REPORT ON

McDERMOTT GCO NORTHUP TAYLOR LAKE Y.T. K-15

located at

Latitude 65° 54' 39" North & Longitude 133° 03' 00" West

in the

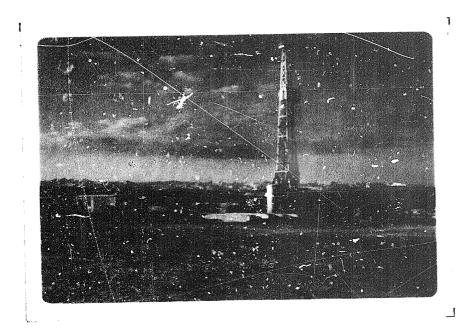
Yukon Territory



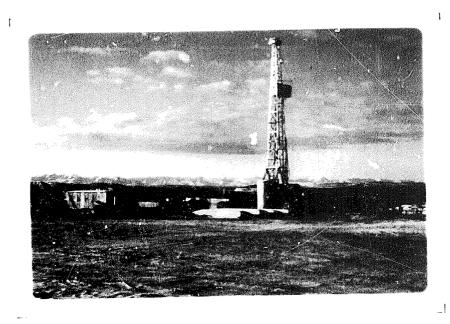
Submitted by

Fred J. Halkow

/s May, 1969



McDERMOTT GCO NORTHUP TAYLOR LAKE Y.T. K-15



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TABLE OF CONTENTS

		Page
INTRODUCTION	1	1
PERTINENT WI	ELL DATA	3
TABLE OF GEO	DLOGICAL FORMATIONS	6
SUMMARY OF	DRILL STEM TESTS	7
SUMMARY OF	CORED INTERVALS	7
SUMMARY OF	LOST CIRCULATION ZONES	7
SUMMARY OF	DEVIATION SURVEYS	8
DAILY MUD RE	CCORD	10
BIT RECORD		13
DAILY P. OGRE	ESS REPORT	14
SUM' OF	ABANDONMENT PLUGS	27
S TIGRAPH	Y	28
SAMPLE DESC	RIPTIONS	31
FORMATION F	LUID ANALYSIS	
DRILL STEM T	EST REPORTS	
IN ENVELOPE:		
(1)	Composite Lithologic Log	
(2)	Induction Electrical Log	
(3)	Borehole Compensated Sonic Log w/Gamma Ray & Caliper	
(4)	Compensated Formation Density Log	

INTRODUCTION

McD GCO Northup Taylor Lake Y.T. K-15 is located on latitude 65° 54' 39" North and longitude 133° 03' 00" West and is 172 miles south of Inuvik and 186 miles west-north-west of Norman Wells. It is just inside the Yukon Territory and in close proximity to the mouth of Taylor Creek on Snake River. It was a wildcat well that had the Bear Rock Fm. as the prime objective and the first significant porosity in the Ordovician as the ultimate objective. All other potential horizons were also to be evaluated. Control was weak and was based on outcrop sections 35 miles to the south in the MacKenzie Mountains and on two wells i.e. Shell Peel R Y.T. I-21 40 miles to the northwest and Atlantic Columbian Carbon Arctic Ontaratue 1-1-34, 42 miles to the northeast.

The rig, camp, ancillary equipment, trucks, mud, cement and other supplies were barged down the MacKenzie River in the summer of 1968 and landed at a point approximately 60 miles downstream from Ft. Good Hope to await freeze-up. Road-building commenced in early December 1968 and the location 185 miles away was reached on January 9, 1969. A 5800 ft. airstrip was built, the rig, camp, equipment and supplies moved in and more fuel flownin by DC-4 aircraft. A DC-3 flew in additional supplies and groceries and rotated personnel on a 4 week in, 2 week out basis.

The well was spudded on February 5 and steady progress was made until total depth was reached on March 22. There were no major mechanical breakdowns nor fishing operations although persistent excessive hole deviation necessitated retarding the penetration rate somewhat. No lost circulation conditions were encountered and a polymer-type mud maintained hole in good condition throughout the drilling operations. All prospective horizons were fully evaluated by sample examination, log examination and drill stem tests. No coring operations were carried out.

The well produced or indicated formation water on all tests and as no commercial gas or oil was encountered the well was abandoned on March 29, 1969 at a total depth of 7804 feet. The rig and camp was then moved back to the landing on the MacKenzie River to await re-assignment or to be barged back to Hay River in the summer of 1969.

PERTINENT WELL DATA

McD GCO Northup Taylor Lake Y.T. K-15 WELL NAME:

Unit K, Section 15, Grid 66° 00' & 133° 00' Latitude 65° 54' 39" North & Longitude 133° 03' 00" West. LOCATION:

Reference Marker: Shot Point #19,

Shell Seismic line #5-642.

1525 feet Ground (based on above Reference ELEVATIONS:

Marker)

1538 feet Kelly Bushing

No. 330 issued November 25, 1968 DRILLING AUTHORITY:

Wildcat CLASSIFICATION:

At 4:00 p.m. February 5, 1969 DATE SPUDDED:

DATE COMPLETED At 11:45 p.m. March 22, 1969 DRILLING:

At 2:00 a.m. March 29, 1969 RIG RELEASED:

7804 ft. (Driller) 7801 ft. (Log) TOTAL DEPTH:

Dry and abandoned STATUŞ:

53 days TOTAL RIG TIME:

TOTAL HOURS ON 797 1/2 hours BOTTOM:

AVERAGE PENETRATION 9.0 ft. per hour. RATE:

22 on main hole & 7 on surface hole. TOTAL NO. of BITS USED:

17 1/2" @ 0 - 111; 12 1/4" @ 111-900; HOLE SIZE: 8 3/4" @ 900 - 7804.

Conductor Ran 4 jts 13 3/8", 48#, CASING: Sumitomo casing with show set at 111' K. B. and cemented with 100 sks. portland cement + 95 sks. gyp-seal. Plug down at 11:00 p.m. February 6, 1969.

PERMIT # - 2448

Surface.

Ran 29 jts; 904.33 ft., of 9 5/8", 36#, J-55, 8rd, Rge. 2, Mannesman surface casing with shoe set at 900 ft. K.B. and entire string cemented with 270 sks. Fondu cement + 160 sks. portland cement + 2% CaCl₂. Plug down a 9:30 a.m. Feb. 13, 1969.

Production

Nil.

LOGGING:

CONTRACTOR:

RIG:

On March 25, 1969, ran Schlumberger Borehole Compensated Sonic Log 3/Gamma Ray & Caliper.

Scale 2" = 100" Interval: 901-7799 Interval: 901-7799 Scale 5" = 100', (Note: Gamma Ray was carried up to 80' K.B.)

On March 25, 1969 ran Schlumberger Induction Electrical Log.

Interval: 905-7800 Scale 2" = 100" Interval: 905-7800 Scale 5" = 100"

On March 25, 1969, ran Schlumberger Compensated Formation Density Log w/ Gamma Ray.

Scale 2" = 100' Interval: 905-7799 Scale 5'' = 100'Interval: 905-7799

On March 25, 1969, ran Schlumberger Continuous Dipmeter Interval: 901 to 7800

On March 25, 1969, ran Velocity survey with Schlumberger and Electronic Logging.

S & T Drilling (Western) Co. Ltd. Edmonton, Alberta

Rig No. 1E

Drawworks - National 50A

- Lee C. Moore '131' Mast - 2 National K-380 Pumps - 750 H.P. G.E. Motors 2 Cat D379 (550 h.p.)

Blow-out

Preventers - Schaffer Blind Rams Schaffer Pipe Rams Hydril GK-10

- Volcano 50 h.p. @ 95#

Boiler

TOOLPUSHER:

Vict r Galenza

WELL-SITE SUPERVISION:

V. Hunter and Associates Lid. Edmonton, Alta. F. J. Halkow, Calgary, Alberta

OPERATOR:

J. Ray McDermott Canada Ltd., Calgary, Alta.

PARTICIPANTS:

J. Ray McDermott Canada Ltd., Calgary, Alta. General Crude Oil Co. Calgary, Alberta Northup Petroleum Ltd. Calgary, Alta.

TABLE OF GEOLOGICAL FORMATIONS

· K.B. Elevation: 1538 ft.

FORMATION	Prognosed Depth	Sample Depth	E-log Depth	E-log Elevation
Base Glacial Drift		+ 110	110	+1428
MISSISSIPPIAN	2536	?	?	
UPPER DEVONIAN				
Imperial Fm.	2736		3455	-1917
Canol Fm.	4636	4310	4312	-2774
MIDDLE DEVONIAN				
Unamed Shale	4736	not present	ŧ	
Gayne Bituminous Shale	4836	not present	t	
Hume Limestone	4936	4451	4452	-2914
Hume Shale	5236	4840	4800	-3262
LOWER DEVONIAN				
Bear Rock	5536	5010	5000	-3462
SILURIAN-ORDOVICIAN	6436	6530	6550	-5012
Porosity	7236		7390	-5852
TOTAL DEP'[H	7436	7804	7801	-6263

SUMMARY OF DRILL STEM TEST

No.	Interval	Formation	Valve Open	Blow_	Recovery
1	2393-2418	Cret? Miss?	60 min.	air	100' mud + 400' gassy water
2	2824-3003	Cret? Miss?	60 min.	air	330' mud + 1240' gassy water
3	5880-6076	Bear Rock	90 min.	air	450' mud & 190' gassy salt water
4	7390-7804	Ordovician	90 min.	air	910' salty watery mud
5	5640-5740	Bear Rock	60 min.	air	1270' muddy salt water

- testing by Johnston Testers Ltd.

SUMMARY OF CORED INTERVALS

No coring operations carried out.

SUMMARY OF LOST CIRCULATION ZONES

No lost circulation zones encountered.

SUMMARY OF DEVIATION SURVEYS

Depth	Degrees Off	Depth	Degrees Off
70 ft.	1/2°	1520 ft.	2 5/8
130	5/8	1580	1 7/8
165	1/4	1650	2 5/8
230	1/8	1710	2 5/8
320	5/8	1775	2 7/8
350	7/8	1835	3
380	7/8	1905	2 3/4
410	7/8	1968	3
440	1	2032	3
470	1 1/8	2095	3
570	1 1/8	2212	3 1/2
600	î 1/8	2245	3 1/2
660	1 7/8	2300	3
690	1 5/8	2570	4
720	2	2630	4 1/8
780	1 7/8	2690	4 1/4
810	1 7/8	2794	5
900	1 1/4	2845	5 1/8
980	1 3/4	2882	5 1/2
1050	2 1/8	2940	5
1120	2	3003	5
1370	2 1/8	3065	5

SUMMARY OF DEVIATION SURVEYS

Depth	Degrees Off	Depth	Degrees Off
3125 ft.	5 1/4 °	4455	8
3174	5 1/2	4570	8
3220	5 1/4	4690	8
3285	5 1/4	4761	8 1/2
3345	5	4850	8 1/2
3440	6	4975	9
3500	6 1/2	5072	9
3565	7	5385	9 1/4
3591	7	5735	9 1/2
3630	7	6076	10
3660	7	6782	10
3725	6 1/2	7328	11 1/2
3763	6 3/4	7468	12
3815	7	7804	12
3845	7 1/4		
3875	7 3/4		
3915	7 3/4		
3970	7 1/2		
4035	7 1/4		
4130	8		
4190	7 1/2		
4293	7		
4375	8		

DAILY MUD RECORD

			U e					
•	Date	Depth		Viscosity	LOSS	Filter Cake	Ph.	Remarks and Additives
	<u> </u>	······································	#/ Gal.	Seconds	<u> </u>	32nds		
	1969		Mu	d Addit	ives ar	id Pi	roper	ies are every 24 hours 8:00 a.m. to 8:00 a.m.
	Feb.7	111		37				1500# gel, 50# caustic
	Feb. 8	539	8.9	35				3500# gel, 150# caustic.
	Feb.9	547	8.9	35				700# gel
	Feb. 10	685	9.0	52				2300# gel, 100# caustic
	Feb. 11	900	8.9	40				Nil
	Feb. 12	900						run casing
	Feb. 13	900						W.O.C.
	Feb. 14	900						drilling out
	Feb. 15	1719	8.8	33			11.0	100# soda ash, 200# XC polymer, 25# caustic, 10# Dowicide 'B'.
	Feb. 16	2189	8.9	33			11.0	10# Dowicide 'B', 30# chromic chloride.
	Feb. 17	2358	8.9	32			10.5	25# CaCl ₂ , 10# Dowicide 'B', 50# XC polymer, 15# chromic chloride.
	Feb. 18	2418	8.9	32			10.5	25# CaCl ₂ , 10# Dowicide 'B', 15# chromic chloride, 50# XC polymer.
	Feb. 19	2 648	8.9	34	24.0	2	10.5	100# XC polymer, 25# CaCl ₂ . 30# chromic chloride, 50# caustic, 10# Dowicide 'B'.
	Feb. 20	2819	9.0	34	22.0	2	11.0	50# XC polymer, 100# caustic, 80# CaCl ₂ , 75# chromic chloride, 10# Dowicide 'B'.
	Feb. 21	2950	9.0	32	25.0	2	10.0	Nil
	Feb. 22	3023	9.0	34	22.4	2	10.0	50# XC polymer, 50# caustic, 15# chromic chloride, 25# CaCl ₂ , 20# Dowicide'B'
	Feb.23	3155	9.0	34	25.0	2	10.5	50# caustic soda
	Feb.24	3278	9.0	33	22.4	2	10.5	100# XC polymer, 100# caustic, 30# chromic chloride, 25# CaCl ₂ , 20# Dowicide 'B'.
)	Feb.26	3529	9.1	33	23.4	2	10.0	100# XC polymer, 100# caustic, 30# chromic chloride, 75# CaCl 20# Dowicide 'B'.
	Feb. 26	3648	9.0	34	21.0	2	11.0	100# XC polymer, 200# caustic, 30# chromic chloride
	•							

DAILY MUD RECORD

•			Weight	Viscosity	Water Loss	Filter Cake	Ph.	Remarks and Additives
'	Date	Depth	#/ Gal.	Seconds	15 min. C.C.	32nds	FII.	
•	1969 Feb. 27	3732	9.0	37	22.2	2	11.0	200# XC polymer, 50# CaCl ₂ , 100# caustic, 10# chromic chloride
	Feb.28	3887	9.0	37	14.4	2	10.5	100# XC polymer, 1200# gel, 180# CaCl ₂ , 50# caustic, 10# chromic chloride
	Mar. 1	4096	9.1	37	12.6	2	9.5	200# XC polymer, 80# CaCl ₂ , 30# Dowicide 'B'.
	Mar.2	4293	9.1	35	14.4	2	8.0	100# XC polymer, 80# CaCl ₂ , 100# caustic, 20# chromic chloride, 10# Dowicide 'B'
	Mar.3	4481	9.1	35	13.8	2	10.5	50# caustic, 10# chromic chloride, 20# Dowicide 'B'.
	Mar.4	4726	9.1	34	14.	2	10.0	20# chromic chloride, 20# Dowicide B.
	Mar.5	4849	9.1	36	12.0	2	10.0	100# XC polymer, 200# gel, 50# caustic.
À	Mar.6	5031	9.1	35	11.	2 2	9.0	100# XC polymer, 50# caustic, 10# chromic chloride, 30# Dowicide 'B'
	Mar.7	5224	9,1	36	11.	8 2	9.5	100# XC polymer, 200# gel, 100# caustic, 10# chromic chloride, 20# Dowicide 'B'
	Mar.8	5398	9.1	36	11.	4 2	9.0	100# XC polymer, 10# chromic chloride, 20# Dowicide 'B'
	Mar.9	5615	9.0	36	11.	2 2	10.0	10# chromic chloride, 20# Dowicide 'B'.
	Mar.l	0 5854	9.	36	10.	4 2	9.5	10# chromic chloride, 10# Dowicide 'B'
	Mar. l	1 6076	9.0	36	9.	8 2	10.	100# XC polymer, 100# caustic, 20# chromic chloride, 20# Dowicide 'B'.
	Mar. 1	2 6102	8.	8 38			10.	
	Mar. l	3 6224	9.	1 36	10.	5 2	10.	
	Mar. 1	.4 6452	9.	0 34	10.	2 2	10.	10# Dowicide 'B', 10# chromic chloride.
•	Mar.	6685	9.	1 36	9.	6 2	10.	
	Mar.	6828	8.	9 38	9.	8 2	10.	30# chromic chloride.
	Mar.	7042	2 9.	1 37	10.	4 2	9.	5 300# gel, 150# caustic, 10# Dowicide 'B', 10# chromic chloride.

12.

DAILY MUD RECORD

			Weight	Viscosity	Water Loss	Filter Cake	ł	
	Date	Depth	≉/ Gal.	Seconds	15 min. C.C.	32nds	j rn.	Remarks and Additives
	1969 Mar. 18	7244	9.1	38	10.6	2	10.0	100# XC polymer, 1000# gel, 100# caustic, 20# chromic chloride.
	Mar. 19	7375	9.1	38	11.8	2	9.5	
	Mar.20	7485	9.2	38	11.8	2	10.0	50# Caustic
	Mar. 21	7672	9.2	38	13.0	2	9.5	100# XC polymer, 400# gel, 50# caustic, 20# Dowicide 'B'
	Mar. 22	7804	9.2	36	12.8	2	9.5	800# gel, 50# caustic, 20# chromic chloride 20# Dowicide 'B'
	Mar.23	7804	9.2	41	12.6	2		200# XC polymer, 3800# gel, 50# caustic.
	Mar.24	7804	9.2	50	8.6	2	10.5	550# XC polymer, 100# caustic, 50# Dowicide 'B', 50# chromic chloride.
	Mar. 25	7804	9.2	60	8.4	2	10.5	500# XC polymer.
			Note:	Above j	proper	ties	and a	dditives compiled from
			1	McDer	mott [‡] D	aily	Drilli	ng Reports.
	•							·
						-		
					-			
	ACTION AC		 					
1								•
		•				- Inches		
							1	

BIT RECORD

McDermott General Crude Northup Taylor Lake YT K-15

Well 65° 54' 19" N. Lat. 133° 03' 00" W. Long.

Drilling Contractor S & T Drilling (Western) Co. Ltd. RIG No. 1E

Date Drilling Started Feb 5, 1969 Date Completed March 22, 1969

Date Drilling Started Feb 5, 1969 Date Completed March 22, 1969													
Bit No.	Size	Make	Туре	Depth Out	Feet	Hours	Accum. Hours	Condition T B		No. DC.	Wt. 1000#	RPM	Pump Pres.
<u>1A</u>	124	Reed	YTA	111	_111_	912	91,	3 2	1	2		100	100
Reamer	173	Smith	Reamer	111	111	5	141/2	Good		2		100	100
2A	12կ	H₩	OSC3A	477	366	15	29 ¹ 2	3 2	1	12	10	100	150
3A	8 3/	4 HW	OSC1G	539	62	3 3/4	33 1/4	Khocł	ed	off	all co	nes	waterwaterwaterwaterwaterwaterwaterwater
4A	121/4	HW	OSC3A	547	8	14	341/2	мі11	on	iron	n		
5A	12½	Smith	DTF	739	192	11 3/4	461/2	4 2	1	12	20	100	
6A	8 3/	4 HW	XlG	763	24	412	50 3/4	Mil1	on	iro	h		
7A	8 3/	'4 HW	XlG	900	137	7뉳	58	2 2	1	12	10	90	650
Reamer	124	Smith	Reamer	900	161	7 3/4	65 3/4	Good		12	15	90	650
1RR	8 3/	'4 HW	XlG	980	80	1 3/4	67½	3 2	1	12	20	90	1000
2	8 3/	'4 HW	XlG	1906	926	214	88 3/4	2 1	1	12	10 - 20	90	1500
3	8 3/	4 HW	xv	2263	357	14	102 3/4	7 2	1	12	10- ₂₅	80	1400
4	8 3/	4 Smith	SS5	2418	155	15 3/4		1 1	1	16	25	46	
5	8 3/	'4 HW	х7	2794	376	28 3/4	1471/4	6 2	1	24	15-30	50	1100
6	8 3/	'4 HW	xv	2882	88	14 ¹ ₂	161 3/4	7 2	1	24	10-15	60	1200
7	8 3/	4 Smith	SS5	3003	121	14½	176 ¹ ⁄ ₄	1 1	1	24	10-15	60	and the control of th
7RR	8 3/	4 Smith	SS5	3149	145	20½	196½	2 1	1	24	10-15	50	1200
8	8 3/	4 HW	xv	3174	25	5 3/4	2021/4	4 1	1	24	15-20	6Ū	1250
9	8 3/	'4 HW	X55R	3591	417	47	249 ¹ ⁄ ₄	1 1	2	24	15-30	50	1250
10	8 3/	'4 HW	х7	3716	125	144	263½	2 1	1	24	10-12	50-70	1350
11	8 3/4	HW	xv	3725	9	2 ¹ 4	265 3/4	4 1	1	24	10-20	70	1350
12 RR4	8 3/4	Smith	SS5	3915	190	27 3/4	293 ¹ 2	2 3	1	24	15-30	70	1250
13	8 3/4	Sec	DMJ	4293	378	32 3/4	326½	4 6	1	24	30	50	1250
14	8 3/4	Sec	DMJ	4481	188	21½	347 ¹ ₂	7 5	1	24	25	50	1250
15	8 3/4	Sec	s88	4761	280	23 ¹ 2	371	8 4	1	24	40	44	1400
16	8 3/4	Smith	SS5	5228	467	60	431	2 2	1	24	35	40	1300
17	8 3/4	Sec.	588	6076	848	81 3/4	512 3/4	7 1	1	24	40	40	1250
18	8 3/4	Sec.	588	6177	101	96 ¹ 2	609¼	8 1	1	24	30/40	30/40	1250
19	8 3/4	HW	X55R	6782	605	63 1/4	672 ¹ 2	2 2	1	24	40	36/40	1350
20	8 3/4	Smith	SS5	7328	546	62 ¹ 2	735	2 4	1	24	40	40	1400
21	8 3/4	HW	w7	7468	140	21	756	3 3	1	24	45	55	1400
22	8 3/4	Smith	SS5	7804	336	41½	797½	8 4	0	24	45/50	40	1600
													The second secon
													personal distribution of the control
													mandfillered had a more reason to the real system and the pro-
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ALTERCATION - VIOLATION - SEPT.											-Vitarian communicative agricultural		
													Messacratics of the Art of Miller of the Arts or more pair of the Arts of the
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	REMARKS		ogress made every 24 hours from 8:00 a.m. to 8:00 p.m.	Commenced moving rig from MacKenzie River landing on December 14, 1968, and built road to location 185 miles away. First arrival on location on January 9, 1968, Built airstrip, moved in equipment and commenced rigging up on January 24, 1969, Cemented cellar on February 4, 1969 with 84 sks. construction cement + 26 sks. Fondu cement + 200# CaCl ₂ and continued rigging up.	n. Feb. 5, 1969		amer at 8:00 a, m.	amed 12 1/4" hole to 17 1/2" n 13 3/8", 48# Sumitomo casing as conductor pipe to 11l ft, and cemented with 100 sks. portland cement + 95 sks. gyp seal, Plug down at 11:00 p.m.		s at 5:30 a, m. and g out same.	Drilling out cement at 8:00 a, m,	Drilled out cement Drilled 12 1/4" hole Hole deviation increasing - tripped to pilot hole A77-539 Drilled 8 3/4" pilot hole	
			de every 24 hours from	tenced moving rig from 1t road to location 185 r. 168. Built airstrip, mot, 1969. Cemented cellent + 26 sks. Fondu cer	Completed rigging up Spudded in at 4:00 p, m. Feb, Drilled 12 1/4" hole	Survey: 1/2° @ 70 ft.	Status: Picking up reamer at 8:00 a, m.	Reamed 12 1/4" hole to 17 1/2" Ran 13 3/8", 48# Sumitomo casing as conductor pipe to 111 ft, and cemei with 100 sks. portland cement + 95 gyp seal, Plug down at 11:00 p.m.	W, O, C,	Found cement at 40 ft, at 5:30 a, m, and commenced drilling out same.	Status: Drilling out c	Drilled out cement Drilled 12 1/4" hole Hole deviation increasing Drilled 8 3/4" pilot hole	
A STATE OF THE PERSON NAMED OF THE PERSON NAME	SCIA HIG	NOS.	gress ma	Commission	14	erenen kiloneteru	ing garante and construction of the sections of	Reamer	ng an ang ang ang ang ang ang ang ang an	engular da Elizabeth (Shuga establish	nd avenue version en	2A, 3A	
	Hours	Bottom	Pro	196 Jan on J	9 1/2			r)				18 3/	
	Foo	tage		·	prof prof prof			god god god		entire bienstelvigsselvigsgebigsge	paolen di Strik Britis	428	
•	Ŧ	70			p			ল ল ল		539			
,	DEPTH	From			0		anaryumén désééé	0				good good	•
	6	1969 1969		Feb. 6					۲۹ وي 8				

	REMARKS		1/4° off @ 165, 1/8° off @ 230, 7/8° off @ 350, 7/8° off @ 380, 1 off @ 440, 1 1/8° off @ 470	le @ 8:00 a, m.	en pump kicked in pump off but hook kelly swung out	g kelly off and pipe 1. Welded straps lar on and hoisted	1 3 bit cones off and	down 3 bent drill with Globe basket to recovery.	with basket,	basket - no recovery reamed pilot hole 477-539	with Dit, unitied pass fish	cone on 2nd run. run. h iron) 547-685	1 1/8° off @ 570, 1 1/8° off @ 600, 1 7/8° off @ 660.	t 8:00 a, m,	
			Surveys: 5/8° off @ 130, 15/8° off @ 320, 7/8° off @ 410, 1	Status: Drilling pilot hole @ 8:00 a, m.	Pipe pumping out of hole when pump kicked in after rig service; shut pump off but hook came open and swivel & kelly swung out	through V door breaking kelly off and pipe dropped 15 ft. to bottom. Welded straps on to kelly, put dog-collar on and hoisted	pipe out of hole. Found 3 bit cones off and on bottom.	Picked up 3 1/2" kelly, laid down 3 bent drill pipe singles and ran in with Globe basket and fished for cones - no recovery. Ran in with modified basket	Status: Cleaning to bottom with basket,	Worked and tripped out with basket - no recovery Ran in with 12 1/4" bit and reamed pilot hole	539-547 - could not by-pass fish Ran in with magnet - recovered 1 cone on 1st run	and recovered another cone on 2nd run. Recovered junk iron on 3rd run. Drilled 12 1/4" hole (mill on iron)	Surveys: 1 1/8° off @ 570, 1 7/8° off @ 660.	Status: Drilling at 685 at 8:00 a, m,	
,	NOS.									4A, 5A				45 3 3 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	PA Denni Britain Cashri (rasc)
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Westerprooff-cummantantomical contract of quantities of defendance		685-739 739-765 765-855			855-900 739-900								
BIT NOS.	REMARKS	Drilled 12 1/4" hole Drilled 8 3/4" pilot hole (mill on iron) Ran in w/magnet - no recovery on 1st run, recovered 3rd cone on 2nd run, Drilled 8 3/4" pilot hole	Surveys: 15/8° off @ 690, 2° off @ 720, 17/8° off @ 780, 17/8° off @ 810.	Status: Drilling at 855 at 8:00 a.m.	Drilled 8 3/4" pilot hole Reamed pilot hole to 12 1/4"	Surveys: 11/4° @ 900	Conditioned and ran 29 jts., 904.33 ft., 9 5/8", 36#, J-55, 8 rd, Rge. 2, Mannesman surface casing with shoe set at 900' K.B. and cemented with 270 sks. Fondu cement + 160 sks. portland cement with 3% CaCl.	Status: Cementing casing @ 8:00 a, m,	Completed cementing casing. Obtained good cement returns and plug was down at 9:30 a.m. Feb. 13/69.	W.O.C. to 9:30 p.m. Slacked off and cut casing off. Headed up.	Status: Heading up at 8:00 a.m.		
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NAMES AND ASSOCIATION OF THE PROPERTY OF THE P				900-980	@ 1520, off @ 1710.		1719-1906 1906-2189		2189-2263 2263-2358				·
	REMARKS	Completed heading up. Pressured up blind rams to 1000# - held O.K. Drilled mouse hole. Ran in w/bit No. 1 and pressured up pipe rams and hydril each to 1000#.	Status: Preparing to drill out at 8:00 a, m.	Drilled out plugs, cement and shoe at 9:30 a.m. Drilled 8 3/4" hole Tripped at 980 for bit No. 2, reamer and Circle "C" tool Drilled 8 3/4" hole	Surveys: 13/4° off @ 980, 2 1/8° off @ 1050, 20 off @ 1120, 2 1/8° off @ 1370,2 5/8° off @ 1520, 17/8° off @ 1580, 2 5/8° off @ 1650, 2 5/8° off @ 1710.	Status: Drilling at 1719 at 8:00 a.m.	Drilled 8 3/4" hole Tripped at 1906 for bit No. 3 Drilled 8 3/4" hole	Surveys: 1775 - 27/8°, 1835 - 3°, 1905-23/4°, 1968 - 3°, 2032 - 3°, 2095 - 3°	Drilled 8 3/4" hole Tripped at 2263 for bit No. 4 Drilled 8 3/4" hole	Surveys: 2212 - 31/2°, 2245 - 31/2°, 2300 - 3°	Status: Drilling at 2358 at 8:00 a.m.		
	BIT NOS.			2			2,3		£ 4				
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	ar Canada (A. Paris de Alberta de Canada (A. Paris de Canada (A. Paris de Canada (A. Paris de Canada (A. Paris	2358-2418		nce.			and 2418-2648			2648-2794 2794-2819			2819-2882 2882-2950			
REMARKS		Drilled 8 3/4" hole	Survey: 3° off @ 2390	Measured out to test - no correction for -0, 44 ft, difference.	Ran D.S.T. No. 1, 2393-2418 Picked up 8 drill collars - lost chisel down hole.	Status: Running in w/magnet @ 8:00 a.m.	Worked magnet and recovered part of chisel on 1st run and no recovery on 2nd run. Ran in w/bit #5 & junk sub Drilled 8 3/4" hole (hold back on wt.)	Surveys: 4º @ 2570, 4 1/8º @ 2630	Status: Drilling at 2648 at 8:00 a.m.	Drilled 8 3/4" hole (hold back on wt.) Tripped at 2794 for bit No. 6 & slipped line. Drilled 8 3/4" hole (hold back on wt.)	Surveys: 41/4° @ 2690, 5° @ 2794,	Status: Drilling at 2819 at 8:00 a.m.	Drilled 8 3/4" hole (hold back on wt.) Tripped at 2882 for bit No. 7 Drilled 8 3/4" hold (hold back on wt.)	Surveys: 51/8° @ 2845, 51/2° @ 2882, 5° @ 2940	Status: Drilling at 2950 at 8:00 a.m.	
	ni	Dr	Su	Ä	Ra Pi	S	× % Q	Su	St	9	S	S		Ş	Š	MALITY OF THE POST
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Market de les services de la constant de la constan	n. majagojanajiwa keninensisija valenja jeninaja keninaja keninaja keninaja keninaja keninaja keninaja keninaj	2950-3003	3003-3023			3023-3144	3149-3155		17	3155-3174	3174-3278			3278-3529	@ 3500		3529-3591	3591-3648		
	KEWAKKS		wt,)	Survey: 50 @ 3003	Status: Drilling at 3023 at 8:00 a, m.		Tripped at 3149 for Bit No. 8 Drilled 8 3/4" hole (hold back on wt.)	Surveys: 5° @ 3065, 5 1/4° @ 3125	Status: Drilling at 3155 at 8:00 a.m.		Tripped at 3174 for Bit No. 9 Drilled 8 3/4" hole (hold back on wt.)	Surveys: 51/2°@3174, 51/4°@3220	Status: Drilling at 3278 at 8:00 a.m.	Drilled 8 3/4" hold (hold back on wt.)	Surveys: 51/4° @ 3285, 5° @ 3345, 6° @ 3440, 61/2° @ 3500	Status: Drilling at 3529 at 8:00 a.m.		Tripped at 3591 for Dit No. 10 Drilled 8 3/4" hole (hold back on wt.)	Surveys: 7° off @ 3565, 7° off @ 3591, 7° @ 3630	
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7 1	DEP	ОЕРТН	Foo	Hours	1	
al V	From	To	tage	on Bottom	SON INCOME	REMARKS
Feb. 27	3648	3732	84	11 1/2	10, 11, 12 (RR4)	Drilled 8 3/4" hole (hold back on wt.) 3648-3716 Tripped at 3716 for Bit No. 11 Drilled 8 3/4" hole - bit torqueing Tripped at 3725 for Bit No. 12 Drilled 8 3/4" hole (hold back on wt.) 3725-3732
						Surveys: 7° off @ 3660, t 1/2° off @ 3725 Status: Drilling at 3732 at 8:00 a.m.
Feb. 28	3732	3887	2 2	22 1/4	12 (RR4)	Drilled 8 3/4" hole (hold back on wt.) 3732-3887 Surveys: 6 3/4° oft @ 3763; 7° off @ 3815, 7 1/4° off @ 3845
Mar, 1	3887	4096	500	18 1/2	12(RR4) 13	Status: Drilling at 3887 at 8:00 a.m. Drilled 8 3/4" hole (hold back on wt.) 3887-3915 Tripped at 3915 for Bit No. 13 3915-4096 Drilled 8 3/4" hole (hold bcck on wt.) 3915-4096
					0.000	ໍ່ຜໍ
Mar, 2	4096	4293	197	19 3/4	13,	Status: Drilling at 4096 at 8:00 a.m. Drilled 8 3/4" hole Surveys: 8° off @ 4130; 7 1/2° off @ 4190; 7° off @ 4293
Mar, 3	4293	4481	188	21 1/4	4.	Status: Tripping at 4293 for Bit No. 14 at 8:00 a.m. Drilled 8 3/4" hole Surveys: 8° off @ 4375; 8° off @ 4465.
						Status: Drilling at 4481 at 8:00 a, m,

								21	• •										
			4481-4726	٠		4726-4761			4761-5031			5031-5224			5224-5228	5228-5398			
		KEMAKKS	Tripped at 4481 for bit No. 15 Picked up extra stabilizers Drilled 8 3/4" hole	Surveys: 8° off @ 4570, 8° off @ 4690	Status: Drilling at 4726 at 8:00 a, m,	Drilled 8 3/4" hole Tripped at 4761 for bit No. 16	Survey: 8 1/2° off@ 4761	Status: Drillir.g at 4849 at 8:00 a.m.	Drilled 8 3/4" hole	Surveys: 8 1/2° off @ 4850, 9° off @ 4975	Status: Drilling at 5031 at 8:00 a.m.	Drilled 8 3/4" hole	Survey: 9° off@5072	Status: Drilling at 5224 at 8:00 a.m.	Drilled 8 3/4" hole Trinned at 5228 for bit No. 17	Measured pipe - no correction for - 1, 11ft, dif, Drilled 8 3/4" hole	Survey: 9 1/40 @ 5385	Status: Working on rig electrical power system.	
	S I	Ċ Z Z	15			15, 16			91			16	The large stripe with		16, 17		от <i>Бе</i> бездау сами	OP WEEKSTONE CHAI	-
	Hours	Bottom	17 1/2			18 3/4			23		er en de est en en en en	23 1/2	**************************************	**************************************	16 3/4	eriter y tak amay standarya caw	David Standy (gan	androge vice films to the	
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lancomorphism of the second	Ŧ	To	4726			4849			5031			5224		Marian de la com	5398				
Contract and	DEPTH	From	4481			4726			4849	•		5031		-	5224				
	L A C		Mar. 4			Mar, 5			Mar. 6	eta Sakariia Ovranokai		Mar. 7			Mar. 8				

3F A G	DEPTH	Ŧ	Foot	Hours	ACM TIM	REMARKS	
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Mar. 9	5398	5615	217	22 1/2	17	Worked on rig electrical power system. Drilled 8 3/4" hole	5398-5615
					reduktiva kan arabi d	Status: Drilling at 5615 at 8:00 a.m.	
Mar. 10	5615	5854	239	21 3/4	17	Drilled 8 3/4" hole Worked on rig electrical power system - 1 hr.	5615-5854
	Geographic volume in the second					Survey: 91/20@5735.	
				skami é mérek ezprezén	urturansa tan akan	Status: Drilling at 5854 at 8:00 a.m.	
Mar, 11	5854	9209	222	213/4	17	Drilled 8 3/4" hole	5854-6076
						Status: Circulating to test at 6076 at 8:00 a.m.	22,
Mar, 12	6076	6102	97	4 1	81	Ran D.S.T. No. 3, 5880 - 6076	•
	w/pow/logicity-respirate				andrugyvisuumi salihud	Survey: 10° @ 6076	
					Open og aktivistististististististististististististi	Checked drill-collars and ran in w/Bit #18 Drilled 8 3/4" hole	6076-6102
	all a State of the				ministrative content and an extension of	Status: Drilling at 6102 at 8:00 a, m.	
Mar, 13	6102	6224	122	16 3/4	18, 19	Drilled 8 3/4" hole Tripped at 6177 for Bit #19 Drilled 8 3/4" hole	6102-6177 6177-6224
•						Status: Drilling at 6224 at 8:00 a.m.	
Mar. 14	6224	6452	228	23 1/4	61	Drilled 8 3/4" hole	6224-6452
					gold make with the state of	Status: Drilling at 6452 at 8:00 a.m.	
	second and the second s				Status inheers (predate)		
			en de deserva		in a serior en compara		

			mental construction and the management							23	3.									
			6452-6685		6685-6782	6782-6828			6828-7042		7042-7244		7244-7328		7328-7375		7375-7468	7468-7485		
		REMARKS	Drilled 8 3/4" hole	Status: Drilling at 6685 at 8:00 a, m,	Drilled 8 3/4" hole	Drilled 8 3/4" hole	Survey: 10° @ 6782	Status: Drilling at 6828 at 8:00 a.m.	Drilled 8 3/4" hole	Status: Drilling at 7042 at 8:00 a.m.	Drilled 8 3/4" hole	Status: Drilling at 7244 at 8:00 a.m.	Drilled 8 3/4" hole Tripped at 7328 for bit No. 21	Survey at 7328 - off 11 1/2°	Drilled 8 3/4" hole	Status: Drilling at 7375 at 8:00 a.m.	Drilled 8 3/4" hole Tripped at 7468 for bit No, 22	Survey at 7468 - off 120 Drilled 8 3/4" hole	Status: Drilling at 7485 at 8:00 a.m.	
	1	811 NOS	19		19, 20				20		20		20,21				21,22			- Colonia (n. 1900 - America)
	Hours	on Bottom	22 3/4		16 1/2				23 1/4		23 1/4	***************************************	17 1/2			Total Company	-	Patricia de la composição	teaturist vita Oper private	Harmon Alexandria (Marie)
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	7		Mar. 15		Mar. 16				Mar. 17		Mar. 18		Mar., 19				Mar. 20	<u>*</u>		apatelliki (ili oʻrkinga valongu

							24.						
		7485-7672		7672-7804			hours.					71	
REMARKS		Drilled 8 3/4" hole	Status: Drilling at 7672 at 8:00 a.m.	Drilled 8 3/4" hole Completed drilling at 11:45 p.m. March 22, 1969 Mixed mud & condition same - 1 hr. Tripped for bit No. 23 at 7804	Survey at 7804 - off 12 ^o	Changed stabilizer bars and laid down Circle "C" Trip in w/bit No. 23.	Reamed 5 ft. undergauge hole - 1 hr. Circulated, waiting on orders and condition mud -4 hours. Conditioned mud and hole to log - 6 1/2 hrs. Trinned to log.	Commenced logging - found hole bridged at - 1800. Ran in with bit and cleaned and conditioned hole.	Status: Cleaning hole at 8:00 a.m.	Completed conditioning hole. Resumed logging and found hole bridged again. Cleaned hole to 3000' Resumed logging and found hole bridged at 5880. Logged 5880 to surface.	Status: Logging at 8:00 a, m.	Completed logging to surface (1st run) Cleaned hole to bottom Ran in to log - hole clean to bottom and commenced logging at 7:00 p, m. March 24.	Status: Logging at 8:00 a.m.
BIT NOS.		22		22							· · · · · · · · · · · · · · · · · · ·		
Hours	Bottom	23 1/4		15 1/4							dipolitica de la constanta de		and the second s
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i,	DATE	Mar. 21		Mar, 22			Mar, 23			Mar. 24		Mar, 25	· ·

	DEP	DEРТН	Foot	Hour	3C)4 E10	DEMADIKS
DA H	From	To	tage	Bottom	NOS:	CANADA
Mar, 26	7804					Completed logging at 2:00 a.m. March 26. Ran Schlumberger Borehole Compensated Sonic Log w/Gamma Ray & Caliper Interval: 901 to 7799.
	oken-man-maken					Ran Schlumberger Induction E-Log. Interval: 905-7800
						Ran Schlumberger Compensated Formation Density Log w/Gamma Ray Interval: 905-7799
						Ran Schlumberger Continuous Dipmeter Survey Interval: 905-7800
	reterret normanista					Ran Velocity Survey
	·					Made up packer and ran D. S. T. No. 4, 7390-7804
	·Dulley will restrict			W Company worker was		Status: Testing at 8:00 a.m.
Mar. 27	7804					Completed D.S. T. No. 4 Ran D.S. T. No. 5, 5,
	-					Completed D.S.T. No. 5 and wait on orders.
	alle gariye qari de gare e yarrin co					Status: Waiting on orders at 8:00 a, m,
Mar. 28	7804		googles (de schi sch			Waited on orders,
						Ran Abandonment Plug No. 1 7800-7300, cemented with 250 sks. Type 'A' cement. Plug down at 6:25 p.m. March 27.
	- Charles and the second secon					Ran Plug No. 2, 5050-4950, cemented with 50 sks. Type 'A' cement. Plug down at 8:10 p.m. March 27.
						W.O.C. and laid down collars and pipe.

	PRI ANTICE DE L'ARTE					26.							
REMARKS		Ran Plug No. 3, 2550-2450, cemented with 100 sks. Type 'A' cement + 2% CaCl ₂ Plug down at 6:29 a.m. March 28.	Status: W, O, C, at 8:00 a, m.	W.O.C. and laid down pipe. Felt for and found Plug No. 3, at 2460 at 2:45 p.m. March 28.	Ran Plug No. 4, 1000-800, cemented with 100 sks. Type 'A' cement + 4% CaCl ₂ . Plug down at 3:35 p.m., March 28.	W, O, C, and laid down pipe Felt for and found Plug No. 4 Laid down pipe and cut off casing 3' below ground level, Put in 10 sks, cement and welded plate on top,	Released Rig at 2:00 esm. March 29, 1969.						
SON FIR	1203.												
Hours	on Bottom								un Juga Sanna James V en strumb 184				- Parker arthus con
Foot	tage									,	en de servenos projektos den en gregos de		norma, ny taon
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i i	טאוני ז	Mar. 28 (continued)		Mar. 29	e mineralização e materio de la Presidente.	energia ya garin kandan kilo engali nafakari - sama			ngin ngingan at ang ang ang ang ang	ng digund comunic (6) ay baha 1974	alautinija di kutovin, ***	محمد منزر سيسيرون	elist Kirolitz kasun

SUMMARY OF ABANDONMENT PLUGS

Plug No. 1

Plug down at 6:25 p.m. March 27, 1969.
No feel for plug.

Plug No. 2

5050-4950, cemented with 50 sks. Type 'A' cement.

Plug down at 8:10 p.m. March 27, 1969.
Felt for and found Plug #2 at 4918 after 8 hrs.

Plug No. 3

2550-2450, cemented with 100 sks. Type 'A' cement + 2% CaCl₂.

Plug down at 6:29 p.m. March 28, 1969.
Felt for and found Plug #3 at 2460 at 2:45 p.m. March 28.

Plug No. 4 1000 - 800, cemented with 100 sks. Type 'A' cement + 4% CaCl₂.

Plug down at 3:35 p.m. March 28, 1969. Felt for and found Plug #4 at 819 after 8 hours.

7800-7300, cemented with 250 sks Type 'A'

Cut casing off 3 ft. below ground level and put in 10 sks. cement. Welded plate on top

- cementing by Halliburton.

STRATIGRAPHY

McD GCO Northup Taylor Lake Y.T. K-15 was located on a structural anticline mapped to be some 14 miles long and 3.5 miles wide. A general section of sediments found in the Central MacKenzie River Region was encountered and the well was bottomed in the Ordovician at a total depth of 7804 feet.

Permafrost was found to extend to approximately 85 feet and base of glacial drift was encountered at 110 feet. The succeeding 1960 feet are a black fissile micromicaceous shale with thin streaks of siltstone and traces of ironstone or ferruginous claystone. These are underlain by 1385 feet of interbedded sandstones and shale, the topmost 130 feet of which are a highly glauconitic sandy shale. The remaining shales are brown-black, fissile to compact and with traces of finely disseminated carbonized plant remains. The sandstones are brown and dark brown, fine to coarse grained quartz, shaly, siliceous and also with scattered carbonized plant remains. Porosity development is minor and mediocre and is water-bearing. No visible oil-staining was noted.

The sediments penetrated to this depth at 3455 ft. are in all probability of Cretaceous and/or Mississippian age and further breakdown or positive assignment as to age is dependent on micropaleontological studies.

The sand and shale sequence continues on further, i.e. from 3455 ft. to 4312 ft. but this section is considered to be Upper Devonian Imperial Fm. The shale is black, fissile and micromicaceous and

locally slightly bituminous. The sands are very fine grained, tight, shaly and considerably more silicified. Underlying the Imperial is the Canol Fm. consisting of 140 ft. of black bituminous fissile and platy shale typical of this formation.

To this depth at 4452 feet the sediments are all clastics and the base is a marked unconformity truncating the Middle Devorian. The underlying sediments commencing with the Hume Limestone at the top and to the final total depth in the Ordovician are all primarily carbonates. The Hume in this well is 548 ft. thick and consists of brown and dark brown earthy to microcrystalline limestone grading to argillaceous limestone with subordinate greenish-grey shale at the base of section. The limestone is in part bioclastic and is highly fractured and veined with quartz and calcite. Spectrographic analysis and formation density log interpretation also show prominent amounts of barite (up to 30%) to be present in the upper 100 ft. No effective porosity was noted in this section.

The underlying Bear Rock is 1550 ft. thick and is a section of buff to brown-black limestones and dolomites which are lithographic to fine crystalline calcilutites and local calcarenites (bioclastic?). They are dense, tight and with much coarse crystalline calcite veining and fracture and breccia infilling. Porosity development is rare and is restricted to minor streaks in a medium crystalline skeletal-textured limestone. There is no staining in this section either and the formation produced salt water on test.

The top of the Silurian-Ordovician is at 6550 and of the 1354 feet penetrated the section is a ligh-grey to brown-grey microcrystalline dense tight limestone and dark brown fine crystalline dolomite. Crystal structure is generally more uniform and somewhat slightly coarser than the overlying Bear Rock. Coarse white calcite is common to abundant in this formation and porosity which occurs at 7390 is very poorly developed. It too is indicated to be water bearing.

Of the section of sediments penetrated in this well porosity development is sparse and poorly developed in all potential horizons. No oil staining was noted and although the waters recovered on tests were all gas-cut no free hydrocarbons were produced.

McDERMOTT GCO NORTHUP TAYLOR LAKE, Y. T. K-15 65° 54' 19" N. Lat. 133° 03' 00" W. Long.

SAMPLE DESCRIPTIONS

10-40	Intermixed	conglomeratic sandstone, chert and quartz pebbles, indurated limonitic quartz sandstone, grey, dark grey and green shale.
40 -60	Sand (50%)	quartz, clear to yellow-stained, fine to very coarse, angular to well rounded, loose.
	Shale (50%)	dark grey, crumbly, much ironstone.
60-70	Sample Missing	•
70- 80	Sandstone and S	Shale - as above.
80-110	Shale	dark brownish grey, soft, crumbly.
110-130	Conglomerate	sandstone pebbles and cert and quartz pebbles, loose.
	Shale	dark grey, firm.
130-180	Shale -	black, micromicaceous, firm, compact, in part fissile to platy.
		BASE OF DRIFT - + 110 (112 Log)
180-360	Shale	as above, somewhat more fissile, rare aragonite prisms
360-390	Shale	black as above and brown-grey indurated compact shale.
390-550	Shale	black, micromicaceous, fissile to flaky, trace pyrites
550-610	Shale	black, as above, rare streak indurated ferruginous shale.
610-660	Shale	black, as above, few thin streaks (laminae) very fine shaly sutstone.
660-770	Shale	black, fissile, micromicaceous, rare thin silty streaks.

770- 890	Shale	as above, silty content somewhat more common.
890- 900	Sample Missing	
		CASING SHOE AT 901
900- 970	Shale	black, micromicaceous, firm, in part fissile, minor thin laminae and streaks grey, speckled siltstone and sandstone
970- 980	Shale	as above and minor dull brownish grey indurated (ferruginous) shale.
980-1000	Shale	black, micromicaceous, compact to fissile, few thin streaks siltstone and very fine grained sandstone.
1000-1030	Shale	black, micromicaceous, fissile, rare minute carbonized plant.remains.
1030-1060	Shale	as above, rare micro-pyrites.
1060-1080	Shale	as above, trace or few thin streaks very fine grained speckled sandstone.
1080-1160	Shale	black, fissile, faintly micromicaceous.
1160-1210	Shale	black, somewhat more fissile than above.
1210-1220	Shale	as above, minor pyrites
1220-1260	Shale	black as above, minor ironstone, trace pyrites.
1260-1290	Shale	black, fissile, faintly micromicaceous, trace ironstone
1290-1310	Shale	as above, light brown ironstone more common, trace pyrites.
1310-1330	Shale	as above, 30% ironstone, pyrites common, trace calcite-filled fractures in ironstone
1330-1340	Shale (80%) Ironstone (20%)	as above as above
1340 - 1370	Shale	black, fissile, faintly micromicaceous, minor pyrites.

1370-1380	Shale	as above, few thin shell (?) fragments.
1380-1390	Shale	as above, minor pyrites, minor iron- stone.
1390-1440	Shale	as above, pyrites.
1440 - 1480	Shale	black, faintly micromicacous, fissile.
1480-1500	Shale	as above, trace pyrites.
1500-1540	Shale	as above, pyrites more common.
1540-1600	Shale	black, as above, trace pyrites.
1600-1620	Shale	black, as above, and 20% light brown ironstone.
1620-1680	Shale	black, faintly micromicaceous, fissile, in part slightly brownish-tinged, rare pyrites.
1680-1710	Shale	as above, minor dark brown indurated ironstone (5%).
1710-1740	Shale	as above, 5-10% ironstone, minor pyrites, trace poorly preserved fossil fragments.
1740-1750	Shale	black, as above, trace pyrites.
1750-1760	Shale	as above, rare brown grey microcrystal-line limestone.
1760-1820	Shale	black, micromicaceous, fissile to platy, trace pyrites.
1820 - 1830	Shale	black as above, minor dark brown ironstone, trace pyrites.
1830 - 1850	Shale	as above, with dark brown to light brown ironstone.
1850-1870	Shale	black, faintly micromicaceous, fissile, trace pyrites, rare pyritized fish-bone (?) fragments.
1870-1890	Shale	as above, minor ironstone, trace pyrites.

1890-1960	Shale	black, faintly micromicaceous, fissile to platy, trace pyrites, minor scattered ironstone with calcite-filled fractures, rare fine anhydrite (?)-filled fractures in shale.
1960-2050	Shale	black, fissile, trace pyrites, trace ironstone.
2050-2070	Shale	black as above, minor scattered nodular glauconite.
2070-2090	Shale	black, moderately fissile to blocky, faintly micromicaceous.
2090-2110	Shale	brown-black to black, highly glauconitic, and sandy with medium to coarse quartz grains, minor coarse grained shaly glauconitic sandstone, minor pyrites.
2110-2120	Shale	black, micromicaceous, fissile, miror glauconitic slightly sandy shale.
2120-2150	Shale	black, micromicaceous, in part slightly sandy, trace glauconite.
2150-2190	Shale	black, micromicaceous, fissile, locally sandy, trace pyrites.
2190-2200	Shale	black, slightly brownish-tinged, micromicaceous, compact, sandy
2200-2220	Sandstone	dark brown, quartz, very fine grained, shaly, tight, rare glauconite, in part a micromicaceous sandy shale.
2220-2230	Sandstone (50 Sandstone (50	
2230-2240	Sandstone	light brown to brown, quartz, fine grained with admixture of medium and coarse grained, sub-angular to rounded, shaly, indurated, glauconitic, tight.
2240-2250	Sandstone	light brown, quartz, very fine grained, indurated, slightly shaly, tight, rare fine glauconitic flecks.

2250-2260	Sandstone .	as above, shaly to very shaly, in part a sandy shale.
2260-2270	Sandstone	light brown, quartz, fine grained, indurated, tight, hard, pyritic, in part shaly.
2270-2300	Shale	black, fissile to compact, in part sandy, minor pyrites.
2300-2310	Shale (50%) Sandstone (50	as above, in part brown-black %) quartz, brown to dark brown, fine - grained, indurated, silicified, tight, variably pyritic, in part moderately shaly.
2310-2320	Sandstone	brown to dark brown, quartz, fine-grained, sub-angular, infilled with clay, scattered thin disseminated carbonized plant remains, minor pyrites, tight.
2320-2330	Sandstone	as above, in part medium to coarse grained and somewhat more indurated.
2330-2340	Sandstone (60° Shale (40%)	moderately sorted, minor coarse-grain admixture, indurated, siliceous, locally infilled with clay and shale, tight. brown-black, compact to fissile, slightly bituminous.
2340-2360	Shale	brown-black, in part slightly bituminous, disseminated carbonized plant remains common.
2360-2370	Sandstone	grey-brown to brown, quartz, very fine to fine-grained, indurated to clayey as above, tight, interbedded with minor brown-black shale.
2370-2380	Sandstone	as above, fine grained, more shaly than above, minor pyrites.
2380-2390	Shale (40%) Sandstone(60%)	brown-black, fissile. as above.
2390-2410		brown, quartz, moderately well sorted, medium-grained, sub-angular, moderately siliceous, minor clay infilling, porous (est. 10-15%), no visible oil staining.

2410-2420	Sandstone	brown, quartz, fine grained, sub-
		angular, in part indurated and siliceous, in part shaly, tight, minor shale laminae
	Shale (20%)	brown-black, sandy, firm, compact.
2420-2440	Shale	brown-black, firm, compact, sandy, micromicaceous, scattered finely disseminated carbonized plant remains.
2440 - 2460	Shale (90%) Sandstone (10%	as above b) grey-brown, quartz, fine grained, indurated, silicified, tight, interbedded with shale.
2460-2490	Shale	dark brown-black, sandy and with carbonized plant remains as above.
2490-2500	Shale	dark brown-black, sandy and black, non-sandy compact to fissile shale.
2500-2510	Shale	black as above, and 20% sandy shale with minor fine grained sandstone as above.
2510-2540	Shale	black, fissile, in part faintly micro-micaceous.
2540 - 2550	Shale	as above 20%, and 80% brown-black sandy shale with minor fine grained indurated sandstone.
2550-2560	Shale	brown-black, sandy, compact, micro-micaceous.
2560-2580	Shale	as immediately above with trace sand- stone, minor black fissile shale.
2580-2610	Shale	black, fissile, micromicaceous, minor dark-brown-black slightly sandy shale.
2610-2620	Shale (80%) Sandstone (20%	black, fissile, b) dark brown, quartz, indurated, siliceous, fine-grained.
2620-2670	Shale	black, fissile, faintly micromicaceous
2670-2690	Shale	black as above, trace ironstone, minor brown quartz fine-grained siliceous sandstone.
2690-2780	Shale	black, fissile, faintly micromicaceous
2780 - 2790	Shale	black as above, in part slightly brownish- tinged, in part silty to sandy, minor (5%) dark brown ironstone, trace tight sandstone

2790-2800	Sandstone (40%	%) dark brown, quartz, fine to medium grained, indurated, silicified to shaly, tight, trace white kaolinite.
	Shale (60%)	black, fissile, as above.
2800-2810	Sandstone	brown, quartz, fine grained with subordinate admixture of medium and coarse grains, shalier than above, in part indurated and silicified, minor kaclinitic inclusions, trace carbonaceous lamirae, and inclusions, tight; minor black shale (laminae? thin beds?)
2810-2820	Sandstone	as above, fine grained only, carbonaceous inclusions more common, black shale more common.
2820-2830	Shale	black, fissile.
2830-2840	Sandstone	brown, quartz, fine grained with subordinate medium and coarse grain admixture, indurated, silicifed, and infilled with brown clayey shale, trace porosity, scattered kaolinite, shale as above.
2840 - 2870	Sandstone	as above, slight increase in porosity (2-3%), minor tight sandstone in ironstone matrix, minor black shale (thin interbeds).
2870-2890	Sandstone	as above, cleaner and somewhat more porous, estimated at 10%-15%.
2890-2910	Sandstone	brown, quartz, poorly sorted fine to coarse grained, silicified and shaly in brown clay matrix, tight, minor carbonized plant laminae, minor kaolinite.
2910-2920	Shale	brown-black to black, fissile to compact and 30% sandstone as above.
2920 - 2930	Sandstone	brown, quartz, fine grained with minor medium and coarse grain admixture, indurated, silicified, shaly as above, rare carbonized disseminations, tight.
2930-2950	Sandstone	as above, slightly porous.
2950-2970	Sandstone	as above, porosity estimated 2-5%, minor black shale laminae, minor ironstone, minor kaolinite.

2970-2980	Sandstone	brown to grey-brown, quartz, fine-grained, shaly,kaolinitic, tight, minor carbonized disseminations, black shale laminae and thin beds common,
2980-2990	Sandstone	brown, quartz, fine to medium grained, sub-angular, well sorted, moderately clean, slightly siliceous, good porosity (est. 15%) no visible oil-staining, no fluorescence.
2990-3000	Sandstone	as above, porous, somewhat coarser grained.
3000 - 30 10	Shale	black, fissile, trace hard ferruginous shale.
3010-3020	Shale	black as above, minor dark brown silty to sandy shale, minor silicified tight very fine grained sandstone, trace pyrites.
3020 - 3050	Shale Sandstone (30	black, fissile as above (1%) grey-brown, quartz, fine grained, highly silicified, in part shaly, tight, carbonaceous disseminations common. Sandstone increasing to 50%.
3050-3060	Shale	black, fissile to compact, micromicaceous, and brown-black sandy shale, minor tight brown quartz sandstone, scattered carbonized disseminations.
3060-3130	Shale	black, compact to fissile, in part silty to sandy, micromicaceous, minor brown fine grained silicified tight quartz sand- stone, trace pyrites, scattered carbonized disseminations.
3130-3140	Shale (60%) Sandstone (40	black as above %) dark brown, quartz, fine to medium grained, silicified, shaly, tight.
3140-3180	Shale (60%) Sandstone (40°	black as above. %) as above, fine to very fine grained, more shaly than above, laminated and interbedded with shale as above.
3180-3190	Shale	black, fissile to compact, in part brown- black and sandy, minor (10%) sandstone as above.
3190-3220	Sandstone	grey-brown, quartz, fine grained with minor coars: grains, silicified, indurated, shaly, light grey kaolinitic inclusions common, tight, minor black shale laminae.

3220-3230	Interbedded	sandstone 70% as above and 30% black fissile shale with carbonized laminae
3230-3260	Shale	black, compact to fissile in part brown- black and sandy, minor sandstone as above, minor carbonaceous laminae
3260-3270	Sandstone	brown, quartz and minor chert, fine to medium grained, indurated, silicified, kaolinitic inclusions common, shaly, tight.
3270-3280	Shale	brown-black, sandy to black fissile with minor (10%) sandstone as above, scattered pyrites and carbonaceous laminae.
3280 - 3330	Shale	black, compact to fissile, micromicaceous, random thin streaks siltstone or very fine grained sandstone, trace pyrites, slightly bituminous.
3330-3350	Shale	as above, subordinate amounts sandy shale.
3350-3380	Shale	black, fissile, micromicaceous as above, slightly bituminous.
3380-3400	Shale (70%) Sandstone (30	as above. 0%) dark brown, quartz, fine to medium grained, shaly, siliceous, tight.
3400 - 3410	Sandstone	brown, quartz, fine to medium grained, highly silicified, indurated, hard, sharp, tight.
3410-3430	Shale	black, fissile to compact, micromicaceous, slight brown streak, trace pyrites.
		UPPER DEVONIAN - Imperial Fm 3455 E-Log
3430-3460	Shale	black as above, and 20% hard sharp sandstone as above.
3460-3490	Shale	black, fissile to micromicaceous, slight brown streak.
3490-3500	Shale	as above, 10% sharp, tight, hard sandstone as above.
3500-3590	Shale	black, fissile, in part platy, slightly bituminous (brown streak), trace pyrites, faintly micromicaceous
3590 - 3620	Shale	black as above, brown streak diminishing to non-bituminous.

3620-3700	Shale	black, fissile to platy, micromicaceous, trace pyrites.
3700 - 3730	Sandstone	cark brown, quartz, very fine grained, shaly, siliceous, pyritic, secondary quartz crystals common, (vein-infilling), minor white anhydrite (vein-infilling? thin laminae?) tight.
3730-3750	Sandstone	dark brown, quartz, very fine grained, highly silicified, hard, tight, shaly, sharp, minor thin quartz crystallized veins, scattered dolomitized fossil? fragments.
3750 - 3810	Shale	black, fissile to platy, micromicaceous, trace pyrites.
3810-3860	Shale	black, as above, very slight brown streak, minor brown-black ironstone, minor light grey to tan dolomite as above (fossil fragments?) scattered clear secondary quartz crystals.
3860-3900	Shale	black, compact to moderately fissile, somewhat more firm than above subbituminous (slight brown streak), minor silicified silty shale, minor pyrites.
3900-3910	Shale	very dark grey to black, fissile, micro- micaceous, non-bituminous, minor silicified silty shale, minor siltstone.
3910-3960	Shale	dark grey to black, fissile, micromicaceous, sparse medium to coarse crystalline dolomite (fossil fragments? concretions?) scattered pyrites.
3960 - 4030	Shale	dark grey to black, fissile, micro- micaceous, thin streaks indurated shaly micaceous siltstone.
4030-4060	Shale	dark grey to black, micromicaceous, and dark brown siltstone as above becoming more common.
4060-4080	Shale	as above, and siltstone, as above, scattered coarse crystalline dolomite (concretions?) and trace clear coarse secondary quartz crystals.

4080-4090	Shale	as above, grey to dark grey to black, siltstone common, trace buff grey mudstone.
4090-4110	Shale (40%) Sandstone (60	dark grey, micromicaceous, fissile. %) dark brown, brown grey to grey, very fine grained to silty, shaly, tight, in part micaceous, thin shale laminations, trace pyrites.
4110-4180	Shale (70%)	interbedded with Sandstone and Siltstone (30%) as above.
4180 - 4210	Shale	black, fissile to platy, faintly micromicaceous minor (5-10%) grey shaly siltstone.
4210-4230	Shale	black, fissile to platy, slightly micro- micaceous, slightly bituminous (slight brownish streak), sparse thin dolomite- healed fractures, trace pyrites.
4230 - 4240	Shale (70%) Sandstone (30	as above. (%) brownish grey, speckled, very fine grained to silty, shaly, tight, pyritic, in part micromicaceous.
4240 - 4250	Shale	black, fissile, prominent white coarse to fine crystalline dolomite - fracture infilling and/or fossil? fragments, minor pyrites, minor (5%) thin streaks shaly siltstone.
4250-4280	Shale (50%) Sandstone (50	black - as above. %) dark brown-grey, very fine grained to silty quartz, shaly, tight, slightly, dolomitic, in part pyritic, trace coarse white dolomite as above.
4280 - 4300	Shale	black, firm to fissile, slightly bituminous, faintly micromicaceous, sandstone as above (20%), minor pyrites, few scattered silicified concretions.
4300 - 4310	Dolomite (50 Shale (50%)	%) very dark brown, microcrystalline, shaly, tight, hard, white dolomite healed scattered thin fractures. black, as above, minor pyrites.
4310-4350	Shale	black, firm, fissile to platy, micro- micaceous, sub-bituminous (brown streak), minor pyrites, sparse thin calcite-healed fractures, rare black chert concretions.

CANOL SHALE 4310 (4312 E-Log) as immediately above and (20%) brown 4350 - 4360 Shale black highly argillaceous mi-rocrystalline dolomite. black, micromicaceous, bituminous, as 4360-4370 Shale above, minor silicified shale, minor pyrites. black, bituminous as above, in part 4370 - 4380 Shale dolomitic, sparse thin calcite-healed fractures. black, bituminous as above, minor white 4380 - 4440 Shale calcite filled fractures, minor pyrites, rare chert concretions. as above, abundant coarse white secondary 4440 - 4450 Shale calcite, minor brown argillaceous, microcrystalline, fractured and calcite-filled limestone. HUME LIMESTONE 4451 (4452 E-Log) buf chalky-textured to earthy and grey 4450 - 4480 Limestone brown to dark brown, microcrystalline to medium crystalline, limestone, white secondary calcite (and parite?) infilling abundant fractures, tight, no visible porosity or staining, rainor dark brown medium to coarse crystalline dolomite, sparse crange-red sphalerite crystals. dark brown, microcrystalline, dense 4480 - 4490 Limestone tight, minor white coarse crystalline barite infilling fractures, subordinate (30%) buff chalky to earthy limestone. very dark brown, microcrystalline, dense, 4490 - 4500 Dolomite tight, abundant (30%) coarse white (barite) and clear quartz crystals infilling fractures. buff chalky and earthy to brown and grey Limestone 4500 - 4510 brown microcrystalline, tight, abundant

crystals.

coarse white barite, quartz and calcite

CANOL SHALE 4310 (4312 E-Log) as immediately above and (20%) brown 4350 - 4360 Shale black highly argillaceous mi-rocrystalline dolomite. black, micromicaceous, bituminous, as 4360-4370 Shale above, minor silicified shale, minor pyrites. black, bituminous as above, in part 4370 - 4380 Shale dolomitic, sparse thin calcite-healed fractures. black, bituminous as above, minor white 4380 - 4440 Shale calcite filled fractures, minor pyrites, rare chert concretions. as above, abundant coarse white secondary 4440 - 4450 Shale calcite, minor brown argillaceous, microcrystalline, fractured and calcite-filled limestone. HUME LIMESTONE 4451 (4452 E-Log) buf chalky-textured to earthy and grey 4450 - 4480 Limestone brown to dark brown, microcrystalline to medium crystalline, limestone, white secondary calcite (and parite?) infilling abundant fractures, tight, no visible porosity or staining, rainor dark brown medium to coarse crystalline dolomite, sparse crange-red sphalerite crystals. dark brown, microcrystalline, dense 4480 - 4490 Limestone tight, minor white coarse crystalline barite infilling fractures, subordinate (30%) buff chalky to earthy limestone. very dark brown, microcrystalline, dense, 4490 - 4500 Dolomite tight, abundant (30%) coarse white (barite) and clear quartz crystals infilling fractures. buff chalky and earthy to brown and grey Limestone 4500 - 4510 brown microcrystalline, tight, abundant

crystals.

coarse white barite, quartz and calcite

4510-4530	Limestone	as above, earthy to cryptocrystalline, moderate amounts white barite and quartz crystals.
4530 - 4550	Dolomite	very dark brown, microcrystalline, in part medium crystalline, tight, abundant white barite, quartz and calcite as above, minor brown microcrystalline limestone (20%).
4550-4560	Calcite (60%) Limestone (40%	white, coarse crystalline,)medium grey brown, lithographic, dense, tight.
4560 - 4580	Limestone (80%)	earthy to chalky white, coarse crystalline, trace sphalerite crystals.
4580 - 4 590	Limestone	brown sub-lithographic to microcrystalline, in part buff to light brown, earthy to chalky with erratic bituminous shale laminae and inclusions, minor (10%) coarse white calcite.
4590-4620	Limestone	brown to dark grey brown sub-lithographic, dense, in part buff and earthy, calcite crystals (5-10%).
4620-4630	Limestone	light brown chalky to earthy textured to brown and dark brown cryptocrystalline, dense, tight, minor erratic bituminous inclusions, coarse secondary calcite sparse.
4630-4720	Limestone	dark brown to dark grey brown, sub- lithographic to microcrystalline, dense, tight, subordinate (30-40%), buff to light brown earthy limestone, sparse bituminous shale laminae and inclusions, minor sparry calcite crystals, rare Ostracods and fossil fragments.
4720 - 4740	Limestone	as above, sparsely bioclastic, and buff- grey lithographic calcilutite.
4740 - 4750	Limestone	dark brown, microcrystalline, buff-grey earthy limestone, sparse Ostracods, minor bituminous shale laminae, and minor sparry calcite.

4750 - 4780	Limestone	dark brown, microcrystalline, grey- brown lithographic and light brown earthy limestone, locally bioclastic, minor bituminous shale inclusions, minor coarse white calcite crystals.
4780 - 4800	Limestone	light grey to brown-grey lithographic calcilutite, minor (20%) dark brown cryptocrystalline limestone, sparse biruminous inclusions, dense, tight
4800 - 4820	Limestone	brown to dark brown, micritic to micro- crystalline, in part finely bioclastic, scattered small Ostracods, minor bitu- minous inclusions, dense, tight.
4820 - 4830	Limestone	as above, trace Coral fragments, minor light grey microcrystalline slightly argillaceous limestone.
4830-4840	Limestone	light grey and light brown grey, fine calcarenite, in part microcrystalline, fine bioclastic debris, dense, tight, and brown bioclastic limestone as above with bituminous inclusions and minor Ostracods.
		HUME SHALE - 4840 (4800 E-Log)
4840 - 4850	Limestone	as above, minor sparry calcite, slightly argillaceous.
4850-4860	Limestone	light grey to grey, calcilutite, argillaceous, dense, tight, minor light buff grey bioclastic micrite, Crinoid(?) fragments, rare Ostracods.
4860 - 4870	Limestone	grey to dark grey calcilutite, argillaceous, dense, in part a fine calcarenite, sub-ordinate amounts (40%) light buff bioclastic limestone - recrystallized organic fragments in micro sparry calcite matrix.
4870 - 4880	Limestone	brown to dark brown, microclastic to microcrystalline, sparse sparry calcite, sparse bituminous shale laminae and inclusions, dense, tight.

4880-4900	Limestone	as above, predominantly light brown microclastic.
4900 - 4910	Limestone	brownish grey and dark-grey calcilutite, argillaceous to highly argillaceous, locally with fine to medium bioclastic debris, dense, tight, subordinate (30%) light brown microclastic limestone as above.
4910-4930	Limestone	grey-brown to brown-grey, calcilutite as above, argillaceous, in part sublithographic, dense, tight, locally with bioclastic debris (shell fragments, Crinoid fragments), subordinate brown microclastic limestone.
49 30 - 4940	Limestone	grey-brown, calcilutite, in part micro- crystalline, in part calcarenitic with fine bioclastic debris, minor bituminous shale inclusions and laminae.
494 0 - 4950	Limestone	light brown fine calcarenite and dark grey argillaceous calcilutite with sparse bioclastic debris, dense, tight.
4950-4960	Limestone	as above, argillaceous limestone more common, in part a limy to dolomitic shale.
4960-4980	Shale	grey, slightly brownish to greenish, firm, compact, limy to dolomitic.
4980-5000	Shale	as above, minor bioclastic limestone with fine to medium fossil debris, minor micro- crystalline limestone, minor pyrites.
5000-5010	Limestone	grey and brown grey, calcilutite, argil- laceous, in part sub-lithographic to microcrystalline, minor fine bioclastic debris as above.
		BEAR ROCK - 5101 (5000 E-log)
5010-5020	Limestone	dark brown to very dark brown, sub- lithographic to microcrystalline, dense, tight, bituminous type laminae and inclusions, sparse small Ostracods.

5020-5030	Limestone	as above, in part finely calcarenitic (bioclastic?), in part earthy-textured and with sparry to microsparry calcite specks and inclusions, dense, tight.
50 30 - 50 70	Limestone	very dark brown, sub-lithographic to microcrystalline calcilutite, slightly bituminous, subordinate amounts earthy-textured micrite, minor fine to very fine calcarenite (organic?), trace sparry calcite veins, bituminous-type laminae and inclusions common, dense, tight.
5070-5080	Limestone	as above, minor (2-5%) floating, well developed needle-like very fine brown quartz crystals, dense, tight.
5080-5110	Limestone	dark brown sub-lithographic as above, very fine brown quartz crystals as above more common and locally abundant, coarse white sparry calcite (20%) black bituminous-type laminae and inclusions common, dense, tight.
5110-5120	Limestone	brown to dark brown as above, abundant quartz crystals as above, abundant sparry calcite, minor grey to brown microsucrose dolomite, dense, tight.
5120-5130	Limestone	dark brown to brown to grey sub-lithographic and brown grey earthy limestone, moderate amounts quartz crystals as above, minor sparry calcite, dense, tight.
5130-5140	Calcite (40%) Limestone (6	white, sparry, coarse 0%) dark brown to brown as above and with abundant brown quartz crystals as above.
5140-5150	Limestone	as above, grey-brown earthy limestone common, minor (10%) sparry calcite.
5150-5210	Limestone	dark brown to very dark brown, locally grey-brown calcilutite, sub-lithographic to microcrystalline, dense, tight, minor sparry calcite, minor black bituminous-like inclusions and laminae, trace reddish-brown microcrystalline dolomite.

5210-5230	Limestone	brown to dark brown lithographic calcilutite, in part very dark brown to black microcrystalline limestone, prominent brown-grey and grey earthy limestone, minor sparry calcite, trace calcarenite, dense, tight, scattered black shale (?) inclusions.
5230-5240	Limestone	as above, sparry calcite common.
5240-5250	Dolomite	brown to very dark brown, microcrystalline, slightly limy, minor thin calcite-filled veins, tight, subordinate limestone as above.
5250-5270	Limestone	dark brown to black, calcilutite, in part microcrystalline, tight, sparry calcite common, scattered black carbon-like inclusions and residue, minor very fine brown quartz crystals, locally fragmental in texture (organic?).
5270-5290	Limestone	as above, trace brown pelletal limestone.
5290-5300	Limestone(50%) Dolomite (50%)	as above buff anhedral and dark brown sub-euhedral, very fine crystalline, tight, minor thin calcite-filled veins.
5300-5310	Dolomite	as above.
5310-5320	Dolomite (60%) Limestone (40%)	as above.) brown-grey to dark brown, micro- crystalline, calcilutite, in part earthy- textured, white calcite common.
5320-5330	Limestone (60%) brown, brown-grey and dark-brown as
	Calcite (40%)	above. white, coarse,
5330-5340	Calcite (30%) Limestone (30%) Dolomite (40%)	as above.) as above. brown to dark brown, microcrystalline to very fine crystalline, locally micro- sucrose, tight.
5340 - 5350	Dolomite (50%) Limestone (50%	as above, in part slightly limy. brown-grey to brown-black, calcilutite, dense, tight, yellowish-brown litho- graphic limestone mottled with black carbon-type residue, and coarse white calcite.

5350 - 5370	Limestone	brown to brown-black, calcilutite, in part microcrystalline, thin calcite veining and coarse white calcite common, tight, black carbon-type residue common.
5370-5380	Limestone Dolomite (30%)	brown lithographic mottled, to dark brown cryptocrystalline, calcilutite, dense, tight, calcite veining as above, yellowish-brown to brown, micro- crystalline to dark brown cryptocrystalline
5380-5390	Dolomite	brown to brown-black, microcrystalline and with scattered golden yellow to orange fine sphalerite crystals, in part brecciated and infilled with coarse white dolomite and/or clear quartz crystals, minor dark brown microcrystalline limestone, minor scattered black shale inclusions.
5390-5400	Limestone	brown to brown-black cryptocrystalline, calcilutite, prominent coarse white calcite, minor black shale laminae and inclusions.
5400-5460	Limestone	yellow-brown to dark brown, lithographic, calcilutite, in part mottled and with scattered black shale disseminations and laminae, dense, tight, minor very dark brown cryptocrystalline limestone.
5460-5470	Limestone (90% Dolomite (10%)	value of the color
5470-5500	Limestone (80%	as above, black shale laminae more
	Dolomite (20%)	common, abundant white calcite yellow-brown, as above.
5500-5530	Limestone	yellow-brown to brown, lithographic calcilutite, in part mottled dark grey, dense, tight, white calcite abundant, minor black shale inclusions, trace pyrites.
5530-5570	Limestone	brown, lithographic calcilutite, dense, tight, minor (5%) dark brown tight microcrystalline dolomite, minor (5-10%) coarse white sparry calcite, trace dark brown bituminous-type laminae and inclusions.

5570-5600	Limestone	brown, lithographic as above, calcite (5-10%) as above, rare greenish-tinged dolomitic shale.
5600 - 5620	Limestone	brown, to dark brown, lithographic as above, minor (5%) dark brown microcrystalline dolomite and limy dolomite.
5620 - 5650	Limestone (70%) Dolomite (15%) Shale (5%) Limestone (10%)	brown lithographic to dark brown microcrystalline, white coarse calcite dark brown, very fine crystalline, in part limy. grey-green, waxy. green-grey, dense, argillaceous, pyritic.
5650-5690	Limestone	brown, lithographic as above, stylolites common, white calcite common, minor dark brown microcrystalline limestone, minor grey-green argillaceous limestone, minor green shale, scattered black bitumintype inclusions, dense, tight with possible trace porosity in calcite.
5690-5700	Limestone	cream to grey-buff, sub-lithographic calcilutite, dense, white coarse calcite common, dense, tight, rare trace pyrobitumen, minor gray-brown very fine crystalline limestone, minor (1-2%) siltstone in a limestone matrix, in part a silty limestone.
5700-5710	Limestone	as above, trace green shale, black carbon-type residue and inclusions common.
5710-5720	Limestone	as above, calcite abundant (40%), minor silty to sandy limestone as above, rare brown-grey limestone exhibiting skeletal-type porosity - no staining.
5720-5740	Limestone	as above, with calcite and sandy lime- stone as above; trace pyrobitumen and black carbon-type residue minor (2-5%) greenish-grey argillaceous silty limestone, minor grey, very fine crystalline limy dolomite, tight.

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5740-5750	Limestone (30%) Calcite (70%)	light grey, microcrystalline to very fine crystalline, sub-euhedral, in part slightly dolomitic, minor scattered black carbon-type disseminations, dense, tight. white, coarse.
5750-5770	Limestone	grey buff, fine crystalline, sub- euhedral, slightly dolomitic, black disseminations as above, tight, calcite as above (40%).
5770-5800	Limestone	as above, buff in part lithographic to microcrystalline, tight, calcite as above 20%.
5800-5820	Limestone	buff and grey-buff sub-lithographic to microcrystalline, calcilutite, dense, tight, in part fine crystal- line as above, minor coarse white calcite.
5820 - 5830	Limestone	buff to grey-brown, microcrystalline to very fine crystalline, in part and cryptocrystalline calcilutite, minor coarse white calcite, dense, tight.
5830 - 5850	Limestone	buff to medium grey brown crypto- crystalline to microcrystalline, in part a grey calcilutite, minor fine crystalline sub-euhedral limestone, coarse white calcite (20%), dense, tight.
5860-5890	Limestone	buff and grey-buff and grey, calcilutite, dense, tight, in part microcrystalline, calcite common (20%), minor scattered black carbon-type residue of disseminations, minor (5%) buff euhedral fine crystalline dolomite.
5890-5900	Limestone (60%) Limestone (40%)	as above. grey-brown, fine to medium crystal- line, sub-euhedral, slightly dolomitic, trace skeletal texture with rare porosity otherwise tight.
5900-5920	Limestone	brown to brown-grey fine to medium crystalline, euhedral, slightly more dolomitic, in part skeletal with minor scattered good intercrystalline and skeletal porosity, no staining, no fluorescence, slight kaolinitic matrix, trace secondary quartz crystals. Porosity estimated @ 1%.

5920-5960	Dolomitic Limestone	as above, in part coarse crystalline and in part a dolomite, porosity as above, rare.
5960- 5980	Polomitic Limestone	as above, no apparent porosity, minor scattered 'floating' well-developed fine hexagonal brown secondary quartz crystals.
5980-6000	Limestone	very light grey, calcilutite, dense, tight, dolomitic lime- stone as above and white calcite.
6000-6030	Limestone	very light grey calcilutite, dense chalky-textured
6030-6070	Dolomite	brown-grey to dark brown-grey, very fine crystalline, anhedral, tight, in part limy.
6 .′0-6090	Dolomite	brown-grey, very fine crystalline, anhedral, minor thin calcite inclusions - veining? organic? dense tight, in part limy.
6090-6100	Dolomite	as above, minor grey and brown- grey microcrystalline limestone, calcite as above.
6100-6110	Limestone	grey and brown-grey, very fine crystalline, tight, minor fine calcite inclusions, minor (10%) dolomite as above.
6110-6130	Dolomite (50%)	brown-grey to dark brown-grey, very fine to fine crystalline,
	Limestone (45%)	anhedral, tight. grey to brown-grey, micro- crystalline to fine crystalline, tight, minor thin calcite veining? organic texture?
	Chert (5%)	grey-brown to dark brown massive.
6130-6170	Dolomite and Limeston	ne as above and 30% chert as above with trace quartz.
6170-6190	Limestone	cream, dense, calcilutite, chalky textured, minor black carbon- type disseminations; brown to brown-grey calcarenite in micro- sparry matrix to fine crystalline

6170-6190 (continued)	Limestone	limestone, minor grey-brown to light brown massive chert, minor coarse white calcite.
6190-6200	Limestone	as above, in part bioclastic?
6200-6210	Limestone	cream to buff to light grey, microcrystalline to microsparry, faint mottling (organic?) and brown to brown-grey, very fine to medium crystalline, in part organic (?) limestone, scattered black carbon-type disseminations and inclusions, coarse white calcite common and minor (5%) mottled to speckled brown-grey to dark brown ordinary chert.
6210-6240	Limestone	as above, calcife abundant (20-40%), chert as above common (10-20%) in part a light grey and smoky quartz.
6240-6260	Calcite (40%) Limestone (50%)	white, coarse crystalline brown-grey, microcrystalline to medium crystalline, fragmental (bioclastic), tight. as above.
	Chert (10%)	as above,
6260-6320	Calcite (80%) Limestone (20%)	white, coarse to very coarse crystalline brown and brown-grey, fine crystalline, in part mottled - organic?, tight, minor chert.
6320-6330	Calcite (70%) Limestone (20%) Dolomite (10%)	as above. as above. brown and grey-brown, very fine to fine crystalline, sub- euhedral, tight, minor chert.
6330-6350	Calcite (50-30%) Dolomite (50-70%)	as above. brown and grey-brown, fine to medium crystalline, anhedral to sub-euhedral, in part bioclastic (?) textured, tight.
6350-6370	Dolomite	as above, faint mottling and with local clasts (organic). Calcite as above 10%.
6370-6380	Dolomite (70%) Calcite (30%)	as above, minor brown fine crystalline and bioclastic limestone as above.
	Carcine (30 /0)	ab above,

6380-6440	Calcite (80%) Dolomite (20%)	white, as above. brown as above, bioclastic, in part limy.
6440-6460	Calcite (80%) Limestone (20%)	white, as above. grey, brown and dark brown- grey, dense, calcilutite in part, bioclastic as above, in part calcite-veined, locally micritic, minor black carbon- type inclusions, tight.
6460-6510	Calcite (80%) Limestone (20%)	white, coarse as above. brown to dark grey-brown, calcilutite, dense tight, light brown calcite-veined micrite, scattered black carbon-type inclusions, minor (2%) grey, slightly argillaceous, crypto- crystalline dolomite.
6510-6530	Calcite (80%) Limestone (20%)	as above. as above, fragmental, brecciated and mottled, carbon-type in- clusions and disseminations more common, trace dark brown chert and minor ordinary massive quartz.
6530-6560	Calcite (80%) Limestone (20%)	as above as above, trace greenish-grey micropyritic dolomitic shale.
6560-6610	Calcite (80%) Limestone (20%)	as above. grey-buff dense micropyritic calcilutite, dolomitic, slightly silicified and green-grey to waxy green micropyritic, slightly silicified limy shale (5%).
6610-6650	Calcite (90%) Limestone (10%)	as above grey-buff to buff-grey, crypto- crystalline calcilutite, dense, in part greenish-grey slightly silicified and argillaceous
	TOP OF SILURIAN-OR	LDOVICIAN - 6530 (6550 Log)
6650-6670	Calcite (80%) Limestone (20%)	white, as above. buff-grey calcilutite to brown microcrystalline, in part buff microsparry and with thin calcite veining, dense, tight.

6670-6680	Calcite (70%) Limestone (30%)	as above buff microsparry and minor buff-grey calcilutite and brown microcrystalline lime- stone, dense, tight, trace black laminae - stylolites?
6680-6730	Limestone (70%) Calcite (30%)	light buff to buff-grey, dense, cryptocrystalline calcilutite, locally microcrystalline, tight, minor thin calcite veins, in part dolomitic minor stylolites. white as above.
6730-6740	Limestone (50%)	as above,
0.30 0.10	Dolomite (30%)	grey-buff to grey-brown, micro- crystalline, anhedral, tight.
	Calcite (20%)	white as above. 1
6740-6770	Dolomite	light buff-grey to grey-brown, cryptocrystalline, dense, tight, minor thin calcite veins and inclusions, rare thin black shale laminae (stylolites?)
6770-6780	Dolomite	as above, poor sample after trip.
6780-6790	Dolomite	as above, becoming limy.
6790-6810	Limestone	light brown-grey to dark brown cryptocrystalline calcilutite, in part dolomitic, dense, tight, thin calcite veining and inclusions, scattered carbon-like laminae and inclusions, trace coarse calcarenite - bioclastic?
6810-6820	Limestone	dark brown-grey, cryptocrystalline calcilutite, dense, tight, in part dolomitic, thin calcite veining as above, minor black shale laminae.
6820-6840	Limestone	as above, in part micritic and with more calcite filled fracturing and brecciation.

6840-6920	Limestone	light grey to buff-grey to brown grey cryptocrystalline calcilutite, in part micritic, in part fragmental, scattered black shale laminae and inclusions, abundant chalky limestone and coarse crystalline white calcite, dense, tight, in part dolomitic, minor (2-3%) light grey microcrystalline dolomite.
6920-6950	Dolomite (40%) Limestone (60%)	light grey and dark brown crypto- crystalline to microcrystalline tight, limy. chalky to coarse crystalline, white, minor black dissemina- tions, light grey cryptocrystalline calcilutite.
6950-6980	Limestone	light grey, cryptocrystalline calcilutite, in part slightly dolomitic, dense, tight, subordinate amounts white chalky limestone and coarse crystalline calcite, trace brown very fine crystalline dolomite.
6980-7020	Limestone (70%) Dolomite (30%)	as above, dolomitic. buff to brown-grey, micro- crystalline to very fine crystalline.
7020-7050	Limestone	light grey, cryptocrystalline calcilutite, in part micro-crystalline, dense, tight, sub-ordinate amounts cream micro-clastic limestone, coarse crystalline calcite becoming abundant.
7050-7060	Limestone	white, chalky to coarse crystalline, dense, minor (20%) light grey limestone as above.
7060-7100	Limestone (70%) Limestone (30%)	white chalky to coarse crystalline as above. light brown grey, very fine crystalline to cryptocrystalline, sparse thin calcite-veining, tight.

7100-7120	Limestone	light grey, cryptocrystalline to microcrystalline calcilutite, in part (5%) medium crystalline with well developed euhedral crystals, some calcie inclusions and veining, dense, tight, slightly dolomitic.
7120-7160	Limestone .	light grey, cryptocrystalline cal- cilutite, dolomitic, dense, tight, minor calcite inclusions, minor microcrystalline dolomite.
7160-7170	Limestone	light grey to grey, slightly brownish, cryptocrystalline calcilutite, dense, tight dolomitic, in part microdrystalline, minor (5-8%) dolomite, minor calcite as above.
7170-7220	Dolomite (50%) Limestone (50%)	light brownish-grey, micro- crystalline, in part fine crystalline, limy, dense, tight. light grey to brownish-grey crypto- crystalline to microcrystalline, dolomitic, tight, minor calcite.
7220-7230	Dolomite	light grey, slightly brownish, fine crystalline, anhedral, limy, in part and dolomitic limestone, tight, minor coarse calcite.
7230-7250	Dolomite	as above, minor (20%) grey to dark grey microcrystalline dolomite, dense, tight, argillaceous, trace pyrites, coarse calcite more common.
7250 - 7270	Limestone	brownish-grey, microcrystalline, dolomitic, in part a dolomite, tight.
7270-7290	Limestone	light grey, slightly brownish micro- crystalline, dolomitic, in part a dolomite, in part cryptocrystalline, dense, tight.
7290-7320	Dolomite	light brownish grey, microcrystalline tight, limy, in part a dolomitic limestone, minor coarse calcite, few scattered black thin laminae (stylolites)

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7320-7340	Dolomite	as above, brown, coarse white calcite common, trace pyrites, trace brown-grey waxy shale inclusions.
7340- 7360	Limestone	grey, slightly brownish, crypto- crystalline calcilutite, in part microcrystalline, dolomitic, tight, minor calcite, rare dark grey shale inclusions, trace pyrites.
7360 - 7370	Limestone	grey, slightly greenish, crypto- crystalline calcilutite, dolomitic, slightly argillaceous, dense, tight, rare green grey shale inclusions, trace pyrites, coarse calcite as above.
7370 - 7400	Limestone	light grey, slightly greenish to brownish, argillaceous calcilutite as above to microcrystalline, in part fragmental with abundant coarse white calcite, trace pyrites and shale laminae.
7400-7410	Limestone	as above, minor (5%) medium crystal- line sub-euhedral limestone.
7410-7430	Limestone	light brownish grey as above and greenish-grey in part dolomitic cryptocrystalline calcilutite, dense, argillaceous, tight, trace pyrites, coarse calcite common, trace dark green-grey shale partings.
7430-7440	Limestone	light brownish-grey, calcilutite, in part micritic textured, dense, tight, minor calcite, trace pyrites, trace dark greenish-grey shale as above.
7440-7460	Limestone	grey and greenish-grey in part brown- ish-tinged, cryptocrystalline calcilu- tite, argillaceous, dense, tight, minor calcite, trace pyrites, trace dark greenish-grey shale as above.
7460 - 7480	Limestone	grey and brownish-grey, crypto- crystalline, dolomitic, slightly argillaceous, in part grey-brown and microcrystalline, dense, tight, minor calcite veining and fracture infilling.

7480 - 7490	Limestone	as above, minor very dark brown fine microcrystalline dolomitic limestone with thin calcite healed fractures.
7490 - 7500	Limestone (60%)	brownish-grey as above, in part grey and slightly argillaceous
	Limestone (40%)	grey to light grey, fine to medium crystalline, sub-euhedral in part argillaceous, minor calcite as above.
7500 - 7520	Limestone	brownish-grey, microcrystalline, dense, tight, in part dolomitic, trace pyrites.
7520-7540	Dolomite	brownish-grey, slightly darker than above, cryptocrystalline, limy, dense, tight, sparse, in part grey and slightly argillaceous, sparse calcite inclusions and thin fractures, rare pyrites.
7540 - 7550	Limestone	light brownish-grey, microcrystal- line, in part dolomitic, minor coarse calcite inclusions, minor (20%) dolomite as above.
7550-7560	Dolomite	brown-grey, cryptocrystalline, dense, tight, limy, in part a limestone, minor coarse calcite inclusions.
7560 - 7570	Limestone	light grey to grey-brown, micro- crystalline, minor buff micritic limestone, abundant (10%) coarse white calcite - fracture infilling and brecciation, trace pyrites, tight.
7570 - 7580	Limestone	light grey-brown, microcrystalline, dolomitic, in part a dolomite, minor calcite as above.
7580 - 7600	Dolomite	grey-brown to brown, microcrystal- line, dense, tight, minor thin calcite veins, minor coarse white calcite.
7600-7610	Limestone	brown, microcrystalline, in part dolomitic, minor dark brown bituminous shale laminae and in- clusions dense, tight.

7610-7620	Dolomite	dark brown, very fine crystalline, anhedral, bituminous shale inclusions and disseminations common, dense, tight, sparse thin calcite veins and inclusions, minor (5-10%) brown and dark brown dense in part argillaceous and silty limestone.
7620 - 7640	Dolomite	grey-brown to brown, very fine crystalline anhedral, in part limy, slightly argillaceous with light buff argillaceous material; and dark brown bituminous limestone as above, minor white coarse calcite inclusions, dense, tight
7640-7670	Dolomite	dark brown, microcrystalline to very fine crystalline, anhedral, variably bituminous as above, and with scattered bituminous shale laminae, sparse thin calcite veins and coarse calcite inclusions, dense, tight.
7670 - 7680	Dolomite	as above, and medium brown micro-crystalline dolomite.
7680 - 7690	Dolomite	dark brown to very dark brown very fine crystalline, anhedral, tight, calcite veins and inclusions as above.
7690-7700	Dolomite	dark brown as above, and light brown to buff, very fine crystalline, in part euhedral, tight, slightly argillaceous dolomite.
	Chert (5%)	very dark brown to brown-black, smooth-textured, massive.
7700-7710	Dolomite	dark brown, very fine crystalline, slightly bituminous, tight, sparse calcite inclusions.
7710-7720	Dolomite	as above, light brown.
7720-7750	Dolomite	dark brown, varying from light brown to very dark brown, very fine to fine crystalline, anhedral, slightly bituminous and with scattered black bituminous shale laminae and in- clusions, thin calcite veins and minor coarse white calcite inclusions, dense, tight.

7610-7620	Dolomite	dark brown, very fine crystalline, anhedral, bituminous shale inclusions and disseminations common, dense, tight, sparse thin calcite veins and inclusions, minor (5-10%) brown and dark brown dense in part argillaceous and silty limestone.
7620 - 76 40	Dolomite	grey-brown to brown, very fine crystalline anhedral, in part limy, slightly argillaceous with light buff argillaceous material; and dark brown bituminous limestone as above, minor white coarse calcite inclusions, dense, tight
7640-7670	Dolomite	dark brown, microcrystalline to very fine crystalline, anhedral, variably bituminous as above, and with scattered bituminous shale laminae, sparse thin calcite veins and coarse calcite inclusions, dense, tight.
7670 - 7680	Dolomite	as above, and medium brown micro- crystalline dolomite.
7680 - 7690	Dolomite	dark brown to very dark brown very fine crystalline, anhedral, tight, calcite veins and inclusions as above.
7690-7700	Dolomite Chert (5%)	dark brown as above, and light brown to buff, very fine crystalline, in part euhedral, tight, slightly argillaceous dolomite
	Chert (5/6)	very dark brown to brown-black, smooth-textured, massive.
7700-7710	Dolomite	dark brown, very fine crystalline, slightly bituminous, tight, sparse calcite inclusions.
7710-7720	Dolomite	as above, light brown.
7720-775 0	Dolomite	dark brown, varying from light brown to very dark brown, very fine to fine crystalline, anhedral, slightly bituminous and with scattered black bitumin as shale laminae and in- clusions, thin calcite veins and minor coarse white calcite inclusions, dense, tight.

7750-7770	Dolomite	light grey-brown, very fine crystal- line, anhedral, dense, tight.
7770-7790	Dolomite	very dark brown, fine crystalline, minor bituminous laminae, minor calcite veins, tight.
7790-7800	Dolomite	dark brown fine crystalline as above to brown and light brown-grey micro- crystalline, dense, tight, part slightly argillaceous, minor calcite as above.
TOTAL DEPTH		7804 Driller
TOTAL DEPTH		7801 Log

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Lab No. E69-924

WATER ANALYSIS

Received: Feb. 26,1969 Reported: March 5, 1969 Operator: J. RAY McDERMOTT & CO. INC.

Zone/Formation:

McDermott General Crude Northup Taylor Lake YT K-15 65° 54' 19" N. Lat. 133° 03' 00" W. Long. Well: Location:

Field or Area.

Sample Interval:

Date: Feb. 21,1969

D.S.T. #2 **OTHER PERTINENT DATA** Method of Production:

Sampled from: 643' above tool

Sampled by: Glen Knapp

(Signed)

	Na	¥	Ca	Mg					SO ₄	บ			ပ္ပ	HCO ₃		
Mg./L	985		4	Н					127	738			256	089		
Meq./L	42.84		0.20 0.08	0.08					2.64	20.81			8.52 11.15	11.15		
Meq. %	49.67		0.23	0.23 0.09					3.06	24.13			9.88	12.93		
Tof	Total Solids Mg/L:		By Evaporation	ration	2924	Fe	Trace	Fe Trace Specific Gravity 1.003	avity 1.00		@60°F	Observed pH	Hd b	7.6	g 74 °F	u.
Ca	Calculated 2791	2791	After Ignition	tion	2232	H ₂ S	H,S Nil	Refractive	Refractive Index 1.3337		@25°C	Resistivit	Resistivity 2.86	ohm meters @	J∘ 89 @	u .
				Pattern L	Pattern Unit Meq./L	<u>_</u>										
10,000	1,000 4,000 6,000 1,000	40 60 50 160	2 4 8 10	03	1.8	10	100 60 60 40	4,000 4,000 2,000 1,000 600 400	119,650	Remarks a	Remarks and Conclusions		nalysis	Analysis determined on	q on	

colourless water filtered from muddy water.

E69-9249-1:

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BENZENE CONTENT: No trace of benzene indicated.

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without a foil insert in the screw cap. Container was full, water was very muddy, and had to be Sample was received in a metal container filter pressed prior to analysis. Received: Mar. 27, 1969 Reported: April 1, 1969 Well: Location: 1 Operator: J. RAY MCDERMOTT & CO., INC. Field or Area: Elev.: K.B. Grd. Zone/Formation:

Well: Location: McDermott General Crude Northup Taylor Lake YT K-15 65° 54' 19" N. Lat. 133° 03' 00" W. Long. Field or Area:

Sample Interval:

Method of Production: D.S.T. #3 Sampled from: 620' Above Tool

OTHER PERTINENT DATA

Sampled by:

Date:Mar. 11, 1969

Resistivity 0.236ohm meters @ 68 2 Š 6,5 4.76 0.41 290 දු Observed pH (Signed) @60°F @25°C 571,05 20250 49,03 $\overline{\mathbf{o}}$ 1,025 1,3392 SO, 6.53 0,56 Fe Present Specific Gravity Refractive Index 314 Nil H_.S Pattern Unit Meq./L By Evaporation 34,260 31,580 14,80 Mg 1,27 180 After Ignition 61,53 5.28 1233 ပဳ Calculated 33,899 Total Solids Mg/L: 506.01 43.45 11652 Meq./L Meq. % Mg./L

Remarks and Conclusions

The water contained a thin layer of sediment.

BENZENE CONTENT: No trace of benzene indicated.

Sample was received in a L quart metal container with a foil insert in the screw cap. Container was full, water was clear, and appeared to be a good sample.

HCO3H

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CORE LAPORATORIES - CANADA LTD.

PETROLEUM RESERVOIR ENGINEERING

WATER ANALYSIS



-									CBH-2-4"		
Company	J. Ra	y McDor	mott, C	anada L	td.			1	Page 2 c		
Well	MCD.		thup Ta						Gre	1	·
Location	0.1.,14	- 24 NL									
Formation											ani anta anta anta anta anta anta anta a
Sampled from											la Itd.
Date sampled											
Recovery .					, 200		en e	A()	aiyst ——		eros ero este sicolore e este secolor consideración de este secolore con este este este este este este este es
Printerporary absenced to the control of the contro	***************************************		۸	Mud type			Wa	ter cushic		n Tanah Tan ingan di kacamatan Kabupaten Kabu	
e							Solids:	itei cusmoi	Alteria de la constantina della constantina dell	**************************************	INTERNATION AND PROPERTY AND PROPERTY OF THE P
Resistivity	0.122	Ohm	mators G	70	0.5		ated	5.9.4	47		
Specific gravi									47		mg/liter
							poration @ 1				mg/liter
pH	4.			······································	nvestraugecy	By eva	poration @ 1	80°C		to William de la company,	mg/liter
Refractive Ind	lex	. بين ربور.	<u> </u>			At ign	ition	edicional de la companya de la comp	Time and a second and a second and a second as	ete turi a kara-u ana anga kapajar danga	mg/liter
	-			MILL	IGRAMS	PER LITE	R				
Na + K 19788	Ca 2260	Mg	Fe	Ва	Br		CI	HCO ₃	SO ₄	CO ₃	ОН
19700	2269	386	Pres.	Abs.			34884	405	715	Abs.	Abs.
		P ****	7	PER CEN	T CALC	JLATED S	OLIDS		V		
33.8	3.9	0.7					59 .7	0.7	1.2		
	-				MEQ PER	LITER					Branspoore in a recoveration of the second
860.3	113.2	31.7					933.7	6.6	14.9		
			1.0.0	· A E3 (T1 10 A)	0.0477			Communication Co	Antonio vine en e	***************************************	Annual Property and State of the State of th
10,000	1,000	200			CPATIE	HN MEQ	PER LITER		C	;	10,000
'a [[[[]]]]		<u> </u>	, 8 	 	77 -		illi illi Illi	illii Ž			TIIII CI
а											HCO
g			1		11-1-						SO ₄
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CORE LABORATORIES - CANADA LTD.

PETROLEUM RESERVOIR ENGINEERING





•									CBH-2-4		nygymentyn hynnyn meditid (dillig het ettersylk syntisterik
Company	J. Ra	y McDerr	nott. C	anada L	td.				Page 5	of 6	
Well	MCD.									d. 1525	
Location	133 ⁰ 03	104" NL 3 <mark>100" W</mark> I	-	No en Maria de Caración de la Caración de Caración de Caración de Caración de Caración de Caración de Caración		Field _	Wildcat	Pr	ovince Y	ukon Te	rritory
Formation .					***************************************			**************************************	***************************************		
Sampled from											
Date sampled											
_								Alli	aryst	The second secon	eredmentalmeetavatimaastagustuurgaaga-sag
MACHINE WITH CONTRACT AND ADDRESS OF THE PARTY OF THE PAR		Malla Maran manah mengahasan da kasara		Mud type	Michigan Company (propagation)		W	ater cushior	1		
							Solids:		,		
Resistivity	0.350	Ohm	-meters @	7 0	0F		ated	19414			mg/liter
Specific gravit							poration @ 1				-
											mg/liter
pH <u>7.8</u>	-				energy (III)	By eva	poration @ 1	0°C		attive district surprise consideration	mg/liter
Refractive Ind	ex	<u>,230 ⊕</u>	70°F			At ign	ition	TO VINE AND			mg/liter
				MILL	.IGRAMS	PER LIT	ER				
Na + K	Ca	Mg	Fe	Ba	Br		CI	HCO3	SO ₄	CO3	ОН
6688	568	113	Abs.	Abs.			10899	651	495	Abs.	Abs.
				PER CEN	IT CALC	ULATED	SOLIDS				ur Thursdon Deptember in Elling and American American
34.4	2.9	0.6					56.1	3.4	2.6		
					MEQ PE	RLITER			&		danna variana en
290.8	28.3	9.3					307.4	10.7	10.3		
*		Processi si sense si successi successi successi si successi si successi si successi si successi si successi si	A	•		1	<u> </u>			A	American
00	0		LO	GARITHM	IC PATT	ERN MEQ	PER LITE	R		.	8
00 00 00 00 00 00 00 00 00 00 00 00 00	1,000	200	20 20	5 0	N		5	9		999. -	10,000
Ca											нсо
.a []]					71		1111-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		1-1-1-1-1 	 	SO ₄

Well Name McD. G. C. O. Nort	hup Taylor Lake Y. T. K-15	Test No1
	Canada Ltd. Date Test Run Febr	
	ers Ltd. Operator	
	b-tail (Formation) Size Choke	
	uultiple shut-in, Bowen hydraulic jars	
Mud Wt8, 9, Vis32, W		•••••••••••••••••••••••••••••••••••••••
	• •	
Full hole8.3/4'' Casing	2418 FormationMississippian Pre-flow Time initial shut-in started	2 min. 9:12 P.M.
Casing	Time test tool opened	•
Upper Packer set at2386	Time test tool closed	
Main Packer set at 2393	Valve open60 min Shut	2 4 7 1 4 1
*************************************	Description of blow Good air blow Weak air blow on valve open	w.on.pre-flow increasing to good.
Rat hole at	Gas to surface in min. a	•
Rat hole size	Maximum gas flow min. at	
Length of tested interval251	Measured by: (manometer) (pres. gu Gas sample saved after	age) (side static)
Casing perforations	Was flare lit Length of	
Bottom Packer set at	Fluid to surface in	
	Cause of misrun Temp 72°F	
Remarks: Weak air blow when remaining steady for	valve open, increasing to good air blow duration of test.	in 15 min and
RECOVERY:		
Total fluid in (size) 2 7/8" I. D. 6	¹ 6 ⁴ D. drill pipe:	4 barrels
(describe fluid)	Oil: feet	barrels
watery		barrels
Saved samples at	ft. 120 ft	barrels
	d Pressures: Recorder #AK1 2264@2	
Hydrostatic head: Before opened	1079psi. After pulled	397
Flowing pressure: Minimum Initia	1 71 psi Maximum Final	236 mai
Shut in pressure: Initial	1008psi. Final	1008 psi
Flow period 60 min. Shu	t in periods 30 + 60 Bomb capacity	psi.
Engineer: F. Halkow & D. Hun	ter	psi.

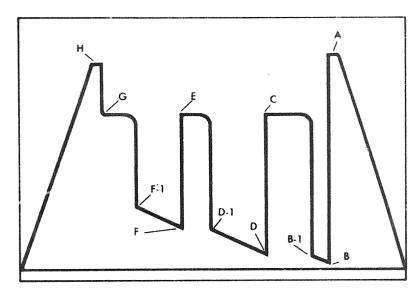


	TEST	DATA	TO THE CONTROL OF THE		ТОО	L SEQUENCE	
Formation		Zone Thickne	SS	Ft	Tool	Lenath	O.D.
Interval	2393 To	2418	T.D. 2418	Ft.	D. P. SUB. & SUE	1.25	6
Type of Test	OPEN HOLE,	BOTTOM HOL	Ε.		SuB.	. 75	6
Time Started in Hole	2000 Hrs.	Tool Opened	2118	Hrs.	MFE TOOL	9.00	5
First Flow	2 Min	Initial Shut-In	30	Min.	BYPASS TOOL	3.50	5
Second Flow	60 Min.	Second Shut In		Min.	Sua.	.80	6
Third Flow	Min.	Final Shut In	60	Min	JARS	6.40	5 3/4
Pulled Loose (1)	2350 Hrs	Out of Hole	0100	Hrs	SuB.	.80	6
Wt. Set/on Packers	40,000 #	Pulled Loose W	25,000	#	SAFETY JOINT	1.80	4 3/4
Description of Blow D				-	S. S. & PACKER	9.00	7 3/4
	LOW ON PREFL	Marine Marine Co. Company Co.	LOW, INCREAS	SING	I. C. & PACKER	5.80	7 3/4
TO GOOD ON	SECOND FLOW				TOTAL	39.10	
	TO CHICAGO TO CONTRACTOR CONTRACT	a tradition is an income and a superior		are the section was a second as a second			·
FLUID RECOVERY	The second of th	erse Circulated	Yes xx	No L	**************************************	1.50_	4 3/4
Total Fluid Recovered	500	- 1 - desidenting	TOTAL	Ft	PERF.	2.00	4 3/4
Description of Fluid Re	AND VIVE OR IN THE CONTRACT OF	The state of the s			RECORDER	4.40	4 3/4
THE CONTRACTOR OF THE PROPERTY		RY, DRILLIN			PERF.	5.00	4 3/4
number of the second se	400' MUDD	Y, GASSY, W	ATER.	agangon and analysis and a	RECORDER	4.40	4 3/4
					PERF.	5.00	4 3/4
	en an entre commence and an analysis and an analysis and a				B. N. & PERF.	2.35	4 3/4
		Markovi Markovi — de producto de conseguir de la compansión de conseguir de consegu			TOTAL INTERVAL	24.65	
	Particulation distributed or imagency parameters as a series of a series of the series	PROPERTY OF THE PROPERTY OF TH			Parameter and a second control of the second		
	GAS BLOW	MEASUREMENT		AND THE PERSON NAMED OF THE PARTY.			
Measured With			1.0). Riser			
Type of Instrument		Michiganic Alberta communication in register acres. As in section recognis	AP 11 C 1 TO TO 1 TO 1 TO POST TO A STATE OF THE PARTY OF				
Time Stce. C	hoke Reading p	a inches M	Cubic Feet Day		Proposition and the same of th		
	PROTOGRAPHIC AND ADMINISTRATION OF THE PROTOGRAPHICATION OF THE PROTOGRAPHIC AND ADMINISTRATION OF THE PROTOGRAPHICATION OF THE PROTOGRAPHIC AND ADMINISTRATION OF THE PROTOGR	-	The state of the s				
All descriptions in the design on the contraction of the contraction o			The second state of the second				
				end construction of contract and	Marine Annual Control of the Control		
	The second second second second second						
		The control of the co	TO THE OWN PROPERTY ENGINEERING CONTRACTOR OF THE PROPERTY OF				
	CONTRACTOR () THE CONTRACTOR STANDARD CONTRACTOR (SEE SAID)		TO PERMITTE SERVICES - AND CONTROL - AND CON		posteriore en construir de la		
	TOTAL TRANSPORT TO THE PARTY OF		PROPERTY CASE CONTRACTOR REPORTS CONTRACTOR CONTRACTOR		TOTAL LENGTH	63.75	MANUAL PROPERTY OF THE PROPERTY OF THE
		***************************************	The second section to the second seco		Elevation NOT R Bottom Hole Choke Size	EPORTED.	
REMARKS					Fluid Cushion Type		
VEMVKV2	T				Province markets and analysis of the contract	Amt.	
	TEST SATIS	FACTORY.			11	HD HOLE DATA	500 ma
MAAANAMINEEN PROPORTIONALISE SEEDING SEEDING VIII VIII VIII VIII VIII VIII VIII V		The state of the s				OLYMER W.L.	3.5
The many of the first of the second and the second of the		the state of the s			Filter Cake 2/32	Vis. 32 Wt.	8.9
	- realitification for the section of an arrangement of the section				Time Taken	The state of the s	
			**************************************			T DRILLING Rig	No. 1E
	DECICTIVITY	MANAGEMENT OF STATE O	CHI ODINE CO.	175.7	CONTRACTOR OF THE PROPERTY OF	2 F	
Recovery Water	RESISTIVITY	°F,	CHLORIDE CON		Andrews - married and a second		480.59°
Mud Pit sample filtrate	THE THE PERSON OF THE PERSON NAMED IN THE PERS	· · · · · · · · · · · · · · · · · · ·		ppm.	Main Hole Size 8 3/	4	trono-comatante de la company
	EDMONTONTicket		95)ate	Communication of the property	t No 1 J.T.	No. 1
	J. RAY MCDER		The second contract of		m	7-ROYALITE BUT	
	MCD GCO NORT			5	The state of the s	LGARY 2, ALBER	ANADOSON INTERNATIONAL
Number	65 54'39.00				LAKE Province	The state of the s	N.W.T.
NAMES OF THE PROPERTY OF THE P	133 03'00.00		Co. Rep.		. HALKOW (CONSULT		**** * * * * * * * * * * * * * * * * *
	2393 - 2418	DST#1	Technician		G. KNAPP	THE THE PERSON OF THE PERSON O	
Distribution of Reports	CONTRACTOR OF THE CONTRACTOR O	ern ver dem dem sem einem er nammer ernem einem eine dem einem einem dem dem dem dem dem dem dem dem dem d					***************************************
	10 - CALGARY	•			 Problems the definition of the continues are recovered to the continues of the	nter i stratificationistico e e e esta internationale del de april e e e e en esta en esta en esta en esta est	and the state of t
The second secon		(All or de delegate) — species of colors seems a six in	CONTRACTOR OF A SECOND CONTRACTOR		The second secon	Citation (s.c.), https://doi.org/10.000/00.00001 - y co. nine-ne-ny a nipro-de-no-distribute distribute que	



									JOHNSTON TESTERS
)			D 00995		PRESSURE	DATA		FLUID SA	MPLE REPORT
NSTRUMEN	IT No.		AK1-2354	AK1-	2264	***************************************		Sample No.	
CAPACITY			2750	3150				Туре	
	(Psig)		2397	2407				Depth	•
-	T OPENING							Volume	
	GRADIENT psi/F	· · · · · · · · · · · · · · · · · · ·	OUTSIDE	OUTS	IDE.			70.417.6	
WELL TEMP	', 'P.	Management of the second secon	72°	72°				Sample Pressur	ρ'
				1007					psig. at Surface
	POROSTATIC		1085#	1093				<u></u>	
IRST FLO		В		42				Gravity	API @ °
~~~~	B-1		53#	53				Gas/Oil Ratio	Cu.Ft./bb
NITIAL SH		С	1019#	1029		***************************************			
ECOND F	LOW	D	65#	66	lk			Recovery:	
	D-1		239#	240	#				***************************************
ECOND S	HUT-IN	E						Cu. Ft. Ga	is .
HIRD FLO	W	F						cc. Oil	
	The state of the s							cc. Water	
INAL SHU	IT-IN	G	1014#	1022	#			cc. Mud	
	ROSTATIC	н	1035#	1093				Total Liquid o	C .
REMARKS					£	unina municipali con conservante de delegación membro			**************************************
POINT		Ţ	+ Δ <b>†</b>	POINT	parecuse	Τ + Δ †	POINT	PRESSURE	T + Δ †
MINUTES	PRESSURE	***************************************	<u>+ Δ †</u>	MINUTES	PRESSURE	$\frac{1+\Delta \uparrow}{\Delta \uparrow}$	MINUTES	PRESSURE	
<u>L</u>	<b></b>			<del> </del>			<b>#</b>		
		-		<b>4</b>		and depresent the second secon	<b> </b>	-	
-							4		
****		-		<b></b>			<b></b>		
							1		
								and the second s	
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						annekkunkunkunka Karinasi internasi sakeranyakkin menakkibasa yeng			
A PARAGRAM AND STREET									
				***************************************					
à	<b>-</b>	galangung ang ant normal shiphalanda ann in santa				<ul> <li>- paradippendentiage descriptions of properties of the properties of th</li></ul>			
<b>y</b>		************************			A THE RESERVE THE PROPERTY OF	араж а.ж. жыны кы кыйтой белей атайан женийнүүчү кененийниң жылый жаны которы. Интейнийн келейин белейин белей		Comment Control (Control Control Contr	- contract contractors remain incomments to the state the contractors are properties accepted to
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	-					f announcement embassimment minde makken ministrik plante tre- ministrik plante in mendentra series trapa.	<b>*************************************</b>		tigen open i branco meno con un control respectato di con alle alle ancienza consequia
				<b>†</b>			1		
	+			#			1		1
	1	i .		11			11	1	1





- 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.



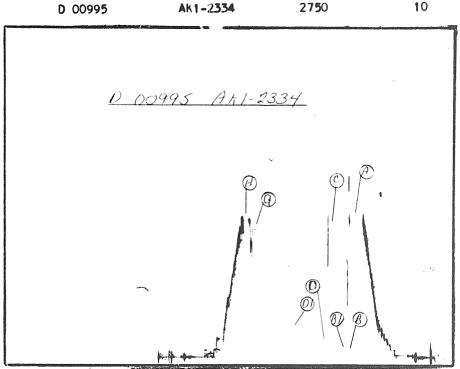
FIELD REPORT NO.

RECORDER NO.

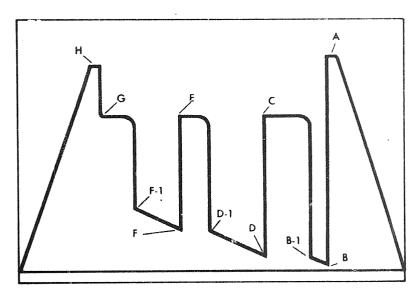
CAPACITY

REPORTS REQUESTED

10







- 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.

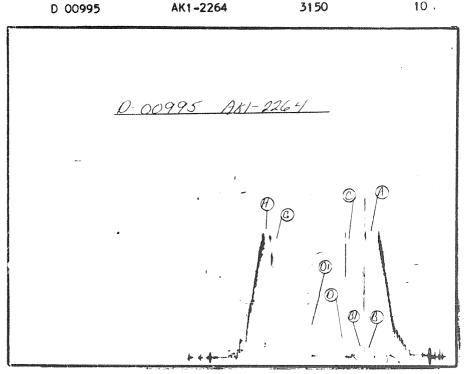


FIELD REPORT NO.

RECORDER NO.

CAPACITY

10.



Well Name McD. G. C. O. Northup Taylor	Lake Y, T, K-15	Test No	
CompanyJ. Ray McDermitt Canada Ltd.	Date Test Ru	n February 21,	1969
Testing CompanyJohnston Testers Ltd	Oper	ator G. Knopp	
No. & Size Packers .2 - 7.3/4" bob-tail	( <b>চা</b> ঠতkwaম) (Formation) Siz	re Choke 1/2"	
Other Equipment Safety-joint, multiple shut	-in, Bowen hydraulic	jar.s	
Mud Wt9.0, Vis33, W.L22.8,	pH105		
Interval Tested: From 2824 to 3003	Formation Imperial (	Devonian) ?	•••••
Full hole8.3/4''	Pre-flow Time initial shut-in starte		2 min
Casing 9 5/8 to 900	Time test tool opened		
JHF			
Upper Packer set at2817	Time test tool closed Time packer pulled loose		•
	Valve open 60 min.		
Main Packer set at2824	Description of blowGo.		
*  }	Weak.air.blow.on.va	-	
不几个	Gas to surface in	-	
Rat hole at	Maximum gas flow		· ·
Rat hole size	Flow stabilized in		
1 111	Measured by: (manometer		
Length of tested interval	Gas sample saved after		
Casing perforations	Was flare lit	Length of flame	
to	Fluid to surface in		min.
1 111 €	Nature of fluid flow		
Bottom Packer set at			
3003	Was test a misrun		
Total Depth	Cause of misrun		
Remarks: Good air blow on pre-flow, we	ak air blow when val	ze open increasin	g to strong
for duration of test. Hole in g	ood.condition.	•••••	
RECOVERY:	•••••	•••••	
Total fluid in (size) O.D. drill p	ipe: 15.70 f	eet	barrels
(describe fluid)			
muddy gassy fresh W	ter: 1240 f	eet	barrels
watery N			
Saved samples atft.	ft	ft. above th	ne test tool
PRESSURE CHART READINGS:			
Hydrostatic head: Before opened	psi. After pulled	1	292psi.
Flowing pressure: Minimum Initial 165		Final	
Shut in pressure: Initial			•
Flow period		apacity	psi.
Englines,	*****		

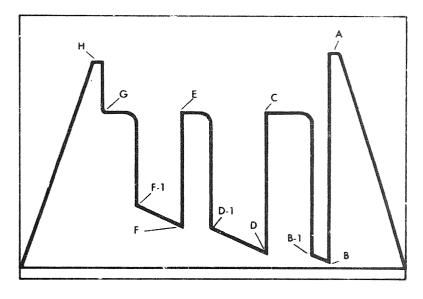


TEST DATA		TOOL SEG	CONTRACTOR OF THE PROPERTY OF	
ormation Zone Thickness	Ft	Tool	Length	O.D.
nterval 2824 To 3003 T.D. 300	03 Ft.	D. P. SuB.	.80	6
ype of Test OPEN HOLE, BOTTOM HOLE.		SuB.	.70	6
ime Started in Hole 1830 Hrs Tool Opened 202	28 Hrs.	MFE TOOL	9.00	5
	50 Min.	BYPASS TOOL	3.50	5
econd Flow 60 Min Second Shut In	Min.	SuB.	.85	6
	50 Min	JARS	6.45	5 3/4
ulled Loose (at 2300 Prs Out of Hole 010	22	SuB.	.80	6
It Set on Packers 40,000 # Pulled Loose Wt 25,00		SAFETY JOINT	1.80	4 3/4
escription of Blow During Test	-	S. S. & PACKER	9.00	7 3/4
WEAK AIR BLOW, INCREASING TO STRONG ON FLOW	4.	T. C. & PACKER	6.80	7 3/4
THE STATE STATE STATE OF THE PARTY OF THE PA		TOTAL	39.70	<u></u>
				***************************************
LUID RECOVERY Was Test Reverse Circulated Yes [¥	No L	STUB.	1.50	
otal Fluid Recovered 1570	Ft	PERF.	10.00	
escription of Fiuld Recovered		RECORDER	4.40	4 3/4
330' WATERY, DRILLING FLUID.		PERF.	8.00	4 3/4
1240' GASSIFIED, MUDDY, WATER.		RECORDER	4.40	4 3/4
A Server of the	many and a second secon	PERF.	20.00	4 3/4
and the second s		Sue.	The second secon	6
The second secon		DRILL COLLAR	the same of the sa	6 1/4
The second secon		SuB.	.85	6
		PERF.	10,00	4 3/4
GAS BLOW MEASUREMENT		B. N. & PERF.	2.35	4 3/4
asured With	ID Riser		179.31	
		TOTAL LENGTH Elevation NOT REP		
A STATE OF THE PARTY OF THE PAR		Bottom Hole Choke Size	1/2'	*
REMARNS		Fluid Cushion Type	Amt.	
TEST SATISFACTORY.		1!	HOLE DATA	
TES - SALISTACIONIL		Mud Type XC PoL		22.8
group controller to the contro			sc 33 W1	9.0
		Time Taken		
			DRILLING 19	No.
		Drill Pipe Size 4 1/2	FH	
1 The Late 1 and 1	CONTENT	Drill Collar Size 2 7/8	D Length	613'
Recovery Water (n °F	ppm.	. Main Hole Size 8 3/4"	The same and a second s	
Mud Pit sample filtrate 61 °F	ppm	Rat Hole Size		A. V.
District EDMONTON Ticket No. D 00996	Date	FEB. 21, 1969 Test N		T. No
Company J. RAY McDERMOTT & CO INC		Address 217-	ROYALITE BU	
Well Name MCD GCO NORTHUP TAYLOR LAKE YT	K-15	CALG	ARY 2, ALBE	RTA
Number 65 54139.00 Field	TAYLOR	R LAKE Province	and a proper person of the contract of the con	N.W.T.
133 03'00.00 Co. Rep	F	F. HALKOW (CONSULTANT	Ţ.),	
and interva 2824 - 3003 DST#2 Technician		G. KNAPP	- Al Philippenson	
Distribution of Reports		The state of the s	MAN OF SAME OF	
10 - CALGARY.				A



								w women on measures	ONNSTON TESTER	5
1		·	D 00996	and the second s	PRESSURE	DATA			MPLE REPOI	RT
NSTRUMEN	T No	1	AK1-2264	AK1-	2334			Sample No.	AND DESCRIPTION OF THE PERSON	
APACITY			3150	2750				Туре		
	T DEPTH FT	-	2835	2848				Depth		ft.
	T OPENING		QUISIDE	OUTS	1			Volume		
	GRADIENT psi/FT		N VI NI NI							
VELL TEMP	and the second		P <b>3°</b>	8 <b>3°</b>				Sample Pressure		
Appropriate the second	number of controllers from their state of the							Sample Pressure	e. psig. at Su	
NITIAL HY	DROSTATIC	A	1317#	1320	H					
IRST FLOV	·	8		90	#			Gravity	API @	°F
	B-1		137#	143				Gas/Oil Ratio	Cu.F1	. bbl
NITIAL SH	Andrew Company of the	c	1200#	1203						
SECOND FI		D	183#	191				Recovery:		
	D-1		705#	712						
SECOND SI		E						Cu. Ft. Ga	S	
THIRD FLO		F						cc. Oil		
HIRD FLO								cc. Water		
FINAL SHU			11614	1168	USA .			cc. Mud		
FINAL HYD	one contract to the contract of the contract o	U	1164#	1320				Total Liquid c	c	
REMARKS	S:									
			•	l						
POINT AINUTES	PRESSURE		+ <u>\( \D \) \( \T \) \( \D \)</u>	POINT MINUTES	PRESSURE	<u>T + \( \Delta \) T</u>	POINT		<u> Τ + Δ</u> Δ <b>τ</b>	t
	PRESSURE		+ Δ <b>†</b> Δ <b>†</b>		PRESSURE	<u>† + Δ†</u> Δ†			<u> </u>	†
	PRESSURE		<u>+ Δ †</u> Δ †		PRESSURE	<u>T + \( \Delta \)</u> <u>\( \Delta \)</u>			<u> Τ + Δ</u> Δ <b>Ť</b>	1
	PRESSURE		<u>. Δ †</u> Δ †		PRESSURE	<u>T + \( \Delta \)</u> \( \Delta \)			<u>τ + Δ</u> Δ τ	
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	PRESSURE		<u>. Δ †</u> Δ †		PRESSURE	<u>T + \( \Delta \)</u> \( \Delta \)			<u>T + Δ</u> Δ T	1
	PRESSURE	1	<u>. Δ †</u> Δ †		PRESSURE	<u>T + \( \Delta \)</u> \( \Delta \)			<u>T + Δ</u> Δ T	†
	PRESSURE		<u>. Δ †</u> Δ †		PRESSURE	<u>T + \( \Delta \)</u> \( \Delta \)			<u>T + Δ</u> <u>Δ T</u>	†
	PRESSURE		<u>. Δ †</u> Δ †		PRESSURE	<u>1 + \( \Delta \)</u> \( \Delta \)			<u>T + Δ</u> <u>Δ T</u>	†
	PRESSURE	7	<u>. Δ †</u> Δ †		PRESSURE	<u>1 + \( \Delta \)</u> \( \Delta \)			<u>T + Δ</u> <u>Δ T</u>	t
	PRESSURE	7	<u>. Δ †</u> Δ †		PRESSURE	<u>T + Δ †</u> <u>Λ †</u>			<u>T + Δ</u> <u>Δ T</u>	†
	PRESSURE	7	<u>. Δ †</u> Δ †		PRESSURE	<u>T + \( \Delta \) T</u>			<u>T + Δ</u> <u>Δ T</u>	†
	PRESSURE	7	<u>. Δ †</u> Δ †		PRESSURE	<u>T + \( \Delta \) T</u>			<u>T + Δ</u> <u>Δ T</u>	†
	PRESSURE	7	<u>Α</u> Τ Δ Τ Δ Τ		PRESSURE	<u>T + \( \Delta \) T</u>			<u>T + Δ</u> <u>Δ T</u>	t
	PRESSURE	7	<u>Α</u> Τ Δ Τ Δ Τ Δ Τ Δ Τ Δ Τ Δ Τ Δ Τ Δ Τ Δ Τ		PRESSURE	<u>T + \( \Delta \) T</u>			<u>T + Δ</u> <u>Δ T</u>	†
	PRESSURE	Ţ	<u>Α</u> †		PRESSURE	<u>T + \( \Delta \) T</u>			<u>T + Δ</u> <u>Δ T</u>	1
	PRESSURE	Ţ	<u>, Δ †</u> Δ †		PRESSURE	<u>T + \( \Delta \) T</u>			<u>T + Δ</u> <u>Δ T</u>	1
	PRESSURE	1	<u>, Δ †</u> Δ †		PRESSURE	<u>T + \( \Delta \) T</u>			<u>τ + Δ</u> <u>Δ τ</u>	1
	PRESSURE	1	<u>, Δ †</u> Δ †		PRESSURE	<u>T + \( \Delta \) T</u>			<u>τ + Δ</u> <u>Δ τ</u>	1
	PRESSURE		<u>, Δ †</u> Δ †		PRESSURE	<u>T + Δ †</u> <u>Λ †</u>			T + Δ Δ T	





- 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.

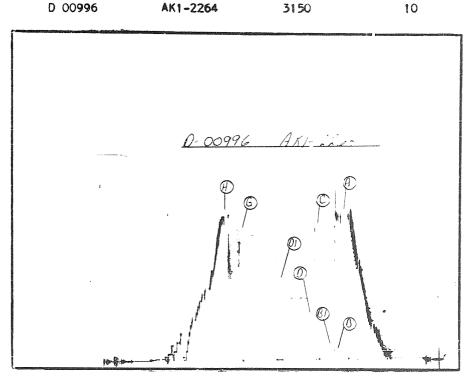
OHNSTON TESTERS

D 00996

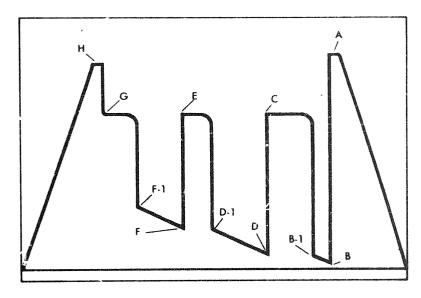
RECORDER NO.

AK1-2264

CAPACITY







- 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

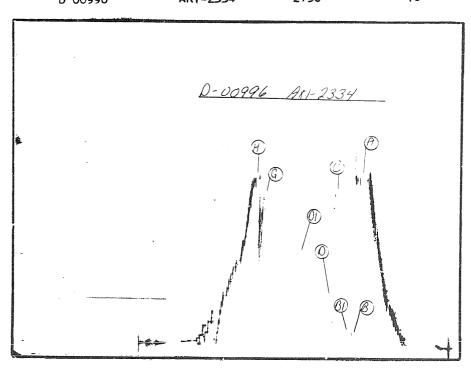
- C, Initial Shut-In
- D-1, D-2, D-3, etc. Second Flow Pressures
- E, Second Shut-In
- F, F-1, F-2. Third Flow Pressures G, Final Shut-In
- H, Final Hyd. Pressures
- Z Special pressure points such as pumping pressures recorded for formation breakdown.

OHNSTON TESTERS

FIELD REPORT NO. D 00996

RECORDER NO. AK1-2334 CAPACITY 2750

10



	Weil Name McD. G. C. O. Northup Taylor Lake Y. T. K-15.	
	Company J. Ray McDermott Canada Ltd. Date Test Run March 11, 1969	
	Testing Company Johnston Testers Ltd. Operator J. Mooney	
	No. & Size Packers 2 7.3/4" bob-tail & Conv. (Formation) Size Choke1/2"	
	Other Equipment Safety-joint, multiple shut-in, Bowen jars	
	Mud Wt9.0, Vis36, W.L9.8, pH10.0	
	Interval Tested: From 5880 to 6076 Formation Bear Rock Pre-flow 2 min.	
	Full hole 8 3/4"  Time initial shut-in started 4:03P	.M.
	Casing	М.
	Time test tool closed	Μ.
	Upper Packer set at5.873 Time packer pulled loose	.M.
	Main Packer set at 5880 Valve open 90 min. Shut in 30 min. + 90	) min.
	Description of blow Fair air blow on pre-flow.	
	Weak air blow on valve open building up to	
	Rat hole at min. atnil Mcf/c	
	Rat hole size	
<b>A</b>	Measured by: (manometer) (pres. guage) (side static)	Jay
7	Length of tested interval	nin.
	Casing perforations Was flare lit Length of flame Length of flame	
	Fluid to surface in	
	Nature of fluid flow	
	Bottom Packer set at	
	Total Depth 6076 Was test a misrun No	
	Temp, 68 r (doubtlut)	
	Remarks: Fair air blow on pre-flow. Weak air blow on valve open increasing to fair	
	No gas to surface. Hole in good condition except for bridge 10 ft. off bott.  Tool opened momentarily on bridge and took on approx. 1 bbl. mud.	
	RECOVERY:	
	Total fluid in (size) 4" + 6 1/2 D. Co.D. drill pipe: 1640 feet	rels
	(describe fluid) Oil: feet bar	rels
	muddy gassy salt Water: 1190 feet bar	rels
	watery Mud: 450 feet bar	
	Saved samples atftftft620ft. above the test	tool
À	PRESSURE CHART READINGS. Field Pressures. Recorder AK1 2264-3150# set @ 6006 ft.	
7	Hydrostatic head: Before opened	.psi.
	Flowing pressure: Minimum Initial 389 psi Maximum Final 778  Shut in pressure: Initial 2104 psi Final 2089	.psi.
	Flow period 90 min. Shut in periods 30 min. & 90 min. Bomb capacity 3150	.psi.
	Engineer: F. Halkow & S. Pallister & T. Nagle	

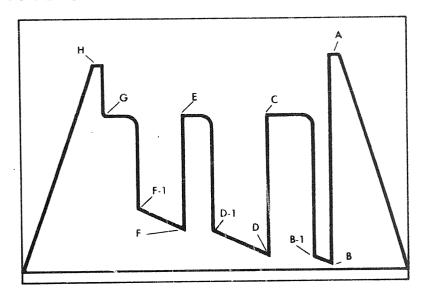


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PERF.	5.00
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TOTAL LENGTH	234.25
Elevation NOT R	EPORTED.
Bottom Hole Choke S	
Fluid Cushion Type	Amt.
MUD	AND HOLE DATA
Mud Type	W L. 11.4
	2 Visc. 36 Wt 9.0
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Drill Pipe Size 3 1  NT Drill Collar Size  om. Main Hole Size 8 3	Length
Drill Pipe Size 3 1  NT Drill Coller Size om. Main Hole Size 8 3 pm. Rat Hole Size	Length /4"
Drill Pipe Size 3 1  NT Drill Coller Size  Drill Coller Size 8 3  Drill Rat Hole Size 8 3  MARCH 11, 1969	Length /4" Fest No 3 J.T. No.
Drill Pipe Size 3 1  NT Drill Coller Size  Drill Coller Size  Drill Coller Size  Main Hole Size 8 3  Print Hole Size  MARCH 11, 1969  Address	Length  /4"  Fest No 3 J.T. No.  217-ROYALITE BUILDIN
Drill Pipe Size 3 1  NT Drill Caller Size  om. Main Hole Size 8 3  pm. Rat Hole Size  MARCH 11, 1969  Address	Length /4"  Fest No 3 J.T. No. 217-ROYALITE BUILDIN CALGARY 2, ALBERTA
Drill Pipe Size 3 1  NT Drill Coller Size  om. Main Hole Size 8 3  pm. Rat Hole Size  MARCH 11, 1969  Address  R LAKE  Province	Length  /4"  Fest No 3 J.T. No.  217-ROYALITE BUILDIN  CALGARY 2, ALBERTA  No.Wo.T.
Drill Pipe Size 3 1  NT Drill Coller Size om. Main Hole Size 8 3  pm. Rat Hole Size  MARCH 11, 1969  Address  R LAKE  Prevince  F. HALKOW (CONSUL	Length  /4"  Fest No 3 J.T. No.  217-ROYALITE BUILDIN  CALGARY 2, ALBERTA  No.Wo.T.
Drill Pipe Size 3 1  NT Drill Coller Size  om. Main Hole Size 8 3  pm. Rat Hole Size  MARCH 11, 1969  Address  R LAKE  Province	Length  /4"  Fest No 3 J.T. No.  217-ROYALITE BUILDIN  CALGARY 2, ALBERTA  No.Wo.T.
Drill Pipe Size 3 1  NT Drill Coller Size om. Main Hole Size 8 3  pm. Rat Hole Size  MARCH 11, 1969  Address  R LAKE  Prevince  F. HALKOW (CONSUL	Length  /4"  Fest No 3 J.T. No.  217-ROYALITE BUILDIN  CALGARY 2, ALBERTA  N.W.T.
HI AM	FI. SUB.  MFE TOOL BYPASS TOOL AID



		~	D 02347	annue anno material de l'Aria	PRESSURE	DATA		FLUID SAN	APLE REPORT
INSTRUMEN	T No		AK1-2334	AK1-	2264			Sample No.	
CAPACITY	psig:		2750	3150				Туре	Real Control of the C
INSTRUMEN	and the second second second	1	5992	6006				Depth	ft.
INSTRUMEN	T OPENING		OUTSIDE	OUTS	IDE			Volume	
PRESSURL G	RADIENT psi/FT		- I was an a second sec						
WELL TEMP.	°F.		and an investment in the control of						
and and the second section of the second section of the second section	and the second to the second t		RAN OVER					Sample Pressure	
INITIAL HY	DROSTATIC	A	CAPACITY.	2825	#				psig. at Surface
FIRST FLOW	/		141#	161				Gravity	API @ °F
	B-1		162#	185				Gas/Oil Ratio	Cu.Ft./bbl.
INITIAL SHI	JTIN	с	2182#	2196					
SECOND FL	CARROLL STREET, CO. C. C. C. C. C. C.	D	159#	179				_	
-	D-1		7934	1				Recovery.	
SECOND SH		ε	1.7.Mt	1 44				Cu. Ft. Ga	S
THIRD FLO	AND DESCRIPTION OF THE PERSON	F			AND DESCRIPTION OF THE PARTY OF			cc. Oil	
			and the second s					cc. Water	Execute
FINAL SHU	T.IN	G	2169#	2197	144			cc. Mud	ne region de contrar promiso de la communicación de administração estado com o referencia de contrar de contra
FINAL HYD	against the second second second second	Н		2825				Total Liquid co	C .
REMARKS			CAPACITY.						
KENAKKO	•		CAPACITI						
				PR	ESSURE IN	CREMENTS	T		econo array y significante de describir de la composition de la composition de la composition de la compositio
POINT	PRESSURE	Ţ	<u>+ Δ †</u> Δ †	POINT MINUTES	PRESSURE	<u>T + \( \Delta\) T</u>	POINT MINUTES	PRESSURE	$\frac{T + \Delta  t}{\Delta  T}$
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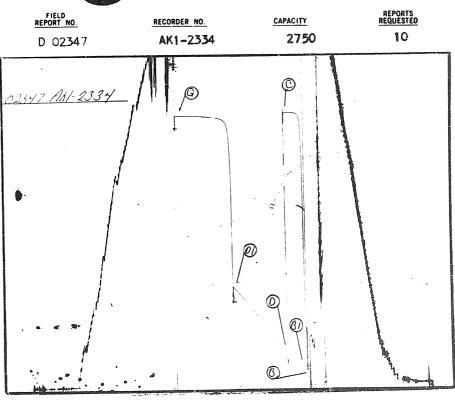


- A. Initial Hyd. Mud
- B. First Flow
- C. Initial Shut-In
- D. Second Flow
- E. Second Shut-In
- F. Third Flow G. Final Shut-In
- H. Final Hyd. Mud

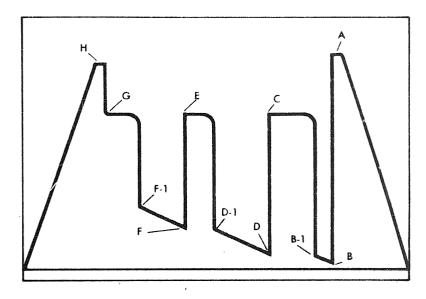
The following points are either fluctuating pressures  $\tau$  points indicating other packer  $s_-$  tings (testing different zones).

- 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.









- 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

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Z — Special pressure points such as pumping pressures recorded for formation breakdown.



FIELD REPORT NO. RECORDER NO. CAPACITY 3150 AK1-2264 D 02347

Well Name McD. G. C. O. Northup Tay	lor Lake Y. T. K-15 Test No. 4
CompanyJ. Ray. McDermott. Canada	Ltd. Date Test Run March 26, 1969
Testing Company Johnston.Testers.Ltd	Operator J. Mooney
No. & Size Packers2	(Hksokwatt)(Formation) Size Choke1/2"
Other Equipment	
Mud Wt. 9. 2, Vis. 60, W.L. 8. 4.	., pH10.5
Interval Tested: From 7390 to 7804	Formation Ordovician
Full hole	Pre-flow 4 min. Time initial shut-in states 30 min. M.
Casing	Time test tool opened 90 min. M.
·	Time test tool closed 90 min. M.
Upper Packer set at	Time packer pulled loose
Main Packer set at	Valve open. 90 Shut in 30 + 90 min,
<b>§</b>	Description of blow Air
不	✓ Gas to surface in min. at
Rat hole at	Maximum gas flow
Rat hole size	Flow stabilized in min. at Mcf/day
1 3 11 1	Measured by: (manometer) (pres. guage) (side static)
Length of tested interval414 \	Gas sample saved after min.
Casing perforations	Was flare lit Length of flame
to	Fluid to surface in min.
	Nature of fluid flow <u>nil</u>
Bottom Packer set at	Was test a misrun
Total Depth7804	Cause of misrun
<u> </u>	
	Faint air blow on valve open increasing very
	B, H, T, - 203° F,
RECOVERY:	······································
Total fluid in (size) O.D. drill	pipe: 910 feet barrels
	. Oil: barrels
	Vater: barrels
	Mud: 910 feet barrels
Saved samples atft.	ft. above the test tool
PRESSURE CHART READINGS: Field Press	
	psi. After pulledpsi.
Howing pressure: Winitial 201	psi. Maximum Final 403 psi.
	psi. Finalpsi.
Engineer: J. Britton & T. Nagle	Bomb capacitypsi.



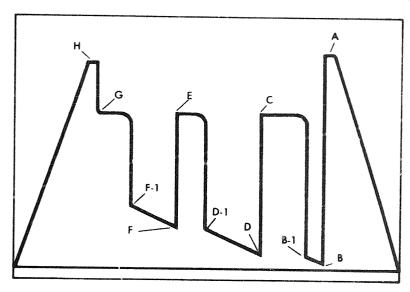
	TEST	DATA		-	TOOL S	AND THE RESERVE AND A CONTRACT OF THE PROPERTY
Formation	Parameter Marie Control of Contro	Zone Thickness		Ft.	Tool	Length O.D.
Interval	7390 To	78 <b>04</b> T.D.	7804	Ft.	Sua.	,75
Type of Test	OPEN HOLE,	BOTTOM HOLE.			P. O. Sus.	.85
ime Started in Hol	le <b>04</b> 00 Hrs.	Tool Opened	0651	Hrs.	Sue.	.65
rst Flow	4 Min.	Initial Shut-In	30	Min.	D. P. Sub.	,85
econd Flow	90 Min	Second Shut In		Min	MFE TOOL	9.10
nird Flow	Min	Final Shut In	90	Min	BYPASS TOOL	3,00
ulled Loose @		Out of Hole	1600	Hrs.	Sue.	.85
t. Set, on Packers				<b>#</b>	JARS	6.60
escription of Blow					Sua.	80
		THROUGHOUT TES	t T		SAFETY JOINT	
TOOL MAS	CHASED AT DU	RING TEST PERI	( ' ·		S. S. & PACKER	
TOOL WAS	CHASEU 4 DU	KING IESI FEKT	· · · · · · · · · · · · · · · · · · ·		T. C. & PACKER	
	NATIONAL TOTAL DIS	verse Circulated Yes	- (***	No viv	TOTAL	40.15
UID RECOVERY	The second secon	verse Circulated Tes	<u> </u>	Fi	TOTAL	70112
tal Fluid Recovered	and the second of the second o	The control of the co	angunya isan sakulukataran ini ini sakulukataran		Carro	1.50
scription of Fluid			adapanyan sahadi aradikana dada sahada S		STUB.	5.00
manager controlled to the first of the first or first	327	LING FLUID.			PERF.	4.40
	720' MUDD	Y, SALT WATER.			RECORDER	The second secon
ANTERIOR CONTRACTOR OF THE STATE OF THE STAT		many w			PERF.	10.00
The control of the co		party over a contract of the second process and proceedings and			RECORDER	4,40
					PERF.	15.00
	provide grandpartners of the state of the st	A STATE OF THE PROPERTY OF THE			SuB,	1.00
The second secon			ann an		DRILL COLLAR	369.48
	GAS BLOW	MEASUREMENT			Sub.	.90
Measured With	And the second s	- William	1.0	D. Riser	B. N. & PERF.	2.35
pe of Instrument	Manager and the second state of the second state of				TOTAL INTERVAL	414.05
The second of th						
					TOTAL LENGTH	454.18
					Elevation NOT REP	ORTED.
					Elevation NOT REP Bottom Hole Choke Size	1/2"
MARKS					Elevation NOT REP Bottom Hole Choke Size Fluid Cushion Type	1/2" Amt.
EMARKS	TEST SATI	SFACTORY.			Elevation NOT REP Bottom Hole Choke Size Fluid Cushion Type MUD AN	Amt.  D HOLE DATA
MARKS	TEST SATIS	SFACTORY.			Elevation NOT REP Bottom Hole Choke Size Fluid Cushion Type MUD AN Mud Type	Amt.  D HOLE DATA  W.L. 8.
MARKS	TEST SATI	SFACTORY.			Elevation NOT REP Bottom Hole Choke Size Fluid Cushion Type MUD AN Mud Type Filter Cake 2/32	Amt.  D HOLE DATA  W.L. 8.
EMARKS	TEST SATIS	SFACTORY.			Elevation NOT REP Bottom Hole Choke Size Fluid Cushion Type  MUD AN Mud Type Filter Cake 2/32	1/2" Amt  D HOLE DATA W.L. 8.4  Visc. 60 Wt. 9.2
MARKS	TEST SATI	SFACTORY.			Elevation NOT REP  Bottom Hole Choke Size  Fluid Cushion Type  MUD AN  Mud Type  Filter Cake 2/32 \ Time Taken  Contractor S & T	1/2" Amt  D HOLE DATA  W.L. 8.4  Visc. 60 Wt. 9.4
MARKS	TEST SATI	SFACTORY.			Elevation NOT REP Bottom Hole Choke Size Fluid Cushion Type  MUD AN Mud Type Filter Cake 2/32	1/2"   Amt.     Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.   Amt.
MARKS	TEST SATIS		CHLORIDE CO	ONTENT	Elevation NOT REP  Bottom Hole Choke Size  Fluid Cushion Type  MUD AN  Mud Type  Filter Cake 2/32 \( \)  Time Taken  Contractor S & T  Drill Pipe Size 3 1/2	Amt.  Amt.  ID HOLE DATA  W.L. 8.  Visc. 60 Wt. 9.  DRILLING Rig No. 1
			CHLORIDE CO	ONTENT ppm.	Elevation NOT REP Bottom Hole Choke Size Fluid Cushion Type  MUD AN Mud Type Filter Cake 2/32 \( \) Time Taken Contractor S & T Drill Pipe Size 3 1/2 Drill Collar Size	1/2"   Amt
ecovery Water	RESISTIVITY	(	CHLORIDE CO		Elevation NOT REP  Bottom Hole Choke Size  Fluid Cushion Type  MUD AN  Mud Type  Filter Cake 2/32 \( \)  Time Taken  Contractor S & T  Drill Pipe Size 3 1/2  Drill Collar Size  Main Hole Size 8 3/4  Rat Hole Size	Amt.  Amt.  ID HOLE DATA  W.L. 8.  Visc. 60 Wt. 9.  DRILLING Rig No. 1  IF  Length
Recovery Water Aud Pit sample filtr	RESISTIVITY  ai	°F.		ppm.	Elevation NOT REP  Bottom Hole Choke Size  Fluid Cushion Type  MUD AN  Mud Type  Filter Cake 2/32 \( \)  Time Taken  Contractor S & T  Drill Pipe Size 3 1/2  Drill Collar Size  Main Hole Size 8 3/4  Rat Hole Size	Amt.  Amt.  ID HOLE DATA  W.L. 8.  Visc. 60 Wt. 9.  DRILLING Rig No. 1  IF  Length
Recovery Water Aud Pit sample film District	RESISTIVITY  GI  FUITE  EDMONTONTICKE	°F. °F.	8	ppm. ppm.	Elevation Not REP Bottom Hole Choke Size Fluid Cushion Type  MUD AN Mud Type Filter Cake 2/32 \( \) Time Taken Contractor S & T Drill Pipe Size 3 1/2 Drill Collar Size Main Hole Size 8 3/4 Rat Hole Size MARCH 26, 1969 Test	Amt.  Amt.  ID HOLE DATA  W.L. 8.  Visc. 60 Wt. 9.  DRILLING Rig No. 1  IF  Length
Recovery Water Aud Pit sample filtr District Company	RESISTIVITY  GI  FUITE  EDMONTONTICKE  J. RAY McDE	°F. °F. • No. D 0234 RMOTT & CO   NO.	8	ppm. ppm. Date	Elevation NOT REP  Bottom Hole Choke Size  Fluid Cushion Type  MUD AN  Mud Type  Filter Cake 2/32 \( \)  Time Taken  Contractor S & T  Drill Pipe Size 3 1/2  Drill Collar Size  Main Hole Size 8 3/4  Rat Hole Size  MARCH 26, 1969 Test  Address 2	1/2"   Amt
Recovery Water Aud Pit sample filtr District Company Well Name	RESISTIVITY  All  Falle  LDMONTONTICKE  J. RAY McDE  MCF GCO Nor	°F. °F. ° D 0234 RMOTT & CO INC	8 . KE YT K-1	ppm. ppm. Date	Elevation Not REP Bottom Hole Choke Size Fluid Cushion Type  MUD AN Mud Type Filter Cake 2/32 \( \) Time Taken Contractor S & T Drill Pipe Size 3 1/2 Drill Collar Size Main Hole Size 8 3/4 Rat Hole Size MARCH 26, 1969 Test Address 2	Amt.  Amt.  ID HOLE DATA  W.L. 8.4  Visc. 60 Wt. 9.1  DRILLING Rig No. 1  IF  Length  No. 4 J.T. No.  17-ROYALITE BUILDI
Recovery Water Aud Pit sample filtr District Company Well Name Number	RESISTIVITY  GO  FOR THE TOTAL TO THE T	°F. °F. °F. ° D 0234 RMOTT & CO INC THUP TAYLOR LA	8 . KE YT K-1	ppm. ppm. Date	Elevation Not REP Bottom Hole Choke Size Fluid Cushion Type  MUD AN Mud Type Filter Cake 2/32 \( \) Time Taken Contractor S & T Drill Pipe Size 3 1/2 Drill Collar Size Main Hole Size 8 3/4 Rat Hole Size MARCH 26, 1969 Test Address 2  AKE Province	Amt.  Amt.  Amt.  D HOLE DATA  W.L. 8.4  Visc. 60 Wt. 9.1  DRILLING Rig No. 1  IF  Length  No. 4 J.T. No.  17-ROYALITE BUILDI ALGARY 2, ALBERTA  N.W.T.
Recovery Water Aud Pit sample filtr District Company Well Name Number	RESISTIVITY  GO  EDMONTONTICKE  J. RAY McDE  MCF GCO NOR  65 54'39.0  133 03'00.0	°F. °F. °F. RMOTT & CO INC. THUP TAYLOR LA	8 KE YT K-1 Field TAY Co. Rep	ppm. ppm. Date	Elevation NOT REP Bottom Hole Choke Size Fluid Cushion Type  MUD AN Mud Type Filter Cake 2/32 Time Taken Contractor S & T Drill Pipe Size 3 1/2 Drill Collar Size Main Hole Size 8 3/4 Rat Hole Size MARCH 26, 1969 Test Address 2  AKE Province HALKOW (CONSULTANT)	Amt.  Amt.  Amt.  D HOLE DATA  W.L. 8.4  Visc. 60 Wt. 9.1  DRILLING Rig No. 1  IF  Length  No. 4 J.T. No.  17-ROYALITE BUILDI ALGARY 2, ALBERTA  N.W.T.
Recovery Water Aud Pit sample filtr District Company Well Name Number	RESISTIVITY  Falle  EDMONTONTICKE  J. RAY McDE  MCF GCO Nor  65 54'39.0  133 03'00.0  7390 - 7304	°F. °F. °F. RMOTT & CO INC. THUP TAYLOR LA	8 KE YT K-1 Field TAY	ppm. ppm. Date	Elevation Not REP Bottom Hole Choke Size Fluid Cushion Type  MUD AN Mud Type Filter Cake 2/32 \( \) Time Taken Contractor S & T Drill Pipe Size 3 1/2 Drill Collar Size Main Hole Size 8 3/4 Rat Hole Size MARCH 26, 1969 Test Address 2  AKE Province	Amt.  Amt.  Amt.  D HOLE DATA  W.L. 8.4  Visc. 60 Wt. 9.1  DRILLING Rig No. 1  IF  Length  No. 4 J.T. No.  17-ROYALITE BUILDI ALGARY 2, ALBERTA  N.W.T.
Recovery Water Aud Pit sample filtr District Company Well Name	RESISTIVITY  Falle  EDMONTONTICKE  J. RAY McDE  MCF GCO Nor  65 54'39.0  133 03'00.0  7390 - 7304	F. F. P.No. D 0234 RMOTT & CO INC THUP TAYLOR LA OO OO OO DST#4	8 KE YT K-1 Field TAY Co. Rep	ppm. ppm. Date	Elevation NOT REP Bottom Hole Choke Size Fluid Cushion Type  MUD AN Mud Type Filter Cake 2/32 Time Taken Contractor S & T Drill Pipe Size 3 1/2 Drill Collar Size Main Hole Size 8 3/4 Rat Hole Size MARCH 26, 1969 Test Address 2  AKE Province HALKOW (CONSULTANT)	Amt.  Amt.  Amt.  D HOLE DATA  W.L. 8.4  Visc. 60 Wt. 9.1  DRILLING Rig No. 1  IF  Length  No. 4 J.T. No.  17-ROYALITE BUILDI ALGARY 2, ALBERTA  N.W.T.



		D 0 <b>23</b> 48	PRESSURE DATA	FLUID SAMPLE REPORT
INSTRUMENT No		AK1-2095	AK1-1935	Sample No.
CAPACITY (psig)		7450	7000	Туре
INSTRUMENT DEPTH FT		7397	7411	Depth
INSTRUMENT OPENING		OUTSIDE	OUTSIDE	Volume
PRESSURE GRADIENT psi/FT		tr and the control of		
WELL TEMP "F		208 <b>°</b>	208°	
Minimum (Minimum and Control of the		· · · · · · · · · · · · · · · · · · ·		Sample Pressure:
INITIAL HYDROSTATIC	A	35 <b>15</b> #	3520#	psig. at Surfac
FIRST FLOW	В	140#	143#	Gravity API @
B-1	-	151#	156#	Gas/Oil Ratio Cu.Ft. bb
INITIAL SHUT IN	c	2832#	2833#	
SECOND FLOW	D	222#	225#	
D-1		410#	414#	Recovery:
SECOND SHUT IN	ε	The state of the second state of the state o		Cu. Ft. Gas
THIRD FLOW	F			cc. Oil
Minimum and component of the component and an incomposite analysis and an incomposite ano				cc. Water
FINAL SHUT-IN	G	2823#	2826#	cc. Mud
FINAL HYDROSTATIC	н	3498#	3504#	Total Liquid cc.
REMARKS:				
	******			
			PRESSURE INCREMENT	rc

POINT	PRESSURE	<u> Τ + Δ †</u> Δ †	POINT MINUTES	PRESSURE	<u> </u>	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	
		tari (da dalah salah - ) dalah kabupy yang Myanga sagah gilah gari yang sagar da sagar sagar sagar sagar sagar							
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- A. Initial Hyd. Mud
- 8. 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).

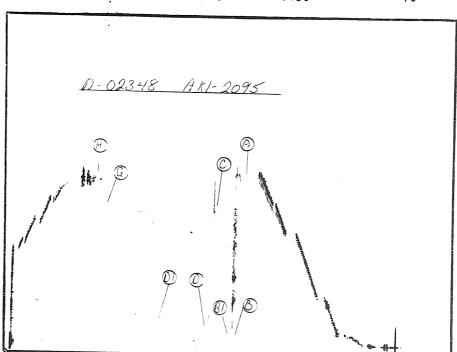
- A-1, A-2, A-3, etc. Initial Hyd. Pressures B, B-1, Initial Flow Pressures
- C, Initial Shut-In
- D-1, D-2, D-3, etc. Second Flow Pressures E, Second Shut-In F, F-1, F-2. Third Flow Pressures

- G, Final Shut-In
- H, Final Hyd. Pressures
- Z Special pressure points such as pumping pressures recorded for formation breakdown.

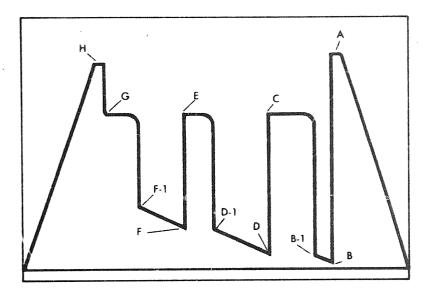


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RECORDER NO. AK1-2095 CAPACITY 7450







- 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 rones).

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

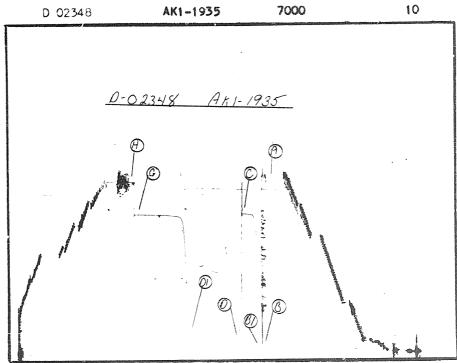
Z - Special pressure points such as pumping pressures recorded for formation breakdown.



FIELD REPORT NO.

RECORDER NO.

CAPACITY



Well Name McD. G.C.O. Northup Taylor	Laite Y. T. K-15 Test No 5					
Company J. Ray McDermott Canada Ltd.	Date Test Run . March. 26., . 1969					
Testing CompanyJohnson Testers Ltd	Operator J. Mooney					
	(Hookwall) (Formation) Size Choke					
Other Equipment						
Nud Wt9.2, Vis60, W.L8.4,	pH10.5					
Interval Tested: From 5640 to 5740	Formation Bear Rock					
Full hole	Pre-flow 4 min. Time initial shut-in started 30 min. M.					
Casing 9.5/8" to 900	Time test tool opened 60 min. M.					
게 샤	Time test tool closed 60 min. M.					
Upper Packer set at	Time packer pulled loose					
Main Packer set at	Valve open 60 min. Shut in 30 + 60 min.					
3) (	Description of blowAir					
- K						
Rat hole at	Gas to surface in min. at nil Mcf/day					
Rat hole size	Maximum gas flow					
	Flow stabilized in min. at Mcf/day Measurud by: (manometer) (pres. guage) (side static)					
Length of tested interval 100	Gas sample saved after min.					
Casing perforations	Was flare lit Length of flame					
to	Fluid to surface in min.					
1 1 1 1 2	Nature of fluid flow <u>nil</u>					
Bottom Packer set at5.7.40	No					
	. Was test a misrun					
Total Depth	Cause of misrun					
Remarks: Good initial puff on preflow. F	aint blow on valve open increasing to good air					
blow in 10 min. and remaining ste	ady throughout remainder of test.					
RECOVERY:	1270					
	pipe: 1270 feet barrels					
	Oil: barrels ater: 1270 feet barrels					
	Mud: feet barrels					
	ft					
PRESSURE CHART READINGS: Field Pressure						
	psi. After pulledpsi. 2735psi.					
•	psi. Maximum Final					
	.psi Final					
Flow period	Bomb capacitypsi.					
Engineer: J. Britton & T. Nagle						

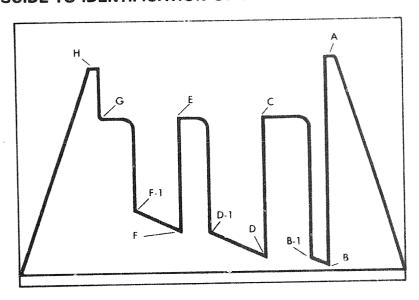


TEST DATA	TOOL SEQUENCE			
Formation Zone Thickness Ft.	Тоо!	Length O.D.		
Interval 5640 To 5740 TD 7804 Ft	D. P. SuB.	.90		
Type of Test Open Hole, STRADDLE, BYPASS.	MEE TOOL	9.10		
Time Started in Hole 1830 Hrs Tool Opened 2119 Hrs	BYPASS TOOL	3,00		
First Flow 4 Min Initial Shut-In 30 Min.	SuB.	.85		
Second Flow 60 Min Second Shut In Min.	JARS	6,60		
Third Flow Min Final Shut in 60 Min	SuB.	.80		
Pulled Loose (at 2353 Hrs. Out of Hole 0330 Hrs.	SAFETY JOINT			
Wt. Set. on Packers 45,000 # Pulled Losse Wt #	S. S. & PACKER			
Description of Blow During Test	T. C. & PACKER	5.70		
FAIR AIR PLOW, INCREASING TO GOOD.	TOTAL	37.95		
TAIR AIR PLOW, INCREASING TO GOOD!	1 1 2 1 2 3	in the second of		
	STUB.	1.50		
FLUID RECOVERY Was Test Reverse Circulated Yes Noxxx.	PERE.	23,00		
Total Fluid Recovered 1270 Ft		85		
Description of Fluid Recovered	0	4.40		
1270' MUDDY, SALT WATER.	RECORDER	4,40		
ITIA MANNI SWEL MULEUY	SuB.	.80		
The second of th	DRILL COLLAR			
AND THE RESERVE TO SERVE AND THE SERVE THE SER	Sua.	.85		
A CONTRACT OF THE CONTRACT OF	I. C. & STUB.			
	11	100.33		
THE PROPERTY OF THE CONTROL OF THE C	I J I M I I I I I I I I I I I I I I I I	A STATE OF STATE AND ADDRESS ASSESSMENT ASSE		
GAS BLOW MEASUREMENT	PACKER	3,00		
Measured With I.D. Riser		6.95		
Type of Instrument	PERE	4,00		
Time Sice. Choke Reading par inches M Cubic Feet, Day	Sua.	.65		
	DRILL PIPE	2047.00		
AND I STATE OF THE PROPERTY OF	SuB.	.75		
AND A STATE OF THE	B. N. & PERF.	2.35		
	TOTAL BELOW INTY.	2064.70		
4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
A CANADAMAN CONTRACTOR OF THE				
WINDS CO. 10 VI				
	TOTAL LENGTH	2202.98		
	Elevation NOT REPO	ORTED.		
	Bottom Hole Choke Size	1/2"		
REMARKS	Fluid Cushion Type	Amt.		
TEST SATISFACTORY.		HOLE DATA		
	Mud Type	W.L. 8.4		
The state of the s		c 60 Wt. 9.3		
	Time Taken			
The state of the s		DRILLING RIG No. 1		
	Drill Pipe Size 3 1/2			
RESISTIVITY CHLORIDE CONTENT		Length		
Recovery Water # F 15,000 ppm	and become and an investment of the second	Law source property in the activities of the activities and source and source and source and activities are source.		
Mud Pit sample filtrate 69 F ppm		o 5 J.T. No 5		
and the second s	MARCH 26, 1969 Test N	o 5 J.T. No 5 -ROYALITE BUILDING		
Company J. RAY MCDERMOTT & CO INC				
Well Name MCD GO NORTHUP TAYLOR LAKE YT K-15		GARY 2, ALBERTA		
Number 65 54 '39.00 Field TAYLOR	programme and the second contract of the seco	N.W.T.		
and the second s	NAGLE	The second of th		
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133 ()31()0.00 Co. Rep. 1 and Interval: 5640 = 1740 DST#5 Technician	J. MOONEY			
The second secon	J. MOONEY			
and Interval 5640 - 740 DST#5 Technician	J. MOONEY			



			D 02349		RESSURE	DATA			APLE REPORT
Andrew Control of the			AK1-2095	AK1-1	935			Sample No.	
NSTRUMENT No			7450	7000				Туре	
CAPACITY (psig)	ET		74 JU 5665	5670				Depth	f
NSTRUMENT DEPTH			OUTSIDE	OUTSI	D.F.	and a respective to a supplier property of expenses of the best property of the supplier of th	AND THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.	Volume	
INSTRUMENT OPEN			ONISIOE	- 50131	-	ern mende before til støreggeren mende mende de tradessattet for menne ette et demande ette ette ette ette ette			
PRESSURE GRADIEN	. psi/ r i		200°	200°					
WELL TEMP "F	.,	+	200	200				Sample Pressure	
	***		2721#	2722#					psig. at Surface
INITIAL HYDROSTA	TIC		2721#	1014				Gravity	API @
FIRST FLOW		В	96#	127		ar pompo remo essenciona estimatorio este en mandatorio del contrato e contrato del	AND DESCRIPTION OF THE PROPERTY OF THE PROPERT	Gas Oil Ratio	Cu.Ft., bb
	B-1_		120#	2086	·				
INITIAL SHUT IN		-	208 <i>5#</i> 151#			and the same tipped and the same an association and the same association and the same and	the company or a hope to high entering district space and arrival		
SECOND FLOW		- 0	151#	1.54%		manda and an analysis of the second s		Recovery:	
approximation of the state of t	0-1	E	56 ¥	5704	-	to a contract of a subspace of the contract of		Cu. Ft. Ga	S
SECOND SHUT IN		. +	The second second second second second second second			TO COMME TO MAKE THE PROPERTY AND STREET, AND STREET,		cc. Oil	A grant program and the control of t
THIRD FLOW		F	Commence of the second control of		AND	AND THE RESERVE OF THE PARTY OF		cc. Water	
Market allegated at 1988 to 19	March 1977	1	, and the second section of the second		server dealers and the server	designed to the second contract of the second secon		cc. Mud	removes any extremely account or the relay of the last described in the common way and the contract of the con
FINAL SHUT-IN			207 <b>9</b> #	2081				Total Liquid ci	
FINAL HYDROSTAT	IC		268 <b>3#</b>	2684	<u> </u>				
REMARKS:			manufactura in particular and a communication of the communication of th						
The second secon					management and the second consequences	and assessment, respectively. The control of the co		er. I servendel et eine verkelengte. Ekserteksen von	
	approximation is the same make 1977.								
	y			PR	ESSURE IN	CREMENTS			ann an ann an Aire an
		Т	, A <b>†</b>	POINT	PRESSURE	$T + \Delta T$	POIN		$\frac{T + \Delta t}{\Delta t}$
POINT PRES	SURE	******	<u>+ 4 †</u> 4 †	MINUTES	アポニンンリドヒ	$\frac{1 + \Delta \uparrow}{\Delta \uparrow}$	WINU	rES	Δ <b>†</b>
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- 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

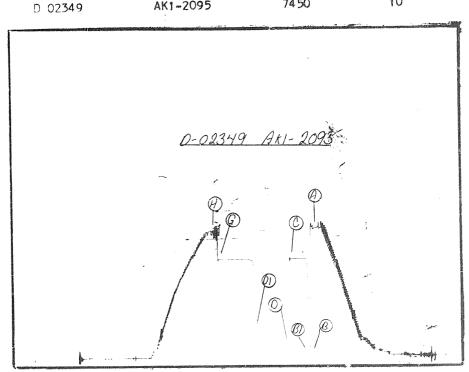
H, Final Hyd. Pressures

 ${\sf Z}-{\sf Special}$  pressure points such as pumping pressures recorded for formation breakdown.

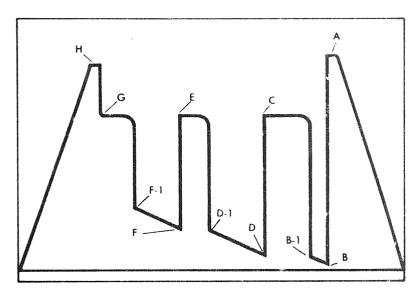


FIELD REPORT NO.

RECORDER NO. AK1-2095 CAPACITY 7450







- 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.

