EXCO ET AL WEST PARKIN Y.T. D-54 66°13' 09.73"N 137°26' 10.40"W FINAL DRILLING SUMMARY

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Exco Energy Ltd. April, 1985

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# SECTION I

### SUMMARY - GENERAL DATA

#### EXCO ET AL WEST PARKIN Y.T. D-54

#### INTRODUCTION

In May of 1984 Exco Energy Ltd. concluded an Exploration Agreement with Westmin Resources Limited. Pursuant to the terms of the agreement, Exco was committed to conduct seismic activity and to drill two (2) wells within a specified grid area prior to April 30, 1985. By drilling these wells in furtherance of the agreement, Exco would earn a share of Westmin's interest in the lands; and, in so doing, would be entitled to earn additional acreage if they chose to exercise their option.

The first of the two wells to be drilled was Exco et al West Parkin Y.T. D-54. Both wells were to be drilled to a maximum depth of 1825 metres, measured distance, and to require approximately forty (40) days to complete.

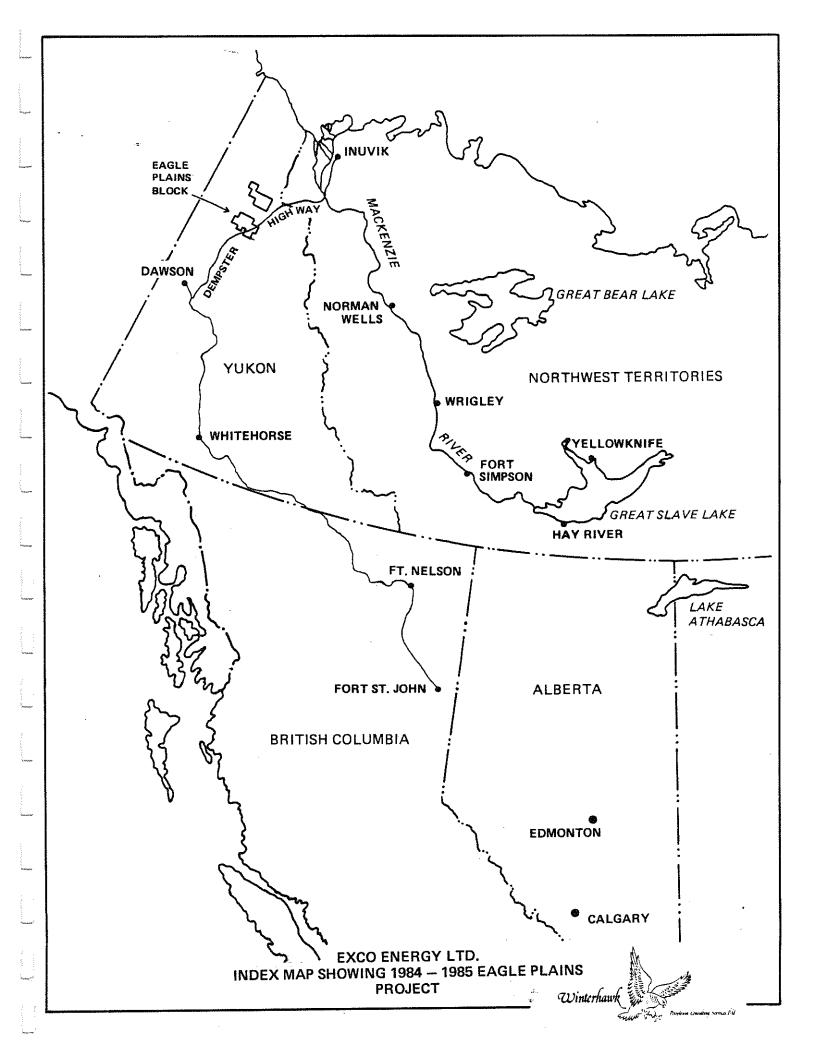
Construction of the access route began in late November, 1984 after approval had been granted from Land Use. By December 10, 1984 the heavy equipment was on location and in the process of preparing the sump.

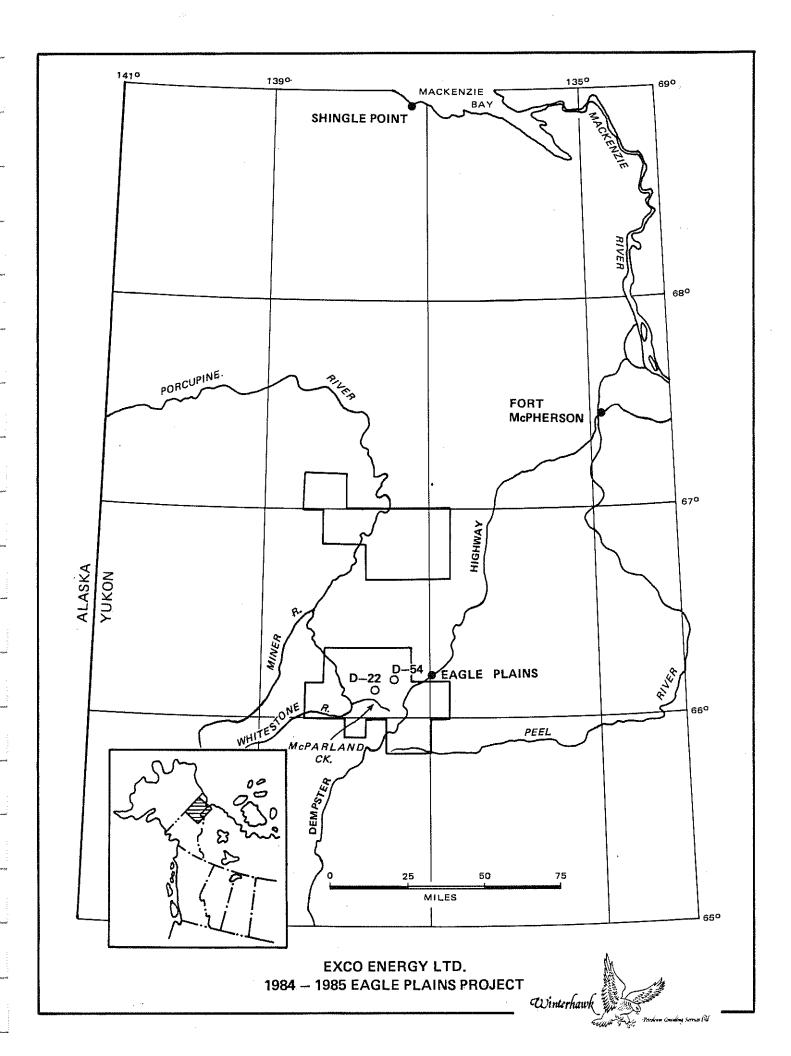
The rig, together with supplies and support services for the project were transported north in early December. With reference to the enclosed area maps, all equipment gained access to the location by travelling the Dempster Highway, which runs north from Dawson City, Yukon. As required, additional supplies were flown into the site airstrip (Parkins Airstrip), via DC-3's.

Although minor delays were experienced in rigging up, the well was spudded only a few days behind schedule, namely, on December 20,1984. Total depth was reached February 9, 1985 and, following evaluation procedures, the well was cased and suspended, with the rig being released February 19, 1985.

At that time the rig, auxillary equipment and supplies were transported to the second commitment well, Exco et al N. Chance Y.T. D-22.

Exco hereby gives notice that the enclosed report is to be considered the final drilling summary for Exco et al West Parkin Y.T. D-54.





#### GENERAL WELL INFORMATION

WELL NAME: Exco et al West Parkin Y.T. D-54 LESSOR: Westmin Resources Limited farm out to Exco Energy Ltd. Exco Energy Ltd. **OPERATOR:** 6th Floor, 700 - 4th Avenue S.W. Calgary, Alberta T2P 3J4 66-20-137-15; Unit D; Section 54 GRID AREA: 66° 13' 09.73"N CO-ORDINATES: 137° 26' 10.40"W 300 D54 6620 137 150 UNIQUE WELL IDENTIFIER: **EXPLORATION AGREEMENT:** No. 231 DRILLING AUTHORITY: No. 1208 issued 84-12-14 Gray Mountain Drilling Ltd. DRILLING CONTRACTOR: P.O. Box 4998 Whitehorse, Yukon Y1A 4S2 2000 - 425 - 1st Street S.W. Calgary, Alberta T2P 3L8 Custom Drilling Rig #94 DRILLING RIG: New Field Exploratory (Northern) CLASSIFICATION: G.L. 502.50<sup>m</sup> ELEVATIONS: K.B. 506.85<sup>m</sup> 1984-12-20 @ 1200 hrs. SPUD DATE: COMPLETED DRILLING DATE: 1985-02-09 @ 0730 hrs. 1985-03-01 @ 2000 hrs. **RIG RELEASE:** WELL STATUS: Cased & Suspended

		Winterhawk	Heren Constant	(r B)(		
		WELL	SUMMAR	Rγ	1985-02-1	i Q
Well Exco et al	Jost Parkir	VT D-54	Location			
Elevations: KB						
History: Spud Date						
Status Suspende					_	River)
			_Producing Z	one(s) <u>111331331</u>		
A. DRILLING DET Hole Size <u>444.5mm</u>		53 m	Logo	Nil		
Hole Size 311.2mm						
Hole Size 215.9mm					ak, bho/uk/u	JAL, MEL,
Hole Size	Depth	V EE	Logs			
Casing Size 339,7mm	Grade	K-55 Dept	h <u> </u>	III Cement Vo	ol. / III	3
Casing Size 244.5mm	Grade	<u>N-80</u> Dept	h400	M Cement Vo	bl. 17.31	<u></u>
Casing Size <u>139.7mm</u>						
Casing Size	Grade	Dept	h	Cement Vo	ol	
DST No. ] Int	1060 m -	1065 m	Zone Mi	ssissippian (	Hart River)	
DST No Int_						
DST No Int_						
DST No Int			•			Micrun
					_	
DST No. <u>5</u> Int						
Core No Int					_	
Core No Int			Zone		Rec	
Core NoInt			Zone		Rec	
Plug No Int_	1811 m - 11	711 M Cement	Vol	4.3 m <sup>3</sup>	Felt	No
Plug No. 2 Int						
Plug NoInt_						
Plug NoInt_						
B. COMPLETION					 N DATE:	. <u></u>
		Z	one	Τ	/pe	
	nt N/A			Τγ		
				Τγ		
Stimulations: Formatic				· · · · · · · · · · · · · · · · · · ·		
Samulations, Fornatio	N/A					
Tubing Details:						
Anchor/Packer Details:						
Pumping Equipment:					·····	
Remarks:						

## DOWNHOLE PROBLEMS ENCOUNTERED

#### SUMMAR Y

For the most part the Exco et al West Parkin Y.T. D-54 well was drilled to total depth without encountering any major <u>downhole</u> problems. However, there were several mechanical, or rig related problems, which seriously delayed operations.

From spud to rig release, the rig was plagued with minor equipment failures including repairs to the clutches, air lines, mud pumps and the mixing pump. These repairs were numerous in number and contributed to a general slowdown in activity. In total, there were 87.75 hours lost due to repairs.

Aside from mechanical problems, lost circulation was noted at the 12 metre, 36 metre and 69 metre depth while drilling both conductor and surface hole. For the most part, these thief zones presented little difficulty. Standard additions of lost circulation material were used to plug the potentially troublesome zones. Although six (6) days were required to treat this problem, in fairness, the majority of the time was lost waiting on a circulating pump. The remainder of the down time can be attributed to waiting on lost circulation material. In review, the urgently required circulating pump and lost circulation materials should have been expedited to the rig location in short order, regardless of the cost.

At the 742 metre depth, while pulling out of the hole, the well was swabbed in. The time involved from when the well first began to flow, to the point at which drilling activity continued again, was nearly 24 hours. If proper tripping practices had been followed (including flow checks) this unfortunate situation would have been avoided.

From this point on no other downhole problems were noted. The hole was drilled to total depth and then production casing was run to the 1078 metre depth. With the exception of some difficulty experienced in obtaining packer seats on drill stem tests, the hole was trouble free.

Outlined on the following page is a synopsis of the delays and resultant lost time on the West Parkin well.

## SYNOPSIS

DRILLING DAY	PARTICULARS	LOST TIME
1	Lost circulation at 12 <sup>m</sup> , 36 <sup>m</sup>	4 hours - mix and condition mud
	Rig repairs	2.5 hours - shock hose
4	Rig repair	12 hours - thaw out rig, repair mixing pump, flow line, clutch pads
	Lost circulation at 69 <sup>m</sup>	2 hours - mix and condition mud
5	Mix and Condition Mud	16.75 hours - build volume, wait on circulating pump
	Rig Repair	3 hours - thaw rig
6	Mix and Condition Mud	13.75 hours - lost circulation at 80 <sup>m</sup> , build volume, wait on circulating pump
	Rig Repair	3.5 hours - thaw out rig
7	Mix and Condition Mud	19.25 hours - mix mud and wait on circulating pump
	Rig Repair	4 hours - change out mixing pump and motor
8	Mix and Condition Mud Waiting	10 hours - build volume 14 hours - on sawdust - install mud agitators
9	Waiting	13.50 hours - on lost curculation material
10	Rig Repair	2 hours - thaw out rig
12	Rig Repair	8.75 hours - repair clutch and rod packing
17	Rig Repair	11.75 hours - repairs to rig in compliance with COGLA
18	Rig Repair	4 hours - repair steam leaks to mud tanks

### SYNOPSIS

DRILLING DAY	PARTICULARS	LOST TIME
24	Circulate Kick	24 hours - strip in hole, mix barite, circulate
27	Rig Repair	2.25 hours - repair air line
28	Rig Repair	5.5 hours - repair pumps, change clutches
29	Rig Repair	4.75 hours - place liner gasket in pump, repair trip tank pump, replace clutch on floor motor
30	Rig Repair	4.75 hours - work on mud pump, work on motor clutches, repair rubber on suction valve
32	Rig Repair	1.25 hours – work on pumps – discharge frozen
33	Rig Shutdown	20.25 hours - failure to comply with COGLA regulations re safety
39	Rig Repair	5 hours - clutch slipping - change clutch, thaw out Kelly
49	Rig Repair	5.5 hours - repair tongs, repair clutch
52	Rig Repair	2 hours - repair clutch
58	Rig Repair	1.25 hour - replace break out line

### SECTION II GEOLOGICAL SUMMARY

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Geological Wellsite Report

FORWARD ET AL WEST PARKIN YT D 54 Unit D, Section 54, Grid 66 20 137 15 Lat. 66° 13' 9.73' N Long. 137° 26' 10.4" W

Report prepared and submitted by:

Victor P. Jircik, P. Gool. O

- -1165 Limestone as above ; 50% Marl as above
- -1170 Marl, brown, calcareous, siliceous ; 30% Limestone, brown, cryptocrystalline, very argillaceous, siliceous
- -1175 Limestone, buff, cryptocrystalline, very siliceous grading to chert, very argillaceous grading to marl ; 40% Marl as above ; 20% Chert, light brown calcareous
- -1180 Limestone as above, part brown ; 30% Shale, dark brown, very calcareous ; 20% Marl as above ; 10% Chert as above
- -1185 Shale, dark gray-brown, black, slightly bituminous, very calcareous, part siliceous, trace pyrite ; 30% Marl, buff-brown, calcareous, siliceous ; 20% Chert, gray-brown, argillaceous, calcareous ; 20% Limestone, buff, brown, cryptocrystalline, very argillaceous grading to marl, siliceous
- -1190 Shale as above ; 30% Chert as above ; 30% Limestone, buff, cryptocrystalline, very siliceous, argillaceous, silty
- -1195 Shale, dark gray-brown, black, slightly bituminous streaks, slightly siliceous, very calcareous, trace slickensides ; 30% Marl, buff-brown, calcareous, slightly siliceous ; 20% Limestone, buff, as above ; 10% Chert, light brown-gray, calcareous, argillaceous
- 1195-1200 Shale as above, slightly fissile, no slickensides ; 40% Marl, brown, calcareous ; 30% Limestone, light brown, very argillaceous grading to marl, trace fractures with calcite crystals and pyrobitumen
  - -1205 Limestone, buff, cryptocrystalline, siliceous, very argillaceous grading to marl, very fine sandy, silty streaks ; 30% Marl, brown, calcareous, grading to shale ; 20% Chert, brown, argillaceous, calcareous ; 20% Sandstone, light brown, fine to medium grained, salt and pepper, calcareous, clean, subround, poorly sorted
  - -1210 Limestone, brown, cryptocrystalline, very siliceous, very sandy grading to sandstone, very argillaceous grading to marl ; 30% Shale, dark graybrown, very calcareous, siliceous ; 20% Chert, brown-gray, argillaceous, calcareous
  - -1215 Chert, light brown-gray, calcareous ; 20% Marl, brown, calcareous, grading to shale ; 20% Limestone, buff, cryptocrystalline, very sandy, argillaceous siliceous ; 20% Sandstone, light gray, dark gray, fine to medium grained, salt and pepper, very argillaceous streaks, calcareous, subangular, poorly sorted, part with light oil stain
  - -1220 Chert, light brown-gray, calcareous, few fractures and calcite veining; 30% Limestone, buff, cryptocrystalline, very argillaceous and siliceous streaks, sandy; 20% Marl, gray-brown, calcareous
  - -1225 Limestone, buff, cryptocrystalline, very siliceous grading to chert, sandy, argillaceous ; 30% Chert, light brown-gray, buff, calcareous ; 20% Shale, brown, very siliceous grading to chert, sandy
  - -1230 Chert, light brown-gray, calcareous, trace pyrite, trace fracture with light oil stain ; 20% Limestone as above ; 20% Shale as above
  - -1235 Chert as above, trace pyrobitumen ; 20% Shale, brown, very siliceous, calcareous
  - -1240 Chert light brown-gray, calcareous, trace pyrite, trace fracture with light oil stain; 30% Chert conglomerate, varicolored chert, dark gray, very argillaceous, siliceous, trace pyrite, subround, light oil stain
  - -1245 Chert, light gray-buff, dark gray-brown, calcareous, trace pyrite ; 30% Chert conglomerate, dark gray, varicolored chert and clear quartz grains, subround, very argillaceous, siliceous, pyritic

- -1090 Limestone, buff, brown, cryptocrystalline, argillaceous streaks, part very siliceous grading to chert ; 30% Shale, dark gray-brown, calcareous ; 30% Chert, light gray-brown, trace fracture porosity with oil stain
- -1095 Chert, light brown, dark gray-brown, argillaceous streaks ; 30% Marl, dark gray-brown, calcareous ; 30% Limestone, buff, gray-brown, cryptocrystalline, few medium pellet shadows, part very siliceous, very argillaceous streaks grading to marl
- 1095-1100 Limestone, dark gray-brown, buff, part very siliceous, part very argillaceous grading to marl ; 30% Marl as above ; 30% Chert as above
  - -1105 Limestone, light and dark brown, cryptocrystalline, very argillaceous streaks ; 30% Marl, gray-brown, calcareous ; 20% Chert, gray-brown, trace fractures with pyrobitumen
  - -1110 Limestone, buff, gray-brown, cpyptocrystalline, very argillaceous streaks part siliceous ; 30% Chert, light gray-brown, gray-brown ; 30% Marl dark gray-brown, calcareous
  - -1115 Limestone, buff, brown, cryptocrystalline, few very argillaceous streaks grading to marl, trace fracture porosity with oil stain ; 30% Chert, graybrown ; 20% Marl, dark gray-brown, calcareous
  - -1120 Limestone, buff, cryptocrystalline, very argillaceous streaks grading to marl; 30% Marl, buff, gray-brown, calcareous; 20% Chert, light brown, gray-brown, few fractures with calcite crystals, light oil stain and cut
  - -1125 Limestone, very fine sandy and silty streaks ; 30% Chert as above, trace fractures and pyrite ; 30% Marl as above
  - -1130 Chert, buff, trace pyrite, few fractures with calcite veining and pyrobitumen; 20% Limestone, buff, cryptocrystalline, very argillaceous streaks slightly silty; 20% Marl, gray-brown, calcareous; trace chert pebble conglomerate, very argillaceous, trace pyrite
  - -1135 Chert, buff, dark gray-brown, very argillaceous streaks, trace pyrite, trace fractures with heavy oil stain, pyrobitumen and slight cut ; 20% Marl, dark brown, calcareous, very siliceous ;trace varicolored chert pebble conglomerate, very argillaceous, siliceous, calcareous, heavy oil stain
  - -1140 Chert, buff, light gray, argillaceous streaks, trace pyrite, few streaks earthy porosity with heavy oil stain, trace fracture porosity with oil stain; 30% Limestone, buff, cryptocrystalline, part sandy with very fine quartz sand, very argillaceous streaks grading to marl; 20% Sandstone, dark gray-brown, fine to coarse grained, salt and pepper, very argillaceous silty, angular, poorly sorted, trace pyrite, slightly calcareous, streaks 5% intergranular porosity, abundant pyrobitumen, heavy oil stain, fair cut
  - -1145 Limestone as above, part siliceous ; 30% Chert, buff, gray-brown, few fractures with oil stain ; 20% Marl, gray-brown, calcareous ; 10% Sandstone as above
  - -1150 Marl, buff, very siliceous, sandy, silty, very calcareous grading to limestone; 30% Limestone, buff, cryptocrystalline, very argillaceous and siliceous, silty, sandy; 30% Chert, light brown-gray, trace fractures with pyrobitumen; 10% Shale, dark brown, very siliceous, calcareous
  - -1155 Marl, dark brown, calcareous, trace pyrite and white calcite veining; 30% Limestone, dark brown, cryptocrystalline, very argillaceous grading to marl ; 10% Chert, light brown-gray
  - -1160 Limestone, dark brown, cryptocrystalline, slightly siliceous, sandy and silty, trace white calcite veining, very argillaceous grading to marl; 40% Marl, dark brown, slightly sandy and silty

- -1030 Chert, light gray-brown, trace fractures with slight oil stain, fluorescence and cut; 30% Limestone, buff, cryptocrystalline, very sandy; 20% Marl, light brown-gray, calcareous
- -1035 Sandstone, light gray, fine to coarse grained, varicolored chert and clear quartz grains, clean, very calcareous, trace slight oil stain, subround, poorly sorted ; 30% Chert, gray, light gray, trace pyrite ; 20% Sandstone, light gray, very fine to fine grained, salt and pepper, clean, very calcareous grading to sandy limestone, angular, poorly sorted ; 20% Limestone, buff, cryptocrystalline, clean, very sandy
- -1040 Limestone, buff, cryptocrystalline, clean, slightly dolomitic, very sandy with very varicolored chert grains grading to sandstone; 30% Sandstone, buff, fine to coarse grained, salt and pepper, clear quartz and varicolored chert grains, clean, very calcareous, angular, poorly sorted; 20% Chert, light brown-gray
- -1045 Sandstone as above ; 30% Limestone, buff, light brown, cryptocrystalline, part slightly argillaceous ; 20% Sandstone, gray, very fine to medium grained, salt and pepper, clear quartz and varicolored chert grains, clean, slightly siliceous, angular, poorly sorted, abundant pyrobitumen, 8% intergranular porosity, slight oil stain, fluorescence and cut ; 20% Chert, light gray
- -1050 Chert, light brown-gray, part spicular, trace mottled oil stain ; 40% Limestone, buff, cryptocrystalline and brown, very fine crystalline, very silty and very fine sandy streaks, trace crinoid (?), clean, trace mottled oil stain
- -1055 Chert, light gray, trace pyrite and mottled oil stain ; 30% Sandstone, light brown-gray, fine to medium grained, salt and pepper, very calcareous, clean, angular, poorly sorted ; 30% Limestone, buff, brown, cryptocrystalline, very sandy streaks, trace mottled oil stain
- -1060 Chert as above ; 30% Limestone, brown, cryptocrystalline, slightly argillaceous and silty, trace pinpoint porosity, oil stained with slight fluorescence and cut, part light gray, cryptocrystalline, clean, very sandy grading to sandstone ; 20% Sandstone, light gray, very fine to fine grained salt and pepper, very calcareous, clean, angular, poorly sorted
- -1065 Limestone, brown, cryptocrystalline, very argillaceous streaks grading to marl, oil stained with slight cut ; 30% Sandstone, light gray, fine to medium grained, salt and pepper, clean, calcareous, trace pyrite, streaks of 20% porosity part with pyrobitumen, subangular, poorly sorted ; 20% Chert light gray, few fractures with oil stain
- -1070 Chert, light brown-gray, trace pyrite and mottled oil strain ; 30% Sandstone, light gray-buff, medium to coarse grained, salt and pepper, clean, calcareous, trace pyrobitumen and pyrite, subangular, poorly sorted ; 30% Limestone, brown and buff, cryptocrystalline, sandy, very argillaceous streaks
- -1075 Chert, brown, brown-gray, argillaceous, calcareous ; 40% Limestone, buff, brown, cryptocrystalline, very argillaceous streaks ; 20% Marl, brown, calcareous, very siliceous
- -1080 Chert, brown, gray-brown, argillaceous, calcareous streaks, trace fracture porosity with pyrobitumen ; 40% Limestone, buff, dark gray-brown, cryptocrystalline, siliceous, very argillaceous streaks grading to marl ; 20% Marl as above
- -1085 Chert, brown, gray-brown, slightly calcareous streaks, trace fracture porosity with pyrobitumen ; 30% Limestone as above ; 30% Marl as above

flakes, pyrite and ironstone ; 20% Sandstone as above

- Shale as above ; 30% Siltstone, dark gray, very argillaceous grading to -925 shale, slightly calcareous, very sandy, slightly micaceous
- Shale, dark gray, slightly calcareous, micaceous, very sandy and silty -930 streaks, very glauconitic, trace pyrite and carbon flakes ; 40% Siltstone, dark gray, very argillaceous, sandy, slightly calcareous, trace pyrite, glauconitic, slightly micaceous
- -935 Shale as above, few brown, very calcareous streaks grading to marl
- -940 Shale, dark gray, slightly micaceous and calcareous, glauconitic, very silty grading to siltstone, trace pyrite ; 30% Siltstone, dark gray-brown, very argillaceous grading to shale, very sandy, slightly calcareous, tr mica and glauconite
- -945 Shale as above ; 20% Siltstone as above
- -950 Shale as above ; 40% Siltstone as above
- -955 Shale as above ; 40% Siltstone as above
- -960 Shale as above : 50% Siltstone as above
- Shale, dark gray, slightly micaceous and calcareous, glauconitic, trace -965 pyrite, very silty streaks ; 30% Siltstone as above
- Shale as above ; 30% Siltstone as above -970
- -975 Shale as above ; 30% Siltstone as above
- -980 Shale as above : 20% Siltstone as above
- -985 Shale, dark gray, slightly micaceous, very sandy and silty streaks, few floating medium quartz sand grains, slightly calcareous, glauconitic, trace Inoceramus fragments
- -990 Shale, dark gray, very pyritic streaks, part very calcareous, part very
- sandy and silty, glauconitic \* Hart River 993 (-486) \*\* -995 Limestone, buff cryptocrystalline, very argillaceous and silty, trace pyrite and stylolites ; 40% Shale as above ; 20% Chert, light gray-brown, calcareous streaks, trace pyrite, trace fractures with very light oil stain and light fluorescence and cut
- 995-1000 Limestone, light gray, cryptocrystalline, very sandy with very fine quartz sand grading to sandstone, slightly argillaceous to very argillaceous grading to marl ; 20% Marl, tan, calcareous, very sandy ; 10% Chert, light gray-brown, sandy
  - -1005 Limestone, light gray-buff, cryptocrytsalline, very sandy grading to sandstone, clean ; 10% Chert, light gray, sandy
  - Sandstone, light gray-buff, light brown-buff, very fine grained, quartzose, -1010 very argillaceous and very silty streaks, very calcareous grading to sandy limestone ; 30% Limestone as above ; 20% Marl light brown, calcareous, very sandy, traces pinpoint porosity with light oil stain, slight fluorescence and cut : 10% Chert light gray
  - Sandstone as above ; 20% Limestone as above; 20% Marl, brown, calcareous ; -1015 10% Chert, light gray, trace fracture porosity with light oil stain, good fluorescence and cut
  - -1020 Marl, brown, buff, calcareous, sandy; 20% Chert, oil stained as above
  - Chert, light gray, light gray-brown, traces fracture porosity with heavy -1025 oil stain, good fluorescence ; 30% Marl, gray-brown, very siliceous, sandy calcareous

- -765 Shale as above, trace ironstone
- -770 Shale as above, part slightly calcareous
- -775 Shale, dark gray, slightly fissile, calcareous and micaceous, very silty streaks, trace carbon flakes and slickensides
- -780 Shale as above, trace pyrite
- Shale as above, trace ironstone -785
- -790 Shale, dark gray, slightly fissile, calcareous and micaceous, few very silty streaks, trace carbon flakes, ironstone, pyrite and slickensides
- -795 Shale as above
- 795-800 Shale, dark gray, slightly fissile, calcareous and micaceous, trace pyrite and ironstone, few silty streaks
  - -805 Shale as above
  - -810 No sample
  - -815 Shale, dark gray, slightly fissile, calcareous and micaceous, trace pyrite and ironstone, silty streaks
  - -820 Shale as above
  - Shale, dark gray, slightly fissile, calcareous and micaceous, trace pyrite -825 and ironstone, few silty streaks
  - -830 Shale as above
  - -835 Shale as above
  - -840 Shale as above
  - -845 Shale as above
  - -850 Shale as above
  - -855 Shale as above
  - -860 Shale as above
  - -865 Shale, dark gray, slightly fissile, calcareous and micaceous, trace pyrite few silty streaks
  - -870 Shale as above
  - -875 Shale as above
  - Shale as above ; 10% Siltstone dark gray, very argillaceous, slightly calcar--880 eous, sandy, trace pyrite
  - Shale as above ; 10% Siltstone as above -885
  - -890 Shale as above
  - -895 Shale as above
- 895-900 Shale as above

  - -905 Shale as above \*\* Basal Silt 910 (-403) \*\* -910 Shale, dark gray, slightly micaceous and calcareous, very fine sandy and silty streaks, trace glauconite, pyrite and ironstone
  - Shale as above ; 20% Sandstone, dark gray, very fine grained, quartzose, -915 slightly calcareous, very argillaceous grading to shale, very silty grading to siltstone, glauconitic, angular, poorly sorted
  - -920 Shale, dark gray, slightly micaceous and calcareous, very sandy streaks with very fine to fine sand, very silty streaks, very glauconitic trace carbon

DOMET DIGTE DETDET ODO (-IC))	Shale Member 630 (-12	:3)	
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- -630 Shale, dark gray, fissile, slightly micaceous ; 40% Sandstone as above
- -635 Shale as above, few silty streaks ; 20% Sandstone, light gray, very fine grained, salt and pepper, very silty grading to siltstone ; 10% Siltstone light gray-brown, argillaceous, sandy
- -640 Shale, very dark gray, fissile, slightly micromicaceous, very slightly calcareous, trace slickensides
- -645 Shale as above ; 20% Siltstone, dark gray-brown, very argillaceous, very slightly calcareous
- Shale, very dark gray, fissile, slightly micromicaceous, part very slightly -650 calcareous, few silty streaks, trace slickensides ; 10% Siltstone as above
- Shale as above ; 10% Siltstone as above -655
- -660 Shale as above, trace ironstone ; 20% Siltstone as above
- -665 Shale, very dark gray, fissile, part micromicaceous to micaceous, few silty streaks. trace carbon flakes and slickensides : 10% Siltstone as above
- Shale as above, trace ironstone ; 20% Siltstone as above -670
- -675 Shale, very dark gray, fissile and blocky, micromicaceous to micaceous, part very slightly calcareous, few silty streaks, trace slickensides ; 10% Siltstone as above
- Shale as above ; 10% Siltstone as above -680
- Shale as above : 10% Siltstone as above -685
- Shale, very dark gray, fissile, slightly micromicaceous, slightly calcareous, -690 trace silty streaks
- -695 Shale as above

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- 695-700 Shale, very dark gray, fissile, trace silty streaks and ironstone, part slightly micromicaceous
  - -705 Shale as above
  - -710 Shale as above
  - -715 Shale as above
  - Shale, very dark gray, part slightly fissile, part blocky, trace ironstone, -720 slickensides and pyrite, slightly micromicaceous
  - -725 Shale as above
  - Shale, very dark gray, part fissile, few silty streaks, part slightly cal--730 careous, part slightly micromicaceous
  - -735 Shale, very dark gray, fissile, part very slightly calcareous, part slightly micromicaceous

  - -740.5 Shale, very dark gray, blocky few fine sandy streaks \* Orange Marker 742.25 (-235.25) -742 Chert pebble conglomerate, varicolored, buff, ironstone cement, argillite, light and dark gray chert pebbles, subround, slightly argillaceous, 12% intergranular porosity, light oil stain, good fluorescence and cut
    - -745 Shale, very dark gray, blocky slightly micromicaceous, fine sandy and silty streaks, trace pyrite
    - Shale, very dark gray, fissile, slightly micaceous, silty, very fine sandy -750 streaks, trace pyrite and ironstone
    - -755 Shale as above, no slickensides
    - -760 Shale, very dark gray, slightly micaceous and fissile, very silty streaks trace pyrite

20% Coal ; 20% Sandstone as above

- -535 Shale as above ; 30% Sandstone, light gray-buff, very fine grained, quartzose, slightly salt and pepper, very silty, argillaceous, trace mica and carbon flakes, angular, poorly sorted
- -540 Sandstone, light gray, very fine to fine grained, quartzose, slightly salt and pepper, very silty, argillaceous, trace mica, few carbon flakes, angular, poorly sorted ; 30% Shale, dark gray-brown, very silty and sandy, slightly micaceous
- -545 Sandstone, gray-brown, very fine grained, quartzose and slightly salt and pepper, very argillaceous and silty, slightly calcareous and siliceous, trace mica, angular, poorly sorted ; 40% Shale as above

  \* \*\* MidSandstone Member 549.5 (-42.5)
  \*\* -550 Sandstone, light gray-brown, very fine to fine grained, quartzose and salt
- -550 Sandstone, light gray-brown, very fine to fine grained, quartzose and salt and pepper, very silty, slightly siliceous and calcareous, argillaceous streaks, trace mica and carbon flakes, angular, poorly sorted ; 30% Shale dark gray, sandy, silty streaks, micaceous
- -555 Shale, dark gray, micromicaceous, slightly fissile, trace slickensides ; 30% Sandstone as above
- -560 Sandstone, light gray-buff, very fine to fine grained, slightly salt and pepper, slightly silty and calcareous, trace mica and kaolin, angular, medium sorting ; 40% Shale, dark gray, sandy, silty streaks, trace mica
- -565 Sandstone as above, part friable with streaks of 12% intergranular porosity ; 30% Shale as above
- -570 Sandstone as above, part friable with streaks of 10% intergranular porosity
- -575 Sandstone, light gray-buff, very fine grained, quartzose and slightly salt and pepper, silty, slightly calcareous, trace kaolin and mica, few carbon flakes, part slightly argillaceous, trace 10% intergranular porosity ; 20% Shale, dark gray, very sandy and silty streaks, few carbon flakes
- -580 Shale, dark gray, slightly fissile and micromicaceous ; 30% Sandstone, light gray, very fine grained, salt and pepper, very silty, friable, angular, poorly sorted
- -585 Shale as above ; 30% Sandstone as above
- -590 Sandstone, light gray, very fine to fine grained, quartzose and slightly salt and pepper, friable, clean, silty, part slightly calcareous, trace kaolin, angular, medium sorting, few streaks of 12% intergranular porosity ; 20% Shale, dark gray, slightly micaceous, few silty, sandy streaks
- -595 Sandstone as above ; 40% Shale, dark gray, micromicaceous, fissile
- 595-600 Sandstone, light gray, very fine to fine grained, salt and pepper, friable, clean, silty, trace kaolin, angular, medium sorting ; 30% Shale, dark gray, few silty streaks, slightly micaceous
  - -605 Shale, dark gray, few silty streaks, slightly micaceous ; 40% Sandstone as above, part becoming argillaceous
  - -610 Sandstone, light gray, very fine to fine grained, salt and pepper, friable, clean, silty, angular, medium sorting ; 30% Shale, dark gray, fissile
  - -615 Shale, dark gray, few sandy, silty streaks, part micaceous
  - -620 Sandstone, light gray, very fine grained, salt and pepper, part slightly calcareous, slightly argillaceous, trace mica, very silty grading to silt-stone, angular, poorly sorted ; 30% Shale as above
  - -625 Shale, dark gray, few very sandy and silty streaks, slightly micaceous and fissile ; 30% Sandstone as above

- -420 Shale, dark gray, fissile, few sandy streaks, slightly micaceous
- -425 Shale as above ; 30% Sandstone, light gray, very fine grained, salt and pepper, very argillaceous and silty, angular, poorly sorted
- -430 Shale as above, trace ironstone
- -435 Sandstone, light gray, slightly salt and pepper, very silty grading to siltstone, argillaceous, angular, poorly sorted ; 30% Shale, dark gray, few silty streaks, slightly micaceous
- -440 Shale, dark gray, few silty streaks, slightly micaceous ; 30% Sandstone as above
- -445 Shale, dark gray, very fine sandy and silty streaks, slightly micaceous 20% Sandstone, light gray, very fine to fine grained, salt and pepper, very silty, part calcareous and argillaceous, angular, poorly sorted
- -450 Shale as above, trace ironstone ; 20% Sandstone as above
- -455 Shale, dark gray, silty and very fine sandy streaks, slightly micaceous, trace ironstone ; 20% Sandstone, light gray, very fine grained, argillaceous, trace mica, part slightly calcareous, very silty grading to siltstone
- -460 Shale as above ; 20% Sandstone as above
- -465 Shale, dark gray, few very fine sandy and silty streaks, slightly micaceous trace carbon flakes ; 30% Sandstone, gray-brown, very fine to fine grained, salt and pepper, very silty and argillaceous, siliceous, angular, poorly sorted
- -470 Shale, dark gray, slightly fissile and micaceous, few silty streaks, trace carbon flakes and slickensides
- -475 Shale as above
- -480 Shale as above, trace coal
- -485 Shale, dark gray, few silty streaks, slightly micaceous, calcareous and fissile, trace slickensides
- -490 Shale, dark gray, few silty streaks, slightly micaceous and calcareous; 40% Sandstone, light gray, very fine to fine grained, quartzose and slightly salt and pepper, very silty, calcareous, angular, poorly sorted
- -495 Shale, dark gray, part micromicaceous, part slightly calcareous, trace slickensides
- 495-500 Shale as above, slightly fissile, few silty streaks, trace carbon flakes
  - -505 Shale, dark gray, few silty streaks, slightly fissile and micaceous, trace slickensides ; 20% Siltstone, light gray, quartzose, slightly calcareous
  - -510 Shale, dark gray, silty, poor sample
  - -515 Shale, dark gray, few silty streaks, fissile, part slightly calcareous, trace mica ; 20% Sandstone, light gray, very fine grained, quartzose and slightly salt and pepper, clean, slightly calcareous, very silty grading to siltstone, angular, poorly sorted
  - -520 Shale as above ; 20% Sandstone as above
  - -525 Shale, dark gray, very fine sandy and silty streaks, very micaceous streaks slightly calcareous, part fissile ; 20% Sandstone, light gray-brown, very fine to fine grained, slightly salt and pepper, very silty, slightly argillaceous, siliceous and calcareous, trace mica, angular, poorly sorted ; 20% Siltstone, light gray, sandy, siliceous, argillaceous
  - -530 Shale, dark gray, fissile, few carbon flakes, part slightly calcareous ;

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#### SAMPLE DESCRIPTIONS

(Porosities are estimated from samples)

(Formation Tops are taken from logs)

Note: Questionable samples from 295 to 460m

\*\* Upper Shale Member 295 (+212) \*\*

295-300m Shale, dark gray, trace carbon flakes and mica, very sandy streaks, very silty grading to siltstone ; 30% Sandstone, light gray, fine to medium grained, salt and pepper, friable, silty, 10% to 15% intergranular porosity, angular, medium sorting

- -305 Shale as above ; 20% sandstone as above
- -310 Sandstone, light gray, fine to medium grained, salt and pepper, few pink grains, slightly siliceous and friable, trace coal fragments and varicolored chert pebbles, trace pyrite, few argillaceous and silty streaks, streaks of 15% to 20% intergranular porosity, angular, poorly sorted

-315 Shale, dark gray, fissile, micromicaceous, few silty streaks

Shale as above, very silty and very micaceous streaks -320

- -325 Shale as above
- -330 Shale as above ; 30% Siltstone, gray, very sandy, argillaceous, slightly micaceous
- Shale as above : 30% Siltstone as above -335
- Shale, dark gray, few silty streaks, slightly micaceous, trace slickensides -340
- -345 Shale as above
- Shale, dark gray, few silty streaks, slightly micaceous -350
- -355 Shale as above
- -360 Shale as above ; 20% Sandstone, gray, very fine to fine grained, very sandy, argillaceous, slightly calcareous, angular, poorly sorted
- -365 Shale as above ; 10% Sandstone as above, very silty grading to siltstone
- -370 Shale as above, trace ironstone

Shale, dark gray, few silty streaks, slightly fissile, part micromicaceous -375

- -380 Shale as above
- -385 Shale as above
- Shale as above, trace pyrite and ironstone, very silty grading to -390 siltstone
- -395 Shale as above, trace ironstone

395-400 Shale as above

- Shale, dark gray, few silty streaks, slightly micaceous, trace ironstone -405 and pyrite ; 30% Sandstone, dark gray, very fine grained, salt and pepper friable, very argillaceous and silty, angular, poorly sorted
- -410 Shale, dark gray, few silty streaks, trace mica, ironstone and slickensides
- -415 Shale as above

# FORWARD ET AL WEST PARKIN YT D 54

# GEOLOGICAL FORMATIONS AND MARKERS

Formation or marker	Depth(Logs)	Subsea
CRETACEOUS		
Lower Cretaceous Upper Shale Member	29 <i>5</i> m	+212m
Lower Cretaceous Mid-Sandstone Member	549.5	-42.5
Lower Cretaceous Lower Shale Member	630	-123
Orange Marker	742.25	-235.25
Basal Silt	910	-403
CARBONIFEROUS		
Hart River	993	-486
DEVONIAN		
Unit One Shale/Silt	1650	-1143
Tuttle Sandstone	1750	-1243
Total Depth - Driller	1811	-1304

- -1250 Chert, buff gray, trace fractures with slight oil stain ; 20% Conglomerate as above ; 10% Marl, brown, calcareous, siliceous ; Very poor sample
- -1255 Chert as above ; 20% Shale, brown, very siliceous grading to chert
- -1260 Chert as above ; 20% Shale as above
- -1265 Chert, light gray, dark gray, very argillaceous, calcareous, trace pyrite, few fractures with oil stain, slight fluorescence ; 30% Shale, dark graybrown, trace pyrite, slightly calcareous, very siliceous grading to chert ; 20% Limestone, light brown, cryptocrystalline, very argillaceous streaks very siliceous grading to chert
- -1270 Limestone, light brown, cryptocrystalline, very argillaceous grading to marl, very siliceous grading to chert ; 40% Shale, dark gray-brown, very calcareous grading to marl ; 10% Chert as above
- -1275 Limestone, brown, cryptocrystalline, slightly siliceous, very argillaceous grading to marl, trace white calcite veining ; 30% Marl, brown, calcareous ; 20% Chert, dark brown, calcareous
- -1280 Limestone as above ; 30% Marl as above ; 30% Chert as above
- -1285 Limestone, brown, cryptocrystalline, few siliceous streaks, very argillaceous grading to marl; 30% Marl, brown, calcareous
- -1290 Marl, brown, calcareous ; 30% Limestone, brown, cryptocrystalline, few fractures with calcite crystals, very argillaceous grading to marl ; 20% Shale, black, very calcareous, slightly bituminous ; 20% Chert, brown, calcareous
- -1295 Shale, dark gray-brown, very calcareous ; 30% Limestone, brown, light brown, cryptocrystalline, part slightly siliceous, part very argillaceous grading to marl, trace coral fragment (?), trace calcite veining with calcite crystals and pyrobitumen ; 20% Chert, dark gray-brown, calcareous
- 1295-1300 Shale, dark gray-brown, very calcareous grading to marl ; 40% Limestone, brown, light brown, very argillaceous grading to marl
  - -1305 Limestone as above ; 40% Marl, brown, calcareous ; 10% Chert, dark brown, calcareous
  - -1310 Marl, brown, buff, calcareous, slightly siliceous ; 30% Shale as above, slightly siliceous ; 30% Conglomerate, varicolored chert, very pyritic and siliceous, argillaceous, calcareous
  - -1315 Marl, brown, calcareous ; 30% Limestone, brown, light brown, cryptocrystalline, very argillaceous, siliceous ; 20% Chert, brown, calcareous
  - -1320 Marl as above ; 30% Limestone as above ; 5% Chert as above
  - -1325 Marl, dark gray-brown, calcareous ; 10% Chert, dark brown, argillaceous, calcareous
  - -1330 Shale, dark gray-brown, very calcareous, trace fracture with pyrobitumen
  - -1335 Shale as above with trace fractures and pyrobitumen
  - -1340 Limestone, light brown, cryptocrystalline, very siliceous and argillaceous slightly sandy, trace white calcite veining ; 30% Shale, brown, very calcareous, siliceous ; 30% Chert, dark brown, calcareous, trace calcite veining
  - -1345 Marl, brown, calcareous, siliceous ; 30% Shale, brown, black, very calcareous, part bituminous ; 30% Limestone, brown, cryptocrystalline, very argillaceous, siliceous, few streaks fine to medium grained quartz sand
  - -1350 Limestone, buff, cryptocrystalline, argillaceous, slightly siliceous and sandy ; 30% Chert, light brown, calcareous

- -1355 Limestone, buff, cryptocrystalline, slightly argillaceous and siliceous, silty, few fine to medium pellet shadows ; 30% Chert as above, few fractures ; 20% Marl, brown, calcareous
- -1360 Chert, light brown-gray, calcareous, few fractures with pyrobitumen ; 30% Limestone, buff, cryptocrystalline, argillaceous, siliceous, trace pyrite ; 20% Shale, brown, very siliceous, calcareous
- -1365 Limestone, buff, cryptocrystalline, slightly argillaceous and siliceous, trace very fine quartz sand, few fine pellet shadows ; 30% Chert, light gray-buff, calcareous, trace white calcite veining
- -1370 Limestone, buff, brown, cryptocrystalline, very argillaceous, siliceous, very fine sandy streaks grading to sandstone ; 20% Chert, gray-brown, calcareous
- -1375 Limestone as above ; 20% Marl, brown, calcareous, very sandy grading to very fine sandstone ; 20% Chert, light gray-brown, calcareous
- -1380 Limestone, brown, cryptocrystalline, slightly siliceous, argillaceous and sandy, very fine sand, trace pyrite, few very argillaceous streaks grading to marl ; 20% Chert, brown, gray-brown, calcareous, argillaceous ; 20% Shale, gray-brown, calcareous, very siliceous grading to chert
- -1385 Chert, brown, dark brown, argillaceous, calcareous, trace pyrite and fracture with pyrobitumen ; 30% Limestone, light brown, cryptocrystalline, very siliceous, argillaceous, very sandy with very fine sand, trace pyrite and calcite veining ; 20% Shale, dark gray-brown, very siliceous grading to chert, calcareous, sandy
- -1390 Chert, brown, light brown, very calcareous streaks, few fractures and calcite veining; 30% Limestone, light brown, cryptocrystalline, very siliceous grading to chert, very argillaceous, very fine sandy streaks; 20% Shale, gray-brown, calcareous, very siliceous grading to chert
- -1395 Chert, brown, dark brown, very calcareous streaks, trace white calcite . veining ; 20% Limestone as above ; 20% Shale as above
- 1395-1400 Chert as above ; 20% Marl, light brown, calcareous, very siliceous, silty ; 10% Shale, dark gray-brown, calcareous, very siliceous, sandy
  - -1405 Chert, light brown-gray, calcareous, trace pyrite and calcite veining; 40% Limestone, light brown, cryptocrystalline, very argillaceous and siliceous, very fine sandy streaks; 20% Marl, brown, calcareous, siliceous, sandy
  - -1410 Chert as above, no pyrite ; 30% Limestone as above ; 30% Shale, brown, calcareous, very siliceous
  - -1415 Limestone, brown, cryptocrystalline, very argillaceous grading to marl, siliceous, very fine sandy streaks, few fractures with calcite crystals ; 40% Chert, light brown-gray, calcareous, trace calcite veining ; 20% Marl brown, calcareous, siliceous, sandy
  - -1420 Limestone as above ; 40% Chert as above, trace pyrite ; 20% Marl as above
  - -1425 Chert, light brown-gray, calcareous, few fractures with calcite crystals and trace pyrobitumen ; 30% Limestone, light brown, cryptocrystalline, few very argillaceous streaks, slightly siliceous and silty trace calcite veining 30% Marl, brown, calcareous, very siliceous
  - -1430 Chert, dark gray-brown, light brown-gray, calcareous, argillaceous streaks trace white calcite veining ; 40% Limestone as above ; 20% Shale, brown, very siliceous, silty, slightly calcareous, good oil stain, fluorescence and cut

- -1435 Chert as above ; 40% Limestone as above, very argillaceous grading to marl ; 20% Shale, gray-brown, calcareous, very siliceous
- -1440 Chert, brown, light brown-gray, calcareous, few fractures and calcite veining; 30% Limestone, light brown, cryptocrystalline, very argillaceous and siliceous, slightly sandy; 20% Marl, brown, calcareous, siliceous, slightly sandy; 20% Shale, black, bituminous, very calcareous
- -1445 Limestone, buff, cryptocrystalline, slightly sandy, very argillaceous grading to marl; 30% Chert, light gray-buff, calcareous, trace calcite veining; 20% Shale, dark gray-brown, very calcareous, slightly siliceous
- -1450 Chert, dark brown, light brown-gray, calcareous ; 30% Shale, very dark gray, black, fissile, calcareous, bituminous streaks ; 30% Marl, brown, calcareous
- -1455 Marl, brown, calcareous, trace fractures with calcite crystals and pyrobitumen ; 40% Shale, dark gray-brown, very calcareous, slightly fissile
- -1460 Marl, dark gray-brown, calcareous, sandy, trace slickensides
- -1465 Marl as above, slightly bituminous, trace pyrite, no slickensides
- -1470 Shale, dark gray-brown, very calcareous, very sandy streaks, part slightly fissile ; 30% Sandstone, gray, light gray, very fine grained, slightly salt and pepper, very calcareous and silty, argillaceous, angular, poorly sorted
- -1475 Shale as above, trace crinoid ; 30% Sandstone as above ; 20% Sandstone, light gray, fine to medium grained, salt and pepper with varicolored chert and clear quartz grains, very calcareous, slightly argillaceous and silty, angular, poorly sorted
- -1480 Marl, light brown, very calcareous and silty, siliceous, very sandy grading to 10% Sandstone, very fine, as above ; 30% Shale, dark gray-brown, part fissile, very calcareous, siliceous and sandy grading to chert ; 20% Sandstone, medium grained as above ; 10% Chert, brown, light brown, calcareous
- -1485 Shale, black, slightly calcareous, fissile, slightly bituminous, trace pyrite, very fine sandy streaks ; 20% Marl, brown, calcareous, very siliceous, sandy ; 20% Chert, brown, light brown, calcareous, argillaceous, sandy, trace white calcite veining
- -1490 Shale, very dark gray, black, slightly calcareous, bituminous and fissile, sandy ; Sandstone, light gray, gray, very fine grained, salt and pepper, very calcareous and silty, siliceous and argillaceous streaks, angular, poorly sorted ; 20% Chert, brown, calcareous, trace fractures with calcite crystals
- -1495 Shale, brown, slightly calcareous and siliceous, silty, trace white calcite veining, trace fractures with calcite crystals, good oil stain, fluorescence and cut; 30% Chert, light brown-gray, calcareous, trace calcite veining; 20% Sandstone, light gray, very fine to fine grained, salt and pepper, very calcareous, clean, silty, trace kaolin, angular, poorly sorted
- 1495-1500 Chert, light gray-brown, calcareous, few fractures with calcite crystals ; 40% Shale as above ; 10% Marl, brown, calcareous

-1505 Shale as above ; 20% Chert as above, few fractures with oil stain ; 20% Marl, brown, calcareous, very siliceous and silty ; 10% Sandstone, light gray, fine to medium grained, salt and pepper, varicolored chert and clear quartz grains, very calcareous, siliceous, clean, angular, poorly sorted

-1510 Shale, brown, slightly calcareous, silty, good oil stain, fluorescence and cut; 20% Chert, light gray-brown, calcareous, trace calcite veining

- -1515 Chert, light gray-brown, calcareous, argillaceous, few calcite veins ; 40% Shale as above ; 20% Marl, light brown, calcareous, siliceous, slightly sandy and silty
- -1520 Chert as above ; 20% Shale as above ; 20% Marl as above
- -1525 Chert, gray-brown, calcareous, argillaceous, few calcite veins ; 20% Shale as above ; 20% Marl as above
- -1530 Shale, very dark gray, black, slightly fissile, calcareous, sandy, silty, part slightly bituminous ; 20% Sandstone, light gray, very fine grained, salt and pepper, calcareous, very silty, trace kaolin, angular, poorly sorted ; 20% Marl, light brown, very calcareous grading to limestone. silty
- -1535 Shale, very dark gray, black, very calcareous, part slightly bituminous, very silty, slightly fissile
- -1540 Shale as above ; 40% Chert, light brown-gray, calcareous ; 10% Marl, brown, calcareous, sandy
- -1545 Sandstone, light gray, light brown, very fine to fine grained, salt and pepper, silty, calcareous, siliceous, slightly argillaceous, angular, poorly sorted, part very argillaceous with oil stain ; 30% Shale, as above ; 20% Chert as above ; 10% Marl as above
- -1550 Shale, very dark gray, very calcareous and sandy ; 20% Sandstone, light gray, very fine to fine grained, salt and pepper, very silty, argillaceous calcareous, angular, poorly sorted ; 20% Chert, light brown-gray, calcareous ; 10% Marl as above
- -1555 Shale as above ; 40% Sandstone, light gray, light brown-gray, very fine to fine grained, salt and pepper, very siliceous and silty, argillaceous, slightly calcareous, angular, poorly sorted, part with good oil stain, fluorescence and cut
- -1560 Shale, very dark gray-brown, very sandy and silty, siliceous streaks, calcareous, slightly fissile ; 50% Sandstone, dark gray, light gray, very fine to fine grained, salt and pepper, siliceous, calcareous, very silty, very argillaceous streaks, angular, poorly sorted
- -1565 Shale as above ; 30% Sandstone as above, very argillaceous ; 20% Shale, black, bituminous, slightly calcareous, fissile
- -1570 Shale, very dark gray, black, fissile, slightly bituminous, part slightly calcareous
- -1575 Shale, black, fissile, calcareous, bituminous
- -1580 Shale as above, slightly calcareous
- -1585 Shale, very dark gray-brown, black, slightly calcareous, trace slickensides ; 20% Marl, brown, calcareous
- -1590 Shale, dark gray, dark gray-brown, few to abundant crinoids, calcareous, slightly fissile ; 20% Marl as above ; 20% Limestone, gray-brown, medium to coarse crinoidal, very argillaceous
- -1595 Limestone, light brown, 60% medium to coarse pellet and crinoid fragmental very argillaceous, slightly sandy ; 20% Shale as above ; 20% Shale, black, very dark gray-brown, slightly calcareous, fissile, trace crinoids, few slightly bituminous streaks
- 1595-1600 Shale, black very dark gray-brown, calcareous, trace crinoids, few slightly bituminous streaks
  - -1605 Shale as above, very silty streaks, very calcareous grading to marl
  - -1610 Shale as above ; 40% Limestone, light brown, 60% fine to medium pellet

crinoid fragmental, very argillaceous, sandy

-1615 Shale, black, bituminous, fissile, slightly calcareous, trace slickensides

- -1620 Shale as above, slightly calcareous to noncalcareous
- -1625 Shale as above
- Shale as above, trace pyrite ; 30% Limestone, brown, cryptocrystalline to -1630 very fine crystalline, very argillaceous grading to marl, very siliceous and sandy, trace crinoids
- -1635 Shale, black, fissile, noncalcareous, trace pyrite and slickensides ; 20% Sandstone, brown, quartzose, fine grained, very siliceous grading to quartzite, calcareous, angular, poorly sorted ; 20% Marl, brown, calcareous, siliceous
- -1640 Shale as above, slightly pyritic
- -1645 Shale as above \* \*\* Unit One Shale 1650 (-1143) \*\* -1650 Shale, black, slightly bituminous, fissile, few silty streaks, trace pyrite, noncalcareous
- -1655 Shale as above, part very dark gray, fissile, noncalcareous
- -1660 Shale, very dark gray, dark gray, fissile, noncalcareous, trace pyrite and carbon flakes ; 30% Marl, brown, calcareous
- -1665 Shale as above, few silty streaks ; 20% Marl as above
- -1670 Shale, very dark gray, black, fissile, noncalcareous, slightly silty, trace carbon flakes and pyrite
- -1675 Shale as above ; 20% Sandstone, light gray, very fine to fine grained, salt and pepper, very siliceous, dolomitic, silty, trace pyrite, angular, poorly sorted
- -1680 Shale, dark gray, fissile, noncalcareous, trace pyrite and carbon flakes 20% Sandstone, light gray, very fine to fine grained, slightly salt and pepper, siliceous, dolomitic, very silty, argillaceous streaks, angular, poorly sorted
- -1685 Shale, dark gray, very dark gray, fissile, few silty streaks, trace pyrite and carbon flakes
- -1690 Shale as above
- -1695 Shale as above ; 20% Marl, brown, calcareous
- 1695-1700 Shale as above
  - -1705 Shale as above
  - -1710 Shale, dark gray, fissile, few silty streaks, trace carbon flakes and pyrite
  - -1715 Shale as above ; 20% Sandstone, gray, very fine to fine grained, quartzose, very argillaceous, silty and siliceous, slightly calcareous, angular, poorly sorted
  - -1720 Shale as above
  - Shale as above, trace ironstone ; 20% Sandstone, light brown, fine to medium -1725 grained, salt and pepper, very siliceous, dolomitic, clean, silty, slight oil stain, angular, poorly sorted
  - -1730 Shale, dark gray, fissile, splintery, trace carbon flakes and pyrite, few very fine sandy and silty streaks, trace ironstone
  - -1735 Shale as above, no ironstone
  - -1740 Shale as above, trace ironstone

-1745 Shale as above

- -1745 Shale as above \*\* Tuttle Sandstone 1750 (-1243) -1750 Shale, dark gray, fissile, splintery, trace ironstone and pyrite ; 30% Sandstone, light brown, fine to medium grained, salt and pepper, graybrown chert and clear quartz grains, quartzitic, slightly dolomitic and calcareous, silty, clean, trace pyrite, angular, poorly sorted, slight oil stain, fluorescence and cut
- -1755 Sandstone, light brown, fine to medium grained, salt and pepper, graybrown chert and clear quartz grains, quartzitic, clean, slightly dolomitic and calcareous, silty, trace pyrite, angular, poorly sorted, slight oil stain, fluorescence and cut ; 50% Shale as above, trace slickensides
- -1760 Shale as above, trace slickensides ; 20% Sandstone as above
- -1765 Shale, dark gray, fissile, splintery, trace pyrite and ironstone
- -1770 Shale as above ; 10% Sandstone, light brown, fine to medium grained, salt and pepper, very siliceous, calcareous, dolomitic, silty, clean, angular, poorly sorted, light oil stain
- -1775 Shale as above, trace slickensides ; 10% Sandstone as above
- -1780 Shale as above ; 10% Sandstone, light gray-brown, fine to medium grained, salt and pepper, quartzitic, slightly dolomitic and calcareous, angular, poorly sorted
- -1785 Shale, dark gray, splintery, fissile, trace pyrite and ironstone ; 10% Sandstone as above
- -1790 Shale as above abundant slickensides
- -1795 Shale, dark gray, fissile, splintery, trace pyrite, slickensides, few carbon flakes
- 1795-1800 Shale as above, trace ironstone
  - -1805 Shale as above
  - -1811 Shale, dark gray, fissile, trace pyrite and ironstone, few carbon flakes

## SECTION III ENGINEERING SUMMARY

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### DRILL STEM TESTS

The Mississippian (Hart River) formation and the Lower Cretaceous Orange Marker were selectively tested for hydrocarbon determination. Of the five (5) drill stem tests attempted, three (3) were misruns. This was due, in part, to a combination of poor packer seats and downhole tool problems. One successful test was run across both of the above noted formations.

	Winterhawk
	Parolem Cauding Series Bil. PAGE
A.	WELL DATA FIELD DRILL STEM TEST REPORT
	DATE 85-02-12
	Welly Exco et al West Parkin Y.T. D-54 Location
	DST No Interval <u>1062 m - 1064 m</u> Formation <u>Hart River</u>
	Last Casing: Size <u>244mm</u> Depth <u>460 m</u> Open Hole: Size <u>215.9mm</u> Depth <u>1811 m</u>
	Hole Troubles: <u>Deviation at bottom</u> Caliper at Packer(s) <u>240 m</u>
	Mud: Wt. <u>1186 kg/m<sup>3</sup> Vis. 70</u> W.L. 7.0 % Oil - ppm Cl 8
Β.	TEST STRING DATA
	Testing Company <u>Halliburton</u> Type of Test <u>Inflate</u>
	Type and Number of Packers <u>2 - Inflate Gates</u> Size <u>178mm</u>
	DP Size <u>114mm</u> Wt <u>24.7 kg/m</u> Length <u>862.94 m</u>
	DC Size <u>159/171mm</u> Wt <u>123/150 kg/m</u> I.D. <u>57/71mm</u> Length 184.03 m
	Tail Pipe Size <u>N/A</u> Wt <u>N/A</u> Length <u>N/A</u> Perfs <u>N/A</u>
	T.D. String Recorder Depth 1066/1068 M Water Cushion Inhibitor BH Choke 19.04mm
	Packer Depth(s) 1060/1065 m Weight on Packer(s) 30,000 daN
	Other Equipment <u>Temperature Gauge 1049 m. Two Bottom Hole Samplers</u>
C.	TEST RESULTS
	Times: PF <u>15</u> ISI <u>60</u> Flow <u>60</u> SI <u>120</u> Flow <u>-</u> FSI <u>-</u>
	Pressures: PF 916 kPa IH 11,936 kPa ISI 3195 kPa IF 1826 kPa
	темр⁰С FH12,086 kPaFSI4257 kPaFF3042 kPa
	Flow Descriptions:
	Preflow: Very slow start, building slowly, to strong and building at ISI (AIR)
	Valve Open Flow: <u>Slow starting, to very strong air, dying to 4" in bubble pail.</u>
	(No gas to surface).
	Recoveries: <u>Salt water gas cut H<sub>2</sub>S 6%, 305 m salt</u> .
	D. SAMPLE DETAILS:
	Sample caught top and middle tool.
	Sent to: Date Sent:
	E. REMARKS:
	Difficulty opening valve on flow - 1 1/4 hours.
	Very cold.
N	ote: Data reported on this form are field readings taken
	at the time of test, and are subject to correction.
	ENGINEER <u>Stu Cameron</u>

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L. Bruneau         PRALLBURING           V. 188         S. Cameron           Derivation         Fragman           Derivation         Grad asset           Deri	· ·								_						
L. Bruneau	T ERS						HAL	IBIIDT	M			44 899			
C., CAB         C. CAB         DimArton Term         1           Demarking         Gray Mountain         DimArton Term								ツ		DATE OF TEST	85-02-	12			
Data Steer         Data Steer         Data Steer         Data Steer         Data Steer           Convertex.com         Gray Mountain         PRESSURE SUMMARY LPA         Bit Steer	S. Lameron								ING		TEST No.	1			
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Image: Mode of the mode         rest mode <thres mode<="" th="">         rest mode         <thres mode<="" th=""></thres></thres>						PR	ESSURE S	UMMARY k	Pa					DES	CON
Image: Mode of the mode         rest mode <thres mode<="" th="">         rest mode         <thres mode<="" th=""></thres></thres>			1											CRIPT	IPANY
Normalization         12         153         12         165         12         224         780           Prest costs on         9         7.92         9         82.3         9         65.1         1         826.4         1         107         7.03           Prest costs on         9         7.92         9         82.3         9         65.1         1         826.4         1         1         107         7.03         1         107         7.03         1         107         7.03         10         0.23         1         100	(						ŧ				YES/NO	YES	/NO	02	
FL.J.         FMAL         1168         1 216         1 321         1 402           MARC CUSED M         9 733         9 823         9 953         10 023         1         <	· · · · · · · · · · · · · · · · · · ·		10		10										m
FL.J.         FMAL         1168         1 216         1 321         1 402           MARC CUSED M         9 733         9 823         9 953         10 023         1         <	БI Г				12				780					at. ong	XCO
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Image: Constance       12 234       12 230       12 464       12 454         Image: Constance       12 234       12 230       12 464       12 454         Image: Constance       12 234       12 230       12 464       12 454         Image: Constance       12 234       12 230       12 464       12 454         Image: Constance       12 234       12 230       12 464       12 454         Image: Constance       Image: Constance       Image: Constance       Image: Constance       Image: Constance         Image: Constance															TD
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TIME PERIODS         EQUIPMENT AND WELL DATA         # FRST       SECOND       THREP			12	231	12	230	12 /	64	12 454					W	
IMPERANCES         Imperance       Time         Imperance       Time       Time         Imperance       Time       Time         Imperance       Time       Time         Imperance       Time       Time       Time         Imperance       Time       Time       Time       Time         Imperance       Time       Time       Time       Time       Time			1 14 1	<u>-0+</u>	1 12	230	<u> </u>	<u> </u>				<u> </u>			
PHRST       SECOND       THRD       TIME         w       15       60       TOTAL LIQUID RECOVERY       10:25         c.cosed M       60       120       PACKER       16:10         w       Testee       Mer PACUETY       m       Werg Gel Chemical         u       Induid RECOVERY DATA       Mer PACUETY       m       Mer PACUETY       Mer PACUETY         u       Induid RECOVERY DATA       Descriptions of Liquid       Solutions       Solutions       Solutions       Solutions       Solutions       Total Ligona       Solutions       Solutions<				TIME PER	IODS			FORMATION		MENT A					
m       15       60       marker       10:25         cusses       16:10       marker       m       Musses       for ound       for ound <thon ound<="" th="">       for ound       <t< td=""><td></td><td>FIRST</td><td></td><td>THIRD</td><td>TESTER</td><td></td><td colspan="4">TIME TESTED OFFTH TU</td><td></td><td>78 -</td><td></td><td></td></t<></thon>		FIRST		THIRD	TESTER		TIME TESTED OFFTH TU					78 -			
CLOSED IN       60       120       INVERTIGATION OF LIQUID       ISCUENTION OF LIQUID       ISCUEN	ı w	15	60		VALVE										
Mernes       Deschiption of Dodd         305       Sour gas cut water.       Deschiption of Dodd       Backer Top Borton Rathous Receiver 1039.34 m Pret 114.3 24.7       Mmm Dodd       Mmm Dodd <t< td=""><td>CLOSED IN</td><td>60</td><td>120</td><td></td><td></td><td>16:</td><td>10</td><td></td><td>d</td><td>m</td><td></td><td>·</td><td></td><td>PR</td><td></td></t<>	CLOSED IN	60	120			16:	10		d	m		·		PR	
Mernes       Deschiption of Dodd         305       Sour gas cut water.       Deschiption of Dodd       Backer Top Borton Rathous Receiver 1039.34 m Pret 114.3 24.7       Mmm Dodd       Mmm Dodd <t< td=""><td></td><td><u>l</u>'</td><td></td><td>l</td><td></td><td></td><td></td><td></td><td><sup>u</sup> 502.5</td><td>m</td><td>DENSITY</td><td>190 Visc</td><td></td><td>RRITO</td><td></td></t<>		<u>l</u> '		l					<sup>u</sup> 502.5	m	DENSITY	190 Visc		RRITO	
Mernes       Deschiption of Dodd         305       Sour gas cut water.       Deschiption of Dodd       Backer Top Borton Rathous Receiver 1039.34 m Pret 114.3 24.7       Mmm Dodd       Mmm Dodd <t< td=""><td colspan="6"></td><td></td><td></td><td>S</td><td></td><td></td><td>216</td><td>mm</td><td>Abic Abic Abic</td><td>5</td></t<>									S			216	mm	Abic Abic Abic	5
ABATHER MALVE       1039.34 m       PHIL 114.3       24.7         ABATHER MALVE       1039.34 m       PHIL 114.3       24.7         ABATHER MALVE       1039.34 m       PHIL 114.3       24.7         ABATHER MALVE       N/A m       DILL COLLARS ID mm       LENGTH m         ABING PERFORATED       N/A m       DILL COLLARS ID mm       LENGTH m         ABING PERFORATED       N/A m       DILL COLLARS ID mm       LENGTH m         ABING PERFORATED       N/A m       DILL COLLARS ID mm       LENGTH m         ABING PERFORATED       N/A m       DILL COLLARS ID mm       LENGTH m         ABING PERFORATED       N/A m       DILL COLLARS ID mm       LENGTH m         ABING PERFORATED       N/A m       DILL COLLARS ID m       LENGTH m         ABING PERFORATED       N/A m       DILL COLLARS ID m       LENGTH m         ABING PERFORATED       N/A m       DILL COLLARS ID m       LENGTH m         ABING PERFORATED       N/A m       DILL COLLARS ID m       DILL COLLARS ID m         ABING PERFORATED       N/A m       MULT MD       DILL COLLARS ID m       DILL COLLARS ID m         ABING PERFORATED       N/A m       DILL COLLARS ID MILL I											210			ARE	
Image: state indicate din the job log.       Tester value       1039.34 m price       114.3       24.7         Image: state indicate din the job log.       Tester value       1039.34 m price       114.3       24.7         Image: state indicate din the job log.       Tester value       1039.34 m price       114.3       24.7         Image: state indicate din the job log.       Tester value       1039.34 m price       101.99.34 m price       114.3       24.7         Image: state indicate din the job log.       Total lique din the priod.       First Closed In period does not       1000	30	5 5	sour ga	as cut	water	•		DEPTHS	1060 10	65 m	SIZE	) en er		ИКО	P OR
SAMPLE DATA       SAMPLE DATA       SAMPLE SHIPPED TO LABORATORY       YES       NO         OIL GRAVITY	STER							DEPTH OF TESTER VAL	ve 1039.3	4 m		1.3	24.7	Z	5
SAMPLE DATA       SAMPLE DATA       SAMPLE SHIPPED TO LABORATORY       YES       NO         OIL GRAVITY	FROM TE							CASING PEI	rforated N/A	т	ABOVE TESTER				ST
SAMPLE DATA       SAMPLE DATA       SAMPLE SHIPPED TO LABORATORY       YES       NO         OIL GRAVITY	SURED			•				TOTAL DEPTH	1811	កា	SURFACE CHOKE	25.4	mm		PARH
OIL GRAVITY	305	5 тот	AL LIQUID RE	COVERY				AMOUNT A	ND Nil			19.05	, mini :		<in< td=""></in<>
OIL GRAVITY	·				,			1						NUMBE	
OIL BATTO				SAMPLE	DATA			SAMPLE S	HIPPED TO LABORATO	RY		YES	NO		
REFRACTOMETER/RELATIVE DENSITY       GAS SAMPLE BOTTLE No.       Image: Content conte						SAMPLER	No70	6,10	02	_ □		1			
Charts indicate that tool opened for Final Flow at 11:40 but did not close in at 14:10 as indicated in the job log. This resulted in an extended (270 minute) flow period with no Final Closed In period. First Closed In period does not													AND		
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at 14:10 as indicated in the job log. This resulted in an extended (270 minute)		Charts	s indi	cate t	hat to	ol opene	d for	Final F	low at 11:4	0 but	: did not	close i	n	106	RKIN
flow period with no Final Closed In period. First Closed In period does not	leaserst	at 14	:10 as	indic	ated i	n the jo	b log.	This	resulted in	an e	extended	(270 min	ute)		)-54
have sufficient closure for an accurate Horner Extrapolation.		flow p	period	with	no Fin	al Close	d In p	eriod.	First Clos	ed Ir	ı period (	ioes not	•	1065	) r
	kannen	have :	suffic	ient c	losure	for an	accura	te Horn	er Extrapol	atior	1.	-			MECT

TICKET NO. \_\_\_\_\_44 899

DATES AND TIMES (00:00-24:00 HRS.)	CHOKE SIZE (mm)	SURFACE PRESSURE (kPa)	GAS RATE (m³/day)	LIQUID RATE (m³/day)	REMARKS
85-02-11					
_20:15					Load 4 pressure recorders and 1 temperature
					recorder.
20:45					Thaw out test tools.
20:50					Rig finished pulling out of hole and then
·	1				ran in with casing plug to test casing,
					rams, hydryl, and manifold.
_23:00					Pull out of hole.
23:30					Pick up bottom section of test tools and
					make up.
			,		Pick up top section, load recorders,
					samplers, etc.
02:30					Strap and run in collars.
04:15					Slip and cut line.
06:15					Strap pipe and run in.
08:45	· · · ·			· · · · · · · · · · · · · · · · · · ·	Head up surface equipment.
10:00					Rotate tool at 45 RPM. String weight
					40 000 daN.
10:20					Pick up 4000 daN over string weight. O.K.
10:21					Put 7000 daN on tool.
10:23					Put total of 14 000 daN on tool.
10:25					Tool Opened: Very weak air blow increasing
					to strong in 12 minutes. To bottom of
					pail in 8 minutes. No gas to surface.
10:40		]			Tool closed.
11:40		•			Tried to open tool, would no open.
					Pull all weight on tool, did not open,
					no indication tool opening. Worked pipe
					up and down still wouldn't open.
_13:10_					Tool Open: Strong blow, slowly decreasing
					to approximately 4" in water bucket.
14:10					Shut In tool.
16:10					Tried to open tool in 6 minutes with
		¢			40 000 daN. Could not. Pull out of hole.
19:15					Got to fluid at 305 m above tool. Sour
					gas readings.
20:00					Safety meeting with new crew.

TICKET NO.

44 899

DATES AND TIMES (00:00-24:00 HRS.)	CHOKE SIZE (mm)	SURFACE PRESSURE (kPa)	GAS RATE (m²/day)	LIQUID RATE (m³/day)	REMARKS
20:45	,	· · · · · · · · · · · · · · · · · · ·			Pull out of hole slowly with masks.
22:00		:			Got to collars.
23:30		· · · · · · · · · · · · · · · · · · ·			Got to tools.
ļ					Break down tools and recover recorders.
			· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
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SPECIAL PRESSURE DATA

DATE: 85-02-12

L I RESSORE DATA

TICKET # 44899

		·			
¥	Gauge Number	:	1853.		兼
¥	Gauge Depth	:	1069.	m	茶
ж	Time of Flow	:	15.0	min.	¥
¥	Final Pressure	÷	1401.7	kPa.	ж

Initial Hydrostatic Pressure = 12320.0 kPa Final Hydrostatic Pressure = 12454.3 kPa

#### GAUGE 1, FLOW 1

	Time	Time	Pressure
D	eflection (in)	(minutes)	(kPa)
1.	0.0000	0.0	780.4
2.	0.0160	5.0	841.0
з.	0.0320	10.0	1144.1
4.	0.0481	15.0	1401.7

	Time	Time	T+dt	Pressure
· [	eflection	(minutes)	Log	(kPa)
	(in)		dt	
1.	0.0067	2.0	0.9313	37 <del>9</del> 7.6
2.	0.0134	4.0	0.6784	4637.1
з.	0.0203	6.0	0.5425	5191.7
4.	0.0268	8.0	0.4600	5553.9
5.	0.0338	10.0	0.3969	5963.0
6.	0.0403	12.0	0.3528	6296.4
7.	0.0504	15.0	0.3015	6735.9
8.	0.0674	20.0	0.2429	7424.8
9.	0.0840	25.0	0.2044	7969.5
10.	0.1009	30.0	0.1762	8484.4
11.	0.1177	35.0	0.1550	887 <b>9.9</b>
12.	0.1346	40.0	0.1384	9215.7
13.	0.1514	45.0	0.1250	9484.4
14.	0.1683	50.0	0.1140	9700.8
15.	0.1852	55.0	0.1047	9893.3
16.	0.2020	60.0	0.0969	10023.1

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#### GAUGE 1, CIP 1

SPECIAL PRESSURE DATA

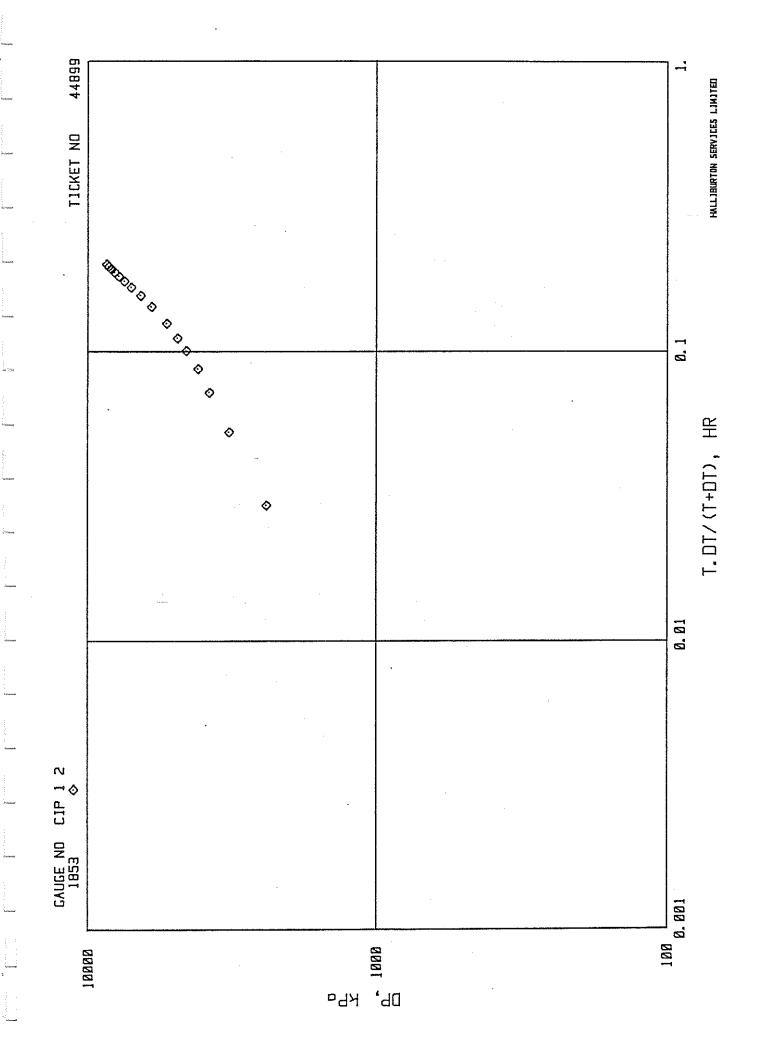
DATE: 85-02-12

TICKET 🗶 44899

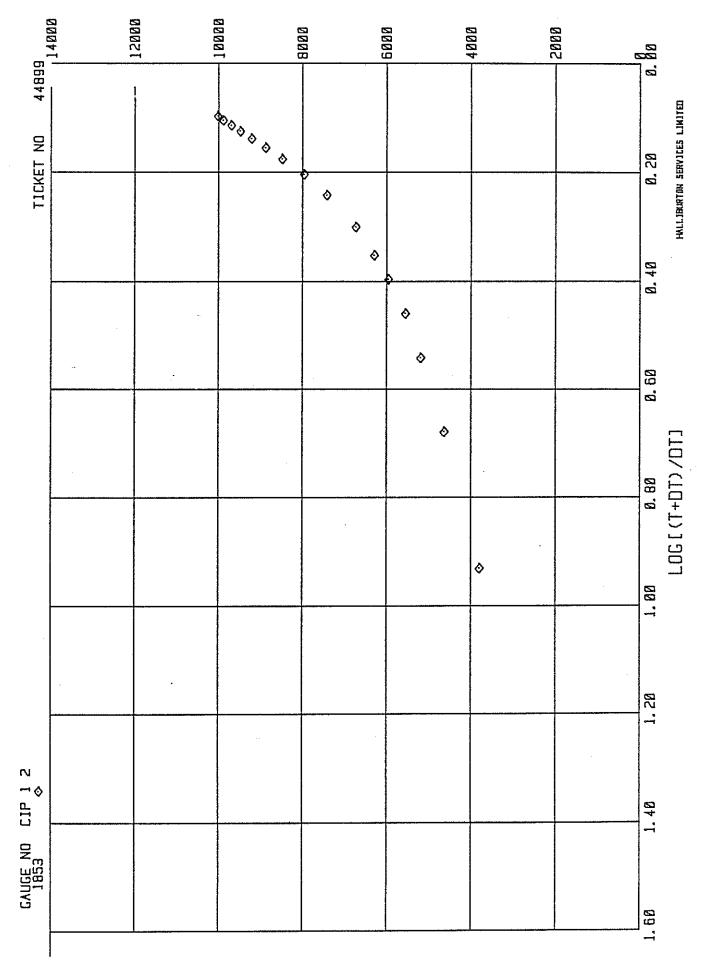
≭ Gauge Number	:	1853.		¥
¥ Gauge Depth	:	1069.	m	¥
¥ Time of Flow	:	270.0	min.	¥
≭ Final Pressure	:	4296.1	kPa.	ж

#### GAUGE 1, FLOW 2

	Time	Time	Pressure
	Deflection	(minutes)	(kPa)
	(in)		
1.	0.0000	0.0	1863.9
2.	0.0338	10.0	2220.0
3.	0.0673	20.0	2394.3
4.	0.1012	30.0	2538.3
5.	0.1347	40.0	2659.5
6.	0.1686	50.0	2786.8
7.	0.2023	60.0	2894.4
8.	0.2358	70.0	3000.5
9.	0.2696	80.0	3071.7
10.	0.3032	90.0	3180.8
11.	0.3369	100.0	3250.5
12.	0.3708	110.0	3332.3
13.	0.4043	120.0	3408.1
14.	0.4382	130.0	3477.8
15.	0.4718	140.0	3553.6
16.	0.5055	150.0	3621.8
17.	0.5392	160.0	3697.5
18.	0.5728	170.0	3767.2
19.	0.6067	180.0	3833.9
20.	0.6403	190.0	3887.0
21.	0.6742	200.0	3947.6
22.	0.7078	210.0	4000.6
23.	0.7415	220.0	4053.7
24.	0.7752	230.0	4109.7
25.	0.8088	240.0	4159.7
26.	0.8425	250.0	4212.8
27.	0.8763	260.0	4273.4
28.	0.9100	270.0	4296.1



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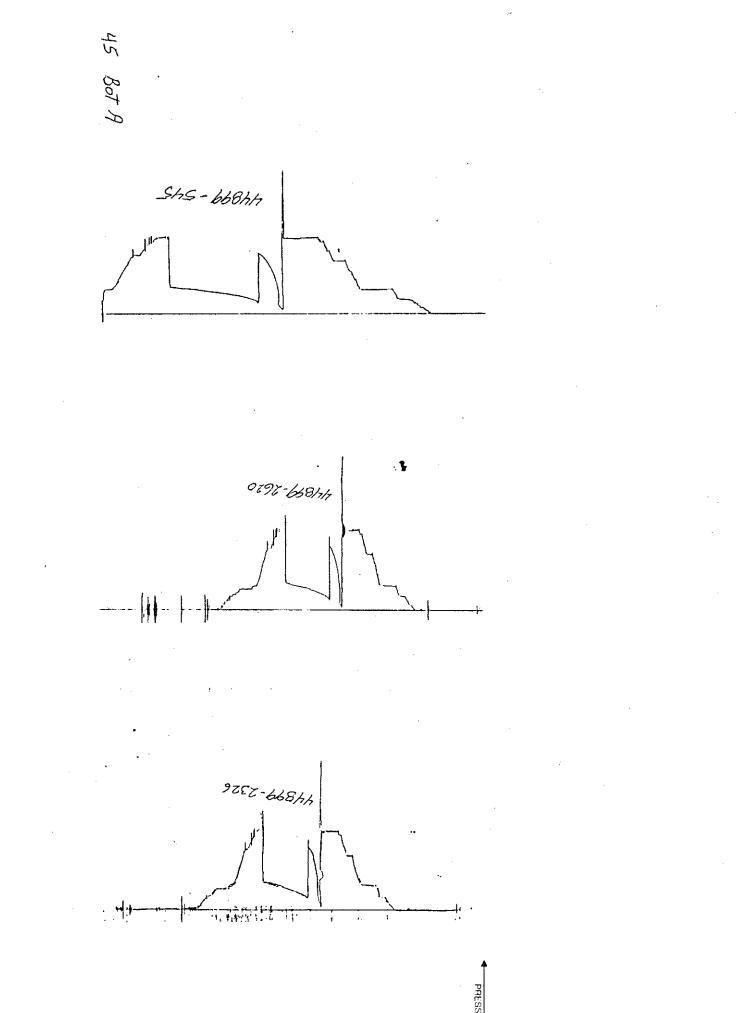
#### MALLIBURTON SERVICES LIMITED

TICKET NO.

44899

<u></u>	ا 				-1 NU. 448	399
			0.D.(mm)	I.D.(mm)	LENGTH(m)	DEPTH(m)
з		DRILL COLLARS	159.0	71.0	165.80	
50		IMPACT REVERSING SUB	155.5	76.2	0.31	
3		DRILL COLLARS	159.0	71.0	18.23	
5		CROSSOVER	155.5	76.2	0.31	
60	1	HYDROSPRING TESTER	127.0	19.1	3.78	1039.34
14		EXTENSION JOINT	127.0	25.4	2.16	
80		AP RUNNING CASE	127.0	57.2	1.25	1045.28
80		AP RUNNING CASE	127.0	57.2	1.25	1046.53
82	Π	TEMPERATURE RUNNING CASE	127.0	57.2	1.25	
15	Π	JAR	127.0	44.5	1.52	
16	<b>I</b>	VR SAFETY JOINT	127.0	25.4	1.06	
26		PUMP ASSEMBLY	127.0	22.3	2.15	
27		SCREEN ÁSSEMBLY	127.0	25.4	1.34	
11		HYDROFLATE PRESSURE LIMITER	127.0	25.4	1.52	
13		HYDROFLATE SAFETY JOINT	127.0	25.4	1.62	
74		TOP HYDROFLATE PACKER	177.8	26.9	2.55	1060.00
28	·	PORT ASSEMBLY	127.0		1.03	
22		BLANK ANCHOR	127.0	57.2	2.57	
75		LOWER HYDROFLATE PACKER	177.8	50.8	2.37	1065.00
97	$\prod$	BELLY SP W/ BLANKED OFF RECORDER		57.2	1.55	1066.76
5		CROSSOVER	127.0	57.2	0.31	
81		BLANKED-OFF RUNNING CASE	127.0	57.2	1.25	1068.62
23		BLANK SUB	127.0		0.31	
					•	

EQUIPMENT DATA



PRESSURI

## CHEMEX LABS (ALBERTA) LTD.

LGARY, ALBERTA

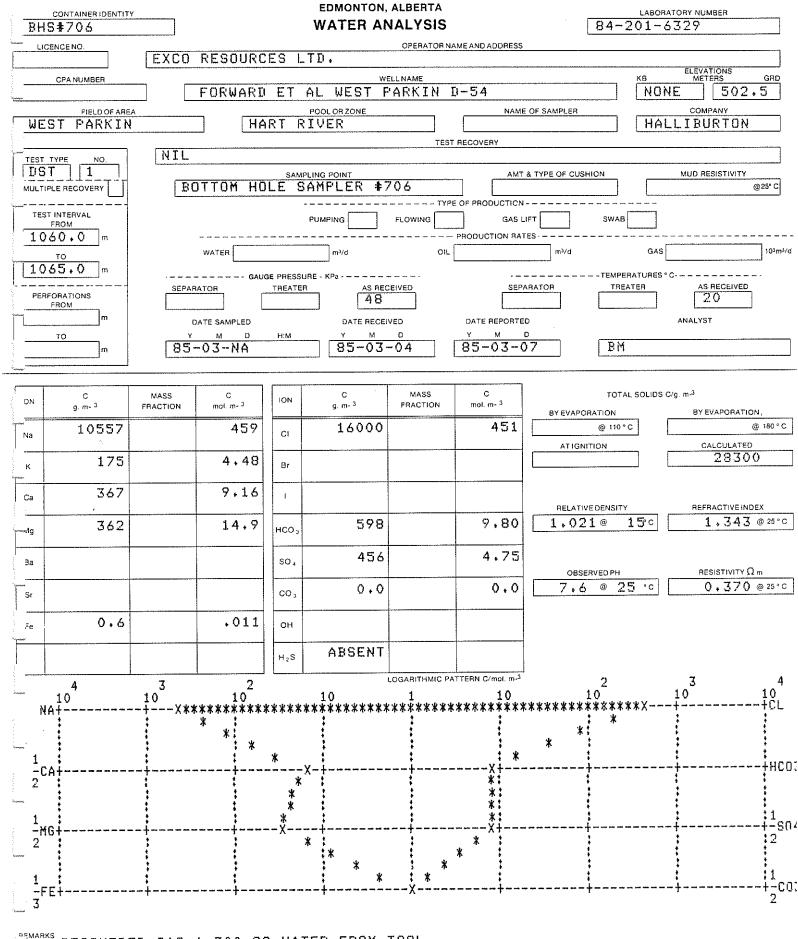
GRANDE PRAIRIE, ALBERTA

·					EDMONTON, ALBERTA
E					
	LICENCE	NO.	EXCO F	ESOURCES	S LTD.
_	СРА	NUMBER			WELLNAME KB METERS GRE
				UKWAKU E	
CONTAINER IDENTITY         BHS # 706       CABOHATORY NUMBER         BHS # 706       CABOHATORY NUMBER         LICENCE NO.       OPERATOR NAME AND ADDRESS         LICENCE NO.       EXCO RESOURCES LTD.         CPA NUMBER       WELLNAME       KB       ELEVATIONS METTERS       GRI         CPA NUMBER       FORWARD ET AL WEST PARKIN II-54       NONE       SO2.5         FIELDOF AREA       POOL OR ZONE       NAME OF SAMPLER       COMPANY         HART RIVER       TEST RECOVERY         MET       MUD RESISTIVITY					
	ST TYPE	NO	NTI		TEST RECOVERY
UN.	ILTIPLE AE		BOT	TOM HOLE	
Chrones					
1	060	• <b>O</b> m			
		.0 m	۱. ۱		
			SEPARAT		REATER AS RECEIVED SEPARATOR TREATER AS RECEIVED
	то		TAD Y		
-		m	85-0	03-NA	85-03-04 85-03-04 ES
3mmaryar		MOL	MOL		GROSS HEATING VALUE
	COMP.	AIR FREE AS REC'D	AIR FREE	AIR FREE	MJ. m- <sup>3</sup> @ 15 ° C AND 101.325 KPa
Vooraan	н,	0.0019	0.0020		VAPOOR PRESS
	<u> </u>				
ليرمون ال		0,0000	0.0000		
	N <sub>2</sub>	0.2543	0,2682		HELA I IVE DENGLI T
	co,	0 0517	0 0000		
(Anna anna anna anna anna anna anna anna		0+0311	0.000		
	H₂S	0.0000	0.0000		
Verlawood	с,	0.2269	0.2393		
:	<u> </u>				2 <sup>Tq</sup> 2 <sup>Tq</sup> 2 <sup>Tq</sup>
		0.216/	0+2285		4329,1 239.5 4162.3 207.0
	. C 3	0.1297	0.1368	474.46	REMARKS
	iC .	0.0196	0.0207	85,19	RECOVERED GAS + 300 CC WATER FROM TOOL
Number					
		0+0486	0.0512	203.60	GAS SAMPLE WAS BADLY AIR CONTAMINATED
4 Anonese	iC 5	0.0165	0.0174	80.25	
	nC 5	0 0050	0 0042	28.41	
loganne		V+VVJ/	010002	ain 60 + 17.11.	
	С <sub>6</sub>	0,0149	0,0157	80.12	
	C,	0.0133	0.0140	79.89	
Young	с,				
- 					-
(armstein	C ,				
10 - 10 10	C 10				
house	TOTAL				
	1	11.0000	11.0000	031.92	A DETERMINATIONS TO C7+ ONLY

## CHEMEX LABS (ALBERTA) LTD.

**ALGARY, ALBERTA** 

GRANDE PRAIRIE, ALBERTA



RECOVERED GAS + 300 CC WATER FROM TOOL IRON DONE ON FILTERED SAMPLE

		Winterhawk Provision Consulting Server Bil PAGE
Α.	WELL DATA	FIELD DRILL STEM TEST REPORT
		DATE <u>85-02-13</u>
		1] West Parkin Y.T. D-54 Location
		Interval 700 m - 750 m Formation Orange Marker
	Last Casing: Size	244mmDepth460 m Open Hole: Size215.9mmDepth1811 m
		eviation at bottom Caliper at Packer(s) 254/235mm
	Mud: Wt. <u>1186</u>	<u>xg/m<sup>3</sup> Vis0 W.L7.0% Oil</u> ppm Cl8
В.	TEST STRING D	ΑΤΑ
	Testing Company	Halliburton Type of Test Inflate
	Type and Number o	f Packers <u>2 Inflate Gates</u> Size <u>178mm</u>
	, -	nm Wt 24.7 kg/m Length N/A
		71mm
		Wt727/728 Length Perfs
	T.D. String	
		700 m - 750 m Weight on Packer(s) No Seat
	· ·	
C.		Temperature Gauge, Bottom Hole Samplers Misrun - Screen and pump full of sand
	Times: PF	ISI Flow SI Flow FSI
		IHIS1IF
	TEMP	<sup>℃</sup> FHFSIFF
	Flow Descriptions:	
	Preflow:	
	Value Open Elevíu	
	valve Open Flow:	
,	Recoveries:	
		TA 11 0
	D. SAMPLE DE	TAILS:
	Sent to:	Via: Date Sent:
	E. REMARKS:	
		Tool would not open, move down 5m, No seat.
		POOH. Change interval and pump.
		an this farm out field readings token
Ν	ote: Data reported	on this form are field readings taken test, and are subject to correction.

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TERS						HAI		SURTON)		INVO	R TO ICE NO.	44 9	00			
* Anna gu e	L.	Brunea	u			C				DATE	OF TEST	; 85-0	2-13			
NESS	s.	Camero	n					TION TESTING			No.	2	2			
		y Moun				0	DATA	SHEET		aot H	vdrot	flate St		le		
				<b>_</b>												- <u>-</u>
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		<u> </u>	326	· · · · · · · · · · · · · · · · · · ·	2620			MARY kPa	5/5				···· · · ·		DESCRIPTION	
GAUGE NUMB			<u>320</u> 685.28		686.53	L	853 751	.76	545 753.62						IPTIO	
IGE DEPTH			<del>'29/</del> NO		<del>YES/</del> NO	l	YES/+	<del>10-</del>	YES/NO-	Y	ES/NO		YES/NO		z	
HOUR CLOCK		-	48	_	48		24	·	24							
	INITIAI	-								· · · · ·					Long	
Kess₩	FINA	L			······											
FIRST CLOSED															637-369163Nw	
WND -	FINAL														12	
SECOND CLOS	<del></del>														10	1
10 –	FINAL	-													6.3	
ANNAD CLOSE		<u> </u>													X	
INAL HYDRO	STATIC															
			TIME PER	000					EQUIPME		VELL D	ATA				
6.regeni	FIRST	SECOND			TIME		- F	ORMATION			IP. REC. N		.70 .78			
	FIRST	320010		TESTER	(1915		-   '	ested Orar	ige Marker	DEP MAJ	TH K. TEMP.	007	./0	л °С		
WC				VALVE OPENED			<u> </u>	ET PRODUCTIVE		m TYP	2	Gel Chem	ui cal			
CLOSED IN				PACKER UNSEATED					1818 III					/1	TE P	1
د <u>ــــــــــــــــــــــــــــــــــــ</u>	1	L	ł	<u> </u>	<b></b>			Ground LEVATION	502.5	m DEN	SITY	<sup>kg/m</sup> 1190visi	5 7		ARITO	
		LIQUI	D RECOVE					LL DEPTHS	□ K X GRC		ING OR	216		mm	PROVINCE OR TERRITORY	
METRES	5		DESCR	IPTION OF L	QUID		┥┢	TOP		,		210				AUCA
	ŕ						P, D	ACKER 700	750	m SIZI	HOLE			mm	YUK	2
P N				-#	م		P	EPTH OF ESTER VALVE	670 94	DRI m PIPI		OD mm C A D		/m   7	NO	
1	YO7	1-1 0 1-1 0			3		┥┢─	ASING PERFORAT	<u>679.34</u>		LL COLLA	4.3 RS IDmm	24. LEN	/ GTH m	ŀ	
έ Έπη							- EN	ASING PERFORM	N/A		VE TEST VE	<sup>ER</sup> 71	137.	27	.	
			····	، ، <del>م</del> ند 				OTAL SEPTH	1811	m SUF	FACE KE	25.4		កោភាៈ		
Y Ni	דסד [	AL LIQUID RE	ECOVERY				A P	MOUNT AND YPE CUSHION	Nil	801 CHC	ТОМ ІКЕ	19.0	5	mm		
	E							······································		I				I	NU	1
<u> </u>			SAMPLE	DATA			1						<u></u>	]	TEST NUMBER	
<u></u>								SAMPLE SHIPPED	TO LABORATORY			YES		NO		
OIL GRAVITY						°C		SAMPLER No.				0		X		
			ETER/RELA					GAS SAMPLE BOT	TLE No			0		28		MIND INDIVIDUAL
RECOVERY WA	ATER			0		°C			NF /						Z.	
1					<b>A</b>			LABORATORY		,,		<u> </u>			TESTED INTERVAL	
EMARKS							. [									
2															700	
	Misru	in. 5	Screen	and p	mp full	of sa	and.	•								
"Sourcester"															75	
4															0	ļ
2.1.2																-

Neesat

TICKET NO. \_\_\_\_\_\_\_ 44 900

URFACE RESSURE (kPa)	GAS RATE (m³/day)	LIQUID RATE (m²/day)	REMARKS
1			Breakdown test tools to recover recorder,
1			samplers, etc.
			Strap collars for interval.
-			Make up and load recorders.
		-	Make up top tool section.
			Run in collars.
			Strap and run in pipe.
			Head up.
			Rotate tool.
			Tried to pull overstring weight, nothing.
			Set slips 1/2 m higher and rotate.
			Same thing, picked up 1 m and rotated.
			Could not get seat. Dropped down 2 1/2 m
			and rotated. No seat.
i			Came out of hole.
			Got to tools.
:	1		Change interval for DST #3.
:			· · · · · · · · · · · · · · · · · · ·
<u> </u>			· · · · · · · · · · · · · · · · · · ·
	1	1	
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•			
	1		
			· · · · · · · · · · · · · · · · · · ·
1			
i			
		1	
	RESSURE	RESSURE RATE	RESSURE RATE (m³/day)

·

Automar .

Normal State

Second Second

water

### PRODUCTION TEST DATA

#### HALLIBURTON SERVICES LIMITED

TICKET ND. 44 900

3       DRILL COLLARS	
50       I IMPACT REVERSING SUB	DEPTH(m)
3       DRILL COLLARS	
5       CROSSOVER	
60       I       HYDROSPRING TESTER.       127.0       19.1       3.78         14       EXTENSION JOINT.       127.0       25.4       2.16         80       AP RUNNING CASE.       127.0       57.2       1.25         80       AP RUNNING CASE.       127.0       57.2       1.25         80       AP RUNNING CASE.       127.0       57.2       1.25         81       AP RUNNING CASE.       127.0       57.2       1.25         82       I       TEMPERATURE RUNNING CASE.       127.0       57.2       1.25         82       JAR.       127.0       57.2       1.25         15       JAR.       127.0       57.2       1.25         16       VR SAFETY JOINT.       127.0       25.4       1.06         26       PUMP ASSEMBLY.       127.0       25.4       1.34         11       HYDROFLATE PRESSURE LIMITER.       127.0       25.4       1.52         13       HYDROFLATE PRESSURE LIMITER.       127.0       25.4       1.62         74       TOP HYDROFLATE PACKER.       177.8       26.9       2.55         28       PORT ASSEMBLY.       127.0       1.03         22       BLANK ANCHOR.	
14       EXTENSION JOINT	
80       AP RUNNING CASE.       127.0       57.2       1.25         80       AP RUNNING CASE.       127.0       57.2       1.25         82       TEMPERATURE RUNNING CASE.       127.0       57.2       1.25         15       JAR.       127.0       57.2       1.25         16       VR SAFETY JOINT.       127.0       57.2       1.25         16       VR SAFETY JOINT.       127.0       25.4       1.06         26       PUMP ASSEMBLY.       127.0       25.4       1.34         11       PUMP ASSEMBLY.       127.0       25.4       1.34         11       HYDROFLATE PRESSURE LIMITER.       127.0       25.4       1.52         13       HYDROFLATE PRESSURE LIMITER.       127.0       25.4       1.62         74       PORT ASSEMBLY.       127.0       25.4       1.62         74       PORT ASSEMBLY.       127.0       25.4       1.62         74       PORT ASSEMBLY.       127.0       1.03       1.03         22       PORT ASSEMBLY.       127.0       57.2       47.57         75       LOWER HYDROFLATE PACKER.       177.8       50.8       2.37         97       BELLY SP W/ BLANKED OFF RECOR	679.34
80       AP RUNNING CASE.       127.0       57.2       1.25         82       Image: Temperature Running Case.       127.0       57.2       1.25         15       JAR.       127.0       127.0       125         16       VR SAFETY JOINT.       127.0       25.4       1.06         26       PUMP ASSEMBLY.       127.0       25.4       1.06         27       SCREEN ASSEMBLY.       127.0       25.4       1.34         11       HYDROFLATE PRESSURE LIMITER.       127.0       25.4       1.52         13       HYDROFLATE PRESSURE LIMITER.       127.0       25.4       1.52         14       HYDROFLATE PRESSURE LIMITER.       127.0       25.4       1.62         13       HYDROFLATE PACKER.       177.8       26.9       2.55         28       PORT ASSEMBLY.       127.0       1.03         22       BLANK ANCHOR.       127.0       57.2       47.57         75       LOWER HYDROFLATE PACKER.       177.8       50.8       2.37         97       BELLY SP M/ BLANKED OFF RECORDER       57.2       1.55       55         14       Sport Assenvert.       127.0       57.2       0.31	
82       I       TEMPERATURE RUNNING CASE.       127.0       57.2       1.25         15       JAR	685.28
15       JAR       127.0       44.5       1.52         16       VR SAFETY JOINT       127.0       25.4       1.06         26       PUMP ASSEMBLY       127.0       22.3       2.15         27       SCREEN ASSEMBLY       127.0       25.4       1.34         11       HYDROFLATE PRESSURE LIMITER	686.53
16       VR SAFETY JOINT	
26       Image: Pump Assembly	
27       Image: Screen assembly       127.0       25.4       1.34         11       HYDROFLATE PRESSURE LIMITER	
11       HYDROFLATE PRESSURE LIMITER	
13       HYDROFLATE SAFETY JOINT	
74       TOP HYDROFLATE PACKER	
28       Image: Port Assembly	
22       BLANK ANCHOR	700.00
75       LOWER HYDROFLATE PACKER	
97 BELLY SP W/ BLANKED OFF RECORDER 57.2 1.55 5 CROSSOVER 127.0 57.2 0.31	
5 CROSSOVER 127.0 57.2 0.31	750.00
	751.76
81 BLANKED-OFF RUNNING CASE 127.0 57.2 1.25	753.62
23 BLANK SUB 127.0 0.31	

### EQUIPMENT DATA

	Winterhawk
	PAGE
A.	
	DATE 85-02-12
	ell <u>Exco et al West Parkin Y.T. D-54</u>
DS	ST No ST No Formation L.C. Orange Marker
La	st Casing: Size <u>244mm</u> Depth <u>460 m</u> Open Hole: Size <u>215.9mm</u> Depth <u>1811 m</u>
	ble Troubles: <u>Deviation at bottom</u> Caliper at Packer(s) <u>254-235mm</u>
Mı	ud: Wt. <u>1186 kg/m<sup>3</sup> Vis 70 W.L. 7.0</u> % Oil <u>-</u> ppm Cl <u>8</u>
в.	TEST STRING DATA
Τe	esting Company <u>Halliburton</u> Type of Test <u>Inflate</u>
T	ype and Number of Packers <u>2 Inflate Gates</u> Size <u>178mm</u>
Df	PSize <u>114mm</u> Wt <u>24.7 kg/m</u> Length <u>546.46 m</u>
D	C Size <u>159/171mm</u> Wt <u>150 kg/m</u> I.D. <u>71mm</u> Length <u>184.03 m</u>
	ail Pipe Size N/A Wt N/A Length N/A Perfs N/A m
	Refer to enclosed D. String reports Recorder Depth Water Cushion <u>Inhibitor</u> BH Choke <u>19.04mm</u>
	cker Depth(s) 742 m - 747 m Weight on Packer(s) 10,000 daN
	ther Equipment <u>Temperature Gauge, Bottom Hole Samplers</u>
	TEST RESULTS
	mes: PF_15_ISI_60_Flow_72_SI_120_FlowFSI
	essures: _PF640IH8483ISI8227IF264
'	TEMP°C_FH8535FSI8227FF829
	ow Descriptions:
Pr	eflow: Very strong gas blow, air on rig down.
Va	alve Open Flow: <u>Strong gas blow, building to 600 kPa in one hour</u>
	1005m <sup>3</sup> /d 3.2mm orifice.
Re	ecoveries:
	, 
D.	SAMPLE DETAILS:
	Sent to: Date Sent:
E.	REMARKS:
Ε.	REMARKS: On P.F. Rig air down testing, head not open immediately,
Ε.	REMARKS: On P.F. Rig air down testing, head not open immediately, approximately 6 mins. after tool opened.
	REMARKS: On P.F. Rig air down testing, head not open immediately, approximately 6 mins. after tool opened. Very cold
	REMARKS: On P.F. Rig air down testing, head not open immediately, approximately 6 mins. after tool opened.

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L. Bruneau       FALLIBURCON       ENTROPHEN       ENTROPHEN <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>~</th> <th></th> <th></th> <th></th> <th></th> <th></th>									~					
L. Bruneau						har	REFER TO	60 85	51					
Cless         S. Cameron         Jameson           maxma         Grey Mountain         Jameson         Jameson <td< td=""><td>•</td><td>L.B</td><td>runeau</td><td></td><td></td><td></td><td>(mail</td><td colspan="2"></td><td>DATE OF TEST</td><td>85-02</td><td>2-14</td><td></td><td></td></td<>	•	L.B	runeau				(mail			DATE OF TEST	85-02	2-14		
Description         PRESSURE SUMMARY Rev           Sunda Understand         2326         2520         1853         545           Sunda Understand         727.28         728.53         748.76         730.62         1853           Sunda Understand         8405         545         748.76         730.62         1853         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         190.72         1100.72         190.72         190.72         1100.72         1100.72         100.72         1100.72         100.72         1100.72         1100.72         100.72         100.72         1100.72         100.72         1100.72         100.72<	S. Calleron 1					ING								
Licentim         7/27.28         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         <	OPHILING				IA SHEET		JOB TYPE Hydro	flate Str	raddle					
Licentim         7/27.28         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         <			····· · ·	· .		PR	ESSURE SU	JMMARY k	Pa					CON
Licentim         7/27.28         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         7/40.70         <	GAUGE NUMBE	ER	23	26	2	620	1	853	545			• • • • •	CRIP	
Lake off         YERNO	G GE DEPTH	1	7	27.28		728.53	:	748.76	750.62				TION	~
B         ALTONOSTATIC         2005         8483         8659         834         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th0< th=""></th0<>	B KED OFF		۲	ES7 NO		7837 NO	YE	S/ <del>NG.</del>		YES/NO	YE	S/NO		
Convert         PARAL         310         315         CLOCK         CLOCK           PRETCAGED NO         82255         8227         RAN	HOUR CLOCK	TRAVEL		48			L							<sub>51</sub>
Convert         PARAL         310         315         CLOCK         CLOCK           PRETCAGED NO         82255         8227         RAN				the second s	8		88	699	8834				on	
Import Geode Div         8255         8227         RAN         RAN         RAN           W         MITAL         258         264         OUT         OUT         OUT         Import			1					,					D	
Image: Sarry Second closes on M       8247       8227       Second closes on M       8247       8227         Image: Schwarz Strate       Sarry Second Closes on M       8562       8535       Second Closes on M       Second Close on M								<u> </u>						
Image: Sarry Second closes on M       8247       8227       Second closes on M       8247       8227         Image: Schwarz Strate       Sarry Second Closes on M       8562       8535       Second Closes on M       Second Close on M			1		8									
Image: Base of the second custors of the second c	S OND					· · · ·	001							6
Instructure     D/2/1     D/2/1     D/2/1     D/2/1       Image: Constructure     B/2/2     B/2/2     D/2/2     D/2/2       Image: Constructure     B/2/2     B/2/2     B/2/2     D/2/2       Image: Constructure     B/2/2     B/2/2     B/2/2     D/2/2       Image: Constructure     B/2/2     B/2/2     D/2/2     D/2/2       Image: Constructure     B/2/2     B/2/2     D/2/2     D/2/2       Image: Constructure     D/2/2     D/2/2     D/2/2     D/2/2       Image: Constructure     D/2/2     D	Solarage"							·	·-				Nω	
FRANC       FRANC <td< td=""><td></td><td></td><td>82</td><td>/4/</td><td><u> </u></td><td>3227</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>  =</td></td<>			82	/4/	<u> </u>	3227								=
Instruction     Instruction     Instruction     Instruction       Instruction     Instruction     Instruction <td< td=""><td>то ғ v —</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>0.7</td><td>  •</td></td<>	то ғ v —												0.7	•
Image: Sample Data     Sample Data       Sample Data     Sample Data       Sample Data     Sample Solution       Sample Solution     Nill       Sample Solution     Nill													4V N	
TIME PERIODS														

TICKET NO. \_\_\_\_\_60 851

DATES AND TIMES (00:00-24:00 HRS.)	CHOKE SIZE (mm)	SURFACE PRESSURE (kPa)	GAS RATE (m³/day)	LIQUID RATE (m³/day)	REMARKS
19:30					Recover and reassemble tool string for
					DST #3.
					Run in hole with test.
12:10					Head up equipment.
01:30					Rotate pipe.
02:00					Picked up 2000 over pull.
02:21					Open tool. Rig was out of air until
					6 minutes later to have gas to surface.
					Very strong blow.
02:36					Shut in tool.
03:36					Thaw flare valve.
03:48					Valve Open.
03:50	1/8"	150	360		
****	1/8"	275	535		
04:00	1/8"	375	685		
	1/8"	480	830		
	1/8"	525	900		
	1/8"	540	920		
	1/8"	585	980		
04:25		595	1000		
04:30		600	1005		
04:35		600	1005		
04:40		600	1005		
04:45		600	1005		
04:48					Shut in tool.
06:48					Pulled free.
10:45					Out of hole.
				- 41100 A	
		1			
				<u> </u>	

#### SPECIAL PRESSURE DATA

DATE: 85-02-14

#### TICKET # 60851

÷					a a a a
ж	Gauge Number	:	2620.		¥
¥	Gauge Depth	:	729.	m	×
¥	Time of Flow	:	15.0	min.	来
¥	Final Pressure	:	315.4	kPa.	×

Initial Hydrostatic Pressure = 8483.3 kPa Final Hydrostatic Pressure = 8534.6 kPa

#### GAUGE 1, FLOW 1

D	Time eflection (in)	Time (minutes)	Pressure (kPa)
1.	0.0000	0.0	639.6
2.	0.0081	5.0	821.5
3.	0.0163	10.1	491.5
4.	0.0243	15.0	315.4

#### GAUGE 1, CIP 1

	Time Deflection (in)	Time (minutes)	T+dt Log dt	Pressure (kPa)
1.		2.0	0.9313	3176.1
2.		4.0	0.6784	5677.4
3.	0.0132	6.0	0.5425	7026.8
4.		8.0	0.4601	7605.0
5.		10.0	0.3977	7913.9
6. 7. 8.	0.0200	12.1 15.0	0.3510 0.3017 0.2429	8060.3 8152.5 8205.2
9. 10.	0.0414	20.0 25.0 30.0	0.2043 0.1762	8219.8 8208.1
11.	0.0663	35.0	0.1548	8225.7
12.		40.0	0.1384	8227.2
13.		45.0	0.1248	8227.2
14.	0.0912	50.0	0.1140	8227.2
15.		55.0	0.1047	8227.2
16.		59.9	0.0970	8227.2
17.	0.1078	65.0	0.0902	8227.2
18.		72.0	0.0822	8227.2

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#### SPECIAL PRESSURE DATA

DATE: 85-02-14

TICKET 🗶 60851

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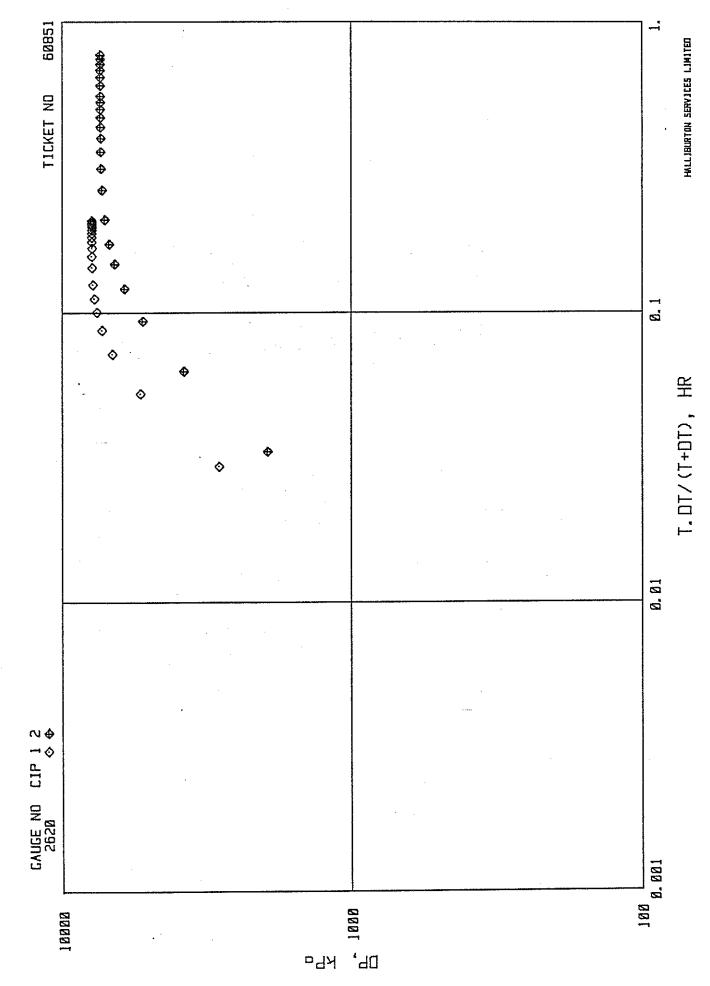
¥	Gauge Number	:	2620.		¥
¥	Gauge Depth	:	729.	m	¥
¥	Time of Flow	:	60.0	min.	莱
ж	Final Pressure	:	828.9	k₽a.	ж

#### GAUGE 1, FLOW 2

	Time	Time	Pressure
Deflection		(minutes)	(kPa)
	(in)		
1.	0.0000	0.0	264.1
2.	0.0084	5.0	271.4
з.	0.0169	10.0	410.8
4.	0.0254	15.0	553.1
5.	0.0339	20.0	669.0
6.	0.0423	25.0	746.7
7.	0.0508	30.0	786.3
8.	0.0593	35.0	806. <del>9</del>
9.	0.0678	40.0	802.5
10.	0.0763	45.0	828.9
11.	0.0847	50.0	830.3
12.	0.0933	55.0	828.9
13.	0.1017	60.0	828.9
		·	

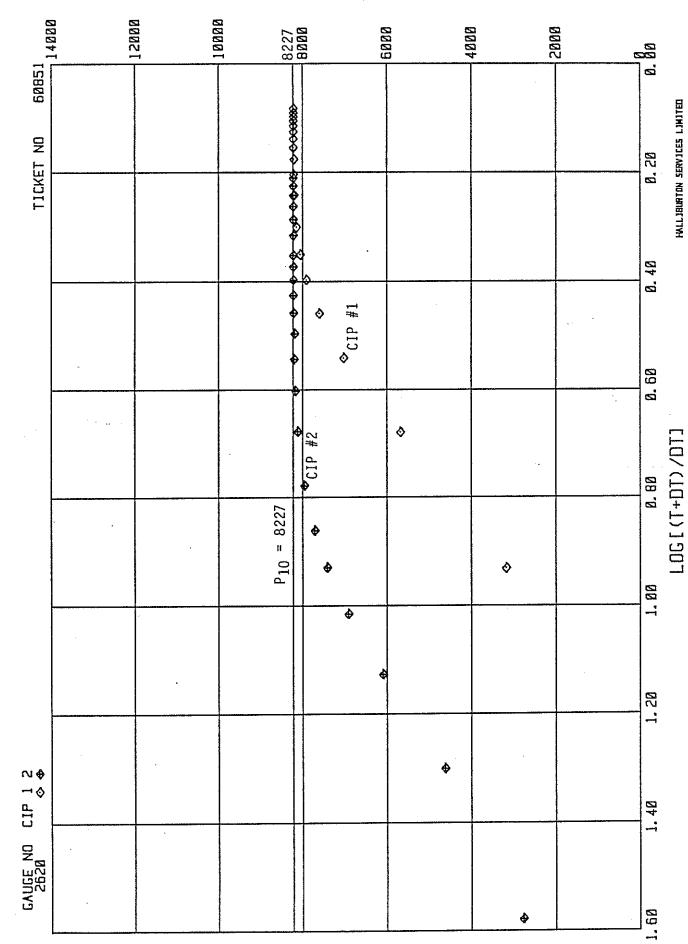
#### GAUGE 1, CIP 2

	Time	Time	T+dt	Pressure
D	eflection	(minutes)	Log	(kPa)
	(in)		dt	
1.	0.0034	2.0	1.5781	2772.7
2.	0.0066	4.0	1.3007	4621.1
з.	0.0101	6.0	1.1273	6095.5
4.	0.0134	8.0	1.0150	6917.0
5.	0.0167	10.0	0.9296	7420.5
6.	0.0200	12.0	0.8613	7714.8
7.	0.0251	15.0	0.7776	7963.7
8.	0.0334	20.0	0.6769	8118.8
9.	0.0417	25.0	0.6026	8177.4
10.	0.0501	30.0	0.5442	8205.2
11.	0.0585	35.0	0.4972	8193.5
12.	0.0668	40.0	0.4588	8219.8
13.	0.0752	45.0	0.4259	8227.2
14.	0.0836	50.0	0.3978	8227.2
15.	0.0920	55.1	0.3733	8227.2
16.	0.1002	60.0	0.3523	8227.2
17.	0.1170	70.0	0.3162	8227.2
18.	0.1336	80.0	0.2873	8227.2
19.	0.1503	90.0	0.2633	8227.2
20.	0.1670	100.0	0.2431	8227.2
21.	0.1840	110.1	0.2256	8227.2
22.	0.2005	120.0	0.2109	8227.2



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#### HALLIBURTON SERVICES LIMITED

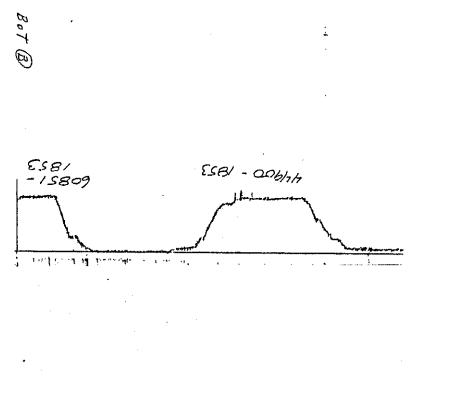
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60 851 TICKET NO.

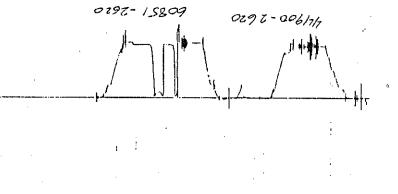
			8.D.(mm)	I.D.(mm)	LENGTH(m)	DEPTH(m)
з		DRILL COLLARS	159.0	71.0	165.80	
50	•	IMPACT REVERSING SUB	155.5	76.2	0.31	
3	U Z	DRILL COLLARS	159.0	71.0	18.23	
5		CROSSOVER	155.5	76.2	0.31	
60		HYDROSPRING TESTER	127.0	19.1	3.78	721.34
14	Ħ	EXTENSION JOINT	127.0	25.4	2.16	
80	Π	AP RUNNING CASE	127.0	57.2	1.25	727.28
80		AP RUNNING CASE	127.0	57.2	1.25	728.53
82		TEMPERATURE RUNNING CASE	127.0	57.2	1.25	
15		JAR	127.0	44.5	1.52	
16	•	VR SAFETY JOINT	127.0	25.4	1.06	
26		PUMP ASSEMBLY	127.0	22.3	2.15	
27	I	SCREEN ASSEMBLY	127.0	25.4	1.34	
11		HYDROFLATE PRESSURE LIMITER	127.0	25.4	1.52	
13		HYDROFLATE SAFETY JOINT	127.0	25.4	1.62	-
74		TOP HYDROFLATE PACKER	177.8	26.9	2.55	742.00
28	1	PORT ASSEMBLY	127.0		1.03	-
22		BLANK ANCHOR	127.0	57.2	2.57	1
75		LOWER HYDROFLATE PACKER	177.8	50.8	2.37	747.00
97		BELLY SP W/ BLANKED OFF RECORDER		57.2	1.55	748.76
5		CROSSOVER	127.0	57.2	0.31	
81	,	BLANKED-OFF RUNNING CASE	127.0	57.2 -	1.25	750.62
23		BLANK SUB	127.0		0.31	

EQUIPMENT DATA



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PRESSUR

	Winterhawk PAGE
A	
Α.	WELL DATA FIELD DRILL SIEM IEST REPORT DATE 85-02-16
	Well Exco et al West Parkin Y.T. D-54 Location Hart River
	DST No. <u>4</u> Interval <u>1042 m - 1047 m</u> Formation <u>Mississippian</u>
	Last Casing: Size 244mm Depth 460 m Open Hole: Size 215.9 Depth 1811 m
	Hole Troubles: <u>Deviation Bottom</u> Caliper at Packer(s) <u>217 - 240mm</u>
	Mud: Wt. <u>1190 kg/m<sup>3</sup> Vis 80</u> W.L. <u>8</u> % Oil ppm Cl <u>200</u>
Β.	TEST STRING DATA
	Testing Company Halliburton Services Ltd. Type of Test Inflate straddle
	Type and Number of Packers <u>2 inflate straddle (Gates)</u> Size <u>178mm</u>
	DP Size <u>114mm</u> Wt <u>24.7 kg/m<sup>3</sup></u> Length <u>To Surface</u>
	DC Size <u>171mm</u> Wt <u>150 kg/m</u> I.D. <u>71mm</u> Length <u>184.03 m</u>
	Tail Pipe Size         N/A         Ø         Perfs         -           1027/1028         Perfs         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         <
	1027/1028 T.D. String Recorder Depth <u>1050/1052</u> Water Cushion BH Choke <u>19.04mm</u>
	Packer Depth(s) 1042 m and 1047 m Weight on Packer(s) No Seat
	Other Equipment Temperature Gauge, 2 Bottom Hole Samplers
C.	
С.	TEST RESULTS MISRUN - Failure to obtain a Packer Seat
	Times: PF ISI Flow SI Flow FSI
	Pressures:PF IH IS1 IF IF
	۲EMP <sup>©</sup> FHFSIFF
	Flow Descriptions:
	Preflow:
	Valve Open Flow:
	Recoveries:
	D. SAMPLE DETAILS:
	N/A
	Sent to: Date Sent: Via: Date Sent:
	E. REMARKS: Refer to attached report for details
Ν	Note: Data reported on this form are field readings taken at the time of test, and are subject to correction.
	ENGINEERJ. Reilly

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Annual Annual Review

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# CHEMEX LABS (ALBERTA) LTD.

LGARY, ALBERTA

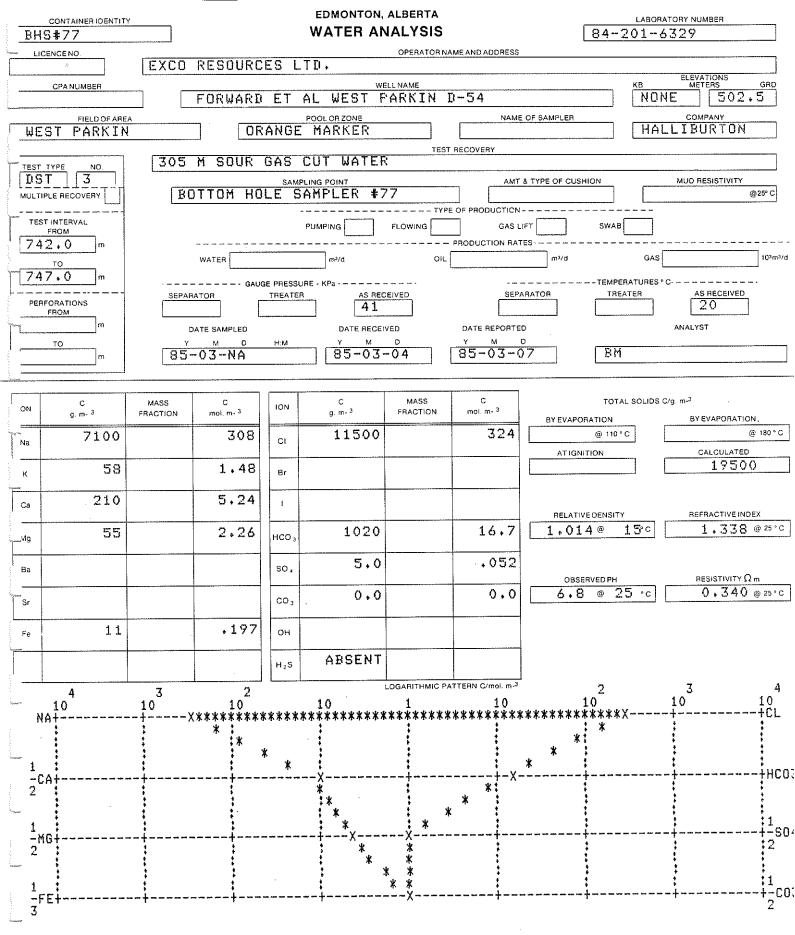
GRANDE PRAIRIE, ALBERTA

CONTAINER IDENTITY					EDMONTON, ALBERTA LABORATORY NUMBER	
	LICENCE			COULOCEO	OPERATOR NAME AND ADDRESS	
	СРА	NUMBER	EXCO R	ESOURCES	WELLNAME KB METERS GRD	
			] F	ORWARD E	T AL WEST PARKIN B-54 NONE 502.5	
b	JEST	FIELD OF AREA		ORAN	POOL OR ZONE         NAME OF SAMPLER         COMPANY           IGE MARKER         HALLIBURTON         HALLIBURTON	
			305 M	SOUR GA	TEST RECOVERY	
ļſ	IST TYPE	3			SAMPLING POINT AMT & TYPE OF CUSHION MUD RESISTIVITY	
• •	JETIPLE RE		BOI	IUM HULL	SAMPLER #77         @25°C	
	742+0		_		PUMPING FLOWING GAS LIFT SWAB	
	τo		w		m <sup>1</sup> /d QIL m <sup>3</sup> /d GAS 10 <sup>3</sup> m <sup>3</sup>	Vđ
	747.0	)m	SEPARAT		RESSURE - KPA	
_	PERFORAT FROM				41 20	
Ĩ.	то		<u> </u>	E SAMPLED <u>M D H</u> :		-
_		m	85-0	<u>3-NA</u>	85-03-04 85-03-04 ES	_
	COMP.	MOL FRACTION AIR FREE	MOL FRACTION AIR FREE	LIQUID VOLUME ml. m-3 AIR FREE	GROSS HEATING VALUE	
		AS REC'D	ACID GAS FREE	AS REC'D	MJ. m-J @ 15 ° C AND 101.325 KPa (MOISTURE AND ACID GAS FREE) VAPOUR PRESS	
, and the	H <sub>2</sub>	0.0013	0.0013		MEASURED         CALCULATED         DEW POINT         PENTANES PLUS           36+322         65+030	
	He	0.0002	0,0002			
labyroanap	N <sub>2</sub>	0.1658	0.1663		RELATIVE DENSITY	
	co,	0.0028	0,0000		MOISTURE FREE AS SAMPLED MOISTURE AND ACID GAS FREE MEASURED CALCULATED CALCULATED CALCULATED	
Xajanaged	H <sub>2</sub> S	0.0000	0.0000		0,706 0,703	
	с,				PSEUDO CRITICAL PROPERTIES (CALCULATED)	
Photos			0.7362		AS SAMPLED ACID GAS FREE	_
	C 2	0.0543	0.0545		4421.0 195.5 4412.6 195.1	
	C 3	0.0245	0.0246	89.62	REMARKS	
Gamme	íC ₄	0.0031	0.0031	13.47	RECOVERED GAS + 200 CC MUDBY WATER FROM TOOL	
	nC₄	0.0059	0.0059	24.72		
Sandar P	IC 5	0.0019	0.0019	9.24		
	nC s		0.0016	7,70		
NY ADDAR	C 6					
			0.0019	10.22		
Kononer	C 7	0.0025	0.0025	15.02		
ł	C 8					
يونونون برونونونونونونونونونونونونونونونونونونون	С,				-	
	C 10	·				
Alphaget	TOTAL	1.0000	1,0000	169,99	DETERMINATIONS TO C7+ ONLY	

## CHEMEX LABS (ALBERTA) LTD.

ALGARY, ALBERTA

GRANDE PRAIRIE, ALBERTA



REMARKS RECOVERED GAS + 200 CC MUDDY WATER FROM TOOL IRON DONE ON FILTERED SAMPLE

TE .	ERS				]			<b>-</b> \$	2			EFER TO		60 85	2	7		
	•	ł	D				HAL	LIBURTC	N)			NVOICE NO		85-02		4		
×.	IESS		Brune				FORMA	TION TEST	ING		Ţ	EST No.						
	LING		Riel				D	ATA SHEET			Ţ	OB TYPE Hvd y	ofla	<u>4</u>	raddle	-		
	TRACTOR	Gr	ey mot	untain							L.	пуцт		Le St	radure			
	a¢							SUMMARY KI								DESCRIPTION	EGAL	COMPANY
<u> </u>				326 )21.34		2620 1028.53		<u>3163</u> 1029.78	54	5 8.76								ANY
_	SE DEPTH			<u>121.34</u> <del>E64</del> NO		1020.00 TES/NO	¥	1029.70		0.70		YES/NO		YE	S/NO	-    ž	ł	
нои	R CLOCK	TRAVEL		48		24		24	4	8						]  _ ,	_	
Ť	AL HYDRO																а +	EXCO
=i( =L	; —	FINAL															un i	
FIRS	T CLOSED	IN														37	-	ENERGY
SE	ND															- 26	μ - Ο	RGY
	OND CLOS	FINAL ED IN															<u>.</u>	LTD
TR'''	· >	INITIAL														- 0,4	32	Ð.
FL.		FINAL	ļ													4W		
	L HYDROS		1													-		
·			.I													_		
No.				TIME PER	IODS			FORMATION		EQUIPMEN		TEMP. REC				-		
алы <b>6</b> .	~	FIAST	SECOND	THIRD	TESTER	TIME		TESTED	<b>u</b>			DEPTH MAX. TEM		N/A	m 2°	1 1		
-	*		<u>.</u>		OPENED			NET PRODU THICKNESS	CTIVE		m	MUD TYPE	Gel	Chemi	cal			
ວມດ — (	DSED IN				PACKER UNSEATED			Groun		)2.5	m	MUD DENSITY	kg/m 118	<sup>3</sup> MIO	³/L 102		PROVINC	
	<u>سم</u>		LIQUI	D RECOVE	RY DATA			ALL DEPTH MEASURED		∐ к Хбі дяо	18 ILIND	CASING O	R	216	mr	n   ₹	E OA	
VE	METRES	; 		DESCR	IPTION OF LI	QUD		PACKER	TOP 1042	воттом 1047		RATHOLE		210	m			AREA
R VAL	ــــــ							DEPTH OF				DRILL	0D m		kg/m			OR
ESTER								TESTER VAL	_VE ](	022.59	m	PIPE	114		24.7	_ 9		WEST
MEASURED FROM TESTER VALVE								CASING PE	RFORATED	N/A	m	ORILL CON ABOVE TE VALVE	LARS STER	10 mm	84.03			
UREC								TOTAL DEPTH	181	1	m	SURFACE CHOKE		25.4	m	m		PARKIN
MEAS	r Ni	דסד [	AL LIQUID R	ECOVERY				AMOUNT A TYPE CUSH		3 L hibitor	•	воттом сноке		19.05	5 "			IN
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				SAMPLE	DATA			SAMPLES	HIPPED TO LA	BORATORY				YES	NO	9		
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àna				ETER/RELA	•			GAS SAM	PLE BOTTLE N			<del></del>			×,			NUM
2								LABORAT	ORY	N/	Ά					INTERVAL	STEL	AE BER
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EM	ARKS		M	isrun	No na	acker sea	at.									1042		SR
and the second			1.1	(5) 011.	110 pt											42		AR[
	142															1		FORWARD ET AL WEST PARKIN D-
																1047		Z,
																7		
No and	فنعي					*												54

TICKET NO. \_\_\_\_\_60\_852

DATES AND TIMES (00:00-24:00 HRS.)	CHOKE SIZE (mm)	SURFACE PRESSURE (kPa)	GAS RATE (m³/day)	LIQUID RATE (m³/day)	REMARKS
04:00					Pulling collars for DST #4.
05:00					Picked up test tools.
06:15					Loaded recorders.
08:00					Strap collars and run in hole.
09:30			<u></u>		Strap pipe and run in.
12:30					Head up test tools on surface.
12:55				1	Rotate pipe at 12:55 at 50 RPM.
13:20			2		Stop rotating and hook up kill line.
13:40					Picked up 3000 over string weight O.K.
<u> </u>					Came down on tool, skidded down with abou
					2 - 3000 daN on tool packer for about
					4 m.
13:47					Picked up to 6.7 m and rotated at 55-60
	1				RPM.
14:25					Pulled over 2000 daN, came down and
					skidded. Pulled up 5 m and rotated.
15:15					Pulled 5000 daN overpull. Came down and
					skidded.
15:45					Pull loose, come out of hole.
			44.780 T		We had trouble pumping up packer because
		- 1974			of the heavy=mud going through screen
		And the second se			and pump. There was very good indication
					of the packers being fully pressured up
				[ [	because of the over-pull.
					Suspected reason for misrun is the mud-
					cake around guage hole. There was not
					enough of a solid seat, to take any weight
	-				
				-	
	1				
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	1			-	

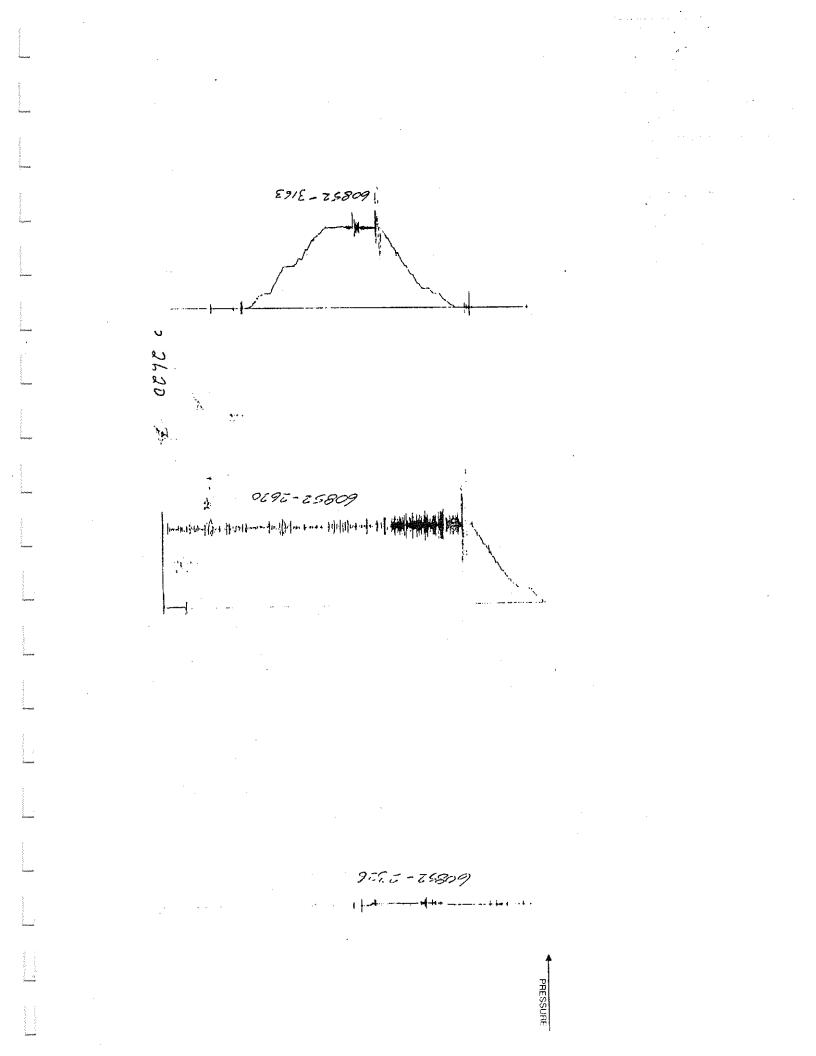
#### HALLIBURTON SERVICES LIMITED

TICKET NO. 60

60 852

			0.D.(mm)	I.D.(mm)	LENGTH(m)	DEPTH(m)
ਤ		DRILL COLLARS	159.0	71.0	19.12	
50	1	IMPACT REVERSING SUB	155.5	76.2	0.31	
з		DRILL COLLARS	159.0	71.0	19.14	
5		CROSSOVER	155.5	76.2	0.31	
80		AP RUNNING CASE	127.0	57.2	1.25	1021.34
60	•	HYDROSPRING TESTER	127.0	19.1	3.78	1022.59
14	E	EXTENSION JOINT	127.0	25.4	2.16	
80		AP RUNNING CASE	127.0	57.2	1.25	1028.53
80	Π	AP RUNNING CASE	127.0	57.2	1.25	1029.78
82		TEMPERATURE RUNNING CASE	127.0	57.2	1.25	
15		JAR	127.0	44.5	1.52	
16	7	VR SAFETY JOINT	127.0	25.4	1.06	
26	•	PUMP ASSEMBLY	127.0	22.3	2.15	
27		SCREEN ASSEMBLY	127.0	25.4	1.34	
11	$\square$	HYDROFLATE PRESSURE LIMITER	127.0	25.4	1.52	
13		HYDROFLATE SAFETY JOINT	127.0	25.4	1.62	
74		TOP HYDROFLATE PACKER	177.8	26.9	2.55	1042.00
28	5	PORT ASSEMBLY	127.0		1.03	
22		BLANK ANCHOR	127.0	57.2	2.57	
75		LOWER HYDROFLATE PACKER	177.8	50.8	2.37	1047.00
97		BELLY SP W/ BLANKED OFF RECORDER		57.2	1.55	1048.76
5		CROSSOVER	127.0	57.2	0.31	
23		BLANK SUB	127.0		0.31	

EQUIPMENT DATA



	Winterhawk
	المنافع
Α.	
	DATE85-02-18
	Well Exco et al West Parkin Y.T. D-54 Location (Hart
	DST No. 5 Interval 1039 m - 1049 m Formation Mississippian Rive
	Last Casing: Size <u>244mm</u> Depth <u>460 m</u> Open Hole: Size <u>-</u> Depth <u>-</u>
	Hole Troubles: <u>Failure to obtain a packer seat</u> Caliper at Packer(s) <u>217/240mm</u>
	Mud: Wt. <u>]185 kg/m<sup>3</sup>Vis_80_W.L. 8</u> %Oil <u>-</u> ppm Cl_200_
8.	TEST STRING DATA
	Testing Company <u>Halliburton</u> Type of Test <u>Inflate straddle</u>
	Type and Number of Packers <u>2 Inflate straddle gates</u> Size <u>178mm</u>
	DP Size <u>114mm</u> Wt <u>24.7 kg/m</u> Length <u>To surface</u>
	DC Size <u>171mm</u> Wt <u>150 kg/m</u> I.D. <u>71</u> Length <u>38.26 m</u>
	Tail Pipe Size     N/A     Wt     N/A     Length     N/A     Perfs     N/A       1026/1027     1026/1027     1026/1027     1000000000000000000000000000000000000
	T.D. String Recorder Depth <u>1052/1054</u> Water Cushion BH Choke <u>19.04mm</u> Packer Depth(s) <u>1038m - 1048 m</u> Weight on Packer(s)
	Other EquipmentTemperature Gauge, 2 Bottom Hole Samplers
~	
C.	TEST RESULTS       Misrun - Failure to obtain a packer seat.         Times:       PFISIFlowSIFlowFSI
	Pressures:PF ISI INW ISI ISI IF IF
	TEMP <sup>℃</sup> FHFSIFF
	Flow Descriptions:
	Preflow:
	Valve Open Flow:
	Recoveries:
	D. SAMPLE DETAILS:
	Sent to: Date Sent:
	E. REMARKS:
	Permission by COGLA to cease testing after 3 attempts. Pumped
	20, 40, 60 min. Lowered interval 2 m for final attempt - for
	details refer to attached report.
ſ	Note: Data reported on this form are field readings taken at the time of test, and are subject to correction.
	ENGINEERJ. Reilly

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L. Bruneau								ツ		DATE OF TEST	85-02	2-18	
J. KIELIV							TION TEST	'ING	5				
RILLING		stom 94				DA	TA SHEET			<sub>JOB TYPE</sub> Hydrofla	ate Stra	addle	
					PRI	ESSURE SI	UMMARY k	Pa					DES
AUGE NUMBE	a		853		2326		163		45				DESCRIPTION
GE DEPTH			017.34		1024.53		025.78		49.76				NON
NKED OFF		- ¥	48		24		24	YE	s/ <del>No*</del> 24	YES/NO	YE	S/NO	
ITIAL HYDRO			40				<u> </u>						La
т	INITIA				· · · · · · · · · · · · · · · · · · ·								.at.
Ń	FINA	-											
RST CLOSED													
ОМС	INITIAL												6-1 37-
	FINAL ED IN	·					· · · ·						·20 61 19
HIRD	INITIAI	-		1						· · · · · · · · · · · · · · · · · · ·			
N	FINA												0. <sup>2</sup>
D CLOSED	าก												3N . 4W
NAL HYDROS	TATIC	<u> </u>		<u> </u>					<u> </u>				
<u> </u>						]			EQUIPMEN	T AND WELL DAT	4		ľ
				.005			FORMATIO	N		TEMP. REC. No.			
	FIRST	SECOND	THIRD	TESTER	TIME		TESTED			DEPTH MAX. TEMP.	N/A	m °C	
W(				VALVE			NET PRODU	ICTIVE		MUD	-	-	
		· · · ·	1	PACKER			THICKNESS			m TYPE Gel	Chemica	]	
LOSED IN				UNSEATED	2		Groun	d FO	2.5		/m <sup>3</sup> MUD	102 102	PROVINCE OR TERRITORY
						······	ELEVATION	50	2.0	m DENSITY I I	SU visc	102	
		LIQUI	D RECOVE				ALL DEPTH		🗆 K 🔀 GRO	B CASING OR	216	ភាព	RO B
METRES			DESCR	IPTION OF L	IQUID			тор	BOTTOM	· · · ·			
	· · ·						PACKER DEPTHS	1038	1048	RATHOLE SIZE		mm	<b>YU</b>
							DEPTH OF			0801	) mm	kg/m	YUKON
							TESTER VA	<sup>LVE</sup> 10	18.59	m PIPE ]]	4.3	24.7	
N i 1							CASING PE	RFORATED		DRILL COLLARS ABOVE TESTER M VALVE	10 mm 7]	LENGTH m 38.26	
									N/A		/ 1	30.20	
							TOTAL DEPTH	181	1	M SURFACE	25.4	៣៣	
							AMOUNT A	1.	<u>8 L</u>	BOTTOM			
📜 Nil	וסד	al liquid ri	ECOVERY				TYPE CUSH	<sup>iion</sup> In	<u>hibitor</u>	CHOKE	19.0	7 mm	
													TEST NUMBER
			SAMPLE	DATA								10	
; , Nacionale							SAMPLE S	SHIPPED TO	ABORATORY		YES	NO	
						2°	SAMPLER	No			_ □	X	сл
" (OIL RATIC						<u> </u>							
Seman	RE	FRACIUM	ETER/RELA	TIVE DEN:	5117		GAS SAM	IPLE BOTTLE			_ 0	×	
							LABORAT	ORY	N	/A			TESTED INTERVAL
4	TENT					mg/L							NAL SO
	Mis	run.	No pac	ker se	eat, heav	y mud	build u	ip.					1038
													1
) Assessment													048
Vounter													ω
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A Company of the second s													

TICKET NO. 00 853

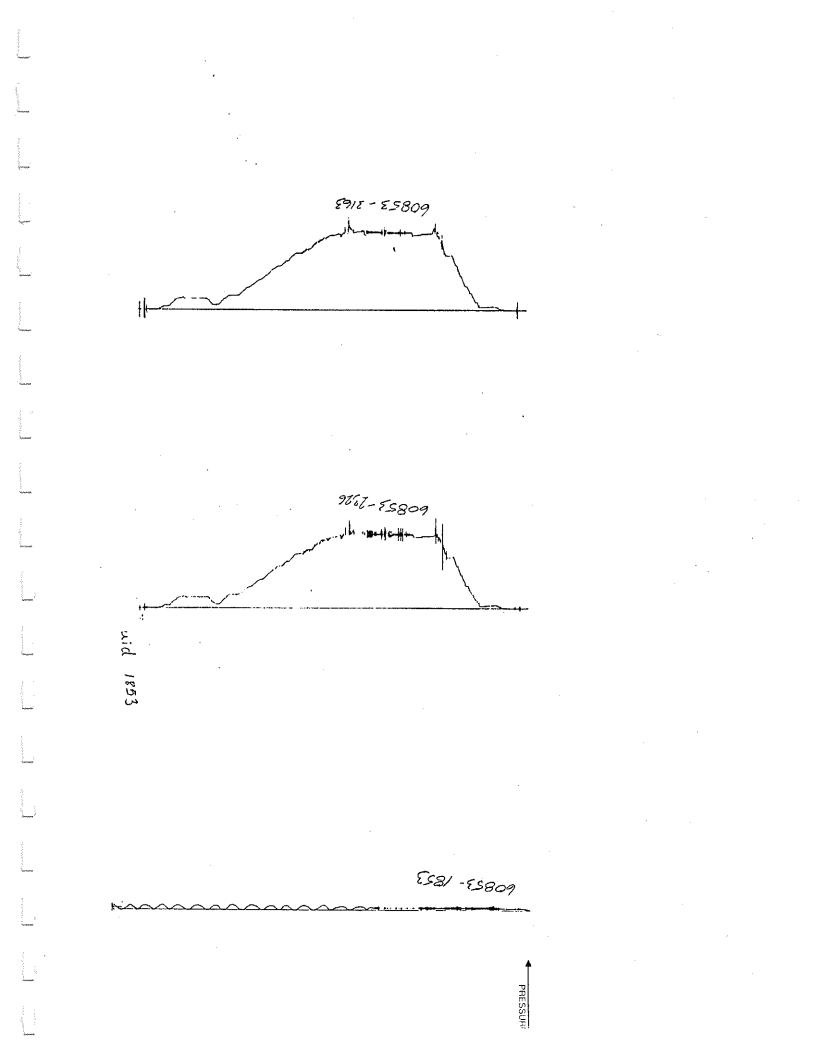
DATES AND TIMES (00:00-24:00 HRS.)	TIMESCHOKESURFACEGASLIQUID20:00-24:00SIZEPRESSURERATERATE		RATE	REMARKS				
12:45					Pick up test tools.			
04:00					Strap collars (4) and run in.			
04:40					Slip line.			
05:30					Strap pipe and run in hole.			
08:00					Head up surface equipment.			
08:55				 	Rotate at 60 RPM.			
09:20					Tried to pick up overstring weight but			
					couldn't.			
09:23					Picked up 1/2 meter and rotated.			
10:10					Picked up arrpoximately 2000 daN over			
					string weight and tried setting weight or			
10:15					it. Skidded and lost seat. We set 2 m			
	-				lower and rotated.			
11:15	1				We tried pulling over string weight and			
	1				setting down with no results.			
11:50	ļ		<u></u>		Tagged cement.			
11100					Came out of hole sideways.			
01:30					Load out tools.			
· · · · · · · · · · · · · · · · · · ·	1	, i i i i i i i i i i i i i i i i i i i						
······		Total Participants		1				
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#### HALLIBURTON SERVICES LIMITED

TICKET NO. 60 853

		<b>.</b> .	0.D.(mm)	I.D.(mm)	LENGTH(m)	DEPTH(m)
з		DRILL COLLARS	159.0	71.0	19.12	
50		IMPACT REVERSING SUB	155.5	76.2	0.31	
з		DRILL COLLARS	159.0	71.0	19.14	
5		CROSSOVER	155.5	76.2	0.31	
80		AP RUNNING CASE	127.0	57.2	1.25	1017.34
e0	•	HYDROSPRING TESTER	127.0	19.1	3.78	1018.59
14	E	EXTENSION JOINT	127.0	25.4	2.16	
80		AP RUNNING CASE	127.0	57.2	1.25	1024.53
80	Π	AP RUNNING CASE	127.0	57.2	1.25	1025.78
82		TEMPERATURE RUNNING CASE	127.0	57.2	1.25	
15	Π	JAR	127.0	44.5	1.52	
16	,	VR SAFETY JOINT	127.0	25.4	1.06	
26	•	PUMP ASSEMBLY	127.0	22.3	2.15	
27	I	SCREEN ASSEMBLY	127.0	25.4	1.34	
11		HYDROFLATE PRESSURE LIMITER	127.0	25.4	1.52	
13		HYDROFLATE SAFETY JOINT	127.0	25.4	1.62	
74		TOP HYDROFLATE PACKER	177.8	26.9	2.55	1038.00
28		PORT ASSEMBLY	127.0		1.03	
22		BLANK ANCHOR	127.0	57.2	7.57	
75		LOWER HYDROFLATE PACKER	177.8	50.8	2.37	1048.00
97		BELLY SP W/ BLANKED OFF RECORDER		57.2	1.55	1049.76
5		CROSSOVER	127.0	57.2	0.31	
23		BLANK SUB	127.0		0.31	

EQUIPMENT DATA



## CASING SUMMARY

Enclosed are casing summaries for conductor, surface and production casing.

## 339mm CONDUCTOR CASING

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	Winterhawk		
	2.747 Provision Consulting Service Bil.	PAGE	
	CASING SUMMARY		
WELL <u>Exco et al West Parkin</u>	Y.TLOCATION D-54	DATE	84-12-21
Conductor Casing	<u>339.7mm кв 506.85</u>		
	VisualDrifted To:		
NO.	DESCRIPTION	MEASURED LENGTH	KB DEPTH
.45	Davis Guide	.90	52.66
CSG TOP TO KB CSG 4 506.85 m KB	Jts 339.7mm 81.10 kg/m K-55	53.11	+ 0.45
<u>3.45</u> ml			
503.40 m	Scratchers		
(CF) ELEVATION CSG 3	Centralizers Gem Latch		
	Total String	54.01	4
502.50 m	minus KB to Csg Top (STICK UP	.+5	Cut-off Jt. Length
GRD ELEV.	Landed Depth KB	53.56	-
	Hole Depth KB	53.70	4.25
	Distance Csg Landed Off Bott	.14	
Camenting Company Halliburton	Services Ltd.		
Wash - Type: Water	Services Luu.	Volume .2 m	3
	ost 9.4 T		
,,	1e		
	· · · · · · · · · · · · · · · · · · ·		
	Avg44		
	<u>е</u> КВ		
	m3 Cement4.4		
	kg/m3 =		
Wt. set on Slips:N/A	daN		
Remarks: <u>Cement yield .74 m<sup>3</sup>/</u>	tonne		
-	tonne		
Density 1880 kg/m <sup>3</sup>			
	Engineer: J. Rei	<u>]]y</u>	<u></u>

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					FIFE	IMLLI	JULE			PAGE	OF
WELL	Exco e	t a	West	t Parkin Y.	T. D-54		LOCAT	10N			
				3 <b>1.1</b> kg/m							
										e <u>84-1</u> 2	
JOINT	LENGTH		TNIOL	LENGTH	тию	LENC	тн	JOINT	LENGT	тиюц Н	LENGTH
1	13	41	11		<sup>``</sup> 21			31		41	
2	13		12		22			32		42	
3	.13	[	13		23			33		43	····
4	13	T	14		24			34		44	
5			15		25			35		45	
6	·		16		26			36	1017	46	
7			17		27			37		47	
8			18		28			38		48	
9			19		29			39		49	
10			20		30			40		50	
А	53	11	В		С			D		E	
51			61		71			81		91	
52			62		72			82		92	
53			63		73			83		93	
54			64		74			84		94	
55			65		75			85		95	
56			66		76			86		96	
57			67		77			87		97	
58			68		78			88		98	,
59			69		79			89		99	
60			70		80			90		100	
F			G		Н	L		I			
А				SUB TOTAL						JOINTS	LENGT
В					Shoe	. 90		PAGE T	OTAL	4	53.11
С								BROUGI			_
D								GRAND	TOTAL	4	53.11
E								JOINTS	ON LOCATI	ON	
F					Remarks:						
G					w						
Н											
1					<u></u>						
J								ENG	NEER	J. Reill	V

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THA		TON)
Υ.		

### CEMENTING AND/OR SPECIAL TOOLS SERVICE REPORT

ATTACH TO

					SE	<b>RVICE RI</b>	EPORT					
HALLIB	urton disti Fronti			ŀ					OL		84 1	 סיי
~~~	<u> </u>									YEAR	MONTH	<u>2 21</u>
	ov	NER, OPERATOR O	R HIS AGENT STAT	ES THE WELL I	S IN GOOD CONDI	TION FOR THE	SERVICE JOB	TO BE PERFORMED	AND SUBMITS	S THE FOLLOWIN	IG DATA.	
CUSTOM					FIELD OR AREA				WELL No. ANI	D LEASE		
		ountain Dr	illing			Parkin			West	Parkin	D-54	
CALLED O	UT	ON LOCATION	JOB STAF	TED	JOB COMPLETED	PROVI	4CE	LSD	SEC	TWP	RANGE	MERIDIAN
1	DATE	ſ	TIME 21:30	DATE	1984 12 22:15	CDATE V	'ukon					
	IIME	1		TIME	22.15	TIME	икоп					_w
	ғјов 🗸	-			WELI	L OR HOLE	DATA					UCTS
SURFACE											EQUIPMENT	QUAI
NTERMED		HOLE HOLE		TOTAL	E2	TYPE					CENTRALIZE	
PRODUCTI	ON	DATA: SIZE CASING, TUBIN	<u></u>	<u>u</u> depth	220 7 mm	MUD		· I	DENSITY	0.0	CLAMPS	<u></u>
	··	LINER DATA						DE <u>K−55</u>	СЕРТН <u>54</u>		FLOAT COLL	10
SQUEEZE	·		ISED 🗆	SIZE					DEPTH			
TPLUG		PERFORATIONS	: FROM		то				то		FLOAT SHO	
PUMP		WASH	FROM	m	то		FROM	<u>m</u>	то	m	GUIDE SHOE	
RESSURE	TEST	FLUID TYPE: TEMP MIXING		VOL.	m <sup>1</sup>	FUND	YPC-	H2()	_VOL4	4 m³	INSERT FLO	
OTHER		DATA WATER	3	C SLURRY	· <u> </u>	+C DISPLACE FLUID		<u>•C</u> 881	URNS 4	4 <u>m<sup>3</sup> ∘c</u>	SCRATCHER	s
	luctor	Cacina									OTHER	
		Gasting										
1992		-			EC	UIPMENT	•					
PACKE	R							CEM	ENT HEAD			
TYPE .		SIZE				LA-1	0				NACE TR	
DEPTH		TAIL						1			WAGE A	
SET -		PIPE							1 <u></u>			
				i				I				
					CE	MENT DAT	Α	····				
TONNE	API CLASS	BRAND	BULK OR SACKED	T	CEMENT BL	··,	· · ·		ES TYPE AND P	FOCENT	ka (m)	m³/tonne
9.4	G		Sacked	Po	rmafrost			Aboint	LU TITE AND F			
			Juckey		111011030						1880	0.74
	-											
<u> </u>				<u></u>		·····						
HALLIB	URTON O	PERATOR		R, Dra	ader	CUS	TOMER R	EP				
		······································			TRE	EATING L	OG					
			VOL		N m <sup>2</sup>	PRESSU	RE MPa					
CHART OSITION	TIME	RATE m³/min	•					-		REMARKS		
			STAGE	TOTAL	IN FORMATION	TUBING	CASING					
7	21:30											
l	21:35							Pump 0:2	2 m <sup>3</sup> H2C	) wash.		
,	21:35	· .			1	1			=0		•	
- 2	21:55							Mix and	ոստո Գ	4 tonnes	· Perma	frast
	21:55								յստր յ։	, connes		11036.
3	22:05							Release	top plu	la.		:
	22:05					Max	1.0					
4.	22:15	· · ·	ļ			Min	0.0	Displace	<u>to flo</u>	at shoe.	•	
Trybuel -									•			
4												

## 244mm SURFACE CASING

	Winterhawk 🕌	BUMMARY	an a	<u>;;;;</u>
	2	1997 - Princham Considing Services Bil.	PAGE	
	CASING S	SUMMARY		
WELL <u>Exco et al West Par</u>	kin Y.T LOCATION	D-54	DATE .	85-01-03
SURF/INT/PROD/LINER SIZE	244.5mm	кв506.85	KB to CF	3.93 m
<u>_New/Used</u> Inspected By:_	Visual	Drifted To	: 8-5/8	API diam.
	NO. D	ESCRIPTION	MEASURED LENGTH	КВ ДЕРТН
	1 Davis Guid	e	.49	460.27
CSG TOP CSG	<u>1 244.5 csg.</u>	<u>N80 64.73 kg/m</u>	11.95	448.32
	1 Davis Floa	t	.54	447.78
<u>506.85</u> m КВ (КВ) ELEVATION	38 244.5 csg.	<u>N80 64.73 kg/m</u>	448.48	+ 0.70
<u>3.93</u> m				
	Scratchers			
502,92 m V CSG 7	3 Centralizers 45	5.32, 443.55, 42	1 79	
FLANGE		al String		
		to Csg Top (STICK U	P) 461.46	
_502.50 m_		ded Depth KB	460.76	Cut-off Jt. Length
GRD ELEV.		e Depth KB	460.86	1 00
		ance Csg Landed Off Bo		4.98
				] 
Cementing Company Halliburto	n Services Ltd.			3
Wash - Type: <u>Water</u>	nandal - mediatar an mitra		_Volume1.6	 
Cappont Lypa - Lasd Sillery CEL	המרדעקה עבר ב	unnea		111
Yield: 7.5 $\text{m}^3/\text{T}$	Wt: 1880 kg	/m	_ Volume:	2
Cement Type - Tail SlurryLlas	<u>s "u"</u>	10.85	Volume:12.8	
Additives 2% C	aCl <sub>2</sub> Yield:	.75 Wt: 1895	_Volume:	
Cement Type - Above Stage Collar		<u> </u>	_ Volume:	······
Additives				
Displacement Rate: Max				/min)
Calculated Cement Top(s) Su				
Returns: Mud <u>Continuo</u>				
String Wt. in a mud wt. of:]]	20kg	/m3 = <u>30,000</u>	daN	
Wt. set on Slips: N/A		daN		
Remarks: Bump plug w/1000	kPa @ 0817 85-	01-03		
Bleed back pressu	re. Float held	<b></b>		
Displace w/17.43	m <sup>3</sup> mud.			
	E	ngineer: Derry	Lodder	

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---Sumper

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						W	interhau	vk h			, Eve						
	<b>F</b>						PIPE	TALLY	SH	EET				PAG	.E	OF	
	<u>Exco e</u> 244 4mm											NG LT	4C		тн	RD <u>8</u> R	D
0126 _	<u>८ ५५ - +</u>				<u>1597 III -</u>							DAT					
DINT	LENGTH		TNIOL	LE	NGTH		JOINT	LENG	тн		JOINT	LENGT	Н		JOINT	LENG	гн
1	11	95	11		11	96	21		11	48	31	1	82	2	41		
2		77	12			05	22		11	94	32	12	2 0!	5	42		
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A	118	18		SUB -	TOTAL								J	IOIN	TS	LEN	GTH
в	117			236	12	[s	Shoe	.49		P	AGE 1	TOTAL		39	9	460.	43
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PRODUCTION		DATA: SIZE	<u>311.2mm</u>	1 DEPTH4	<u>460 m</u> м	, <u>uo de</u>		<u> </u>	DENSITY	61 // m	CLAMPS	
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TONNE	API CLASS	BRAND	BULK OR SACKED		CEMENT BLE			ADDITIN	ES TYPE AND	PERCENT	kg/m <sup>3</sup>	0.74
$\frac{6.1}{16.05}$	G	<u>Inland</u> Inland	Sacked Sacked	<u>Perma</u>		lwell		2% CaClz			<u>1880</u> 1894	0.74 0.76
16.85	9		Jacked	ULIWE	· · · · · · · · · · · · · · · · · · ·							
	<del></del>				•							
HALLIBU	JRTON OF	PERATOR		R. Drad	der	CUS	TOMER R	EP		· ····		
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	<u></u>				TRE	ATING L	.0G	,				
CHART		RATE	. VOL		N m³	PRESS	JRE MPa		·········	REMARKS		
	TIME	m³/min	STAGE	TOTAL	IN FORMATION	TUBING	CASING				-	
								Release	bottom	wiper p	lug.	
1	06:43 06:45	0.75						Pump 1	6 m <sup>3</sup> H2	O ahead.		
	06:45											
2	07:40	0.3						Mix and	pump 4	.5 m³ Pe	rmatros	st
								slurry.	Mix a	nd pump	12.81 m	1 <sup>3</sup>
											•	
								Neat +	<u> 2% CaCl</u>			
3	07:40 07:45											
<u>3</u> 		0.54					1.0	Release	t <u>op wi</u>	2,		ug.



# TREATING LOG

INVOICE No.

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:	CHART	TIME	RATE	VOL	UME PUMPED IN		PRESSU	RE MPa	REMARKS
	POSITION		m³/min	STAGE	TOTAL	IN FORMATION	TUBING	CASING	
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Form 957

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# 139.7mm PRODUCTION CASING

Winterhawk	PAGE	*****
CASING SUMMARY		
WELL Exco et al West Parkin Y.TLOCATION D-54	<b></b>	
PROD/ SIZE <u>139.7mm</u> KB 506.85 m		
<u>New/Used</u> Inspected By: <u>Visual</u> Drifted To:		
NO. DESCRIPTION	MEASURED	KB DEPTH
	LENGTH	1
<u> </u>	.49	1096.41
CSG TOP TO KB CSG 1 jt 139.7mm K-55 TO KB 1 Float Collar	11.33	1085.08
<u>506.85</u> m КВ (КВ) ELEVATION Я 97 jts 139.7mm К-55	<u>.54</u> 1085.93	<u>1084.54</u> + 1.39
	1000100	1.35
	·····	
3 08		
<u>3.98</u> ml KB to CF		
11 Scratchers		
502.92m     Image: Constraint of the second se		
FLANGE Total String	1098.29	
minus KB to Csg Top (STICK UP)	1.39	Cut-off
<u>502.50 m</u> GRD ELEV. Landed Depth KB	1096.90	Jt. Length
Hole Depth Plugged Back	1105.50	<u>5.3 m</u>
Distance Csg Landed Off Bottom	8.60	
Cementing Company Halliburton Services Ltd.	<u> </u>	
Wash - Type:		3
Cement Type - Lead Slurry Permafrost 11.0T	lume: 9.44	m <sup>3</sup>
Additives <u>CFR-2 0.75%</u> Vo		m <sup>3</sup> /tonne
Cement Type - Tail Slurry <u>Class "G" 36.0T</u> Vo		3
Additives		m <sup>3</sup> /tonne
Cement Type - Above Stage Collar Vol		-
Additives Vo Displacement Rate: Max. $1.1 \text{ m}^3/\text{m}$ Avg. $0.65 \text{ m}^3/\text{m}$	(m3/r	nin)
Calculated Cement Top(s) <u>Permafrost - Surface</u> KB <u>G - 150 m</u>		
Returns: Mud 34 m <sup>3</sup> m3 Cement 3.5	m3	
String Wt. in a mud wt. of:kg/m3 =	daN	
Wt. set on Slips: daN		
Remarks: <u>Caliper log (w/volume integration) appeared to deri</u>	ve volume so	mewhat
<u>higher than actual volume, leading to excessive cement retu</u>	irns.	
	<u>.</u>	

Engineer: J. Reilly

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\A/⊑1	<u>   Exco et al</u>	Wast			PIPE	TALLY	SHEI	ET			PAC	GE	OF	
	<u>139.7mm</u> v										۱C	Tŀ	HRD 8RD	
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6 7	11 43		10		20	<u></u>	<u>11 4</u>		37		36	47		21
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57	11_35_	67	11	09	77		10 4		87	]]	1			21
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F	<u>111   76</u>	G	117	68	Н		110 8	35		111	75 JOIN	<u> </u>	LENGTH	
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С	112 87		337 72		loat ollar—	.54				HT FWD	less	5	22.33	
D	112 85		450 57	0	ther					TOTAL			1097.26	
E	111 87		562 44	L	(	1.03)		J	OINTS	ON LOCATIC	N	1	50	
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G	111 68		785 88			Floa	<u>t sho</u>	be,	floa	<u>t collar t</u>	:hrea	<u>id-lo</u>	скед.	
н	110 85		896 73											
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HALLIBU	RTON DI	STRIC	<u> </u>		CE	MENTING SE	AND/OR RVICE RE		L TOOLS		TTACH TO VOICE No DB ATE	5 02 молтн	19 DAY
CUSTOMER	1		R, OPERATOR OR H		S THE WELL I	FIELD OR AREA	t Parkii		O BE PERFORMED	WELL No. AN			
CALLED OU			lountain D		TEN				LSD	SEC		RANGE	MERIDIAN
	,a			ATE 10:1		85-02-79 13:40	[	ikon					w
TYPE OF	: ЈОВ	<b>√</b>				WEL	L OR HOLE	DATA					
URFACE				·····								BASKETS	
INTERMEDIA	ATE		HOLE HOLE DATA: SIZE _	215 mm	TOTAL ·	1097 <u>m</u>	MUD Gel	Chem <sub>isc.</sub>	70	DENSITY	1190	CENTRALIZE	RS
PRODUCTIO	N	$\checkmark$	CASING, TUBING C	2R	SIZE	139 mm	kg/m 23.(	)7 GRADI	<sub>€</sub> J-55	DEPTH	<u>1097 m</u>	CLAMPS	
NER			LINER DATA NEV		SIZE	mm	kg/m	GRAD	E	DEPTH	<u> </u>	FLOAT COLL	
DUEEZE		_	PERFORATIONS: FF	ROM	<u>m</u>	то	m	FROM	<u></u>	то	m	FLOAT SHOP	
PLUG			FI	ROM			m DISPLAC	FROM	m HaQ	то	<u>m</u> 3.4 _1	GUIDE SHOE	
UMP	TEET		FLUID TYPE:	<u>H20</u> 12		<u>1.59</u>		VOC.	H20		<b>" "</b>	SCRATCHER	
TESSURE T	TEST		TEMP MIXING DATA WATER	12	C SLURR	Y IU		10 1	<u>∠ °C</u> RE	TURNS	°C	OTHER	
<u></u>			L										
						EC	UIPMENT						
PACKE	R		····						CEN	IENT HEAD	•		
TYPE			SIZE	П	TOP PL	UG TYPE		<u>ubber</u>	CON1	rinuous 🗆 🕴		WAGE 🛪	
DEPTH SET					п вотто	W PLUG TYPE	5W_R	ubber	ОТНЕ	ER		<del></del>	
			· · · · · · · · · · · · · · · · · · ·			Ci	EMENT DAT	A			. <u> </u>		
TONNE	API CLASS	. [	BRAND	BULK OR SACKED		CEMENT B	LEND		ADDITI	VES TYPE AND	PERCENT	kg/m³	m³/tonne
11	G		Inland	Bulk	Perm	afrost						1880	0.74
	G		Inland	Bulk	0i1	well			0.75%	CFR-2		1895	0.76
<u> </u>	<u> </u>			<u> </u>	<u> </u>			I					
HALLIB	URTO	N OP	ERATOR		L. Mast	e1	CUS	TOMER R	EP		·····		· · · · · · · · · · · · · · · · · · ·
						тр	EATING	00					
									1				
CHART OSITION	ТІМІ	=	RATE m³/min	•				URE MPa	-		REMARKS		
49449##				STAGE	TOTAL	IN FORMATION		CASING			·		
1	10: 10:	15	0.954				Max Min	1.0	Pump 1.	59 m³ H	l20 wash.		
2	10: 13:	15	0.477					5.0 1.0	Mix and	l pump c	cement.		
3	13: 13:	20	-						Release	e 139 mm	n plug.		
.4	13: 13:		0.67		,			15.0 2.0	Displac	ce with	13.4 m <sup>3</sup>	H20.	
5								-	Bump pl	lug at	7 MPa.		
uçtar	-											100 T	
	1	-				1		1	1				

# BIT RECORD

1.5 <u>ا</u> .5 5. ന ന ĉ ĉ  $\sim$ ര F Ē ⊢ ⊢ DULL COND. മ  $\sim$  $\sim$ 4  $\sim$  $\sim$ 5  $\sim$ 2 വ  $\infty$ ω  $\sim$  $\infty$  $\infty$  $\sim$ 9 .-2400 hours N ഗ 4  $\infty$ 4  $\mathcal{O}$  $\infty$  $\infty$  $\infty$ ¢ Page  $\sim$ 4 1d d r  $\infty$ PUMP OUT -PUT m3/min 1.086 1.310 1.086 1.086 .086 .014 0.760 1.104 1.104 104 977 .38 0.96 1.34 1.37 4 Rig Release Date 85-02-19 Field Eagle Plains Y PUMP PRESS kPa or MPa 4500 5000 5000 8000 8000 Z000 6000 8000 8000 6000 7800 8000 8000 5000 1000 8000 ں م ш S ŋ σ ĽĊ. LΩ ц 9.50PEN 10.3|0PEN 8 12.1 z പ് 9 <u>о</u> တံ **ന** 9. ~  $\sigma$ ς, 8 ო JETS - mm 9.5 ~ ~ ഹ S S 7 7. r 1 16 с. С 2 <u>.</u> 9. ÷ 8 α 8 ۵. ~  $\infty$ 2 #10. 7.9 7.9 12.7 Έ. 8.7 0 5 8.7 8.7 8.7 5 7.] 8.7 5 ~ പ്പ α 8 σ  $\infty$  $\infty$ 0730 hours - 3 cones left on bottom. successfully drilled up with Bit Sarrias BUL 80/100 60/8080/100 55 55 56 55 100 65 60 55 60 001 100 60 42 RPM RPM Prinkson Couling (Custom 94) BIT RECORD LOCATION WEIGHT ON BIT – daN 72 10 16 ഹ Winterhawk 85-02-09 ī 16 20 ŧ <u>ں</u> 20 ł 12 14 15 15 14 I 3 ~ Ē 14 9 14 1.80 2.08 3.80 49 1.65 2.33 8.15 5.24 4.55 4.00 3.37 .94 1.73 4.92 6.01 Exco et al West Parkin Y.T. D-54 I T.D. Date .Rig No. Ream rat hole 50.5023.75 19.25 42.25 12.75 40.75 34.25 56.75 29.00 . 50 ROT. HOURS 6.50 00. .75 25.50 8 18. 33. <u>~</u> 2 Drilling METRES 1200 hours 46 78 58 48 44 40 89 254 64 22 28 53 37 δ 9 Gray Mountain DEPTH OUT 1285 1376 518 810 1123 1245 673 1029 396 460 1167 53 142 53 1001 1077 84-12-20 MAKE & TYPE WELL NAME\_\_ Contractor. Spud Date REMARKS Bit #9 S216-J 215.9 FP64J 215.9 M89TE 215.9 FP63J 215.9 M89F 215.9|M84F J55 XI6 <u>J</u>33 S44 311.2 SDG DSJ .2 XDV N 215.9|F2 215.9|F2 444.5 215.91 215.9 215.9 215.9 2 -2 SIZE 311 311 311 EO. 2 18 2B 38 JA lΑ 7  $\sim$  $\mathbf{c}$ 4 ŝ Q  $\infty$ σ

			No for the second s		<i>Ш</i> і	Winterhawk And Sunday Server Eld	um (Instaling Service l	<u>م</u> ر				P	Page 2	•	
						BIT RECO	D								
		WELL NAME <u>E</u>	<u>xco et al</u>	Exco et al West Parkin Y.T.	kin Y.T. D-	-54 LOCATION	N								
		Contractor Gray Mountain Drilling	<u>/ Mountair</u>	1 Drilling	Rig No	1 (Custom 94)	(1		Field	H Eagle	<u>Plains</u>	Y.T.	1		
		Spud Date 85-1	85-12-20 1	1200 hours	T.D. Date	te 85-02-09	0730 hours	urs	Rig	Rig Release Date	85-02	-19 2400	hours	S	
BIT BIT	SIZE	МАКЕ & ТҮРЕ	DEPTH	METRES	ROT. HOLIPS	WEIGHT ON BIT - daN	N BIT Mga		JETS - mm		PUMP PRESS kPa or MPa	PUMP OUT - PUT m3/min		LL COND.	ġ,
	and arc		1000	103		10	1	- 1.7	1 6.11	4.2 75		1.086	- ∞	<b>n</b> ∞	۹ س
13	215.9		1569	06	44.75	17	60	8.7	9.5	9.5 80	8000	1.086	2	2	<b></b>
14	215.9	HW .144	1685	116	42.00	13	80	8.7	8.7	2	8500	.905	ω	ω	1/8
15	215.9		1763	78	25.25	15	70	7.1	7.1	8.7 80	8000	.796	З	~	<b></b>
16	215.9	Sm	1811	48	16.50	10	65	7.1	7.1	8.7 80	8000	.796	9	5	-
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MUD REPORT

MUD ADDITIVES

Well: Exco et al West Parkin Y.T. D-54

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MUD ADDITIVES

Well: Exco et al West Parkin Y.T. D-54

### DIRECTIONAL SURVEY

Enclosed is the directional survey report for Exco et al West Parkin Y.T. D-54 with the bottom hole co-ordinates calculated as:

Total Depth:	1791.00m
True Vertical Depth:	1784.75 <sup>m</sup>
Latitude:	67.84 <sup>m</sup> N
Departure:	93.18 <sup>m</sup> E
Closure:	115.26 <sup>m</sup> N 53.94 <sup>m</sup> E

Note: The last survey point was taken at 1791.00 metres measured depth while total depth was drilled to 1811 metres.

A directional completion plot is enclosed in the pocket enclosure located inside the back cover.



### DIRECTIONAL SERVICES DIVISION

### DIRECTIONAL SURVEY REPORT

FOR

EXCO ET AL WESTPARKIN D54

EXCO ENERGY LTD.

DATE: 19850327



### COMPLETED DIRECTIONAL SURVEY

PAGE 1

19850327

EXCO ET AL WESTPARKIN D54 EXCO ENERGY LTD.

	STA NO.	TOTAL DEPTH	DRIFT ANGLE	VERT. DEPTH	DRIFT DIRECT	LATITUDE	DEFAR- TURE	VERT. SECTION	DOG LEG
	0	0.00	0.00	0.00	N 00 E	0.00 N	0.00 E		0.00
	1	464.90	0.00	464.90	N 00 E	0.00 N	0,00 E		
unite	2	484.07	2.00	484.07	N 55 E	0.19 N	0.27 E		3.13 0.78
	3	503.24	2.50	503.22	N 55 E	0.62 N	0.89 E		0.40
	4	522.41	2,25	522.37	N 54 E	1.08 N	1.54 E 2.28 E		1.27
	5	541.58	3.00	541.52	N 61 E	1.55 N 2.02 N	2.20 E 3.17 E		0.16
	6	560,75		560.67	N 63 E N 63 E	2.52 N	4.15 E		0.94
	7	579.92	3.60	579.81 500.04	N 66 E	3.04 N	5.24 E		0.30
	8	599.09		598.94	N 64 E	3.57 N	6.37 E		0.51
d action	9	618.26	3.90	618.07	N 64 E N 65 E	4.13 N	7.55 E		0.11
	10	637.43		637.19 (E( 00	N 60 E	4.73 N	8.74 E		0.45
	11	656.60		656.32 675.43	N 71 E	5.29 N	10.06 E		1.23
	12	675.77		673.43 694.55	N 75 E	5.72 N	11.46 E		0.62
	13	694,94 744 14	4.25 4.25	713.66	N 72 E	6.13 N	12.82 E		0.35
	14	714.11 733.28	4.20	732.78	N 75 E	6.55 N	14.24 E		0.66
	15	733,28 752,45	4.90	751.88	N 69 E	7.04 N	15.74 E		0.91
	16	771.62	5,00	770,98	N 74 E	7.56 N	17.31 E		0.69
	17	790.79	5.25	790.07	N 69 E	8.11 N	18.93 E		0.80
	18 19	809.96	5.75	809.16	N 75 E	8.67 N	20.68 E	21.82	1.19
éyős <del>a</del>	20	829.13	5.90	828.23	N 74 E	9.19 N	22.55 E	23.64	0.28
	20	848.30		847.29	N 72 E	9.77 N	24.45 E	25.52	0.36
	22	847,47		866.36	N 71 E	10.39 N	26.32 E	27.39	0.42
loomerf	23	886.64	5.60	885.44	N 70 E	11.02 N	28.10 E	29.21	0.28
	23 24	905.81	5.75	904.51	N 67 E	11.72 N	29.87 E	31.04	0.52
	25	924.98	5.75	923.59	N 65 E	12.50 N	31.62 E	32.92	0.31
610962	26	944.15	6.00	942.66	N 71 E	13.23 N	33.44 E	34.82	1.04
	27	963.32	5.75	961.73	N 69 E	13.90 N	35.28 E	36.71	0.51
	28	982.49	5,50	980.80	N 69 E	14,58 N	37.04 E	38.52	0.39
- here #	29	1001.66		999.88	N 68 E	15.28 N	38.82 E	40.38	0.80
	30	1020.83		1018.95	N 67 E	16.03 N	40.64 E	42.29	0.35
	31	1040.00		1038.01	N 64 E	16.85 N	42.43 E	44.22	0.58
	32	1059.17	6.00	1057.08	N 62 E	17.76 N	44.22 E	46.20	0.33
	33	1078.34	5.90	1076.15	N 68 E	18.60 N	46.02 E	48.15	0.92
	34	1097.51	6.25	1095.21	N 68 E	19.36 N	47.90 E	50.12	0.55
	35	1116.68	6.00	1114.27	N 70 E	20.10 N	49.81 E	52.09	0.51
-0.46 <sup>0</sup>	36	1135.85	5,90	1133.34	N 72 E	20.74 N	51.69 E	53.99	0.36
	37	1155.02	6.00	1152.40	N 71 E	21.37 N	53.57 E	55.89	0.23
	38	1174.19	5.20	1171.48	N 62 E	22.11 N	55.29 E	57.71	1.86
	32	1193.36	5.25	1190.57	N 69 E	22.83 N	56.87 E	59.41	1.00
	40	1212.53	5.75	1209.65	N 68 E	23.50 N	58.58 E	61.19	0.80
	41	1231.70	5,75	1228,73	N 75 E	24.11 N	60.40 E	63.02	1.10
	42	1250.00	5.75	1246.94	N 47 E	24.97 N	61.95 E	64.79 70.44	4.55
al-spane	43	1309.00	5.50	1305.66	N 38 E	29.22 N	65.86 E	70.44	0.47 0.29
	44	1353.00	5.30	1349.46	N 42 E	32.39 N	68.51 E	74.45	14 a 4

COMPLETED DIRECTIONAL SURVEY

and see a start

PAGE 2 19850327

EXCO ET AL WESTPARKIN D54 EXCO ENERGY LTD.

STA NO.	TOTAL DEPTH	DRIFT ANGLE	VERT. DEPTH	DRIFT DIRECT	LATITUDE	DEPAR- TURE	VERT. SECTION	DOG LEG
 45	1420.00	2,80	1416.29	N 23 E	36.20 N	71.23 E	78.89	1.26
46	1510.00	3.00	1506.18	N 15 E	40.49 N	72.69 E	82.60	0.15
47	1567.00	3,50	1563.09	N 37 E	43.33 N	74.13 E	85.43	0.70
48	1625.00	6.75	1620.85	N 38 E	47.43 N	77.29 E	90.40	1.68
49	1654.00	10,00	1649.53	N 38 E	50.75 N	79.89 E	94.46	3.36
50	1683.00	10,50	1678.07	N 44 E	54.64 N	83.28 E	99.48	1.22
51	1702.00	10,00	1696.77	N 49 E	56.97 N	85.73 E	102.83	1.61
52	1744.00	8.75	1738.21	N 38 E	61.88 N	90.44 E	109,54	1.56
53	1759.00	7.75	1753.06	N 24 E	63.70 N	91.56 E	111.51	4.47
54	1791.00	8.25	1784.75	N 19 E	67.84 N	93.18 E	115.26	0.80





PAGE 3

#### COMPLETED DIRECTIONAL SURVEY

DATE: 19850327

COMPANY: EXCO ET AL WESTPARKIN D54

WELLNAME: EXCO ENERGY LTD.

THE DRIFT DIRECTION IS EXPRESSED IN QUADRANT DIRECTION. ALL ANGLES ARE EXPRESSED IN DECIMAL DEGREES ALL DISTANCES ARE EXPRESSED IN METRES A DECLINATION OF 34 DEGREES EAST HAS BEEN APPLIED. VERTICAL SECTION WAS CALCULATED ALONG N 53.94 E CLOSURE IS 115.26 METRES N 53.94 E DOGLEG SEVERITY IS IN DEGREES PER 30 METRES. MINIMUM CURVATURE METHOD OF CALCULATION

### PRESSURE TESTS

Enclosed is a record of the pressure test performed on the  $244^{\text{mm}}$  casing and Blow Out Preventors.

μAI	LIBURT	ON
(* 11993)		<u> </u>

# **CEMENTING AND/OR SPECIAL TOOLS**

ATTACH TO INVOICE No.

SERVICE REPORT

JOB DATE 01 1985 06

HALLIBURTON DISTRICT	
Frontier	

		VNER	OPERATOR OR HI	S AGENT STATE	S THE WELL #	S IN GOOD CONDI	TION FO	R THE SERVI	CE JOB TO	D BE PERFORME	D AND SUBMITS		G DATA.	
USTOMER						FIELD OR AREA					WELL No. ANI			
- Grav	Moun	ita	in Drilli	na		Wes	st Pa	arkin			Wes	t Parkin	D-54	
CALLED OUT	110 01		LOCATION		-06	108 COMPLETED		PROVINCE		LSD	SEC	TWP	RANGE	MERIDIA
	DATI TIME			ME 07:0		14:00	DATE TIME	Yukor	l					w
TYPE OF J	ОВ 🗸	7				WEL	LORI		ΓA				ļ	DUCTS
											×		BASKETS	
JRFACE			HOLE HOLE		TOTAL		TYPE						CENTRALIZ	
NTERMEDIATE			DATA: SIZE _	៣៣	DEPTH	m							CLAMPS	
RODUCTION			CASING, TUBING O	R V C1	SIZE		-				DEPTH		FLOAT COL	
NER			USE			<u>mm</u>							FLOAT SHO	
LIUEEZE		1	PERFORATIONS: FR										GUIDE SHO	
PLUG		4	FF	IOM	m	то m <sup>3</sup>		DISPLACING	1	<u> </u>	TO	<u> </u>	INSERT FLO	
9MP		4			VOL	m³	~	FLUID TYPE:			VOL	m³	SCRATCHE	
IESSURE TES	ST V		TEMP MIXING		<u>°C</u> SLURR'	Y	<u>•C</u> F1			<u>°C</u> Ri	ETURNS	<u></u>	OTHER	
~~~~		-					QUIPN	ACNIT						
											MENT HEAD	<u> </u>		
PACKER				_	_									
ТҮРЕ 	·		SIZE			UG TYPE								
SET					п вотто	M PLUG TYPE					icn			
Max.						C	EMEN	T DATA						
TONNE	API CLASS		BRAND	BULK OR SACKED		CEMENT 8	LEND			TICOA	IVES TYPE AND	PERCENT	<u>kg/m<sup>:</sup></u>	<sup>i</sup> m³/ton
				· · · · · · · · · · · · · · · · · · ·										
			······											
HALLIBU	RTON	OPE			R. Drad	ler		CUSTO	MER R	EP			· · · · · · · · · · · · · · · · · · ·	
			·····				CAT.		~					
			<u>,</u>					ING LO		1	<u></u>			
CHART DSITION	TIME		RATE m³/min	, VOL STAGE	UME PUMPED	IN m <sup>3</sup>	т	PRESSURE	CASING	-		REMARKS		
nai					-					Pressu	re test	choke li	ne.	
										Choke	manifolo	i.		
										Blind	rams. (	losed du	uring a	11
							<u> </u>			tests.				
										BOP st				
										HCR va				
<u></u>							_			2.0 MP				
×.										10.5 M	lPa high	•		

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		1	8	Į.	1	1	31	10	IC	)N	1
ł					: سک		-			<b>, , , ,</b>	I

### CEMENTING AND/OR SPECIAL TOOLS SERVICE REPORT

ATTACH TO

						SEI	RVICE	E REPO	RT					
HALLIBURTON													5 01	06 )
<u> </u>	onti		<u></u>									YEAR	MONTH	DAY
5	OWN	ER, OPERATOR	OR HIS AGE	NT STATES	S THE WELL IS	F	TION FOR	THE SERVIC	CE JOB TO	D BE PERFORMED	AND SUBMITS		G DATA.	
JSTOMER	Mau	ntain Du		~		FIELD OR AREA	+ Dav	nkin				Parkin	D_ 54	
CALLED OUT		ntain Di		ING START	50	IOS COMPLETED	2	ROVINCE		LSD	SEC	ι τωρ	RANGE	MERIDIAN
CALLED OUT		UN LOCATION	DATE	85-0	1-06	85-01-06 23:00	DATE	AQ VINGE						
	DATE TIME		TIME	20:	30 тіме	23:00	TIME	Yuko	n					W
		1											PROF	DUCTS
TYPE OF JO	в 🖌					WELL	L OR H	OLE DAT	A				EQUIPMENT	
RFACE										·			BASKETS	
		HOLE HO DATA: SI	)LE ZE	mm	TOTAL	m	TYPE		VISC.	D	ENSITY		CENTRALIZI	ERS
PRODUCTION		CASING, TUE			SIZE					D			CLAMPS	
ER		LINER DATA	NEW 🖸			mm	-				EPTH		FLOAT COL	
UEEZE		PERFORATION								m			FLOAT SHO	ε
PLUG										<u> </u>			GUIDE SHO	E
<u>с</u> чмр		WASH			VOL	m³	DI	SPLACING			_vol	m³	INSERT FLO	АТ
ESSURE TEST		TEMP MIX	ING		C. SLURA	m	•C DIS	PLACING		C RET	URNS	°C	SCRATCHE	۹S
ОТНЕЯ		DATA WA	TER				FLU	ыо 					OTHER	
		-				EC		ENT						)
innya	v													
PACKER											ENT HEAD		_	
2.		SIZE		៣	TOP PLU	JG TYPE						NOCK OFF 🗇 S	WAGE 🗆	
) DEPTH. SET		m TAIL PIPE		1	м воттом	A PLUG TYPE				OTHEF	?			
lanneau.						CE	EMENT	DATA						
TONNE	API ASS	BRAND	BL	JLK OR ACKED		CEMENT 8	LEND			ADDITIV	ES TYPE AND	PERCENT	kg/m³	m³/tonne
	<u>_ASS</u>		5,	ACKED										
<pre></pre>														
/		· · · · · · · · · · · · · · · · · · ·			D D	J =								
HALLIBUR	TON O	PERATOR _			R. Drad	ler		CUSTO	MER R	EP				
· .														
/						TR	FATI	NG LOO	3					
jooraanaa'							• • • • • •							
HABT		RATE		VOL	UME PUMPED	<sup>4</sup> M m <sup>3</sup>	1	PRESSURE I	vi Pa			REMARKS		
SITION	TIME	m³/min		TACE	TOTAL	IN	ти		ASING			REMARKS	•	
******				TAGE		FORMATION								
										Pressure	e test:	BOP's		
} <b> </b>														
										Pipe ram	ıs, hydr	il, inn	er and	outer
										kill val	ve, kee	ey cock	and sta	bing
i i i i i i i i i i i i i i i i i i i										valve.				
14 I						1				1				

<b>*</b>				
HALLI	BURTC	)N)		

### CEMENTING AND/OR SPECIAL TOOLS SERVICE REPORT

ATTACH TO

	• • • • • • • • • • • • •	/			SER	VICE RE	PORT					
			)						JOB DATI		35 0	1 07
<u> </u>	Fronti									YEAR		DAY
USTOMER		ER, OPERATOR OR	HIS AGENT STATE		FIELD OR AREA	UN FOR THE SE			NELL No. AND	LEASE		
		ntain Dri	lling			: Parkin			West	Parkir	D-54	
CALLED OUT	г (	ON LOCATION	JOB STAR	TED	JOB COMPLETED	PROVING	CE.	LSD	SEC	TWP	RANGE	MERIDIAN
	DATE		DATE 85-01	DATE	85-01-07 07:30		kon					w
	TIME			30 TIME	07.30	тіме ( Ц				1		<u> </u>
TYPE OF	JOB 🖌		· •		WELL	OR HOLE C	ATA					OUCTS
	+										EQUIPMENT BASKETS	QUAN
URFACE	<b>T</b> F	HOLE HOLE	215 0	TOTAL AG	۲ ۲	YPE Gol		<u>_30</u> DE	٦	040	CENTRALIZ	RS
PRODUCTION											CLAMPS	
NER		LINER DATA NE	w 🗆					E DI			FLOAT COL	LAR
OUEEZE						-		י <u>m</u> ח			FLOAT SHO	E
PLUG					то	tij F	ROM	r <u>m</u>			GUIDE SHO	<u> </u>
UMP		WASH		100	1	DISPLACI	05.		.VOL	m³	INSERT FLO	·
RESSURE		TEMP MIXING DATA WATER		C SLURRY	0.	C. DISPLACIN	G	<u>°C</u> RETU	JRNS	°C	OTHER	15
OTHER		DATA WATER									UTHER	
		-2										
-					EQ	UIPMENT						
PACKE	0							CEME	INT HEAD			
		SIZE	rt	TOP PLU	G TYPE					OCK OFF 🗆	SWAGE 🗆	
ОЕРТН					PLUG TYPE			OTHER				
SET -		PIPE										
	· · · · · · · · · · · · · · · · · · ·											
Annalanta					CEI	MENT DAT	<b>A</b> .					
TONNE	API CLASS	BRAND	BULK OR	T	CEMENT BL	IND		ADOITIVE	S TYPE AND P	ERCENT	kg/m³	m³/tonne
	LLASS		SACKED									
												······
UALUR!		PERATOR		R. Dra	der	CUS	TOMER R	EP				
HALLIB												
					TRE	ATING L	OG					
			VO	LUME PUMPED	IN mª	PRESSU	IRE MPa					
CHART	τιΜε	RATE m <sup>3</sup> /min	•	· ·	IN		C. (511)C	1.		REMARKS	i.	
Phone:			STAGE	TOTAL	IN FORMATION	TUBING	CASING					
								Pressure	up for	mation	to esta	ıblish
						<u> </u>						
o-1052"	1							formatio	n break	down j	pressure	2.
								P.I.T.				
prahab								0.8 MPa	surface	press	ure no	
i <u>.</u>		<u> </u>						breakdow	```			
						<u> </u>	1	DIEakuuw				

### PLUGGING BACK PROCEDURE

The well was plugged back from 1811 metres total depth to 1097 metres, plug back depth. Subsequently, 139.7mm production casing was run from surface to the 1097 metre depth.

				<i>u</i>	Vinterhawk	Pandaum Om	ulting Servize L	Ū	P.	AGE		
					IDONMENT		C	DATE		-02-17		
		· · · · · ·	<u>t Parkin</u>	Y.T.	D-54	Location						
а. И										1011		
<b eleva<="" td=""><td>ation</td><td>506.85</td><td>5 m</td><td> K</td><td>(B to CF</td><td>3,98</td><td>_m T</td><td></td><td>FTD</td><td>1811</td><td></td><td> </td></b>	ation	506.85	5 m	K	(B to CF	3,98	_m T		FTD	1811		 
Hole	Size	Hole De	oth Casi	ing Size	Casing	Depth	Ce	ment To	p(s)	Pe	erfs	
444	.5	53	33	9.7	5	3	Su	<u>rface</u>		Ň	I/A	
311	.2	460	24	4.5	46	0	Su	<u>rface</u>		<u> </u>	I/A	4
215	.9	1811	13	9.7	109	7	Su	rface		N	I/A	-
-luid in	Hole		ling mud		Aband							-
Plug	T	terval	Formatio		Cem Vol	Cer Typ	n	Cem Wt.	Plug Down	Fe	It Plug Depth	٦
1	1711	- 1811	Devonian			Class + 2% (	"G" aCla	1895			) hrsnc	
2	T		Carbonife	1	5.40	Class + 2% (	acl <sub>2</sub>	1895	85-02-	17 85-	02-18 120	20
<b>.</b>	Plua	#2 was	run and se	et to	facilitate	the s	ettir	ng of	  39.7mm	produ	ction	-
	1				led from 1				1			-
			Open_er N/A		irface Plug	N/A		PI;	l ate Welde	d <u>On to</u>	p of casi bowl	_  ing
		GE DATA										
D.	REMAR	KS							· · · · · · · · · · · · · · · · · · ·			
					ENGINEER		J.	Reill	<u>y</u>			

HALLIBURTON DISTRICT						IENTING A SER	ND/OR VICE RE	JOB 198	5 02	17		
~			ier	)						YEAR	MONTH	DAY
JSTOMER		OWN	ER, OPERATOR OR N	IS AGENT STATE		FIELD OR AREA	UN FOR THE S	ERVICE JOB 1	O BE PERFORMED	D AND SUBMITS THE FOLLOWIN	G DATA,	
_ Gray	y Moi	unt	ain Drilli	ng		West F	Parkin			West Parkin	D-54	
ALLED OUT	DA	ATE IME		JOB START	TED J CO DATE TIME	ов сомреетер 85-02-17 18:30	7 DATE TIME	∝ ukon	LSD	SEC TWP	RANGE	MERIDIA W
YPE OF	JOB	$\checkmark$										
RFACE TERMEDIA RODUCTION ER UEEZE UG WP ESSURE T OTHER	4	<u></u>	CASING, TUBING C LINER DATA NEV USEI PERFORATIONS: FF		SIZE SIZE	811 m N <u>114 mm</u> k k TO 1.59m <sup>3</sup>	g/m <u>24.</u> g/m	7 GRADI GRADI ROM ING IPE:	⊧	DENSITY <u>1190</u> DEPTH <u>1812 m</u> DEPTH <u>m</u> TO <u>m</u> TO <u>m</u> TO <u>m</u> TO <u>m</u>	BASKETS CENTRALIZE CLAMPS FLOAT COLL FLOAT SHOE GUIDE SHOE INSERT FLO SCRATCHER OTHER	AR E
	I.					FOI	UIPMENT					
м												
PACKER  TYPESIZETOP PLUC DEPTHTAILBOTTOM SETPIPEBOTTOM						G TYPE				CEMENT HEAD CONTINUOUS CONCENTRIANS NOCE OFF SWAGE CONTINUOUS NOCE NOCE OFF SWAGE CONTINUES OF THE SWAGE SWAGE SWAGE CONTINUES OF THE SWAGE SWAGE CONTINUES OF THE SWAGE SWAGE S		
						CEN	IENT DAT	۹				
TONNE		5	BRAND	BULK OR SACKED		CEMENT BLE	NÖ		ITIGOA	VES TYPE AND PERCENT	kg/m³	m³/ton
7.03	G		Inland	Bulk	<u>Oilw</u>	e11				······································	1895	0,76
			× ·				· · · · · · · · · · · · · · · · · · ·			······································		
ĨALLIBU	JRTON	N OP	ERATOR		. Maste	1	cus	TOMER RI	EP			
,						TRE	ATING L	OG				<u></u>
HART			RATE	VOLUME PUMPED		IN m <sup>2</sup> PRESSURE MP		IRE MPa	REMARKS			
SITION	TIME		m³/min	STAGE	TOTAL	IN FORMATION	TUBING	CASING				
									Pump 1.	59 m³ H2O wash.		
~									Mix and	pump cement.		
									Displac	e to balance.		
-												
44												

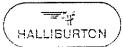
### Gray Mountain Drilling West Parkin D-54

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## PLUG BACK JOB DATA

PLUG		EPTH	TONNE	DISPLACEMENT	TIME (min)	
NO.	TOP	BOTTOM	TONNE	(m³)		
]	1711	1811	5.6	11.4	13:30	
2	1100	1130	1.43	7.8	18:30	

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SECTION IV

LOGGING SUMMARY

# SECTION IV

### LOGGING SUMMARY

## JANUARY 14, 1985

- DIL/ BCS-GR-CL/ CDL-CNS-GR-CL4/ WEL
- MUD LOG refer to pocket enclosure
- LITHOLOGY refer to pocket enclosure

### 1985

## DIL-GR/ CDL-CNS-GR-CAL/ BCS-GR-CAL/ MEL-GR-CAL

## FEBRUARY 10, 1985

460.2<sup>m</sup> - 1804.5<sup>m</sup>

MUD LOG

LITHOLOGY LOG