INDEX

COMPANY ..... Imperial Oil Limited

SIGNED BY ..... 

TITLE ..... Well Records Supervisor

DATE ..... December 9, 1970.

BLOW RIVER YT E-47

SECTION I -- SUMMARY OF WELL DATA

(a) Name and Number -- IOE BLOW RIVER YT E-47 68°50'-137°15'

(b) Permittee -- Imperial Oil Enterprises Ltd.

(c) Operator -- Imperial Oil Enterprises Ltd.
10025 Jasper Avenue, Edmonton, Alberta.

(d) Location E-47 68°50'-137°15'
Lat. 68°46'20"N. Long. 137°27'13"W.
Universal Well Location Reference: LAT. 68°. 77222N.
LONG.137°. 45361W.
Unique Well Identifier : 300E476850137150

(e) Co-ordinates N/A.

(f) Permit Number 3754

(g) Drilling Contractor -- IOE #3 Rotary

(h) Drilling Authority -- #432 issued March 20, 1970.

(i) Classification -- N.F.W.

(j) Elevations -- K.B. 384' Grd. 368'

(k) Spud -- May 8, 1970.

(l) Completed Drilling -- November 8, 1970.

(m) F.T.D. -- 14,000'

(n) Status -- D. & A. Rigged for Temp. observation

(o) Rig Release -- November 15, 1970.

(p) Hole Size --

0 - 793	26"
793 - 4050	17 1/2"
4050 - 10,000	12 1/4"
10,000 - 14,000	9 1/2"

(q) Casing --

SIZE	SET AT	CEMENT
28 and 36	64	150
20	782	1800
13 3/8	4047	1000 + 2000 + 20
10 3/4	9998	2000 + 1720

SECTION II -- GEOLOGICAL SUMMARY

(a) Formation Tops

LOG INTERVAL	FORMATION
0 - 5687'	LOWER CRETACEOUS
5687 - 8000	LOWER CRETACEOUS OR UPPER JURASSIC
8000 - 10,020	UPPER JURASSIC
10,020 - 14,000	MIDDLE JURASSIC

(b) Cored Intervals

NO.	INTERVAL	RECOVERY	FORMATION
1	1032 - 1055'	22'	Lower Cretaceous
2	2007 - 2032	12	
3	3168 - 3180	12	
4	3389 - 3401	9	
5	4120 - 4132	7 1/2	
6	5000 - 5024	24	
7	5668 - 5693	25	
8	6657 - 6682	25	L. Cret. or Upper Jurassic
9	7118 - 7143	25	
10	7426 - 7451	25	
11	8420 - 8445	25	Upper Jurassic
12	9276 - 9300	24	
13	10002 - 10027	25	
14	10073 - 10080	6	Middle Jurassic
15	11107 - 11136	29	
16	12082 - 12087	4	
17	13019 - 13025	5	

MECHANICAL CORE SLICER

Run 1	13984 - 13987 13514 - 13517 11867 - 11870 11341 - 11344	Recovered a total of 9'
Run 2	13947 - 13950 11864 - 11867 11609 - 11612 11357 - 11360	Recovered a total of 7'

(c) Core Description

CORE #1: 1032 - 1055' Recovered 22/23'

1032 - 1035.5' Interbedded black mudstone, ultra fine sand. Very thin beds, wavy, parallel.

1035.5-1037.8' Ulta fine sand, slightly calcareous quart, some lithic, salt and pepper, trace pyrite.

1037.8-1039' Interbedded black micaceous mudstone and ultra fine sand (as above), thin beds, wavy continuous and distontinuous, trace pyrite.

1039-1041.5 Ultra fine sand as 1035.5-1037.8'. Shaly at base.

1041.5-1045.1' Black mudstone, few beds of ultra fine sand.

1045.1-1045.5 Sandstone to conglomerate, chert and lithic quartz, silica cement, trace bitumen, pyrite cement.

1045.5-1054' Mudstone and ultra fine sand as above, thin to 3" beds of sand. No continuous dip in core.

53, 19, 17, 19, 17, 20, 17, 21, 23, 27, 26, 34, 35, 39, 35, 39, 38, 36, 40, 48, 60, 39, 48 minutes per foot.

CORE #2: 2007 - 2032' Recovered 12/25'

Mudstone, grey-black, slightly micaceous, some very thin beds of ultra fine sand (02"), salt and pepper, very light. The fractures are lined with silica cement (slightly calcareous).

29, 23, 18, 22, 18, 23, 20, 19, 21, 19, 20, 17, 16, 16, 24, 24, 22, 25, 24, 24, 21, 20, 26, 28, 25 minutes per foot.

CORE #3: 3168 - 3180' Recovered 12/12'

3168 - 3171' Mudstone and silty mudstone, grey-brown, pyritic ultra fine sand, salt and pepper, highly contorted slickensides up clast. Fractures.

3171 - 3173.5' Ultra fine pyritic sand, salt and pepper, very tight. Vertical and horizontal fractures filled with quartz crystals, trace vugular porosity, trace chert pebbles.

3173.5-3180 Mudstone, grey-black and grey-brown, silty mudstone, grey-black. Ultra fine sand, pyritic, salt and pepper, slickensides up clast, no apparent bedding, miniature faults, numerous fractures, vertical and horizontal, 75% filled with secondary quartz crystals.

CORE #3 Cont'd: 3168 - 3180'

32, 23, 15, 75, 20, 20, 15, 17, 19, 22, 47, 30 minutes per foot.

CORE #4: 3389 - 3401' Recovered 09/12'

Mudstone, dark grey, firm, flakey, brittle and massive, vertical fractures lined with secondary quartz, slickensided, trace pyrite and ash. Tight. No stain.

43, 18, 19, 17, 25, 14, 15, 18, 25, 33, 16, 34 minutes per foot.

CORE #5: 4120 - 4132' Recovered 7.5/12'

4120 - 4125.7' Mudstone, dark grey to black, trace micromicaceous, trace pyrite (numerous pyrite laminae and occasional pyrite nodules, rare carbonaceous material, blocky). Laminae dips approximately 45°, slickenside evident.

4125.7-4126.5 Siltstone, muddy, medium grey, grades to very silty mudstone. Interval is highly contorted with convolute bedding.

4126.5-4127.5' Mudstone, as above.

31, 18, 17, 16, 18, 14, 15, 14, 17, 15, 15, 15 minutes per foot.

CORE #6: 5000 - 5024' Recovered 24/24'

Mudstone, 80%, dark grey to black, hard micaceous, subfissile, slickensided in part, slightly silty.
Sandstone, 20%, dark grey, very fine to fine grained, mainly quartz with chert, argillaceous, 15-20% silica cement, tight, vertical fractures filled with silica.
Beds and lenses of sandstone, 1/4 to 2 inches thick occur in the mudstone. These beds are generally contorted, wavy, discontinuous and variable in thickness. Contacts with the mudstone are sharp. Dips vary from zero to ten degrees. Bedding in the mudstone is indistinct. Microfaults are common, especially near the base of the core, and a complex folding pattern in the shale occurs between 8 and 9 foot marks. Pyrite occurs as grains and as thin discontinuous lenses in the mudstone. Rounded grains of sandstone and chert (1/4 to 1/2 inches in diameter) are found floating in the mudstone at a number of places. The structures suggest a turbidite deposit although a tidal flat environment is also a possibility.

20, 21, 21, 19, 14, 11, 13, 13, 13, 14, 12, 13, 12, 13, 11, 10, 11, 10, 10, 11, 11, 12 minutes per foot.

CORE #7: 5668 - 5693' Recovered 25/25'

5668 - 5669.5' Sandstone, medium grey, fine grained, very hard, quartz with chert, angular, argillaceous, tight, 20% silica cement, vertical vein fractures filled with silica, with 20% rounded to subrounded quartz and chert pebbles (1/8 to 1/2" in diameter) floating in the sandstone. 30% rip up clasts of black shale.

5669.5-5693' Shale, black, hard, brittle, finely laminated with abundant thin almost horizontal partings of fine medium grey sandstone, dips zero to two degrees, some slickensides.

39, 49, 36, 29, 22, 20, 24, 20, 22, 21, 21, 21, 20, 20, 18, 20, 20, 18, 19, 18, 17, 16, 17, 18, 18 minutes per foot.

CORE #8: 6657 - 6682' Recovered 25/25'

Shale, dark grey to black, micaceous, subfissile, medium hard with fine wavy discontinuous laminae of shale (95%), light to medium grey, salt and pepper, very fine to fine grained quartz and 50% mud as cement. Quartz is sub-angular, moderately sorted, trace of vuggy porosity. The sandstone is found as thin laminae and flaser bedding within the shale.
The core contains numerous slickensides parallel to the bedding plane and micro "tension" fractures occurring parallel and perpendicular to the bedding plane. These fractures are filled with quartz (50%) and anhydrite and gypsum (50%). Shale clasts less than 1/4" in diameter and pyrite in small amounts are also associated with the fractures. Ball and pillow structures caused by slumping and/or tectonism are present. Slump structures are also present at about 6665.

28, 18, 18, 16, 12, 12, 10, 11, 11, 11, 11, 11, 16, 19, 15, 17, 16, 15, 16, 16, 16, 16, 16, 13, 12 minutes per foot.

CORE #9: 7118 - 7143' Recovered 25/25'

Shale (60%), medium grey, micaceous, subfissile to fissile, moderately hard, very slightly pyritic, interbedded with sandstone (40%), light to medium grey, salt and pepper, ultra fine to fine grained, with 60% quartz grains, subangular, poor to moderate sorting, and 40% silaceous, very slightly calcareous mud as cement, trace to poor porosity (pinpoint and intergranular), ineffective, poor permeability, no oil staining or fluorescence.
The sandstones occur as thin beds up to 1" thick and also as fine discontinuous wavy laminae which show evidence of flaser bedding. Flame structures are also present.

CORE #9 Cont'd: 7118 - 7143'

From 7125 - 7127' there is evidence of contorted bedding to a high degree, probably caused by fracturing. Numerous micro "tension" fractures, filled with quartz (75%) and anhydrite (20%) and calcite (05%). Dips vary from 10° at the top to near horizontal at the base. Slickensides occur along the bedding plane only in the shales and have anhydrite and minor amounts of pyrite associated with them.

25, 14, 14, 13, 11, 12, 10, 13, 10, 13, 13, 13, 10, 9, 9, 11, 10, 10, 12, 11, 10, 11, 11, 9, 11 minutes per foot.

CORE #10: 7426 - 7451' Recovered 25/25'

Interbedded shale (60%) medium grey, micaceous, subfissile to fissile, moderately hard, very slightly pyritic, and sandstone (40%), light to medium grey, salt and pepper, very fine to fine-grained, lithic, subangular, moderately sorted quartz grains (50% of rock) and silaceous mud as cement (50% of rock), trace of very poor vuggy and pinpoint porosity, ineffective, no fluorescence or oil staining.
The sandstones occur as thin beds up to 1/2" thick and as fine discontinuous and continuous laminae and show evidence of flaser bedding.
There are numerous tension fractures filled with anhydrite or gypsum. One fracture (2-3 MM wide and 2 1/2 feet long) occurs at about 7443' and is filled with milky white, hard crystalline quartz. There are shale clasts assimilated in the quartz vein indicating that the vein intruded into the interbedded sandstone and shale. The shale clasts are oriented in a position perpendicular to the bedding plane. Distorted bedding at 7442 was also caused by fracturing. Minor cross bedding, probably due to slumping and ball and pillow structures, occur from 7342 to 7434.5'. Slump structures are also evident. Slickensides and cleavage planes occur parallel to the bedding plane.

22, 17, 9, 9, 9, 10, 10, 8, 9, 9, 8, 8, 10, 8, 9, 7, 8, 10, 8, 9, 9, 9, 8, 9, 9, minutes per foot.

CORE #11: 8420 - 8445' Recovered 25/25'

Interbedded shale (80-85%), dark grey, subfissile, micaceous, slightly pyritic, moderately hard, and sandstone (15-20%) medium grey, salt and pepper, fine to ultra fine grained quartz (55%), subangular, moderately sorted and 40% mud and 05% calcareous, siliceous cement. Trace of ineffective pinpoint porosity, no staining, no fluorescence.
The sandstones appear as thin continuous beds up to 3/4" thick and as fine discontinuous laminae which show evidence of flaser bedding.
There are numerous micro fractures throughout perpendicular to

CORE #11 Cont'd: 8420 - 8443'

the bedding plane. These are completely infilled with quartz and calcite. There is also evidence of a small slump structure and numerous longitudenal ripple marks at 8440'.

27, 8, 10, 11, 10, 13, 12, 12, 13, 13, 10, 11, 13, 10, 10, 11, 11, 11, 10, 12, 12, 9, 12, 10, 11 minutes per foot.

CORE #12: 9276 - 9300' Recovered 24/24'

9276 - 9278' Shale, medium grey, micaceous, medium hard, trace pyrite, generally in fine hairline fractures, trace slickensides.

9278-9288.5 Shale, medium grey, micaceous, medium hard, numerous fractures lined with calcite and filled with secondary quartz and pyrite; pyrite in crystalline form in quartz and nodular in shale, trace ineffective vuggy porosity in quartz. Shale fragments in quartz.

9288.5-9300 Shale, medium grey, interbedded with light grey silty shale, trace pyrite, trace quartz filled fractures, trace slickensides.

23, 16, 13, 15, 13, 19, 15, 23, 19, 14, 19, 24, 25, 29, 27, 25, 21, 17, 27, 25, 25, 32, 33, 36 minutes per foot.

CORE #13: 10,002 - 10,027' Recovered 25/25'

Shale, micaceous, medium to dark grey, trace pyrite, trace calcareous, interbedded with ulta fine sand (silt), salt and pepper. 80% quartz, 20% argillaceous material, cemented with calcite and silica, well sorted silt, extremely hard. No porosity or staining.
Shale and siltstone bedding occurs as very thin to medium wavy discontinuous beds. Fractures in lower part of core filled with calcite and quartz, traces of fractures with no infilling, (porous). There is also a 3' bed of siltstone, as above, from 10,017 to 10,020'.

22, 31, 17, 16, 24, 31, 15, 17, 16, 15, 16, 17, 17, 15, 15, 16, 15, 15, 15, 19, 17, 18, 19, 23, 20 minutes per foot.

CORE #14: 10,073 - 10,080' Recovered 6/07'

10073-10077 Sandstone, dark brownish grey to black, somewhat lithic to quartzitic, moderately silty to argillaceous, calcareous with a vertical calcite fracture in which numerous euhedral quartz crystals have formed, very fine to fine grained, good to moderate sorting, angular to subangular. Has well developed parallel bedding with dips averaging 30°. Trace of slickenside at 10075'. Tight with no fluorescence or staining.

10077-10078' Shale, black, subfissile, slightly micromicaceous. Evidence of sharp contact between silty sandstone and this shale.

10078-10079' Siltstone, dark grey to black, very slightly arenaceous, highly argillaceous, somewhat laminated with vertical micro-fractures present throughout. Tight; fractures, infilled with calcite.

10, 17, 19, 15, 21, 13, 35 minutes per foot.

CORE #15: 11,107 - 11,136' Recovered 29/29'

90% siltstone and fine sandstone, 10% shale in thin 1/2" to 6" bands, scattered throughout. Siltstone and sandstone, salt and pepper, very thin cross bedding band of shale. Quartz, 70%, argillaceous material 30%, calcite and silica cement, very hard, tight. Shale, micaceous, light grey, trace pyrite lined burrows. Trace pyrite.

28, 21, 15, 13, 17, 12, 16, 14, 15, 13, 13, 16, 13, 17, 11, 16, 16, 18, 15, 20, 15, 12, 15, 20, 14, 15, 16, 33, 21 minutes per foot.

CORE #16: 12,082 - 12,087' Recovered 4/5'

90% sandstone and siltstone, salt and pepper, argillaceous, numerous fractures lined with quartz crystals and calcite interfacies, very fine to fine grained, very hard and tight, no staining. 10% shale, micaceous, scattered throughout core, dark to medium grey, trace pyrite.

35, 10, 17, 18, 22 minutes per foot.

CORE #17: 13,019 - 13,025' Recovered 5/6'

Interbedded siltstone and sand with shale, 70% siltstone and sand, very fine to fine, salt and pepper, quartz, silica cement, very tight and hard. Nil porosity, numerous fractures. 30% thin bedded shale, micaceous, very hard and brittle, dark grey. Trace pyrite.

12, 14, 13, 16, 14, 33 minutes per foot.

(d) Sample Description

0 - 100' ?

100 - 850 Shale, moderately hard, dark to medium grey, micaceous. Traces silty shale. Trace sandstone, very fine, salt and pepper, moderately hard. Trace pyrite. Trace quartz crystals.

850 - 890 Conglomerate, fine sandstone and mudstone, 60% chert, multicoloured. Nil porosity.

890 - 1350 Interbedded mudstone and silt and fine sand. Mudstone, grey-black, hard. Trace silt. Trace pyrite. Trace chert. Silt. Fine sand, salt and pepper, subangular, slightly calcareous, very light.

1350 - 2020 Mudstone, grey-black. Trace carbonaceous. Trace pyrite. Trace ultra-fine sand.

2020 - 4300 Interbedded mudstone and silt and fine sandstone. Silt and sandstones are salt and pepper, very hard calcite and siliceous cement. Nil porosity. Mudstone, medium to dark grey, micaceous. Trace pyrite.

4300 - 4370 Sandstone, dark brown, fine to very fine. 15% siliceous cement, argillaceous, very tight and hard. 30% chert fragments.

4370 - 5325 Mudstone, black, hard, micaceous, brittle.

5325 - 5675 Interbedded sandstone and mudstone, as above.

5675 - 7000 Shale, black, hard, brittle, micaceous. 10% sandstone, fine, grey to dark grey, salt and pepper, subangular, moderately sorted. Trace chert.

7000 - 8600 As above. 60% shale, 40% sandstone.

8600 - 9470 Shale, medium grey, micaceous, pyritic in part, very slightly silty, medium hard. 30-50% pyrite 9120 - 9275', numerous fractures.

9470 - 12,000 Interbedded shale and sandstones. 50 to 90% shale and silty shale, light to medium grey, micaceous. 50 to 10% sandstone, ultra fine to fine, salt and pepper, calcite and quartz crystals, very light.

12,000 - 14,000 Interbedded shale and sandstone. 70 to 95% sandstone as above. 30 to 05% shale, as above. Numerous fractures with calcite and quartz infilling. Trace pyrite.

(e) Paleontological Determinations

SECTION III -- ENGINEERING SUMMARY

(a) Report of Drill Stem Tests

DST #1: 3260 - 3401' VO 5/60 SI 90/90
Rec. 80' drilling fluid, 2970' fresh water
HP 1608 - 1584 FP 1164 - 1434 SIP 1435 - 1435

DST #2: 7325 - 7451' VO 5/65 SI 120/180
Rec. 100' drilling fluid
HP 3500 - 3496 FP 61 - 87 SIP 2543 - 2548

JOHNSTON TESTERS 321 - 50TH AVENUE S.E. • CALGARY 24, ALBERTA • PH. 255-1151

A DIVISION OF SCHLUMBERGER CANADA LIMITED

TEST DATA

Formation		Zone Thickness			Ft.
Interval	3260 To 3401	T.D.	3401		Ft.
Type of Test	OPEN HOLE, BOTTOM HOLE				
Time Started in Hole	2030 Hrs.	Tool Opened	2255		Hrs.
First Flow	5 Min.	Initial Shut-In	90		Min.
Second Flow	60 Min.	Second Shut In			Min.
Third Flow	Min.	Final Shut In	90		Min.
Pulled Loose @	0300 Hrs.	Out of Hole	0630		Hrs.
Wt. Set on Packers	45,000 #	Pulled Loose Wt.	15,000		#

Description of Blow During Test: GOOD BLOW FOR 10 MINUTES, DECREASING TO DEAD IN 15 MINUTES.

FLUID RECOVERY

Was Test Reverse Circulated Yes ☐ No ☐

Total Fluid Recovered 3050 Ft.

Description of Fluid Recovered

80' DRILLING FLUID.
2970' FRESH WATER.

GAS BLOW MEASUREMENT

Measured With I.D. Riser

Type of Instrument

Time	Stce. Choke	Reading psi inches	M Cubic Feet, Day
			NIL

REMARKS: TEST SATISFACTORY.
MFE SAMPLE DRAINED ON LOCATION.
CHART CARRIER SLID TO BOTTOM ON RECORDER #778 (NO PRESSURES)
TEMP. RECORDER #5680 = .515 DEF = 91.1°F AT 3234 FT.

	RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@	°F. 300	ppm.
Mud Pit sample filtrate	@	°F. 495	ppm.

TOOL SEQUENCE

Tool	Length	O.D.
P.O. SUB	.90	6 1/2
SUB	1.10	6 1/2
RECORDER	4.40	4 7/8
MFE TOOL	9.10	5
BYPASS TOOL	3.00	5
JARS	6.75	4 3/4
TEMP RECORDER	4.40	4 7/8
RECORDER	4.40	4 7/8
SAFETY JOINT	1.70	4 3/4
S.S. & PACKER	9.80	11 1/4
T.C. & PACKER	5.60	11 1/4
TOTAL	51.15	
STUB	1.60	4 3/4
PERF	7.06	4 3/4
RECORDER	4.40	4 7/8
RECORDER	4.40	4 7/8
SUB	.75	6 1/2
DRILL COLLAR	89.94	6 3/4
COLLAR	30.00	6 3/4
SUB	1.00	6 1/2
B.N. & PERF	1.85	4 3/4
TOTAL INTERVAL	141.00	
TOTAL LENGTH	192.15	

Elevation 384 KB 368 GL

Bottom Hole Choke Size 1/2"

Fluid Cushion Type NIL Amt.

MUD AND HOLE DATA

Mud Type W.L.

Filter Cake Visc. Wt. 9.5

Time Taken

Contractor IMPERIAL OIL Rig No. 93

Drill Pipe Size 4 1/2 FH

Drill Collar Size 2 7/8 ID Length 743'

Main Hole Size 12 1/4"

Rat Hole Size

District EDMONTON Ticket No. D 01433 Date JUNE 16, 1970 Test No. 1 J.T. No. 1

Company IMPERIAL OIL LIMITED Address 10025 JASPER AVE.

Well Name IOE BLOW RIVER YT E-47 EDMONTON 15, ALBERTA

Number #68° 50' 137° 15' Field WILDCAT Province YUKON TERR.

Formation and Interval 3260 - 3401 DST#1 Co. Rep. J. KAPJACK - ENG.

Technician E. LONEY

Distribution of Reports 7 - EDMONTON

JT-I&E-5B

JOHNSTON TESTERS 321 - 50TH AVENUE S.E. • CALGARY 24, ALBERTA • PH. 255-1151

A DIVISION OF SCHLUMBERGER CANADA LIMITED

D 01433

PRESSURE DATA

INSTRUMENT No.		AK1-3410	AK1-2021	AK1-1880	
CAPACITY (psig)		7400	6950	7300	
INSTRUMENT DEPTH FT.		3239	3269	3273	
INSTRUMENT OPENING		INSIDE	OUTSIDE	OUTSIDE	
PRESSURE GRADIENT psi/FT.					
WELL TEMP. °F. 91.1					
INITIAL HYDROSTATIC	A	1608#	1640#	1639#	
FIRST FLOW	B	1136#	1194#	1190#	
	B-1	1164#	1224#	1221#	
INITIAL SHUT-IN	C	1435#	1465#	1452#	
SECOND FLOW	D	1256#	1301#	1298#	
	D-1	1434#	1463#	1456#	
SECOND SHUT-IN	E				
THIRD FLOW	F				
	F-1				
FINAL SHUT-IN	G	1435#	1465#	1458#	
FINAL HYDROSTATIC	H	1584#	1615#	1612#	

FLUID SAMPLE REPORT

Sample No.	544
Type	MFE
Depth	ft.
Volume	2500 cc
Sample Pressure:	psig. at Surface
Gravity	API @ °F
Gas/Oil Ratio	Cu.Ft./bbl.
Recovery:	
Cu. Ft. Gas	
cc. Oil	
cc. Water	
cc. Mud	2500
Total Liquid cc.	2500

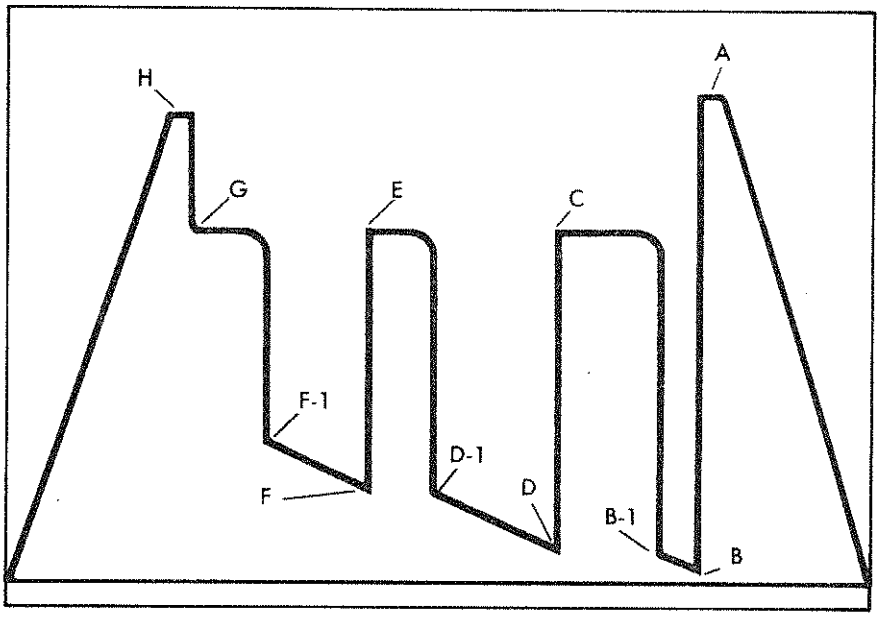
REMARKS:

PRESSURE INCREMENTS

POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$

JOHNSTON TESTERS

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS



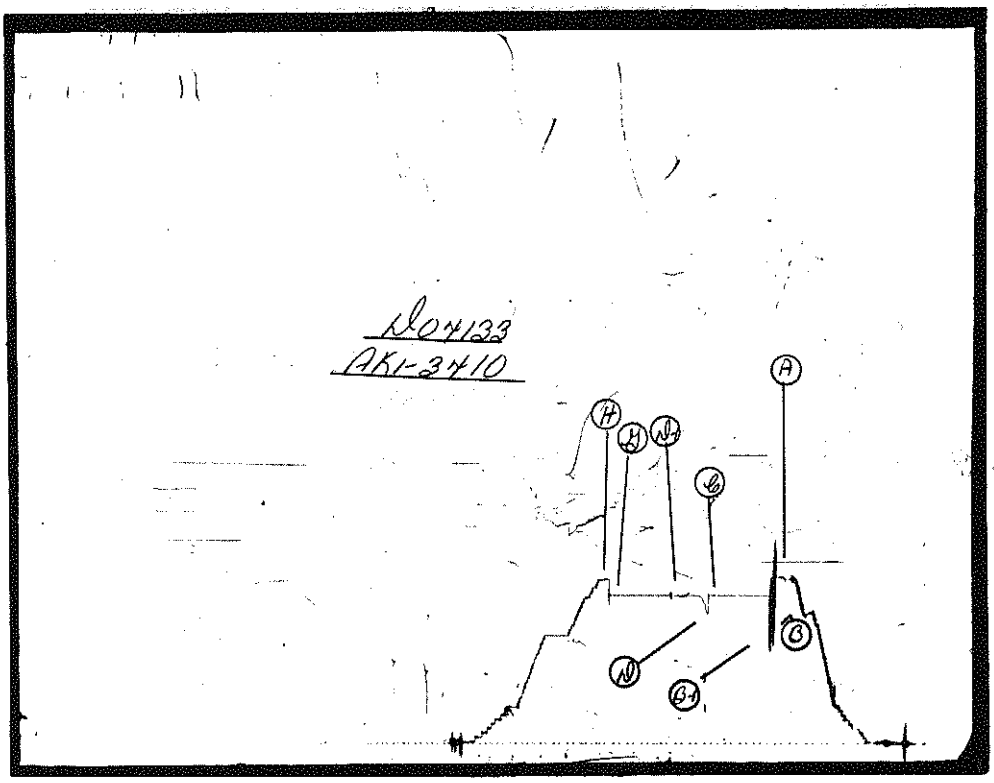
A. Initial Hyd. Mud
B. First Flow
C. Initial Shut-In
D. Second Flow
E. Second Shut-In
F. Third Flow
G. Final Shut-In
H. Final Hyd. Mud

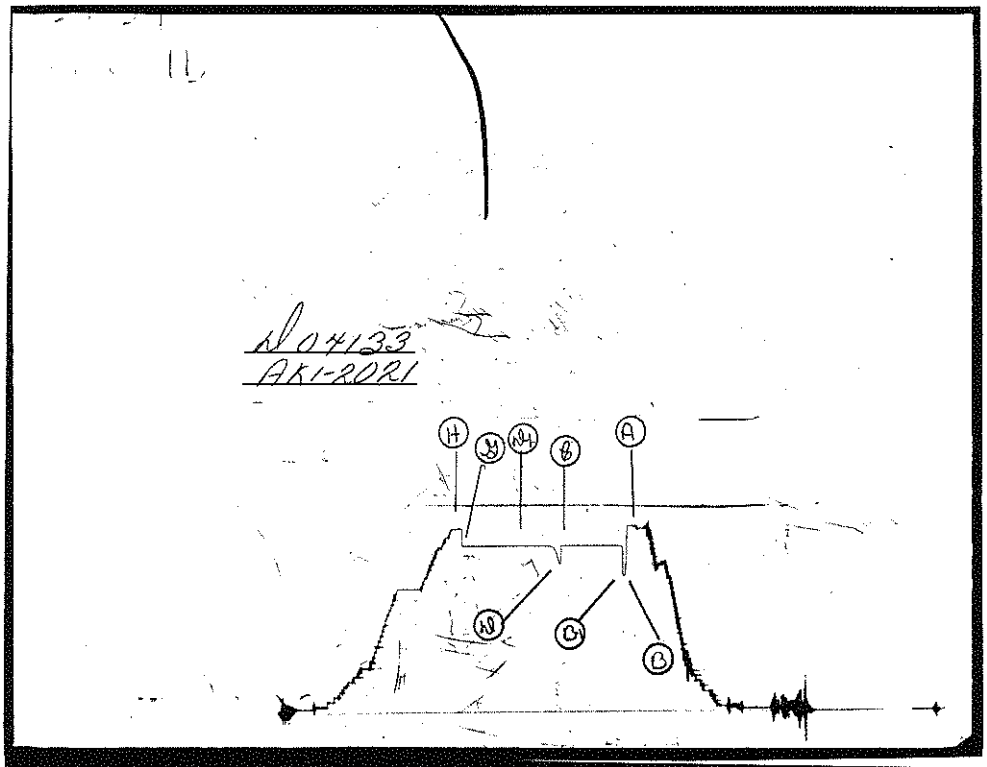
The following points are either fluctuating pressures or points indicating other packer settings (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures
B, B-1, Initial Flow Pressures
C, Initial Shut-In
D-1, D-2, D-3, etc. Second Flow Pressures
E, Second Shut-In
F, F-1, F-2. Third Flow Pressures
G, Final Shut-In
H, Final Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.

JOHNSTON TESTERS

FIELD REPORT NO.	RECORDER NO.	CAPACITY	REPORTS REQUESTED
D 01433	AK1-3410	7400	7

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W
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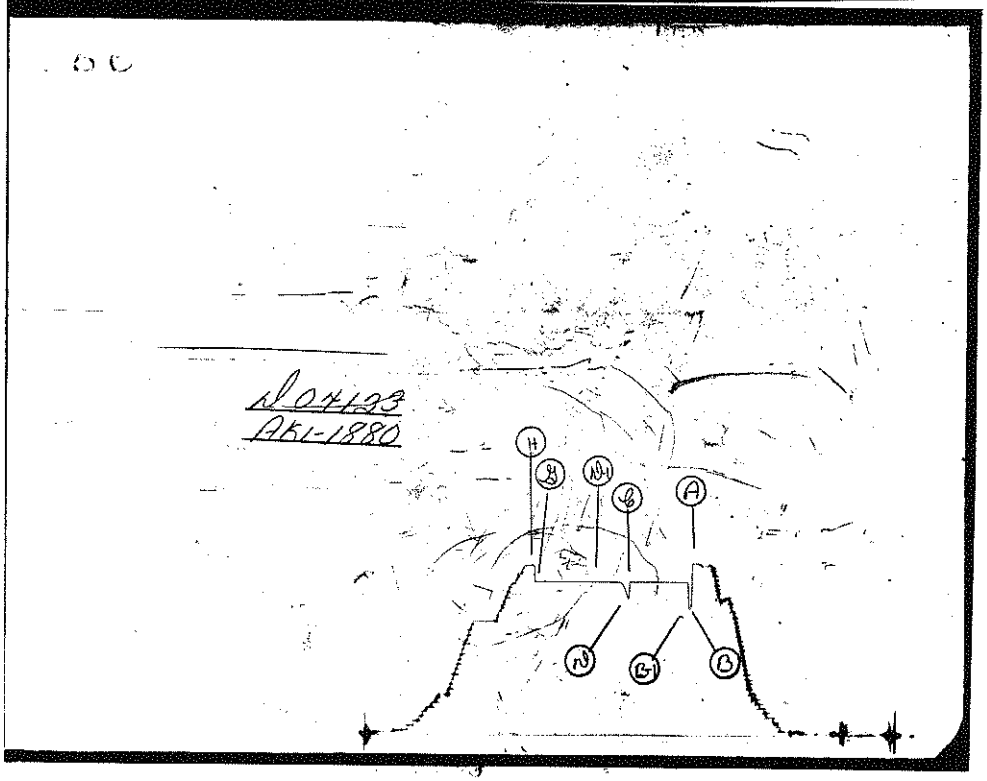
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H
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B
A
W
B1
B

JOHNSTON TESTERS

321 - 50TH AVENUE S.E. • CALGARY 24, ALBERTA • PH. 255-1151

A DIVISION OF SCHLUMBERGER CANADA LIMITED

TEST DATA

Formation			Zone Thickness		Ft.
Interval	7325	To 7451	T.D.	7451	Ft.
Type of Test	OPEN HOLE, BOTTOM HOLE				
Time Started in Hole	0930	Hrs.	Tool Opened	1355	Hrs.
First Flow	5	Min.	Initial Shut-In	120	Min.
Second Flow	65	Min.	Second Shut In		Min.
Third Flow		Min.	Final Shut In	180	Min.
Pulled Loose @	2010	Hrs.	Out of Hole	2330	Hrs.
Wt. Set/on Packers	50,000	#	Pulled Loose Wt.	20,000	#

Description of Blow During Test: WEAK INITIAL PUFF. BLOW DEAD IN 25 MINUTES OF FLOW PERIOD.

FLUID RECOVERY

Was Test Reverse Circulated Yes ☐ No ☐

Total Fluid Recovered 100 Ft.

Description of Fluid Recovered

100' DRILLING FLUID.

GAS BLOW MEASUREMENT

Measured With I.D. Riser

Type of Instrument

Time	Sfce. Choke	Reading psi inches	M Cubic Feet/Day
			NIL

REMARKS: TEST SATISFACTORY.
MFE SAMPLE DRAINED ON LOCATION.
TEMP. RECORDER #5690 = .920 DEFLECTION
=139.1°F AT 7351 FT.

	RESISTIVITY		CHLORIDE CONTENT
Recovery Water	@	°F.	ppm.
Mud Pit sample filtrate	@	°F.	ppm.

TOOL SEQUENCE

Tool	Length	O.D.
P.O. SUB	.91	
SUB	.98	
RECORDER	5.90	
MFE TOOL	9.12	
BYPASS TOOL	3.00	
RECORDER	4.40	
JARS	6.78	
SAFETY JOINT	1.75	
S.S. & PACKER	9.85	11 1/4
T.C. & PACKER	5.75	11 1/4
TOTAL	48.44	
STUB	1.40	
PERF	10.00	
RECORDER	4.40	
PERF	5.00	
RECORDER	4.40	
TEMP RECORDER	4.40	
PERF	2.00	
SUB	.78	
DRILL COLLAR & SUB	91.43	
B.N. & PERF	1.85	
TOTAL INTERVAL	125.66	
TOTAL LENGTH	174.10	

Elevation 386 KB 368 GL

Bottom Hole Choke Size 1/2"

Fluid Cushion Type NIL Amt.

MUD AND HOLE DATA

Mud Type GEL W.L.

Filter Cake Visc. 45 Wt. 9.2

Time Taken AUG. 7, 1970

Contractor IMPERIAL OIL Rig No. 3

Drill Pipe Size 4 1/2 FH

Drill Collar Size 2 7/8 ID Length 688'

Main Hole Size 12 1/4"

Rat Hole Size

District EDMONTON Ticket No. D 05101 Date AUGUST 8, 1970 Test No. 2 J.T. No. 2

Company IMPERIAL OIL LIMITED Address 10025 JASPER AVE.

Well Name IOE BLOW RIVER YT E-47 EDMONTON 15, 1970

Number #68° 50' 137° 15' Field WILDCAT Province N.W.T.

Formation and Interval 7325 - 7451 DST#2 Co. Rep. -B. PETOVELLO

Technician R. THOMAS

Distribution of Reports 7 - EDMONTON

JT-I&E-5B

JOHNSTON TESTERS 321 - 50TH AVENUE S.E. · CALGARY 24, ALBERTA · PH. 255-1151

A DIVISION OF SCHLUMBERGER CANADA LIMITED

D 05101

PRESSURE DATA

INSTRUMENT No.		AK1-2021	AK1-2095	AK1-1880	AK1-3410
CAPACITY (psig)		6950	7450	7300	7400
INSTRUMENT DEPTH FT.		7278	7296	7336	7346
INSTRUMENT OPENING		INSIDE	INSIDE	OUTSIDE	OUTSIDE
PRESSURE GRADIENT psi/FT.					
WELL TEMP. °F. 139.1					
INITIAL HYDROSTATIC	A		3479#	3486#	3500#
FIRST FLOW	B	3#	20#	74#	61#
	B-1	28#	20#	74#	61#
INITIAL SHUT-IN	C		2513#	2541#	2543#
SECOND FLOW	D	30#	47#	89#	78#
	D-1	49#	53#	94#	87#
SECOND SHUT-IN	E				
THIRD FLOW	F	RAN ABOVE			
	F-1	MFE			
FINAL SHUT-IN	G		2521#	2552#	2548#
FINAL HYDROSTATIC	H		3473#	3486#	3496#

FLUID SAMPLE REPORT

Sample No.

Type

Depth ft.

Volume

Sample Pressure:

psig. at Surface

Gravity API @ °F

Gas/Oil Ratio Cu.Ft./bbl.

Recovery:

Cu. Ft. Gas

cc. Oil

cc. Water

cc. Mud

Total Liquid cc.

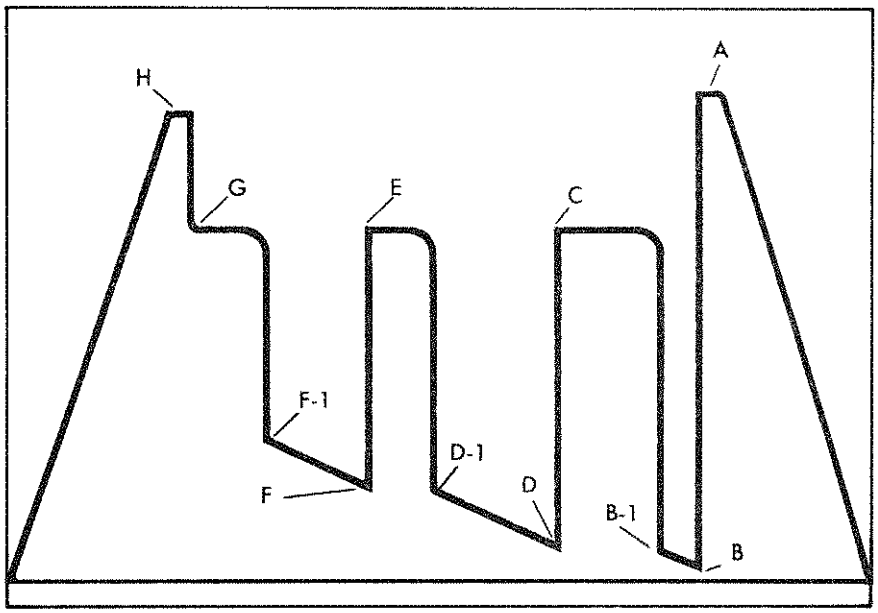
REMARKS:

PRESSURE INCREMENTS

POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$

JOHNSTON TESTERS

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS



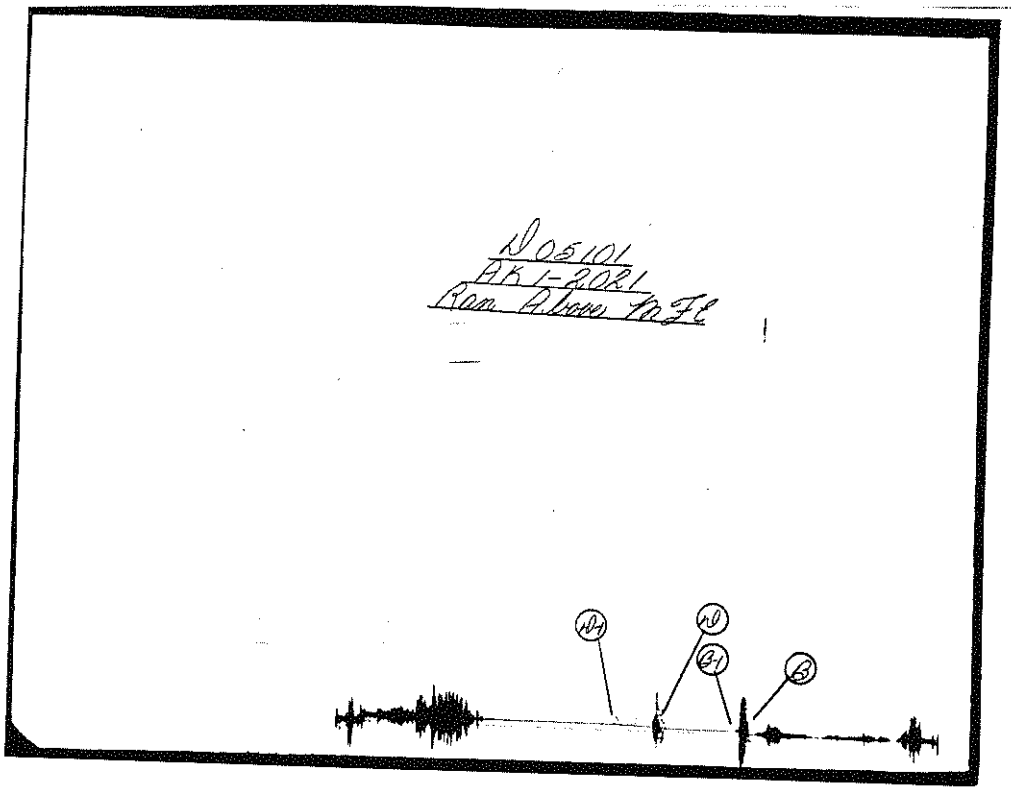
A. Initial Hyd. Mud
B. First Flow
C. Initial Shut-In
D. Second Flow
E. Second Shut-In
F. Third Flow
G. Final Shut-In
H. Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures
B, B-1, Initial Flow Pressures
C, Initial Shut-In
D-1, D-2, D-3, etc. Second Flow Pressures
E, Second Shut-In
F, F-1, F-2. Third Flow Pressures
G, Final Shut-In
H, Final Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.

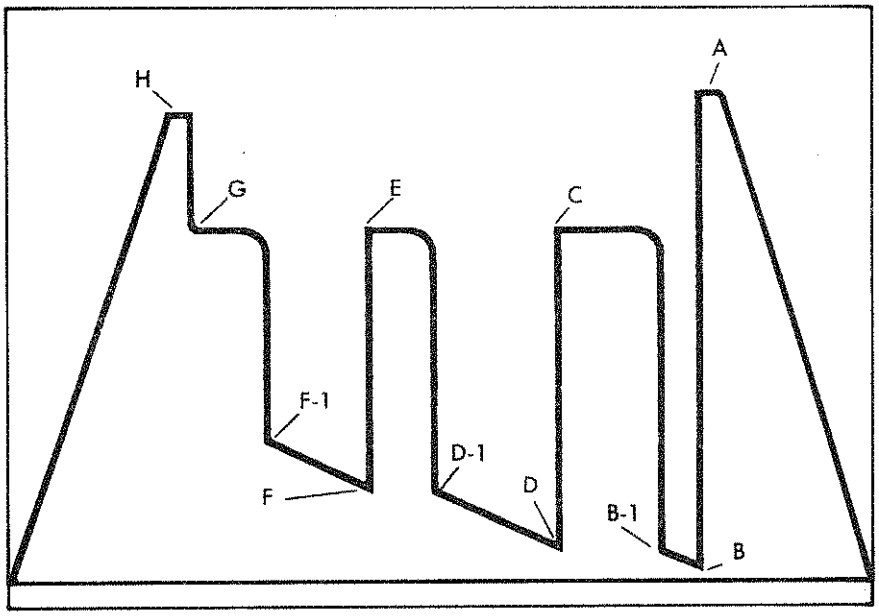
JOHNSTON TESTERS

FIELD REPORT NO.	RECORDER NO.	CAPACITY	REPORTS REQUESTED
D 05101	AK1-2021	6950	7



JOHNSTON TESTERS

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS



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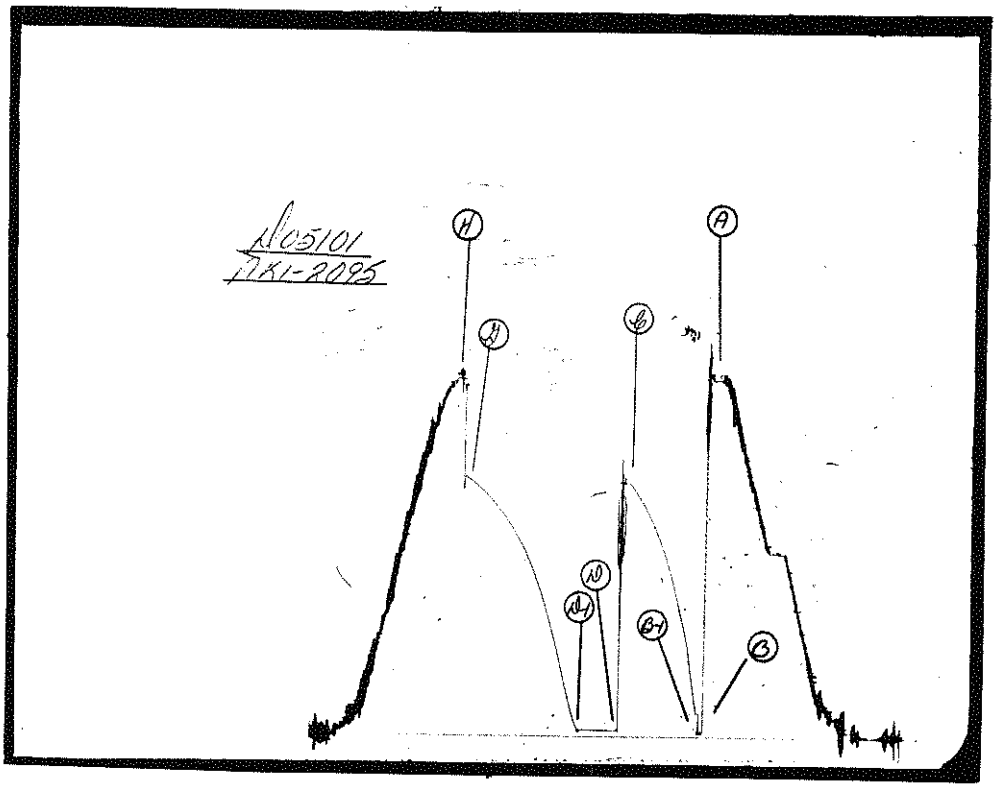
C, Initial Shut-In
D-1, D-2, D-3, etc. Second Flow Pressures
E, Second Shut-In
F, F-1, F-2. Third Flow Pressures
G, Final Shut-In
H, Final Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.

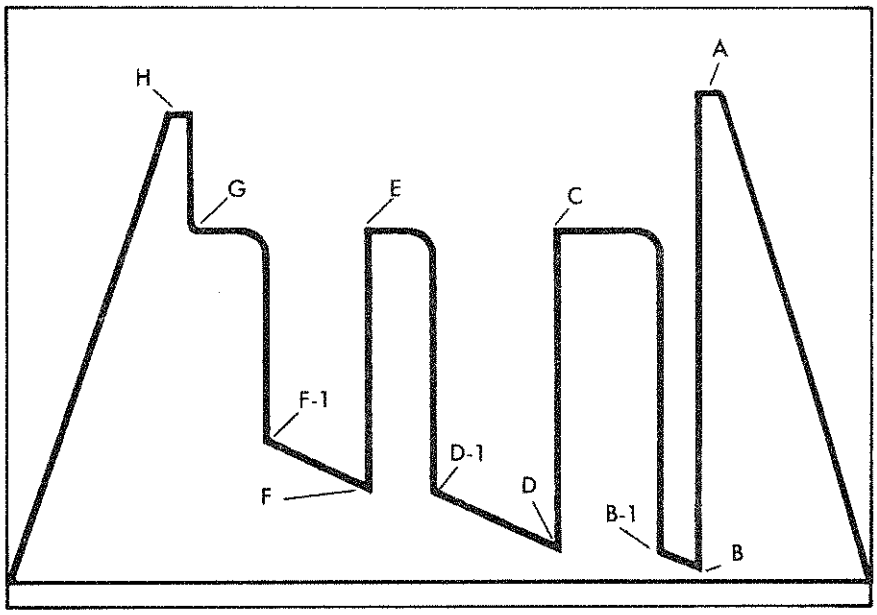
JOHNSTON TESTERS

FIELD REPORT NO.	RECORDER NO.	CAPACITY	REPORTS REQUESTED
D 05101	AK1-2095	7450	7



JOHNSTON TESTERS

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS



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B. First Flow
C. Initial Shut-In
D. Second Flow
E. Second Shut-In
F. Third Flow
G. Final Shut-In
H. Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings (testing different zones).

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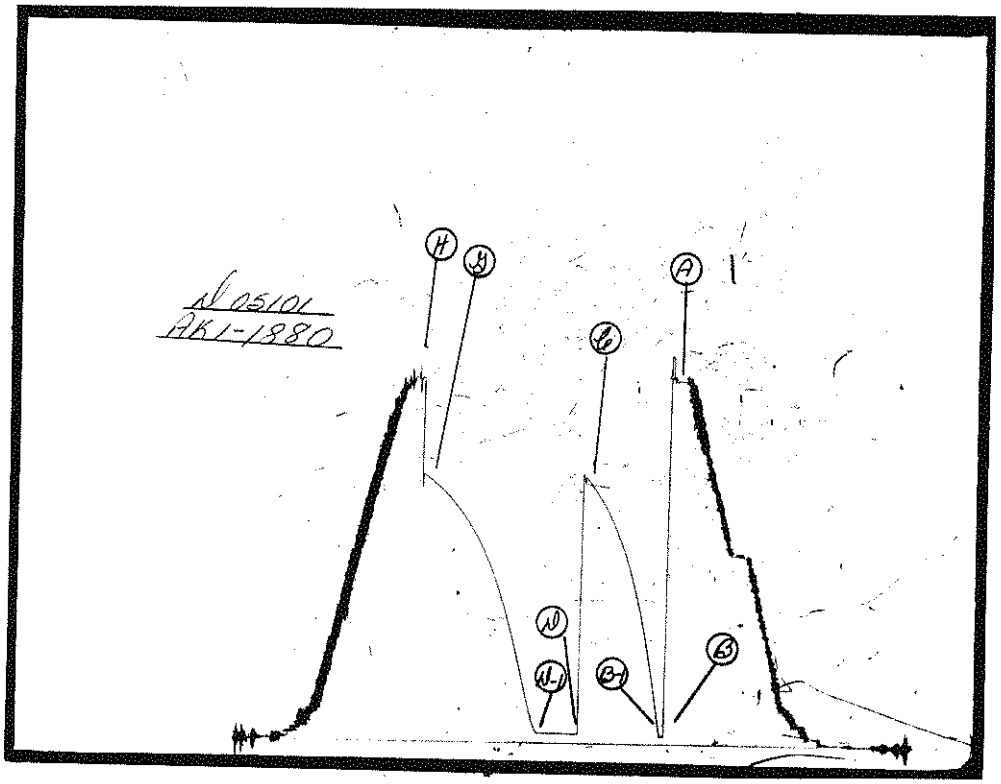
B, B-1, Initial Flow Pressures
C, Initial Shut-In
D-1, D-2, D-3, etc. Second Flow Pressures
E, Second Shut-In
F, F-1, F-2. Third Flow Pressures
G, Final Shut-In
H, Final Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.

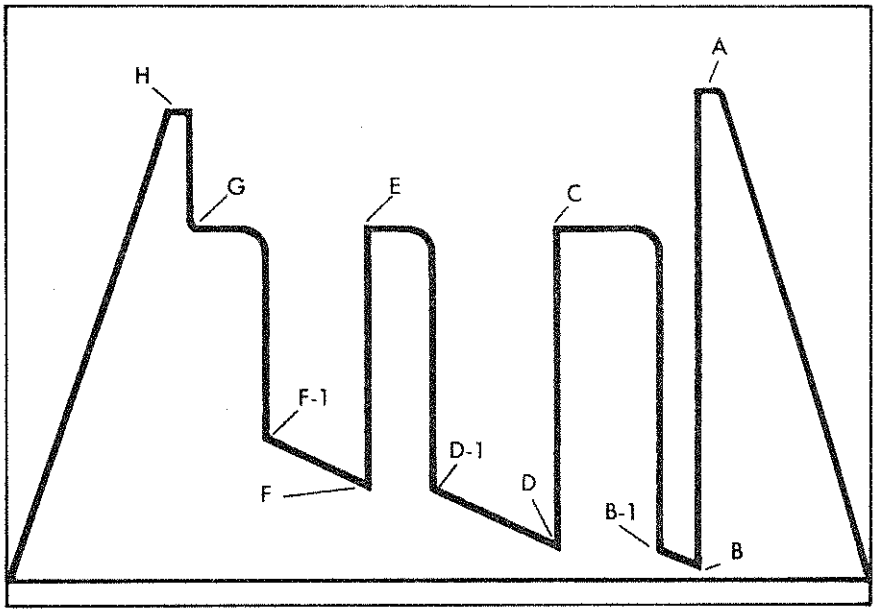
JOHNSTON TESTERS

FIELD REPORT NO.	RECORDER NO.	CAPACITY	REPORTS REQUESTED
D 05101	AK1-1880	7300	7



JOHNSTON TESTERS

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS



A. Initial Hyd. Mud
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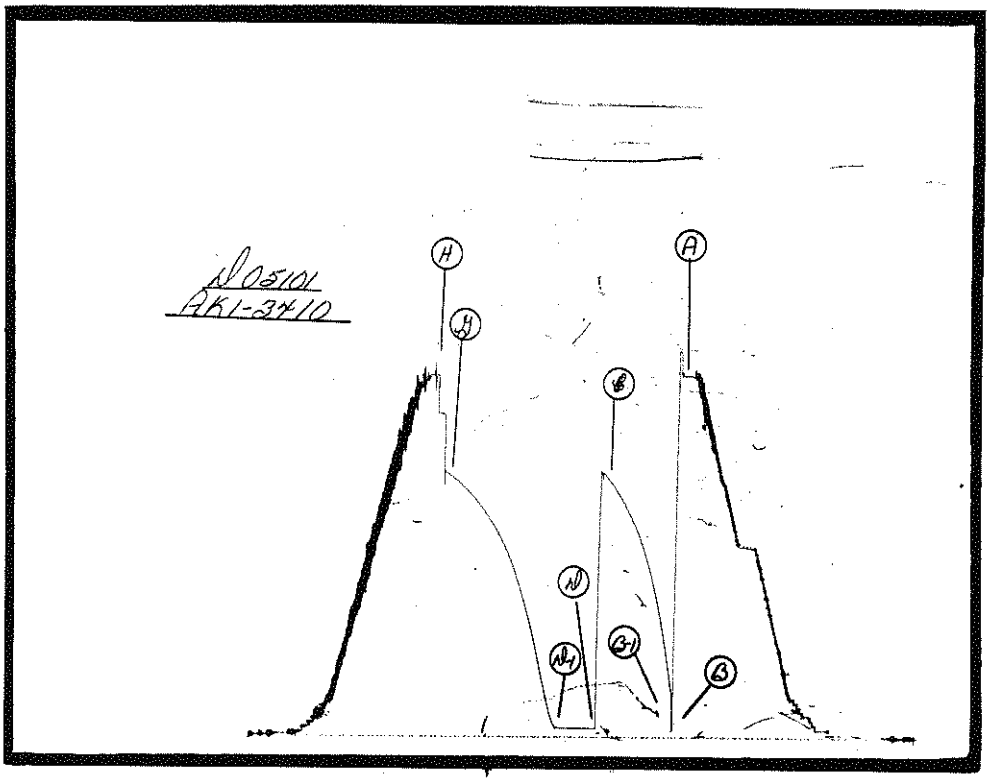
E, Second Shut-In
F, F-1, F-2. Third Flow Pressures
G, Final Shut-In
H, Final Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.

JOHNSTON TESTERS

FIELD REPORT NO.	RECORDER NO.	CAPACITY	REPORTS REQUESTED
D 05101	AK1-3410	7400	7



(b) Casing Record

Conductor Pipe: 28" & 36" Conductor pipe was set at 64' and cemented with 100 sacks cement + 50 sacks gypseal.

IMPERIAL OIL LIMITED

EDMONTON PRODUCING DIVISION

FORM No. 558

DATE May 22

PAGE No. 1

CASING—CEMENTING REPORT

REFERENCE TALLY No.

NAME OF WELL 20E Blow River 1/1 E 47-68-50-137-13

CONTRACT RIG Rig # 3 PREPARED BY M Skeeys

CASING	SIZE O.D. (IN.)	WEIGHT LB./FT.	GRADE	MANUFACTURER	COLLARS SHORT/LONG	No. OF JOINTS	AMOUNT FT.	DEPTH FT K.B. (o)
	20"	106.5#	K-55	U.S. Steel	Common	18	757.75	
STAGING COLLAR								
BACK-OFF COLLAR OR PACKER								
FLOAT COLLAR							1.65	
CASING								
SHOE							2.23	
							TOTAL 761.63	
							CALC. AMT. UP ON LAST JT. —	
							ACTUAL AMT. UP ON LAST JT. —	
							MAKE UP ALLOWANCE —	
							CASING SET 782.32	K.B. To csg. collar
							TOTAL DEPTH OF HOLE 850'	

HOLE SIZE 26 IN. FROM 0 TO 793 FT.

HOLE SIZE 17½ IN. FROM 793 TO 850 FT.

HOLE SIZE ____ IN. FROM ____ TO ____ FT.

K.B. TO TOP OF ~~SURFACE CASING FLANGE~~ Cellar 19.34 FT.

CASING CUTOFF ____ IN. ABOVE TOP OF CASING FLGE.

TYPE OF CASING - A.P.I. ☐ EXTREME LINE ☐

POWER TONGS USED — YES ☐ NO ☑

POWER TONGS SUPPLIED BY —

TYPE OF FLOAT EQUIPMENT Baker Float Shoe & Float Collar MANUFACTURER

ITEM	TYPE	MANUFACTURER	No.	SPACING FT.	INTERVAL COVERED FT. K.B. (o)
SCRATCHERS					
CENTRALIZERS	Latch on	Baker	2	~~Centre~~ Centre of 1st & 3rd Jts.	

TYPE OF MUD

INITIAL MUD: WT. 10 LB./GAL. VISCOSITY 32 SEC.

FINAL MUD: WT. 10 LB./GAL. VISCOSITY 32 SEC.

CEMENTED BY Dowco

CEMENT USED 1800 SKS. GEL.: — SKS.

ADDITIVES — AMT. — SKS.

— AMT. — SKS.

TIME CASING STARTED IN HOLE 12 30 A.M. P.M.

DROPPING RATE AT 2000' WAS ____ SEC. FOR ____ FT. JT.

4000' WAS ____ SEC. FOR ____ FT. JT.

6000' WAS ____ SEC. FOR ____ FT. JT.

8000' WAS ____ SEC. FOR ____ FT. JT.

WAS THERE LOSS OF FLUID WHILE RUNNING PIPE? —

IF SO AT WHAT DEPTH? — FT.

TIME CASING ON BOTTOM 10 A.M. ____ P.M.

CIRCULATION BROKEN AT 10 25 A.M. ____ P.M.

PRESSURE REQUIRED TO BREAK CIRCULATION Nil P.S.I.

CIRCULATING PRESSURE AFTER CLEANUP Nil P.S.I.

STROKE LENGTH WHILE RECIPROCATING ~~4'~~ 4½ FT. INITIALLY

4½ FT. FINALLY

TIME STARTED MIX CEMENT 12 09 A.M. P.M.

WAS BOTTOM PLUG USED Yes ?

RELEASED TOP PLUG AT 3 10 A.M. ____ P.M.

PRESSURE JUST BEFORE PLUG HITS 350 P.S.I.

MAXIMUM PRESSURE 350 P.S.I.

PLUG CHASED WITH Mud AND BUMPED AT 3 30 A.M. P.M.

STROKE LENGTH WHILE CEMENTING 10 FT.

WAS THERE ANY DIFFERENCE IN PUMP PRESSURE ON UPSTROKE AND DOWNSTROKE? NONE 200 P.S.I.

MUD RETURNS WHILE CEMENTING ☑ FULL ☐ PARTIAL

☐ NONE. EXPLAIN IN REMARKS.

RECIPROCATION STOPPED AT 3 10 A.M. ____ P.M.

REMARKS: Good Cement returns

IMPERIAL OIL LIMITED

EDMONTON PRODUCING DIVISION

FORM No. 558

DATE July 16/70

PAGE No. 1

CASING—CEMENTING REPORT

REFERENCE TALLY No. _____

NAME OF WELL L.O.E. Blow River VTE47

CONTRACT RIG L.O.E. Rig-3 PREPARED BY J. Marcinko

CASING	SIZE O.D. (IN.)	WEIGHT LB./FT.	GRADE	MANUFACTURER	COLLARS SHORT/LONG	No. OF JOINTS	AMOUNT FT.	DEPTH FT K.B. (o)
	13 3/8	72#	N-80	JAPAN BUTTRESS		17	547.61	
	"	61#	K-55	" "		35	1115.08	
~~STAGING COLLAR~~	"	68#	K-55	" "		9	345.18	
STAGE COLLOR	"			BAKER			2.80	Top of Stage Collor: 2024.87
	"	68#	K-55	BUTTRESS		18	692.05	
BACK-OFF COLLAR OR PACKER	"	72#	N-80	" "		40	1292.45	
FLOAT COLLAR	"			BAKER			1.80	
CASING	"	72#	N-80	BUTTRESS		1	31.44	
SHOE	"			BAKER			1.65	
					TOTAL	121 jts	4028.06	
					CALC. AMT. UP ON LAST JT.			
					ACTUAL AMT. ~~UP ON LAST JT.~~ UP ON Landing JT		18.00	
					~~MAKE UP ALLOWANCE~~ Kelly Bushing		1.00	
					CASING SET		4047.06	KB.
					TOTAL DEPTH OF HOLE		~~4050~~	4050

HOLE SIZE ____ IN. FROM ____ TO ____ FT.

HOLE SIZE ____ IN. FROM ____ TO ____ FT.

HOLE SIZE ____ IN. FROM ____ TO ____ FT.

K.B. TO TOP OF SURFACE CASING FLANGE 17.88 FT.

CASING CUTOFF ____ IN. ABOVE TOP OF CASING FLGE.

TYPE OF CASING - A.P.I. ☑ EXTREME LINE ☐

POWER TONGS USED — YES ☑ NO ☐

POWER TONGS SUPPLIED BY Kane Oil Tool

TYPE OF FLOAT EQUIPMENT Float & Guide Shoe MANUFACTURER BAKER

ITEM	TYPE	MANUFACTURER	No.	SPACING FT.	INTERVAL COVERED FT. K.B. (o)
~~SCRATCHERS~~	2 metal petal basket			one first second jt below	stage collar.
CENTRALIZERS	On first second & third jt				
	1 above & one below stage collar				

TYPE OF MUD PALMER

INITIAL MUD: WT. 9.6 LB./GAL. VISCOSITY 54 SEC.

FINAL MUD: WT. ____ LB./GAL. VISCOSITY ____ SEC.

CEMENTED BY Howco

CEMENT USED 1000 sacks: first & stage

ADDITIVES 2000 Lbs. / second stage

____ AMT. ____ SKS.

TIME CASING STARTED IN HOLE ____ A.M. P.M.

DROPPING RATE AT 2000' WAS 20 SEC. FOR 31 FT. JT.

4000' WAS 30 SEC. FOR 31 FT. JT.

6000' WAS ____ SEC. FOR ____ FT. JT.

8000' WAS ____ SEC. FOR ____ FT. JT.

WAS THERE LOSS OF FLUID WHILE RUNNING PIPE? NO

IF SO AT WHAT DEPTH? ____ FT.

TIME CASING ON BOTTOM ____ A.M. ____ P.M.

CIRCULATION BROKEN AT ____ A.M. ____ P.M.

PRESSURE REQUIRED TO BREAK CIRCULATION ____ P.S.I.

CIRCULATING PRESSURE AFTER CLEANUP 250 P.S.I.

STROKE LENGTH WHILE RECIPROCATING 5 FT. INITIALLY

0 FT. FINALLY

TIME STARTED MIX CEMENT ____ A.M. ____ P.M.

WAS BOTTOM PLUG USED ____?

RELEASED TOP PLUG AT ____ A.M. ____ P.M.

PRESSURE JUST BEFORE PLUG HITS 750 P.S.I.

MAXIMUM PRESSURE 1500 P.S.I.

PLUG CHASED WITH MUD AND BUMPED AT 7AM 3:15PM A.M. P.M.

STROKE LENGTH WHILE CEMENTING ____ FT.

WAS THERE ANY DIFFERENCE IN PUMP PRESSURE ON UPSTROKE AND DOWNSTROKE? NONE ____ P.S.I.

MUD RETURNS WHILE CEMENTING ☑ FULL ☐ PARTIAL

☐ NONE. EXPLAIN IN REMARKS.

RECIPROCATION STOPPED AT ____ A.M. ____ P.M.

REMARKS: Metal Petal Basket

IMPERIAL OIL LIMITED

EDMONTON PRODUCING DIVISION

FORM No. 553

DATE Aug 31/70

PAGE No. 1

CASING—CEMENTING REPORT

REFERENCE TALLY No. 1

NAME OF WELL 105 Blow River YT E-47-68-50-137-15

CONTRACT RIG Rig #3 PREPARED BY Brown

CASING	SIZE O.D. (IN.)	WEIGHT LB./FT.	GRADE	MANUFACTURER	COLLARS SHORT/LONG	No. OF JOINTS	AMOUNT FT.	DEPTH FT K.B. (o)
Kelly		Hanger					12.90	
Casing	10 3/4	51.0#	N80	Buttress		16	710.94	
STAGING COLLAR								
Casing	10 3/4	55.50	S00 95	Buttress		69	3011.32	
Casing	10 3/4	60.70	S00 95	Buttress		67	2445.36	
~~BACK-OFF COLLAR OR PACKER~~	Landing Collar						1.00	
FLOAT COLLAR	✓			Baker			1.65	
CASING	10 3/4	60.70	S00 95	Buttress		1	28.95	
SHOE	✓			Baker		1	1.73	
					TOTAL	153	6213.85	
					CALC. AMT. UP ON LAST JT.		—	
					ACTUAL AMT. UP ON LAST JT.		—	
					MAKE UP ALLOWANCE		—	
					CASING SET		9998 ~~10,000~~	
					TOTAL DEPTH OF HOLE		10,000	

HOLE SIZE ____ IN. FROM ____ TO ____ FT.

HOLE SIZE ____ IN. FROM ____ TO ____ FT.

HOLE SIZE 12 1/4 IN. FROM 4000 TO 10000 FT.

K.B. TO TOP OF SURFACE CASING FLANGE ____ FT.

CASING CUTOFF ____ IN. ABOVE TOP OF CASING FLGE.

TYPE OF CASING - A.P.I. ☐ EXTREME LINE ☐

POWER TONGS USED — YES ☐ NO ☐

POWER TONGS SUPPLIED BY ____

TYPE OF FLOAT EQUIPMENT ____ MANUFACTURER ____

ITEM	TYPE	MANUFACTURER	No.	SPACING FT.	INTERVAL COVERED	FT. K.B. (o)
SCRATCHERS	—	—				
	—	—				
CENTRALIZERS	—	—				

TYPE OF MUD

INITIAL MUD: WT. 9.3 LB./GAL. VISCOSITY ____ SEC.

FINAL MUD: WT. ____ LB./GAL. VISCOSITY ____ SEC.

CEMENTED BY Halliburton

CEMENT USED 2000 SKS. GEL.: ____ % ____ SKS.

ADDITIVES ____ AMT. ____ SKS.

____ AMT. ____ SKS.

TIME CASING STARTED IN HOLE 9.00 A.M. ~~P.M.~~

DROPPING RATE AT 2000' WAS ____ SEC. FOR ____ FT. JT.

4000' WAS ____ SEC. FOR ____ FT. JT.

6000' WAS ____ SEC. FOR ____ FT. JT.

8000' WAS ____ SEC. FOR ____ FT. JT.

WAS THERE LOSS OF FLUID WHILE RUNNING PIPE? No

IF SO AT WHAT DEPTH? ____ FT.

TIME CASING ON BOTTOM 3:00 A.M. ____ P.M.

CIRCULATION BROKEN AT 3:20 A.M. ____ P.M.

PRESSURE REQUIRED TO BREAK CIRCULATION 400 P.S.I.

CIRCULATING PRESSURE AFTER CLEANUP 800 P.S.I.

STROKE LENGTH WHILE RECIPROCATING — FT. INITIALLY

— FT. FINALLY

TIME STARTED MIX CEMENT 12.00 A.M. ____ P.M.

WAS BOTTOM PLUG USED —?

RELEASED TOP PLUG AT ____ A.M. 12.30 P.M.

PRESSURE JUST BEFORE PLUG HITS 1200 P.S.I.

MAXIMUM PRESSURE — P.S.I.

PLUG CHASED WITH — AND BUMPED AT — A.M. — P.M.

STROKE LENGTH WHILE CEMENTING — FT.

WAS THERE ANY DIFFERENCE IN PUMP PRESSURE ON UPSTROKE AND DOWNSTROKE? NONE ____ P.S.I.

MUD RETURNS WHILE CEMENTING ☐ FULL ☐ PARTIAL

☐ NONE. EXPLAIN IN REMARKS.

RECIPROCATION STOPPED AT ____ A.M. ____ P.M.

REMARKS: Circulated cement out at 3:30 PM

IMPERIAL OIL LIMITED

EDMONTON PRODUCING DIVISION

FORM No. 558

DATE Aug 31/70

PAGE No. 1

CASING—CEMENTING REPORT

REFERENCE TALLY No. 1

NAME OF WELL LOE Blow River YT-E-47-68-50-137-15

CONTRACT RIG Dome Rig #3 PREPARED BY Jim Brown

CASING	SIZE O.D. (IN.)	WEIGHT LB./FT.	GRADE	MANUFACTURER	COLLARS SHORT/LONG	No. OF JOINTS	AMOUNT FT.	DEPTH FT K.B. (o)
Liner Hangers							12.90	
Casing	10 3/4	51.0	N80	M+M	Buttress	16	710.94	
STAGING COLLAR								
Casing	"	55.50	S00 95	"	"	69	3011.32	
"	"	60.70	"	"	"	67	2445.36	
BACK-OFF COLLAR OR PACKER	Landing		Collar		"	—	1.00	
FLOAT COLLAR	10 3/4	"	—	Baker	"	—	1.65	
CASING	"	60.70	S00 95	M & M	"	1	28.95	
SHOE	"	—	—	Baker	"	—	1.73	
					TOTAL	153	6213.85	
					CALC. AMT. UP ON LAST JT.		—	
					ACTUAL AMT. UP ON LAST JT.		—	
					MAKE UP ALLOWANCE		—	
					CASING SET		9998	
					TOTAL DEPTH OF HOLE		10,000'	

HOLE SIZE ____ IN. FROM ____ TO ____ FT.

HOLE SIZE ____ IN. FROM ____ TO ____ FT.

HOLE SIZE 12 1/4 IN. FROM 4000 TO 10,000 FT.

K.B. TO TOP OF SURFACE CASING FLANGE 17.88 FT.

CASING CUTOFF — IN. ABOVE TOP OF CASING FLGE.

TYPE OF CASING - A.P.I. [—] EXTREME LINE [ ]

POWER TONGS USED — YES [✓] NO [ ]

POWER TONGS SUPPLIED BY Casing

TYPE OF FLOAT EQUIPMENT Float Shoe & Float Collar MANUFACTURER Baker

ITEM	TYPE	MANUFACTURER	No.	SPACING FT.	INTERVAL COVERED	FT. K.B. (o)
SCRATCHERS	—					
CENTRALIZERS	—					

TYPE OF MUD

INITIAL MUD: WT. 8.9 LB./GAL. VISCOSITY 43 SEC.

FINAL MUD: WT. — LB./GAL. VISCOSITY — SEC.

CEMENTED BY Halliburton

CEMENT USED 1720 SKS. GEL.: ____ % ____ SKS.

ADDITIVES 2% HR 12 AMT. ____ SKS.

____ AMT. ____ SKS.

TIME CASING STARTED IN HOLE ____ A.M. P.M.

DROPPING RATE AT 2000' WAS ___ SEC. FOR ___ FT. JT.

4000' WAS ___ SEC. FOR ___ FT. JT.

6000' WAS ___ SEC. FOR ___ FT. JT.

8000' WAS ___ SEC. FOR ___ FT. JT.

WAS THERE LOSS OF FLUID WHILE RUNNING PIPE? No

IF SO AT WHAT DEPTH? — FT.

TIME CASING ON BOTTOM 3:00 A.M. 9/70 P.M.

CIRCULATION BROKEN AT 3:20 A.M. ____ P.M.

PRESSURE REQUIRED TO BREAK CIRCULATION 700 P.S.I.

CIRCULATING PRESSURE AFTER CLEANUP 900 P.S.I.

STROKE LENGTH WHILE RECIPROCATING — FT. INITIALLY

— FT. FINALLY

TIME STARTED MIX CEMENT 10:00 A.M. ____ P.M.

WAS BOTTOM PLUG USED ____?

RELEASED TOP PLUG AT ____ A.M. 12:30 P.M.

PRESSURE JUST BEFORE ~~PLUG HITS~~ 1800 P.S.I.

MAXIMUM PRESSURE 1950 P.S.I.

PLUG CHASED WITH Mud AND BUMPED AT ___ A.M. ___ P.M.

STROKE LENGTH WHILE CEMENTING — FT.

WAS THERE ANY DIFFERENCE IN PUMP PRESSURE ON UPSTROKE AND DOWNSTROKE? NONE ____ P.S.I.

MUD RETURNS WHILE CEMENTING [✓] FULL [ ] PARTIAL

[ ] NONE. EXPLAIN IN REMARKS.

RECIPROCATION STOPPED AT — A.M. — P.M.

REMARKS: ____

22/Sept/70

(c) Bit Record

No.	Type	Size	Depth In	Depth Out	Drilled Footage	Hrs. On Bottom	Remarks
1	YT3	12 1/4	0	342	342	13 3/4	
2	YT1A	12 1/4	342	609	267	31 1/2	
3	YS1	12 1/4	609	662	53	16 1/2	
4	OSC1G	12 1/4	662	850	188	22 3/4	
1R	REED REAMER	17 1/2	0	453		16	Reamed 453'
2R	"	17 1/2	453	709		19 1/4	" 256'
3R	"	17 1/2	709	850		10 1/4	" 141'
4R	STCS	26	0	362		18	" 362'
5R	OSC	26	362	608		21	" 246'
RR4R	STCS	26	608	704		13 3/4	" 96'
6R	OSQ2	26	704	782		12 1/2	" 78'
RR4R	STCS	26	782	793		1 1/2	" 11'
5	YTL	12 1/4	850	883	33	11 1/4	
6	YHWG	12 1/4	883	1032	149	15 3/4	
1	DIAMOND	8 11/16	1032	1055	23	13 1/4	CORE #1
7	YHG	12 1/4	1055	1153	98	13 1/2	Reamed 23'
8	M4NG	12 1/4	1153	1201	48	5	
9	YHG	12 1/4	1201	1297	96	8 1/2	
10	L4H	12 1/4	1297	1642	345	17 1/4	
11	M4LG	12 1/4	1642	1938	296	15 3/4	
12	M4NG	12 1/4	1938	2007	69	3 1/4	
1RR	DIAMOND	8 11/16	2007	2032	25	9 1/4	CORE #2
13	M4LG	12 1/4	2032	2207	175	19 1/4	Reamed 25'
14	M4NG	12 1/4	2207	2479	272	13 1/4	
15	M4NG	12 1/4	2479	2626	147	14 3/4	
16	YM	12 1/4	2626	2697	71	9 3/4	
17	OWV	12 1/4	2697	2796	99	10	
18	OWV	12 1/4	2796	2904	108	11 1/2	
19	M4NG	12 1/4	2904	3016	112	13 1/2	
20	M4LG	12 1/4	3016	3168	152	9 1/2	
2	DIAMOND	8 11/16	3168	3180	12	5 1/2	CORE #3
21	YHG	12 1/4	3180	3240	60	8 1/2	Reamed 12'
22	YMG	12 1/4	3240	3293	53	11 1/4	
23	W7J	12 1/4	3293	3359	66	7	
24	YHWG	12 1/4	3359	3389	30	6	
3	DIAMOND	8 11/16	3389	3401	12	4 3/4	CORE #4
RR21	YHG	12 1/4	3389	3401		2	Reamed 12'
25	L4HJ	12 1/4	3401	3483	82	7 1/2	
26	ODV	12 1/4	3483	3687	204	18 1/2	
27	4JS	12 1/4	3687	4120	433	40 1/4	
4	DIAMOND	8 11/16	4120	4132	12	3 3/4	CORE #5
28	M4NG	12 1/4	4132	4138	6	1 1/4	Reamed 12'
RR3R	REAMER	17 1/2	850	894		6	Reamed 44'
7R	REAMER	17 1/2	894	897		7 1/4	" 3'
8R	REAMER	17 1/2	897	947		3 1/2	" 50'

(c) Bit Record (Cont'd)

No.	Type	Size	Depth In	Depth Out	Drilled Footage	Hrs. On Bottom	Remarks
RR3R	REAMER	17 1/2	947	1064		7	Reamed 117'
RR8R	"	17 1/2	1064	1219		23 1/4	" 155
RR7R	"	17 1/2	1219	1655		40 1/2	" 436
RR3R	"	17 1/2	1655	1660		1 1/2	" 5
9R	"	17 1/2	1660	1868		34 1/2	" 208
RR8R	"	17 1/2	1868	1949		8 1/4	" 81
RR7R	"	17 1/2	1949	2159		17 1/2	" 210
RR8R	"	17 1/2	2159	2250		10 1/2	" 91
RR1R	"	17 1/2	2250	2481		22 3/4	" 231
RR7R	"	17 1/2	2481	2625		15 1/2	" 144
RR8R	"	17 1/2	2625	2910		32 1/4	" 285
RR3R	"	17 1/2	2910	2944		6 3/4	" 34
RR8&3R	"	17 1/2	2944	2983		10	" 39
29	C4GJ	17 1/2	2983	3269		19	" 286
RR1R	REAMER	17 1/2	3269	3293		4 1/2	" 24
30	RG7J	17 1/2	3293	3374		6 1/2	" 81
RR8R	REAMER	17 1/2	3374	3584		13 1/2	" 210
RR7R	"	17 1/2	3584	3736		13 1/4	" 152
RR8R	"	17 1/2	3736	3901		16 1/2	" 165
RR3R	"	17 1/2	3901	4050		17 3/4	" 149
31	W7	12 1/4	4138	4144	6	6 3/4	
32	M4NG	12 1/4	4144	4348	204	13 1/2	
33	X55R	12 1/4	4348	5000	652	38	
5	DIAMOND	8 23/32	5000	5024	24	5 3/4	CORE #6
34	X55R	12 1/4	5024	5636	612	55 1/2	REAMED 24'
35	M4NJ	12 1/4	5636	5668	32	4	
6	DIAMOND	8 11/16	5668	5693	25	9 3/4	CORE #7
36	4JS	12 1/4	5693	6657	964	64 3/4	Reamed 25'
RR5	DIAMOND	8 23/32	6657	6682	25	6 1/2	CORE #8
37	4JS	12 1/4	6682	7118	436	28 1/4	Reamed 25'
7	DIAMOND	8 23/32	7118	7143	25	5 1/4	CORE #9
38	4JS	12 1/4	7143	7426	283	19 3/4	Reamed 25'
8	DIAMOND	8 23/32	7426	7451	25	4	CORE #10
RR34	X55R	12 1/4	7426	7451		2	Reamed 25'
39	S88	12 1/4	7451	8420	969	90	
8RR	DIAMOND	8 23/32	8420	8445	25	5	CORE #11
40	YHG	12 1/4	8445	8659	214	24 3/4	Reamed 25'
41	4JS	12 1/4	8659	9276	617	53 1/2	
8RR	DIAMOND	8 23/32	9276	9300	24	9 1/4	CORE #12
42	X55R	12 1/4	9300	9822	522	69 1/2	Reamed 24'
43	X55R	12 1/4	9822	10,000	178	26	
44	YHWG	9 1/2	10,000	10,002	2	1 1/2	Pilot Hole
8RR	DIAMOND	8 23/32	10,002	10,027	25	7 1/2	CORE #13
RR31	W7	12 1/4	9200	9355		3 1/2	Reamed 155'
45	DT	9 1/2					Drill out cement
RR44	YHWG	9 1/2	10,000	10,015		3 1/2	Reamed 15'
46	L4J	9 1/2	10,015	10,024		4 1/4	Reamed 9'
47	YHWG	9 1/2	10,027	10,030	3	1	" 3'
48	X55R	9 1/2	10,030	10,073	43	8 3/4	
9	DIAMOND	6 23/32	10,073	10,080	7	3	CORE #14

(c) Bit Record (Cont'd)

No.	Type	Size	Depth In	Depth Out	Drilled Footage	Hrs. On Bottom	Remarks
49	X55R	9 1/2	10,080	10,317	237	54	Reamed 7'
50	5JS	9 1/2	10,317	10,459	142	21 1/2	
51	YHWG	9 1/2	10,459	10,478	19	6	
52	4JS	9 1/2	10,478	10,610	132	14 1/2	
53	X55R	9 1/2	10,610	10,700	90	22 1/2	
54	SCM	9 1/2	10,700	10,870	170	24 1/4	
55	4JS	9 1/2	10,870	11,004	134	15 3/4	
56	SCM	9 1/2	11,004	11,107	103	15	
9RR	DIAMOND	6 23/32	11,107	11,136	29	8 1/2	CORE #15
57	SCM	9 1/2	11,136	11,226	90	13 3/4	Reamed 29'
58	XWR	9 1/2	11,226	11,296	70	17	
59	5JS	9 1/2	11,296	11,439	143	21	
60	X55R	9 1/2	11,439	11,588	149	32 1/2	
61	X55R	9 1/2	11,588	11,745	157	34 1/2	
62	4JS	9 1/2	11,745	11,846	101	15 1/2	
63	4JS	9 1/2	11,846	11,896	50	9 1/2	
64	SC5G	9 1/2	11,896	12,082	186	44 1/4	
9RR	DIAMOND	6 23/32	12,082	12,087	5	2	CORE #16
65	SC5G	9 1/2	12,087	12,256	169	37 3/4	Reamed 5'
66	M88	9 1/2	12,256	12,605	349	54 1/2	
67	5JS	9 1/2	12,605	12,777	172	27 3/4	
68	X55R	9 1/2	12,777	12,893	116	31 1/4	
69	SCM	9 1/2	12,893	13,019	126	21	
10	DIAMOND	6 23/32	13,019	13,025	6	1 3/4	CORE #17
70	5JS	9 1/2	13,025	13,255	230	45	Reamed 6'
71	X55R	9 1/2	13,255	13,400	145	43	
72	M88	9 1/2	13,400	13,630	230	48 1/2	
73	M88	9 1/2	13,630	13,696	66	27 3/4	
74	4JS	9 1/2	13,696	13,767	71	16 1/2	
75	5JS	9 1/2	13,767	13,867	100	25 1/4	
76	5JS	9 1/2	13,867	14,000	133	40 1/2	F.T.D.

(d) Mud Report

DATE 1970	GEL	CAUSTIC SODA	WEIGHT MATERIAL	SODIUM BICARB.	KELZAN	DOW.B	CHROMIC ALUMINU.	PLASTER
May 8	3600							
9	3500	50	31,100					
10	2800	100	2500					
11	1700	50						
12	1200	50						
13	1400	100						
14	4300	75	700					
15	6600	100	3100					
16	500	50						
17	5200	125	6800					
18	5700	100						
19	8200	150						
20	3100	100						
27	10,400	100		2000				
28	8000	50		1200				
29	4000	50			100	20	34	
30		100			200	50	78	150
31	600	50			100	17	34	100
June 1	5100	150			200	50	51	150
2	2000	150	1000		300	45	34	200
3	500	50	1000		50	30	17	50
4	500				50	30	17	50
5	500	150			50	32	17	50
6	500	100			50	10	17	50
7	500	100	1000		50	20	17	50
8	500	50	1000		50	10	17	50
9	500	150	1000		50	26	17	50
10	1000		1000		100	20	34	100
11	400	100	1000		50	20	17	
12	1000	150	2000		100	16	34	50
13	1100	100	1000		100	8	34	50
14	2000	150	1000		200	40	68	
15	1000	150	2000		100	25	34	50
16	1500		1000		50	10	17	100
17	500	150	1000		50	20	17	50
18	1000	100			100	70	34	50
19	1700	200			100		34	150
20	2000	200			150	30	68	100
21	1000	150	1000		100		34	100
22			2000					
23			1000					
24								
25	1000	100	1000		100		17	100
26	1200	100			50	15	34	100
27		50	1000		50	15	17	
28	1000	100			100	15	34	

(d) Mud Report (Cont'd)

DATE 1970	GEL	CAUSTIC SODA	WEIGHT MATERIAL	SODIUM BICARB.	KELZAN	DOW.B	CHROMIC ALUMINU.	PLASTER
June 29	500	50	2000		50	15	17	50
30	1000	150			100	15	34	50
July 1	500	50	1000		50			50
2		150			50	25	17	50
3	1500	50	2000		150	20	51	150
4	1000	150			100	15	34	50
5	1000	150	1050		100	15	17	50
6	1000	100	1000		100	15	34	50
7	1000	150	1000		100	15	34	100
8	1000	50	1000		100	15	34	100
9	1500	100	1000		150	15	51	150
10		100						
11	2000	100	1000		200	15	68	200
12	1200	100	1000		150	15	51	150
13	1500	300	1000		150	60	51	150
14	2500	200	2000		250	30	85	250
15	500		200		50	30	17	50
16								
17								
18								
19								
20								
21								
22	3300		1000	800	250			
23	5000	200	800		700	25	288	50
24	2500	200			300	75	85	50
25	1000	100	2000		100	50	37	100
26	4000	50			400	80	136	300
27	2600	275			250	125	102	250
28	4400	50			300	90	102	250
29		150	2000			60		
30	1000	50			100	80	34	100
31	4000	300			250	90	136	400
Aug. 1	2500	250			250	85	85	250
2	1000	50	3000		100	40	34	100
3	1500	150			150	40	51	150
4	2800	125	2200		275	70	93	275
5	500	150			50	20	17	50
6	3000	150			300	80	102	300
7	1900	50	2500		100		34	100
8			1000					
9	2000	250	700		200	55	68	50
10	1700	100	1000		140	65	48	130
11	2500	250			250	75	85	200

(d) Mud Report (Cont'd)

DATE 1970	GEL	CAUSTIC SODA	WEIGHT MATERIAL	SODIUM BICARB.	KELZAN	DOW.B	CHROMIC ALUMINU.	PLASTER
Aug. 12	1500	350			150	75	51	150
13	2000	100	1000		200	25	68	200
14								
15	3000	300			300	85	119	300
16	2000	200			200	55	68	200
17	3000	250			300	85	102	300
18	2000	250			200	60	68	200
19	1000	100			100	20	17	100
20	1000	100			200	50	68	200
21	3000	250			300	57	102	300
22	2000	100			200	60	68	200
23	5000	150			200	30	68	200
24	1000	150			200	60	68	200
25			2800					
26	1000	100	2000		100	40	34	100
27	1000	50	2000		100	20	34	
28								
29	800	100			100	20	34	100
30		50	4000			15		
31								
Sept. 1								
2	3000			1700	300	60	102	
3	2000		2000	700	200	20	68	
4	7000			700	100		68	100
5								
6			2000					
7			2100					
8			1000					
9								
10			2000	200				
11	3400		3400					
12			3500					
13			3700					
14	1000		3600					
15	4000		3700	500				
16	9500		3600	1750				
17	4000			450				
18	3500							
19	3200		2000					
20			1800					
21	700		1800	400				
22	600		1800		150	40	51	150
23	800		1400		100	40	34	200
24	500		1600		50	60	54	50
25			1000		100	50	34	100
26	500				50	20	20	50

(d) Mud Report (Cont'd)

DATE 1970	GEL	CAUSTIC SODA	WEIGHT MATERIAL	SODIUM BICARB.	KELZAN	DOW.B	CHROMIC ALUMINU.	PLASTER
Sept.27	600	150	1500		50.	35	17	100
28	500		1500		50	15	17	50
29	1000	100	1500			15	34	100
30	800		1600		70	15		70
Oct. 1	1200	100	2500		130	15	34	120
2	1500	50	3300		150	45	51	150
3	500	50				30	17	50
4	1000		2000		100	30	34	100
5	500	50			50	30	17	50
6	500	50			50	15	17	50
7	1000		2000		100		34	100
8	1000	50	2000		100	10	34	100
9	1000	200			100	20	34	100
10	500	100	2000		50	30	17	50
11			2100					
12	2500	50			250	20	85	200
13	1000	100	2000		100	30	34	100
14	1000				100	10	34	100
15	2000				200	30	68	200
16	1000				100	30	34	100
17	3000				300	25	102	200
18			2000			20		
19	1000	100			100	30	34	
20			6000			20		
21	500	100			100	10	34	
22			2300					
23	2500	50			250	15	85	
24	1100				150	20	51	
25	500	100	2500		100	10	34	
26	500	150			50	30	17	100
27		50	2500					
28	1500				150		51	(Soda ash 200 lbs.
29	20,300	150	2000		200	20	34	
30	6000	100	2500					
31	9900	150	2500					
Nov. 1			2500					
2	1000	150						
3	4500		2500					
4	1800	100	2500					
5	1400							
6	800	150	2500					
7	2300	50						
8	1800	50	2500					

(d) Mud Report (Cont'd)

DATE 1970	GEL	CAUSTIC SODA	WEIGHT MATERIAL	SODIUM BICARB.	KELZAN	DOW.B	CHROMIC ALUMINU.	PLASTER
No. 9								
10								
11								
12								
13			1000					
14								
15								
TOTAL: (LBS.)	316,200	13,950	210,250	10,400	16,115	3,836	5,443	15,295

(e) Deviation Record

DEPTH	DEGREES	DEPTH	DEGREES	DEPTH	DEGREES
110	1/4	2770	6 3/4	5879	13 1/8
310	1/2	2790	6 3/4	5933	12 1/2
515	7/8	2832	6 3/4	6028	12
536	1 1/4	2925	6 1/8	6155	12
580	1 1/4	2955	6 1/2	6205	12 1/4
540	1 1/2	2985	6 1/4	6297	12 1/2
658	1 1/2	3015	6 1/4	6395	12 1/2
695	1 1/8	3068	6 1/2	6470	12
724	1 1/4	3092	6 1/4	6579	11
845	1 1/4	3154	6 7/8	6652	10 1/2
908	1 7/8	3181	6 7/8	6670	11
970	2 3/4	3211	6 1/2	6731	11 1/4
1032	2 3/4	3236	6 1/2	6826	11 3/4
1085	2 7/8	3275	6 1/4	6918	12 1/2
1150	2 3/4	3289	6 1/4	7005	12
1201	2 1/2	3316	6 1/4	7203	12
1290	2 3/4	3354	6 5/8	7296	12
1408	3 1/4	3381	6 1/2	7416	11
1466	3 1/4	3450	6 3/4	7626	11
1540	3 1/4	3483	7 1/4	7745	10 1/4
1642	3 1/2	3513	6 7/8	7966	10
1687	4	3556	6 1/2	8410	6 1/2
1750	3 7/8	3593	6 1/2	8654	6
1815	4	3656	5 3/4	8980	7 1/2
1876	4 1/4	3679	5 3/4	9276	9 1/2
1938	4 3/4	3732	6	9815	8 1/4
1967	4 1/4	3764	6	10000	8
1978	4 3/4	3820	6	10073	8
1990	5	3884	7 1/8	10310	7 3/4
2027	5 1/2	3913	6 3/4	10459	6 1/4
2074	5	3944	7	10690	7
2105	5 1/2	3981	7	11000	6 1/4
2135	5	4013	7 1/4	11100	6 1/4
2197	5 3/4	4037	7 1/8	11219	6 1/4
2200	6 1/4	4068	7	11435	7 1/4
2235	5 1/2	4101	7 1/8	11580	8 1/4
2290	5 3/4	4232	6 1/2	11836	8 1/2
2350	6 1/2	4343	7	12075	9 1/2
2415	7	4480	7 3/4	12246	8 1/2
2445	7	4660	8	12595	11
2475	7 1/2	4885	9	12770	13 3/4
2535	7	4990	8 1/4	12880	14 1/2
2565	6 3/4	5260	12 1/4	13240	15 1/4
2615	6 1/2	5390	13	13390	15 1/2
2645	6 3/4	5510	13	13625	??
2675	7 1/2	5626	12	13690	17
2680	7	5668	12 1/2	13755	16 1/2
2692	6 1/2	5690	12 1/2	13990	??
2705	6 3/4	5735	13		
2737	7	5826	13 1/4		

(f) Abandonment Plugs

No.	Interval	Cement	Felt
1	10,050 - 9,950'	100 sax + 2% HR12	9903'
2	3,830 - 3,730	85 sacks	3736
3	SURFACE	30 sacks	

Cut off casing 3' below ground level and welded on steel plate and identification marker.

(g) Lost Circulation

Zone	Interval	Mud Lost	Mix
Lower Cret.	3175 - 3325'	60 bbls.	35 sacks sawdust
Middle Jurassic	10250	38 bbls.	20 sacks sawdust
Middle Jurassic	13522	200+ bbls.	351 sacks sawdust 30 sacks fiber 12 sacks walnut shells

(h) Blowouts -- Nil

SECTION IV -- LOGS

DATE	RUN	INTERVAL	TYPE
June 22, 1970	1	781 - 4136'	DIL
August 28	2	4048 - 9997'	DIL
November 9	3	9999 - 14002	DIL
June 22	1	781 - 4139	FDC
August 27	2	4048 - 9986	FDC
November 9	3	9999 - 14004	FDC
June 22	1	39 - 4139	SNP
August 27	2	4048 - 9986	SNP
November 9	3	9999 - 14004	SNP
June 22	1	781 - 4138	BHCS
August 27	2	4048 - 9987	BHCS
November 9	3	9999 - 14002	BHCS
June 23	1	781 - 4139	CDM
August 26	2	4030 - 9980	CDM
November 9	3	9999 - 13987	CDM
June 23	1	781 - 4140	Directional
August 28	2	4030 - 9980	Directional
November 9	3	10,100 - 14007	Directional
June 23	1	781 - 4138	Velocity
August 27	2	4048 - 9987	Velocity
November 9	3	9999 - 14002	Velocity
November 11	1		Depth Determination Log for Mechanical Core Slicer

SECTION V -- ANALYSIS

(a)	CORE	--	Nil
(b)	WATER		Nil
(c)	GAS		Nil
(d)	OIL		Nil

SECTION VI -- COMPLETION SUMMARY

(a) Tubing Record -- Nil

(b) Perforation Record -- Nil

(c) Cementation Record

Date	No.	Interval	Cement	Felt	Zone
November 12	1	10050 - 9950'	100 sacks	9903	Jurassic
November 13	2	3830 - 3730	75 sacks	3736	L. Cret.
November 15	3	Surface	30 sacks		

(d) Acidization and Fracturing -- Nil

(e) Back Pressure and Production Tests -- Nil