry (Describe and attach sketch):

Cores: Type: Intervals:

Other Downhole Completion/Suspension Equipment:

CERTIFICATION

I certify on the basis of personal knowledge of operations undertaken at the above named well that the above information is accurate.

Signed: Title: Operations Engineer

Name: Stephen J. Holyoake Date: April 6, 2000

Company: AEC West

Well Status

Suspended ☐

Completed ☐

Abandoned ☒

Acknowledged by: *Chief Conservation Officer*

Date: June 27/00

File: 9211-A61-1-1

UWI: 300G186430125150 WID: 1887

Canada
444 Seventh Avenue SW
Calgary, Alberta T2P 0X8

444 Septième Avenue S.-O.

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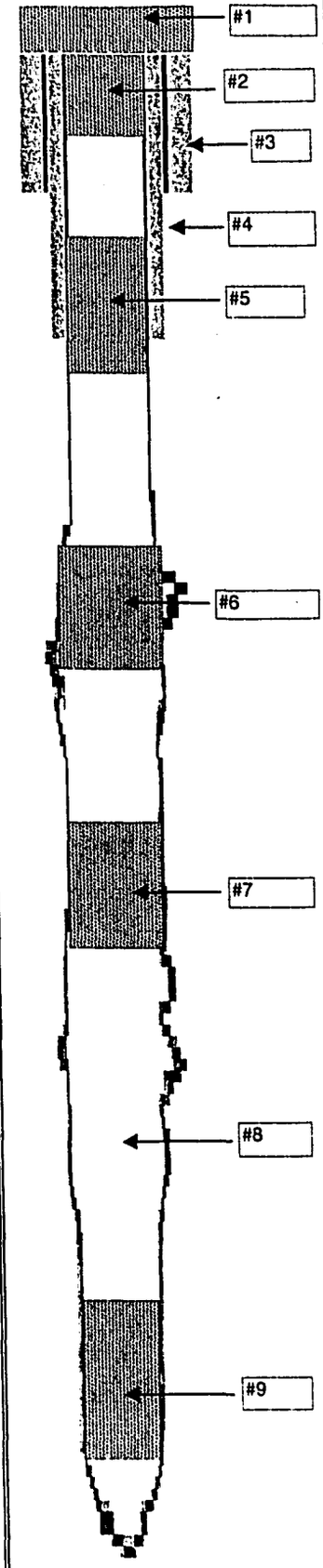

Downhole Well Profile

WELL NAME	AEC (West) Renaissance Tate G-18			DATE	May 16/00

ELEVATIONS (meters)

KB ELEV	GL ELEV	KB TO THF	KB TO SCF	KB TO GL	PBTD
	381.71			-	

CASING DESCRIPTION	OD (mm)	LANDED DEPTH	WEIGHT (kg/m)	TOP OF (mKB)
Conductor casing	339.7	51		
Surface Casing	244.5	586	53.57	

Perf Date	Zones	Top Shot	Bottom Shot	Status	Gun Data

DOWNHOLE DESCRIPTION

ITEM #	DESCRIPTION	LENGTH	TOP OF (mKB)
1	1.5m from ground level to the top of the cut off casing filled with cement	1.50	
2	10m cement plug inside production casing	10.00	
3	339.7mm Conductor casing set at 51m	51.00	
4	244.5mm Surface casing set at 586m	586.00	
5	Cement plug from 550m to 650m	100.00	
6	Cement plug from 1100m to 1200m	100.00	
7	Cement plug from 1410m to 1510m	100.00	
8	222mm open hole to 2030m	2030.00	
9	Cement plug from 1965m to 2030m	65.00	

REMARKS

GEOLOGICAL REPORT

N.E.B. COPY

AEC (WEST) LTD.

GEOLOGICAL REPORT

AEC (WEST) RENAISSANCE

TATE G-18

NWT

CABRA CONSULTING

A Division of Cabra Enterprises Ltd.

CALGARY, ALBERTA

MAR 1 7 2000

AEC (WEST) LTD.

GEOLOGICAL REPORT

AEC (WEST) RENAISSANCE

TATE G-18

NWT

Prepared by: Brian Hester, P.Geol.

Cabra Consulting
1623 - 48th Avenue S.W.
Calgary, Alberta
T2T 2S9
(403) 243-5022

Reported to: Mr. Glen Andrews

AEC (WEST) RENAISSANCE TATE G-18

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AEC (WEST) RENAISSANCE TATE G-18

WELL DATA SUMMARY

Company:	AEC (West)
Well Name:	AEC (West) Renaissance Tate G-18
Surface Location:	64°27'17.30666" N, 125°17'33.14821" W
Surface Co-ordinates:	Northing: 7149492.633, Easting: 389706.952
Elevations:	***Ground:*** 381.0 meters ***Kelly Bushing:*** 386.4 meters ***K.B. to Ground:*** 5.4 meters
Unique Well I.D.:	NWT
Field:	Tate
Classification:	NPW
Objectives:	***Primary*** – Hume ***Secondary*** – Arnica, Franklin Mountain
Terminating Zone:	Ordovician
Security:	Tight
AFE Number:	5000044
Licence Number:	392
Spud Date:	0945 Hrs., February 17, 2000
Total Depth:	2030 meters @ 0900 Hrs, March 4, 2000
Sampled Interval:	***AEC/Ren:*** 585 to 2030 meters (5 meter intervals) ***ISPG:*** 585 to 2030 meters (5 meter intervals
Contractor:	Akita/Sahtu Drilling # 51
Drilling Supervision:	Allan Anger
Geological Supervision:	Brian Hester

AEC (WEST) RENAISSANCE TATE G-18

Hole Size: ***Surface:*** 311.2 mm
Main: 222 mm

Surface Casing: ***Size:*** 244.5 mm
Type: 43 joints of 53.7 kg/m J-55
Landed @ 586.0 meters
Cement: 47.0 tonnes Arctic set
Plug down @ 1412 Hrs, February 21, 2000

Coring: No Cores

Testing: No Tests

Directional Services: Anadrill
Directional Driller: Eric Erikson
MWD Services: Barry Worm

Open Hole Logs: Schlumberger

Log	***Interval Logged***	***Scale***
DLTE-MSFL-LDTD-CNTH-SGTL	1218 to 690 meters	1:240 & 1:600
BHC-GR	1217 to 358 meters	1:240 & 1:600
VSP	Every 20 m from T.D. to 800 m then every 100m	

Final Status: Dry and Abandoned

Rig Release: 1200 Hrs, March 09, 2000

Final Costs: ~~$2,405,616~~

AEC (WEST) RENAISSANCE TATE G-18

WELL HISTORY

This well was spudded in on February 17 at 0945 Hrs. Surface casing was set at 586 meters in the East Fork Formation. The well was then drilled ahead with water. The Little Bear Formation came in over 100 meters high and circulation was lost and regained in several of the highly permeable sands of this formation starting at 940 meters. The Slater River also came in high. The well was drilled ahead to 1462 meters where tight hole conditions forced a mud up. This was just below the contact with the Upper Hume which came in 227 meters high. Sample evaluation of the Hume was difficult due to abundant cavings created during the mud up. The well was control drilled through the Hume in anticipation of coring but porosity and hydrocarbons were not encountered. The well was then drilled ahead to the secondary objective. No shows were encountered in the Arnica. A thick evaporitic sequence composed of anhydrites and then salts was encountered in the Camsell which caused problems in maintaining reasonable mud properties. The well was terminated in what was believed to be the Mount Kindle Formation at a depth of 2030 meters at 0900 Hrs. on March 4th. Two conventional logging runs were made in the hole. VSP tools were flown in and run in the hole. At the first shot point the tool became stuck. A wireline stretch test indicated that the line was stuck around 1000 meters. Fishing tools were flown in and a sidedoor overshot was run in on pipe. The wireline came free at 1235 meters. The VSP was logged out and the logging and fishing tools were laid down. Four cement plugs were run to abandon the well and the rig was released at 1200 Hrs. on March 9th.

AEC (WEST) RENAISSANCE TATE G-18

GEOLOGICAL MARKERS

386.4 K.B. meters

Formation	Prognosis		Samples		Logs	
	Depth (m)	Subsea (m)	Depth (m)	Subsea (m)	Depth (m)	Subsea (m)
Cretaceous						
East Fork	286.4	100.0	NP	NP	NP	NP
Little Bear	982.4	-596.0	892.0	-505.6	882.3	-495.9
Slater River	1307.4	-921.0	1206.0	-819.6	1156.0	-769.6
Slater River Source	1527.4	-1141.0	1345.0	-958.6	1345.0	-958.6
Upper Devonian						
Detrital	NP	NP	NP	NP	1440.0	-1053.6
Canol	1592.4	-1206.0	NP	NP	NP	NP
Middle Devonian						
Hare Indian	1611.4	-1225.0	NP	NP	NP	NP
Bluefish Member	1661.4	-1275.0	1442.0	-1055.6	1443.0	-1056.6
Upper Hume	1676.4	-1290.0	1457.0	-1070.6	1449.0	-1062.6
Middle Hume	NP	NP	1494.0	-1107.6	1495.5	-1109.1
Lower Hume	1716.4	-1330.0	1512.0	-1125.6	1507.3	-1120.9
Lower Devonian						
Landry	1798.4	-1412.0	1574.0	-1187.6	1578.0	-1191.6
Arnica	1858.4	-1472.0	1609.0	-1222.6	1603.0	-1216.6
Camsell	NP	NP	1696.0	-1309.6	1697.0	-1310.6
Upper Silurian						
Camsell Evaporite	NP	NP	1774.0	-1387.6	1777.0	-1390.6
Detrital	NP	NP	1959.0	-1572.6	NP	NP
Lower Silurian						
Mount Kindle	NP	NP	1965.0	-1578.6	1964.0	-1577.6
Ordovician						
Franklin Mountain	1958.4	-1572.0	NP	NP	NP	NP
Total Depth	2200.4	-1814.0	2030.0	-1643.6	2031.9	-1645.5

AEC (WEST) RENAISSANCE TATE G-18

DAILY PROGRESS SUMMARY

Date	Days from Spud	Costs	Depth @ 2400 Hrs.	Progress (meters)	ROP (m/hr)	Formation	Operation	Operations Summary
00/02/16	0	$790,171	0	0	0.0	Surface	Rig up	Rig to Spud.
00/02/17	1	$836,994	50	50	5.6	Surface	Wait on casing	Rig to spud. Spud 311mm pilot hole @ 0945 hrs. Drill ahead to 34m. Pull out of hole. Ream 444mm. Pull out. Wait on casing truck.
00/02/18	2	$915,256	71	21	21.0	Surface	Drill	Wait on casing. Ream hole. Run 340 mm casing to 51 m. Cement same & head up. Drill out cement & drill ahead with 311 bit.
00/02/19	3	$952,387	472	401	19.8	Surface	Drill	Drill ahead & survey.
00/02/20	4	$1,000,642	586	114	12.7	Surface	Trip out	Drill ahead & survey to 474 m. Trip for bit. Run in & drill ahead to 586 m. Circulate & trip to run casing.
00/02/21	5	$1,214,962	586	0	0.0	Surface	Weld bowl	Trip out, run & cement casing. Weld on bowl.
00/02/22	6	$1,260,092	586	0	0.0	Surface	Drill out	Weld on bowl. Nipple up & pressure test. Run in & pressure test. Drill out cement.
00/02/23	7	$1,306,827	925	339	19.1	East Fork	Drill	Drill out cement. Formation leak off. Drill ahead directionally.
00/02/24	8	$1,425,161	1160	235	11.5	Little Bear	Drill	Drill ahead to 934 m. Lose 12m3/hr. Pump pill and losses drop to nil by 1025 m. Drill ahead directionally and pump sweeps to control losses.

AEC (WEST) RENAISSANCE TATE G-18

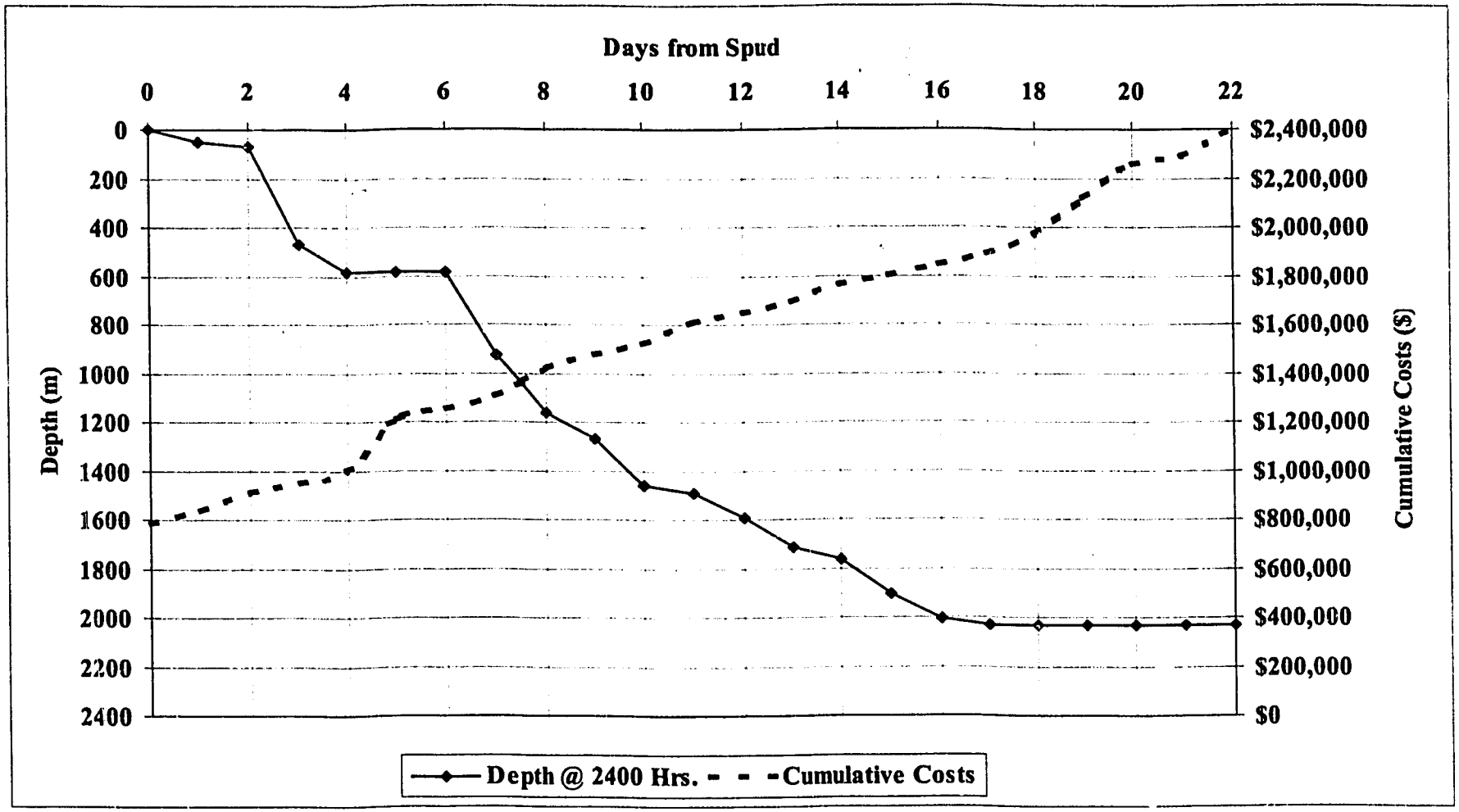
Date	Days from Spud	Costs	Depth @ 2400 Hrs.	Progress (meters)	ROP (m/hr)	Formation	Operation	Operations Summary
00/02/25	9	$1,480,992	1273	113	7.8	Slater River	Run in	Drill ahead directionally to 1273 m. Circulate sample & trip out. Lost 9.0 m3.
00/02/26	10	$1,523,289	1462	189	12.0	Hume	Mud up	Run in & drill ahead directionally. Losing approximately 2 m3/hr. Work tight hole at 1452 m. Drill to 1462 m & work tight hole. Start mudding up. Losses stopped on mud up.
00/02/27	11	$1,609,826	1491	29	6.1	Hume	Run in	Circulate & condition hole. Drill to 1465 m & circulate sample. Wait on orders. Drill ahead to 1491 m. Circulate sample & trip for bit #3. Run in hole.
00/02/28	12	$1,650,379	1594	103	4.6	Landry	Drill ahead	Run in. Drill ahead directionally.
00/02/29	13	$1,692,209	1712	118	6.1	Camsell	Drill ahead	Drill ahead to 1622 m. Circulate sample. Drill ahead to 1670 m. Lost 5 m3. Circulate sample. Drill ahead directionally.
00/03/01	14	$1,763,723	1768	56	3.6	Camsell	Trip out	Drill ahead to 1712 to 1768 m. Trip for bit #4. Lay down mud motors.
00/03/02	15	$1,806,280	1902	134	11.2	Camsell	Drill ahead	Run in to 168 m & repair rig. Run in to 570 m & slip & cut. Run in & wash to bottom. Drill ahead to 1750 m. Circulate sample. Drill ahead directionally.
00/03/03	16	$1,849,052	2009	107	4.9	Mount Kindle	Drill ahead	Drill ahead directionally. Lost 10 m3 to formation at 1960 m. Possible lost at 934 m. LCM stopped losses.

AEC (WEST) RENAISSANCE TATE G-18

Date	Days from Spud	Costs	Depth @ 2400 Hrs.	Progress (meters)	ROP (m/hr)	Formation	Operation	Operations Summary
00/03/04	17	$1,893,919	2030	21	2.5	Mount Kindle	Logging	Drill ahead to T.D. T.D. at 0900 Hrs. Circulate, wiper trip & circulate. Chain out to log. Lay down mud motor.
00/03/05	18	$1,974,791	2030	0	0.0	Mount Kindle	Wait on tools	Lay down tools. Rig in loggers at 0045 Hrs. Run in to log at 0145 Hrs. Log out DLTE/MSFL/LDTD/CNTH/SGTL. Rig up BHC & log. Run in with VSP tool . Differentially stuck at +/- 1000 m. Wait on fishing tools.
00/03/06	19	$2,119,358	2030	0	0.0	Mount Kindle	Lay down collars	Wait on tools. Rig up sidedoor 7 run in. Circulate @ 931 & 1187 m. Run in to 1235 m & free wireline. Hoist drill pipe & log out VSP. Lay down fishing & logging tools. Run in with collars & heavyweight & lay down same.
00/03/07	20	$2,260,650	2030	0	0.0	Mount Kindle	Wait on cement	Lay down collars. Run in open ended. Circulate & wait on cementers. Plug #1 2030 to 1965 m. Plug #2 1510 to 1410 m. Pull up to 1225 m & wait on cement.
00/03/08	21	$2,292,637	2030	0	0.0	Mount Kindle	Feel plug	Wait on cement. Feel plug #2 @ 1412 m. Run plug #3 1200 to 1100 m. Wait on cement. Tag plug #3 @ 1119 m. Run plug #4 650 to 550 m. Run to feel plug.
00/03/09	22	$2,405,616	2030	0	0.0	Mount Kindle	Rig release	Feel plug #4 @ 540 m. Lay down drill string. Tear out BOPE's. Cap casing with plug. Tear out rig. Rig release @ 1200 Hrs. 00/03/09.

AEC (WEST) RENAISSANCE TATE G-18

DEPTH & CUMULATIVE COSTS VS DAYS FROM SPUD CHART



AEC (WEST) RENAISSANCE TATE G-18

MUD RECORD

Mud up @ 1462 meters

Date	Depth (m)	Density (kg/m3)	Viscosity (s/l)	pH	Water Loss	Cl-	Ca+
00/02/16	0						
00/02/17	50	1140	75	9.0			
00/02/18	71	1080	44	9.0			
00/02/19	472	1130	42	9.0			
00/02/20	586	1180	120	9.0			
00/02/21	586	1000	28	9.0			
00/02/22	586	1000	28	9.0			
00/02/23	925	1000	25	9.0			
00/02/24	1160	1000	28	9.0			
00/02/25	1273	1000	28	9.0			
00/02/26	1462	1070	50	9.0	17.0	350	650
00/02/27	1491	1060	56	9.0	9.0	300	160
00/02/28	1594	1060	49	9.0	9.0		
00/02/29	1712	1065	48	9.0	9.2	300	60
00/03/01	1768	1065	55	10.5	11.4	320	240
00/03/02	1902	1160	68	9.0	100.0	63000	60
00/03/03	2009	1210	46	8.0	48.0	230000	210
00/03/04	2030	1210	57	8.0	38.0	250000	120
00/03/05	2030	1210	57	8.0	38.0	250000	120
00/03/06	2030	1210	57	8.0	38.0	250000	120
00/03/07	2030	1210	57	8.0	38	250000	120
00/03/08	2030	1210	66	10.0	33	225000	520
00/03/09	2030	1210	66	10.0	33	225000	520

AEC (WEST) RENAISSANCE TATE G-18

BIT RECORD

Bit No.	Type	Size (mm)	Depth Out(m)	Interval Cut(m)	Hrs	FOB (daN)	RPM	Cond'n T	Cond'n B	Cond'n G	ROP (m/hr)	Comments
1A	HP13GJ	311	34	34	6.0	2-5000	180	4	1	2	5.7	Pilot hole
1B	SDSC	444	51	51	2.0	2-5000	180	1	1	1	25.5	T.D. Conductor
2A	DSSH	311	474	423	20.8	10-1500	180	5	5	1	20.4	ROP
3A	FDSSHC	311	586	214	9.0	10-1500	180	5	5	1	23.8	T.D. Surface
1	FDS+2	222	1273	687	51.8	16-18000	90/15	6	E	1	13.3	ROP
2	F10T	222	1491	218	20.5	16-18000	90/15	7	E	1	10.6	ROP
3	F37P	222	1768	277	55.5	16-18000	90/15	5	E	1	5.0	ROP
4	F37P	222	2030	262	42.5	16-18000	90/15	4	E	1	6.2	T.D.

AEC (WEST) RENAISSANCE TATE G-18

DEVIATION RECORD

Survey No.	Depth (meters)	Deviation (degrees)	Interval (meters)	Survey No.	Depth (meters)	Deviation (degrees)	Interval (meters)
1	67	0.500	67	10	330	0.750	29
2	105	0.500	38	11	357	0.750	27
3	132	0.750	27	12	386	0.250	29
4	160	0.750	28	13	413	1.000	27
5	188	0.750	28	14	441	1.000	28
6	215	0.500	27	15	460	1.000	19
7	244	0.750	29	16	480	0.750	20
8	273	0.500	29	17	510	0.750	30
9	301	0.750	28	18	547	1.000	37
				19	573	0.750	26

AEC (WEST) RENAISSANCE TATE G-18

DIRECTIONAL RECORD

Survey No.	Depth (meters)	Inclination (degrees)	Azimuth (degrees)	TVD (meters)	Subsea (meters)	North+/South - (meters)	East+/West- (meters)	Vertical section (meters)	Dogleg (deg/30m)
0	0.00	0.00	0.00	0.00	386.40	0.00	0.00	0.00	0.00
1	586.00	0.00	0.00	586.00	-199.60	0.00	0.00	0.00	0.00
2	594.90	1.10	304.90	594.90	-208.50	0.05	-0.07	0.05	3.71
3	604.50	0.80	288.70	604.50	-218.10	0.12	-0.21	0.12	1.25
4	614.20	1.10	312.00	614.20	-227.80	0.21	-0.34	0.21	1.49
5	621.00	1.10	288.00	621.00	-234.60	0.27	-0.45	0.27	2.02
6	632.40	0.90	310.50	632.39	-245.99	0.36	-0.63	0.36	1.15
7	642.10	0.90	304.20	642.09	-255.69	0.46	-0.75	0.46	0.31
8	651.60	0.70	294.40	651.59	-265.19	0.52	-0.86	0.52	0.76
9	661.00	1.10	304.90	660.99	-274.59	0.60	-0.99	0.60	1.38
10	670.50	1.10	282.40	670.49	-284.09	0.67	-1.15	0.67	1.36
11	680.30	1.30	295.10	680.29	-293.89	0.74	-1.34	0.74	1.02
12	699.60	1.10	316.90	699.58	-313.18	0.96	-1.67	0.96	0.77
13	709.00	0.90	304.90	708.98	-322.58	1.07	-1.79	1.07	0.92
14	718.60	1.10	321.10	718.58	-332.18	1.19	-1.91	1.19	1.08
15	728.00	0.90	325.70	727.98	-341.58	1.32	-2.01	1.32	0.69
16	737.60	0.80	314.30	737.58	-351.18	1.43	-2.10	1.43	0.61
17	747.20	1.10	315.50	747.18	-360.78	1.54	-2.21	1.54	0.94
18	766.30	0.90	326.00	766.27	-379.87	1.79	-2.42	1.79	0.42
19	775.80	0.50	334.60	775.77	-389.37	1.89	-2.48	1.89	1.30
20	785.50	1.10	311.20	785.47	-399.07	1.99	-2.57	1.99	2.08
21	795.10	1.30	308.40	795.07	-408.67	2.12	-2.73	2.12	0.65
22	804.60	1.10	296.50	804.57	-418.17	2.23	-2.89	2.23	1.01

AEC (WEST) RENAISSANCE TATE G-18

Survey No.	Depth (meters)	Inclination (degrees)	Azimuth (degrees)	TVD (meters)	Subsea (meters)	North+/South - (meters)	East+/West- (meters)	Vertical section (meters)	Dogleg (deg/30m)
23	813.50	0.80	288.00	813.47	-427.07	2.29	-3.03	2.29	1.11
24	822.70	1.20	306.30	822.66	[illegible]	2.36	-3.17	2.36	1.65
25	832.30	1.10	313.40	832.[illegible]	-445.86	2.49	-3.31	2.49	0.54
26	841.90	1.20	309.10	[illegible]41.86	-455.46	2.61	-3.46	2.61	0.41
27	851.50	1.10	309.10	851.46	-465.06	2.73	-3.61	2.73	0.31
28	861.10	1.30	304.20	861.06	-474.66	2.85	-3.77	2.85	0.70
29	870.00	1.30	304.20	869.95	-483.55	2.97	-3.94	2.97	0.00
30	879.60	1.40	300.00	879.55	-493.15	3.09	-4.13	3.09	0.44
31	889.20	1.10	299.30	889.15	-502.75	3.19	-4.31	3.19	0.94
32	898.80	0.40	307.70	898.75	-512.35	3.26	-4.42	3.26	2.21
33	908.00	0.40	300.70	907.95	-521.55	3.29	-4.47	[illegible]	0.16
34	917.60	0.90	289.50	917.55	-531.15	3.34	-4.57	3.34	[illegible]
35	927.60	1.00	287.30	927.55	-541.15	3.39	-4.73	3.39	0.32
36	936.70	1.10	298.60	936.64	-550.24	3.45	-4.88	3.45	0.76
37	955.80	1.40	320.80	955.74	-569.34	3.72	-5.19	3.72	0.89
38	964.90	1.20	310.50	964.84	-578.44	3.87	-5.33	3.87	1.01
39	974.40	1.80	312.00	974.33	-587.93	4.03	-5.52	4.03	1.90
40	984.00	1.40	316.90	983.93	-597.53	4.22	-5.71	4.22	1.32
41	993.60	0.90	315.50	993.53	-607.13	4.36	-5.84	4.36	1.56
42	1003.00	0.40	296.50	1002.93	-616.53	4.43	-5.92	4.43	1.72
43	1012.60	0.20	212.80	1012.53	-626.13	4.43	-5.96	4.43	1.33
44	1021.80	0.10	250.10	1021.73	-635.33	4.41	-5.98	4.41	0.44
45	1031.10	0.20	341.50	1031.03	-644.63	4.42	-5.99	4.42	0.73
46	1040.70	0.20	294.40	1040.63	-654.23	4.45	-6.01	4.45	0.50
47	1050.40	0.00	33.50	1050.33	-663.93	4.45	-6.03	4.45	0.62
48	1060.00	0.10	158.00	1059.93	-673.53	4.45	-6.03	4.45	0.31

AEC (WEST) RENAISSANCE TATE G-18

Survey No.	Depth (meters)	Inclination (degrees)	Azimuth (degrees)	TVD (meters)	Subsea (meters)	North+/South - (meters)	East+/West- (meters)	Vertical section (meters)	Dogleg (deg/30m)
49	1069.10	0.30	188.20	1069.03	-682.63	4.42	-6.03	4.42	0.72
50	1078.70	0.10	160.80	1078.63	-692.23	4.38	-6.03	4.38	0.68
51	1088.40	0.40	183.30	1088.33	-701.93	4.34	-6.03	4.34	0.96
52	1097.90	0.60	153.00	1097.83	-711.43	4.26	-6.01	4.26	1.03
53	1107.60	0.40	172.70	1107.53	-721.13	4.18	-5.98	4.18	0.81
54	1117.10	0.60	150.20	1117.03	-730.63	4.11	-5.95	4.11	0.87
55	1126.70	1.00	149.50	1126.63	-740.23	3.99	-5.88	3.99	1.25
56	1136.20	0.70	126.30	1136.12	-749.72	3.89	-5.79	3.89	1.42
57	1145.10	0.80	193.80	1145.02	-758.62	3.79	-5.76	3.79	2.82
58	1154.50	1.10	193.10	1154.42	-768.02	3.64	-5.80	3.64	0.96
59	1164.10	1.30	179.10	1164.02	-777.62	3.44	-5.82	3.44	1.10
60	1173.70	1.50	179.80	1173.62	-787.22	3.21	-5.82	3.21	0.63
61	1183.20	1.40	165.00	1183.11	-796.71	2.97	-5.79	2.97	1.22
62	1192.90	1.00	157.30	1192.81	-806.41	2.78	-5.72	2.78	1.33
63	1202.40	1.00	158.00	1202.31	-815.91	2.63	-5.66	2.63	0.04
64	1212.10	1.10	146.70	1212.01	-825.61	2.47	-5.58	2.47	0.71
65	1221.70	0.80	146.00	1221.61	-835.21	2.34	-5.49	2.34	0.94
66	1231.20	1.60	142.00	1231.11	-844.71	2.18	-5.37	2.18	2.54
67	1240.60	2.00	140.00	1240.50	-854.10	1.95	-5.18	1.95	1.29
68	1250.30	2.20	145.30	1250.19	-863.79	1.67	-4.97	1.67	0.86
69	1259.90	2.00	151.20	1259.79	-873.39	1.37	-4.78	1.37	0.92
70	1269.00	1.90	147.40	1268.88	-882.48	1.10	-4.63	1.10	0.54
71	1278.00	1.90	145.30	1277.88	-891.48	0.85	-4.46	0.85	0.23
72	1287.60	1.90	160.80	1287.47	-901.07	0.57	-4.32	0.57	1.60
73	1297.20	2.00	160.80	1297.07	-910.67	0.26	-4.21	0.26	0.31
74	1306.70	1.30	185.40	1306.56	-920.16	0.00	-4.17	0.00	3.10

AEC (WEST) RENAISSANCE TATE G-18

Survey No.	Depth (meters)	Inclination (degrees)	Azimuth (degrees)	TVD (meters)	Subsea (meters)	North+/South - (meters)	East+/West- (meters)	Vertical section (meters)	Dogleg (deg/30m)
75	1316.30	1.10	143.20	1316.16	-929.76	-0.18	-4.12	-0.18	2.76
76	1325.90	1.40	195.20	1325.76	-939.36	-0.37	-4.10	-0.37	3.53
77	1335.00	1.30	170.60	1334.86	-948.46	-0.58	-4.11	-0.58	1.92
78	1344.60	1.50	186.80	1344.45	-958.05	-0.81	-4.11	-0.81	1.38
79	1354.20	1.70	178.40	1354.05	-967.65	-1.08	-4.12	-1.08	0.96
80	1363.80	1.30	150.20	1363.65	-977.25	-1.31	-4.06	-1.31	2.59
81	1373.30	1.10	96.10	1373.15	-986.75	-1.42	-3.91	-1.42	3.49
82	1382.30	1.40	108.60	1382.14	-995.74	-1.46	-3.72	-1.46	1.35
83	1391.90	1.70	102.40	1391.74	-1005.34	-1.53	-3.47	-1.53	1.07
84	1401.50	1.30	104.50	1401.34	-1014.94	-1.59	-3.23	-1.59	1.26
85	1411.00	1.10	109.50	1410.83	-1024.43	-1.64	-3.04	-1.64	0.71
86	1420.60	1.30	115.10	1420.43	-1034.03	-1.72	-2.85	-1.72	0.72
87	1430.20	1.30	103.10	1430.03	-1043.63	-1.79	-2.65	-1.79	0.85
88	1439.30	1.30	105.20	1439.13	-1052.73	-1.84	-2.45	-1.84	0.16
89	1449.00	1.10	144.60	1448.83	-1062.43	-1.95	-2.29	-1.95	2.57
90	1458.50	1.20	165.00	1458.32	-1071.92	-2.12	-2.21	-2.12	1.32
91	1467.60	1.30	160.10	1467.42	-1081.02	-2.31	-2.15	-2.31	0.48
92	1477.10	1.30	159.40	1476.92	-1090.52	-2.51	-2.08	-2.51	0.05
93	1490.20	1.10	155.20	1490.02	-1103.62	-2.76	-1.97	-2.76	0.50
94	1499.80	1.30	142.50	1499.61	-1113.21	-2.93	-1.87	-2.93	1.04
95	1509.40	1.10	138.30	1509.21	-1122.81	-3.09	-1.74	-3.09	0.68
96	1528.10	1.30	131.90	1527.91	-1141.51	-3.36	-1.46	-3.36	0.39
97	1537.60	1.10	106.60	1537.41	-1151.01	-3.46	-1.29	-3.46	1.77
98	1547.20	1.80	94.60	1547.00	-1160.60	-3.50	-1.05	-3.50	2.37
99	1556.80	1.70	82.00	1556.60	-1170.20	-3.49	-0.76	-3.49	1.24
100	1565.90	1.30	63.70	1565.70	-1179.30	-3.43	-0.54	-3.43	2.04

AEC (WEST) RENAISSANCE TATE G-18

Survey No.	Depth (meters)	Inclination (degrees)	Azimuth (degrees)	TVD (meters)	Subsea (meters)	North+/South - (meters)	East+/West- (meters)	Vertical section (meters)	Dogleg (deg/30m)
101	1575.50	0.70	70.10	1575.29	-1188.89	-3.36	-0.38	-3.36	1.90
102	1585.10	1.20	45.50	1584.89	-1198.49	-3.27	-0.26	-3.27	1.98
103	1594.60	1.30	51.10	1594.39	-1207.99	-3.13	-0.10	-3.13	0.50
104	1604.10	1.40	54.60	1603.89	-1217.49	-3.00	0.08	-3.00	0.41
105	1613.20	1.10	68.70	1612.98	-1226.58	-2.90	0.25	-2.90	1.41
106	1622.70	1.10	86.20	1622.48	-1236.08	-2.86	0.42	-2.86	1.06
107	1632.30	0.80	88.40	1632.08	-1245.68	-2.85	0.58	-2.85	0.94
108	1641.90	1.00	68.70	1641.68	-1255.28	-2.82	0.73	-2.82	1.14
109	1651.50	1.00	89.10	1651.28	-1264.88	-2.79	0.89	-2.79	1.11
110	1661.00	1.30	77.10	1660.78	-1274.38	-2.76	1.08	-2.76	1.21
111	1670.60	1.50	94.50	1670.37	-1283.97	-2.75	1.31	-2.75	1.46
112	1680.20	1.30	75.70	1679.97	-1293.57	-2.73	1.54	-2.73	1.56
113	1689.70	1.00	30.00	1689.47	-1303.07	-2.63	1.69	-2.63	2.95
114	1699.30	1.10	8.90	1699.07	-1312.67	-2.47	1.74	-2.47	1.24
115	1708.90	1.20	359.10	1708.67	-1322.27	-2.28	1.75	-2.28	0.69
116	1718.10	1.10	359.80	1717.86	-1331.46	-2.09	1.75	-2.09	0.33
117	1727.60	0.70	9.60	1727.36	-1340.96	-1.95	1.76	-1.95	1.35
118	1737.20	0.90	357.70	1736.96	-1350.56	-1.81	1.77	-1.81	0.81
119	1746.20	1.00	355.50	1745.96	-1359.56	-1.66	1.76	-1.66	0.35
120	1755.80	1.10	351.30	1755.56	-1369.16	-1.49	1.74	-1.49	0.39
121	1765.40	1.10	355.50	1765.16	-1378.76	-1.31	1.72	-1.31	0.25
122	1775.00	1.20	337.30	1774.76	-1388.36	-1.12	1.67	-1.12	1.18
123	1784.50	1.00	357.60	1784.25	-1397.85	-0.95	1.63	-0.95	1.37
124	1794.10	1.00	338.00	1793.85	-1407.45	-0.79	1.59	-0.79	1.06
125	1803.60	0.90	328.80	1803.35	-1416.95	-0.65	1.53	-0.65	0.57
126	1813.30	1.10	343.60	1813.05	-1426.65	-0.49	1.46	-0.49	1.01

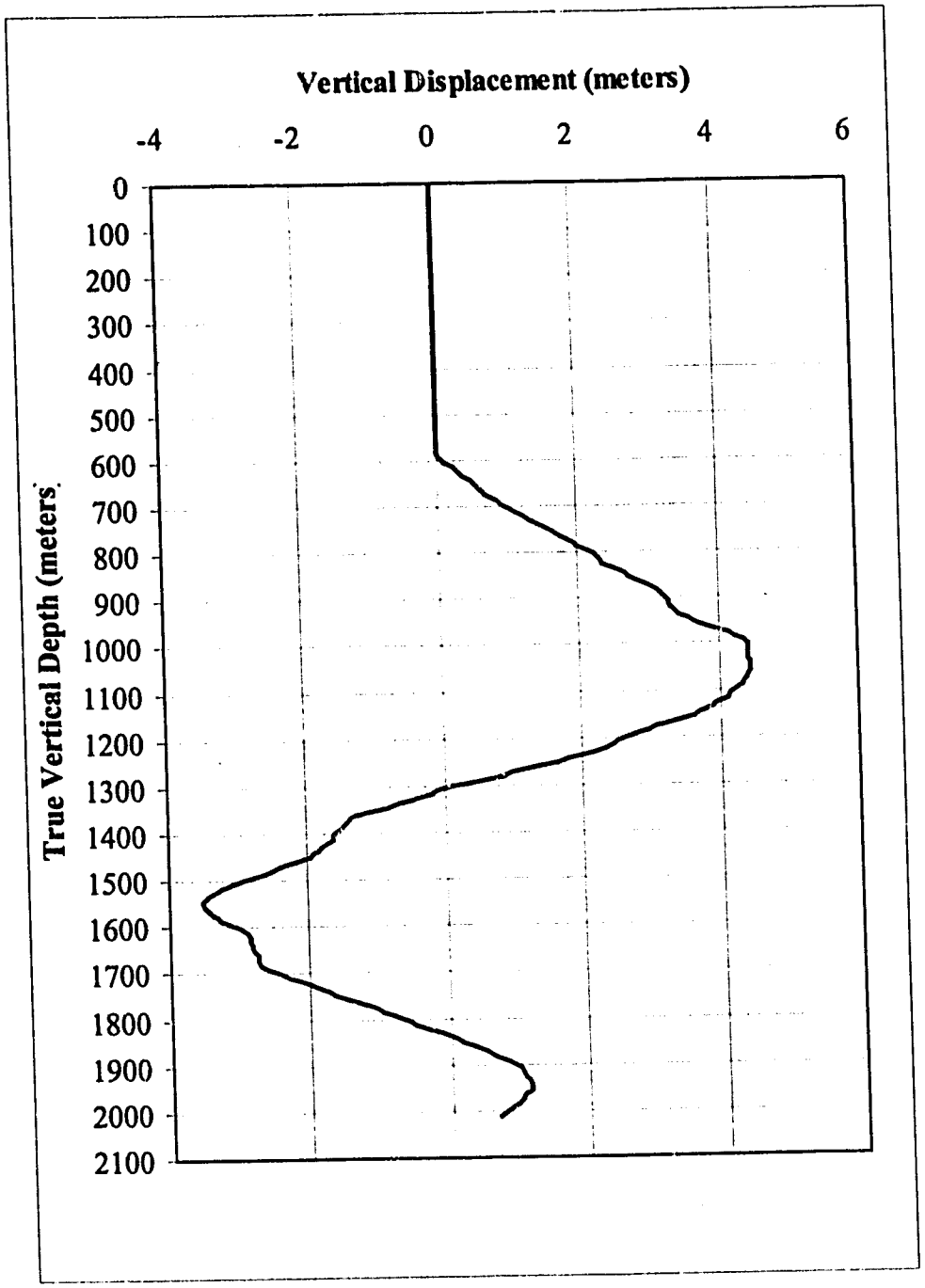
AEC (WEST) RENAISSANCE TATE G-18

Survey No.	Depth (meters)	Inclination (degrees)	Azimuth (degrees)	TVD (meters)	Subsea (meters)	North+/South - (meters)	East+/West- (meters)	Vertical section (meters)	Dogleg (deg/30m)
127	1822.90	1.10	349.90	1822.65	-1436.25	-0.31	1.42	-0.31	0.38
128	1832.40	1.00	338.00	1832.15	-1445.75	-0.14	1.37	-0.14	0.76
129	1841.00	1.00	354.80	1840.75	-1454.35	0.00	1.34	0.00	1.02
130	1850.90	0.90	2.60	1850.64	-1464.24	0.16	1.33	0.16	0.49
131	1860.50	1.10	8.20	1860.24	-1473.84	0.33	1.35	0.33	0.69
132	1869.60	0.90	27.90	1869.34	-1482.94	0.48	1.39	0.48	1.30
133	1879.10	0.70	18.00	1878.84	-1492.44	0.60	1.45	0.60	0.77
134	1897.70	1.10	23.70	1897.44	-1511.04	0.87	1.55	0.87	0.66
135	1907.00	0.40	13.10	1906.74	-1520.34	0.99	1.60	0.99	2.29
136	1916.60	0.20	321.80	1916.34	-1529.94	1.03	1.59	1.03	0.99
137	1926.10	0.20	347.80	1925.84	-1539.44	1.06	1.58	1.06	0.28
138	1935.70	0.40	339.40	1935.44	-1549.04	1.11	1.56	1.11	0.64
139	1955.80	0.20	172.00	1955.54	-1569.14	1.14	1.54	1.14	0.89
140	1965.40	0.60	193.10	1965.14	-1578.74	1.07	1.54	1.07	1.31
141	1974.50	0.40	199.40	1974.24	-1587.84	1.00	1.51	1.00	0.68
142	1983.00	0.30	212.10	1982.74	-1596.34	0.95	1.49	0.95	0.44
143	1992.10	0.60	177.00	1991.84	-1605.44	0.88	1.48	0.88	1.30
144	2001.70	0.50	163.60	2001.44	-1615.04	0.79	1.50	0.79	0.51
145	2011.30	0.90	155.90	2011.03	-1624.63	0.68	1.54	0.68	1.28

AEC (WEST) RENAISSANCE TATE G-18

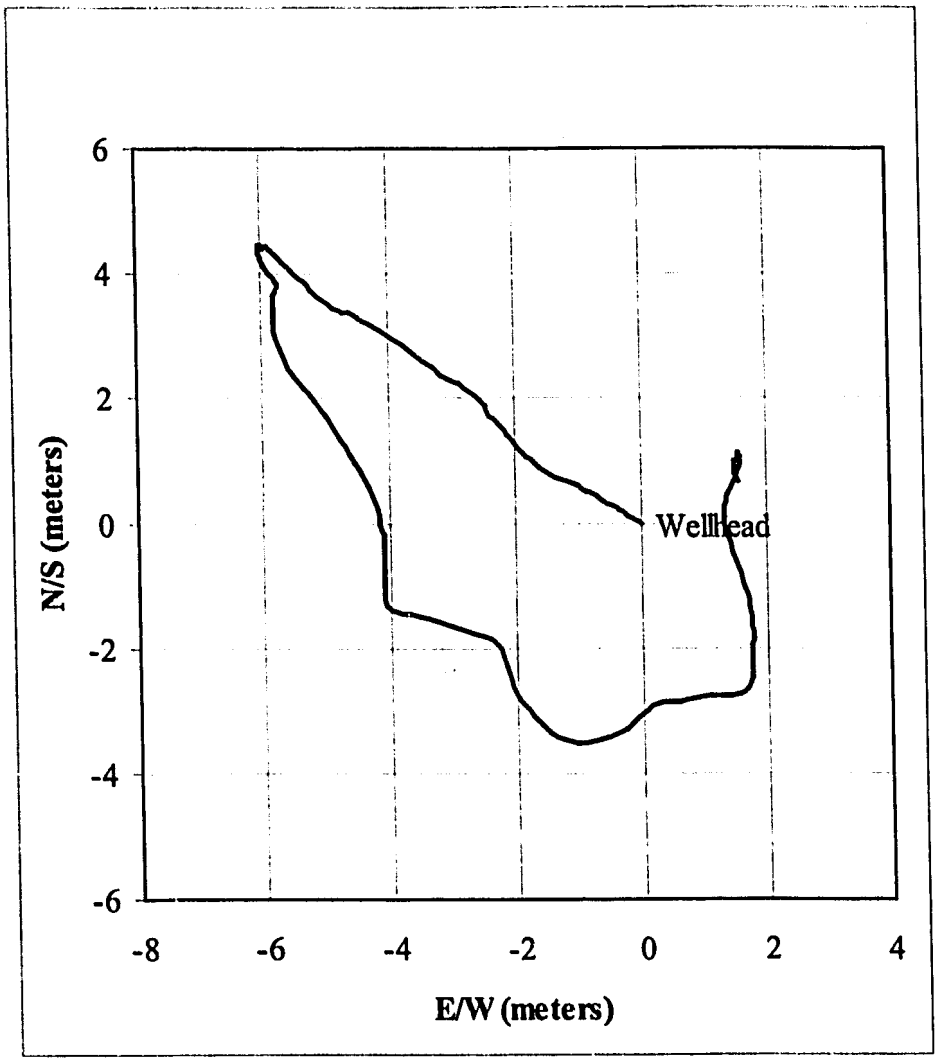
DIRECTIONAL RECORD

True Vertical Depth vs Vertical Displacement



AEC (WEST) RENAISSANCE TATE G-18

Plan View



AEC (WEST) RENAISSANCE TATE G-18

OPEN HOLE LOG SUMMARY

Contractor:	Schlumberger	**Engineer:**	Sean McConkey
District:	Norman Wells	**Truck No.:**	8416
Circulation End:	00/03/04 17:00	**Finish Trip:**	00/03/04 23:00
On Location:	00/03/04 18:00	**Off Location:**	00/03/06 23:00
Rig Up:	00/03/05 00:45	**Rig Down:**	00/03/06 22:30

Mud Properties: **Type:** Gel Chemical
Density: 1180 **pH:** 8
Viscosity: 47 **WL:** 38
Cl- 230000 ppm **RMF** 0.21 @ 17°C

BHT: 55 °C **Total Depth:** **Driller:** 2030.0 meters
Logger: 2031.9 meters

Services:

Log	Interval Logged From	To	Meters Logged	Comments
DLTE-MSFL	2025.0	586.0	1439.0	Combo with LDTD-CNTH
LDTD-CNTH	2016.5	586.0	1430.5	Combo with DLTE-MSFL
BHC	2029.5	586.0	1443.5	
VSP	2019.4	586.0	1433.4	20 m intervals to 800 m. 100 m intervals to surf. Csg.

Times:

Tool Combo	Date	Run in	First on bottom	Last on bottom	Clear Hole	Total Hours
DLTE-MSFL-LDTD-CNTH-SGTL	00/03/05	01:30	02:00	02:30	06:00	4.50
BHC-GR	00/03/05	07:30	08:45	09:15	13:00	5.50
VSP	00/03/05	15:00	16:00	16:00		1.00
	00/03/06			10:15	21:30	11.25

Logging Time:	22.25 Hrs	**Rig In/Out:**	5.25 Hrs
Time Losses:	18.25 Hrs	**Total Time:**	45.75 Hrs

AEC (WEST) RENAISSANCE TATE G-18

Remarks: Good job done by personnel on keeping AEC representatives informed. Major problems with satellite communications needs to be resolved. Differential stuck in hole with wireline at 1000 to 1200 m when tool got to bottom. Lost time was time spent fishing VSP tool. Note high chloride content of mud.

Copies: 1 field, 7 final - 8 Total.

Witness: Brian Hester

AEC (WEST) RENAISSANCE TATE G-18

GEOLOGICAL SUMMARY

This well was drilled to evaluate the oil potential of the Middle Devonian Upper Hume. The Lower Devonian Arnica and Ordovician Franklin Mountain were secondary targets. Samples were caught from 586 m to the T.D. of 2030 meters. A gas detector was also run over this interval. Formations started coming in high in the Cretaceous section where the Little Bear was 90 meters high and the Slater River & Slater River source came in at 101 m and 182 m high respectively in samples. Mud up was done after tight hole was encountered in the top of the Hume which came in 219 m high in samples. Formation markers continued to come in high over the rest of the well with the Arnica 249 m high to prognosis. A very thick section of Camsell evaporites consisting of Anhydrites and Salts was encountered at 1774 m. The mud clobbered up and then the salinity began to climb reaching 260,000 ppm chlorides. This caused difficulties in maintaining a good quality mud. The well was drilled ahead into the Silurian Mount Kindle and T.D.'ed at 2030 m, no Franklin Mountain was penetrated. Gas readings were very low in all formations with the exception of the Slater River source. No live shows were encountered in this well and it was abandoned.
A complete microphoto record of this well is included on CD and microphotos through the potential intervals of the offset wells are also included in this study.

East Fork Formation - Late Cretaceous
Surface casing was set at 586 m in the East Fork Formation. Lithology was shales, siltstones and unconsolidated sands. No shows were noted through this section.

Little Bear Formation - Late Cretaceous
This formation came in at 892 m (Log 882 m) and was composed of variable cemented sands with shales. The quartz sandstones were poorly cemented to unconsolidated with porosity ranging from 15 to 20% and intervals with permeabilities greater then 1 darcy. Circulation was lost in several of these sands and was recovered by mixing LCM. However lost circulation reoccurred in these intervals as the drilling of the well progressed. If this well had encountered significant hydrocarbons in the zones of interest these lost circulation zones would have been a major concern in well control. This interval also caused problems in the logging of the well when the wireline became differential stuck while running the VSP. A very minor show was noted in the 1160 m sample, however no other shows were noted throughout this section.

Slater River Formation – Late Cretaceous
This formation was picked at 1207 m in samples (Log 1156 m). The transition from the sands and shales of the Little Bear was gradational. This formation is composed of continental shales with minor silts and sands and minor amounts of carbonaceous material. Shales are sideritic in part. There are scattered forams throughout this section.

Slater River Formation Source Rock – Early Cretaceous
This formation came in at 1345 m in samples (Log 1345 m). It is a very good marker as it marks an abrupt change from the continental shales of the Slater River to bituminous marine shales with abundant fish remains and scattered coccoliths. Background gas increased to 100 to 200 units and ROP increased. At 1423 m fossil fragments decreased as did the bituminous nature of the shales.

Bluefish Member Source Rock – Middle Devonian
This formation came in at 1442 m in samples (Log 1443 m). The black to dark brown shales were slightly bituminous with disseminated and nodular pyrite. The contact with the overlying Slater River was difficult to define as they are both dark shales.

Upper Hume Formation – Middle Devonian
This formation was picked in samples at 1457 m (Log 1449 m). On penetrating the Hume the well got tight and mud up commenced at 1462 m. Due to this the sample quality over the Upper Hume is poor as there were a lot of cavings. The rock was predominately dolostone although logs suggest that there are shale beds present. Porosity was mostly 3-5% with scattered chips showing 5-8% porosity. There were scattered traces of gilsonite. No live shows were noted in these dolostones however a faint halo was noted in the watch glasses after the chlorothene had evaporated. This suggests that at one time hydrocarbons were present and were possibly flushed. Traces of saddle dolostone point to hydrothermal alteration for this rock, however there were very few euhedral crystals as seen in the Tate B-65 well.

Middle Hume Formation - Middle Devonian
This formation was picked in samples at 1494 m (Log 1496 m). The crystallinity of the dolostones becomes finer and traces of argillite are noted downsection. Porosity is 3-4% and shows are the same as in the Upper Hume with a faint halo after evaporation.

Lower Hume Formation – Middle Devonian
This formation was picked in samples at 1512 m (Log 1507 m). It is a composed of a slightly argillaceous brachiopod intrabiomicrite (mudstone to wackestone)with minor dolostone interbeds containing crinoidal fossil ghosts. Deposition was on a carbonate shelf. It is tight with no shows.

Landry Formation – Lower to Middle Devonian
This formation was picked in samples at 1574 m (Log 1578 m). It is an amphipora intrapelmicrite (wackestone to packstone). Deposition was probably in a lagoonal or subtidal environment. At 1596 m (Log 1592 m) the section becomes dolomitized with laminations atypical of stromatopoids. This is possibly a mudmound or reefal facies within the Landry. No shows were noted through this section.

Arnica Formation – Lower Devonian
This formation was picked in samples at 1609 m (Log 1603 m). This formation is composed of aphano to microcrystalline dolomites with fossil ghosts of Amphipora and tabular Stromatoporoids. There are rare scattered breccias which may have resulted from dissolution of anhydrites. 4 cubic meters of mud were lost to a fracture at 1670 m. This formation was deposited on a carbonate platform in a subtidal environment. The formation is tight with no shows.

Camsell Formation– Lower Devonian
This formation was picked in samples at 1696 m (Log 1697 m). This formation is composed aphanocrystalline dolostones, siltstone and shales with minor breccia interbeds. The anhydritic content increases downsection and there are interbeds of anhydrite downsection. The breccias increase downsection and are made up of dolostone and shale fragments and are a result of dissolution of anhydrites. This formation was deposited in a supratidal environment that became increasingly restricted downsection. There are no shows in this formation.

Camsell Evaporites – Upper Silurian to Lower Devonian
This formation was picked in samples at 1774 m (log 1777 m). This formation in samples is composed of anhydritic mudstones to argillaceous anhydrites with increasing salt content (from salt casts) downsection. The sonic log suggests this may be a massive salt. Salinity in the mud increased to 230,000 ppm eventually. This formation was deposited in a restricted subtidal environment. Salinity increases downsection.

Mount Kindle – Lower Silurian
This formation was picked in samples at 1965 m (log 1964 m). This formation is composed of marine fissile shales and micro to fine crystalline dolostones. This formation was deposited on a deep marine shelf. T.D. was called at 2030 meters in this formation.

AEC (WEST) RENAISSANCE TATE G-18

SAMPLE DESCRIPTIONS

586-610 m	SHALE - medium to dark grey, silty in part, bentonitic, very slightly calcareous, soft.
610-625 m	Shale with Siltstone interbeds. SHALE - medium to dark grey, soft, bentonitic. SILTSTONE - medium to dark greyish brown, argillaceous, poorly cemented, rare fine to coarse sand grains.
625-638 m	Siltstone with Shale interbeds. SILTSTONE - medium to dark grey brown, silt grading to very fine Sandstone in part, poorly cemented, argillaceous. SHALE - medium to dark grey, silty, soft, trace carbonaceous.
638-650 m	SANDSTONE - clear quartz to light brown, minor chert, very fine to fine grained, rare coarse frags, subround to angular, well sorted, unconsolidated, argillaceous, trace pyrite, poor (3%)porosity.
650-670 m	SANDSTONE - as above, silty grading to Siltstone, argillaceous, poor porosity. Shale laminae.
670-685 m	Predominantly cement cavings, poor returns over shaker.
685-695 m	SANDSTONE - quartz & chert grains and fragments, very fine to fine grained, occasional coarse to very coarse chert frags, generally well sorted, unconsolidated, silty, argillaceous. Possible cavings?.
695-700 m	Cement cavings.
700-715 m	SHALE - medium to dark grey, arenaceous to highly arenaceous, soft, minor pyrite. Abundant loose sand grains.
715-730 m	SANDSTONE - white to light grey to grey brown, S&P, quartz & lithics, fine to medium, rare coarse grains, subangular to angular, poorly cemented, calcareous cement, minor clay, slightly micaceous, poor to fair porosity. Claystone interbed at top.
730-745 m	SHALE - medium to dark grey, arenaceous to highly areanceous, soft. Shale is mostly washed, Abundant loose sand grains.

AEC (WEST) RENAISSANCE TATE G-18

745-760 m	SHALE - medium to dark grey, arenaceous to highly areanceous, soft, minor pyrite. Shale is mostly washed, Abundant loose sand grains.
760-770 m	SANDSTONE - medium to dark brown, quartz, lithics & chert, very fine to medium grained, subround to angular, poorly cemented, calcareous, argillaceous, silty, pyrite, poor porosity.
770-790 m	SHALE - medium to dark grey, blocky, very soft, highly arenaceous. SANDSTONE - light brown, quartz & lithics, very fine to fine, well sorted, subround to angular, argillaceous, poor porosity. Samples contain abundant loose sand grains, shale has been washed.
790-810 m	SHALE - medium to dark grey to grey green, blocky, waxy in part, very soft, highly arenaceous, minor pyrite. Samples contain abundant loose sand grains, shale has been washed.
810-820 m	Shale with Sandstone interbeds. SHALE - medium to dark grey to grey green, blocky, waxy in part, soft, arenaceous to highly arenaceous, grading to argillaceous Siltstone. SANDSTONE - light to medium grey brown, quartz & chert, silt to fine grained, well sorted, subangular to angular, poorly cemented to loose, argillaceous to highly argillaceous, poor porosity.
820-835 m	Shale with Siltstone interbeds. SHALE - medium to dark grey to dark green, subfissile, blocky, waxy in part, soft, arenaceous to highly arenaceous, grading to Siltstone in part. SILTSTONE - dark grey, argillaceous, sandy in part.
835-850 m	SHALE - medium to dark grey, blocky to subblocky, soft, silty grading to argillaceous Siltstone in part, minor pyrite.
850-870 m	SHALE - medium to dark grey, blocky, soft, arenaceous, minor pyrite. Abundant loose sand grains.
870-892 m	Shale with minor Clay interbeds. SHALE - medium to dark grey to grey green , blocky, subfissile, waxy in part, soft, arenaceous. CLAY - white, bentonitic, soft.

AEC (WEST) RENAISSANCE TATE G-18

Little Bear 892.0 m -505.6 m Logs 882.3 m -495.9 m

892-900 m — SANDSTONE - off white to light brown, quartz with minor chert, very fine to fine grained, well sorted, subround to angular, poorly cemented to loose, argillaceous, poor porosity, no show. Scattered black chert nodules.

900-910 m — Conglomerate grading to Sandstone.
CONGLOMERATE - varicoloured chert in a light brown quartz sand matrix, matrix supported, excellent porosity.
SANDSTONE - light brown to off white, clear quartz & chert, very fine to fine grained, well sorted, subround to subangular, unconsolidated, trace carbonaceous mostly clean, trace disseminated pyrite, fair to excellent porosity, no shows.

910-924 m — Shale with Sandstone interbeds.
SHALE - medium to dark grey, blocky, arenaceous to highly arenaceous.
SANDSTONE - light brown, quartz & chert, very fine to medium grained, subround to angular, moderately sorted, poorly cemented to loose, argillaceous, tight, no shows.

924-942 m — Interbedded Sandstone & Shale with minor Conglomerate.
SANDSTONE - light grey to tan, quartz minor chert, very fine to medium grained, subround to angular, moderately sorted, poorly cemented to loose, argillaceous, poor to fair porosity, no shows.
SHALE - medium to dark grey, blocky, arenaceous to highly arenaceous.
CONGLOMERATE - varicoloured chert in a light brown very fine to medium quartz sand matrix, matrix supported, good porosity.

942-959 m — SANDSTONE - light grey white, quartz minor lithics, very fine to medium grained, moderately sorted, subround to angular, loose, fair to good porosity, no shows.

959-971 m — Sandstone with Shale interbeds.
SANDSTONE - light grey to grey tan, quartz minor chert, very fine to medium grained, subround to angular, moderately sorted, siliceous cement, moderate to well cemented, semifriable, kaolinitic, tight to fair porosity, no shows.
SHALE - medium to dark grey, blocky, arenaceous to highly arenaceous.

971-984 m — SANDSTONE - light grey white, quartz minor chert, very fine to medium with interbeds of medium to coarse grained, moderately to well sorted, angular to subround, loose with minor clay cement becoming siliceous cemented & friable downsection, kaolinitic, fair to good porosity, no shows.

AEC (WEST) RENAISSANCE TATE G-18

984-1013 m — Sandstone with interbedded Shales minor Siltstone.
SANDSTONE - light to medium grey, quartz minor chert, very fine to fine grained becoming silt to very fine grained downsection minor interbed of very fine to medium grained, moderate to well sorted, subangular to round, clay & siliceous cement, well cemented, trace carbonaceous, trace disseminated pyrite, tight, no shows.
SHALE - medium to dark grey, blocky, arenaceous to highly arenaceous.
SILTSTONE - light grey, clay with siliceous cement, well cemented, sandy.

1013-1023 m — SANDSTONE - light grey white to grey tan, quartz and chert, medium to coarse grained, moderately to well sorted, angular to subangular, loose with minor clay cement, trace kaolinitic, poor to good porosity, no shows.

1023-1040 m — Sandstone with interbedded Shale.
SANDSTONE - light to medium grey, quartz minor chert, very fine grained, well sorted, subround to round, clay & siliceous cement, well cemented, trace disseminated pyrite, tight, no shows.
SHALE - medium to dark grey to buff white, blocky, arenaceous to highly arenaceous, bentonitic in part, trace chitinous fish remains.

1040-1052 m — Interbedded Shale & Sandstone.
SHALE - medium to dark grey, blocky, arenaceous to highly arenaceous.
SANDSTONE - light to medium grey, quartz minor chert, very fine grained minor interbeds of very fine to medium grained trace coarse, moderate to well sorted, angular to round, clay & siliceous cement, well cemented, tight to fair porosity, no shows.

1052-1077 m — Interbedded Sandstone, Siltstone & Shale with minor Siderite.
SANDSTONE - light to medium grey, quartz minor chert, silt to very fine grained, well sorted, subangular to round, clay & siliceous cement, scattered carbonaceous flakes, well cemented, tight, no shows.
SILTSTONE - light grey, clay with siliceous cement, well cemented, sandy.
SHALE - medium to dark grey trace grey white, blocky, subfissile, arenaceous to highly arenaceous, trace disseminated pyrite, calcareous in part.
SIDERITE - light tan, bedded, argillaceous.

1077-1092 m — Interbedded Sandstone & Shale with minor Siltstone.
SANDSTONE - light to medium grey to light tan, quartz trace lithics, silt to very fine grained, well sorted, subangular to round, clay & siliceous cement, scattered carbonaceous flakes, well cemented, tight, no shows.
SHALE - medium to dark grey, blocky, subfissile, arenaceous to highly arenaceous.
SILTSTONE - light grey, clay with siliceous cement, well cemented, sandy. Scattered Inoceramus prisms.

AEC (WEST) RENAISSANCE TATE G-18

1092-1113 m — Sandstone with interlaminated Siltstone & Shale minor Siderite.
SANDSTONE - light to medium grey to light tan, quartz trace lithics, silt to very fine rare fine grained, well sorted, subangular to round, clay & siliceous cement, trace carbonaceous flakes, well cemented, tight, no shows.
SILTSTONE - light grey, clay with siliceous cement, well cemented, sandy.
SHALE - medium to dark grey, blocky, subfissiie, arenaceous to highly arenaceous.
SIDERITE - light brown, argillaceous, bedded
Scattered Inoceramus prisms & fossil fragments minor loose Chert nodules.

1113-1115 m — SANDSTONE - light to medium grey, quartz & chert, very fine to fine grained, well sorted, subangular, clay & siliceous cement, trace carbonaceous flakes, well cemented, tight to poor porosity, no shows.

1118-1138 m — Interbedded Sandstone & Shale with minor Siltstone.
SANDSTONE - light to medium grey to light tan, quartz trace lithics, very fine to fine grained becoming silt to very fine grained downsection, well sorted, subangular to round, clay & siliceous cement, scattered carbonaceous flakes, trace kaolinite, well cemented, tight, no shows.
SHALE - medium to dark grey, blocky, subfissile, arenaceous to highly arenaceous.
SILTSTONE - light grey, clay with siliceous cement, well cemented, sandy.

1138-1155 m — Shale with interbedded Sandstone & Siltstone.
SHALE - medium to dark grey to grey brown, blocky, subfissile, arenaceous to highly arenaceous.
SANDSTONE - light tan to medium grey, quartz trace lithics, silt to very fine grained, well sorted, subangular to round, clay & siliceous cement, trace kaolinite, well cemented, tight, no shows.
SILTSTONE - medium brown to light grey, clay with siliceous cement, well cemented, sandy.
Scattered loose Chert nodules, trace fossil fragments.

1155-1177 m — Interbedded & interlaminated Sandstone & Shale.
SANDSTONE - grey white to light tan, quartz trace lithics, very fine to occasionally fine grained becoming silt to very fine grained downsection, well sorted, subangular to round, clay & siliceous cement, kaolinitic, trace disseminated pyrite, trace micaceous, well cemented, poor porosity to tight, trace scattered light stain, light yellow fluorescence, very light cut to ? becoming no shows downsection.
SHALE - medium to dark grey to grey white, blocky, subfissile, arenaceous to highly arenaceous, bentonitic in part.

1177-1206 m Shale with Sandstone & Siltstone interbeds & stringers.
SHALE - medium to dark grey to grey tan, blocky, subfissile, arenaceous to highly arenaceous, carbonaceous with scattered plant fossils, trace bentonitic.
SANDSTONE - grey white to light tan, quartz trace lithics, silt to very fine grained occasionally fine grained, well sorted, subangular to round, clay & siliceous cement, kaolinitic, trace carbonaceous flakes, well cemented, tight, no shows.
SILTSTONE - light grey to grey white, clay with siliceous cement, well cemented, carbonaceous flakes, sandy.

Slater River 1207.0 m -820.6 m Logs 1156.0 m -769.6 m

1206-1221 m Shale with Siltstone & Sandstone stringers.
SHALE - dark grey to grey tan, platy, fissile, sideritic in part, arenaceous in part, carbonaceous with scattered plant fossils, trace bentonitic, micromicaceous.
Scattered coal fragments & black chert nodules.

1221-1245 m Shale with minor Siltstone & Sandstone interbeds & stringers.
SHALE - dark grey to grey tan, platy to blocky, fissile to subfissile, sideritic in part, arenaceous to highly arenaceous, carbonaceous in part with trace plant fossils, pyritic, micromicaceous.
SILTSTONE - light to medium grey, siliceous cement trace sideritic, well cemented, carbonaceous flakes, argillaceous in part, sandy.
SANDSTONE - grey tan, quartz trace lithics, very fine to fine grained downsection silt to very fine grained, well sorted, subangular to round, clay cement, kaolinitic, carbonaceous flakes, well cemented, tight, no shows.
Scattered black and grey chert nodules & trace pyritized fossil fragments.

1245-1266 m Shale with stringers of Sandstone and Siltstone.
SHALE - dark grey to grey tan trace white to grey green, platy to blocky, fissile to subfissile, trace waxy, sideritic in part, arenaceous, carbonaceous in part, bentonitic in part, micromicaceous.
Scattered black & grey chert nodules, rare loose foramifera at base of section.

1266-1291 m Shale with Siltstone stringers & minor interbeds & lenses of Sandstone.
SHALE - dark grey to grey tan trace white to grey green, platy to blocky, fissile to subfissile, trace waxy, arenaceous, carbonaceous in part with plant fossils, bentonitic, trace sideritic, micromicaceous.
SILTSTONE - grey white, siliceous with minor sideritic & trace calcareous cement, well cemented, argillaceous in part.
SANDSTONE - grey tan, quartz trace lithics, silt to very fine grained, well sorted, subangular to round, clay cement, micaceous, disseminated pyrite, well cemented, tight, no shows.

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1291-1316 m Shale with minor laminae & lenses of Sandstone.
SHALE - dark grey to grey tan trace white to grey green, platy minor blocky, mostly fissile, trace waxy, arenaceous in part, carbonaceous in part with plant fossils, scattered bentonitic patches, trace sideritic, pyritic in part, micromicaceous.
SANDSTONE - grey tan, quartz trace lithics, silt to very fine grained, well sorted, subangular to round, siliceous with clay cement, well cemented to highly friable, tight trace good porosity, no shows.
Scattered varicoloured chert nodules throughout.

1316-1340 m Shale with interbeds & lenses of Sandstone & Siderite interbeds minor Siltstone lenses.
SHALE - dark grey to grey tan slight trace white, blocky to platy, subfissile in part, trace waxy, arenaceous in part, carbonaceous, trace sideritic, pyritic in part, micromicaceous.
SANDSTONE - grey tan, quartz trace lithics, silt to very fine grained, well sorted, subangular to round, siliceous with clay cement, well cemented, tight, no shows.
SIDERITE - chocolate brown, argillaceous, bedded.
Scattered loose forams at base of section.

1340-1345 m Shale with Siltstone lenses.
SHALE - dark grey to grey tan, blocky to platy, subfissile in part, arenaceous in part, trace sideritic, pyritic in part, micromicaceous.

Slater River Source Rock 1345.0 m -958.6 m Logs 1345.0 m -958.6 m

1345-1368 m Shale with minor Sandstone lenses.
SHALE - medium to dark grey trace white speckled, platy, fissile to subfissile, bituminous in part, calcareous in part, scattered fish scales and black to amber chitinous fish remains.
Trace Foramifera.

1368-1382 m Shale with minor Siltstone lenses.
SHALE - medium to dark grey to black, trace white speckled, platy, fissile to subfissile, bituminous in part, calcareous in part, disseminated pyrite, scattered fish scales.

1382-1395 m SHALE - dark grey to black, platy, fissile, bituminous in part, calcareous in part, scattered fine fractures with calcite infilling, scattered fish scales & chitinous fish remains.

1395-1405 m Shale with minor Siltstone lenses.
SHALE - dark grey to black to dark grey brown, platy, fissile to subfissile, bituminous in part, calcareous in part, trace amber chitinous fish remains, scattered fine fractures with calcite infilling.
Trace foramifera.

1405-1423 m Shale with minor Sandstone lenses.
SHALE - dark grey to black, platy, fissile to subfissile, bituminous in part, calcareous in part, scattered fish scales and trace black chitinous fish remains, scattered fine fractures with calcite infilling.

1423-1442 m Shale with minor Sandstone lenses.
SHALE - dark grey to black, blocky to platy, subfissile to fissile, calcareous in part, trace fish scales, disseminated pyrite, scattered fine fractures with calcite infilling.
Scattered Foramifera at base of section.

Bluefish Member Source Rock 1442.0 m -1055.6 m Logs 1443.0 m -1056.6 m

1442-1457 m Shale with stringers of Sandstone.
SHALE - black to dark grey brown, platy to blocky, fissile to subfissile, waxy in part, calcareous in part, disseminated pyrite & scattered nodules, scattered slickensides.
SANDSTONE - white to tan, fine to medium grained, quartz & dolomite breccia, well sorted, subangular to subround, loose, fair to good porosity, no shows.
Rare scattered snow white Dolomite fragments, trace gilsonite fragments.

Upper Hume 1457.0 m -1070.6 m Logs 1449.0 m -1062.6 m

1457-1472 m DOLOSTONE - light tan to snow white to mottled grey white, fine to medium crystalline minor coarse crystalline, subhedral to anhedral crystals, trace molds with white dolostone infilling, trace arenaceous, trace siliceous, trace bitumen waxes along crystal faces, poor intercrystalline porosity (3-5%), minor interbeds fair intercrystalline porosity (6-8%), trace moldic porosity, no visible shows.
Note - Abundant shale cavings decreasing downsection. Rock is highly ground up over this interval with a large percent <.5 mm which makes porosity estimates difficult.

1472-1481 m DOLOSTONE - snow white to light tan to laminated grey brown, very fine to fine with medium crystalline rare coarse crystalline, anhedral with scattered subhedral crystals, trace arenaceous, scattered pyrite nodules, trace anhydrite, rare bitumen waxes along crystal faces, tight to poor intercrystalline porosity (3-5%), trace moldic porosity, ? shows, very faint cut after 3 min.

AEC (WEST) RENAISSANCE TATE G-18

1481-1491 m. DOLOSTONE - dark grey brown to buff white, very fine to fine with scattered medium crystalline rare coarse crystalline, subhedral to anhedral crystals, slightly calcareous, trace disseminated pyrite, trace arenaceous, rare trace bitumen waxes along crystal faces, subhedral crystals appear to line molds in the dark dolostone, tight with poor to fair moldic porosity (5-8%), ? shows, very faint cut after 3 min.

Middle Hume 1494.0 m -1107.6 m Logs 1495.5 m -1109.1 m

1494-1512 m DOLOSTONE - light tan to grey tan to mottled grey white, micro to very fine with scattered fine crystalline, anhedral with rare subhedral crystals, calcareous in part, trace disseminated pyrite, arenaceous, trace argillaceous downsection, trace bitumen waxes, trace yellow sulphur residue, scattered infilled fractures bi-directional, mostly tight with poor intercrystalline porosity (3-4%), scattered mineral fluorescence, trace very faint cut after 3 min.
Trace Limestone stringers downsection.

Lower Hume 1512.0 m -1125.6 m Logs 1507.3 m -1120.9 m

1512-1531 m Limestone with interbeds & stringers of Dolostone.
LIMESTONE - buff white, calcilutite with minor fine to medium calcarenite, brachiopod biomicrite, wackestone, argillaceous, dolomitic in part, tight, no shows.
DOLOSTONE - medium brown to grey brown, micro to very fine crystalline minor very fine to fine crystalline, calcareous in part, trace disseminated pyrite, arenaceous, argillaceous in part, tight, no visible shows.

1531-1546 m Limestone with stringers of Dolostone increasing downsection.
LIMESTONE - light grey brown to buff white, calcilutite with minor very fine to medium calcarenite, brachiopod biomicrite to biomicrite, wackestone to mudstone, argillaceous, dolomitic in part, tight, no shows.

1546-1556 m Dolostone with Siltstone stringers.
DOLOSTONE - light tan to mottled white tan to dark grey, very fine to fine crystalline, subhedral crystals, arenaceous to highly arenaceous, scattered fossil ghosts, crinoids, poor intercrystalline porosity (3-5%), no immediate shows, trace cut after 5 min.

AEC (WEST) RENAISSANCE TATE G-18

1556-1574 m Limestone with interbeds of Shale and stringers of Dolostone.
LIMESTONE - light grey brown to buff white, calcilutite with minor very fine to medium calcarenite, biomicrite with brachiopod biomicrite, mudstone to wackestone, argillaceous, trace arenaceous, dolomitic in part, disseminated pyrite, tight, no shows, trace cut after 5 min..
SHALE - medium to dark grey, blocky, subfissile, calcareous to highly calcareous, disseminated pyrite.

Landry 1574.0 m -1187.6 m Logs 1578.0 m -1191.6 m

1574-1591 m LIMESTONE - light grey to dark grey brown, calcilutite to fine calcarenite, brachiopod amphipora intrapelmicrite, wackestone, argillaceous to highly argillaceous, abundant calcite filled fractures at base of section, tight, no shows, trace cut after 5 min.

1591-1614 m Interbedded Dolostone & Limestone with minor Shale.
DOLOSTONE - snow white with interbedded dark grey to dark brown, fine to occasionally coarse crystalline with interbeds of micro to very fine crystalline, subhedral to euhedral crystals, dark grey is highly arenaceous, laminated possibly bulbous stroms, tight to poor moldic porosity (4-6%), no shows.
LIMESTONE - medium brown, calcilutite, biomicrite, wackestone, dolomitic, argillaceous, tight, no shows.
Basal reefal facies within Landry.

Arnica 1609.0 m -1222.6 m Logs 1603.0 m -1216.6 m

1609-1619 m DOLOSTONE - light to grey tan, micro to aphano crystalline, trace fossil ghosts (Amphipora), rare scattered fractures with white dolomitic infilling, tight, trace fine web bitumen waxes, no visible shows.

1619-1631 m Dolostone with minor Breccia interbeds.
DOLOSTONE - medium brown to light tan, aphano to microcrystalline, fossil ghosts (Amphipora), trace arenaceous, scattered molds with white euhedral to subhedral dolomite infilling, tight to fair moldic porosity (6-7%), no shows.
BRECCIA - medium brown, coarse to very coarse angular dolostone fragments with clear euhedral dolomite cement, good intergranular porosity (10-12%), no shows.

1631-1647 m DOLOSTONE - light tan to brown to grey tan, aphano to microcrystalline, trace fossil ghosts (Amphipora), trace arenaceous, disseminated pyrite, trace argillaceous at base of section, trace scattered hairline fractures, tight, trace bitumen waxes, no shows.

1647-1662 m DOLOSTONE - light grey tan to light tan, aphano to microcrystalline, trace fossil ghosts (Amphipora & tabular stromataporoid), very slight trace

arenaceous, disseminated pyrite, trace styolites, tight, no shows.

1662-1677 m DOLOSTONE - light tan to brown to buff white, aphano to microcrystalline rare very fine crystalline interbeds of dololutite, trace scattered micromolds, trace loose coarse white subhedral crystals, tight, no shows. Lost 4 m3 to fracture at 1670 m - lagged to 1664-1665 m 1670 m sample contains loose crystals, possibly an open fracture in this interval?.

1677-1690 m DOLOSTONE - light tan to buff white, aphano to microcrystalline with dololutite, dololutite increases downsection, trace fossil ghosts (Amphipora), tight, trace sulphurous, no shows.

1690-1696 m Dolostone with Shale partings.
DOLOSTONE - buff white, dololutite, arenaceous in part, disseminated pyrite, tight, no shows.

Camsell 1696.0 m -1309.6 m Logs 1697.0 m -1310.6 m

1696-1712 m Dolostone with Siltstone & Shale interbeds & stringers.
DOLOSTONE - light tan to buff white, aphano to microcrystalline, arenaceous, argillaceous, anhydritic in part, tight, no shows.
SILTSTONE - buff white, dolomitic cement, highly cemented.
SHALE - grey green, blocky, dolomitic, arenaceous, disseminated pyrite.

1712-1725 m Interbedded & interlaminated Dolostone, Siltstone, Shale & Anhydrite.
DOLOSTONE - light tan to buff white, aphano to microcrystalline, arenaceous, argillaceous, anhydritic, tight, no shows.
SILTSTONE - buff white, dolomitic cement, highly cemented, anhydritic in part.
SHALE - grey green to apple green to black, blocky to platy, subfissile, waxy in part, dolomitic, arenaceous, anhydritic, disseminated pyrite.
ANHYDRITE - snow white, microcrystalline, nodular, dolomitic, trace argillaceous.

1725-1743 m Dolostone with interbedded & interlaminated Siltstone, Shale, Breccia & Anhydrite.
DOLOSTONE - light tan to buff tan, aphano to microcrystalline, highly arenaceous, anhydritic, tight, no shows.
SILTSTONE - buff white to medium grey trace yellow, dolomitic cement, highly cemented, anhydritic in part.
SHALE - grey green to apple green to black, blocky to platy, subfissile, waxy in part, dolomitic, arenaceous, anhydritic, disseminated pyrite.
BRECCIA - medium to coarse rounded grains of shale & dolomite in a matrix of dolomite cement, low matrix to grain ratio.
ANHYDRITE - snow white, microcrystalline, nodular, dolomitic, trace

argillaceous.

1743-1761 m Dolostone with interbedded & interlaminated Shale, Breccia, Anhydrite & Siltstone.
DOLOSTONE - light tan to buff tan, aphano to microcrystalline, highly arenaceous, anhydritic, tight, no shows.
SHALE - black to grey green, blocky, subfissile, waxy in part, dolomitic, arenaceous, anhydritic, dolomite veining, scattered fractures.
BRECCIA - medium to coarse rounded grains of shale & dolomite in a matrix of dolomite cement, low matrix to grain ratio.
ANHYDRITE - snow white trace Fe stained, microcrystalline, dolomitic, trace argillaceous.
SILTSTONE - buff white to medium grey, dolomitic cement, highly cemented, anhydritic in part.
Scattered loose ostracods throughout, trace loose quartz grains.

1761-1774 m Shale with interbedded Dolostone, Breccia & Siltstone.
SHALE - dark grey to black to dark grey green, blocky, subfissile, dolomitic, anhydritic in part.
BRECCIA - medium to coarse rounded grains of shale in a matrix of anhydrite & dolomite cement, low matrix to grain ratio.
SILTSTONE - buff white, dolomitic cement, highly cemented, anhydritic in part.

Camsell Evaporite 1774.0 m -1387.6 m Logs 1777.0 m -1390.6 m

1774-1797 m Anhydrite with interlaminae & interbeds of Dolostone, Breccia & Shale trace Siltstone stringers.
ANHYDRITE - light brown to reddish orange to light green, microcrystalline, bedded, slightly dolomitic, slightly argillaceous, laminated in part.
DOLOSTONE - light tan to buff tan, aphano to microcrystalline, arenaceous, anhydritic, tight, no shows.
SHALE - dark grey, blocky, dolomitic, anhydritic.
BRECCIA - rounded green shale clasts in a matrix of anhydrite, low to even grain to matrix ratio.
Scattered loose euhedral to subhedral quartz.

1797-1814 m Anhydrite with interlaminae & interbeds of Dolostone & Shale trace Sandstone laminae.
ANHYDRITE - buff white to reddish purple to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part.
DOLOSTONE - light brown to buff tan, aphano to microcrystalline, arenaceous, anhydritic, tight, no shows.
SHALE - dark grey to black, blocky, dolomitic, anhydritic, trace slickensided, waxy.

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1814-1831 m — Anhydrite with interlaminae & interbeds of Dolostone & Shale trace Sandstone laminae & Salt casts.
ANHYDRITE - buff white to reddish purple to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, colours increase downsection, casts (salt??) noted in 1825 sample.
DOLOSTONE - light brown to buff tan, aphano to microcrystalline, arenaceous, anhydritic, tight, no shows.
SHALE - dark grey to black, blocky, dolomitic, anhydritic, trace slickensided, waxy.
Scattered loose euhedral to subhedral quartz. Note - Salt symbol does not indicate bed of salt but only where concentration of same is from salt casts.

1831-1842 m — Anhydrite with interlaminae & interbeds of Dolostone & Shale trace Sandstone laminae & Salt casts.
ANHYDRITE - buff white to greeny cream, microcrystalline, bedded, dolomitic, arenaceous, highly laminated in part, scattered casts.
DOLOSTONE - as above.
SHALE - purple to green to black, platy, subfissile, dolomitic, anhydritic, trace slickensided, waxy.

1842-1859 m — Anhydrite with interlaminae & interbeds of Dolostone trace Sandstone laminae & Salt casts.
ANHYDRITE - buff white to buff tan to mottled reddish purple to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, casts (salt??) noted in 1855 m sample.
DOLOSTONE - light brown to buff tan, aphano to microcrystalline interbeds of fine crystalline, subhedral crystals, arenaceous in part, anhydritic, tight, no shows.
Scattered quartz grains.

1859-1872 m — Anhydrite with interlaminae & interbeds of Dolostone & Shale.
ANHYDRITE - buff white tan to reddish to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, casts (salt??) noted in 1870 m sample.
DOLOSTONE - light brown to buff tan, aphano to microcrystalline, arenaceous in part, anhydritic, tight, no shows.
SHALE - black to light green, platy, subfissile, dolomitic, anhydritic, waxy.
Scattered quartz grains.

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1872-1898 m Anhydrite with interlaminae & interbeds of Dolostone & Shale.
ANHYDRITE - buff white tan to reddish to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, casts (salt??).
DOLOSTONE - light brown to buff tan, aphano to microcrystalline scattered very fine crystalline, arenaceous in part, anhydritic, tight, no shows.
Abundant scattered euhedral to subhedral coarse quartz crystals. 1885 to 1895 m samples contain black Shale cavings. Sample quality decreasing, interpretation difficult.

1898-1930 m Interlaminated Anhydrite & Sandstone with Salt.
ANHYDRITE - pinkish tan to light green, microcrystalline, argillaceous, calcareous to dolomitic, scattered salt casts.
SANDSTONE - clear quartz, fine to coarse euhedral crystals, loose, good porosity, no shows.
Salt is shown as interbeds but occurs as casts in anhydrite, ROP used to position same. Abundant cavings. Sample quality poor to fair.

1930-1947 m Interlaminated Anhydrite, Sandstone & Shale with Salt.
ANHYDRITE - pinkish tan to light green, microcrystalline, argillaceous, calcareous to dolomitic, scattered salt casts.
SANDSTONE - clear quartz, fine to coarse euhedral crystals, loose, good porosity, no shows.
SHALE - grey green, platy, waxy, laminated, anhydritic, dolomitic.
Salt is shown as interbeds but occurs as casts in anhydrite, ROP used to position same. Abundant cavings. Sample quality poor to fair.

1947-1959 m Interbedded & interlaminated Anhydrite, Dolostone & Shale with Sandstone stringers & Salt Casts.
ANHYDRITE - pinkish tan to light green, microcrystalline, argillaceous, calcareous to dolomitic, scattered salt casts.
DOLOSTONE - light brown to buff tan, aphano to microcrystalline, arenaceous in part, anhydritic, tight, no shows.
SHALE - grey green, platy, waxy, laminated, anhydritic, dolomitic, scattered casts some containing euhedral quartz grains.

Detrital 1959.0 m -1572.6 m Logs No Pick

1959-1963 m DOLOSTONE - mottled dark grey white, micro to very fine crystalline, anhedral crystals, dense, arenaceous, tight, no shows. Abundant cavings.

1963-1965 m SHALE - black, platy to blocky, subfissile, slickensided, dolomitic in part.

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Mount Kindle **1965.0 m -1578.6 m Logs 1964.0 m -1577.6 m**

1965-1980 m — Interbedded Dolostone, Mudstone & Shale.
DOLOSTONE - mottled dark grey to brown, micro to very fine crystalline, anhedral crystals, dense, argillaceous in part, tight, no shows.
MUDSTONE - dark grey, dolomitic, argillaceous, disseminated pyrite.
SHALE - medium to dark grey, blocky, subfissile to fissile, slightly dolomitic.
Poor samples. Abundant cavings make interpretation difficult.

1980-1993 m — Interbedded Shale & Dolostone with Mudstone.
SHALE - grey green to medium to dark grey, platy to splintery, highly fissile to fissile, slightly dolomitic in part, micromicaceous.
DOLOSTONE - mottled dark grey with white inclusions to brown, micro to very fine crystalline, dense, argillaceous in part, fossil ghosts, tight, no shows.
MUDSTONE - dark grey, dolomitic, argillaceous.
Poor samples. Abundant cavings to 1985 m sample.

1993-2008 m — Dolostone with Shale & Mudstone interbeds.
DOLOSTONE - mottled dark grey with white inclusions to brown, micro to very fine crystalline, anhedral crystals, dense, argillaceous in part, fossil ghosts, siliceous in part, tight, no shows.
SHALE - grey green to medium to dark grey, platy, highly fissile to fissile, slightly dolomitic in part, micromicaceous.
MUDSTONE - mottled dark grey, dolomitic, argillaceous.

2008-2013 m — DOLOSTONE - mottled dark grey brown to grey white, micro with fine to medium crystalline, anhedral to subhedral, argillaceous in part, fossil ghosts, tight to poor intercrystalline porosity (3-5%), no shows.

2013-2030 m — Shale with minor Dolostone & Mudstone interbeds.
SHALE - grey green to medium to dark grey to black, platy to splintery, fissile, slightly dolomitic in part, micromicaceous.
DOLOSTONE - mottled dark grey, microcrystalline, dense, argillaceous in part, tight, no shows.
MUDSTONE - mottled dark grey, dolomitic, argillaceous.

Total Depth **2030.0 m-1643.6 m Logs 2031.9 m -1645.5 m**

APPENDIX

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
586	0.1	3	636	3.7	5
587	4.7	3	637	4.1	7
588	5.3	4	638	3.8	8
589	7.7	4	639	3.2	8
590	5.3	4	640	3.1	7
591	4.2	4	641	3.1	8
592	2.7	4	642	3.1	8
593	2.5	4	643	3.1	8
594	2.7	4	644	3.1	9
595	3.3	4	645	3.3	10
596	4.0	5	646	3.8	10
597	3.7	5	647	3.6	10
598	4.0	4	648	3.4	7
599	3.7	4	649	3.1	6
600	2.7	4	650	3.1	6
601	2.6	5	651	3.0	6
602	2.6	5	652	3.2	6
603	2.8	4	653	3.0	6
604	2.7	5	654	3.0	5
605	2.7	5	655	3.1	6
606	2.7	4	656	3.4	7
607	2.7	4	657	3.1	7
608	4.0	5	658	2.8	7
609	3.7	5	659	2.8	6
610	2.8	5	660	2.7	6
611	2.7	5	661	2.8	6
612	2.7	4	662	2.9	6
613	2.8	5	663	3.0	6
614	2.7	5	664	2.8	6
615	2.7	5	665	4.0	7
616	2.8	5	666	3.1	7
617	2.8	4	667	3.2	7
618	4.0	5	668	3.0	6
619	3.2	5	669	2.9	6
620	3.8	5	670	2.8	5
621	3.8	5	671	2.7	5
622	3.8	5	672	2.8	5
623	3.5	5	673	2.7	6
624	3.3	5	674	3.3	5
625	3.5	5	675	3.2	5
626	3.3	5	676	2.4	5
627	3.6	4	677	2.9	5
628	4.4	5	678	3.0	6
629	3.4	5	679	2.8	5
630	3.5	5	680	2.9	5
631	4.1	5	681	3.1	5
632	3.8	5	682	3.1	5
633	3.7	5	683	3.2	5
634	3.3	5	684	3.2	6
635	3.5	5	685	3.7	7

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
686	2.7	5	736	2.5	12
687	3.1	4	737	2.5	13
688	3.3	4	738	2.7	11
689	3.3	4	739	2.8	12
690	3.1	4	740	2.8	12
691	3.0	4	741	2.9	17
692	3.2	4	742	2.7	18
693	3.0	4	743	2.5	12
694	3.3	4	744	2.5	12
695	4.7	5	745	2.7	11
696	2.8	4	746	2.7	12
697	2.7	4	747	2.6	12
698	2.7	4	748	2.8	12
699	2.8	4	749	2.7	13
700	2.8	4	750	2.3	16
701	2.6	4	751	2.8	18
702	2.8	4	752	2.2	13
703	2.8	4	753	3.6	13
704	2.4	4	754	2.4	10
705	2.9	4	755	2.5	13
706	3.3	4	756	2.5	13
707	2.8	4	757	2.5	13
708	2.4	4	758	2.5	13
709	2.3	4	759	2.5	14
710	2.3	5	760	2.7	15
711	2.3	5	761	2.3	18
712	2.5	6	762	2.3	14
713	3.2	6	763	2.2	12
714	3.3	6	764	2.1	15
715	2.5	13	765	2.2	15
716	2.7	13	766	2.1	15
717	2.7	12	767	2.3	15
718	2.0	12	768	2.4	16
719	2.8	13	769	2.4	17
720	2.9	13	770	3.2	21
721	2.8	13	771	2.3	15
722	3.1	15	772	2.5	14
723	3.0	19	773	2.4	12
724	2.5	13	774	2.4	14
725	2.4	13	775	2.6	14
726	2.3	10	776	2.7	14
727	2.5	8	777	2.3	14
728	2.6	11	778	2.6	15
729	2.6	12	779	2.8	20
730	2.6	12	780	2.8	20
731	2.7	13	781	2.8	13
732	2.9	17	782	2.7	13
733	2.3	12	783	3.8	11
734	2.6	12	784	3.7	14
735	2.5	12	785	2.3	14

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
786	2.3	14	836	3.8	14
787	2.3	15	837	2.1	12
788	2.4	16	838	2.6	10
789	3.2	20	839	2.7	11
790	2.0	15	840	2.7	10
791	2.4	13	841	2.5	10
792	2.6	12	842	2.4	10
793	2.5	13	843	2.3	11
794	2.3	14	844	2.3	11
795	2.4	14	845	2.3	13
796	2.4	9	846	2.8	13
797	2.0	13	847	2.2	8
798	2.2	14	848	2.2	9
799	2.8	16	849	2.3	9
800	2.0	11	850	2.3	9
801	2.1	11	851	2.4	10
802	2.3	11	852	2.3	10
803	2.2	10	853	2.5	10
804	2.2	10	854	2.4	11
805	2.1	11	855	2.8	11
806	2.1	11	856	2.5	10
807	1.9	11	857	2.3	8
808	2.0	7	858	2.4	9
809	2.4	15	859	2.6	9
810	2.6	12	860	2.6	10
811	2.6	12	861	2.7	10
812	2.6	9	862	2.6	10
813	2.6	11	863	2.6	10
814	2.5	12	864	2.5	11
815	2.5	12	865	3.1	11
816	2.6	13	866	2.1	6
817	2.6	13	867	2.3	9
818	3.1	14	868	2.4	10
819	2.4	13	869	2.3	10
820	2.5	12	870	2.3	10
821	2.5	10	871	2.4	10
822	2.4	12	872	2.3	11
823	2.5	12	873	2.3	13
824	2.5	12	874	3.9	14
825	2.5	12	875	2.3	8
826	2.6	13	876	2.7	6
827	2.5	14	877	2.7	7
828	2.1	8	878	2.5	8
829	2.3	12	879	2.2	9
830	2.3	12	880	2.3	9
831	2.2	12	881	2.2	9
832	2.4	12	882	2.1	9
833	2.5	12	883	3.7	11
834	2.4	13	884	2.9	11
835	2.4	13	885	1.5	11

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
886	2.0	12	936	2.1	14
887	2.0	12	937	3.1	14
888	2.1	12	938	2.5	14
889	2.3	11	939	2.4	14
890	2.8	11	940	2.9	12
891	2.8	14	941	3.3	12
892	2.1	14	942	3.4	10
893	3.6	11	943	1.9	10
894	5.9	8	944	1.8	11
895	8.2	8	945	1.6	13
896	5.8	11	946	1.5	14
897	2.9	13	947	1.3	2
898	2.4	14	948	1.5	2
899	2.3	14	949	1.8	2
900	2.6	16	950	3.2	2
901	1.3	16	951	1.5	2
902	1.3	16	952	1.5	2
903	2.4	16	953	1.4	10
904	2.2	18	954	1.3	13
905	1.9	18	955	1.8	15
906	1.8	9	956	1.6	11
907	3.3	12	957	1.4	13
908	3.7	12	958	1.3	14
909	3.3	11	959	1.3	15
910	3.3	11	960	3.4	24
911	3.5	11	961	2.3	13
912	4.4	11	962	2.8	5
913	3.3	9	963	3.1	7
914	3.0	10	964	3.6	4
915	2.4	10	965	3.2	9
916	3.3	10	966	3.3	12
917	3.6	10	967	3.7	14
918	3.4	13	968	3.0	16
919	3.0	13	969	4.5	17
920	3.0	14	970	5.4	9
921	4.2	14	971	4.8	8
922	2.9	11	972	1.6	9
923	2.9	10	973	2.1	11
924	2.4	10	974	2.4	12
925	1.8	11	975	1.7	12
926	1.6	13	976	1.7	12
927	1.6	13	977	1.8	12
928	1.3	14	978	2.3	13
929	0.7	14	979	1.8	9
930	1.3	23	980	2.3	9
931	1.9	23	981	4.7	10
932	1.0	11	982	4.6	9
933	1.5	13	983	3.9	10
934	3.3	16	984	4.6	8
935	2.8	14	985	6.6	6

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
986	3.8	9	1036	5.3	9
987	4.4	10	1037	4.8	9
988	5.6	11	1038	5.3	9
989	13.4	10	1039	5.6	9
990	14.3	8	1040	5.3	10
991	6.2	8	1041	4.3	10
992	8.8	8	1042	5.5	9
993	7.8	8	1043	6.4	9
994	3.1	10	1044	6.4	9
995	2.7	11	1045	5.8	8
996	3.8	11	1046	4.9	8
997	4.5	10	1047	5.8	8
998	5.4	10	1048	6.3	8
999	5.3	9	1049	5.6	8
1000	5.7	9	1050	5.6	8
1001	6.0	8	1051	6.0	8
1002	5.0	8	1052	6.3	8
1003	4.6	8	1053	5.8	8
1004	5.3	8	1054	5.5	8
1005	4.4	11	1055	5.0	9
1006	5.5	11	1056	5.0	9
1007	6.0	10	1057	4.9	9
1008	5.3	8	1058	5.0	9
1009	5.3	8	1059	6.8	8
1010	5.1	8	1060	5.7	8
1011	4.8	8	1061	5.3	8
1012	5.0	8	1062	7.0	8
1013	5.4	8	1063	6.4	8
1014	2.3	10	1064	5.8	8
1015	2.5	13	1065	5.0	8
1016	3.2	13	1066	4.7	8
1017	4.3	12	1067	4.8	9
1018	3.5	9	1068	4.7	10
1019	4.4	9	1069	5.0	10
1020	4.7	7	1070	6.2	10
1021	4.6	9	1071	5.2	11
1022	4.3	9	1072	4.1	11
1023	3.3	10	1073	5.2	11
1024	4.8	9	1074	5.3	9
1025	6.0	8	1075	6.9	10
1026	5.3	8	1076	6.7	10
1027	4.7	8	1077	7.2	9
1028	4.7	8	1078	5.8	9
1029	4.5	8	1079	5.5	9
1030	4.6	10	1080	5.8	9
1031	4.7	10	1081	5.8	9
1032	4.5	10	1082	6.2	9
1033	4.8	10	1083	6.3	9
1034	4.8	10	1084	6.1	10
1035	5.3	10	1085	4.7	10

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
1086	6.1	10	1136	6.2	12
1087	5.3	10	1137	6.1	11
1088	5.4	10	1138	6.3	11
1089	4.1	10	1139	6.5	10
1090	4.7	10	1140	7.3	11
1091	5.8	10	1141	5.7	12
1092	6.2	10	1142	5.9	12
1093	5.6	11	1143	6.0	12
1094	5.6	11	1144	6.2	12
1095	4.8	11	1145	6.5	13
1096	5.3	11	1146	5.3	13
1097	5.3	11	1147	5.6	14
1098	5.9	11	1148	5.8	14
1099	5.7	11	1149	6.1	14
1100	5.8	10	1150	7.0	13
1101	5.7	10	1151	6.7	13
1102	5.8	10	1152	5.3	14
1103	5.7	10	1153	3.8	15
1104	5.8	11	1154	4.7	14
1105	5.7	10	1155	4.8	14
1106	5.9	10	1156	6.3	13
1107	5.4	11	1157	5.8	13
1108	5.4	11	1158	5.8	13
1109	5.5	12	1159	6.6	12
1110	5.4	12	1160	5.9	13
1111	6.0	10	1161	6.3	13
1112	5.3	10	1162	6.3	13
1113	6.0	12	1163	6.3	13
1114	3.3	12	1164	6.3	14
1115	2.8	13	1165	6.2	14
1116	3.1	13	1166	6.1	14
1117	3.2	13	1167	6.3	14
1118	3.9	12	1168	7.1	13
1119	4.6	12	1169	6.4	1[illegible]
1120	6.7	12	1170	6.3	1[illegible]
1121	6.0	11	1171	6.3	1[illegible]
1122	5.9	11	1172	6.4	1[illegible]
1123	7.0	11	1173	6.6	12
1124	7.1	11	1174	6.5	12
1125	7.8	10	1175	6.7	1[illegible]
1126	8.3	10	1176	6.5	12
1127	6.6	11	1177	6.8	12
1128	6.2	11	1178	8.1	12
1129	6.8	11	1179	7.3	12
1130	6.5	11	1180	7.0	12
1131	7.0	10	1181	7.3	12
1132	5.8	11	1182	6.1	14
1133	6.4	11	1183	6.6	12
1134	6.2	11	1184	6.9	11
1135	5.3	11	1185	7.4	13

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
1186	6.9	12	1236	7.1	19
1187	11.2	10	1237	6.8	20
1188	14.3	10	1238	7.0	21
1189	13.3	11	1239	6.9	21
1190	13.9	13	1240	7.0	22
1191	10.0	10	1241	7.3	23
1192	7.3	13	1242	7.4	22
1193	7.6	13	1243	7.3	22
1194	7.3	13	1244	7.8	23
1195	7.0	13	1245	6.6	25
1196	7.5	14	1246	7.1	25
1197	7.6	15	1247	7.1	25
1198	7.0	16	1248	6.9	25
1199	6.5	14	1249	6.9	21
1200	7.8	15	1250	6.9	21
1201	7.2	15	1251	6.8	20
1202	6.5	16	1252	7.0	20
1203	6.6	17	1253	6.9	17
1204	6.8	16	1254	11.7	16
1205	6.9	16	1255	16.7	11
1206	7.5	16	1256	16.3	11
1207	7.0	16	1257	17.4	12
1208	6.9	20	1258	14.6	12
1209	7.1	21	1259	6.4	16
1210	7.0	21	1260	7.2	15
1211	6.9	19	1261	7.3	18
1212	8.1	19	1262	7.0	18
1213	6.6	19	1263	7.1	17
1214	6.5	21	1264	14.2	14
1215	7.1	21	1265	15.1	13
1216	6.2	19	1266	11.3	17
1217	6.7	19	1267	7.3	17
1218	5.9	19	1268	7.7	17
1219	6.1	19	1269	7.8	17
1220	5.9	17	1270	7.8	17
1221	6.1	19	1271	8.2	16
1222	5.0	20	1272	8.4	23
1223	5.8	19	1273	8.6	25
1224	5.8	19	1274	11.5	30
1225	6.1	18	1275	6.3	30
1226	6.9	17	1276	5.5	29
1227	6.3	18	1277	5.8	32
1228	6.5	19	1278	6.0	32
1229	6.8	19	1279	6.0	32
1230	6.6	19	1280	5.5	33
1231	6.8	20	1281	6.2	26
1232	6.6	20	1282	6.5	26
1233	6.6	20	1283	5.0	30
1234	7.2	20	1284	5.4	30
1235	7.3	20	1285	5.4	30

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
1286	5.6	31	1336	5.3	28
1287	5.3	33	1337	5.1	28
1288	5.3	35	1338	5.1	29
1289	5.4	35	1339	5.3	29
1290	5.4	36	1340	4.5	27
1291	5.3	36	1341	7.4	21
1292	9.4	36	1342	7.5	22
1293	7.8	27	1343	7.3	21
1294	6.8	30	1344	7.3	23
1295	6.4	32	1345	5.0	36
1296	6.7	33	1346	3.5	73
1297	6.7	34	1347	3.3	108
1298	7.4	34	1348	2.7	135
1299	6.4	35	1349	2.9	134
1300	6.1	31	1350	2.2	155
1301	5.3	32	1351	2.3	168
1302	7.9	28	1352	2.3	167
1303	7.6	28	1353	2.4	163
1304	7.8	28	1354	2.6	148
1305	8.2	29	1355	2.4	118
1306	5.5	34	1356	2.4	142
1307	5.6	37	1357	2.3	151
1308	5.2	38	1358	2.9	151
1309	5.3	38	1359	2.4	131
1310	5.4	39	1360	2.3	143
1311	4.1	36	1361	2.3	154
1312	6.8	24	1362	2.3	158
1313	8.1	26	1363	2.3	158
1314	7.8	27	1364	2.7	153
1315	7.7	28	1365	2.4	158
1316	6.8	29	1366	2.3	165
1317	4.9	37	1367	2.8	166
1318	5.2	37	1368	3.1	87
1319	5.3	38	1369	4.3	85
1320	5.4	37	1370	4.8	84
1321	5.3	39	1371	4.8	80
1322	3.7	30	1372	4.5	101
1323	6.3	32	1373	2.8	101
1324	6.1	27	1374	2.5	148
1325	6.1	27	1375	2.4	155
1326	5.6	24	1376	2.4	158
1327	5.3	22	1377	3.0	167
1328	5.3	23	1378	4.0	169
1329	5.4	23	1379	3.6	143
1330	5.6	25	1380	2.8	150
1331	6.2	27	1381	2.9	202
1332	5.3	25	1382	2.9	203
1333	5.2	27	1383	2.3	209
1334	5.5	27	1384	2.3	242
1335	5.4	27	1385	2.4	252

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
1386	2.5	252	1436	5.5	47
1387	1.4	232	1437	5.7	46
1388	1.5	200	1438	5.8	46
1389	2.2	244	1439	5.7	50
1390	2.3	254	1440	4.8	55
1391	2.3	252	1441	4.9	50
1392	2.4	268	1442	3.9	54
1393	2.2	269	1443	4.3	87
1394	2.1	265	1444	2.0	101
1395	2.3	263	1445	3.3	65
1396	4.3	260	1446	3.9	109
1397	3.5	113	1447	4.4	84
1398	3.3	117	1448	4.3	101
1399	5.9	114	1449	3.0	112
1400	4.8	114	1450	3.8	146
1401	2.4	111	1451	3.7	152
1402	3.2	147	1452	3.2	128
1403	2.7	168	1453	3.6	83
1404	2.6	184	1454	3.4	69
1405	3.0	204	1455	3.5	67
1406	3.7	204	1456	5.5	44
1407	3.8	115	1457	5.2	84
1408	3.8	121	1458	4.3	69
1409	3.2	120	1459	5.0	38
1410	3.3	156	1460	5.3	44
1411	3.1	161	1461	3.8	52
1412	3.3	161	1462	4.0	52
1413	3.2	156	1463	7.8	10
1414	3.3	144	1464	8.1	10
1415	4.1	108	1465	7.0	10
1416	2.9	85	1466	8.0	10
1417	4.1	82	1467	7.6	9
1418	3.8	82	1468	6.9	9
1419	4.3	114	1469	7.7	10
1420	4.2	167	1470	7.8	10
1421	3.9	176	1471	7.3	10
1422	3.8	160	1472	6.3	9
1423	3.8	139	1473	8.3	9
1424	4.0	131	1474	7.6	9
1425	3.8	110	1475	7.9	9
1426	4.2	81	1476	8.8	9
1427	3.8	75	1477	8.0	9
1428	3.9	71	1478	6.8	9
1429	4.0	66	1479	7.3	10
1430	4.3	64	1480	8.3	10
1431	4.7	60	1481	8.3	9
1432	3.8	56	1482	9.7	9
1433	3.9	58	1483	7.1	7
1434	4.0	60	1484	8.3	7
1435	5.1	44	1485	10.3	6

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
1486	9.7	9	1536	14.1	9
1487	9.2	9	1537	13.7	9
1488	10.5	9	1538	12.8	9
1489	26.0	14	1539	11.0	10
1490	26.2	15	1540	10.3	11
1491	26.0	10	1541	10.9	11
1492	15.0	17	1542	11.1	10
1493	12.0	19	1543	10.9	9
1494	14.2	19	1544	11.3	10
1495	12.1	15	1545	10.8	10
1496	11.4	15	1546	10.7	10
1497	12.1		1547	9.0	10
1498	10.2	16	1548	8.3	12
1499	10.6	14	1549	9.0	13
1500	11.9	14	1550	10.0	13
1501	11.3	14	1551	11.5	11
1502	10.7	14	1552	11.5	11
1503	10.5	14	1553	10.5	14
1504	14.2	12	1554	10.8	13
1505	11.7	12	1555	10.4	11
1506	11.4	14	1556	11.4	11
1507	11.4	14	1557	13.8	10
1508	12.2	13	1558	12.1	10
1509	13.3	11	1559	11.2	10
1510	11.9	11	1560	12.3	10
1511	11.2	11	1561	17.1	10
1512	10.1	12	1562	13.7	10
1513	12.4	11	1563	11.8	10
1514	11.9	10	1564	12.2	10
1515	11.5	10	1565	11.8	9
1516	11.7	11	1566	12.6	9
1517	11.8	11	1567	9.2	9
1518	10.2	11	1568	13.8	8
1519	11.0	10	1569	13.1	8
1520	11.3	11	1570	12.7	9
1521	10.6	12	1571	17.3	8
1522	11.0	12	1572	13.1	8
1523	11.7	11	1573	12.7	8
1524	9.5	12	1574	12.3	8
1525	9.8	12	1575	11.3	8
1526	10.3	12	1576	10.9	14
1527	10.3	12	1577	10.8	18
1528	10.6	13	1578	10.0	17
1529	9.9	14	1579	10.9	14
1530	10.3	14	1580	10.9	12
1531	10.0	13	1581	10.3	12
1532	16.3	9	1582	10.5	12
1533	14.4	9	1583	11.1	12
1534	12.7	9	1584	10.4	12
1535	13.6	9	1585	10.6	10

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
1586	11.3	12	1636	6.2	8
1587	11.5	12	1637	10.1	9
1588	10.8	12	1638	7.7	8
1589	10.4	11	1639	9.1	9
1590	10.8	12	1640	6.4	7
1591	10.0	13	1641	8.1	8
1592	12.1	14	1642	6.8	8
1593	10.5	12	1643	6.5	8
1594	11.8	12	1644	7.0	8
1595	10.3	11	1645	10.1	8
1596	8.7	12	1646	8.0	8
1597	8.1	12	1647	9.3	7
1598	10.8	13	1648	6.3	7
1599	11.0	18	1649	6.5	6
1600	10.3	19	1650	7.4	7
1601	10.8	18	1651	8.2	7
1602	11.7	12	1652	6.5	7
1603	10.4	10	1653	7.1	7
1604	10.3	11	1654	6.3	7
1605	9.6	13	1655	8.9	7
1606	9.3	16	1656	7.2	6
1607	8.9	17	1657	7.0	7
1608	12.6	14	1658	6.5	6
1609	12.0	11	1659	7.7	6
1610	7.8	11	1660	7.5	7
1611	10.0	11	1661	7.2	7
1612	10.3	10	1662	8.3	9
1613	9.7	9	1663	5.9	8
1614	7.0	11	1664	6.1	8
1615	7.4	10	1665	7.0	8
1616	8.3	10	1666	5.8	8
1617	11.1	9	1667	5.9	8
1618	8.4	10	1668	5.4	8
1619	9.0	12	1669	6.9	8
1620	7.2	12	1670	6.5	8
1621	4.8	10	1671	7.9	8
1622	5.5	8	1672	7.0	7
1623	7.3	8	1673	7.3	8
1624	6.6	9	1674	6.4	9
1625	5.3	9	1675	7.2	9
1626	8.3	9	1676	6.3	8
1627	8.8	10	1677	7.3	8
1628	4.9	10	1678	10.8	7
1629	6.6	10	1679	10.7	8
1630	6.4	9	1680	6.2	7
1631	4.3	7	1681	6.4	8
1632	8.3	7	1682	4.5	8
1633	9.7	8	1683	6.3	8
1634	7.7	9	1684	10.5	7
1635	6.8	8	1685	10.5	7

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
1686	10.4	7	1736	13.8	6
1687	14.6	7	1737	13.8	6
1688	10.4	6	1738	14.3	6
1689	9.4	6	1739	14.2	6
1690	7.8	6	1740	14.3	6
1691	9.3	6	1741	12.8	5
1692	8.3	6	1742	13.3	6
1693	8.2	6	1743	13.6	6
1694	6.8	6	1744	16.3	6
1695	8.4	6	1745	15.3	6
1696	7.3	6	1746	14.9	6
1697	11.7	6	1747	16.3	6
1698	15.3	6	1748	16.4	6
1699	15.5	6	1749	16.7	6
1700	16.7	6	1750	17.7	7
1701	15.8	6	1751	20.3	7
1702	18.6	6	1752	18.2	7
1703	16.6	6	1753	15.5	7
1704	18.2	6	1754	18.9	7
1705	15.0	6	1755	19.3	7
1706	12.7	6	1756	18.8	7
1707	15.6	6	1757	17.6	7
1708	14.8	6	1758	18.9	8
1709	17.1	6	1759	14.3	8
1710	17.3	6	1760	15.3	9
1711	17.3	6	1761	15.3	8
1712	16.7	6	1762	18.7	8
1713	17.9	6	1763	19.2	8
1714	17.8	6	1764	19.2	8
1715	16.0	6	1765	20.1	8
1716	14.2	6	1766	19.9	8
1717	14.5	6	1767	21.3	5
1718	14.5	6	1768	19.2	5
1719	16.0	6	1769	25.0	5
1720	19.6	6	1770	6.7	5
1721	20.0	6	1771	14.2	6
1722	17.8	6	1772	11.0	6
1723	19.2	6	1773	12.7	9
1724	15.8	6	1774	8.4	9
1725	14.3	6	1775	6.1	9
1726	11.5	6	1776	10.5	9
1727	11.8	5	1777	4.1	9
1728	10.9	5	1778	4.3	8
1729	13.3	5	1779	2.3	7
1730	16.8	6	1780	2.8	7
1731	13.9	6	1781	2.4	8
1732	12.3	6	1782	2.6	8
1733	10.8	6	1783	4.0	8
1734	11.8	6	1784	4.2	8
1735	11.9	6	1785	2.3	8

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
1786	3.1	7	1836	6.2	6
1787	4.1	7	1837	3.1	6
1788	3.7	7	1838	2.7	6
1789	4.9	6	1839	3.8	6
1790	4.1	6	1840	8.3	6
1791	3.8	8	1841	6.1	6
1792	2.8	6	1842	6.9	6
1793	2.8	6	1843	2.8	6
1794	3.7	6	1844	2.9	6
1795	3.3	6	1845	3.3	6
1796	3.2	6	1846	3.2	6
1797	3.3	7	1847	4.5	6
1798	4.8	7	1848	2.9	6
1799	7.3	10	1849	4.2	6
1800	3.8	7	1850	3.9	6
1801	4.9	7	1851	2.8	6
1802	8.5	7	1852	2.5	6
1803	6.4	7	1853	4.5	6
1804	3.5	7	1854	4.1	7
1805	3.3	7	1855	3.9	7
1806	4.0	7	1856	4.8	7
1807	3.7	7	1857	3.1	7
1808	3.9	7	1858	2.8	6
1809	3.5	7	1859	2.8	6
1810	3.4	7	1860	6.8	6
1811	3.3	7	1861	4.4	6
1812	3.3	7	1862	8.5	6
1813	3.1	7	1863	5.7	6
1814	3.9	7	1864	4.9	6
1815	7.0	7	1865	3.9	6
1816	7.5	7	1866	4.1	6
1817	3.9	7	1867	3.6	6
1818	4.8	7	1868	2.8	6
1819	3.0	7	1869	3.9	6
1820	4.1	7	1870	4.4	6
1821	3.3	7	1871	3.2	6
1822	5.4	7	1872	3.6	6
1823	5.6	7	1873	2.8	7
1824	4.1	7	1874	3.1	7
1825	5.5	7	1875	2.7	7
1826	2.9	6	1876	2.5	6
1827	2.7	6	1877	2.7	6
1828	4.6	6	1878	2.8	6
1829	2.9	6	1879	2.8	6
1830	3.0	6	1880	2.5	6
1831	3.0	6	1881	2.7	6
1832	9.1	6	1882	2.5	6
1833	7.2	6	1883	2.9	6
1834	3.9	6	1884	3.1	6
1835	2.9	6	1885	2.8	6

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
1886	2.6	6	1936	2.3	6
1887	2.9	6	1937	2.3	6
1888	2.8	6	1938	2.5	6
1889	2.8	6	1939	2.5	6
1890	2.7	6	1940	2.3	6
1891	3.0	6	1941	3.0	6
1892	2.8	6	1942	2.5	6
1893	2.8	6	1943	2.3	6
1894	3.2	6	1944	2.4	6
1895	2.7	6	1945	2.4	6
1896	2.8	6	1946	2.3	6
1897	2.8	6	1947	2.4	6
1898	2.9	6	1948	2.0	6
1899	2.7	6	1949	2.2	6
1900	2.6	6	1950	2.5	6
1901	2.7	6	1951	2.4	5
1902	3.2	6	1952	2.5	5
1903	3.0	6	1953	2.4	5
1904	3.5	6	1954	2.5	5
1905	2.8	6	1955	2.6	5
1906	2.6	6	1956	2.7	5
1907	2.7	6	1957	2.8	5
1908	2.5	6	1958	3.0	5
1909	2.6	6	1959	2.8	5
1910	2.7	6	1960	4.7	5
1911	2.5	6	1961	3.8	5
1912	3.0	6	1962	3.5	5
1913	2.6	6	1963	14.0	5
1914	2.5	6	1964	47.1	6
1915	2.8	6	1965	35.9	6
1916	2.5	6	1966	20.9	7
1917	2.6	6	1967	21.7	6
1918	2.4	6	1968	23.7	6
1919	2.4	6	1969	20.6	7
1920	2.7	6	1970	22.6	7
1921	2.6	6	1971	20.3	7
1922	2.9	6	1972	23.3	7
1923	2.7	6	1973	22.7	8
1924	2.5	6	1974	25.9	7
1925	2.7	6	1975	25.3	8
1926	2.7	6	1976	22.4	8
1927	2.4	6	1977	23.3	8
1928	2.5	6	1978	25.9	8
1929	2.6	6	1979	23.0	7
1930	2.6	6	1980	24.3	8
1931	4.0	6	1981	17.6	8
1932	2.6	6	1982	23.9	8
1933	2.4	6	1983	24.3	7
1934	2.6	6	1984	21.4	8
1935	2.4	6	1985	24.7	7

AEC (West) Renaissance Tate G-18

Depth (m)	ROP (min/m)	Total Gas (units)	Depth (m)	ROP (min/m)	Total Gas (units)
1986	25.7	7			
1987	24.5	7			
1988	21.8	10			
1989	24.2	10			
1990	22.9	10			
1991	18.6	11			
1992	24.7	10			
1993	25.7	10			
1994	17.7	10			
1995	19.8	11			
1996	22.9	10			
1997	21.4	10			
1998	21.3	10			
1999	23.8	11			
2000	22.2	12			
2001	20.5	12			
2002	22.2	11			
2003	21.9	12			
2004	20.9	12			
2005	20.6	14			
2006	19.7	14			
2007	20.6	12			
2008	21.3	11			
2009	18.2	12			
2010	18.3	12			
2011	14.0	15			
2012	9.7	15			
2013	21.2	14			
2014	24.9	10			
2015	23.5	11			
2016	27.6	12			
2017	23.4	11			
2018	24.4	10			
2019	25.3	10			
2020	26.0	10			
2021	26.6	10			
2022	23.7	10			
2023	23.0	9			
2024	29.5	9			
2025	22.7	9			
2026	19.7	12			
2027	22.5	12			
2028	24.0	12			
2029	28.5	12			
2030	26.4	13			

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1623 - 48th Avenue S.W.
CALGARY, Alberta
T2T 2S9
(403) 243-5022

COMPOSITE WELL HISTORY
DRILLING TIME
LITHOLOGY LOG

COMPANY: AEC (WEST)
WELL: AEC (WEST) RENAISSANCE TATE G-18
FIELD: TATE
PROVINCE: NWT
LOCATION: 64°27'17.30666"N, 125°17'33.1482"W

COORDINATES: 7149492.6 N 389706.95 E
ELEVATIONS: GD 381.0 m LOG MEASURED FROM KB
KB 386.4 m 5.4 m ABOVE GROUND
WELL TYPE: EXPLORATION TOTAL DEPTH: 2030 m
SPUD DATE: 00.02.17 0645 HRS T.D. DATE: 00.03.04 0900 HRS
LICENCE No.: 349 AFE No.: 5000044

CONTRACTOR: AIGTA #51
MUD TYPE: GEL CHEM
MUD UP @: 1460 m
SAMPLES: 5 METER INTERVALS
AEC/REN: 5/5 to 2030 m
NWT: 580 to 2030 m
DSTs: AFTER LOGS

CORES: NO CORES

OPEN HOLE LOGS: SCHLUMBERGER
DLTE/MSFL/LDTD/CNTH/SGTL
BHC/GR
T.D. TO SURF. CSG.
VSP - 20 m INTERVALS TO 600 m
100 m INTERVALS TO SURF. CSG.

HOLE SIZE: SURFACE: 311.2 mm, INTERMEDIATE: mm, MAIN: 222 mm
CASING SIZE: SURFACE: 244.5 mm @ 183 m, INTERMEDIATE: mm @ m, MAIN: 139.7 mm @ 1460 m
CASING DEPTH: SURFACE: 580 m, INTERMEDIATE: NIL m, MAIN: m

REMARKS: SAMPLE QUALITY POOR TO FAIR. PARTIAL LOST CIRCULATION FROM 845 m.
MUD UP ON TIGHT HOLE. HIGH CHLORIDES AFTER DRILLING GAMSELL EVAPORITES.
FORMATION TOPS NOT ADJUSTED TO OPEN HOLE LOGS. WELL DRY & ABANDONED.

SUPERVISION
GEOLOGICAL: HESTER/MACINTOSH DRILLING: ALLAN ANGER

ROCK TYPE

CONGLOMERATE, SANDSTONE, SILTSTONE, SHALE, grey, SHALE, black, SHALE, calcareous, CHERT, LIMESTONE, DOLOMITE, ANHYDRITE, COAL, CLAYSTONE, grey, CLAYSTONE, col, MARLSTONE, calc, MARLSTONE, sil, SALT, SIDERITE, LIMONITE, BRECCIA, IGNEOUS, basic, IGNEOUS, acidic, CANNOT INTERPRET, NO SAMPLE, TUFF, CHERT, VOLCANIC, ULTRAMAFIC

ACCESSORIES

SANDY, SILTY, FELDSPAR, SILICEOUS, PYRITE, light, PYRITE, dark, ARGILLACEOUS, CARBONACEOUS, BITUMINOUS, LIMONITIC, DOLOMITIC, DOLOMITE, grey, DOLOMITE, pink, ANHYDRITE, grey, ANHYDRITE, pink, FERRUGINOUS, GLAUCONITIC, BENTONITIC, PYRITIC, MICACEOUS, OOLITIC, PELLETS, INTRACLASTS, FOSSILS, FORAM, FELLECTOID, BRACHIOPOD, OSTRACOD, CORAL, ALGAL, STROMATOPOROID, ARTHROPODA, FISH REMAINS, PLANT REMAINS, BRECCIA, mtg, SANDSTONE, mtg, SILTSTONE, mtg, TUFFACEOUS, Heavy, dark Minerals, FORAMINIFERA/Rad, ANTICORITE, ROCK, BRONZITE, CHROMITE, CHRYSOTILE, DUNITE, PERIDOTITE, SERPENTINE

OIL SHOWS

EVEN STAINING, FLUORESCES
SPOTTY STAIN, FLUORESCES
QUESTIONABLE, NOT FLUORESCENCE
DEAD ASPHALTIC

POROSITY TYPES

X INTERCRYSTALLINE, INTERGRANULAR
V VUGGY, P PINPOINT, / MOLDIC, O ORGANIC, r FRACTURE, e EARTHY, f FENESTRAL

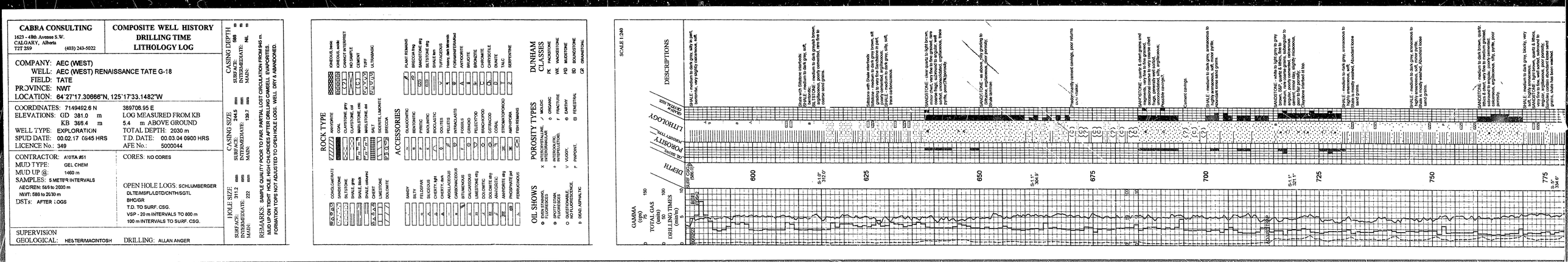
DUNHAM CLASSES

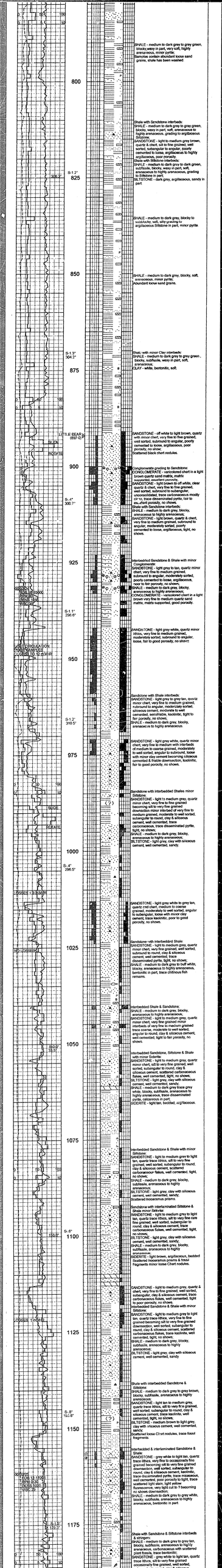
MS MUDSTONE, WS WACKESTONE, PS PACKSTONE, GS GRAINSTONE, FS FRAMESTONE, BS BOUNDSTONE, CR CRYSTALLINE

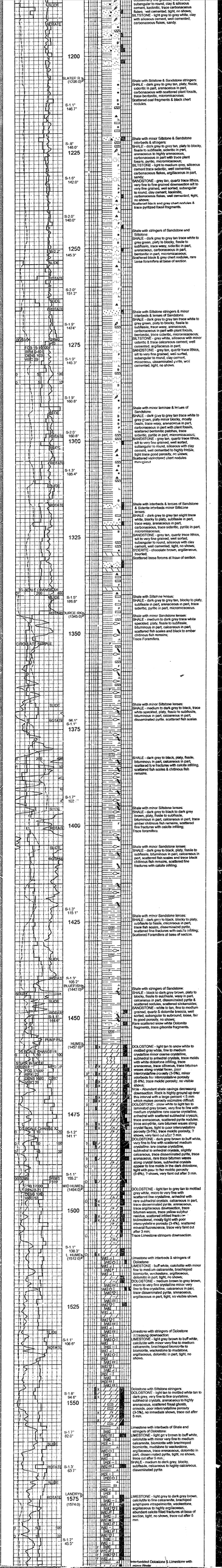
SCALE 1:240

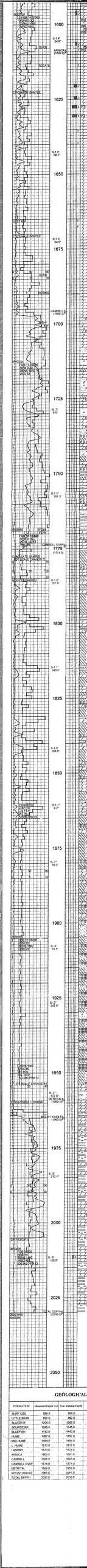
DEPTH | LITHOLOGY | POROSITY, FRACTURE, OIL SHOWS | DESCRIPTIONS

GAMMA (gp) 150 / TOTAL GAS (units) 100 / DRILLING TIMES (min/m) 10 / 5




800
825
850
875
900
925
950
975
1000
1025
1050
1075
1100
1125
1150
1175
S-1.2°
306.2'
S-1.3°
304.2'
S-.4°
300.7'
S-1.1°
298.6'
S-1.2°
310.5'
S-.4°
296.5'
S-0.2°
33.5'
S-.6°
S-.8°
15.8'
S-.8°
15.8'
S-1.3°
S-1.2°
170.3'
LITTLE BEAR
BUDA
RCATE
SLIDE
RCATE
LOSSES 13 BWPH
NO LOSSES
SLIDE
LOSSES 1 BWPH
OPENED
1 DOG 13.1700
1 BPM GEM 11
CLOSED 3000
1 DOG 20
SHALE - medium to dark gray to gray green, blocky/waxy in part, very soft, highly arenaceous, minor pyrite; Remarks contain abundant loose sand grains, shale has been washed
Shale with Sandstone interbeds: SHALE - medium to dark gray to gray green, blocky, waxy in part, soft, arenaceous to highly arenaceous, grading to argillaceous SANDSTONE - light to medium gray brown, fine to coarse, cut to fine grained, well sorted, subangular to angular, poorly cemented to loose, argillaceous to highly argillaceous, poor porosity
Shale with Siltstone interbeds: SHALE - medium to dark gray to dark green, subfissile, blocky, waxy in part, soft, arenaceous to highly arenaceous, grading to Siltstone in part; SILTSTONE - dark grey, argillaceous, sandy in part
SHALE - medium to dark gray, blocky to subblocky, soft, silty grading to argillaceous Siltstone in part, minor pyrite
SHALE - medium to dark gray, blocky, soft, arenaceous, minor pyrite; Abundant loose sand grains.
Shale with minor Clay interbeds: SHALE - medium to dark gray to dark green , blocky, subfissile, waxy in part, soft, arenaceous; CLAY - white, bentonitic, soft.
SANDSTONE - off white to light brown, quartz with minor chert, very fine to fine grained, well sorted, subround to subangular, poorly cemented to loose, argillaceous, poor porosity, no shows; Scattered black chert nodules.
Conglomerate grading to Sandstone: CONGLOMERATE - varicolored chert in a light brown quartz sand matrix, matrix supported, excellent porosity; SANDSTONE - light brown to off white, clear quartz & chert, very fine to fine grained, well sorted, subround to subangular, unconsolidated, trace carbonaceous mostly as coal, trace calcareous cement, fair to good porosity, no shows.
Shale with Sandstone interbeds: SHALE - medium to dark gray, blocky, arenaceous to highly arenaceous; SANDSTONE - light brown, quartz & chert, very fine to medium grained, subround to angular, moderately sorted, poorly cemented to loose, argillaceous, tight, no shows.
Interbedded Sandstone & Shale with minor Conglomerate: SANDSTONE - light gray to tan, quartz minor chert, very fine to medium grained, subround to subangular, moderately sorted, poorly cemented to loose, argillaceous, tight to fair porosity, no shows; SHALE - medium to dark gray, blocky, arenaceous to highly arenaceous; CONGLOMERATE - varicolored chert in a light brown very fine to medium quartz sand matrix, matrix supported, good porosity.
SANDSTONE - light gray white, quartz minor nitrics, very fine to medium grained, moderately sorted, subround to angular, loose, fair to good porosity, no shows
Sandstone with Shale interbeds: SANDSTONE - light gray to grey tan, quartz minor chert, very fine to medium grained, subround to subangular, moderately sorted, siliceous cement, moderate to well cemented, semifriable, kaolinitic, tight to fair porosity, no shows; SHALE - medium to dark gray, blocky, arenaceous to highly arenaceous
SANDSTONE - light grey white, quartz minor chert, very fine to medium with interbeds of medium to coarse grained, moderately to well sorted, angular to subround, loose with minor clay cement becoming siliceous cemented & friable downsection, kaolinitic, fair to good porosity, no shows.
Sandstone with interbedded Shales minor Siltstone: SANDSTONE - light to medium grey, quartz minor chert, very fine to fine grained becoming silt to very fine grained downsection minor interbed of very fine to medium grained, moderate to well sorted, subangular to round, clay & siliceous cement, well cemented, tight, trace carbonaceous, trace disseminated pyrite, tight, no shows; SHALE - medium to dark grey, blocky, arenaceous to highly arenaceous; SILTSTONE - light grey, clay with siliceous cement, well cemented, sandy.
SANDSTONE - light grey white to grey tan, quartz rich chert, medium to coarse grained, moderately to well sorted, angular to subangular, loose with minor clay cement, trace kaolinitic, poor to good porosity, no shows.
Sandstone with interbedded Shale: SANDSTONE - light to medium grey, quartz minor chert, very fine grained, well sorted, subround to round, clay & siliceous cement, well cemented, trace disseminated pyrite, tight, no shows; SHALE - medium to dark grey to buff white, blocky, arenaceous to highly arenaceous, bentonitic in part, trace chitinous fish remains.
Interbedded Shale & Sandstone: SHALE - medium to dark grey, blocky, arenaceous to highly arenaceous; SANDSTONE - light to medium grey, quartz minor chert, very fine grained minor interbeds of very fine to medium grained trace coarse, moderate to well sorted, angular to round, clay & siliceous cement, well cemented, tight to fair porosity, no shows.
Interbedded Sandstone, Siltstone & Shale with minor Siderite: SANDSTONE - light to medium grey, quartz minor chert, silt to very fine grained, well sorted, subangular to round, clay & siliceous cement, scattered carbonaceous flakes, well cemented, tight, no shows; SILTSTONE - light grey, clay with siliceous cement, well cemented, sandy; SHALE - medium to dark grey trace grey white, blocky, subfissile, arenaceous to highly arenaceous, trace disseminated pyrite, calcareous in part; SIDERITE - light tan, bedded, argillaceous.
Interbedded Sandstone & Shale with minor Siltstone: SANDSTONE - light to medium grey to light tan, quartz trace lithics, silt to very fine grained, well sorted, subangular to round, clay & siliceous cement, scattered carbonaceous, well cemented, tight, no shows; SHALE - medium to dark grey, blocky, subfissile, arenaceous to highly arenaceous; SILTSTONE - light grey, clay with siliceous cement, well cemented, sandy; Scattered lrocaremus prisms
Sandstone with interlaminated Siltstone & Shale minor Siderite: SANDSTONE - light to medium grey to light tan, quartz trace lithics, silt to very fine rare fine grained, well sorted, subangular to round, clay & siliceous cement, trace carbonaceous flakes, well cemented, tight, no shows; SILTSTONE - light grey, clay with siliceous cement, well cemented, sandy; SHALE - medium to dark grey, blocky, subfissile, arenaceous to highly arenaceous; Scattered Inoceramus prisms & trace fragments minor loose Chert nodules.
SANDSTONE - light to medium grey, quartz & chert, very fine to fine grained, well sorted, subround, minor clay & siliceous cement, trace carbonaceous flakes, well cemented, tight to poor porosity, no shows.
Interbedded Sandstone & Shale with minor Siltstone: SANDSTONE - light to medium grey to light tan, quartz trace lithics, very fine to fine grained becoming silt to very fine grained downsection, well sorted, subangular to round, clay & siliceous cement, scattered carbonaceous flakes, well cemented, tight, no shows; SHALE - medium to dark grey, blocky, subfissile, arenaceous to highly arenaceous; SILTSTONE - light grey, clay with siliceous cement, well cemented, sandy.
Shale with interbedded Sandstone & Siltstone: SHALE - medium to dark grey to grey brown, blocky, subfissile, arenaceous to highly arenaceous; SANDSTONE - light tan to medium grey, quartz trace lithics, silt to very fine grained, well sorted, subround to subangular, clay & siliceous cement, trace kaolinite, well cemented, tight, no shows; SILTSTONE - medium brown to light grey, clay with siliceous cement, well cemented, sandy; Scattered loose Chert nodules, trace fossil fragments
Interbedded & interlaminated Sandstone & Shale: SANDSTONE - grey white to light tan, quartz trace lithics, very fine to occasionally fine grained becoming silt to very fine grained downsection, well sorted, subangular to round, clay & siliceous cement, kaolinitic, trace disseminated pyrite, trace micaceous, well cemented, poor porosity to tight, trace scattered light stain, light yellow fluorescence, very light cut to ? becoming no shows downsection; SHALE - medium to dark gray to grey white, blocky, subfissile, arenaceous to highly arenaceous, bentonitic in part.
Shale with Sandstone & Siltstone interbeds & stringers: SHALE - medium to dark grey to tan, blocky, subfissile, arenaceous to highly arenaceous, calcareous in part, scattered plant fossils, trace bentonite; SANDSTONE - grey white to light tan, quartz trace lithics, silt to very fine grained


SLIDE
ROTATE
1200
SLATE? S.
(1336.0')
Shale with Siltstone & Sandstone stringers:
SHALE - dark grey to grey tan, platy, fissile, sidcritic in part, arenaceous in part, carbonaceous with scattered plant fossils, trace bentonitic, micromicaceous;
Scattered coal fragments & black chert nodules.
S-1.1'
146.7'
1225
Shale with minor Siltstone & Sandstone interbeds & lenses:
SHALE - dark grey to grey tan, platy to blocky, fissile to subfissile, sidcritic in part, arenaceous to highly arenaceous, carbonaceous in part with plant fossils, pyrite, micromicaceous;
SILTSTONE - light to medium grey, siliceous cement trace sidcritic, well cemented, carbonaceous flakes, argillaceous in part, sandy;
S-1.6'
142.0'
SANDSTONE - grey tan, quartz trace lithics, very fine to fine grained downwardsin silt to very fine grained, well sorted, subangular to round, clay cement, siliceous, carbonaceous flakes, well cemented, tight, no shows;
Scattered black & grey chert nodules & trace pyritized fossil fragments.
S-2.0'
140.0'
1250
Shale with stringers of Sandstone and Siltstone:
SHALE - dark grey to gray tan trace white to grey green, platy to blocky, fissile to subfissile, micaceous, sidcritic in part, arenaceous, carbonaceous in part, bentonitic in part, micromicaceous;
Scattered black & grey chert nodules, rare coral foraminifera at base of section
145.3'
SLIDE
ROTATE
S-2.0'
151.2'
SLIDE
ROTATE
Shale with Siltstone stringers & minor interbeds of Sandstone:
SHALE - dark grey to gray tan trace white to grey green, platy to blocky, fissile to subfissile, trace waxy, arenaceous, carbonaceous in part with plant fossils, bentonitic, trace sidcritic, micromicaceous;
SILTSTONE - grey white, siliceous with minor sidcritic & trace calcareous cement, well cemented, argillaceous in part;
S-1.9'
147.4'
1275
SANDSTONE - grey tan, quartz trace lithics, silt to very fine grained, well sorted, subangular to round, clay cement, siliceous, carbonaceous flakes, well cemented, tight, no shows;
S-1.9'
145.3'
S-1.9'
160.8'
Shale with minor laminae & lenses of Sandstone:
SHALE - dark grey to gray tan trace white to grey green, platy minor blocky, mostly fissile, trace waxy, arenaceous in part, carbonaceous in part with plant fossils, scattered bentonitic patches, trace sidcritic, pyritic in part, micromicaceous;
SANDSTONE - grey tan, quartz trace lithics, silt to very fine grained, well sorted, subangular to round, siliceous with clay cement, well cemented to highly friable, tight trace good porosity, no shows;
Scattered waxy/colored chert nodules throughout
S-2.0'
160.8'
1300
S-1.3'
159.4'
Shale with minor laminae & lenses of Siltstone & Sdstone interbeds minor Siltstone lenses:
SHALE - dark grey to gray tan slight trace white, blocky to platy, subfissile in part, trace waxy, arenaceous in part, carbonaceous, trace sidcritic, pyritic in part, micromicaceous;
SANDSTONE - grey tan, quartz trace lithics, silt to very fine grained, well sorted, subangular to round, siliceous with clay cement, well cemented, tight, no shows;
FOSSIL FORAMINIFERA ZONE
SLIDE
S-1.5'
166.8'
1325
ROTATE
Shale with Siltstone lenses:
SHALE - dark grey to gray tan, blocky to platy, subfissile in part, arenaceous in part, trace sidcritic, pyritic in part, micromicaceous.
SOURCE ROCK
(1345.0')
Shale with minor Sandstone lenses:
SHALE - medium to dark grey tan white speckled, platy, fissile to subfissile, bituminous in part, calcareous in part, scattered fish scales and black to amber chitinous fish remains;
Trace Foraminifera.
1350
CRICOLITE SHALE
Shale with minor Siltstone lenses:
SHALE - medium to dark grey to black, trace white speckled, platy, fissile to subfissile, bituminous in part, calcareous in part, disseminated pyrite, scattered fish scales
SLIDE
S-1.3'
96.1'
ROTATE
S-1.1'
1375
SHALE - dark grey to black, platy, fissile, bituminous in part, calcareous in part, scattered to fractures with calcite infilling, scattered fish scales & chitinous fish remains.
S-1.7'
102'
Shale with minor Siltstone lenses:
SHALE - dark grey to black to dark grey brown, platy, fissile to subfissile, bituminous in part, calcareous in part, trace amber chitinous fish remains, scattered fine fractures with calcite infilling;
Trace foraminifera.
ROTATE
1400
SLIDE
ROTATE
Shale with minor Sandstone lenses:
SHALE - dark grey to black, platy, fissile to subfissile, bituminous in part, calcareous in part, scattered fish scales and trace black chitinous fish remains, scattered fine fractures with calcite infilling.
S-1.3'
115.1'
1425
Shale with minor Sandstone lenses:
SHALE - dark grey to black, blocky to platy, subfissile to fissile, micaceous in part, trace fish scales, disseminated pyrite, scattered fine fractures with calcite infilling;
Scattered Foraminifera at base of section.
SLIDE
S-1.3'
105.7'
BLUFF FISH
(1447.0')
Shale with stringers of Sandstone:
SHALE - black to dark grey brown, platy to blocky, fissile to subfissile, waxy in part, calcareous in part, disseminated pyrite & scattered nodules, scattered blk/amber/clr.
SLIDE
ROTATE
S-1.0'
113.8'
1450
SANDSTONE - white to tan, fine to medium grained, quartz & dolomite breccia, well sorted, subangular to subround, loose, fair to good porosity, no shows;
Rare scattered snow white Dolomite fragments, trace gilsonite fragments.
PUMP RIG
HUMEL
(1457.0')
DOLOSTONE! - light tan to snow white to mottled grey white, fine to medium crystalline moor coarse crystalline, subhedral to anhedral crystals, trace molds with white dolomite infilling, trace arenaceous, trace siltstone, trace bitumen stains, poor intercrystalline porosity (5-10%), micro vugular porosity (5-8%), micro interbeds fro/ intercrystalline porosity (5-8%), trace molds/ porosity, no visible shows;
Note - Abundant shale cavings decreasing downsection. Rock is highly ground up over this interval with a large percent < 5 mm which makes porosity estimates difficult
DOLOSTONE! - snow white to light tan to laminated grey brown, very fine to fine with scattered fine crystalline, anhedral with subhedral crystals, trace arenaceous, scattered pyrite nodules, trace gilsonite, rare bitumen veins along crystal faces, light to poor intercrystalline porosity (5-8%), trace molds/ porosity, 7 shows, very faint cut after 3 min
SLIDE
ROTATE
S-1.2'
141.1'
1475
DOLOSTONE - dark grey brown to buff white, very fine to fine with scattered medium crystalline, subhedral crystals, trace arenaceous in part, trace disseminated pyrite, trace calcareous, trace disseminated pyrite, trace arenaceous, rare thick bitumen veins along crystal faces, subhedral crystals appear to line molds in the dark dolostone, tight with poor to fair mic/fac porosity (5-8%), 7 shows, very faint cut after 3 min.
DOLOSTONE
PERRY
(1608.0')
MID HUMEL
(1484.0')
DOLOSTONE - light tan to grey tan to mottled grey white, micro to very fine with scattered fine crystalline, anhedral with fine subhedral crystalline, calcareous in part, trace disseminated pyrite, arenaceous, trace argillaceous downsection, trace bitumen waxes, trace yellow sulphur crystals, scattered brittled fracs/ bidirectional, mostly tight with poor intercrystalline porosity (3-4%), scattered mineral fluorescence, trace very faint cut after 3 min.
Trace Limestone stringers downsection.
S-1.1'
130.3'
L. HUMEL
(1512.0')
1500
Limestone with interbeds & stringers of Dolostone:
LIMESTONE - buff white, calcilutite with minor fine to medium calcarenite, brachiopod fragments, rare recrystallization, argillaceous, dolomitic in part, tight, no shows;
DOLOSTONE - medium brown to grey brown, micro to very fine crystalline with very fine to fine crystalline, calcareous in part, trace disseminated pyrite, arenaceous, argillaceous in part, tight, no visible shows.
1525
Limestone with stringers of Dolostone
Increasing downsection:
LIMESTONE - light grey brown to buff white, calcilutite with minor fine to medium calcarenite, brachiopod biomicrite to packstone, rare recrystallization, argillaceous, dolomitic in part, tight, no shows.
SLIDE
ROTATE
S-1.1'
106.9'
Dolostone with Siltstone stringers:
DOLOSTONE - light tan to mottled white tan to dark grey, very fine to fine crystalline, subhedral crystals, arenaceous to highly arenaceous, scattered fossil ghosts, crinoids, poor intercrystalline porosity (3-5%), no immediate shows, trace cut after 5 min.
S-1.8'
94.6'
1550
Limestone with interbeds of Shale and stringers of Dolostone:
LIMESTONE - light grey brown to buff white, calcilutite with very fine to medium calcarenite, biomicrite with brachiopod biomicrite, mudstone to wackestone, argillaceous, trace arenaceous, dolomitic in part, mostly mudded pyritic, tight, no shows, trace cut after 5 min.
S-1.7'
92.0'
SLIDE
ROTATE
S-1.3'
93.7'
SHALE - medium to dark grey, blocky, subfissile, calcareous to highly calcareous, disseminated pyrite.
LANDING
1575
(1574.0')
LIMESTONE - light grey to dark grey brown, calcilutite to fine calcarenite, brachiopod biomicrite to micropelmicrite, wackestone, argillaceous to highly argillaceous, abundant calcite filled fractures at base of section, tight, no shows, trace cut after 5 min.
S-1.2'
45.5'
Interbedded Dolostone & Limestone with Siltstone stringers


1600
1625
1650
1675
1700
1725
1750
1775
1800
1825
1850
1875
1900
1925
1950
1975
2000
2025
2050
DOLOSTONE - white with interbedded dark grey to dark brown, occasionally calcite crystalline with intercrystalline porosity, occasionally interbedded with anhydrite/gypsum, dark grey is highly arenaceous, laminated possibly bituminous stringers, light to poor mottled porosity, trace fluorescence
ANHYDRITE - medium brown, calcilutite, concrete, microbrecciated, dolomitic, argillaceous, tight, no shows, pyrite nodal facies within Lanny
DOLOSTONE - light to grey tan, occurs to the south as a dolomitic limestone (dolosparite), rare scattered fractures with white dolomitic infilling, tight, trace thin bitumen seams, no visible shows.
Dolostone with minor Siltstone interbeds
DOLOSTONE - medium brown to light tan, argillaceous, microcrystalline, fossil debris (Amphipora), trace arenaceous, scattered nodds with white anhydrite to subnodular anhydrite, tight to poor vuggy porosity (5-7%), no shows.
SILTSTONE - medium brown, coarse to very fine grained, subangular to subrounded, dolomitic, trace dolomite cement, poor intergranular porosity (10-12%), no shows.
DOLOSTONE - light tan to brown to grey tan, aphanic to microcrystalline, trace fossil debris (Amphipora), trace arenaceous, disseminated pyrite, trace argillaceous, trace of sandstone, trace scattered hairline fractures, tight, trace bitumen seams, no shows.
DOLOSTONE - light grey tan to light tan, aphanic to microcrystalline, trace fossil ghosts (Amphipora) & tubular intercrystalline porosity, trace arenaceous, disseminated pyrite, trace styolites, tight, no shown.
DOLOSTONE - light tan to brown to buff white, aphanic to microcrystalline dure very fine crystalline, occasionally sucrosic, trace scattered intercrystalline porosity, trace coarse calcite crystalline, trace fossil debris (Amphipora), trace scattered hairline fractures, tight, no shows.
DOLOSTONE - light grey to light tan, aphanic to microcrystalline, trace fossil ghosts (Amphipora) & tubular intercrystalline porosity, trace arenaceous, disseminated pyrite, trace styolites, tight, no shown.
DOLOSTONE - light tan to buff white, aphanic to microcrystalline, trace fossil debris (Amphipora), trace scattered hairline fractures, tight, trace bitumen seams, no shows.
Dolostone with Shale partings
DOLOSTONE - buff white, dolomitic, arenaceous in part, disseminated pyrite, tight, no shown.
Dolostone with Siltstone & Shale interbeds & stringers
DOLOSTONE - light tan to buff white, aphanic to microcrystalline, trace fossil debris (Amphipora), argillaceous, anhydritic in part, * pt, no shows.
SILTSTONE - buff white, dolomitic cement, highly cemented.
SHALE - grey, platy, blocky, dolomitic, arenaceous, disseminated pyrite.
Interbedded & interlaminated Dolostone, Siltstone, Shale & Anhydrite
DOLOSTONE - light tan to buff white, aphanic to microcrystalline, trace fossil debris (Amphipora), anhydritic, tight, no shows.
SILTSTONE - buff white to medium grey brown, dolomitic cement, highly cemented, anhydritic in part.
SHALE - grey, grey green to black, blocky to platy, subfissile, waxy in part, disseminated pyrite.
ANHYDRITE - snow white, microcrystalline, dolomitic, tight, no shows.
Dolostone with interbedded & interlaminated Siltstone, Shale, Breccia & Anhydrite
DOLOSTONE - light tan to buff white, aphanic to microcrystalline, trace fossil debris (Amphipora), anhydritic, tight, no shown.
SILTSTONE - buff white to medium grey brown, dolomitic cement, highly cemented, anhydritic in part.
SHALE - grey, grey green to black, blocky to platy, subfissile, waxy in part, disseminated pyrite.
ANHYDRITE - snow white, microcrystalline, dolomitic, tight, no shown.
BRECCIA - medium to coarse rounded grains of shale & dolomite in a matrix of dolomite cement, low matrix to grain ratio.
Dolostone with thin bedded & interbedded Siltstone, Shale, Breccia & Anhydrite
DOLOSTONE - light tan to buff white, aphanic to microcrystalline, highly arenaceous, anhydritic, tight, no shown.
SHALE - black to grey green, waxy, subfissile, blocky, dolomitic, arenaceous, anhydritic, dolomite veining, scattered fine pyrite.
BRECCIA - medium to coarse rounded grains of shale & dolomite in a matrix of dolomite cement, low matrix to grain ratio.
SILTSTONE - buff white, dolomitic cement, highly cemented, anhydritic in part.
Anhydrite with stringers & interbeds of Dolostone, Breccia & Shale trace Siltstone
ANHYDRITE - light brown to reddish mauve to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, scattered quartz.
DOLOSTONE - light tan to buff tan, aphanic to microcrystalline, arenaceous, anhydritic, tight to poor vuggy porosity, no shown.
SHALE - dark grey, blocky, dolomitic, arenaceous.
BRECCIA - medium to coarse rounded grains of shale & dolomite in a matrix of dolomite cement, low matrix to grain ratio.
SILTSTONE - buff white, dolomitic cement, highly cemented, anhydritic in part.
Anhydrite with stringers & interbeds of Dolostone, Breccia & Shale trace Siltstone
ANHYDRITE - light brown to reddish mauve to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, scattered quartz.
DOLOSTONE - light tan to buff tan, aphanic to microcrystalline, arenaceous, anhydritic, tight to poor vuggy porosity, no shown.
SHALE - dark grey to black, blocky, dolomitic, arenaceous, anhydritic, trace dolomitized, waxy.
Anhydrite with stringers & interbeds of Dolostone & Shale trace Siltstone & Salt
ANHYDRITE - light brown to reddish mauve to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, scattered quartz.
DOLOSTONE - light tan to buff tan, aphanic to microcrystalline, arenaceous, anhydritic, tight to poor vuggy porosity, no shown.
SHALE - dark grey to black, blocky, dolomitic, arenaceous, anhydritic, trace dolomitized, waxy.
SALT - clear to white, crystalline, massive.
Anhydrite with stringers & interbeds of Dolostone & Shale trace Siltstone & Salt
ANHYDRITE - light brown to reddish mauve to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, scattered quartz.
DOLOSTONE - light tan to buff tan, aphanic to microcrystalline, arenaceous, anhydritic, tight to poor vuggy porosity, no shown.
SHALE - dark grey to black, blocky, dolomitic, arenaceous, anhydritic, trace dolomitized, waxy.
Anhydrite with stringers & interbeds of Dolostone & Shale
ANHYDRITE - light brown to reddish mauve to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, scattered quartz.
DOLOSTONE - light brown to buff tan, aphanic to microcrystalline, arenaceous, anhydritic, tight to poor vuggy porosity, no shown.
SHALE - dark grey to black, blocky, dolomitic, arenaceous, anhydritic, trace dolomitized, waxy.
Anhydrite with stringers & interbeds of Dolostone & Shale
ANHYDRITE - light brown to reddish purple to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, colours increase downsection, rosen quartz noted in 1620 sample.
DOLOSTONE - light brown to buff tan, aphanic to microcrystalline, arenaceous, anhydritic, tight, no shown.
SHALE - dark grey to black, blocky, dolomitic, arenaceous, anhydritic, waxy.
Scattered Dolostone interbeds with minor shale
ANHYDRITE - light brown to reddish purple to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, scattered quartz flats - Salt symbol does not indicate salt, but rather the lack of anhydrite which occurs from salt beds.
Anhydrite with stringers & interbeds of Dolostone & Shale trace Sandstone & Salt beds
ANHYDRITE - buff white to grey green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, scattered quartz.
DOLOSTONE - as above
SHALE - purple to green to black, platy, subfissile, dolomitic, waxy, slightly bituminous/ woody.
Anhydrite with stringers & interbeds of Dolostone & Shale trace Sandstone, Salt & Coal
ANHYDRITE - buff white to buff tan to mottled green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, rarely scattered quartz, trace coal.
DOLOSTONE - light brown to buff tan, aphanic to microcrystalline interbeds of fine crystalline, argillaceous, anhydritic, arenaceous in part, anhydritic, tight, no shows, scattered quartz grains.
Anhydrite with stringers & interbeds of Dolostone & Shale
ANHYDRITE - buff white to mottled green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, rarely scattered quartz.
DOLOSTONE - light brown to buff tan, aphanic to microcrystalline interbeds of fine crystalline, argillaceous, anhydritic, arenaceous in part, anhydritic, tight, no shows, scattered quartz grains.
SHALE - stock to light green, platy, subfissile, dolomitic, waxy, anhydritic.
Anhydrite with stringers & interbeds of Dolostone & Shale
ANHYDRITE - buff white to reddish to light green, microcrystalline, bedded, dolomitic, arenaceous, laminated in part, rarely scattered quartz.
DOLOSTONE - light brown to buff tan, aphanic to microcrystalline scattered very fine crystalline, argillaceous, anhydritic, tight, no shows.
Abundant scattered subvitrid to subfusitic coal stringers from 1880 to 1885 m samples.
Minor to 1895 m samples contain Stick Shale cavings. Sample quality decreasing, interpretation difficult.
Interbedded Anhydrite & Sandstone with Shale
ANHYDRITE - pinkish tan to light green, microcrystalline, argillaceous, arenaceous to dolomitic, scattered salt crystals.
SANDSTONE - light grey, fine to coarse subrounded crystals, loose, good porosity, no shows.
SHALE - brown as interbeds but occurs as cavings in anhydrite, ROP used to position same.
Abundant cavings. Sample quality poor to fair.
Interlaminated Anhydrite, Sandstone & Shale with Salt
ANHYDRITE - pinkish tan to light green, microcrystalline, argillaceous, arenaceous to dolomitic, scattered salt crystals.
SANDSTONE - clear quartz, fine to coarse subrounded crystals, loose, good porosity, no shows.
SHALE - grey green, grey brown, laminated, anhydritic, dolomitic.
Abundant cavings. Sample quality poor to fair.
Interbedded & interlaminated Anhydrite, Dolostone & Shale with Sandstone stringers & Salt beds
ANHYDRITE - pinkish tan to light green, microcrystalline, argillaceous, arenaceous to dolomitic, scattered salt crystals.
DOLOSTONE - light brown to buff tan, aphanic to microcrystalline, argillaceous, anhydritic, arenaceous in part, tight, no shown.
SHALE - grey green, platy, waxy, laminated, anhydritic, dolomitic, arenaceous, trace coal.
SANDSTONE - clear quartz, fine to coarse subrounded crystals, loose, good porosity, no shows.
SALT - clear to white, crystalline, massive.
Interbedded Dolostone, Mudstone & Shale
DOLOSTONE - mottled dark grey brown to buff, micro to very fine crystalline, anhydritic, argillaceous in part, arenaceous in part, no shows.
MUDSTONE - dark grey, dolomitic, anhydritic, arenaceous in part.
SHALE - medium to dark grey, blocky, subfissile to flaky, slightly dolomitic, anhydritic, trace coal, abundant cavings make interpretation difficult.
Interbedded Dolostone & Crakestone with Mudstone
SHALE - grey green to medium to dark grey, platy to splintery, hard, trace bituminous/ woody, trace coal, dolomitic.
DOLOSTONE - mottled dark grey with white inclusions to brown, micro to very fine crystalline, dense, argillaceous in part, anhydritic, no shows.
MUDSTONE - dark grey, dolomitic, argillaceous.
Abundant cavings to 1960 m samples.
Crakestone with Shale & Mudstone interbeds
SHALE - grey green to medium to dark grey, trace bituminous to brown, micro to very fine crystalline, anhedral crystals, dense, argillaceous in part, tight, no shows.
SHALE - grey green to medium to dark grey, platy to splintery, hard, trace bituminous/ woody, trace coal, dolomitic.
MUDSTONE - mottled dark grey, dolomitic, argillaceous.
DOLOSTONE - mottled dark grey brown to grey white, micro with flux to medium crystalline, anhedral to subhedral, argillaceous in part, anhydritic, tight to poor intercrystalline porosity (5-6%), no shows.
Shale with minor Dolostone & Mudstone interbeds
SHALE - grey green to medium to dark grey to black, platy to splintery, flakie, slightly bituminous/ woody, dolomitic.
DOLOSTONE - mottled dark grey, microcrystalline, dense, argillaceous in part, tight, no shown.
MUDSTONE - mottled dark grey, dolomitic, argillaceous.
SURFACE
ARTIFICIAL FILL
GRAVEL
GRAVEL
SAND
SAND
CLAY
CLAY
SAND
SAND
CLAY
CLAY
SAND
SAND
CLAY
CLAY

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POST WELL ANALYSIS REPORT

AEC OIL & GAS LTD.

POST WELL ANALYSIS REPORT FOR

AEC TATE LAKE

G-18-64-30-125-15

NATIONAL ENERGY BOARD
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MAY 2 9 2000

525 - 3rd Avenue S.W.
Calgary, Alberta
Canada T2P 0G4
Tel: (403) 509-4000
Fax: (403) 509-4500

Schlumberger

40004524

AEC OIL & GAS LTD.

POST WELL ANALYSIS REPORT FOR

AEC TATE LAKE

G-18-64-30-125-15

Job Identification

Alberta Energy Corp

Project ID:	AEC Rennaissance Tate G-18
Pad ID:	Single well
Well ID:	AEC Rennaissance Tate G-18
Unique ID:	Tate Lake G-18

Operator:	Alberta Energy Corp
Address:	3700, 707-8th AVE SW Calgary, Alberta T2P-1H5
Co Rep:	Al Anger

Contractor:	Akita Drilling
Rig ID:	Akita #51
Pusher:	Rick Parker

Service Co:	Anadrill - Schlumberger
District:	Calgary, Alberta
DD Eng(s):	Eric Erickson
DD Eng(s):	
MWD Eng(s):	Barry Timmerman
MWD Eng(s):	

Start Date:	Friday Feb,18,2000
Release Date:	Sunday March ,5,2000
Total Days:	17

Well Specifications

Alberta Energy Corp

Well Name: AEC Rennaissance Tate G-18

Well Number: Tate Lake G-18

Field Name: Tate Lake

Area: Fort Norman

KB level (above sea):	390.40 m	**Magnetic Declination**
Ground Level (above sea):	386.00 m	30.7
KB to Ground level :	4.40 m	

Surface Location

N/S Coord:

E/W Coord:

Target Loc: Planned (Ref: Kelly Bushing)

N/-S Coord: vertical

E/-W Coord:

TVD:

Target Radius: vertical

Final Bottom Hole Loc:

N/-S Coord: 0.68m

E/-W Coord: 1.54m

TVD: 2011.03m

Well Descriptions

Alberta Energy Corp

AEC Rennaissance Tate G-18
Tate Lake G-18

Project Description: Proposed

The well was to be a straight well, under 3 degrees .
The total depth of the well is to be 2200m

Project Description: Actual

We arrived on the 19th of Feb and were on stand by till the 22nd and picked up tools at 2:00 in the afternoon and drilled out the shoe at midnight

The bit #1 was pulled at a depth of 1273 with 51.75 hours on it , the bit was drilling at 8m per hour

The second bit was pulled at 1491m with 20.75 hours ROPwas down to 2.2m /hour with all kinds of bounce, there was no shock sub in the string so one was put in the string just above our X/Over sub,it worked very well at reducing bounce

The formations have been coming in 200m high, and core point was not called.

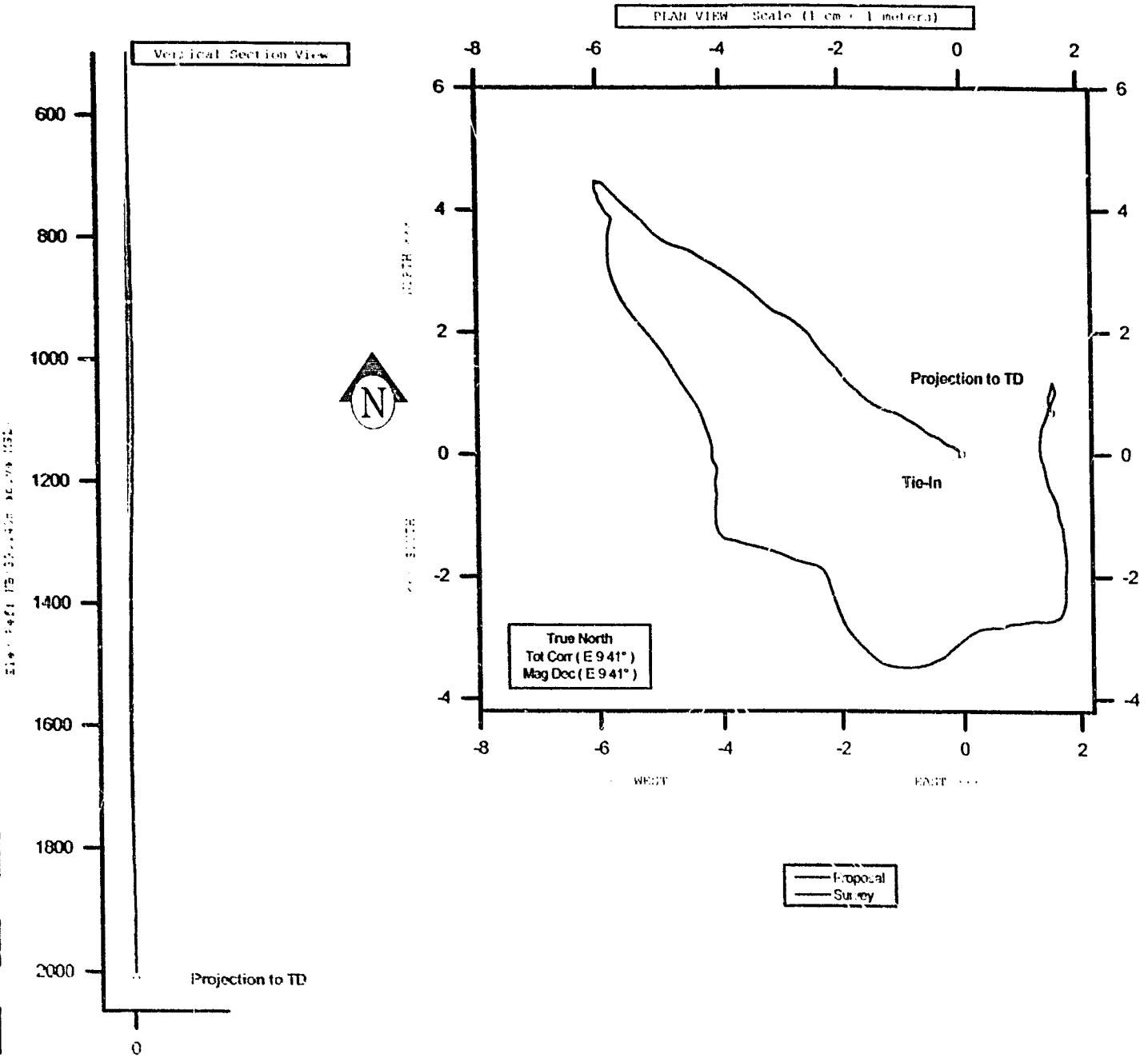
Bit run #3 was pulled at 1768m with 55.5 hours on it.The bit came out of the hole in good shape another F37P was choose to run back in the hole with.Once back on bottom the ROP took off going up to 30m/ hour,the mud got very clobbered and was treated for anhydrate, but the problem turned out to be salt contamination(168000ppm chlorides)

The TD of the well was at 2030m. The motor had 50.25 hours on it and will be flushed out with fresh water once out of the hole.

Schlumberger **Alberta Energy Company**

WELL	FIELD	STRUCTURE
AEC TATE LAKE G-18-64-30-125-15	TATE LAKE (CDN)	AEC / G-18-64-30-125-15
Magnetic Parameters Model BGGM 1999 Dip 8 819° Mag Dec 9 413° Date April 05, 2000 FS 31242 7 nT	Surface Location Lat N0 0 0 000 Lon W121 29 19.478 North: 0 00 m East: 0 00 m Grid Conv 0 0000° Scale Fact 1.0027	Miscellaneous Slot: Slot #1 Elev Ref: KB(390 40m above MSL) Date Drawn: 06 45 03AM 24-May-2000

COMPLETION DRAWING



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Final Survey

Client:	Alberta Energy Company	**Survey Computation Method:**	Minimum Curvature
Field:	TATE LAKE (CDN)	**DLS Computation Method:**	Lubinski
Structure:	AEC / G-18-64-30-125-15	**Vertical Section Azimuth:**	0.000°
Well:	AEC TATE LAKE G-18-64-30-125-15	**Vertical Section Origin:**	N 0.000 m, E 0.000 m
Borehole:	Job# 40004524	**TVD Reference:**	KB
UWI/API#:			390.4 m above MSL
Date:	May 24, 2000	**Magnetic Declination:**	9.413°
Grid Convergence:	0.00000000°	**Total Field Strength:**	31242.733 nT
Scale Factor:	1.00269630	**Dip:**	8.819°
		Declination Date:	April 05, 2000
Location:	N 0 0 0.000, W 121 29 19.478	**Magnetic Declination Model:**	BGGM 1999
:	N 0.000 m, E 0.000 m	**North Reference:**	True North
Coordinate System:	NAD83 UTM Zone 11N	**Coordinate Reference To:**	Well Head

Station ID	MD (m)	Incl (°)	Azim (°)	TVD (m)	VSec (m)	N/-S (m)	E/-W (m)	Closure (m)	at Azim (°)	DLS (°/30m)	TF (°)
Tie-In	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.0		0.0 M
	586.00	0.00	0.0	586.00	0.00	0.00	0.00	0.00	0.0	0.00	-55.1 M
	594.90	1.10	304.9	594.90	0.05	0.05	-0.07	0.09	304.9	3.71	-71.3 M
	604.50	0.80	288.7	604.50	0.12	0.12	-0.21	0.24	300.5	1.25	-48.0 M
	614.20	1.10	312.0	614.20	0.21	0.21	-0.34	0.40	301.2	1.49	-72.0 M
	621.00	1.10	288.0	621.00	0.27	0.27	-0.45	0.53	300.9	2.02	-49.5 M
	632.40	0.90	310.5	632.39	0.36	0.36	-0.63	0.72	300.1	1.15	-55.8 M
	642.10	0.90	304.2	642.09	0.46	0.46	-0.75	0.87	301.4	0.31	-65.6 M
	651.60	0.70	294.4	651.59	0.52	0.52	-0.86	1.01	301.2	0.76	-55.1 M
	661.00	1.10	304.9	660.99	0.60	0.60	-0.99	1.15	301.1	1.38	-77.6 M
	670.50	1.10	282.4	670.49	0.67	0.67	-1.15	1.33	300.1	1.36	-64.9 M
	680.30	1.30	295.1	680.29	0.74	0.74	-1.34	1.53	298.7	1.02	-43.1 M
	699.60	1.10	316.9	699.58	0.96	0.96	-1.67	1.93	300.0	0.77	-55.1 M
	709.00	0.90	304.9	708.98	1.07	1.07	-1.79	2.09	300.9	0.92	-38.9 M
	718.60	1.10	321.1	718.58	1.19	1.19	-1.91	2.25	301.9	1.08	-34.3 M
	728.00	0.90	325.7	727.98	1.32	1.32	-2.01	2.40	303.3	0.69	-45.7 M
	737.60	0.80	314.3	737.58	1.43	1.43	-2.10	2.54	304.2	0.61	-44.5 M
	747.20	1.10	315.5	747.18	1.54	1.54	-2.21	2.69	304.8	0.94	-34.0 M
	766.30	0.90	326.0	766.27	1.79	1.79	-2.42	3.02	306.5	0.42	-25.4 M
	775.80	0.50	334.6	775.77	1.89	1.89	-2.48	3.12	307.3	1.30	-48.8 M
	785.50	1.10	311.2	785.47	1.99	1.99	-2.57	3.25	307.8	2.08	-51.6 M
	795.10	1.30	308.4	795.07	2.12	2.12	-2.73	3.45	307.9	0.65	-63.5 M
	804.60	1.10	296.5	804.57	2.23	2.23	-2.89	3.65	307.6	1.01	-72.0 M
	813.50	0.80	288.0	813.47	2.29	2.29	-3.03	3.79	307.1	1.11	-53.7 M
	822.70	1.20	306.3	822.66	2.36	2.36	-3.17	3.95	306.7	1.65	-46.6 M
	832.30	1.10	313.4	832.26	2.49	2.49	-3.31	4.14	306.9	0.54	-50.9 M
	841.90	1.20	309.1	841.86	2.61	2.61	-3.46	4.34	307.1	0.41	-50.9 M
	851.50	1.10	309.1	851.46	2.73	2.73	-3.61	4.53	307.2	0.31	-55.8 M

Station ID	MD (m)	Incl (°)	Azim (°)	TVD (m)	VSec (m)	N/-S (m)	E/-W (m)	Closure (m)	at Azim (°)	DLS (°/30m)	TF (°)
	861.10	1.30	304.2	861.06	2.85	2.85	-3.77	4.73	307.1	0.70	-55.8 M
	870.00	1.30	304.2	869.95	2.97	2.97	-3.94	4.93	307.0	0.00	-60.0 M
	879.60	1.40	300.0	879.55	3.09	3.09	-4.13	5.16	306.8	0.44	-60.7 M
	889.20	1.10	299.3	889.15	3.19	3.19	-4.31	5.36	306.5	0.94	-52.3 M
	898.80	0.40	307.7	898.75	3.26	3.26	-4.42	5.49	306.4	2.21	-59.3 M
	908.00	0.40	300.7	907.95	3.29	3.29	-4.47	5.55	306.4	0.16	-70.5 M
	917.60	0.90	289.5	917.55	3.34	3.34	-4.57	5.66	306.1	1.60	-72.7 M
	927.60	1.00	287.3	927.55	3.39	3.39	-4.73	5.82	305.6	0.32	-61.4 M
	936.70	1.10	298.6	936.64	3.45	3.45	-4.88	5.98	305.3	0.76	-39.2 M
	955.80	1.40	320.8	955.74	3.72	3.72	-5.19	6.39	305.6	0.89	-49.5 M
	964.90	1.20	310.5	964.84	3.87	3.87	-5.33	6.59	306.0	1.01	-48.0 M
	974.40	1.80	312.0	974.33	4.03	4.03	-5.52	6.84	306.2	1.90	-43.1 M
	984.00	1.40	316.9	983.93	4.22	4.22	-5.71	7.10	306.5	1.32	-44.5 M
	993.60	0.90	315.5	993.53	4.36	4.36	-5.84	7.29	306.7	1.56	-63.5 M
	1003.00	0.40	296.5	1002.93	4.43	4.43	-5.92	7.40	306.8	1.72	-147.2 M
	1012.60	0.20	212.8	1012.53	4.43	4.43	-5.96	7.43	306.6	1.33	-109.9 M
	1021.80	0.10	250.1	1021.73	4.41	4.41	-5.98	7.43	306.4	0.44	-18.5 M
	1031.10	0.20	341.5	1031.03	4.42	4.42	-5.99	7.45	306.4	0.73	-65.6 M
	1040.70	0.20	294.4	1040.63	4.45	4.45	-6.01	7.48	306.5	0.50	33.5 M
	1050.40	0.00	33.5	1050.33	4.45	4.45	-6.03	7.50	306.5	0.62	158.0 M
	1060.00	0.10	158.0	1059.93	4.45	4.45	-6.03	7.49	306.4	0.31	-171.8 M
	1069.10	0.30	188.2	1069.03	4.42	4.42	-6.03	7.47	306.2	0.72	160.8 M
	1078.70	0.10	160.8	1078.63	4.38	4.38	-6.03	7.45	306.0	0.68	-176.7 M
	1088.40	0.40	183.3	1088.33	4.34	4.34	-6.03	7.43	305.8	0.96	153.0 M
	1097.90	0.60	153.0	1097.83	4.26	4.26	-6.01	7.36	305.4	1.03	172.7 M
	1107.60	0.40	172.7	1107.53	4.18	4.18	-5.98	7.30	305.0	0.81	150.2 M
	1117.10	0.60	150.2	1117.03	4.11	4.11	-5.95	7.23	304.6	0.67	149.5 M
	1126.70	1.00	149.5	1126.63	3.99	3.99	-5.88	7.11	304.2	1.25	126.3 M
	1136.20	0.70	126.3	1136.12	3.89	3.89	-5.79	6.98	303.9	1.42	-166.2 M
	1145.10	0.80	193.8	1145.02	3.79	3.79	-5.76	6.90	303.4	2.82	-166.9 M
	1154.50	1.10	193.1	1154.42	3.64	3.64	-5.80	6.85	302.1	0.96	179.1 M
	1164.10	1.30	179.1	1164.02	3.44	3.44	-5.82	6.76	300.6	1.10	179.8 M
	1173.70	1.50	179.8	1173.62	3.21	3.21	-5.82	6.64	298.9	0.63	165.0 M
	1183.20	1.40	165.0	1183.11	2.97	2.97	-5.79	6.51	297.2	1.22	157.3 M
	1192.90	1.00	157.3	1192.81	2.78	2.78	-5.72	6.36	295.9	1.33	158.0 M
	1202.40	1.00	158.0	1202.31	2.63	2.63	-5.66	6.24	294.9	0.04	146.7 M
	1212.10	1.10	146.7	1212.01	2.47	2.47	-5.58	6.10	293.9	0.71	146.0 M
	1221.70	0.80	146.0	1221.61	2.34	2.34	-5.49	5.97	293.1	0.94	142.0 M
	1231.20	1.60	142.0	1231.11	2.18	2.18	-5.37	5.80	292.1	2.54	140.0 M
	1240.60	2.00	140.0	1240.50	1.95	1.95	-5.18	5.54	290.6	1.29	145.3 M
	1250.30	2.20	145.3	1250.20	1.67	1.67	-4.97	5.24	288.5	0.86	151.2 M
	1259.90	2.00	151.2	1259.79	1.37	1.37	-4.78	4.98	286.0	0.92	147.4 M
	1269.00	1.90	147.4	1268.88	1.10	1.10	-4.63	4.76	283.4	0.54	145.3 M
	1278.00	1.90	145.3	1277.88	0.85	0.85	-4.46	4.54	280.8	0.23	160.8 M
	1287.60	1.90	160.8	1287.47	0.57	0.57	-4.32	4.36	277.6	1.60	160.8 M
	1297.20	2.00	160.8	1297.07	0.26	0.26	-4.21	4.22	273.6	0.31	-174.6 M
	1306.70	1.30	185.4	1306.56	0.00	0.00	-4.17	4.17	270.0	3.10	143.2 M

Station ID	MD (m)	Incl (°)	Azim (°)	TVD (m)	VSec (m)	N/-S (m)	E/-W (m)	Closure (m)	at Azim (°)	DLS (°/30m)	TF (°)
	1316.30	1.10	143.2	1316.16	-0.18	-0.18	-4.12	4.12	267.5	2.76	-164.8 M
	1325.90	1.40	195.2	1325.76	-0.37	-0.37	-4.10	4.11	264.9	3.53	170.6 M
	1335.00	1.30	170.6	1334.86	-0.58	-0.58	-4.11	4.15	262.0	1.92	-173.2 M
	1344.60	1.50	186.8	1344.45	-0.81	-0.81	-4.11	4.18	258.8	1.38	178.4 M
	1354.20	1.70	178.4	1354.05	-1.08	-1.08	-4.12	4.26	255.3	0.96	150.2 M
	1363.80	1.30	150.2	1363.65	-1.31	-1.31	-4.06	4.27	252.1	2.59	96.1 M
	1373.30	1.10	96.1	1373.15	-1.42	-1.42	-3.91	4.16	250.1	3.49	108.6 M
	1382.30	1.40	108.6	1382.14	-1.46	-1.46	-3.72	4.00	248.6	1.35	102.4 M
	1391.90	1.70	102.4	1391.74	-1.53	-1.53	-3.47	3.80	246.2	1.07	104.5 M
	1401.50	1.30	104.5	1401.34	-1.59	-1.59	-3.23	3.60	243.8	1.26	109.5 M
	1411.00	1.10	109.5	1410.83	-1.64	-1.64	-3.04	3.46	241.6	0.71	115.1 M
	1420.60	1.30	115.1	1420.43	-1.72	-1.72	-2.85	3.33	238.9	0.72	103.1 M
	1430.20	1.30	103.1	1430.03	-1.79	-1.79	-2.65	3.20	235.9	0.85	105.2 M
	1439.30	1.30	105.2	1439.13	-1.84	-1.84	-2.45	3.06	233.0	0.16	144.6 M
	1449.00	1.10	144.6	1448.83	-1.95	-1.95	-2.29	3.01	229.6	2.57	165.0 M
	1458.50	1.20	165.0	1458.32	-2.12	-2.12	-2.21	3.06	226.2	1.32	160.1 M
	1467.60	1.30	160.1	1467.42	-2.31	-2.31	-2.15	3.15	223.0	0.48	159.4 M
	1477.10	1.30	159.4	1476.92	-2.51	-2.51	-2.08	3.26	219.6	0.05	155.2 M
	1490.20	1.10	155.2	1490.02	-2.76	-2.76	-1.97	3.39	215.5	0.50	142.5 M
	1499.80	1.30	142.5	1499.61	-2.93	-2.93	-1.87	3.48	212.5	1.04	138.3 M
	1509.40	1.10	138.3	1509.21	-3.09	-3.09	-1.74	3.54	209.4	0.68	131.9 M
	1528.10	1.30	131.9	1527.91	-3.36	-3.36	-1.46	3.67	203.5	0.39	106.6 M
	1537.60	1.10	106.6	1537.41	-3.46	-3.46	-1.29	3.70	200.5	1.77	94.6 M
	1547.20	1.80	94.6	1547.00	-3.50	-3.50	-1.05	3.66	196.8	2.37	82.0 M
	1556.80	1.70	82.0	1556.60	-3.49	-3.49	-0.76	3.57	192.3	1.24	63.7 M
	1565.90	1.30	63.7	1565.70	-3.43	-3.43	-0.54	3.47	188.9	2.04	70.1 M
	1575.50	0.70	70.1	1575.29	-3.36	-3.36	-0.38	3.38	186.5	1.90	45.5 M
	1585.10	1.20	45.5	1584.89	-3.27	-3.27	-0.26	3.28	184.5	1.98	51.1 M
	1594.60	1.30	51.1	1594.39	-3.13	-3.13	-0.10	3.13	181.9	0.50	54.6 M
	1604.10	1.40	54.6	1603.89	-3.00	-3.00	0.08	3.00	178.6	0.41	68.7 M
	1613.20	1.10	68.7	1612.99	-2.90	-2.90	0.25	2.91	175.1	1.41	86.2 M
	1622.70	1.10	86.2	1622.48	-2.86	-2.86	0.42	2.89	171.6	1.06	88.4 M
	1632.30	0.80	88.4	1632.08	-2.85	-2.85	0.58	2.91	168.5	0.94	68.7 M
	1641.90	1.00	68.7	1641.68	-2.82	-2.82	0.73	2.91	165.5	1.14	89.1 M
	1651.50	1.00	89.1	1651.28	-2.79	-2.79	0.89	2.93	162.3	1.11	77.1 M
	1661.00	1.30	77.1	1660.78	-2.76	-2.76	1.08	2.97	158.7	1.21	94.5 M
	1670.60	1.50	94.5	1670.38	-2.75	-2.75	1.31	3.05	154.5	1.46	75.7 M
	1680.20	1.30	75.7	1679.97	-2.73	-2.73	1.54	3.14	150.6	1.56	30.0 M
	1689.70	1.00	30.0	1689.47	-2.63	-2.63	1.69	3.13	147.4	2.95	8.9 M
	1699.30	1.10	8.9	1699.07	-2.47	-2.47	1.74	3.02	144.8	1.24	-0.9 M
	1708.90	1.20	359.1	1708.67	-2.28	-2.28	1.75	2.88	142.4	0.69	-0.2 M
	1718.10	1.10	359.8	1717.87	-2.09	-2.09	1.75	2.73	140.1	0.33	9.6 M
	1727.60	0.70	9.6	1727.36	-1.95	-1.95	1.76	2.62	137.8	1.35	-2.3 M
	1737.20	0.90	357.7	1736.96	-1.81	-1.81	1.77	2.53	135.7	0.81	-4.5 M
	1746.20	1.00	355.5	1745.96	-1.66	-1.66	1.76	2.42	133.4	0.35	-8.7 M
	1755.80	1.10	351.3	1755.56	-1.49	-1.49	1.74	2.29	130.6	0.39	-4.5 M

Station ID	MD (m)	Incl (°)	Azim (°)	TVD (m)	VSec (m)	N/-S (m)	E/-W (m)	Closure (m)	at Azim (°)	DLS (°/30m)	TF (°)
	1765.40	1.10	355.5	1765.16	-1.31	-1.31	1.72	2.16	127.3	0.25	-22.7 M
	1775.00	1.20	337.3	1774.76	-1.12	-1.12	1.67	2.01	123.9	1.18	-2.4 M
	1784.50	1.00	357.6	1784.26	-0.95	-0.95	1.63	1.89	120.2	1.37	-22.0 M
	1794.10	1.00	338.0	1793.85	-0.79	-0.79	1.59	1.78	116.2	1.06	-31.2 M
	1803.60	0.90	328.8	1803.35	-0.65	-0.65	1.53	1.66	112.9	0.57	-16.4 M
	1813.30	1.10	343.6	1813.05	-0.49	-0.49	1.46	1.54	108.6	1.01	-10.1 M
	1822.90	1.10	349.9	1822.65	-0.31	-0.31	1.42	1.45	102.4	0.38	-22.0 M
	1832.40	1.00	338.0	1832.15	-0.14	-0.14	1.37	1.38	96.0	0.76	-5.2 M
	1841.00	1.00	354.8	1840.75	0.00	-0.00	1.34	1.34	90.0	1.02	2.6 M
	1850.90	0.90	2.6	1850.64	0.16	0.16	1.33	1.34	83.0	0.49	8.2 M
	1860.50	1.10	8.2	1860.24	0.33	0.33	1.35	1.39	76.3	0.69	27.9 M
	1869.60	0.90	27.9	1869.34	0.48	0.48	1.39	1.47	71.0	1.30	18.0 M
	1879.10	0.70	18.0	1878.84	0.60	0.60	1.45	1.57	67.5	0.77	23.7 M
	1897.70	1.10	23.7	1897.44	0.87	0.87	1.55	1.78	60.7	0.66	13.1 M
	1907.00	0.40	13.1	1906.74	0.99	0.99	1.60	1.88	58.3	2.29	-38.2 M
	1916.60	0.20	321.8	1916.34	1.03	1.03	1.59	1.90	57.1	0.99	-12.2 M
	1926.10	0.20	347.8	1925.84	1.06	1.06	1.58	1.90	56.1	0.28	-20.6 M
	1935.70	0.40	339.4	1935.44	1.11	1.11	1.56	1.92	54.7	0.64	172.0 M
	1955.80	0.20	172.0	1955.54	1.14	1.14	1.54	1.92	53.6	0.89	-166.9 M
	1965.40	0.60	193.1	1965.14	1.07	1.07	1.54	1.87	55.0	1.31	-160.6 M
	1974.50	0.40	199.4	1974.24	1.00	1.00	1.51	1.81	56.6	0.68	-147.9 M
	1983.00	0.30	212.1	1982.74	0.95	0.95	1.49	1.77	57.5	0.44	177.0 M
	1992.10	0.60	177.0	1991.84	0.88	0.88	1.48	1.73	59.2	1.30	163.6 M
	2001.70	0.50	163.6	2001.44	0.79	0.79	1.50	1.69	62.1	0.51	155.9 M
Projection to TD	2011.30	0.90	155.9	2011.04	0.68	0.68	1.54	1.68	66.1	1.28	---

Survey Program:

Measured Depth	Tool (Wolff & deWardt Error Model)
0.00	None
2011.30	None

Schlumberger

Alberta Energy Corp

JSO#	40004524	Hole Size: 222 mm	Depth in: 586 m	Depth out: 1273 m	Mtr. Drlg 687 m	BHA # 1

Well	AEC Rennaissance Tate	Last cas.@	586.0m	Date In	Feb 22 00	Date Out	Feb 25 00	Days	4.0	SPP Off	5500.0 MPa
LSD	Tate Lake G-18	Bit to Svy.	13.0 m	PDM Run #	1	Drlg hrs	51.75 hrs	Circ. Hrs	9.0 hrs	SPP On	7000.0 MPa
Pad ID	Single well	React. Torq.	145	Mot. Vend.	Vector	Avg. ROP	13.25 m/hr	Tot. D&C	60.8 hrs	Differential	1500.0 MPa
Field	Tate Lake	Rot. Torq	N/A	R/S conf.	7/8 3.0	Reverse ROP	4.5 min/m	Pump #	1	Pump #	2
Prov.	NWT	Inc. In		BH Set	150	Slide Dist.	16.0 m	Pump Man.	NAT	Pump Man.	NAT
Rig	Akita #51	Azm. In		Motor RPM	100	Rotate Dist.	671.0 m	Pump Type	8-P-80	Pump Type	8-P-80
Co.Rep	Al Anger	Inc. Out	2.0 deg	Rot. RPM	30	Slide Hrs.	1.21 hrs	Tri /Dup	Triplex	Tri /Dup	Triplex
Rig Man	Rick Parker	Azm. Out	151.2 deg	Avg. WOB	16/18	Rot. Hrs.	50.54 hrs	Stroke	216 mm	Stroke	216 mm
DD	Eric Erickson	MWD	Barry Timmerma	BHA Wt.	27 maN	Slide ROP	13.22 m/hr	Liner	152 mm	Liner	152 mm
DD		MWD		String Wt	55 maN	Rot. ROP	13.28 m/hr	Strks / min	110	Strks / min	
DD		MWD		P/U Wt.	58 maN	Steering	2.0%	Vol(strk)	.011bcu. m	Vol(strk)	
DD		MWD		S/O Wt.	53 maN	Rotate	98.0%	Volume	1.30 m3	Volume	

Mud	FLOC	Mud Vis	28 sec/L	Sand		Chlorides		YP		PH	9.0
Mud Wt	1000 kg/cu. m	WL		Solid cont		Oil/Water		PV		MWD BHT	32.0 deg./C

Item	#	Description	Vendor	Serial #	Max OD	OD	ID	B. Conn	T. Conn	Length	Cum Len
1	1	FDS+2 3X14.3	Smith	LR9325		222	N/A		4.5 Reg	0.25	0.25
2	1	6.75 7:8 3.0 set@ 1.50	Vector	675-17-003	193	171	N/A	4.5 Reg	4.5H90	6.04	6.29
3	1	Float Sub	Anadrill	1316579		157	N/A	4.5H90	4.5 H90	0.59	6.88
4	1	UBHO	Anadrill	1416514		175	0.72	4.5 H90	4.5 H90	0.66	7.54
5	1	NMDC	Anadrill	1916539		164	0.72	4.5 H90	4.5 H90	9.21	16.75
6	1	X - Over Sub	Anadrill	1216576		173	0.7	4.5 H90	4.5XH	0.62	17.37
7	6	Drill Collars	Akita			156	0.61	4.5XH	4.5XH	55.71	73.08
8	1	Jars	Cougar	DJG650-12V		160	0.65	4.5XH	4.5XH	4.70	77.78
9	10	Drill Collars	Akita			156	0.61	4.5XH	4.5XH	91.81	169.59
10	6	HWDP	Akita					4.5XH	4.5XH	55.54	225.13
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Exp. :

Act. :

ONLY 16 METERS OF SLIDE WAS REQUIRED

Com.:

Bit condition

Cutting structure						B	G	Remarks	
IADC code	Inner rows	Outer rows	MDC	LOC	BRG	GAUG 1/16	ODC	REASON PULLED	
1 1 7	6	5	MT	AL	1/16	IN	MT	PR	

Make-up Torque ALL TORQUES ARE FOR STEEL, USE 80% FOR MONEL'S; (Divide all torque values by length of long arm)

Drill Collars		Hevi-Wate drill pipe		Motor Nut - Anadrill's Motors	
4.5 H90	23000 ft lb / 31200 N-m	2.9 AOH	3500 ft lb /4700 Nm	2.38	890 ft lb / 1200 N-m
4 IF/4.5XH/NC46	22200 ft lb / 30100 N-m	2.9 H90	4600 ft lb /6200 Nm	2.87	1650 ft lb / 2200 N-m
4.5 FH	19800 ft lb / 26800 N-m	3.5 IF / NC38	9900 ft lb /13400 Nm	3.38	3600 ft lb / 4900 N-m
3.5 IF / NC38	9900 ft lb / 13400 N-m	4 FH / NC40	13250 ft lb /18000 Nm	4.75	10000 ft lb / 13600 N-m
2.9 AOH	3500 ft lb / 4700 N-m	4 IF / 4.5 XH / NC46	21800 ft lb /29600 N-m	6.25	20000 ft lb / 27100 N-m
2.9 H90	4600 ft lb / 6200 N-m	4.5 IF / 5 XH / NC50	29400 ft lb /39900 N-m	6.75	25000 ft lb / 33900 N-m
PH6	5500 ft lb / 7500 N-m	5.5 FH	33200 ft lb /45000 N-m	8	35000 ft lb / 47500 N-m
VO55	3750 ft lb / 5100 N-m	6.625 FH	46900 ft lb /63600 N-m	9.62	60000 ft lb / 81300 N-m

Schlumberger

Alberta Energy Corp

JSO#	40004524	Hole Size: 222 mm	Depth in: 1273 m	Depth out: 1491 m	Mtr. Drlg 218 m	BHA # 2

Well	AEC Rennaissance Tate	Last csg.@	586.0m	Date In	Feb 25 00	Date Out	Feb 27 00	Days	3.0	SPP Off	5500.0 MPa
LSD	Tate Lake G-18	Bit to Svy.	13.0 m	PDM Run #	2	Drlg hrs	20.75 hrs	Circ. Hrs	16.5 hrs	SPP On	7000.0 MPa
Pad ID	Single well	Reect. Torq.	145	Mot. Vend.	Vector	Avg. ROP	10.51 m/hr	Tot. D&C	37.3 hrs	Differential	1500.0 MPa
Field	Tate Lake	Rot. Torq	N/A	R/S conf.	7/8 3.0	nverse ROP		Pump #	1	Pump #	2
Prov.	NWT	Inc. In	2.0 deg	ABH Set	150	Slide Dist.	37.0 m	Pump Man.	NAT	Pump Man.	NAT
Rig	Akita #51	Azm. In	151.2 deg	Motor RPM	100	Rotate Dist.	181.0 m	Pump Type	6-P-80	Pump Type	8-P-80
Co.Rep	Al Anger	Inc. Out	1.3 deg	Rot. RPM	20	Slide Hrs.	3.52 hrs	Tri /Dup	Triplex	Tri /Dup	Triplex
Rig Man	Rick Parker	Azm. Out	159.4 deg	Avg. WOB	16/18	Rot. Hrs.	17.23 hrs	Stroke	216 mm	Stroke	216 mm
DD	Eric Erickson	MWD	Barry Timmerma	BHA Wt.	27 maN	Slide ROP	10.51 m/hr	Liner	152 mm	Liner	152 mm
DD		MWD		String Wt	55 maN	Rot. ROP	10.51 m/hr	Strks / min	100	Strks / min	
DD		MWD		P/U Wt.	58 maN	Steering	17.0%	Vol(strk)	.0118cu. m	Vol(strk)	
DD		MWD		S/O Wt.	53 maN	Rotate	83.0%	Volume	1.18 m3	Volume	

Mud	Gel	Mud Vis	71 sec/L	Sand		Chlorides		YP		PH	9.0
Mud Wt	1060 kg/cu. m	WL	8.5 cc's	Solid cont		Oil/Water		PV		MWD BHT	36.0 deg./C

Item	#	Description	Vendor	Serial #	Max OD	OD	ID	B. Conn	T. Conn	Length	Cum Len
1	1	F10TPS 3X14.3	Smith	LR5606		222	N/A		4.5 Reg	0.25	0.25
2	1	6.75 7:8 3.0 set@ 1.50	Vector	675-17-003	193	171	N/A	4.5 Reg	4.5H90	6.04	6.29
3	1	Float Sub	Anadrill	1316579		157	N/A	4.5H90	4.5 H90	0.59	6.88
4	1	UBHO	Anadrill	1416514		175	0.72	4.5 H90	4.5 H90	0.66	7.54
5	1	NMDC	Anadrill	1916539		164	0.72	4.5 H90	4.5 H90	9.21	16.75
6	1	X - Over Sub	Anadrill	1216576		173	0.7	4.5 H90	4.5XH	0.62	17.37
7	6	Drill Collars	Akita			156	0.61	4.5XH	4.5XH	55.71	73.08
8	1	Jars	Cougar	DJG650-12V		160	0.65	4.5XH	4.5XH	4.70	77.73
9	10	Drill Collars	Akita			156	0.61	4.5XH	4.5XH	91.81	169.59
10	6	HWDP	Akita					4.5XH	4.5XH	55.54	225.13
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Exp. :

Act. :

Com.:

Bit condition

	Cutting structure					B	G	Remarks
IADC code	Inner rows	Outer rows	MDC	LOC	BRG	GAUG 1/16	ODC	REASON PULLED
4 3 7	7	6	MT	AL	G	IN	MT	PR

Make-up Torque ALL TORQUE'S ARE FOR STEEL, USE 80% FOR MONEL'S; (Divide all torque values by length of tong arm)

Drill Collars		Hevi-Wate drill pipe		Motor Nut - Anadrill's Motors	
4.5 H90	23000 ft lb / 31200 N-m	2.9 AOH	3500 ft lb /4700 N-m	2.38	890 ft lb / 1200 N-m
4 IF/4.5XH/NC46	22200 ft lb / 30100 N-m	2.9 H90	4600 ft lb /6200 N-m	2.87	1650 ft lb / 2200 N-m
4.5 FH	19800 ft lb / 26800 N-m	3.5 IF / NC38	9900 ft lb /13400 N-m	3.38	3600 ft lb / 4900 N-m
3.5 IF / NC38	9900 ft lb / 13400 N-m	4 FH / NC40	13250 ft lb /18000 N-m	4.75	10000 ft lb / 13600 N-m
2.9 AOH	3500 ft lb / 4700 N-m	4 IF / 4.5 XH / NC46	21800 ft lb /29600 N-m	6.25	20000 ft lb / 27100 N-m
2.9 H90	4600 ft lb / 6200 N-m	4.5 IF / 5 XH / NC50	29400 ft lb /39900 N-m	6.75	25000 ft lb / 33900 N-m
PH6	5500 ft lb / 7500 N-m	5.5 FH	33200 ft lb /45000 N-m	8	35000 ft lb / 47500 N-m
VO55	3750 ft lb / 5100 N-m	6.625 FH	46900 ft lb /63600 N-m	9.62	60000 ft lb / 81300 N-m

Schlumberger

Alberta Energy Corp

JSO#	40004524	Hole Size: 222 mm	Depth in: 1491 m	Depth out: 1768 m	Mtr. Drlg: 277 m	BHA # 3

Well	AEC Rennaissance Tate	Last cas.@	586.0m	Date In	Feb 27 00	Date Out	Mar 01 00	Days	4.0	SPP Off	5500.0 MPa
LSD	Tate Lake G-18	Bit to Svy.	13.0 m	PDM Run #	3	Drlg hrs	55.5 hrs	Circ. Hrs	5.5 hrs	SPP On	7000.0 MPa
Pad ID	Single well	React. Torq.	270	Mot. Vend.	Vector	Avg. ROP	4.98 m/hr	Tot. D&C	61.0 hrs	Differential	1500.0 MPa
Field	Tate Lake	Rot. Torq	N/A	R/S conf.	7/8 3.0	Reverse ROP	12.0 min/m	Pump #	1	Pump #	2
Prov.	NWT	Inc. In	1.1 deg	ABH Set	150	Slide Dist.	23.0 m	Pump Man.	NAT	Pump Man.	NAT
Rig	Akita #51	Azm. In	155.2 deg	Motor RPM	90	Rotate Dist.	254.0 m	Pump Type	8-P-80	Pump Type	8-P-80
Co.Rep	AJ Anger	Inc. Out	1.1 deg	Rot. RPM	20	Slide Hrs.	4.61 hrs	Tri /Dup	Triplex	Tri /Dup	Triplex
Rig Man	Rick Parker	Azm. Out	351.3 deg	Avg. WOB	16/18	Rot. Hrs.	50.89 hrs	Stroke	216 mm	Stroke	216 mm
DD	Eric Erickson	MWD	Barry Timmerma	BHA Wt.	27 maN	Slide ROP	4.99 m/hr	Liner	152 mm	Liner	152 mm
DD		MWD		String Wt	64 maN	Rot. ROP	4.98 m/hr	Strks / min	100	Strks / min	
DD		MWD		P/U Wt.	67 maN	Steering	8.0%	Vol(strk)	0118cu. m	Vol(strk)	
DD		MWD		S/O Wt.	62 maN	Rotate	92.0%	Volume	1.18 m3	Volume	

Mud	Gel	Mud Vis	48 soc/L	Sand	1%	Chlorides	320 ppm	YP	6	PH	10.5
Mud Wt	1075 kg/cu. m	WL	10.0 cc's	Solid cont	4.7 %	Oil/Water		PV	18	MWD BHT	44.8 deg /C

Item	#	Description	Vendor	Serial #	Max OD	OD	ID	B. Conn	T. Conn	Length	Cum Len
1	1	F37P 3X14.3	Smith	LX6240		222	N/A		4.5 Reg	0.25	0.25
2	1	6.75 7/8 3.0 set@ 1.50	Vector	675-17-003	193	171	N/A	4.5 Reg	4.5H90	6.04	6.29
3	1	Float Sub	Anadrill	1316579		157	N/A	4.5H90	4.5 H90	0.59	6.88
4	1	UBHO	Anadrill	1416514		175	0.72	4.5 H90	4.5 H90	0.66	7.54
5	1	NMDC	Anadrill	1916539		164	0.72	4.5 H90	4.5 H90	9.21	16.75
6	1	X - Over Sub	Anadrill	1216576		173	0.7	4.5 H90	4.5XH	0.62	17.37
7	1	Shock Sub	Cougar	ST5-612-48		157	0.54	4.5XH	4.5XH	3.51	20.88
8	6	Drill Collars	Akita			156	0.61	4.5XH	4.5XH	55.71	76.59
9	1	Jars	Cougar	DJG650-12V		160	0.65	4.5XH	4.5XH	4.70	81.29
10	10	Drill Collars	Akita			156	0.61	4.5XH	4.5XH	91.61	173.10
11	6	HWDP	Akita					4.5XH	4.5XH	55.54	228.64
12											
13											
14											
15											
16											
17											
18											
19											
20											

Exp :

Act. :

Bit condition

	Cutting structure				B	G	Remarks
IADC code	Inner rows	Outer rows	MDC	LOC	BRG	GAUG 1/16	ODC REASON PULLED
547	5	5	WT	A	E	IN	PR

Com.: The inside of the shock sub is only 54mm , making the the MWD a nonretre

Make-up Torque ALL TORQUE'S ARE FOR STEEL, USE 80% FOR MONEL'S; (Divide all torque values by length of tong arm)

Drill Collars		Hevi-Wate drill pipe		Motor Nut - Anadrill's Motors	
4.5 H90	23000 ft lb / 31200 N-m	2.9 AOH	3500 ft lb /4700 N-m	2.38	890 ft lb / 1200 N-m
4 IF/4.5XH/NC46	22200 ft lb / 30100 N-m	2.9 H90	4600 ft lb /6200 N-m	2.87	1650 ft lb / 2200 N-m
4.5 FH	19800 ft lb / 26800 N-m	3.5 IF / NC38	9900 ft lb /13400 N-m	3.38	3600 ft lb / 4900 N-m
3.5 IF / NC38	9900 ft lb / 13400 N-m	4 FH / NC40	13250 ft lb /18000 N-m	4.75	10000 ft lb / 13600 N-m
2.9 AOH	3500 ft lb / 4700 N-m	4 IF / 4.5 XH / NC46	21800 ft lb /29600 N-m	6.25	20000 ft lb / 27100 N-m
2.9 H90	4600 ft lb / 6200 N-m	4.5 IF / 5 XH / NC50	29400 ft lb /39900 N-m	6.75	25000 ft lb / 33900 N-m
PH6	5500 ft lb / 7500 N-m	5.5 FH	33150 ft lb /45000 N-m	8	35000 ft lb / 47500 N-m
VO55	3750 ft lb / 5100 N-m	6.625 FH	46900 ft lb /63600 N-m	9.62	0 ft lb / 81300 N-m

Schlumberger

Alberta Energy Corp

JSO#	40004524	Hole Size. 222 mm	Depth in. 1768 m	Depth out. 2030 m	Mtr. Drlg 262 m	BHA # 4

Well	AEC Renaissance Tate	Last cas.@	586.0m	Date In	Mar 01 00	Date Out	Mar 04 00	Days	4.0	SPP Off	5500.0 MPa
LSD	Tate Lake G-18	Bit to Svy.	14.0 m	PDM Run #	1	Drlg hrs	42.5 hrs	Circ. Hrs	7.8 hrs	SPP On	7000.0 MPa
Pad ID	Single well	React. Torq	300	Mot. Vend.	Vector	Avg. ROP	6.16 m/hr	Tot. D&C	50.3 hrs	Differential	1500.0 MPa
Field	Tate Lake	Rot. Torq	N/A	R/S conf.	7/8 3.0	nverse ROP	9.7 min/m	Pump #	1	Pump #	2
Prov.	N W T	Inc. In	1.1 deg	ABH Set	1.5	Slide Dist	Nil	Pump Man.	NAT	Pump Man.	NAT
Rig	Akita #51	Azm. In	351.3 deg	Motor RPM	90	Rotate Dist.	262.0 m	Pump Type	8-P-80	Pump Type	8-P-80
Co.Rep	Al Anger	Inc. Out	0.9 deg	Rot. RPM	15	Slide Hrs.	Nil	Tri /Dup	Triplex	Tri /Dup	Triplex
Rig Man	Rick Parker	Azm. Out	155.9 deg	Avg. WOB	16/18	Rot. Hrs.	42.50 hrs	Stroke	216 mm	Stroke	216 mm
DD	Eric Crickson	MWD	Barry Timmerma	BHA Wt.	27 maN	Slide ROP	-	Liner	152 mm	Liner	152 mm
DD		MWD		String Wt.	89 maN	Rot. ROP	6.16 m/hr	Strks / min	100	Strks / min	
DD		MWD		P/U Wt.	76 maN	Steering		Vol(strk)	.0118cu. m	Vol(strk)	
DD		MWD		S/O Wt.	64 maN	Rotate	100.0%	Volume	1.18 m3	Volume	

Mud	GEL	Mud Vis	47 sec/L	Sand	1%	Chlorides	183000 ppm	YP	21	PH	8.0
Mud Wt	1180 kg/cu m	WL	25+	Solid cont	6.0 %	Oil/Water		PV	10	MWD BHT	44.9 deg /C

Item	#	Description	Vendor	Serial #	Max OD	OD	ID	B. Conn	T. Conn	Length	Cum Len
1	1	F37P 3X14.3	Smith	LX6668		222	N/A		4.5 Reg	0.25	0.25
2	1	6.75 7:8 3.0 sc[illegible] 1.50	Vector	109-67198-	193	171	N/A	4.5 Reg	4.5H90	7.06	7.31
3	1	Float Sub	Anadrill	1316579		157	N/A	4.5H90	4.5 H90	0.59	7.90
4	1	UBHO	Anadrill	1416514		175	0.72	4.5 H90	4.5 H90	0.66	8.56
5	1	NMDC	Anadrill	1916539		164	0.72	4.5 H90	4.5 H90	9.21	17.77
6	1	X - Over Sub	Anadrill	1216576		173	0.7	4.5 H90	4.5XH	0.62	18.39
7	1	Shock Sub	Cougar	ST5-612-48		156	0.54	4.5XH	4.5XH	3.51	21.90
8	6	Drill Collars	Akita			156	0.61	4.5XH	4.5XH	55.71	77.61
9	1	Jars	Cougar	DJG650-12V		160	0.65	4.5XH	4.5XH	4.70	82.31
10	10	Drill Collars	Akita			156	0.61	4.5XH	4.5XH	91.81	174.12
11	6	HWDP	Akita					4.5XH	4.5XH	55.54	229.66
12											
13											
14											
15											
16											
17											
18											
19											
20											

Bit condition

	Cutting structure				B	G	Remarks	
	IADC code	Inner rows	Outer rows	MDC	LOC	BRG	GAUG 1/16	ODC REASON PULLED
Exp. :	537							
Act. :								

Com.: The inside diameter of the shock sub is only 54mm, making the MWD nonre

Make-up Torque ALL TORQUE'S ARE FOR STEEL, USE 80% FOR MONEL'S; (Divide all torque values by length of tong arm)

Drill Collars		Hevi-Wate drill pipe		Motor Nut - Anadrill's Motors	
4.5 H90	23000 ft lb / 31200 N-m	2.9 AOH	3500 ft lb /4700 Nlm	2.38	890 ft lb / 1200 N-m
4 IF/4.5XH/NC46	22200 ft lb / 30100 N-m	2.9 H90	4600 ft lb /6200 Nlm	2.87	1650 ft lb / 2200 N-m
4.5 FH	19800 ft lb / 26800 N-m	3.5 IF / NC38	9900 ft lb /13400 Nlm	3.33	3600 ft lb / 4900 N-m
3.5 IF / NC38	9900 ft lb / 13400 N-m	4 FH / NC40	13250 ft lb /18000 Nlm	4.75	10000 ft lb / 13600 N-m
2.9 AOH	3500 ft lb / 4700 N-m	4 IF / 4.5 XH / NC46	21600 ft lb /29900 N-m	6.25	20000 ft lb / 27100 N-m
2.9 H90	4600 ft lb / 6200 N-m	4.5 IF / 5 XH / NC50	29400 ft lb /39900 N-m	6.75	25000 ft lb / 33900 N-m
PH6	5500 ft lb / 7500 N-m	5.5 FH	33200 ft lb /45000 N-m	8	35000 ft lb / 47500 N-m

909044978 3 414152

Schlumberger / Anadrill

Day 1

JOB NUMBER	DATE	COMPANY	WELL NAME
4000852	Friday Feb 18, 2000	Alberta Energy Corp	AEC West G-18 G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Rennaissance Tate G-18	

DRILLING RECORD

BIT NUMBER	
BIT SIZE	
BIT TYPE	
JETS (mm)	
DEPTH IN	
DEPTH OUT	
METERS	
HOURS	
ROP (m/hr)	
RPM	
WOB	
PP ON	
PP OFF	
STG WT	
P/U WT	
S/O WT	
PUMP DATA	
PUMP MAN.	
PUMP MOD.	
Triplex/Duplex	
LINER	
STROKE	
CU. M/STRK	
STRKS/Min.	
VOLUME	
MUD REPORT	
MUD TYPE (Select)	
MUD WEIGHT	
VISCOSITY (sec/L)	
WATER LOSS	
pH	
SAND	
TEMPERATURE (°C)	

TIME LOG

TIME	FROM	TO	DESCRIPTION
15.00		15:00	Travel to Location Arriving at 15:00PM.
9.00	15:00	0:00	Rig up Tools
24.00	TOTAL		

SERVICE

LIST SUPPLIER (if not Anadrill)		COST
SUPERVISION	2 @ 700.00	$ 1,400.00
FLAT RATE		
MOTOR HRS	200.00	
MOTOR DAILY		
MOTOR STBY		
JARS		
S. SHOT KIT	125.00	
UBHO SUB	25.00	
MONEL	125.00	
STABILIZERS		
TB REAMER		
MWD SUPER.	1 @ 500.00	$ 500.00
MWD SYSTEMS	2800.00	
GAMMA RAY		
GAMMA RAY (STDBY)		
CMPTR & WELL FILE	350.00	$ 350.00
DD STANDBY		
SUBSISTENCE (Camp?)		
No camp	2 @ 75.00	$ 225.00

MILEAGE

VEH. LIC. #	KM TDY	KM ACC

KM TODAY	0.75	$ -
KM ACCUM.		
DAILY TOTAL	$	1,475.00
ACCUMULATED	$	2,475.00

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily Run Drill	Daily Run Circ	Daily Run D+C	Well Drill	Well Circ	Well D+C	Total Drill	Total Circ	Total D+C	FAILURE? (Yes / No)

BHA #

ITEM	VENDER	SERIAL#	LENGTH

Schlumberger

Day 2

JOB NUMBER	DATE	COMPANY	WELL NAME
4000-4529	Feb 19th SUN FEB 20, 2000	Alberta Energy Corp	AEC West G-18 G-18
COMPANY REPRESENTATIVE	RIG NAME	LOCATION	
Al Anger	Akita #51	Renaissance Tate G-18	

DRILLING RECORD		
BIT NUMBER		
BIT SIZE		
BIT TYPE		
JETS (mm)		
DEPTH IN		
DEPTH OUT		
METERS		
HOURS		
ROP (m/hr)		
RPM		
WOB		
PP ON		
PP OFF		
STG WT		
P/U WT		
S/O WT		
PUMP DATA		
PUMP MAN.	NAT	NAT
PUMP MOD.	8-P-80	8-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M/STRK	0.0118	0.0118
STRKS/Min.		
VOLUME		
MUD REPORT		
MUD TYPE (Gel,ect.)		
MUD WEIGHT		
VISCOSITY (sec/L)		
WATER LOSS		
pH		
SAND		
TEMPERATURE (°C)		

TIME RECORD

TIME	FROM	TO	DESCRIPTION
24.00		0:00	Standby to pick up Dir Tools
24.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (If not Anadrill)			COST
SUPERVISION	1 @	700.00	$ 700.00
FLAT RATE			
MOTOR HRS		200.00	
MOTOR DAILY			
MOTOR STBY			
JARS			
S. SHOT KIT		125.00	
FLOAT SUB		25.00	
MONEL		125.00	
X/Over		25.00	
STABILIZERS			
TB REAMER			
MWD SUPER	1 @	600.00	$ 600.00
MWD SYSTEMS			
GAMMA RAY			
GAMMA RAY (STDBY)			
CMPTR & WELL PLAN			
EQUIPMENT STANDBY		1000.00	$ 1,000.00
SUBSISTENCE (Camp?)			
camp			

MILEAGE

VEH. LIC. #	KM TDY	KM ACC

KM TODAY	0.75	$ -
KM ACCUM.		
DAILY TOTAL		$ 2,300.00
ACCUMULATED		$ 47,175.00

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily Drill	Daily Circ	Daily D+C	Run Drill	Run Circ	Run D+C	Well Drill	Well Circ	Well D+C	Total Drill	Total Circ	Total D+C	FAILURE? (Yes / No)

BHA #

ITEM	VENDER	SERIAL#	LENGTH

Schlumberger

Day 3

JOB NUMBER	DATE	COMPANY	WELL NAME
4004524	WED FEB, 16, 2000	Alberta Energy Corp	AEC West G-18 G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Renaissance Tate G-18	

DRILLING RECORD

BIT NUMBER	
BIT SIZE	
BIT TYPE	
JETS (mm)	
DEPTH IN	
DEPTH OUT	
METERS	
HOURS	
ROP (m/hr)	
RPM	
WOB	
PP ON	
PP OFF	
STG WT	
P/U WT	
S/O WT	

PUMP DATA

PUMP MAN.	
PUMP MOD.	
Triplex/Duplex	
LINER	
STROKE	
CU. M./STRK	
STRKS/Min.	
VOLUME	

MUD REPORT

MUD TYPE (Gel,ect.)	
MUD WEIGHT	
VISCOSITY (sec/L)	
WATER LOSS	
pH	
SAND	
TEMPERATURE (°C)	24.00

TIME RECORD

TIME	FROM	TO	DESCRIPTION
24.00		0:00	Stand by to pick up Dir Tools
			No. 17, 18, 19, 20, 21
			TOTAL

COST ESTIMATE

LIST SUPPLIER (If not Anadrill)			COST
SUPERVISION	1 @	700.00	$ 700.00
FLAT RATE			
MOTOR HRS		200.00	
MOTOR DAILY			
MOTOR STBY			
JARS			
S. SHOT KIT		125.00	
FLOAT SUB		25.00	
MONEL		125.00	
X/Over		25.00	
STABILIZERS			
TB REAMER			
MWD SUPER.	1 @	400.00	$ 400.00
MWD STBY ITEMS			
GAMMA RAY			
GAMMA RAY (STDBY)			
CMPTR & WELL PLAN			
EQUIPMENT STANDBY			$ 1,000.00
SUBSISTENCE (Camp?)			
camp			

MILEAGE

VEH. LIC. #	KM TDY	KM ACC	
KM TODAY		0.75	$ -
KM ACCUM.			
DAILY TOTAL			$ 2,100.00
ACCUMULATED			$ 8875.00

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily			Run			Well			Total			FAILURE?
			Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	(Yes / No)

BHA #

ITEM	VENDER	SERIAL#	LENGTH

Schlumberger

Day 4

JOB NUMBER	DATE	COMPANY	WELL NAME
900045214	TUE FEB. 22, 2000	Alberta Energy Corp	AEC West G-18 G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Rennaissance Tate G-18	

DRILLING RECORD

BIT NUMBER	1	
BIT SIZE	222.0	
BIT TYPE	FDS+2	
JETS (mm)	14,3	
DEPTH IN	586 m	
DEPTH OUT		
METERS		
HOURS		
ROP (m/hr)		
RPM	30/100	
WOB	14/18	
PP ON	5000	
PP OFF	4000	
STG WT	40	
P/U WT	40	
S/O WT	40	

PUMP DATA

PUMP MAN.	NAT	NAT
PUMP MOD.	8-P-80	8-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M/STRK	0.0118	0.0118
STRKS/Min.	110	
VOLUME	1.30	

MUD REPORT

MUD TYPE (Gel,ect.)	Floc
MUD WEIGHT	1000
VISCOSITY (sec/L)	28
WATER LOSS	
pH	
SAND	
TEMPERATURE (°C)	

TIME RECORD

TIME	FROM	TO	DESCRIPTION
1.00		1:00	Weld Casing Bowl
5.50	1:00	6:30	Nipple up BOP's
6.75	6:30	13:15	Pressure Test
2.75	13:15	16:00	Make up BHA
0.25	16:00	16:15	Rig service
2.50	16:15	18:45	RIH
0.50	18:45	19:15	Circulate
4.50	19:15	23:45	Pressure Test
0.25	23:45	0:00	Drill out Cement
24.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (if not Anadrill)			COST
SUPERVISION	1 @	700.00	$ 700.00
FLAT RATE			
MOTOR HRS		200.00	
MOTOR DAILY			
MOTOR STBY			
JARS			
S. SHOT KIT		125.00	
FLOAT SUB	1	25.00	$ 25.00
MONEL	1	125.00	$ 125.00
X/Over	1	25.00	$ 25.00
STABILIZERS			
TB REAMER			
MWD SUPER.	1 @	500.00	$ 500.00
MWD SYSTEMS	1	2800.00	$ 2,800.00
GAMMA RAY			
MOTOR RELINE			
THREAD INSPECTION			
SUBSISTENCE (Camp?)			
camp			

MILEAGE

VEH. LIC. #	KM TDY	KM ACC

KM TODAY	0.75	$ -
KM ACCUM.		
DAILY TOTAL		$ 4,275.00
ACCUMULATED		$ 11,450.00

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily Drill	Daily Circ	Daily D+C	Run Drill	Run Circ	Run D+C	Well Drill	Well Circ	Well D+C	Total Drill	Total Circ	Total D+C	FAILURE? (Yes / No)
1	Vector	675-17-003		0.25	0.25		0.25	0.25		0.25	0.25		0.25	0.25	N

BHA

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LP6325	0.25
Motor	Vector	675-17-003	6.04
Float	Anadrill	1316579	0.59
UBHO	Anadrill	1416514	0.68
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
6DC	Akita		55.71
Jar	Cougar	DJ6 650-12	4.70
10DC	Akita		91.81
6 HWD	Akita		55.54
TOTAL LENGTH			225.13

BHA

ITEM	VENDER	SERIAL#	LENGTH
TOTAL LENGTH			

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
1	Cougar	65012v		0.25	0.25	N

MWD

RUN	COMP.	HRS tdy	HRS ttl	COMMENTS	FAILURE?
1	SMA329	12.00	12.00		N
1	SEA188	12.00	12.00		N
1	SBA4557	12.00	12.00		N
SB	SMA084				
SB	SEA158				
SB	SBA4544				

Comments

TARGET TVD @ TIME

PERSONNEL

DD: Eric Erickson	MWD: Barry Timmerman
DD:	MWD:
DD:	MWD:
DD:	MWD:

AFE NUMBER 5000044-9210-35 CONTRACT NUMBER

FIELD CELL # 1-403-813-7141 CO. MAN'S CELL #

SIGNATURE OF COMPANY'S REPRESENTATIVE

Al Anger

Schlumberger

Day 5

JOB NUMBER	DATE	COMPANY	WELL NAME
4000452	WED FEB, 23, 2000	Alberta Energy Corp	AEC West G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Rennaissance Tate G-18	

DRILLING RECORD

BIT NUMBER	1	
BIT SIZE	222.0	
BIT TYPE	FDS+2	
JETS (mm)	14,3	
DEPTH IN	586 m	
DEPTH OUT		
METERS	339 m	
HOURS	17,75	
ROP (m/hr)	19.1	
RPM	70/100	
WOB	14/18	
PP ON	6200	
PP OFF	4500	
STG WT	48	
P/U WT	50	
S/O WT	46	

PUMP DATA

PUMP MAN.	NAT	NAT
PUMP MOD.	8-P-80	8-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M./STRK	0.0118	0.0118
STRKS/Min.	110	
VOLUME	1.30	

MUD REPORT

MUD TYPE (Gel,ect.)		Floc
MUD WEIGHT		1000
VISCOSITY (sec/L)		28
WATER LOSS		
pH		
SAND		
TEMPERATURE (°C)		

TIME RECORD

TIME	FROM	TO	DESCRIPTION
0.50		0:30	Drill Out Cement
0.50	0:30	1:00	Leak Off Test
1.00	1:00	2:00	Directional Drill 586 m to 607 m
0.25	2:00	2:15	BOP Drill
0.25	2:15	2:30	Rig Service
4.25	2:30	6:45	Directional Drill 607 m to 683 m
1.25	6:45	8:00	Accumulated Surveys
0.25	8:00	8:15	Rig Service
1.25	8:15	9:30	Directional Drill 683 m to 703 m
0.25	9:30	9:45	BOP Drill
4.75	9:45	14:30	Directional Drill 703 m to 808 m
1.50	14:30	16:00	Accumulated Surveys
0.25	16:00	16:15	Rig Service
6.50	16:15	22:45	Directional Drill 808 m to 925 m
1.25	22:45	0:00	Accumulated Surveys
24.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (if not Anadrill)			COST	
SUPERVISION	1 @	700.00	$ 700.00	750
FLAT RATE				
MOTOR HRS	22.50 @	200.00	$ 4,500.00	4725.
MOTOR DAILY				
MOTOR STBY				
JARS				
S. SHOT KIT		125.00		
FLOAT SUB	1	25.00	$ 25.00	30
MONEL	1	125.00	$ 125.00	
X/Over	1	25.00	$ 25.00	30
STABILIZERS				
7/8 REAMER				
MWD SUPER	1 @	500.00	$ 500.00	550
MWD SYSTEMS	1	2900.00	$ 2,900.00	3,300
GAMMA RAY				
MOTORRELINE				
THREAD INSPECTION				
SUBSISTENCE (Camp?)				
camp				

MILEAGE

VEH. LIC. #	KM TDY	KM ACC	
KM TODAY		0,75	$ -
KM ACCUM.			
DAILY TOTAL			$ 8,775.00
ACCUMULATED			$ 20,925.00

9210-
20075.

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily Drill	Daily Circ	Daily D+C	Run Drill	Run Circ	Run D+C	Well Drill	Well Circ	Well D+C	Total Drill	Total Circ	Total D+C	FAILURE? (Yes / No)
1	Vector	675-17-003	17.75	4,75	22.50	17.75	4,75	22.50	17.75	4.75	22.50	17.75	4.75	22.50	N

BHA

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LR9325	0.25
Motor	Vector	675-17-003	6.04
Float	Anadrill	1316579	0.59
UBHO	Anadrill	1416514	0.66
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
	Akita		91.61
JI	Akita		55.54
TOTAL LENGTH			225.13

BHA

ITEM	VENDER	SERIAL#	LENGTH
TOTAL LENGTH			

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
1	Cougar	65012V	17.75	4.75	22.50	N

MWD

RUN	COMP.	HRS to	HRS to	COMMENTS	FAILURE?
1	SMA323	24.00	36.00		N
1	SEA168	24.00	36.00		N
1	SBA4557	24.00	36.00		N
SB	SMA084				
SB	SEA156				
SB	SBA4544				

Comments

TARGET TVD @ TIME

PERSONNEL

DD: Eric Erickson	MWD: Barry Timmerman
DD:	MWD:
DD:	MWD:
DD:	MWD:

AFE NUMBER 5000044-9210-35 CONTRACT NUMBER

FIELD CELL # 1-403-813-7141 CO. MAN'S CELL #

SIGNATURE OF COMPANY'S REPRESENTATIVE

Schlumberger

Day 6

JOB NUMBER	DATE	COMPANY	WELL NAME
4000524	THUR FEB, 24, 2000	Alberta Energy Corp	AEC Rennaissance Tate G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Tate Lake G-18	

DRILLING RECORD

BIT NUMBER	1	
BIT SIZE	222.0	
BIT TYPE	FDS+2	
JETS (mm)	14 3	
DEPTH IN	586 m	
DEPTH OUT		
METERS	574 m	
HOURS	37.25	
ROP (m/hr)	15.4	
RPM	70/100	
WOB	14/16	
PP ON	6200	
PP OFF	4500	
STG WT	52	
P/U WT	55	
S/O WT	50	

PUMP DATA

PUMP MAN.	NAT	NAT
PUMP MOD.	8-P-80	8-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M./STRK	0.0118	0.0118
STRKS/Min.	110	
VOLUME	1.30	

MUD REPORT

MUD TYPE (Gel,ect.)	Floc
MUD WEIGHT	1000
VISCOSITY (sec/L)	28
WATER LOSS	
pH	
SAND	
TEMPERATURE (°C)	

TIME RECORD

TIME	FROM	TO	DESCRIPTION
1.50		1:30	Directional Drill 925 m to 958 m
0.75	1:30	2:15	Lost Circulation
0.75	2:15	3:00	Directional Drill 950 m to 968 m
0.25	3:00	3:15	Rig Service
3.75	3:15	7:00	Directional Drill 968 m to 1010 m
1.00	7:00	8:00	Accumulated Surveys
0.25	8:00	8:15	Rig Service
6.75	8:15	15:00	Directional Drill 1010 m to 1091 m
1.00	15:00	16:00	Accumulated Surveys
0.25	16:00	16:15	Rig Service
6.75	16:15	23:00	Directional Drill 1091 m to 1160 m
1.00	23:00	0:00	Accumulated Surveys
24.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (if not Anadrill)			COST
SUPERVISION	1 @	700.00	$ 700.00
FLAT RATE			
MOTOR HRS	21.50 @	200.00	$ 4,300.00
MOTOR DAILY			
MOTOR STBY			
JARS			
S. SHOT KIT		125.00	
FLOAT SUB	1	25.00	$ 25.00
MONEL	1	125.00	$ 125.00
X/Over	1	25.00	$ 25.00
STABILIZERS			
TB REAMER			
MWD SUPER.	1 @	500.00	$ 500.00
MWD SYSTEMS	1	2900.00	$ 2,900.00
GAMMA RAY			
MOTORRELINE			
THREAD INSPECTION			
SUBSISTENCE (Camp?)			
camp			

MILEAGE

VEH. LIC. #	KM TDY	KM ACC

KM TODAY	0.75	$ -
KM ACCUM.		
DAILY TOTAL	$	8,575.00
ACCUMULATED		$28,500.00

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily Drill	Daily Circ	Daily D+C	Run Drill	Run Circ	Run D+C	Well Drill	Well Circ	Well D+C	Total Drill	Total Circ	Total D+C	FAILURE? (Yes / No)
1	Vector	675-17-003	37.25	6.75	44.00	37.25	6.75	44.00	37.25	6.75	44.00	37.25	6.75	44.00	N

BHA

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LR9325	0.25
Motor	Vector	675-17-003	8.04
Float	Anadrill	1310579	0.59
UBHO	Anadrill	1416514	0.66
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.81
6 HWDP	Akita		55.54
TOTAL LENGTH			228.13

BHA

ITEM	VENDER	SERIAL#	LENGTH
TOTAL LENGTH			

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
1	Cougar	85012V	37.25	6.75	44.00	N

MWD

RUN	COMP.	HRS tdy	HRS tl	COMMENTS	FAILURE?
1	SMA323	24.00	60.00		N
1	SEA168	24.00	60.00		N
1	SBA4567	24.00	60.00		N
SB	SMA084				
SB	SEA158				
SB	SBA544				

Comments

TARGET TVD @ TIME

PERSONNEL

DD: Eric Erickson	MWD: Barry Timmerman
DD:	MWD:

AFE NUMBER 5000044-9210-3S CONTRACT NUMBER

FIELD CELL # 1-403-813-7141 CO. MAN'S CELL #

SIGNATURE OF COMPANY'S REPRESENTATIVE

Allan Unger

Schlumberger

Day 7

JOB NUMBER	DATE	COMPANY	WELL NAME
40004524	FRI FEB, 25, 2000	Alberta Energy Corp	AEC Rennaissance Tate G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Tate Lake G-18	

DRILLING RECORD

BIT NUMBER	1	2
BIT SIZE	222.0	222
BIT TYPE	FDS+2	F10TPS
JETS (mm)	14,3	14,3
DEPTH IN	586 m	1273
DEPTH OUT	1273 m	
METERS	687 m	
HOURS	45,00	
ROP (m/hr)	15.3	
RPM	40/100	40/100
WOB	16/18	16/18
PP ON	6900	
PP OFF	5400	
STG WT	55	55
P/U WT	58	58
S/O WT	54	54

PUMP DATA

PUMP MAN.	NAT	NAT
PUMP MOD.	8-P-80	8-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M/STRK	0.0118	0.0118
STRKS/Min.	110	
VOLUME	1.30	

MUD REPORT

MUD TYPE (Gel,ect.)	Floc
MUD WEIGHT	1000
VISCOSITY (sec/L)	28
WATER LOSS	
pH	
SAND	
TEMPERATURE (°C)	

TIME RECORD

TIME	FROM	TO	DESCRIPTION
3,25		3:15	Directional Drill 1160 m to 1160 m
0.25	3:15	3:30	Rig Service
3.50	3:30	7:00	Directional Drill 1186 m to 1212 m
1.00	7:00	8:00	Accumulated Surveys
0.25	8:00	8:15	Rig Service
6,75	8:15	15:00	Directional Drill 1212 m to 1263 m
1.00	15:00	16:00	Accumulated Surveys
0,25	16:00	16:15	Rig Service
1.00	16:15	17:15	Directional Drill 1267 m to 1272 m
0.25	17:15	17:30	Accumulated Surveys
0.50	17:30	18:00	Circulate
4,00	18:00	22:00	POOH for Bit
0.75	22:00	22:45	Change Bit
1.25	22:45	0:00	RIH
24.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (if not Anadrill)			COST	
SUPERVISION	1 @	700.00	$ 700.00	700
FLAT RATE				700
MOTOR HRS	16.75 @	200.00	$ 3,350.00	3517,50
MOTOR DAILY				
MOTOR STBY				
JARS				
S. SHOT KIT		125.00		
FLOAT SUB	1	25.00	$ 25.00	210
MONEL	1	125.00	$ 125.00	
X/Over	1	25.00	$ 25.00	210
STABILIZERS				
TB REAMER				
MWD SUPER.	1 @	500.00	$ 500.00	500
MWD SYSTEMS	1	2900.00	$ 2,900.00	2900
GAMMA RAY				
MOTOR RELINE				
THREAD INSPECTION				
SUBSISTENCE (Camp?)				
camp				

MILEAGE

VEH. LIC. #	KM TDY	KM ACC

KM TODAY	0.75	$ -
KM ACCUM.		
DAILY TOTAL		$ 7,625.00
ACCUMULATED		$ 36,125.00

6502,50
37097,5

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily Drill	Daily Circ	Daily D+C	Run Drill	Run Circ	Run D+C	Well Drill	Well Circ	Well D+C	Total Drill	Total Circ	Total D+C	FAILURE? (Yes / No)
1	Vector	675-17-003	14.50	2.25	44.00	51.75	9.00	60.75	51.75	9.00	60.75	51.75	9.00	60.75	N

BHA #1

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LR9325	0.25
Motor	Vector	675-17-003	6.04
Float	Anadrill	1316578	0.59
UBHO	Anadrill	1416514	0.68
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.81
6 HWDP	Akita		55.54
TOTAL LENGTH			225.13

BHA #2

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LR9606	0.25
Motor	Vector	675-17-003	6.04
Float	Anadrill	1316578	0.59
UBHO	Anadrill	1416514	0.68
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.81
6 HWDP	Akita		55.54
TOTAL LENGTH			225.13

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
1	Cougar	65012V	51.75	9.00	60.75	N

MWD

RUN	COMP.	HRS tdy	HRS tl	COMMENTS	FAILURE?
1	SMA323	22.00	82.00		N
1	SEA168	22.00	82.00		N
1	SBA4557	22.00	82.00		N
2	SMA323	2.00	84.00		N
2	SEA168	2.00	84.00		N
2	SBA4557	2.00	84.00		N

Comments

TARGET TVD @ TIME

PERSONNEL

DD: Eric Erickson
DD:
MWD: Barry Timmerman
MWD:

AFE NUMBER 5000044-9210-35 CONTRACT NUMBER

FIELD CELL # 1-403-813-7141 CO. MAN'S CELL #

SIGNATURE OF COMPANY'S REPRESENTATIVE Allen Anger

Schlumberger

Day 8

JOB NUMBER	DATE	COMPANY	WELL NAME
40004524	SAT FEB, 26, 2000	Alberta Energy Corp	AEC Rennaissance Tate G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Tate Lake G-18	

BIT RECORD

BIT NUMBER	2	
BIT SIZE	222	
BIT TYPE	P10TPS	
JETS (mm)	14.3	
DEPTH IN	1273	
DEPTH OUT		
METERS	189 m	
HOURS	15.75	
ROP (m/hr)	12.0	
RPM	30/100	
WOB	16/18	
PP ON	6000	
PP OFF	6200	
STG WT	55	
P/U WT	58	
S/O WT	53	
PUMP DATA		
PUMP MAN.	NAT	NAT
PUMP MOD.	6-P-80	6-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M./STRK	0.0118	0.0118
STRKS/Min.	110	
VOLUME	1.30	
MUD REPORT		
MUD TYPE (Gel,wt.)		Floc
MUD WEIGHT		1000
VISCOSITY (sec/L)		28
WATER LOSS		
pH		
SAND		
TEMPERATURE (°C)		

TIME RECORD

TIME	FROM	TO	DESCRIPTION
0.50		0:30	Slip & Cut
0.50	0:30	1:00	Circ & Test MWD
0.75	1:00	1:45	RIH
0.75	1:45	2:30	Clean to Bottom 1245m
1.00	2:30	3:30	Directional Drill 1273 m to 1282 m
0.25	3:30	3:45	Rig Service
3.25	3:45	7:00	Directional Drill 1282 m to 1315 m
1.00	7:00	8:00	Accumulated Surveys
0.25	8:00	8:15	Rig Service
3.75	8:15	12:00	Directional Drill 1315 m to 1353 m
0.50	12:00	12:30	Accumulated Surveys
0.75	12:30	13:15	Circulate up Sample
2.25	13:15	15:30	Directional Drill 1353 m to 1395 m
0.50	15:30	16:00	Accumulated Surveys
0.25	16:00	16:15	Rig Service
4.75	16:15	21:00	Directional Drill 1395 m——to 1452 m
1.00	21:00	22:00	Work Tight Hole
0.75	22:00	22:45	Directional Drill 1452 m to 1462 m
0.75	22:45	23:30	Accumulated Surveys
0.50	23:30	0:00	Work Tight Hole
24.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (If not Anadrill)			COST
SUPERVISION	1 @	700.00	$ 700.00
FLAT RATE			
MOTOR HRS	14.25 @	200.00	$ 2,850.00
MOTOR DAILY			
MOTOR STBY			
JARS			
S. SHOT KIT		125.00	
FLOAT SUB	1	25.00	$ 25.00
MONEL	1	125.00	$ 125.00
X/Over	1	25.00	$ 25.00
STABILIZERS			
TB REAMER			
MWD SUPER.	1 @	500.00	$ 500.00
MWD SYSTEMS	1	2000.00	$ 2,000.00
GAMMA RAY			
MOTOR REFLINE			
THREAD INSPECTION			
SUBSISTENCE (Camp?)			
camp			

MILEAGE

VEH. LIC. #	KM TDY	KM ACC

KM TODAY	0.75	$ -
KM ACCUM.		
DAILY TOTAL	$	7,125.00
ACCUMULATED		$ 36,125.00

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily			Run			Well			Total			FAILURE?
			Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	(Yes / No)
2	Vector	675-17-003	15.75	4.25	20.00	15.75	4.25	20.00	67.50	13.25	80.75	67.50	13.25	80.75	N

BHA - 1

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LR5606	0.25
Motor	Vector	675-17-003	8.04
Float	Anadrill	1316579	0.59
UBHO	Anadrill	1416514	0.66
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.81
6 HWDP	Akita		55.54
TOTAL LENGTH			226.13

BHA - 2

ITEM	VENDER	SERIAL#	LENGTH
TOTAL LENGTH			

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
2	Cougar	650I2V	67.50	13.25	80.75	N

MWD

RUN	COMP.	HRS thy	HRS at	COMMENTS	FAILURE?
2	SMA323	24.00	100.00		N
2	SEA188	24.00	100.00		N
2	SBA4357	24.00	100.00		N

Comments

TARGET TVD @ TIME

PERSONNEL

DD: Eric Erickson	MWD: Barry Timmerman
DD:	MWD:
DD:	MWD:
DD:	MWD:

AFE NUMBER 5000044-S210-36 CONTRACT NUMBER

FIELD CELL # 1-403-813-7141 CO. MAN'S CELL #

SIGNATURE OF COMPANY'S REPRESENTATIVE

Allan Anger

Schlumberger

Day 9

JOB NUMBER	DATE	COMPANY	WELL NAME
400034524	SUN FEB. 27, 2000	Alberta Energy Corp	AEC Rennaissance Tate G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Tate Lake G-18	

DRILL LOG RECORD

	2	3
BIT NUMBER	2	3
BIT SIZE	222	222
BIT TYPE	F10TPS	F37P
JETS (mm)	14,3	14,3
DEPTH IN	1273	1481
DEPTH OUT	1491 m	
METERS	218 m	
HOURS	20.75	
ROP (m/hr)	10,5	
RPM	20/90	20/90
WOB	16/18	16/18
PP ON	0000	
PP OFF	0200	
STG WT	55	55
P/U WT	58	58
S/O WT	53	53
PUMP DATA		
PUMP MAN.	NAT	NAT
PUMP MOD.	6-P-80	6-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
GL. M/STRK	0.0118	0.0118
STRKS/Min.	110	
VOLUME	1.30	
MUD REPORT		
MUD TYPE (Gel,ect.)		Gel
MUD WEIGHT		1060
VISCOSITY (sec/L)		71
WATER LOSS		8.4
pH		9
SAND		
TEMPERATURE (°C)		31.7

TIME RECORD

FROM	TO	DESCRIPTION		
	6:30	Condition Mud		
6:30	6:45	Rig Service		
6:45	7:00	Accumulated Surveys		
7:00	7:30	Directional Drill		
7:30	11:00	Condition Mud		
11:00	11:45	Directional Drill	1465 m	to 1471 m
11:45	12:00	Rig Service		
12:00	15:30	Directional Drill	1471 m	to 1490 m
15:30	16:00	Accumulated Surveys		
16:00	16:15	Directional Drill	1490 m	to 1491 m
16:15	17:00	Condition Mud		
17:00	17:15	Rig Service		
17:15	20:45	POOH		
20:45	21:30	Handle BHA		
21:30	22:45	RIH to 626		
22:45	23:15	Test MWD		
23:15	0:00	RIH		
0.09	TOTAL			

COST ESTIMATE

LIST SUPPLIER (if not Anadrill)			COST	
SUPERVISION	1 @	700.00	$ 700.00	750
FLAT RATE			210	
MOTOR HRS	10.75 @	200.00	$ 2,150.00	2257.50
MOTOR DAILY				
MOTOR STBY				
JARS				
S. SHOT KIT		125.00		
FLOAT SUB	1	25.00	$ 25.00	210
MONEL	1	125.00	$ 125.00	
X/Over	1	25.00	$ 25.00	210
STABILIZERS				
TB REAMER				
MWD SUPER.	1 @	500.00	$ 500.00	550
MWD SYSTEMS	1	2800.00	$ 2,800.00	2,650
GAMMA RAY				
MOTOR RELINE				
THREAD INSPECTION				
SUBSISTENCE (Camp?)		Yes		
camp				

DRILLEASE

VEH. LIC. #	KM TDY	KM ACC

KM TODAY	0.75	$ -
KM ACCUM.		
DAILY TOTAL		$ 6,425.00
ACCUMULATED		$ 45,350.00

6242.50
51,317.50

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily Drill	Daily Circ	Daily D+C	Run Drill	Run Circ	Run D+C	Well Drill	Well Circ	Well D+C	Total Drill	Total Circ	Total D+C	FAILURE? (Yes / No)
2	Vector	675-17-003	5.00	11.50	16.50	20.75	16.50	37.50	72.50	25.50	97.25	72.50	25.50	97.25	N
3	Vector	675-17-003													N

BHA

ITEM	VENDER	SERIAL#	LENGTH	ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LR5606	0.25	BIT	Smith	LX6240	0.25
Motor	Vector	675-17-003	6.04	Motor	Vector	675-17-003-	6.04
Float	Anadrill	1316579	0.59	Float	Anadrill	1316579	0.59
UBHO	Anadrill	1416514	0.66	UBHO	Anadrill	1416514	0.66
NMDC	Anadrill	1916539	9.21	NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62	X-Over	Anadrill	1216576	0.62
6DC	Akita		55.71	1 6 S	Cougar	HTS-812-48	3.51
Jar	Cougar	DJG 650-12	4.70	6DC	Akita		55.71
10DC	Akita		91.81	Jar	Cougar	DJG 650-12	4.70
6 HWDP	Akita		55.54	10DC	Akita		91.81
				6 HWDP	Akita		55.54
TOTAL LENGTH			225.13	TOTAL LENGTH			228.04

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
2	Cougar	650-12V	72.50	24.75	97.25	N
3	Cougar	650-12V				N

MWD

RUN	COMP.	HRS tdy	HRS run	COMMENTS	FAILURE?
2	SMA320	21.00	105.00		N
2	SEA168	21.00	105.00		N
2	SMA4057	21.00	105.00		N
3	SMA320	3.00	108.00		N
3	SEA168	3.00	108.00		N
3	SMA4057	3.00	108.00		N

COMMENTS

The inside diameter of the shock sub is 54mm, making the MWD unit nonretriveable

TARGET TVD @ TIME

PERSONNEL

DD: Eric Erickson	MWD: Barry Timmerman
DD:	MWD:
DD:	MWD:
DD:	MWD:

AFE NUMBER 5000044-0210-38 | CONTRACT NUMBER

FIELD CELL # 1-403-813-7141 | CO. MAN'S CELL #

SIGNATURE OF COMPANY'S REPRESENTATIVE

Al Anger

Schlumberger

Day 10

JOB NUMBER	DATE	COMPANY	WELL NAME
40004524	MON FEB. 28, 2000	Alberta Energy Corp	AEC Rennaissance Tate G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Tate Lake G-18	

DRILL STRING RECORD

BIT NUMBER	3	
BIT SIZE	222	
BIT TYPE	F37P	
JETS (mm)	14,3	
DEPTH IN	1491	
DEPTH OUT		
METERS	103	
HOURS	20.5	
ROP (m/hr)	5.0	
RPM	20/80	
WOB	18/18	
PP ON	7000	
PP OFF	5800	
STG WT	55	
P/U WT	58	
S/O WT	53	

PUMP DATA

PUMP MAN.	NAT	NAT
PUMP MOD.	8-P-80	8-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M./STRK	0.0118	0.0118
STRKS/Min.	100	
VOLUME	1.18	

MUD REPORT

MUD TYPE (Gel,act.)	Gel
MUD WEIGHT	1080
VISCOSITY (sec/L)	49
WATER LOSS	9.5
pH	9.5
SAND	
TEMPERATURE (C)	31.7

TIME RECORD

TIME	FROM	TO	DESCRIPTION
0.25		0:15	RIH
0.50	0:15	0:45	Clean to Bottom 3m
2.50	0:45	3:15	Directional Drill 1491 m to 1522 m
0.25	3:15	3:30	Rig Service
3.75	3:30	7:15	Directional Drill 1503 m to 1522 m
0.75	7:15	8:00	Accumulated Surveys
1.25	8:00	9:15	Directional Drill 1522 m to 1531 m
0.25	9:15	9:30	Rig Service
6.00	9:30	15:30	Directional Drill 1531 m to 1562 m
0.50	15:30	16:00	Accumulated Surveys
2.00	16:00	18:00	Directional Drill 1562 m
0.25	18:00	18:15	Rig Service
2.00	18:15	20:15	Directional Drill 1569 m to 1578 m
0.25	20:15	20:30	BOP Drill
3.00	20:30	23:30	Directional Drill 1578 m to 1584 m
0.50	23:30	0:00	Accumulated Surveys
24.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (If not Anadrill)			COST	
SUPERVISION	1 @	700.00	$ 700.00	750
FLAT RATE			2112	
MOTOR HRS	17.25 @	200.00	$ 3,450.00	3632.50
MOTOR DAILY				
MOTOR STBY				
JARS				
S. SHOT KIT		175.00		
FLOAT SUB	1	75.00	$ 28.00	30
MONEL	1	125.00	$ 125.00	
X/Over	1	25.00	$ 25.00	30
STABILIZERS				
YB REAMER				
MWD SUPER.	1 @	500.00	$ 500.00	650
MWD SYSTEMS	1	2000.00	$ 2,800.00	3000
GAMMA RAY				
MOTOR RELINE				
THREAD INSPECTION				
SUBSISTENCE (Camp?)	Yes			
camp				
KM TODAY		0.75	$ -	
KM ACCUM.				
DAILY TOTAL			$ 7,725.00	8123.50
ACCUMULATED			$ 46,275.00	59975

MILEAGE

VEH. LIC. #	KM TO/KM ACC

DOWNHOLE FACTORS

RUN	MAKE	SER. NO.	Daily			Run			Well			Total			FAILURE?
			Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	(Yes / No)
3	Vector	675-17-003	20.50	2.23	22.75	20.50	2.25	22.75	93.00	27.75	120.75	93.00	27.25	120.25	N

BHA

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LX6240	0.25
Motor	Vector	675-17-003-	6.04
Float	Anadrill	1.16579	0.59
UBHO	Anadrill	1216514	0.66
NMDC	Anadrill	1018539	9.21
X-Over	Anadrill	1216578	0.62
1 S 3	Cougar	STS-612-48	3.51
6DC	Akita		56.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.81
6 HWDP	Akita		55.54
TOTAL LENGTH			228.84

BHA

ITEM	VENDER	SERIAL#	LENGTH
TOTAL LENGTH			

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
3	Cougar	650121	93.00	2.25	120.25	N

MWD

RUN	COMP.	HRS (d)	HRS (t)	COMMENTS	FAILURE?
3	SHA337	24.00	132.00		N
3	SEA168	24.00	132.00		N
3	SDA557	24.00	132.00		N

COMMENTS

TARGET TVD @ TIME

PERSONNEL

DD: Eric Erickson	MWD: Barry Timmerman
DD:	MWD:
DD:	MWD:
DD:	MWD:

AFE NUMBER 5000044-0210-362 CONTRACT NUMBER

FIELD CELL # 1-403-813-7141 CO. MAN'S CELL #

SIGNATURE OF COMPANY'S REPRESENTATIVE

Allan Anger

Schlumberger

Day 11

JOB NUMBER	DATE	COMPANY	WELL NAME
40004524	TUE FEB. 29, 2000	Alberta Energy Corp	AEC Rennaissance Tate G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Tate Lake G-18	

DRILLING RECORD

BIT NUMBER	3	
BIT SIZE	222	
BIT TYPE	FDTP	
JETS (mm)	14,0	
DEPTH IN	491	
DEPTH OUT		
METERS	221	
HOURS	39.75	
ROP (m/hr)	5.6	
RPM	20/90	
WOB	16/18	
PP ON	7000	
PP OFF	5800	
STG WT	55	
P/U WT	58	
S/O WT	53	
PUMP DATA		
PUMP MAN.	NAT	NAT
PUMP MOD.	6-P-80	6-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M./STRK	0.0118	0.0118
STRKS/Min.	110	
VOLUME	1.30	
MUD REPORT		
MUD TYPE (Gel ect.)		Gel
MUD WEIGHT		1070
VISCOSITY (sec/L)		54
WATER LOSS		10.5
pH		11
SAND		
TEMPERATURE (°C)		39.5

TIME RECORD

TIME	FROM	TO	DESCRIPTION
0.25		0:15	BOP Drill
1.75	0:15	2:00	Directional Drill 1584 m to 1607 m
0.25	2:00	2:15	Rig Service
2.00	2:15	4:15	Directional Drill 1607 m to 1622 m
0.50	4:15	4:45	Accumulated Surveys
1.50	4:45	6:15	Circ up Sample
1.75	6:15	8:00	Directional Drill 1622 m to 1635 m
0.25	8:00	8:15	Rig Service
6.25	8:15	14:30	Directional Drill 1635 m to 1673 m
0.25	14:30	14:45	Flow Check
0.50	14:45	15:15	Circulate up Sample
0.25	15:15	15:30	Directional Drill 1673 m to 1682 m
0.50	15:30	16:00	Accumulated Surveys
0.50	16:00	16:30	Directional Drill 1682 m to 1683 m
0.25	16:30	16:45	Rig Service
6.75	16:45	23:30	Directional Drill 1683 m to 1712 m
0.50	23:30	0:00	Accumulated Surveys
24.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (if not Anadrill)			COST	
SUPERVISION	1 @	700.00	$ 700.00	750
FLAT RATE				2nd
MOTOR HRS	19.75 @	200.00	$ 3,950.00	3937.50
MOTOR DAILY				
MOTOR STBY				
JARS				
S. SHOT KIT		125.00		
FLOAT SUB	1	25.00	$ 25.00	25
MONEL	1	125.00	$ 125.00	
X/Over	1	25.00	$ 25.00	25
STABILIZERS				
TB REAMER				
MWD SUPER.	1 @	500.00	$ 500.00	550
MWD SYSTEMS	1	2900.00	$ 2,900.00	2900
GAMMA RAY				
MOTOR RELINE				
THREAD INSPECTION				
SUBSISTENCE (Camp?)		Yes		
camp				

MILEAGE

VEH. LIC. #	KM TDY	KM ACC

KM TODAY		0.75	$ -
KM ACCUM.			
DAILY TOTAL		$	8,025.00
ACCUMULATED			$ 59,600.00

8423.50
67,247.50

DOWN HOLE MOTORS

RUN	MAKE	SER. NO.	Daily Drill	Daily Circ	Daily D+C	Run Drill	Run Circ	Run D+C	Well Drill	Well Circ	Well D+C	Total Drill	Total Circ	Total D+C	FAILURE? (Yes / No)
3	Vector	675-17-003	19.25	2.50	21.75	39.75	4.75	44.50	112.25	32.50	144.75	112.25	32.50	144.75	N

BHA

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LX6240	0.25
Motor	Vector	675-17-003	6.04
Float	Anadrill	1316579	0.59
UBHO	Anadrill	1416514	0.66
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
1 S S	Cougar	ST5-612 18	3.61
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.81
6 HWDP	Akita		55.54
TOTAL LENGTH			228.84

BHA

ITEM	VENDER	SERIAL#	LENGTH
TOTAL LENGTH			

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
3	Cougar	65012V	112.25	32.50	144.75	N

MWD

RUN	COMP.	HRS tdy	HRS tot	COMMENTS	FAILURE?
3	BH/329	24.00	156.00		N
3	SEA168	24.00	156.00		N
3	65A4557	24.00	156.00		N

Comments

TARGET TVD @ TIME

PERSONNEL

DD: Eric Erickson	MWD: Barry Timmerman
DD:	MWD:
DD:	MWD:
DD:	MWD:

AFE NUMBER 8000044-9210-352 CONTRACT NUMBER

FIELD CELL # 1-403-813-7141 CO. MAN'S CELL #

SIGNATURE OF COMPANY'S REPRESENTATIVE

Allan Anger

Schlumberger

Day 12

JOB NUMBER	DATE	COMPANY	WELL NAME
40004524	WED MARCH, 1, 2000	Alberta Energy Corp	AEC Rennaissance Tate G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Tate Lake G-18	

DRILLING RECORD			TIME RECORD				COST ESTIMATE			
BIT NUMBER	3	4	TIME	FROM	TO	DESCRIPTION	LIST SUPPLIER (If not Anadrill)			COST
BIT SIZE	222	222	2.75		2:45	Directional Drill 1712 m to 1721 m	SUPERVISION	1 @	700.00	$ 700.00
BIT TYPE	F37P	F37P	0.25	2:45	3:00	Rig Service	FLAT RATE			
JETS (mm)	14.3	14.3	4.75	3:00	7:45	Directional Drill 1721 m to 1740 m	MOTOR HRS	25.00 @	280.00	$ 7,000.00
DEPTH IN	1491	1768	0.25	7:45	8:00	Accumulated Surveys	MOTOR DAILY			
DEPTH OUT	1768		2.50	8:00	10:30	Directional Drill 1740 m to 1750 m	MOTOR STBY			
METERS	277		0.25	10:30	10:45	Rig Service	JARS			
HOURS	55.5		5.00	10:45	15:45	Directional Drill 1750 m to 1767 m	S. SHOT KIT		125.00	
ROP (m/hr)	5.0		0.25	15:45	16:00	Accumulated Surveys	FLOAT SUB	1	25.00	$ 25.00
RPM	20/80		0.75	16:00	16:45	Directional Drill 1767 m to 1768 m	MONEL	1	125.00	$ 125.00
WOB	15/18		0.25	16:45	17:00	Accumulated Surveys	X/Over	1	25.00	$ 25.00
PP ON	7000		0.25	17:00	17:15	Rig Service	STABILIZERS			
PP OFF	5800		5.50	17:15	22:45	POOH	TB REAMER			
STG WT	55		1.25	22:45	0:00	Change Mud Motor,Bit & MWD	MWD SUPER.	1 @	500.00	$ 500.00
P/U WT.	58						MWD SYSTEMS	1	2800.00	$ 2,800.00
S/O WT	53						GAMMA RAY			
PUMP DATA							MOTOR RELINE			
PUMP MAN.	NAT	NAT					THREAD INSPECTION			
PUMP MOD.	8-P-80	8-P-80								
Triplex/Duplex	Triplex	Triplex								
LINER	152mm	152mm								
STROKE	216mm	216mm					SUBSISTENCE (Camp?)		Yes	
CU. M./STRK	0.0118	0.0118					camp			
STRKS/Min.	100						MILEAGE			
VOLUME	1.18						VEH. LIC. #	KM TDY	KM ACC	
MUD REPORT										
MUD TYPE (Gel,ect.)		Gel								
MUD WEIGHT		1075								
VISCOSITY (sec/L)		48								
WATER LOSS		10					KM TODAY		0.75	$ -
pH		10.5					KM ACCUM.			
SAND							DAILY TOTAL		$	9,275.00
TEMPERATURE (°C)		44.6	24.00	TOTAL			ACCUMULATED			$ 67,578.00

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily			Run			Well			Total			FAILURE?
			Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	(Yes / No)
3	Vector	675-17-003	15.75	0.75	16.50	55.50	5.50	61.00	109.75	28.50	137.25	109.75	28.50	137.25	N
1	Vector	3109-78198-10													N

BHA #3

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LX6240	0.25
Motor	Vector	675-17-003	6.04
Float	Anadrill	1316579	0.59
UBHO	Anadrill	1416514	0.66
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
1 S S	Cougar	ST5-612-48	3.51
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.81
6 HWDP	Akita		55.54
TOTAL LENGTH			228.64

BHA #4

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LX6668	0.25
Motor	Vector	3109-67198-10	7.06
Float	Anadrill	1316579	0.59
UBHO	Anadrill	1416514	0.66
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
1 S S	Cougar	ST5-612-43	3.51
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.81
6 HWDP	Akita		55.54
TOTAL LENGTH			229.66

DOWNGRADES

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
3	Cougar	65012V	109.75	28.50	137.25	N
4	Cougar	65012V				N

MWD

RUN	COMP.	HRS tdy	HRS ttl	COMMENTS	FAILURE?
3	SMA123	22.00	106.00		N
3	SEA168	22.00	106.00		N
3	SBA4557	22.00	106.00		N
4	SMA048	2.00	2.00		N
4	SEA168	2.00	106.00		N
4	SBA4360	2.00	2.00		N

Comments

PERSONNEL			
DD: Eric Erickson	MWD: Barry Timmerman	AFE NUMBER 5000048-9219-352	CONTRACT NUMBER
DD:	MWD:	FIELD CELL # 1-403-813-7141	CO. MAN'S CELL #
DD:	MWD:	SIGNATURE OF COMPANY'S REPRESENTATIVE	
DD:	MWD:	Allan Anger	

Schlumberger

Day 13

JOB NUMBER	DATE	COMPANY	WELL NAME
40004524	THUR MARCH, 2, 2000	Alberta Energy Corp	AEC Rennaissance Tate G-18
COMPANY REPRESENTATIVE	RIG NAME	LOCATION	
Al Anger	Akita #51	Tate Lake G-18	

DRILLING RECORD

BIT NUMBER	4	
BIT SIZE	222	
BIT TYPE	F37P	
JETS (mm)	14.3	
DEPTH IN	1768	
DEPTH OUT		
METERS	134	
HOURS	12.75	
ROP (m/hr)	10.5	
RPM	20/90	
WOB	16/.9	
PP ON	7000	
PP OFF	5800	
STG WT	65	
P/U WT	69	
S/O WT	63	

PUMP DATA

PUMP MAN.	NAT	NAT
PUMP MOD.	8-P-80	8-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M./STRK	0.0118	0.0118
STRKS/Min.	100	
VOLUME	1.18	

MUD REPORT

MUD TYPE (Gel,oct.)	Gel
MUD WEIGHT	1080
VISCOSITY (sec/L)	73
WATER LOSS	
pH	11
SAND	
TEMPERATURE (°C)	44.9

TIME RECORD

TIME	FROM	TO	DESCRIPTION	
1.00		1:00	RIH	
2.50	1:00	3:30	Rig Repair	
1.00	3:30	4:30	RIH	
0.75	4:30	5:15	Slip & Cut	
0.50	5:15	5:45	Test MWD	
2.25	5:45	8:00	RIH	
0.75	8:00	8:45	Wash to Bottom	
2.00	8:45	10:45	Directional Drill 1766 m	to 1777 m
1.50	10:45	12:15	Circulate	
0.25	12:15	12:30	Directional Drill 1777 m	to 1779 m
0.25	12:30	12:45	Rig Service	
3.00	12:45	15:45	Directional Drill 1779 m	to 1817 m
0.25	15:45	16:00	Accumulated Surveys	
1.00	16:00	17:00	Directional Drill 1817 m	to 1827 m
0.25	17:00	17:15	Rig Service	
5.50	17:15	23:45	Directional Drill 1827 m	to 1902 m
0.25	23:45	0:00	Accumulated Surveys	
24.00	TOTAL			

COST ESTIMATE

LIST SUPPLIER (if not Anadrill)			COST	
SUPERVISION	1 @	700.00	$ ~~700.00~~	750
FLAT RATE			710	
MOTOR HRS	17.00 @	~~200.00~~	$ ~~3,400.00~~	3570
MOTOR DAILY				
MOTOR STBY				
J&RS				
S. SHOT KIT		125.00		
FLOAT SUB	1	25.00	$ ~~25.00~~	30
MONEL	1	125.00	$ 125.00	
X/Over	1	25.00	$ ~~25.00~~	30
STABILIZERS				
TB REAMER				
MWD SUPER.	1 @	500.00	$ ~~500.00~~	550
MWD SYSTEMS	1	2900.00	$ 2,900.00	3050
GAMMA RAY				
MOTOR RELINE				
THREAD INSPECTION				
SUBSISTENCE (Camp?)		Yes		
camp				

MILEAGE

VEH. LIC. #	KM TOT	KM ACC	
KM TODAY		0.75	$ -
KM ACCUM.			
DAILY TOTAL			$ 7,675.00
ACCUMULATED			~~$73,250.00~~

9555.
86,637.50

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily			Run			Well			Total			FAILURE?
			Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	(Yes / No)
1	Vector	3109-67198-10	12.75	3.25	16.00	12.75	2.75	16.00	12.75	2.75	16.00	12.75	2.75	16.00	N

BHA

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LX6668	0.25
Motor	Vector	3109-67198-10	7.06
Float	Anadrill	1316579	0.59
UBHO	Anadrill	1416514	0.66
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
1 S S	Cougar	ST5-612-48	3.51
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.81
6 HWDP	Akita		55.54
TOTAL LENGTH			229.69

BHA

ITEM	VENDER	SERIAL#	LENGTH
TOTAL LENGTH			

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
4	Cougar	65012V	121.50	31.25	152.75	N

MWD

RUN	COMP.	HRS tdy	HRS ttl	COMMENTS	FAILURE?
4	SMA323	24.00	26.00		N
4	SEA168	24.00	132.00		N
4	SBA4557	24.00	26.00		N

COMMENTS

TARGET TVD @ TIME

PERSONNEL

DD: Eric Erickson	MWD: Barry Timmerman
DD:	MWD:
DD:	MWD:
DD:	MWD:

AFE NUMBER 5000044-3210-362 CONTRACT NUMBER

FIELD CELL # 1-403-813-7141 CO. MAN'S CELL #

SIGNATURE OF COMPANY'S REPRESENTATIVE

Allan Anger

Schlumberger

Day 14

JOB NUMBER	DATE	COMPANY	WELL NAME
40004524	FRI MARCH, 3, 2000	Alberta Energy Corp	AEC Renaissance Tate G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Tate Lake G-18	

DRILLING RECORD

BIT NUMBER	4	
BIT SIZE	222	
BIT TYPE	F37P	
JETS (mm)	14,3	
DEPTH IN	1768	
DEPTH OUT		
METERS	241	
HOURS	34	
ROP (m/hr)	7.1	
RPM	20/90	
WOB	16/18	
PP ON	7000	
PP OFF	5800	
STG WT	65	
P/U WT	69	
S/O WT	63	
PUMP Data		
PUMP MAN.	NAT	NAT
PUMP MOD.	8-P-80	8-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M/STRK	0,0118	0,0118
STRKS/Min.	100	
VOLUME	1.18	
MUD REPORT		
MUD TYPE (Gel,ect.)		Gel
MUD WEIGHT		1165
VISCOSITY (sec/L)		46
WATER LOSS		8.5
pH		11
SAND		
TEMPERATURE (°C)		44.9

TIME RECORD

TIME	FROM	TO	DESCRIPTION
1.75		1:45	Directional Drill 1902 m to 1930 m
0.25	1:45	2:00	Rig Service
5.25	2:00	7:15	Directional Drill 1930 m to 1968 m
0.75	7:15	8:00	Accumulated Surveys
0.25	8:00	8:15	Rig Service
7.50	8:15	15:45	Directional Drill 1968 m to 1988 m
0.25	15:45	16:00	Accumulated Surveys
6.75	16:00	22:45	Directional Drill 1988 m to 2006 m
0.25	22:45	23:00	Rig Service
0.75	23:00	23:45	Directional Drill 2006 m to 2009 m
0.25	23:45	0:00	Accumulated Surveys
24.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (If not Anadrill)			COST	
SUPERVISION	1 @	700.00	$ 700.00	750
FLAT RATE				
MOTOR HRS	21.50 @	200.00	$ 4,300.00	4515.
MOTOR DAILY				
MOTOR STBY				
JARS				
S. SHOT KIT		125.00		
FLOAT SUB	1	25.00	$ 25.00	30
MONEL	1	125.00	$ 125.00	
X/Over	1	25.00	$ 25.00	30
STABILIZERS				
TB REAMER				
MWD SUPER.	1 @	500.00	$ 500.00	550
MWD SYSTEMS	1	2900.00	$ 2,900.00	3007
GAMMA RAY				
MOTOR RELINE				
THREAD INSPECTION				
SUBSISTENCE (Camp?)		Yes		
CAMP				

MILEAGE

VEH. LIC. #	KM TDY	KM ACC

KM TODAY	0.75	$ -
KM ACCUM.		
DAILY TOTAL		$ 8,573.00
ACCUMULATED		$ 85,873.00

9000
9,637.50

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily			Run			Well			Total			FAILURE?
			Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	(Yes / No)
1	Vector	3109-67198-10	22.00	1.25	23.25	34.00	4.00	38.00	34.00	4.00	38.00	34.00	4.00	38.00	N

BHA

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LX8668	0.25
Motor	Vector	3109-67198-10	7.06
Float	Anadrill	1316579	0.59
UBHO	Anadrill	1416514	0.68
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
1 S S	Cougar	ST5-612-48	3.51
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.61
8 HWDP	Akita		55.54
TOTAL LENGTH			229.56

BHA

ITEM	VENDER	SERIAL#	LENGTH
TOTAL LENGTH			

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
4	Cougar	650I2V	143.50	32.50	176.00	N

NMD

RUN	COMP.	HRS (d)	HRS (t)	COMMENTS	FAILURE?
4	SMA323	24.00	50.00		N
4	SEA168	24.00	156.00		N
4	SBA4557	24.00	50.00		N

Comments

TARGET TVD @ TIME

PERSONNEL

DD:	Eric Erickson	MWD:	Barry Timmerman
DD:		MWD:	
DD:		MWD:	
DD:		MWD:	

AFE NUMBER	5000044-0210-362
CONTRACT NUMBER	
FIELD CELL #	1-403-813-7141
CO. MAN'S CELL #	

SIGNATURE OF COMPANY'S REPRESENTATIVE

Allan Anger

Schlumberger

Day 15

JOB NUMBER	DATE	COMPANY	WELL NAME
40004524	SAT MARCH, 4, 2000	Alberta Energy Corp	AEC Rennaissance Tate G-18
COMPANY REPRESENTATIVE		RIG NAME	LOCATION
Al Anger		Akita #51	Tate Lake G-18

DRILLING RECORD

BIT NUMBER	4	
BIT SIZE	222	
BIT TYPE	F37P	
JETS (mm)	14,3	
DEPTH IN	1769	
DEPTH OUT	2030	
METERS	262	
HOURS	42.5	
ROP (m/hr)	6.2	
RPM	20/90	
WOB	16/18	
PP ON	7000	
PP OFF	5900	
STG WT	68	
P/U WT	78	
S/O WT	64	

PUMP DATA

PUMP MAN.	NAT	NAT
PUMP MOD.	8-P-80	8-P-80
Triplex/Duplex	Triplex	Triplex
LINER	152mm	152mm
STROKE	216mm	216mm
CU. M./STRK	0.0118	0.0118
STRKS/Min.	100	
VOLUME	1.18	

MUD REPORT

MUD TYPE (Gel,ect.)	Gel
MUD WEIGHT	1165
VISCOSITY (sec/L)	46
WATER LOSS	8.5
pH	11
SAND	
TEMPERATURE (°C)	44.9

TIME RECORD

TIME	FROM	TO	DESCRIPTION
2.25		2:15	Directional Drill 2009 m to 2015 m
0.25	2:15	2:30	Rig Service
5.25	2:30	7:45	Directional Drill 2015 m to 2026 m
0.25	7:45	8:00	Accumulated Surveys
1.00	8:00	9:00	Directional Drill 2026 m to 2030 m
1.50	9:00	10:30	Circulate
3.25	10:30	13:45	Wiper Trip
0.25	13:45	14:00	Rig Service
2.00	14:00	16:00	Circulate
			POOH To Log
			Lay Out Directional Tools
18.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (If not Anadrill)			COST	
SUPERVISION	1 @	700.00	$ 750.00	750
FLAT RATE				2572.50
MOTOR HRS	12.25 @	200.00	$ 2,450.00	
MOTOR DAILY				
MOTOR STB'r				
JARS				
8, SHOT KIT		125.00		
FLOAT SUB	1	25.00	$ 25.00	30
MONEL	1	125.00	$ 125.00	
X/Over	1	25.00	$ 25.00	30
STABILIZERS				
TB REAMER				
MWD SUPER.	1 @	500.00	$ 500.00	550
MWD SYSTEMS	1	2900.00	$ 2,900.00	3250
GAMMA RAY				
MOTOR RELINE				
THREAD INSPECTION				
SUBSISTENCE (Camp?)		Yes		
camp				

MILEAGE

VEH. L/C, #	KM TDY	KM ACC

KM TODAY	0.75	$ -
KM ACCUM.		
DAILY TOTAL	$	6,725.00
ACCUMULATED		$ 40,700.00

401 + 50
101,695

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily			Run			Well			Total			FAILURE?
			Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	(Yes / No)
1	Vector	3109-67198-10	8.50	3.75	12.25	42.50	7.75	50.25	42.50	7.75	50.25	42.50	7.75	50.25	N

BHA

ITEM	VENDER	SERIAL#	LENGTH
BIT	Smith	LX6608	0.25
Motor	Vector	3109-67198-10	7.06
Float	Anadrill	1316578	0.58
UBHO	Anadrill	1416514	0.66
NMDC	Anadrill	1916539	9.21
X-Over	Anadrill	1216576	0.62
1 S S	Cougar	ST3612-48	3.51
6DC	Akita		55.71
Jar	Cougar	DJG 650-12	4.70
10DC	Akita		91.81
6 HV/DP	Akita		55.54
TOTAL LENGTH			229.66

BHA

ITEM	VENDER	SERIAL#	LENGTH
TOTAL LENGTH			

DOWNHOLE JARS

RUN	MAKE	SER. #	Drill	Circ	D+C	FAILURE?
4	Cougar	65012V	152.00	30.25	179.75	N

BHA

RUN	COMP.	HRS (dy)	HRS (tl)	COMMENTS	FAILURE?
4	SMA323	20.00	70.00		N
4	SEA168	20.00	170.00		N
4	SSA4557	20.00	70.00		N

Comments

TARGET TVD @ TIME

PERSONNEL

DD: Eric Erickson	MWD: Barry Timmerman
DD:	MWD:
DD:	MWD:
DD:	MWD:

AFE NUMBER 5000044-0210-351 CONTRACT NUMBER

FIELD CELL # 1-403-813-7141 CO. MAN'S CELL #

SIGNATURE OF COMPANY'S REPRESENTATIVE

Allan Anger

Schlumberger

Day 10

JOB NUMBER	DATE	COMPANY	WELL NAME
40004524	SUN MARCH, 5, 2000	Alberta Energy Corp	AEC Rennalasance Tate G-18
COMPANY REPRESENTATIVE	**RIG NAME**	**LOCATION**	
Al Anger	Akita #51	Tate Lake G-18	

BIT RECORD

BIT NUMBER			
BIT SIZE			
BIT TYPE			
JETS (mm)			
DEPTH IN			
DEPTH OUT			
METERS			
HOURS			
ROP (m/hr)			
RPM			
WOB			
PP ON			
PP OFF			
STG WT			
P/U WT			
S/O WT			

PUMP DATA

PUMP MAN.			
PUMP MOD.			
Triplex/Duplex			
LINER			
STROKE			
GU, M/STRK			
STRKS/Min.			
VOLUME			

MUD REPORT

MUD TYPE (Gel,ect.)			
MUD WEIGHT			
VISCOSITY (sec/L)			
WATER LOSS			
pH			
SAND			
TEMPERATURE (°C)			

TIME RECORD

TIME	FROM	TO	DESCRIPTION
24.00		0:00	Travel To Akita # 14 near Ft. Good Hope
			For AEC
24.00	TOTAL		

COST ESTIMATE

LIST SUPPLIER (If not Anadrill)			COST
SUPERVISION	1 @	700.00	$ 700.00
FLAT RATE			
MOTOR HRS		200.00	
MOTOR DAILY			
MOTOR STBY			
JARS			
S. SHOT KIT		125.00	
FLOAT SUB		25.00	
MONEL		125.00	
X/Over		25.00	
STABILIZERS			
TB REAMER			
MWD SUPER.	1 @	500.00	$ 500.00
MWD SYSTEMS		2900.00	
MWD STANDBY	1	1000.00	$ 1,000.00
MOTOR RELINE			
THREAD INSPECTION			
SUBSISTENCE (Camp?)		Yes	
camp		20 75	150

MILEAGE

VEH. LIC. #	KM TDY	KM ACC
KM TODAY		0.75
KM ACCUM.		
DAILY TOTAL		$ 2,200.00
ACCUMULATED		$ 97,000.00

DOWNHOLE MOTORS

RUN	MAKE	SER. NO.	Daily			Run			Well			Total			FAILURE?
			Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	Drill	Circ	D+C	(Yes / No)

BHA

ITEM	VENDER	SERIAL#	LENGTH

SURVEY PLAN

OVERSIZED

DOCUMENT

FILMED

ON

35mm

RESISTIVITY/ CONDUCTIVITY

1887 N.E.B. COPY

COMPANY: AEC OIL & GAS

WELL: AEC WEST RENAISSANCE TATE G-18

FIELD: EXPLORATORY

PROVINCE: NWT

Schlumberger

DUAL LATEROLOG MSFL

UWI: 300S166430125150
WID 1887

Elev.: K.B. 396.4 m
G.L. 391 m
D.F.

Permanent Datum: GROUND LEVEL — Elev.: 391 m
Log Measured From: KELLY BUSHING — 5.4 m above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	LATITUDE	LONGITUDE	RANGE
1887	64 27 17.30666	125 17 33.14821	

PROVINCE/TERRITORY: NWT
Field: EXPLORATORY
Location: AEC WEST RENAISSANCE TAT
Well: AEC WEST RENAISSANCE TAT
Company: AEC OIL & GAS

	Run 1	Run 2	Run 3	Run 4
Logging Date	5-MAR-2000			
Run Number	1			
Depth Driller	2030 m			
Schlumberger Depth	2031.9 m			
Bottom Log Interval	2025 m			
Top Log Interval	586 m			
Casing Driller Size @ Depth	244.000 mm @ 586 m	@	@	@
Casing Schlumberger	586 m			
Bit Size	222.000 mm			
Type Fluid In Hole	GEL CHEM			
MUD Density / Viscosity	1185 kg/m3 / 47 s			
PH / Fluid Loss	9 / 8 cm3			
Source Of Sample	RIG			
RM @ Measured Temperature	0.260 ohm.m @ 29 degC	@	@	@
RMF @ Measured Temperature	0.210 ohm.m @ 17 degC	@	@	@
RMC @ Measured Temperature	0.150 ohm.m @ 29 degC	@	@	@
Source RMF / RMC	RMS / RMS	RMS	RMS	RMS
RM @ MRT / RMF @ MRT	0.148 @ 55 / 0.106 @ 55	@ / @	@ / @	@ / @
Maximum Recorded Temperatures	55 degC			
Circulation Stopped / Time	4-MAR-2000 / 17:00			
Logger On Bottom / Time	5-MAR-2000 / 3:48			
Unit Number / Location	5474 / 0064			
Recorded By	SEAN MCCONNEY			
Witnessed By	BRIAN HESTER			

ALL INTERPRETATION ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR STANDARD TERMS AND CONDITIONS AND GENERAL AGREEMENT.

OTHER SERVICES	CSU
CSU	CSG
CSG	DAL
DAL	SPECTROLOG
SPE	BHC-GR-SONIC
BHC	BOREHOLE AUDIO TOOL
LDL	COMPENSATED NEUTRON
CNS	LITHO-DENSITY
CDS	GR-CCL
GRC	CASING COLLAR LOCATOR
CCL	CASING COLLAR LOCATOR
CAL	CALIPER SURVEY
SGR	SPECTRAL GAMMA RAY
SHDT	SIX ARM DIPMETER
MAX TEMPERATURE RECORDED	55 DEGC

RUN 1 — RUN 2

	RUN 1	RUN 2
BRIDGE PLUG #1	2030	
BRIDGE PLUG #2	2025	
AUDIO LOGGING	STOP	STOP
EXTERNAL	START	START

RUN 1

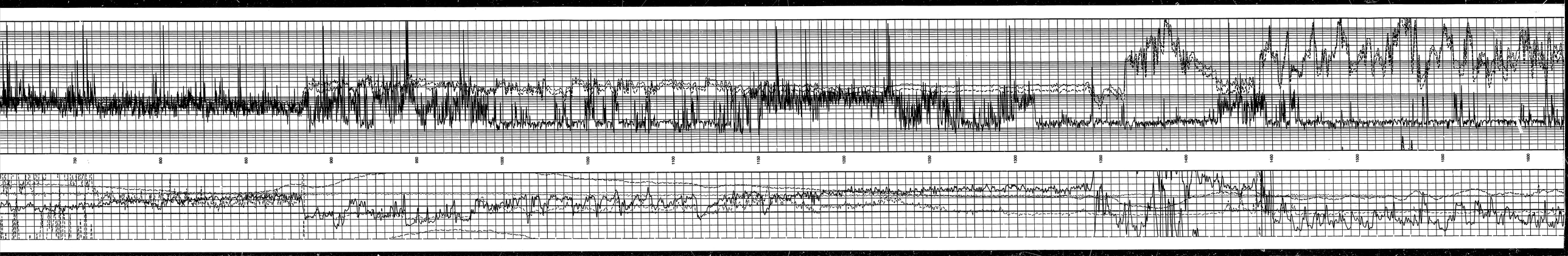
EQUIPMENT DESCRIPTION

RUN 2

SURFACE EQUIPMENT
WITH CTSU-A

DOWNHOLE EQUIPMENT

| | | |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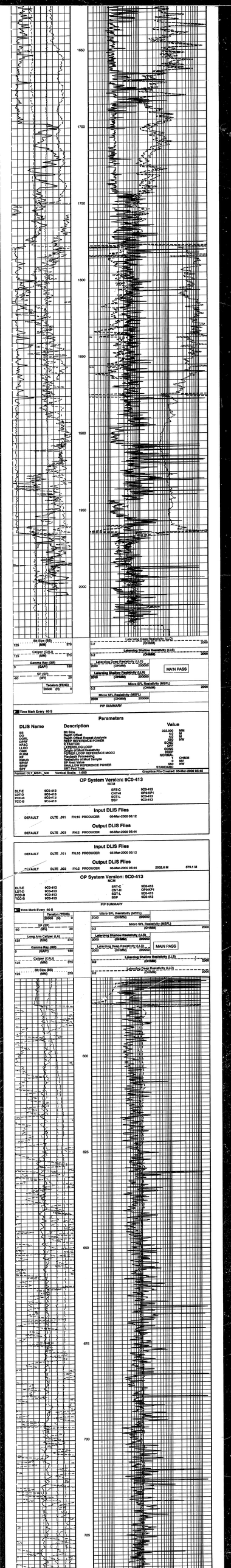
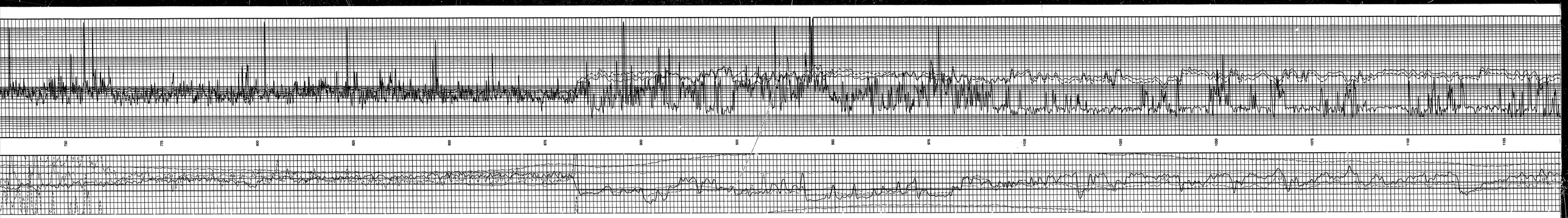

Bit Size (BS)
(MM)
Caliper (CALI)
(MM)
Gamma Ray (GR)
(GAPI)
SP (SP)
(MV)
Tension (TENS)
(LB)
Time Mark Every 60 S
Laterolog Deep Resistivity (LLD)
(OHMM)
Laterolog Shallow Resistivity (LLS)
(OHMM)
MAIN PASS
Micro SFL Resistivity (MSFL)
(OHMM)
PIP SUMMARY
Parameters
DLIS Name
Description
Value
BS
Bit Size
222.000 MM
DCO
Depth Offset
4.0 M
DRML
Depth Control Repeat Analysis
NO NM
DRSP
DRSP REFERENCE POWER
SGND
EKB
K FACTOR
0 F
LLCO
LATEROLOG LOOP
CONS
LLSO
LATEROLOG Sensitivity
CONS
OGSP
OGSP LOOP REFERENCE MODU
OGSP
PP
Playback Processing
NORMAL
RMUD
Resistivity of Mud Sample
0 OHMM
SPRF
SP REFERENCE
0 MV
SPSF
SHALLOW REFERENCE POWER
2000 HW
SPT
SRT Pad Type
STANDARD
Format: DLT_MSFL.000
Vertical Scale: 1:600
Graphics File Created: 06-Mar-2000 00:48
OP System Version: 9C0-413
KCM
DLT-E 9C0-413
LDT-D 9C0-413
PCD-B 9C0-413
TCC-B 9C0-413
SRT-C 9C0-413
CNT-H 9C0-413
SGT-L 9C0-413
BSP 9C0-413
Input DLIS Files
DEFAULT DLTE .011 FN:10 PRODUCER 06-Mar-2000 03:12
Output DLIS Files
DEFAULT DLTE .003 FN:2 PRODUCER 06-Mar-2000 00:44
Input DLIS Files
DEFAULT DLTE .011 FN:10 PRODUCER 06-Mar-2000 03:12
Output DLIS Files
DEFAULT DLTE .003 FN:2 PRODUCER 06-Mar-2000 00:44 2032.6 M 979.1 M
OP System Version: 9C0-413
MCM
DLT-E 9C0-413
LDT-D 9C0-413
PCD-B 9C0-413
TCC-B 9C0-413
SRT-C 9C0-413
CNT-H QP43P1
SGT-L 9C0-413
BSP 9C0-413
PIP SUMMARY
Time Mark Every 60 S
Tension (TENS)
(LB)
SP (SP)
(MV)
Long Arm Caliper (LA1)
(MM)
Gamma Ray (GR)
(GAPI)
Caliper (CALI)
(MM)
Bit Size (BS)
(MM)
Micro SFL Resistivity (MSFL)
(OHMM)
Micro SFL Resistivity (MSFL)
(OHMM)
Laterolog Shallow Resistivity (LLS)
(OHMM)
Laterolog Deep Resistivity (LLD)
(OHMM)
MAIN PASS
Laterolog Shallow Resistivity (LLS)
(OHMM)
Laterolog Deep Resistivity (LLD)
(OHMM)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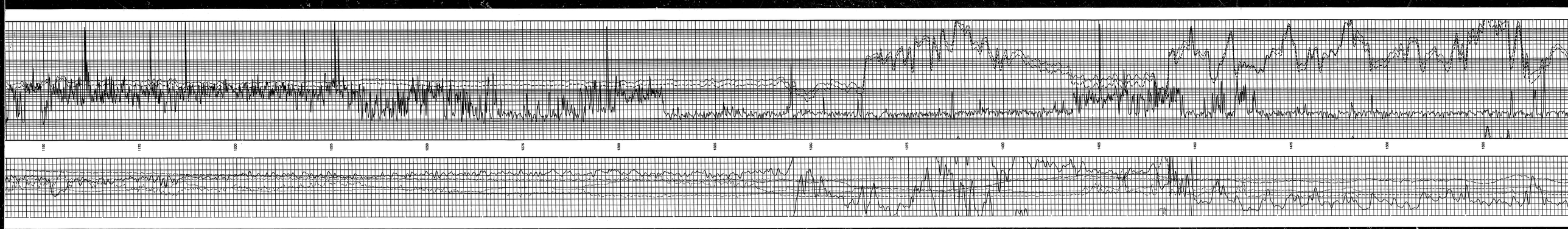
1075
1100
1125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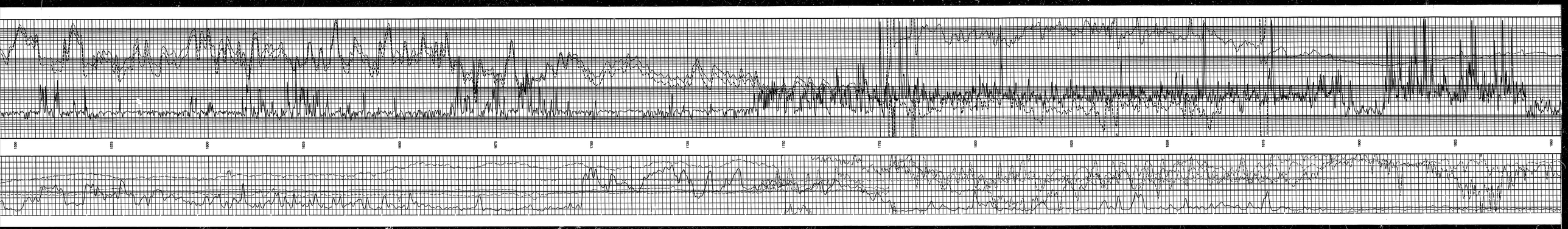
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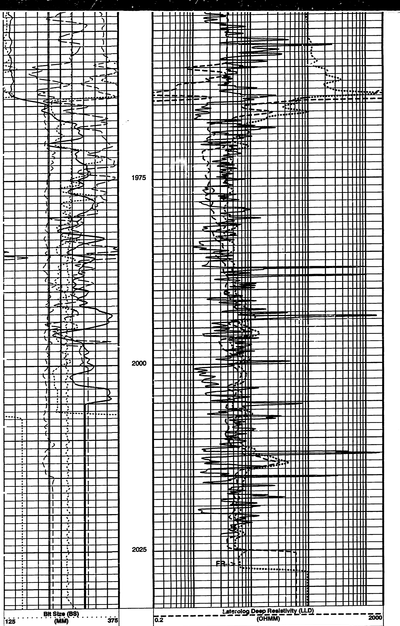
1905
1910



Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BS	Bit Size	222.000	MM
DO	Depth Offset	4.0	M
DORL	Depth Offset Repeat Analysis	4.0	M
DPRF	DEEP REFERENCE POWER	500	MW
KFAC	K FACTOR	SOND	
LLOC	LATEROLOG LOOP	OFF	
OMR	Origin of Mud Resistivity	CONS	
PLRM	POWER LOOP REFERENCE MODE	DEEP	
PP	Playback Processing	NORMAL	
RMUD	Resistivity of Mud Sample	1	OHMM
SPHV	SP Next Value	0	MV
SPRF	SHALLOW REFERENCE POWER	500	MW
SPT	SRT Pad Type	STANDARD	

Format: DLT_MSFL_240 Vertical Scale: 1:240 Graphics File Created: 05-Mar-2000 05:45

OP System Version: 9C0-413 MCM

DLT-E	9C0-413	SRT-C	9C0-413
LDT-D	9C0-413	CNT-H	OP9-KP1
PCD-B	9C0-413	SGT-L	9C0-413
TCC-B	9C0-413	BSP	9C0-413

Input DLIS Files

DEFAULT	DLTE .011	FN:10 PRODUCER	05-Mar-2000 03:12	

Output DLIS Files

DEFAULT	DLTE .003	FN:2 PRODUCER	05-Mar-2000 05:44

Input DLIS Files

DEFAULT	DLTE .011	FN:10 PRODUCER	05-Mar-2000 03:12		
DEFAULT	DLTE .010	FN:9 PRODUCER	05-Mar-2000 02:48	2027.8 M	1917.6 M

Output DLIS Files

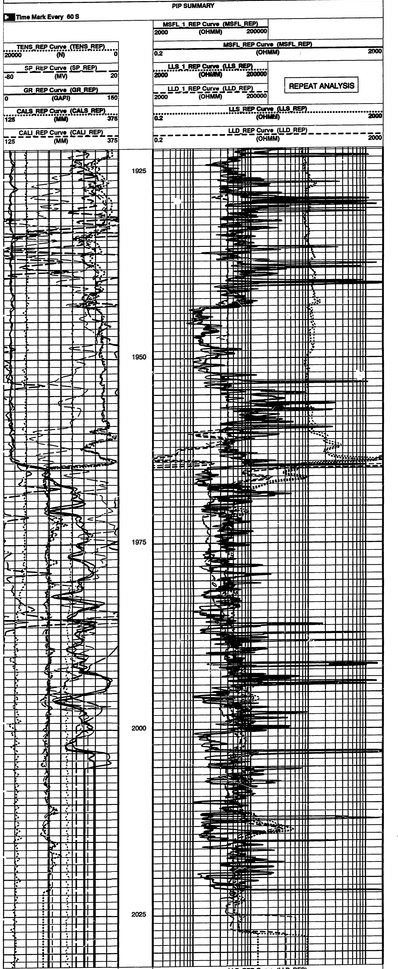
DEFAULT	DLTE .003	FN:2 PRODUCER	05-Mar-2000 05:44

OP System Version: 9C0-413 MCM

DLT-E	9C0-413	SRT-C	9C0-413
LDT-D	9C0-413	CNT-H	OP9-KP1
PCD-B	9C0-413	SGT-L	9C0-413
TCC-B	9C0-413	BSP	9C0-413

PIP SUMMARY

Time Mark Every 60 S



CALI_REP Curve (CALI_REP) (MM) 125 375
CALS_REP Curve (CALS_REP) (MM) 125 375
GR_REP Curve (GR_REP) (GAPI) 0 150
SP_REP Curve (SP_REP) (MV) -50 20
TENS_REP Curve (TENS_REP) (N) 20000 0
LLD_REP Curve (LLD_REP) (OHMM) 0.2 2000
LLS_REP Curve (LLS_REP) (OHMM) 0.2 2000
LLD_1_REP Curve (LLD_REP) (OHMM) 2000 200000
REPEAT ANALYSIS
LLS_1_REP Curve (LLS_REP) (OHMM) 2000 200000
MSFL_REP Curve (MSFL_REP) (OHMM) 0.2 2000
MSFL_1_REP Curve (MSFL_REP) (OHMM) 2000 200000
PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name | Description | Value

BS Bit Size 222.000 MM
DO Depth Offset 4.0 M
DORL Depth Offset Repeat Analysis 4.0 M
DPRF DEEP REFERENCE POWER 500 MW
KFAC K FACTOR SOND
LLOC LATEROLOG LOOP OFF
OMR Origin of Mud Resistivity CONS
PLRM POWER LOOP REFERENCE MODE DEEP
PP Playback Processing NORMAL
RMUD Resistivity of Mud Sample 1 OHMM
SPHV SP Next Value 0 MV
SPRF SHALLOW REFERENCE POWER 500 MW
SPT SRT Pad Type STANDARD

Format: DLT_MSFL_REP Vertical Scale: 1:240 Graphics File Created: 05-Mar-2000 05:45

OP System Version: 9C0-413 MCM

DLT-E 9C0-413 SRT-C 9C0-413
LDT-D 9C0-413 CNT-H OP9-KP1
PCD-B 9C0-413 SGT-L 9C0-413
TCC-B 9C0-413 BSP 9C0-413

Input DLIS Files

DEFAULT DLTE .011 FN:10 PRODUCER 05-Mar-2000 03:12
DEFAULT DLTE .010 FN:9 PRODUCER 05-Mar-2000 02:48 2027.8 M 1917.6 M

Output DLIS Files

DEFAULT DLTE .003 FN:2 PRODUCER 05-Mar-2000 05:44

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
DUAL LATEROLOG - E Wellsite Calibration - DLT ELECTRONICS CALIBRATION Laterolog Measurement							
Before: 5-MAR-2000 2:13							
MEASURED LLD	31.62	N/A	32.19	N/A	N/A	0.0000	OHMM
MEASURED LLS	31.62	N/A	32.22	N/A	N/A	0.0000	OHMM

Spherical Resistivity - C Wellsite Calibration - Electronics Calibration
Before: 6-MAR-2002 2:09

MSFL Conductivity Zero	1.000	N/A	1.015	N/A	N/A	2.000 MM/M
MSFL Bucking Current Zero	0.0000	N/A	0.1716	N/A	N/A	0.0000 MM/M
MSFL Conductivity Plus	900.0	N/A	899.3	N/A	N/A	20.00 MM/M
MSFL Bucking Current Plus	100.0	N/A	95.10	N/A	N/A	20.00 MM/M

Spherical Resistivity - C Wellsite Calibration - Caliper Downhole Calibration
Before: Calibration not done

CALIPER Downhole	414.2	N/A	N/A	N/A	N/A	8.283 MM

Litho Density - D Wellsite Calibration - Background Measurement
Master: 27-FEB-2000 16:31 Before: 4-MAR-2000 13:01

LL Background	19.00	19.17	18.97	N/A	N/A	1.000 CPS
LU Background	76.00	73.25	73.00	N/A	N/A	1.000 CPS
LS Background	57.00	55.80	55.47	N/A	N/A	1.000 CPS
SS1 Background	16.00	12.29	12.25	N/A	N/A	0.5000 CPS
SS2 Background	8.000	11.00	8.500	N/A	N/A	0.1000 CPS

Litho Density - D Wellsite Calibration - Tool Quality Control Information HV
Master: 27-FEB-2000 16:31 Before: 4-MAR-2000 13:01

SS1HV Background	1920	1339	1340	N/A	N/A	V
SS2HV Background	1920	1339	1345	N/A	N/A	V

Litho Density - D Wellsite Calibration - Detectors Resolution From BKG Measurements
Master: 27-FEB-2000 16:31 Before: 4-MAR-2000 13:01

LS Resolution Background	8.000	8.449	8.480	N/A	N/A	
SS Resolution Background	8.000	8.631	8.642	N/A	N/A	

Litho Density - D Wellsite Calibration - Caliper Calibration
Before: 4-MAR-2000 13:02

Caliper Small Ring	203.2	N/A	191.7	N/A	N/A	MM
Caliper Large Ring	304.8	N/A	289.9	N/A	N/A	MM

Litho Density - D Master Calibration - Aluminum Measurement
Master: 27-FEB-2000 16:43

LL Aluminum	90.00	91.00	--	--	--	CPS
LU Aluminum	135.0	136.7	--	--	--	CPS
LS Aluminum	155.0	155.4	--	--	--	CPS
UTH Aluminum	50.00	55.57	--	--	--	CPS
SS1 Aluminum	175.0	178.3	--	--	--	CPS
SS2 Aluminum	250.0	260.3	--	--	--	CPS

Litho Density - D Master Calibration - Lithology Measurement
Master: 27-FEB-2000 16:38

LL Iron	80.00	86.87	--	--	--	CPS
LU Iron	120.0	130.5	--	--	--	CPS
LS Iron	130.0	132.1	--	--	--	CPS
UTH Iron	30.00	37.79	--	--	--	CPS
SS1 Iron	155.0	172.6	--	--	--	CPS
SS2 Iron	245.0	250.0	--	--	--	CPS

Litho Density - D Master Calibration - Spectrum Quality Ratios
Master: 27-FEB-2000 16:43

QRLS Calculated	0.6500	0.6655	--	--	--	
QRSS Calculated	0.7200	0.6848	--	--	--	
QRLU Calculated	0.3900	0.3487	--	--	--	
QLIR Calculated	1.390	1.406	--	--	--	
QH Calculated	1.000	1.014	--	--	--	

Compensated Neutron - H Wellsite Calibration - Zero Measurement
Master: 27-FEB-2000 14:24 Before: 4-MAR-2000 13:01

CNTC Background	27.55	27.55	28.18	N/A	N/A	4.176 CPS
CPTC Background	34.74	34.74	36.34	N/A	N/A	5.211 CPS

Compensated Neutron - H Master Calibration - Tank Measurement
Master: 27-FEB-2000 14:32

Thermal Near Corr. (Tank)	6031	5839	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2542	--	--	--	CPS
CNTC/CPTC (Tank)	2.159	2.297	--	--	--	

Powered Caliper Device - B Wellsite Calibration - Large Arm Calibration
Before: 4-MAR-2000 13:05

Large Arm Small Ring	203.2	N/A	201.9	N/A	N/A	MM
Large Arm Large Ring	304.8	N/A	312.0	N/A	N/A	MM

Powered Caliper Device - B Wellsite Calibration - Small Arm Calibration
Before: 4-MAR-2000 13:05

Small Arm Small Gauge	25.40	N/A	176.8	N/A	N/A	MM
Small Arm Large Gauge	127.0	N/A	209.5	N/A	N/A	MM

Powered Caliper Device - B Wellsite Calibration - Micro Inverse Calibration
Before: Calibration out of date 16-JAN-2000 19:59

Micro Inverse Zero	0.000	N/A	4.420	N/A	N/A	0.1000 OHMM
Micro Inverse Plus	5.000	N/A	4.420	N/A	N/A	0.2000 OHMM

Powered Caliper Device - B Wellsite Calibration - Micro Normal Calibration
Before: Calibration out of date 16-JAN-2000 19:59

Micro Normal Zero	0	N/A	4.420	N/A	N/A	0.1000 OHMM
Micro Normal Plus	5.000	N/A	4.420	N/A	N/A	0.2000 OHMM

Scintillation Gamma Ray - L Wellsite Calibration - Detector Calibration
Before: 4-MAR-2000 12:58

Gamma Ray Background	30.00	N/A	81.68	N/A	N/A	GAPI
Gamma Ray (Uy - Bkg)	159.0	N/A	159.0	N/A	N/A	14.45 GAPI
Gamma Ray (Calibrator)	165.0	N/A	165.0	N/A	N/A	15.00 GAPI

The CNT Master Calibration Was Done With The Following Parameters :

NCT-B Water Temperature	10.0	DEGC.
Thermal Housing Size	65.722	MM.

DUAL LATEROLOG - E / Equipment Identification

Primary Equipment:

Dual Laterolog Electrode	DLE - F
Dual Laterolog Sonde	DLS - F
Dual Laterolog Housing	DLH - CB
Dual Laterolog Cartridge	DLC - F
Laterolog Control Module	LCM - AA

DUAL LATEROLOG - E Wellsite Calibration
DLT ELECTRONICS CALIBRATION Laterolog Measurement

Phase	MEASURED LLD OHMM	Value	Phase	MEASURED LLS OHMM	Value
Before	[redacted]	32.19	Before	[redacted]	30.22
	29.00	31.62		29.00	31.62
	(Minimum)	40.00 (Maximum)		(Minimum)	40.00 (Maximum)

Before: 5-MAR-2002 2:13

DUAL LATEROLOG - E Wellsite Calibration
DLT Electronics Calibration Bus Measurement

Phase	Deep Current Plus UA	Value	Phase	Deep Voltage Plus MV	Value	Phase	Groningen Voltage Plus MV	Value
Before	[redacted]	340.5	Before	[redacted]	10.98	Before	[redacted]	10.93
	317.5	342.5	367.5	9.800	10.93	11.93	9.850	10.93
	(Minimum)	340.0 (Maximum)		(Minimum)	10.93 (Maximum)	11.93 (Maximum)	(Minimum)	11.03 (Maximum)
Phase	Shallow Current Plus UA	Value	Phase	Shallow Voltage Plus MV	Value			
Before	[redacted]	340.8	Before	[redacted]	10.97			
	317.5	342.5	367.5	9.800	10.93	11.93		
	(Minimum)	340.0 (Maximum)		(Minimum)	10.93 (Maximum)	11.93 (Maximum)		

Before: 6-MAR-2000 2:13

DUAL LATEROLOG - E Wellsite Calibration
DLT Electronics Calibration Zero Measurement

Phase	Deep Current Zero UA	Value	Phase	Deep Voltage Zero MV	Value	Phase	Groningen Voltage Zero MV	Value
Before	-0.1288	[redacted]	Before	-0.007872	[redacted]	Before	[redacted]	-0.01155
	-1.000	1.000		-0.1000	0.1000		0.1000	0.1000
	(Minimum)	0 (Nominal)		(Minimum)	0 (Nominal)		(Minimum)	0 (Nominal)
Phase	Shallow Current Zero UA	Value	Phase	Shallow Voltage Zero MV	Value			
Before	-0.08598	[redacted]	Before	-0.01155	[redacted]			
	-1.000	1.000		-0.1000	0.1000			
	(Minimum)	0 (Nominal)		(Minimum)	0 (Nominal)			

Before: 5-MAR-2000 2:12

Spherical Resistivity - C / Equipment Identification

Primary Equipment:

Density Reliability Sonde	DRS - C
Spherical Resistivity Electronics	SRE - D
Auxiliary Equipment:	
Spherical Resistivity Adapter	SRA - A
Electronics Cartridge Housing	ECH - KQ

722

2753
762

Spherical Resistivity - C Wellsite Calibration
Electronics Calibration

Phase	MSFL Conductivity Zero MM/M	Value	Phase	MSFL Bucking Current Zero MM/M	Value
Before	[redacted]	1.015	Before	[redacted]	0.1716
	-1.021	1.000	3.000	-4.800	0.0000
	(Minimum)	0.0000 (Nominal)	(Maximum)	(Minimum)	0.000 (Nominal)
Phase	MSFL Conductivity Plus MM/M	Value	Phase	MSFL Bucking Current Plus MM/M	Value
Before	[redacted]	899.3	Before	[redacted]	95.18
	400.0	900.0	950.0	50.00	100.0
	(Minimum)	900.0 (Nominal)	(Maximum)	(Minimum)	150.0 (Maximum)

Before: 5-MAR-2000 2:09

Spherical Resistivity - C Wellsite Calibration
Caliper Downhole Calibration

Phase	CALIPER Small Ring	MM	Value	Phase	CALIPER Large Ring	MM	Value
Before	[redacted]		202.7	Before	[redacted]		301.3
	101.6	203.2	228.6	243.8	304.8	381.0	
	(Minimum)	203.2 (Nominal)	(Maximum)	(Minimum)	304.8 (Nominal)	(Maximum)	

Before: 26-FEB-2000 14:00

Spherical Resistivity - C Wellsite Calibration
Caliper Downhole Calibration

Phase	CALIPER Downhole	MM	Value
Before	[redacted]	N/A	
	372.8	414.2	455.6
	(Minimum)	(Nominal)	(Maximum)

Before: Calibration not done

Litho Density - D / Equipment Identification

Primary Equipment:

Nuclear Services Cartridge	NSC - E
Powered Gamma Detector	PGD - D
Gamma Source Radioactive	GSR - J
Auxiliary Equipment:	
Density Reliability Sonde	DRS - C
Electronics Cartridge Housing	ECH - MKA
Powered Detector Housing	PDH - L

755
2721
2043

3926
787
2680

Litho Density - D Wellsite Calibration
Background Measurement

Phase	LL Background CPS	Value	Phase	LU Background CPS	Value	Phase	LS Background CPS	Value
Before	[redacted]	19.17	Master	[redacted]	73.25	Master	[redacted]	55.80
	[redacted]	18.97	Before	[redacted]	73.00	Before	[redacted]	55.47
	15.00	20.00	25.00	65.00	76.00	84.00	43.00	57.00	72.00
	(Minimum)	19.00 (Nominal)	(Maximum)	(Minimum)	73.00 (Nominal)	(Maximum)	(Minimum)	55.00 (Nominal)	(Maximum)
Phase	UTH Background CPS	Value	Phase	SS1 Background CPS	Value	Phase	SS2 Background CPS	Value
Master	[redacted]	0.316	Master	[redacted]	12.29	Master	[redacted]	8.480
Before	[redacted]	0.315	Before	[redacted]	12.25	Before	[redacted]	8.508
	4.000	5.500	7.000	10.00	12.00	16.00	8.000	11.00	13.00
	(Minimum)	5.000 (Nominal)	(Maximum)	(Minimum)	12.00 (Nominal)	(Maximum)	(Minimum)	11.00 (Nominal)	(Maximum)

Master: 27-FEB-2000 16:31 Before: 4-MAR-2000 13:01

Litho Density - D Wellsite Calibration
Detectors Resolution From BKG Measurements

Phase	LS Resolution Background	Value	Phase	SS Resolution Background	Value
Master	[redacted]	8.449	Master	[redacted]	8.631
Before	[redacted]	8.480	Before	[redacted]	8.642
	5.000	8.000	11.00	5.000	8.000	11.00
	(Minimum)	8.000 (Nominal)	(Maximum)	(Minimum)	8.000 (Nominal)	(Maximum)

Master: 27-FEB-2000 16:31 Before: 4-MAR-2000 13:01

Litho Density - D Master Calibration
Aluminum Measurement

Phase	LL Aluminum CPS	Value	Phase	LU Aluminum CPS	Value	Phase	LS Aluminum CPS	Value
Master	[redacted]	91.00	Master	[redacted]	184.7	Master	[redacted]	155.4
	70.00	90.00	125.0	100.0	135.0	184.0	120.0	155.0	217.0
	(Minimum)	90.00 (Nominal)	(Maximum)	(Minimum)	135.0 (Nominal)	(Maximum)	(Minimum)	155.0 (Nominal)	(Maximum)
Phase	UTH Aluminum CPS	Value	Phase	SS1 Aluminum CPS	Value	Phase	SS2 Aluminum CPS	Value
Master	[redacted]	55.57	Master	[redacted]	178.3	Master	[redacted]	260.3
	30.00	50.00	74.00	120.0	175.0	256.0	210.0	260.0	353.0
	(Minimum)	50.00 (Nominal)	(Maximum)	(Minimum)	175.0 (Nominal)	(Maximum)	(Minimum)	260.0 (Nominal)	(Maximum)

Master: 27-FEB-2000 16:43

Litho Density - D Master Calibration
Lithology Measurement

Phase	LL Iron CPS	Value	Phase	LU Iron CPS	Value	Phase	LS Iron CPS	Value
Master	[redacted]	86.87	Master	[redacted]	130.5	Master	[redacted]	132.1
	60.00	80.00	114.0	85.00	120.0	177.0	105.0	130.0	160.0
	(Minimum)	80.00 (Nominal)	(Maximum)	(Minimum)	120.0 (Nominal)	(Maximum)	(Minimum)	130.0 (Nominal)	(Maximum)
Phase	UTH Iron CPS	Value	Phase	SS1 Iron CPS	Value	Phase	SS2 Iron CPS	Value
Master	[redacted]	37.73	Master	[redacted]	172.6	Master	[redacted]	250.0
	13.00	30.00	51.00	120.0	165.0	234.0	190.0	245.0	325.0
	(Minimum)	30.00 (Nominal)	(Maximum)	(Minimum)	165.0 (Nominal)	(Maximum)	(Minimum)	245.0 (Nominal)	(Maximum)

Master: 27-FEB-2000 16:38

Litho Density - D Master Calibration
Spectrum Quality Ratios

Phase	QRLS Calculated	Value	Phase	QRSS Calculated	Value	Phase	QRLU Calculated	Value
Master	[redacted]	0.6656	Master	[redacted]	0.6848	Master	[redacted]	0.3487
	0.6500	0.6600	0.7000	0.6800	0.7000	0.8000	0.3900	0.3900	0.4000
	(Minimum)	0.6600 (Nominal)	(Maximum)	(Minimum)	0.7000 (Nominal)	(Maximum)	(Minimum)	0.3900 (Nominal)	(Maximum)
Phase	QLIR Calculated	Value	Phase	QH Calculated	Value			
Master	[redacted]	1.406	Master	[redacted]	1.014			
	1.200	1.300	1.400	0.9000	1.000	1.200			
	(Minimum)	1.300 (Nominal)	(Maximum)	(Minimum)	1.000 (Nominal)	(Maximum)			

Master: 27-FEB-2000 16:43

Compensated Neutron - H / Equipment Identification

Primary Equipment:

Compensated Neutron Cartridge	CNC - HA
Neutron Logging Source	NLS - KL
Neutron Source Radioactive	NSR - FA
Neutron Detector with Alpha Source	CND - A
Compensated Neutron Box	CNS - AB
Auxiliary Equipment:	
Compensated Neutron Housing	CNH - A
Neutron Calibration Tank	NCT - B

1247

1491

4465

Compensated Neutron - H Wellsite Calibration
Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CPTC Background CPS	Value
Master	[redacted]	27.55	Master	[redacted]	34.74
Before	[redacted]	28.18	Before	[redacted]	36.34
	5.000	27.55	40.00	5.000	34.74	40.00
	(Minimum)	28.00 (Nominal)	(Maximum)	(Minimum)	36.00 (Nominal)	(Maximum)

Master: 27-FEB-2000 14:21 Before: 4-MAR-2000 13:21

Compensated Neutron - H Master Calibration
Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CPTC (Tank)	Value
Master	[redacted]	5839	Master	[redacted]	2542	Master	[redacted]	2.297
	6000	6000	7000	2675	2793	3125	2.100	2.159	2.540
	(Minimum)	6000 (Nominal)	(Maximum)	(Minimum)	2793 (Nominal)	(Maximum)	(Minimum)	2.159 (Nominal)	(Maximum)

Master: 27-FEB-2000 14:32

Powered Caliper Device - B / Equipment Identification

Primary Equipment:

Powered Caliper Mechanical (sonde) - A	PCM - A
Powered Caliper Cartridge - H	PCC - H
Auxiliary Equipment:	
Powered Caliper Housing - A	PCH - A

1371

Powered Caliper Device - B Wellsite Calibration
Micro Inverse Calibration

Phase	Micro Inverse Zero OHMM	Value	Phase	Micro Inverse Plus OHMM	Value
Before	[redacted]	4.420	Before	[redacted]	4.420
	-1.000	0	1.000	4.250	5.000	5.750
	(Minimum)	0 (Nominal)	(Maximum)	(Minimum)	5.000 (Nominal)	(Maximum)

Before: Calibration out of date 16-JAN-2000 19:59

Powered Caliper Device - B Wellsite Calibration
Micro Normal Calibration

Phase	Micro Normal Zero OHMM	Value	Phase	Micro Normal Plus OHMM	Value
Before	[redacted]	4.420	Before	[redacted]	4.420
	-1.000	0	1.000	4.250	5.000	5.750
	(Minimum)	0 (Nominal)	(Maximum)	(Minimum)	5.000 (Nominal)	(Maximum)

Before: Calibration out of date 16-JAN-2000 19:59

Scintillation Gamma Ray - L / Equipment Identification

Primary Equipment:

Scintillation Gamma Cartridge	SGC - SA
Scintillation Gamma Detector	SGD - TA
Auxiliary Equipment:	
Scintillation Gamma Housing	SGH - K
Gamma Source Radioactive	GSR - UY

1048

530

Scintillation Gamma Ray - L Wellsite Calibration
Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Uy - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrator) GAPI	Value
Before	[redacted]	81.68	Before	[redacted]	159.0	Before	[redacted]	165.0
	0	30.00	120.0	144.0	159.0	174.4	165.0	165.0	180.0
	(Minimum)	30.00 (Nominal)	(Maximum)	(Minimum)	159.0 (Nominal)	(Maximum)	(Minimum)	165.0 (Nominal)	(Maximum)

Before: 4-MAR-2000 12:58

COMPANY: AEC OIL & GAS
WELL: AEC WEST RENAISSANCE TATE G-18
FIELD: EXPLORATORY
PROVINCE: NWT

Schlumberger

DUAL LATEROLOG MSFL

BOTTOM LOG INTERVAL	2026.7 m
SCHLUMBERGER DEPTH	2031.9 m
DEPTH DRILLER	2030 m
KELLY BUSHING	396.4 m
DRILL FLOOR	
GROUND LEVEL	381 m

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

SONIC

1887 **N.E.B. COPY**

COMPANY: AEC OIL & GAS

WELL: AEC WEST RENAISSANCE TATE G-18

FIELD: EXPLORATORY

PROVINCE: NWT

Schlumberger

BOREHOLE COMPENSATED SONIC LOG

LIM: 3000/1664/0/125100 Elev.: K.B. 366.4 m

WID 1887 G.L. 361 m

D.F.

Permanent Datum: GROUND LEVEL Elev.: 361 m

Log Measured From: KELLY BUSHING 5.4 m above Perm. Datum

Drilling Measured From: KELLY BUSHING

API Serial No.	LATITUDE	LONGITUDE	RANGE
1887	64 27 17.30666	125 17 33.14821	

	Run 1	Run 2	Run 3	Run 4
Logging Date	5-MAR-2000			
Run Number	1			
Depth Driller	3320 m			
Schlumberger Depth	2031.9 m			
Bottom Log Interval	3320.5 m			
Top Log Interval	586 m			
Casing Driller Size @ Depth	244.500 mm @ 586 m	@	@	@
Casing Schlumberger	586 m			
Bit Size	222.000 mm			
Type Fluid In Hole	DEL CHEM			
Density / Viscosity	1180 kg/m3 / 47 s			
Fluid Loss / PH	38 cm3 / 8			
Source Of Sample	RIG			
RM @ Measured Temperature	0.200 ohm.m @ 26 degC	@	@	@
RMF @ Measured Temperature	0.210 ohm.m @ 17 degC	@	@	@
RMC @ Measured Temperature	0.160 ohm.m @ 26 degC	@	@	@
Source RMF / RMC	RIG / RIG	/	/	/
RM @ MIT / RMF @ MIT	0.168 @ 55 / 0.106 @ 55	@ @	@ @	@ @
Maximum Recorded Temperatures	55 degC			
Circulation Stopped Time	4-MAR-2000 17:00			
Logger On Bottom Time	5-MAR-2000 9:15			
Unit Number / Location	9410 / 6664			
Recorded By	SEAN MCCONKEY			
Witnessed By	BRIAN HESTER			

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth	@	@	@	@
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
Density / Viscosity				
Fluid Loss / PH				
Source Of Sample				
RM @ Measured Temperature	@	@	@	@
RMF @ Measured Temperature	@	@	@	@
RMC @ Measured Temperature	@	@	@	@
Source RMF / RMC	/	/	/	/
RM @ MIT / RMF @ MIT	@ @	@ @	@ @	@ @
Maximum Recorded Temperatures				
Circulation Stopped Time				
Logger On Bottom Time				
Unit Number / Location				
Recorded By				
Witnessed By				

ALL MEASUREMENTS ARE REFERENCED TO DRILLERS DEPTH.
ALL DEPTHS ARE MEASURED FROM THE KELLY BUSHING.
ALL MEASUREMENTS ARE RECORDED TO THE NEAREST FOOT.
ALL CURVES ARE PLOTTED TO THE NEAREST 0.1 UNIT.
ALL CURVES ARE CORRECTED FOR HOLE SIZE AND MUD WEIGHT.
ALL CURVES ARE CORRECTED FOR BOREHOLE ENLARGEMENT.
ALL CURVES ARE CORRECTED FOR CYCLE SKIPPING.
ALL CURVES ARE CORRECTED FOR DEPTH OFFSET.
ALL CURVES ARE CORRECTED FOR ENVIRONMENTAL EFFECTS.
ALL CURVES ARE CORRECTED FOR TOOL STANDOFF.
ALL CURVES ARE CORRECTED FOR TEMPERATURE.
ALL CURVES ARE CORRECTED FOR PRESSURE.
ALL CURVES ARE CORRECTED FOR SALINITY.
ALL CURVES ARE CORRECTED FOR DENSITY.
ALL CURVES ARE CORRECTED FOR VISCOSITY.
ALL CURVES ARE CORRECTED FOR FLUID LOSS.
ALL CURVES ARE CORRECTED FOR PH.
ALL CURVES ARE CORRECTED FOR SOURCE OF SAMPLE.
ALL CURVES ARE CORRECTED FOR RM @ MEASURED TEMPERATURE.
ALL CURVES ARE CORRECTED FOR RMF @ MEASURED TEMPERATURE.
ALL CURVES ARE CORRECTED FOR RMC @ MEASURED TEMPERATURE.
ALL CURVES ARE CORRECTED FOR SOURCE RMF / RMC.
ALL CURVES ARE CORRECTED FOR RM @ MIT / RMF @ MIT.
ALL CURVES ARE CORRECTED FOR MAXIMUM RECORDED TEMPERATURES.
ALL CURVES ARE CORRECTED FOR CIRCULATION STOPPED TIME.
ALL CURVES ARE CORRECTED FOR LOGGER ON BOTTOM TIME.
ALL CURVES ARE CORRECTED FOR UNIT NUMBER / LOCATION.
ALL CURVES ARE CORRECTED FOR RECORDED BY.
ALL CURVES ARE CORRECTED FOR WITNESSED BY.

OTHER SERVICES
DENSITY
DLL-MSFL
GR
LATEROLOG

RUN 1 — SERVICES ORDER #: 1887 — LOGGING ENGINEER — STUDIO LOCATION — START — STOP

RUN 2 — SERVICES ORDER #: — LOGGING ENGINEER — STUDIO LOCATION — START — STOP

REMARKS: RUN NUMBER 2

RUN 1 EQUIPMENT DESCRIPTION

RUN 2

SURFACE EQUIPMENT

TCC-C
CSU-C
WITS SDTM-4

DOWNHOLE EQUIPMENT

BSP
BRT-S

39.26

18.21

SP SPARC

14.68

14.33

13.93

FEH-A
FEH-B
AH-64
TCC-B
TCC-C
SDC-C
SDC-A
SDC-A3B
SDC-A3A

13.01

Tel/Bulls
CTEM

12.79

13.01

Gamma Ray

11.54

POD.B
POD.C
POD.371
POD.A

9.69

PCDS Data

8.74

AH-107
AH-107
AH-107
AH-107
SDC-G
SDC-GS
SDC-WA

8.13

7.52

2.69
2.35
1.84
1.54

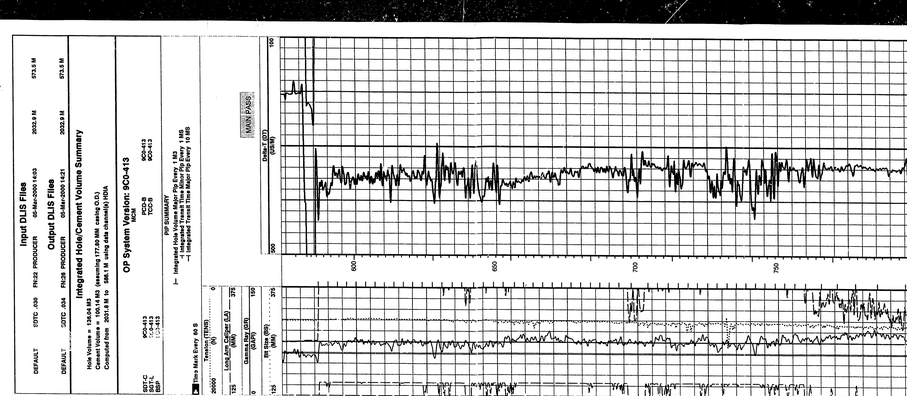
0.00

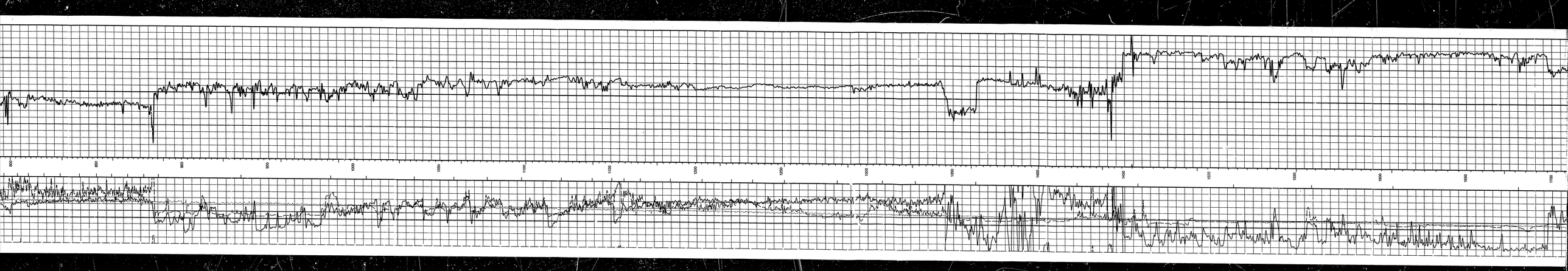
LAN
LF
LF CC
LX
LX CC

PCDS Stat HV
PCDS Temp

TOOL ZERO

MONAXIAL STRING DATA FOR THE MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LOGGING METRIC

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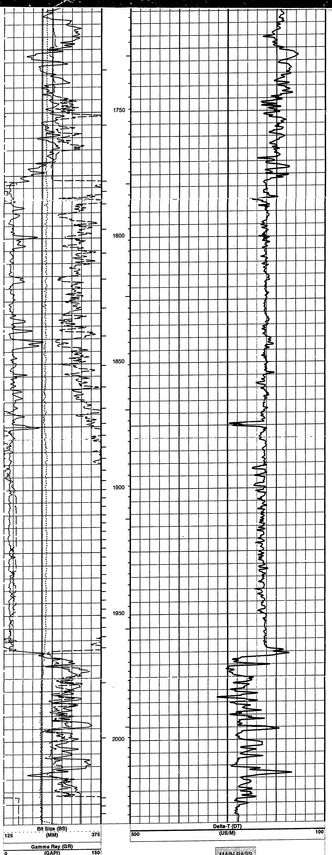


PIP SUMMARY

Integrated Hole Volume Major Plp Every 1 M3
Integrated Transit Time Minor Plp Every 1 MS
Integrated Transit Time Major Plp Every 10 MS

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BS	Bit Size	222.000	MM
ED	Depth Offset	0.0	M
DTCM	Delta-T Computation Mode	FULL	
MODE	Tiring Mode	SHOT	
PP	Playback Processing	Normal	

Format: SONI_600 Vertical Scale: 1:600 Graphics File Created: 05-Mar-2000 14:21

OP System Version: 9C0-413 MCM

SDT-C	9C0-413	PCD-B	9C0-413
SDT-L	9C0-413	TCC-B	9C0-413
BSP	9C0-413		

Input DLIS Files

DEFAULT	SDTC .030	FN:22	PRODUCER	05-Mar-2000 14:03	2032.9 M	573.5 M

Output DLIS Files

DEFAULT	SDTC .034	FN:26	PRODUCER	05-Mar-2000 14:21		

Input DLIS Files

DEFAULT	SDTC .030	FN:22	PRODUCER	05-Mar-2000 14:03	2032.9 M	573.5 M

Output DLIS Files

DEFAULT	SDTC .031	FN:23	PRODUCER	05-Mar-2000 14:09	2032.9 M	1300.1 M

Integrated Hole/Cement Volume Summary

Hole Volume = 53.59 M3
Cement Volume = 35.37 M3 (assuming 177.80 MM casing O.D.)
Computed from 2031.4 M to 1300.1 M using data channel(s) HDIA

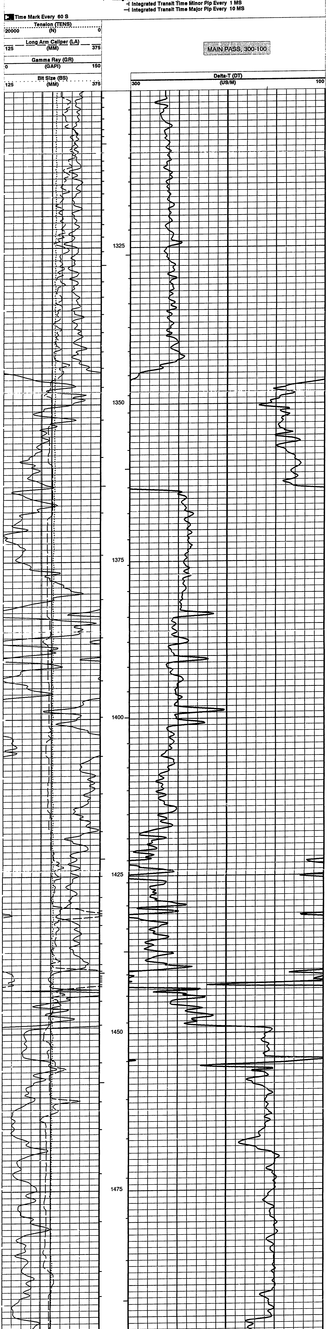
OP System Version: 9C0-413 MCM

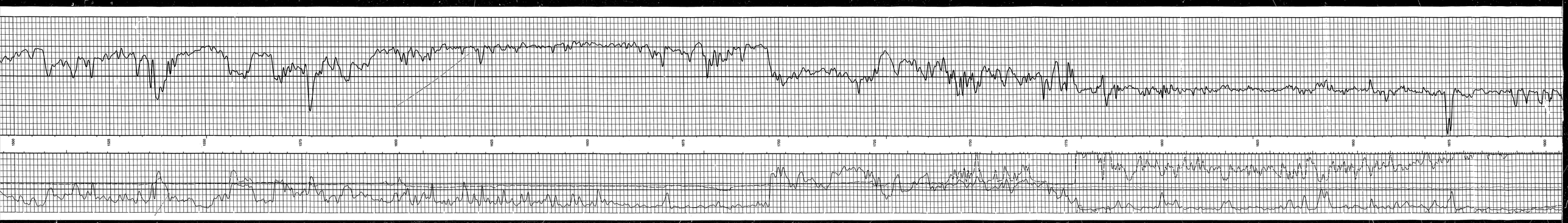
SDT-C	9C0-413	PCD-B	9C0-413
SDT-L	9C0-413	TCC-B	9C0-413
BSP	9C0-413		

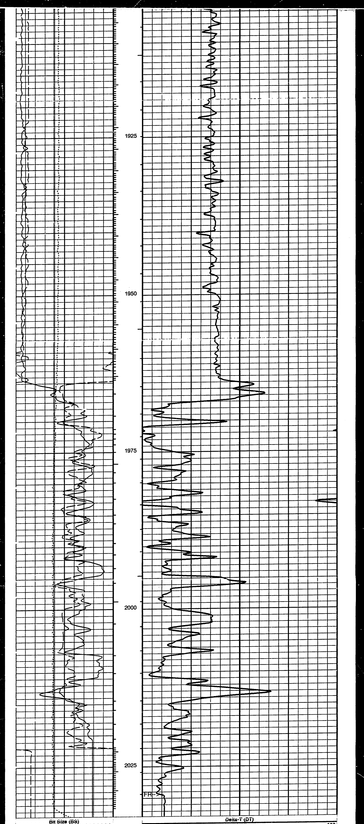
PIP SUMMARY

Integrated Hole Volume Minor Plp Every 0.1 M3
Integrated Hole Volume Major Plp Every 1 M3
Integrated Transit Time Minor Plp Every 1 MS
Integrated Transit Time Major Plp Every 10 MS

Time Mark Every 60 S




1000
1025
1050
1075
1100
1125
1150
1175
1200
1225
1250
1275
1300
1325
1350
1375
1400



GR Size (GR)
(MM)
125
375

Gamma Ray (GR)
(GAPI)
0
150

Long Arm Caliper (LA)
(MM)
125
375

Tension (TEN2)
(N)
20000
0

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Transit Time Minor Pip Every 1 MS
- Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
BS	Bit Size	222.000 MM
DO	Depth Offset	0.0 M
DOOL	Depth Offset Repeat Analysis	0.0 M
LOGM	Main Log Presentation Mode	FULL
MODE	Firing Mode	SHC
PP	Playback Processing	NORMAL

Format: SCH1-240-300 Vertical Scale: 1:240 Graphics File Created: 05-Mar-2000 14:09

OP System Version: 9C0-413

MCM

		PCD-B	9C0-413
SDT-C	9C0-413	TCC-B	9C0-413
SGT-L	9C0-413		
SSF	9C0-413		

Input DLIS Files

DEFAULT	SDTC .030	FN:32	PRODUCER	05-Mar-2000 14:03	2032.9 M	573.5 M

Output DLIS Files

DEFAULT	SDTC .031	FN:23	PRODUCER	05-Mar-2000 14:09		

Input DLIS Files

DEFAULT	SDTC .030	FN:22	PRODUCER	05-Mar-2000 14:03	2032.9 M	573.5 M

Output DLIS Files

DEFAULT	SDTC .033	FN:25	PRODUCER	05-Mar-2000 14:18	1499.9 M	573.5 M

Integrated Hole/Cement Volume Summary

Hole Volume = 88.79 M3
Cement Volume = 66.10 M3 (assuming 177.80 MM casing O.D.)
Computed from 1499.9 M to 596.1 M using data channel(s) HDIA

OP System Version: 9C0-413

MCM

		PCD-B	9C0-413
SDT-C	9C0-413	TCC-B	9C0-413
SGT-L	9C0-413		
SSF	9C0-413		

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Transit Time Minor Pip Every 1 MS
- Integrated Transit Time Major Pip Every 10 MS

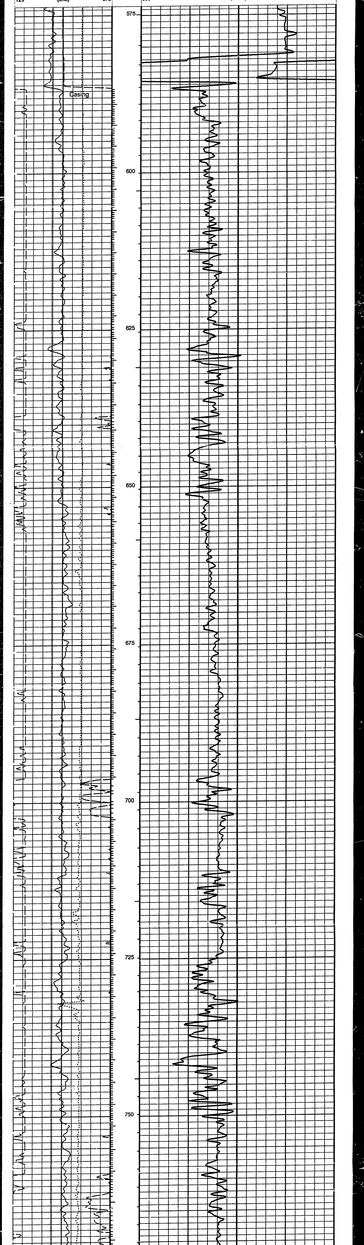
Time Mark Every 60 S

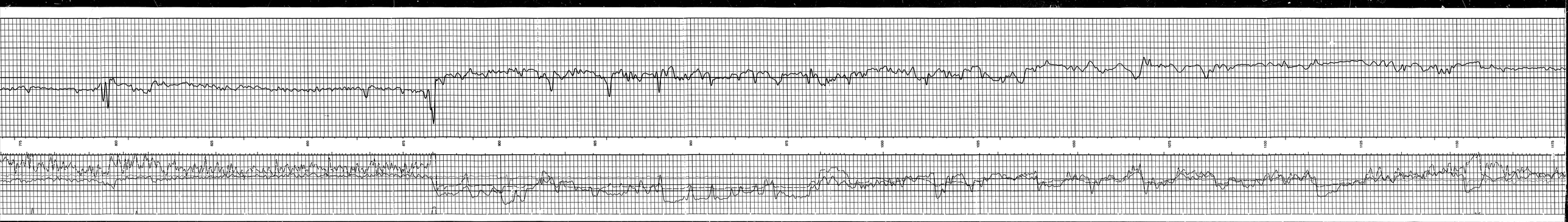
Tension (TEN2)
(N)
20000
0

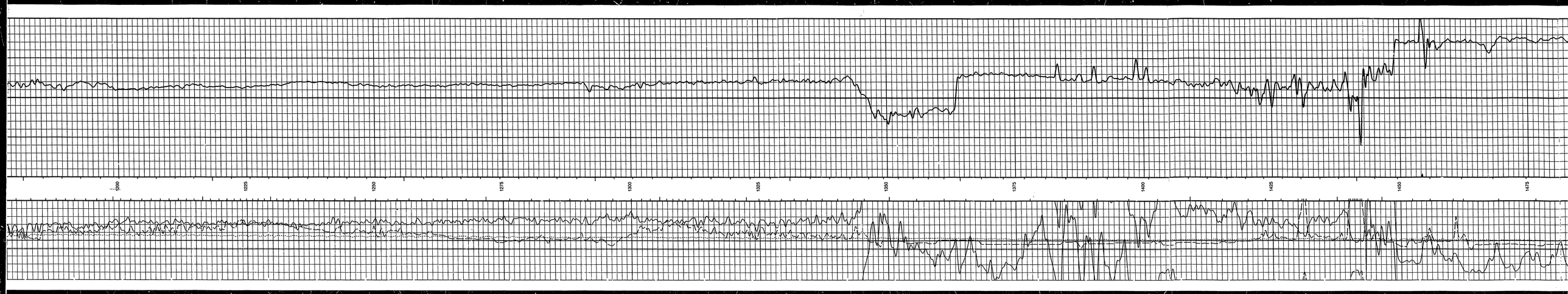
Long Arm Caliper (LA)
(MM)
125
375

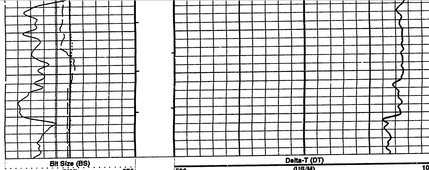
Gamma Ray (GR)
(GAPI)
0
150

GR Size (GS)
(DIA)
125
375




775
800
825
850
875
900
925
950
975
1000
1025
1050
1075
1100
1125
1150
1175


1200
1225
1250
1275
1300
1325
1350
1375
1400
1425
1450
1475



Bit Size (BS) (MM): 125 – 375

Delta-T (DT) (US/M): 500 – 100

Gamma Ray (GR) (GAPI): 0 – 150

MAIN PASS: 500-100

Long Arm Caliper (LA) (MM): 125 – 375

Tension (TENS) (N): 20000 – 0

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Transit Time Minor Pip Every 1 MS
- Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
BS	Bit Size	222.000 MM
DO	Depth Offset	0.0 M
DTCM	Delta-T Computation Mode	FULL
MODE	Firing Mode	BHC
PP	Playback Processing	NORMAL

Format: SONI-240 Vertical Scale: 1:240 Graphics File Created: 05-Mar-2000 14:18

OP System Version: 9C0-413

MCM

SDT-C	9C0-413	PCD-B	9C0-413
SGT-L	9C0-413	TCC-B	9C0-413
BSP	9C0-413		

Input DLIS Files

DEFAULT	SDTC .030	FN:22	PRODUCER	05-Mar-2000 14:03	2032.9 M	573.5 M

Output DLIS Files

DEFAULT	SDTC .033	FN:25	PRODUCER	05-Mar-2000 14:18		

Input DLIS Files

DEFAULT	SDTC .014	FN:13	PRODUCER	05-Mar-2000 09:01	2029.5 M	1939.6 M

Output DLIS Files

DEFAULT	SDTC .032	FN:24	PRODUCER	05-Mar-2000 14:15	2032.9 M	1944.9 M

OP System Version: 9C0-413

MCM

SDT-C	9C0-413	PCD-B	9C0-413
SGT-L	9C0-413	TCC-B	9C0-413
BSP	9C0-413		

PIP SUMMARY

Time Mark Every 60 S

LA_REP Curve (LA_REP): 125 (MM) 375

REPEAT ANALYSIS

GR_REP Curve (GR_REP): 0 (GAPI) 150

DT_REP Curve (DT_REP): 300 (US/M) 100

1950

1975

2000

2025

GR_REP Curve (GR_REP): 0 (GAPI) 150

DT_REP Curve (DT_REP): 300 (US/M) 100

LA_REP Curve (LA_REP): 125 (MM) 375

REPEAT ANALYSIS

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
BS	Bit Size	222.000 MM
DO	Depth Offset	0.0 M
DORL	Depth Offset Repeat Analysis	3.5 M
DTCM	Delta-T Computation Mode	FULL
MODE	Firing Mode	BHC
PP	Playback Processing	NORMAL

Format: SONI-240-300_REP Vertical Scale: 1:240 Graphics File Created: 05-Mar-2000 14:15

OP System Version: 9C0-413

MCM

SDT-C	9C0-413	PCD-B	9C0-413
SGT-L	9C0-413	TCC-B	9C0-413
BSP	9C0-413		

Input DLIS Files

DEFAULT	SDTC .014	FN:13	PRODUCER	05-Mar-2000 09:01	2029.5 M	1939.6 M

Output DLIS Files

DEFAULT	SDTC .032	FN:24	PRODUCER	05-Mar-2000 14:15		

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Powered Caliper Device - B Wellsite Calibration - Large Arm Calibration							
Before: 4-MAR-2000 13:00							
Large Arm Small Ring	203.2	N/A	201.9	N/A	N/A	N/A	MM
Large Arm Large Ring	304.8	N/A	312.0	N/A	N/A	N/A	MM
Powered Caliper Device - B Wellsite Calibration - Small Arm Calibration							
Before: 4-MAR-2000 13:03							
Small Arm Small Gauge	25.40	N/A	176.8	N/A	N/A	N/A	MM
Small Arm Large Gauge	127.0	N/A	208.5	N/A	N/A	N/A	MM
Powered Caliper Device - B Wellsite Calibration - Micro Inverse Calibration							
Before: Calibration out of date 16-JAN-2000 19:59							
Micro Inverse Zero	0	N/A	4.420	N/A	N/A	0.1000	OHMM
Micro Inverse Plus	5.000	N/A	4.420	N/A	N/A	0.2000	OHMM
Powered Caliper Device - B Wellsite Calibration - Micro Normal Calibration							
Before: Calibration out of date 16-JAN-2000 19:59							
Micro Normal Zero	0	N/A	4.420	N/A	N/A	0.1000	OHMM
Micro Normal Plus	5.000	N/A	4.420	N/A	N/A	0.2000	OHMM
Scintillation Gamma-Ray - L Wellsite Calibration - Detector Calibration							
Before: 4-MAR-2000 12:58							
Gamma Ray Background	30.00	N/A	81.68	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	159.0	N/A	159.0	N/A	N/A	14.45	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI

Powered Caliper Device - B/ Equipment Identification

Primary Equipment:
Powered Caliper Mechanical (sonde) - A — PCM - A
Powered Caliper Cartridge - H — PCC - H

Auxiliary Equipment:
Powered Caliper Housing - A — PCH - A — 1971

Powered Caliper Device - B Wellsite Calibration

Micro Inverse Calibration

Phase	Micro Inverse Zero OHMM	Value	Phase	Micro Inverse Plus OHMM	Value
Before	EXCEEDS LIMIT	4.420	Before	EXCEEDS LIMIT	4.420
-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)	4.250 (Minimum)	5.000 (Nominal)	5.750 (Maximum)

Before: Calibration out of date 16-JAN-2000 19:59

Powered Caliper Device - B Wellsite Calibration

Micro Normal Calibration

Phase	Micro Normal Zero OHMM	Value	Phase	Micro Normal Plus OHMM	Value
Before	EXCEEDS LIMIT	4.420	Before	EXCEEDS LIMIT	4.420
-1.000 (Minimum)	0 (Nominal)	1.000 (Maximum)	4.250 (Minimum)	5.000 (Nominal)	5.750 (Maximum)

Before: Calibration out of date 16-JAN-2000 9:50

Scintillation Gamma-Ray - L / Equipment Identification

Primary Equipment:
Scintillation Gamma Cartridge — SGC - SA — 1048
Scintillation Gamma Detector — SGD - TAA

Auxiliary Equipment:
Scintillation Gamma Housing — SGH - K — 530
Gamma Source Radioactive — GSR - UIY

Scintillation Gamma-Ray - L Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		81.68	Before		159.0	Before		165.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	144.9 (Minimum)	159.0 (Nominal)	173.4 (Maximum)	150.0 (Minimum)	165.0 (Nominal)	180.0 (Maximum)

Before: 4-MAR-2000 12:58

COMPANY:	AEC OIL & GAS
WELL:	AEC WEST RENAISSANCE TATE G-18
FIELD:	EXPLORATORY
PROVINCE:	NWT

Schlumberger

BOREHOLE COMPENSATED SONIC LOG

BOTTOM LOG INTERVAL	2029.5 m
SCHLUMBERGER DEPTH	2027.5 m
DEPTH DRILLER	2030 m
KELLY BUSHING	386.4 m
DRILL FLOOR	
GROUND LEVEL	361 m

DENSITY

1887 N.E.B. COPY

COMPANY: AEC OIL & GAS

WELL: AEC WEST RENAISSANCE TATE G-18

FIELD: EXPLORATORY

PROVINCE: NWT

Schlumberger

COMPENSATED NEUTRON LITH -DENSITY

UWI: 300018064301125100

WID 1887

Elev.: K.B. 368.4 m
G.L. 361 m
D.F.

Permanent Datum: GROUND LEVEL — Elev.: 361 m
Log Measured From: KELLY BUSHING — 5.4 m above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	LATITUDE	LONGITUDE	RANGE
1887	64 07 17.30999	125 17 33.14921	

PROVINCE/Field: NWT EXPLORATORY
Company: AEC OIL & GAS
Well: AEC WEST RENAISSANCE TATE G-18
Location: 300018064301125100

	Run 1	Run 2	Run 3	Run 4
Logging Date	5-MAR-2000			
Run Number	1			
Depth Driller	2030 m			
Schlumberger Depth	2031.6 m			
Bottom Log Interval	2016.5 m			
Top Log Interval	200 m			
Casing Driller Size @ Depth	244.500 mm @ 598 m	@	@	@
Casing Schlumberger	598 m			
Bit Size	200.000 mm			
Type Fluid in Hole	OIL CHEM			
Density / Viscosity	1180 kg/m3 / 47 s			
Fluid Loss / PH	36 cm3 / 9			
Source Of Sample	RIG			
RM @ Measured Temperature	0.240 ohm.m @ 29 degC	@	@	@
RMF @ Measured Temperature	0.170 ohm.m @ 37 degC	@	@	@
RMC @ Measured Temperature	0.100 ohm.m @ 25 degC	@	@	@
Source: RMF / RMC	RIG			
RM @ MST / RMF @ MST	0.106 @ 50 / 0.106 @ 50	@ / @	@ / @	@ / @
Maximum Recorded Temperature	50. degC			
Circulation Stopped / Time	4-MAR-0000 17:00			
Logger On Bottom / Time	5-MAR-2000 2:45			
Unit Number / Location	6416 6564			
Recorded By	SEAN MCCONNEY			
Witnessed By	BRIAN HEITER			

ALL SURVEYS AND INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT, GUARANTEE THEIR ACCURACY OR CORRECTNESS. AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

OTHER SERVICES
CBIL
DSN
CBIL
LATEROLOG
BOREHOLE GEOMETRY
RESISTIVITY, SONIC, GAMMA RAY IN CASING, STANDOFFS ON DLIS
PDK-100 STANDOFFS ON DLIS, CASING RECORD
PDK-100 STANDOFFS ON DLIS, CASING RECORD
DLIS & LOG BASED ON DEPTH OF DRILLER
DLIS & LOG BASED ON DEPTH OF SCHLUMBERGER
RUN SHOWS FORMATION IMPACTED BY FILTRATE
MAIN PASS LOGGED AT 1800 FT/HR
MAX TEMPERATURE ENCOUNTERED 107.4 °F

	RUN 1	RUN 2	RUN 3	RUN 4
BRAKE CONTROL				
DEPTH CONTROL				
ROPE SOCKET				
TOP CENTRALIZER				
BOTTOM CENTRALIZER				
TOOL STRING (TOP TO BOTTOM)				

RUN 1 — BRAKE CONTROL # — DEPTH CONTROL — ROPE SOCKET — TOP CENTRALIZER — BOTTOM CENTRALIZER — TOOL STRING (TOP TO BOTTOM) — START — STOP

RUN 2 — BRAKE CONTROL # — DEPTH CONTROL — ROPE SOCKET — TOP CENTRALIZER — BOTTOM CENTRALIZER — TOOL STRING (TOP TO BOTTOM) — START — STOP

RUN 3 — RUN 4

EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT
WITH ETTS-A

DOWNHOLE EQUIPMENT

LDM-A			54.61
HCS-B			
HCS-B			32.55
BSP	BSP-SPHVAC		
BRS-E			29.83
AH-64			29.22
TCC-B	Tension		28.30
SGT-L	Gamma Ray		28.30
SGT-L			
PCG-B			26.63
PCG-B	PCGB Data		
AH-107			24.95
AH-107			24.63
AH-107			23.42
CHT-H			22.81
NGT-A			21.46
NGT-A			21.21
GTC	GTC		20.80
GTC	DATA		
LDT-D			
SRC-C			15.32
SRC-C			13.92
SRC-C			13.92
SRC-C			13.92
AH-169			8.97
AH-169			8.96
LLD			
LLD	LLD		4.48
PCSB			
PCSB	PCSB BHTV		0.00
	Tension		
	TOOL ZERO		

MEASUREMENT POINT IS 0.00 FT ABOVE TOOL ZERO
ALL DIMENSIONS IN METERS

Input DLIS Files
DEFAULT DLIS .011 FILE PRODUCER 05-MAR-2000 03:27
Output DLIS Files
DEFAULT DLIS .003 FILE PRODUCER 05-MAR-2000 03:44 376.3 M

Integrated Hole/Cement Volume Summary

Hole Volume = 74.130 m3 (assuming 177.80 MM casing O.D.)
Casad Volume = 42.8 m3 (assuming 244.50 MM casing O.D.)
Computed from: 2030.0 M to 344.1 M using data downdrip Caliper

OP System Version: BOS-413

DLIS	BOS-413	SRT-C	OCA-431
HCS-B	BOS-413	SRC-C	OCA-431
HCS-B	BOS-413	SGT-L	BOS-413
LDM-A	BOS-413	SRT-C	BOS-413

PIP SUMMARY
Integrated Hole Volume Max Pip Every 1 MD
Integrated Hole Volume Min Pip Every 0.125 MD
Integrated Cement Volume Major Pip Every 1 MD

MAIN PASS LIMESTONE MDEN-2710KG/M3

Run Main Pass: 1
Sampling (TYP): 0.125 M
Depth Control: Normal

Bulk Density (RHOB)
Bulk Density Correction (DRHO)
Caliper (HCAL)

3000 — 2000 — 1000 — 0 — 1000 — 2000 — 3000

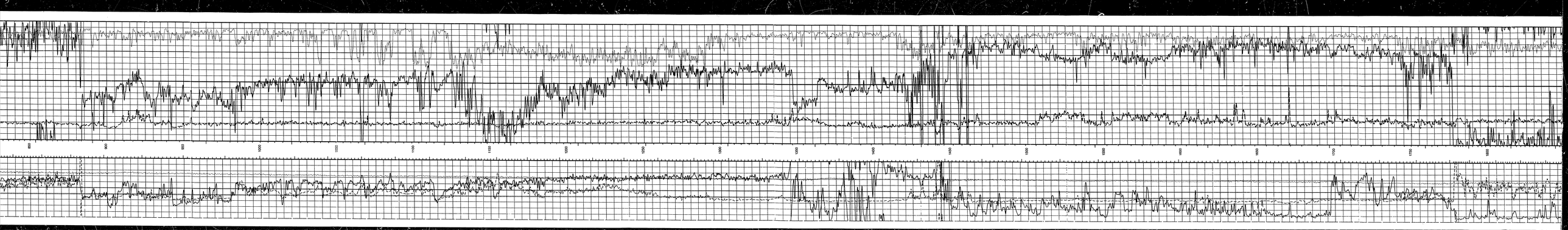
600 — 650 — 700 — 750 — 800

Run Main Pass: 1
Sampling (TYP): 0.125 M
Depth Control: Normal

Gamma Ray (GR)
Bit Size (BS)
Caliper (HCAL)

0 — 150 — 300
135 — 200 — 265
0 — 50 — 100

600 — 650 — 700 — 750 — 800


850
900
950
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1050
1100
1150
1200
1250
1300
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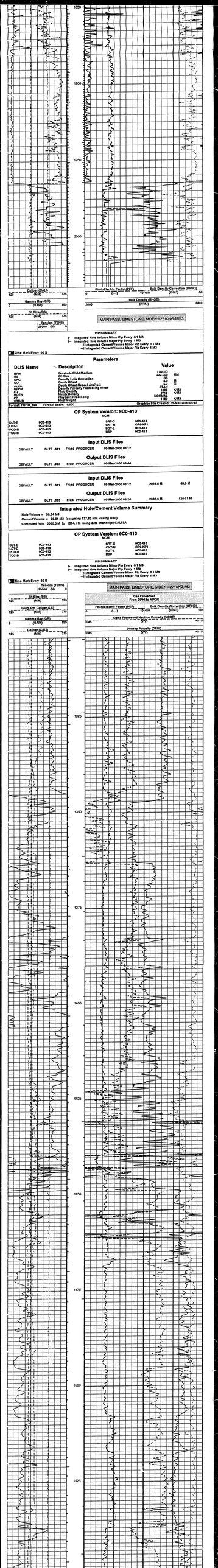
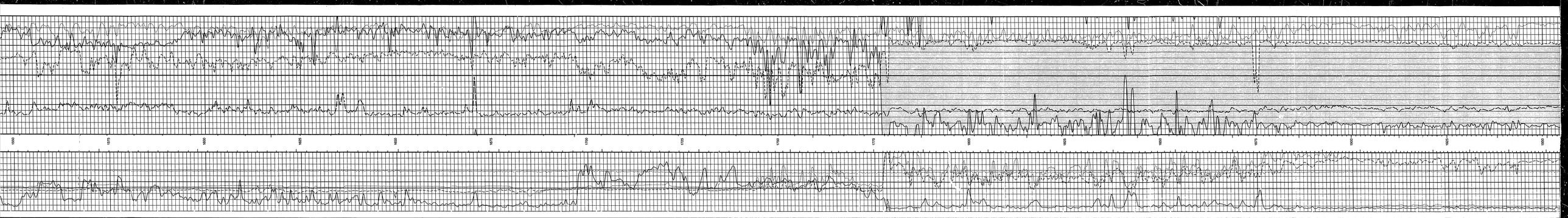
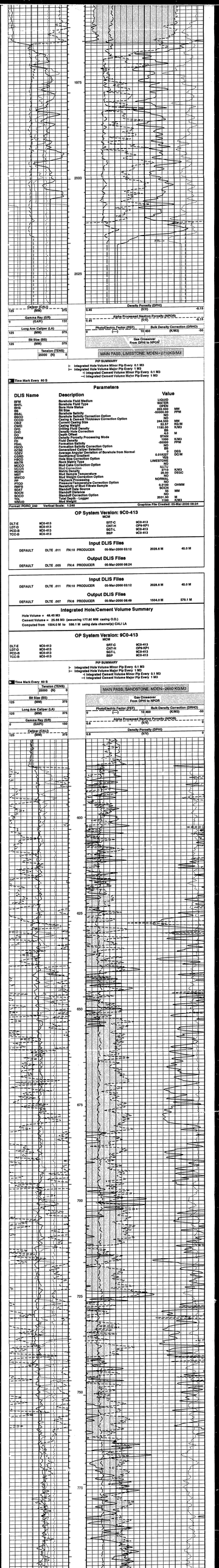
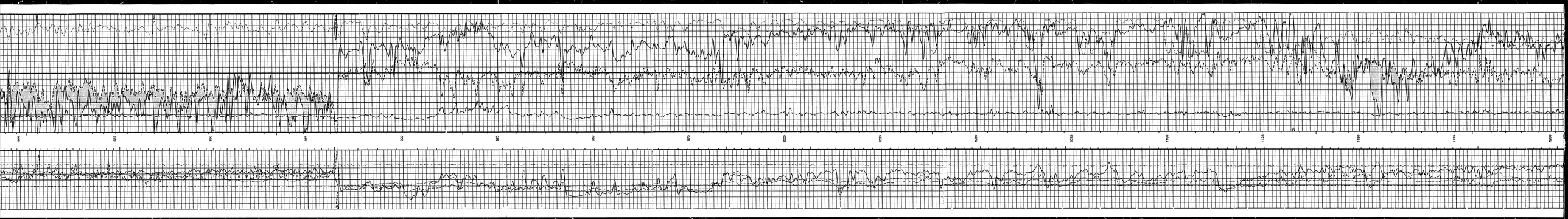
1400
1450
1500
1550
1600
1650
1700
1750
1800


1850
1900
1950
2000
Caliper (CALI)
(MM)
Photoelectric Factor (PEF)
(---)
Bulk Density Correction (DRHO)
(K/M3)
Gamma Ray (GR)
(GAPI)
Bulk Density (RHOB)
(K/M3)
Bit Size (BS)
(MM)
Tension (TENS)
(N)
MAIN PASS: LIMESTONE, MDEN=2710/Q/M3
PIP SUMMARY
Integrated Hole Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
Integrated Cement Volume Minor Pip Every 0.1 M3
Integrated Cement Volume Major Pip Every 1 M3
Time Mark Every 60 S
Parameters
DLIS Name
Description
Value
BHTM
Borehole Fluid Medium
LIQUID
BS
Bit Size
222.000 MM
BSC
Borehole Hole Correction
BS
DFD
Drilling Fluid Density
4.5 G/C3
DFL
Depth Offset
12 M
DOPA
Depth Offset Repeat Analysis
DPHM
Porosity Density Processing Mode
STAN
FD
Fluid Density
1000 K/M3
MDEN
Matrix Density
2710 K/M3
PP
Playback Processing
NORMAL
RMUD
Resistivity Mud
1180 K/M3
Format: PORO_600
Vertical Scale: 1:600
Graphics File Created: 05-Mar-2000 05:45
OP System Version: 9C0-413
MCM
DLT-E
9C0-413
SRT-C
9C0-413
LDT-D
9C0-413
CNT-H
CPS-KP1
PCD-B
9C0-413
SGT-L
9C0-413
TCC-B
9C0-413
SSIT
9C0-413
Input DLIS Files
DEFAULT
DLTE .011
FN:10 PRODUCER
05-Mar-2000 03:12
Output DLIS Files
DEFAULT
DLTE .003
FN:2 PRODUCER
05-Mar-2000 05:44
Input DLIS Files
DEFAULT
DLTE .011
FN:10 PRODUCER
05-Mar-2000 03:12
2028.6 M
45.0 M
Output DLIS Files
DEFAULT
DLTE .005
FN:4 PRODUCER
05-Mar-2000 08:24
2032.6 M
1304.1 M
Integrated Hole/Cement Volume Summary
Hole Volume = 38.04 M3
Cement Volume = 20.01 M3 (assuming 177.80 MM casing O.D.)
Computed from 2030.0 M to 1304.1 M using data channel(s) CALI LA
OP System Version: 9C0-413
MCM
DLT-E
9C0-413
SRT-C
9C0-413
LDT-D
9C0-413
CNT-H
CPS-KP1
PCD-B
9C0-413
SGT-L
9C0-413
TCC-B
9C0-413
SSIT
9C0-413
PIP SUMMARY
Integrated Hole Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
Integrated Cement Volume Minor Pip Every 0.1 M3
Integrated Cement Volume Major Pip Every 1 M3
Time Mark Every 60 S
MAIN PASS: LIMESTONE, MDEN=2710/Q/M3
Gas Crossover
From DPHI to NPOR
Alpha Processed Neutron Porosity (NPOR)
(V/V)
Density Porosity (DPHI)
(V/V)
1325
1350
1375
1400
1425
1450
1475
1500
1525


1650
1675
1700
1725
1750
1775
1800
1825
1850
1875
1900
1925
1950


1975
2000
2025
Caliper (CALI)
6 in
16 in
Density Porosity (DPHI)
0.45
-0.15
(V/V)
Gamma Ray (GR)
0 GAPI 150
Alpha Processed Neutron Porosity (NPOR)
0.45
-0.15
(V/V)
Long Arm Caliper (LA)
125 MM 375
Photoelectric Factor (PEF)
0 (---) 10
Bulk Density Correction (DPHC)
150 API
0.25 G/CM3 -0.25
Bit Size (BS)
125 MM 375
Gas Crossover
From DPHI to NPOR
Tension (TENS)
25000 LBF 0
MAIN PASS; LIMESTONE; MDEN=2710KG/M3
PIP SUMMARY
Integrated Hole Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
-(Integrated Cement Volume Minor Pip Every 0.1 M3
-(Integrated Cement Volume Major Pip Every 1 M3
Time Mark Every 60 S
Parameters
DLIS Name
Description
Value
BFM
Borehole Fluid Medium
LIQUID
BFT
Borehole Fluid Type
WATER
BHS
Bore Hole Status
OPEN
BS
Bit Size
216.00
MM
BSAL
Borehole Salinity
-6000.00
PPM
BSCO
Borehole Salinity Correction Option
NO
CCCO
Casing & Cement Thickness Correction Option
NO
CBS
Casing Bit Size
244.50
MM
CBW
Casing Weight
53.57
KG/M
DFD
Drilling Fluid Density
1180.00
K/M3
DFHC
Density Hole Correction
NO
DH
Depth
4.0
M
DPM
Density Porosity Processing Mode
STAN
FD
Fluid Density
1180.00
K/M3
FSAL
Formation Salinity
-50000
PPM
GCO
Gamma Ray Correction Option
NO
GCW
Generalized Caliper Selection
BS
DEG
GSEV
Average Angular Deviation of Borehole from Normal
0
DD/M
HDEV
Hole Deviation
0.014227
HHDO
Hole Size Correction Option
YES
MATR
Rock Matrix Type
LIMESTONE
MCCO
Mud Cake Correction Option
NO
MTC
Mud Selection
NATU
MDEN
Matrix Density
2710
K/M3
MST
Mud Sample Temperature
0
DEGC
MWCO
Mud Weight Correction Option
NO
MWD
Playback Processing
NORMAL
PTOO
Pressure Temperature Correction Option
NO
RMFS
Resistivity of Mud Filtrate Sample
0.2100
OHMM
SBS
Standoff Bit Size
SOCN
MM
SOCH
Standoff Distance
0
SOCO
Standoff Correction Option
NO
TDD
Total Depth - Logger
2031.00
M
WMD
Mud Weight
1180
K/M3
Format: PORO_250
Vertical Scale: 1:240
Graphics File Created: 05-Mar-2000 08:24
OP System Version: 9C0-413
MCM
DLT-E 9C0-413 SRT-C 9C0-413
LDT-D 9C0-413 CNT-H 9P0-EP1
PCD-B 9C0-413 SGT-L 9C0-413
TCC-B 9C0-413 BSO 9C0-413
Input DLIS Files
DEFAULT DLTE .011 FN:10 PRODUCER 05-Mar-2000 03:12 2028.6 M 45.0 M
Output DLIS Files
DEFAULT DLTE .007 FN:6 PRODUCER 05-Mar-2000 08:49 1504.0 M 579.1 M
Integrated Hole/Cement Volume Summary
Hole Volume = 48.46 M3
Cement Volume = 25.68 M3 (assuming 177.80 MM casing O.D.)
Computed from 1504.0 M to 586.1 M using data channel(s) CALI LA
OP System Version: 9C0-413
MCM
DLT-E 9C0-413 SRT-C 9C0-413
LDT-D 9C0-413 CNT-H 9P0-EP1
PCD-B 9C0-413 SGT-L 9C0-413
TCC-B 9C0-413 BSO 9C0-413
PIP SUMMARY
Integrated Hole Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
-(Integrated Cement Volume Minor Pip Every 0.1 M3
-(Integrated Cement Volume Major Pip Every 1 M3
Time Mark Every 60 S
Tension (TENS)
25000 LBF 0
MAIN PASS; SANDSTONE; MDEN=2650 KG/M3
Bit Size (BS)
125 MM 375
Gas Crossover
From DPHI to NPOR
Long Arm Caliper (LA)
125 MM 375
Photoelectric Factor (PEF)
0 (---) 10
Bulk Density Correction (DPHC)
150 API
0.25 G/CM3 -0.25
Gamma Ray (GR)
0 GAPI 150
Alpha Processed Neutron Porosity (NPOR)
0.6 (V/V) 0
Caliper (CALI)
6 IN 16
Density Porosity (DPHI)
0.6 (V/V) 0
600
625
650
675
700
725
750
775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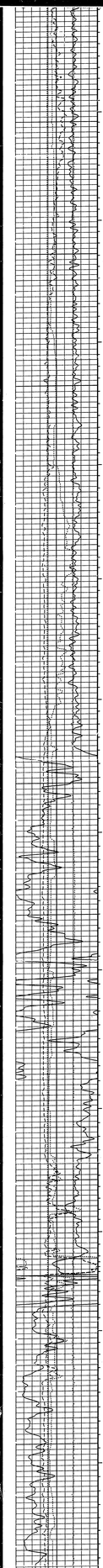
825
850
875
900
925
950
975
1000
1025
1050
1075
1100
1125
1150
1175
1200



Caliper (CALI) (MM) 125 325

Gamma Ray (GR) (GAPI) 0 150

Long Arm Caliper (LA) (MM) 125 375

Bit Size (BS) (MM) 125 375

Tension (TENS) 25000 (N) 0

Density Porosity (DPHI) 0.6 (V/V) 0

Alpha Processed Neutron Porosity (NPOR) 0.6 (V/V) 0

Photoelectric Factor (PEF) 0 10 (---) 450

Bulk Density Correction (DRHO) (K/M3) -50

Gas Crossover From DPHI to NPOR

MAIN PASS, SANDSTONE, MDEN=2650 KG/M3

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
BFM	Borehole Fluid Medium	LIQUID
BFN	Borehole Fluid Name	WATER
BHS	Hole Hole Status	OPEN
BS	Bit Size	311.00 MM
BSAL	Borehole Salinity	-50000.00 PPM
BSCO	Borehole Salinity Correction Option	NO
CDCO	Casing & Cement Thickness Correction Option	NO
CSIZ	Current Casing Size	244.500 MM
CWC	Casing Weight	53.57 KG/M
DFD	Drilling Fluid Density	1160.00 KJM3
DHC	Density Hole Correction	0.0 M
DO	Depth Offset	0.0 M
DPRM	Density Porosity Processing Mode	STAN
FD	Fluid Density	1000.00 KJM3
FBAL	Formation Salinity	-50000 PPM
GDCO	Geometrical Factor Correction Option	NO
GCSE	Geometrical Caliper Selection	BS
GDEV	Average Angular Deviation of Borehole from Normal	0.0 DEG
GMED	Gamma Ray Matrix	0.018227 GC/M
HSCO	Hole Size Correction Option	YES
MATR	Rock Matrix Type	SANDSTONE
MCOR	Mud Cake Correction Option	NO
MCSI	Mud Cake Size	NATU
MDEN	Matrix Density	2650 KJM3
MST	Mud Sample Temperature	0.0 DEGC
MWCO	Mud Weight Correction Option	NO
PR	Playback Processing	RECOMPUTE
PTCO	Pressure Temperature Correction Option	NO
RMFS	Resistivity of Mud Filtrate Sample	0.2100 OHMM
SCSI	Casing Shoe Size	SOCH
SOFF	Standoff Distance	0.0 MM
SOCO	Standoff Correction Option	NO
TDD	Tool Driller's Depth	2051.80 M
VMUD	Mud Viscosity	1150 KJM3

Format: PORO_240_SAND Vertical Scale: 1:240 Graphics File Created: 05-Mar-2000 08:49

OP System Version: 9C0-413

MCM

DLT-E	9C0-413	SRT-C	9C0-413
LDT-D	9C0-413	CNT-H	9C0-KPI
PCD-B	9C0-413	SDT-L	9C0-413
TCC-B	9C0-413	SSP	9C0-413

Input DLIS Files

DEFAULT	DLTE .011	FN:10 PRODUCER	05-Mar-2000 03:12	2038.6 M	45.0 M

Output DLIS Files

DEFAULT	DLTE .007	FN:6 PRODUCER	05-Mar-2000 08:49		

Input DLIS Files

DEFAULT	DLTE .011	FN:10 PRODUCER	05-Mar-2000 03:12	2038.6 M	45.0 M

Output DLIS Files

DEFAULT	DLTE .006	FN:5 PRODUCER	05-Mar-2000 08:31	6x3.9 M	46.9 M

Integrated Hole/Cement Volume Summary

Hole Volume = 5.89 M3
Cement Volume = 4.15 M3 (assuming 177.80 MM casing O.D.)
Computed from 655.9 M to 586.1 M using data channel(s) CALI LA

OP System Version: 9C0-413

MCM

DLT-E	9C0-413	SRT-C	9C0-413
LDT-D	9C0-413	CNT-H	9C0-KPI
PCD-B	9C0-413	SDT-L	9C0-413
TCC-B	9C0-413	SSP	9C0-413

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

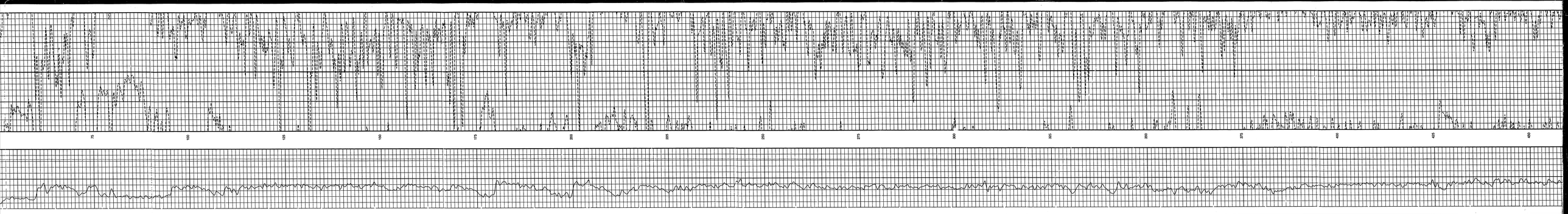
Tension (TENS) 25000 (N) 0

Gamma Ray (GR) (GAPI) 0 150

GAMMA RAY CNL TO SURFACE

Alpha Processed Neutron Porosity (NPOR) 0.45 (V/V) 0.15

50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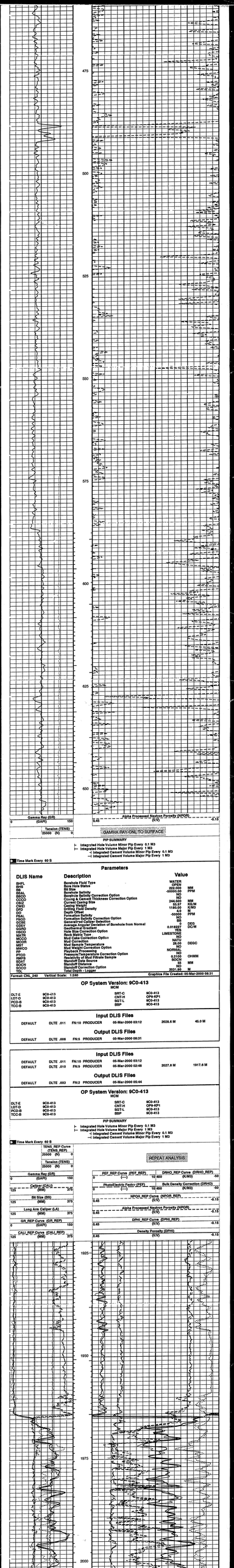
125
150
175
200
225
250
275
300
325
350
375
400
425
450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500
525
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575
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675
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725
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975
1000
1025
1050
1075
1100
1125
1150
1175
1200
1225
1250
1275
1300
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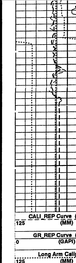
1475
1500
1525
1550
1575
1600
1625
1650
1675
1700
1725
1750
1775
1800
1825
1850
1875
1900
1925
1950
1975
2000
Gamma Ray (GR) (SAPI) 0 150
Tension (TENS) 20000 (W) 0
Alpha Processed Neutron Porosity (NPOR) (V/V) 0.45 -0.15
GAMMA RAY-CNL TO SURFACE
PIP SUMMARY
Integrated Hole Volume Minor Plg Every 0.1 M3
Integrated Hole Volume Major Plg Every 1 M3
Integrated Cement Volume Minor Plg Every 0.1 M3
Integrated Cement Volume Major Plg Every 1 M3
Time Mark Every 60 S
Parameters
DLIS Name
Description
Value
BHFL
Borehole Fluid Type
MCM
WATER
BHS
Bore Hole Status
OPEN
BS
BS Size
222.000
MM
BSAL
Borehole Salinity
-5000.00
PPM
BSCO
Borehole Salinity Correction Option
NO
CASO
Casing Diameter Thickness Correction Option
NO
CDIA
Current Casing Size
244.500
MM
CWEI
Casing Weight
53.57
KG/M
DFD
Drilling Fluid Density
1.60
G/C3
DID
Depth Offset
-50000
M
DSAL
Drilling Salinity
0
PPM
FSCO
Formation Salinity Correction Option
NO
GCBC
Generalized Caliper Selection
NO
GHEV
Geothermal Correction of Borehole from Normal
0
DEG
GMEV
Geothermal Gradient
0.018287
DC/M
HSCO
Hole Size Correction Option
NO
MATR
Rock Matrix Type
LIMESTONE
MCOD
Mud Cake Correction Option
NO
MTEM
Mud Temperature
MTEM
DEGC
MWT
Mud Sample Temperature
MWT
MWCO
Mud Weight Correction Option
NO
PP
Playback Processing
NORMAL
PTCO
Pressure Temperature Correction Option
NO
RMFS
Resistivity of Mud Filtrate Sample
0.2100
OHMM
SDAT
Standoff Data Source
SCH
SOCH
Standoff Distance
0
MM
SOCO
Standoff Correction Option
NO
TDD
Total Depth - Logger
2031.80
M
Format: CNL_240 Vertical Scale: 1:240
Graphics File Created: 05-Mar-2000 08:31
OP System Version: 9C0-413
MCM
DLT-E 9C0-413
LDT-D 9C0-413
PCD-B 9C0-413
TCC-B 9C0-413
SRT-C 9C0-413
CNT-H CPS-KPI
SGT-L 9C0-413
SSP 9C0-413
Input DLIS Files
DEFAULT DLTE .011 FN:10 PRODUCER 05-Mar-2000 03:12 2028.6 M 45.0 M
Output DLIS Files
DEFAULT DLTE .006 FN:5 PRODUCER 05-Mar-2000 08:31
Input DLIS Files
DEFAULT DLTE .011 FN:10 PRODUCER 05-Mar-2000 03:12 2027.6 M 1917.6 M
DEFAULT DLTE .010 FN:9 PRODUCER 05-Mar-2000 02:48
Output DLIS Files
DEFAULT DLTE .003 FN:2 PRODUCER 05-Mar-2000 05:44
OP System Version: 9C0-413
MCM
DLT-E 9C0-413
LDT-D 9C0-413
PCD-B 9C0-413
TCC-B 9C0-413
SRT-C 9C0-413
CNT-H CPS-KPI
SGT-L 9C0-413
SSP 9C0-413
PIP SUMMARY
Integrated Hole Volume Minor Plg Every 0.1 M3
Integrated Hole Volume Major Plg Every 1 M3
Integrated Cement Volume Minor Plg Every 0.1 M3
Integrated Cement Volume Major Plg Every 1 M3
Time Mark Every 60 S
TENS_REP Curve (TENS_REP) 20000 (W) 0
Tension (TENS) 20000 (W) 0
REPEAT ANALYSIS
Gamma Ray (GR) (SAPI) 0 150
PEF_REP Curve (PEF_REP) (---) 0 10
DRHO_REP Curve (DRHO_REP) (K/M3) 400 -50
PhotoElectric Factor (PEF) (---) 0 10
Bulk Density Correction (DRHO) (K/M3) 400 -50
Caliper (CALI) (MM) 125 375
NPOR_REP Curve (NPOR_REP) (V/V) 0.45 -0.15
Bit Size (BS) (MM) 125 375
Alpha Processed Neutron Porosity (NPOR) (V/V) 0.45 -0.15
Long Arm Caliper (LA) (MM) 125 375
DPHI_REP Curve (DPHI_REP) (V/V) 0.45 -0.15
GR_REP Curve (GR_REP) (SAPI) 0 150
Density Porosity (DPHI) (V/V) 0.45 -0.15
CALI_REP Curve (CALI_REP) (MM) 125 375



CALI_REP Curve (CALI_REP)
125 (MM) 375

GR_REP Curve (GR_REP)
0 (GAPI) 150

Long Arm Caliber (LA)
125 (MM) 375

BR Size (BRS)
125 (MM) 375

Caliber (CALI)
125 (MM) 375

Gamma Ray (GR)
0 (GAPI) 150

Tension (TENS)
25000 (lb) 0

TENS_REP Curve (TENS_REP)
25000 (lb) 0

Density Porosity (DPHI)
0.45 (V/V) -0.15

DPHI_REP Curve (DPHI_REP)
0.45 (V/V) -0.15

Alpha Processed Hydrogen Porosity (NPOR)
0.45 (V/V) -0.15

NPOR_REP Curve (NPOR_REP)
0.45 (V/V) -0.15

PhotoElectric Factor (PEF)
0 (B/E) 10

PEF_REP Curve (PEF_REP)
0 (B/E) 10

Bulk Density Correction (DPHOI)
0.5 (G/C3) -0.5

DPHO_REP Curve (DPHO_REP)
0.5 (K/M3) -0.5

REPEAT ANALYSIS

PIP SUMMARY

- Integrated Hole Volume Minor Plg Every 0.1 M3
- Integrated Hole Volume Major Plg Every 1 M3
- Integrated Cement Volume Minor Plg Every 0.1 M3
- Integrated Cement Volume Major Plg Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name		Value
BFM	Borehole Fluid Medium	LIQUID
BHFL	Borehole Fluid Type	WATER
BHS	Borehole Hole Status	OPEN
BS	Bit Size	222.000 MM
BSAL	Borehole Salinity	-99999.00 PPM
BSCO	Borehole Salinity Correction Option	NO
CDOD	Casing & Cement Thickness Correction Option	NO
CSID	Casing Inside Size	246.000 MM
CWEI	Casing Weight	53.57 KG/M
DFD	Drilling Fluid Density	1180.00 K/M3
DIC	Density Invasion Correction	0.0 M
DOFF	Depth Offset	4.0 M
DQRL	Depth Offset Repeat Analysis	NO
DPRM	Density Porosity Processing Mode	1000 K/M3
FD	Fluid Density	-99999 KG/M3
FSAL	Formation Salinity	-99999 PPM
FSCO	Formation Salinity Correction Option	NO
GCSE	Generalized Caliber Selection	0 DEG
GDEV	Average Angular Deviation of Borehole from Normal	0.018227 DEGTM
GGRD	Geothermal Gradient	YES
LSHV	Lithology Selection Option	LIMESTONE
MATR	Rock Matrix Type	
MCDD	Mud Cake Correction Option	NO
MCSE	Mud Cake Source	NATU
MDEN	Matrix Density	2710 K/M3
MST	Mud Sample Temperature	28.00 DEGC
MWCO	Mud Weight Correction Option	NO
PP	Playback Processing	NORMAL
TTCO	Tool Temperature Correction Option	NO CH13252
TTCS	Tool Temperature Source	SONDE
SDAT	Standoff Data Source	SCON
SDCO	Standoff Detector	NO
SDIS	Standoff Distance	2631.00 MM
TDAT	Total Depth Logger	1180 DLTM
WTYP	Well Type	

Format: PORO_REP Vertical Scale: 1:240 Graphics File Created: 05-Mar-2000 00:45

OP System Version: 9C0-413

MCM

DLT-E	9C0-413	SRT-C	9C0-413
LDT-D	9C0-413	CNT-H	CPS-P21
PCD-B	9C0-413	SGT-L	9C0-413
TCC-B	9C0-413	BSP	9C0-413

Input DLIS Files

DEFAULT	DLTE .011	FN:10 PRODUCER	03-Mar-2000 03:12		
DEFAULT	DLTE .010	FN:9 PRODUCER	05-Mar-2000 02:48	2027.8 M	1917.6 M

Output DLIS Files

DEFAULT	DLTE .003	FN:2 PRODUCER	05-Mar-2000 05:44

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
DUAL LATEROLOG - E Wellsite Calibration - DLT ELECTRONICS CALIBRATION Latero/log Measurement							
Before: S-MAR-2000 2:13							
MEASURED LLD	31.62	N/A	32.19	N/A	N/A	0.9000	OHMM
MEASURED LLS	31.62	N/A	32.22	N/A	N/A	0.9000	OHMM
Spherical Resistivity - C Wellsite Calibration - Electronics Calibration							
Before: S-MAR-2000 2:09							
MSFL Conductivity Zero	1.000	N/A	1.015	N/A	N/A	2.000	MM/M
MSFL Bucking Current Zero	0.0000	N/A	-0.1718	N/A	N/A	2.000	MM/M
MSFL Conductivity Plus	500.0	N/A	499.2	N/A	N/A	20.00	MM/M
MSFL Bucking Current Plus	500.0	N/A	95.16	N/A	N/A	20.00	MM/M
Spherical Resistivity - C Wellsite Calibration - Caliper Downhole Calibration							
Before: Calibration not done							
CALIPER Downhole	414.2	N/A	N/A	N/A	N/A	8.283	MM
Litho Density - D Wellsite Calibration - Background Measurement							
Master: 27-FEB-2000 16:31 Before: 4-MAR-2000 13:03							
LL Background	20.00	19.17	18.97	N/A	N/A	1.000	CPS
LS Background	76.00	73.25	73.00	N/A	N/A	1.000	CPS
SS Background	57.00	55.50	55.47	N/A	N/A	1.000	CPS
LITH Background	5.500	5.318	5.315	N/A	N/A	0.5000	CPS
SS1 Background	9.500	8.542	8.503	N/A	N/A	0.5000	CPS
SS2 Background	11.00	9.600	9.524	N/A	N/A	0.5000	CPS
Litho Density - D Wellsite Calibration - Tool Quality Control Information HV							
Master: 27-FEB-2000 16:31 Before: 4-MAR-2000 13:01							
LSHV Background	1300	1309	1340	N/A	N/A	N/A	V
SSHV Background	1500	1505	1545	N/A	N/A	N/A	V
Litho Density - D Wellsite Calibration - Detectors Resolution From BKG Measurements							
Master: 27-FEB-2000 16:31 Before: 4-MAR-2000 13:03							
SS Resolution Background	8.000	8.449	8.480	N/A	N/A	N/A	
SS Resolution Background	8.000	8.631	8.642	N/A	N/A	N/A	
Litho Density - D Wellsite Calibration - Caliper Calibration							
Before: 4-MAR-2000 13:03							
Caliper Large Ring	203.2	N/A	191.7	N/A	N/A	N/A	MM
Caliper Large Ring	304.8	N/A	289.9	N/A	N/A	N/A	MM
Litho Density - D Wellsite Calibration - Aluminum Measurement							
Master: 27-FEB-2000 16:43							
LL Aluminum	90.00	91.00	--	--	--	--	CPS
LU Aluminum	183.0	186.7	--	--	--	--	CPS
LS Aluminum	155.0	159.4	--	--	--	--	CPS
LITH Aluminum	50.00	54.57	--	--	--	--	CPS
SS1 Aluminum	175.0	179.3	--	--	--	--	CPS
SS2 Aluminum	265.0	269.3	--	--	--	--	CPS
Litho Density - D Master Calibration - Lithology Measurement							
Master: 27-FEB-2000 16:38							
LL Iron	83.00	86.67	--	--	--	--	CPS
LU Iron	120.0	130.5	--	--	--	--	CPS
LS Iron	135.0	151.1	--	--	--	--	CPS
LITH Iron	30.00	37.73	--	--	--	--	CPS
SS1 Iron	150.0	172.4	--	--	--	--	CPS
SS2 Iron	245.0	262.0	--	--	--	--	CPS
Litho Density - D Master Calibration - Spectrum Quality Ratios							
Master: 27-FEB-2000 16:43							
GRS Calculated	0.6500	0.6656	--	--	--	--	
GRS Calculated	0.6500	0.6548	--	--	--	--	
GRS Calculated	0.3900	0.3487	--	--	--	--	
GLR Calculated	1.380	1.406	--	--	--	--	
GR Calculated	1.000	1.014	--	--	--	--	
Compensated Neutron - H Wellsite Calibration - Zero Measurement							
Master: 27-FEB-2000 14:21 Before: 4-MAR-2000 13:21							
CNTC Background	27.85	27.85	28.13	N/A	N/A	4.178	CPS
CFTC Background	34.74	34.74	36.34	N/A	N/A	5.211	CPS
Compensated Neutron - H Master Calibration - Time Measurement							
Master: 27-FEB-2000 14:20							
Thermal Near Corr. (Tarm)	6031	5839	--	--	--	--	CPS
Thermal Far Corr. (Tarfi)	2793	2542	--	--	--	--	CPS
CNTC/CFTC (Tarn)	2.159	2.297	--	--	--	--	
Powered Caliper Device - B Wellsite Calibration - Large Arm Calibration							
Before: 4-MAR-2000 13:00							
Large Arm Small Ring	203.2	N/A	201.9	N/A	N/A	N/A	MM
Large Arm Small Ring	304.8	N/A	312.0	N/A	N/A	N/A	MM
Powered Caliper Device - B Wellsite Calibration - Small Arm Calibration							
Before: S-MAR-2000 13:03							
Small Arm Small Gauge	25.40	N/A	175.8	N/A	N/A	N/A	MM
Small Arm Large Gauge	127.0	N/A	309.0	N/A	N/A	N/A	MM
Powered Caliper Device - B Wellsite Calibration - Micro Inverse Calibration							
Before: Calibration out of date 16-JAN-2000 19:59							
Micro Inverse Zero	0	N/A	4.420	N/A	N/A	0.1000	OHMM
Micro Inverse Plus	5.000	N/A	4.420	N/A	N/A	0.2000	OHMM
Powered Caliper Device - B Wellsite Calibration - Micro Normal Calibration							
Before: Calibration out of date 16-JAN-2000 19:59							
Micro Normal Zero	0	N/A	4.420	N/A	N/A	0.1000	OHMM
Micro Normal Plus	5.000	N/A	4.420	N/A	N/A	0.2000	OHMM
Scintillation Gamma Ray - L Wellsite Calibration - Detector Calibration							
Before: 4-MAR-2000 12:56							
Gamma Ray Background	93.00	N/A	81.68	N/A	N/A	14.45	GAPI
Gamma Ray Background	93.00	N/A	108.0	N/A	N/A	13.00	GAPI
Gamma Ray (Calibrator)	149.0	N/A	162.0	N/A	N/A	13.00	GAPI

The CNT Master Calibration Was Done With The Following Parameters :

NCT-B Water Temperature 15.0 DEGC
Thermal Housing Size 85.725 MM

DUAL LATEROLOG - E / Equipment Identification

Primary Equipment:

Auxiliary Equipment:		DLE - F	602
Dual Laterolog Electrode		DLS - F	702
Dual Laterolog Bondle		DLH - CB	2810
Dual Laterolog Cartridge		DLH - D	906
Dual Laterolog Centralizer		LCM - AA	
Latero/log Control Module C			

DUAL LATEROLOG - E Wellsite Calibration

DLT ELECTRONICS CALIBRATION Latero/log Measurement

Phase	MEASURED LLD OHMM	Value	Phase	MEASURED LLS OHMM	Value
Before	32.19	Before	Before	32.22	Before
20.00	20.00	40.00	20.00	20.00	40.00
Before	Minimum	Maximum	Before	Minimum	Maximum

Before: S-MAR-2000 2:13

Spherical Resistivity - C Wellsite Calibration - Electronics Calibration

Phase	MSFL Conductivity Zero MM/M	Value	Phase	MSFL Bucking Current Zero MM/M	Value
Before	1.015	Before	Before	-0.1718	Before
0.000	0.000	2.000	0.000	0.000	2.000
Before	Minimum	Maximum	Before	Minimum	Maximum

Phase	MSFL Conductivity Plus MM/M	Value	Phase	MSFL Bucking Current Plus MM/M	Value
Before	499.2	Before	Before	95.16	Before
500.0	500.0	520.0	500.0	500.0	520.0
Before	Minimum	Maximum	Before	Minimum	Maximum

Before: S-MAR-2000 2:09

Spherical Resistivity - C Wellsite Calibration - Caliper Calibration

Phase	CALIPER Small Ring MM	Value	Phase	CALIPER Large Ring MM	Value
Before	202.7	Before	Before	301.3	Before
203.2	203.2	205.2	304.8	304.8	306.8
Before	Minimum	Maximum	Before	Minimum	Maximum

Before: 29-FEB-2000 14:50

Spherical Resistivity - C Wellsite Calibration - Caliper Downhole Calibration

Phase	CALIPER Downhole MM	Value
Before	NOT DONE	N/A
414.2	414.2	414.2
Before	Minimum	Maximum

Before: Calibration not done

Litho Density - D / Equipment Identification

Primary Equipment:

Nuclear Sensor Cartridge		NSC - E	765
Powered Gamma Detector		RCD - D	2721
Gamma Source Radioactive		GSR - J	2043
Auxiliary Equipment:		DRB - C	3928
Electronics Cartridge Housing		ECH - MXA	787
Powered Detector Housing		PDH - L	2950

Litho Density - D Wellsite Calibration

Background Measurement

Phase	LL Background CPS	Value	Phase	LU Background CPS	Value	Phase	LS Background CPS	Value
Master	19.17	Master	Master	73.25	Master	Master	55.50	
Before	18.97	Before	Before	73.00	Before	Before	55.47	
15.00	20.00	25.00	68.00	76.00	84.00	49.00	57.00	62.00
Before	Minimum	Maximum	Before	Minimum	Maximum	Before	Minimum	Maximum

Phase	LITH Background CPS	Value	Phase	SS1 Background CPS	Value	Phase	SS2 Background CPS	Value
Master	5.318	Master	Master	8.449	Master	Master	9.631	
Before	5.315	Before	Before	8.480	Before	Before	8.503	
4.500	5.500	7.000	7.500	9.500	11.50	8.000	11.00	13.50
Before	Minimum	Maximum	Before	Minimum	Maximum	Before	Minimum	Maximum

Master: 27-FEB-2000 16:31 Before: 4-MAR-2000 13:01

Litho Density - D Wellsite Calibration

Detection From BKG Measurements

Phase	LS Resolution Background	Value	Phase	SS Resolution Background	Value
Master	8.000	Master	Master	8.000	Master
Before	8.480	Before	Before	8.642	Before
6.000	8.000	11.00	6.000	8.000	11.00
Before	Minimum	Maximum	Before	Minimum	Maximum

Master: 27-FEB-2000 16:31

Litho Density - D Wellsite Calibration

Aluminum Measurement

Phase	LL Aluminum CPS	Value	Phase	LU Aluminum CPS	Value	Phase	LS Aluminum CPS	Value
Master	91.00	Master	Master	186.7	Master	Master	159.4	
Before	90.00	Before	Before	183.0	Before	Before	155.0	
72.00	90.00	108.0	147.0	183.0	219.9	127.0	155.0	190.5
Before	Minimum	Maximum	Before	Minimum	Maximum	Before	Minimum	Maximum

Phase	LITH Aluminum CPS	Value	Phase	SS1 Aluminum CPS	Value	Phase	SS2 Aluminum CPS	Value
Master	54.57	Master	Master	179.3	Master	Master	269.3	
Before	50.00	Before	Before	175.0	Before	Before	265.0	
40.00	50.00	74.00	140.0	175.0	210.0	212.0	265.0	318.0
Before	Minimum	Maximum	Before	Minimum	Maximum	Before	Minimum	Maximum

Master: 27-FEB-2000 16:43

Litho Density - D Master Calibration

Lithology Measurement

Phase	LL Iron CPS	Value	Phase	LU Iron CPS	Value	Phase	LS Iron CPS	Value
Master	86.67	Master	Master	130.5	Master	Master	151.1	
Before	83.00	Before	Before	120.0	Before	Before	135.0	
66.00	83.00	100.0	108.0	120.0	132.0	122.0	135.0	148.5
Before	Minimum	Maximum	Before	Minimum	Maximum	Before	Minimum	Maximum

Phase	LITH Iron CPS	Value	Phase	SS1 Iron CPS	Value	Phase	SS2 Iron CPS	Value
Master	37.73	Master	Master	172.4	Master	Master	262.0	
Before	30.00	Before	Before	150.0	Before	Before	245.0	
24.00	30.00	45.00	135.0	150.0	165.0	220.5	245.0	269.5
Before	Minimum	Maximum	Before	Minimum	Maximum	Before	Minimum	Maximum

Master: 27-FEB-2000 16:38

Litho Density - D Master Calibration

Spectrum Quality Ratios

Phase	GRS Calculated	Value	Phase	GRS Calculated	Value	Phase	GRU Calculated	Value
Master	0.6656	Master	Master	0.6548	Master	Master	0.3487	
Before	0.6500	Before	Before	0.6500	Before	Before	0.3900	
0.5200	0.6500	0.7800	0.5200	0.6500	0.7800	0.3120	0.3900	0.4680
Before	Minimum	Maximum	Before	Minimum	Maximum	Before	Minimum	Maximum

Phase	GLR Calculated	Value	Phase	GR Calculated	Value	Phase	Value
Master	1.406	Master	Master	1.014	Master	Master	
Before	1.380	Before	Before	1.000	Before	Before	
1.104	1.380	1.656	0.8000	1.000	1.200	0.8000	1.000
Before	Minimum	Maximum	Before	Minimum	Maximum	Before	Minimum

Master: 27-FEB-2000 16:43

Compensated Neutron - H / Equipment Identification

Primary Equipment:

Compensated Neutron Cartridge		CNC - HA	1247
Neutron Logging Sonde		NLS - HL	
Neutron Source Radioactive		NSR - TA	1491
Neutron Detector with Alpha Source		CND - C	
Compensated Neutron Box		CNB - AB	
Auxiliary Equipment:			
Compensated Neutron Housing		CNH - A	4465
Neutron Standoff		NSF - B	

Compensated Neutron - H Wellsite Calibration					
Zero Measurement					
Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.85	Master		34.74
Before		28.18	Before		36.34
5.000 (Minimum)	27.85 (Nominal) 40.00 (Maximum)		5.000 (Minimum)	34.74 (Nominal) 40.00 (Maximum)	
Master: 27-FEB-2000 14:21			Before: 4-MAR-2000 13:21		

Compensated Neutron - H Master Calibration								
Tank Measurement								
Phase	Thermal Near Corr (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		5839	Master		2542	Master		2.297
5000 (Minimum)	6031 (Nominal) 7200 (Maximum)		2075 (Minimum)	2793 (Nominal) 3125 (Maximum)		2.120 (Minimum)	2.159 (Nominal) 2.540 (Maximum)	
Master: 27-FEB-2000 14:32								

Powered Caliper Device - B / Equipment Identification

Primary Equipment:		
Powered Caliper Mechanical (sonde) - A	PCM - A	
Powered Caliper Cartridge - H	PCC - H	
Auxiliary Equipment:		
Powered Caliper Housing - A	PCH - A	1371

Powered Caliper Device - B Wellsite Calibration					
Micro Inverse Calibration					
Phase	Micro Inverse Zero OHMM	Value	Phase	Micro Inverse Plus OHMM	Value
Before	EXCEEDS LIMIT	4.420	Before		4.420
-1.000 (Minimum)	0 (Nominal) 1.000 (Maximum)		4.250 (Minimum)	5.000 (Nominal) 5.750 (Maximum)	
Before: Calibration out of date 16-JAN-2000 19:59					

Powered Caliper Device - B Wellsite Calibration					
Micro Normal Calibration					
Phase	Micro Normal Zero OHMM	Value	Phase	Micro Normal Plus OHMM	Value
Before	EXCEEDS LIMIT	4.420	Before		4.420
-1.000 (Minimum)	0 (Nominal) 1.000 (Maximum)		4.250 (Minimum)	5.000 (Nominal) 5.750 (Maximum)	
Before: Calibration out of date 16-JAN-2000 19:59					

Scintillation Gamma-Ray - L / Equipment Identification

Primary Equipment:		
Scintillation Gamma Cartridge	SGC - SA	1048
Scintillation Gamma Detector	SGD - TAA	
Auxiliary Equipment:		
Scintillation Gamma Housing	SGH - K	530
Gamma Source Radioactive	GSR - U/Y	

Scintillation Gamma-Ray - L Wellsite Calibration								
Detector Calibration								
Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		81.68	Before		159.0	Before		165.0
0 (Minimum)	30.00 (Nominal) 120.0 (Maximum)		144.5 (Minimum)	159.0 (Nominal) 173.4 (Maximum)		150.0 (Minimum)	165.0 (Nominal) 180.0 (Maximum)	
Before: 4-MAR-2000 12:58								

COMPANY:	AEC OIL & GAS
WELL:	AEC WEST RENAISSANCE TATE G-18
FIELD:	EXPLORATORY
PROVINCE:	NWT

BOTTOM LOG INTERVAL	2016.5 m
SCHLUMBERGER DEPTH	2031.9 m
DEPTH DRILLER	2030 m
KELLY BUSHING	386.4 m
DRILL FLOOR	
GROUND LEVEL	381 m

Schlumberger

COMPENSATED NEUTRON LITHO-DENSITY