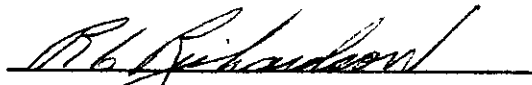


WELL HISTORY REPORT

S.O.B.C. CS GREAT BEAR RIVER N-30

January 12, 1972



R. C. RICHARDSON, P. Eng.

Project Manager



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WELL HISTORY REPORT

S.O.B.C. CS GREAT BEAR RIVER N-30

SECTION I - SUMMARY OF WELL DATA

a) Well Name and Number

S.O.B.C. CS Great Bear River N-30.

b) Permittee, Licence or Lessee

S.O.B.C. - 50%, Cities-Service - 50%

c) Name of Operator

Chevron Standard Limited
400 Fifth Avenue S.W.
Calgary 1, Alberta

d) Location

Unit N; Section 30; Grid: 65°00'N, 124°00'W.

e) Co-ordinates

Latitude 64°59'45"N, Longitude 124°04'51"W.

f) Permit or Lease Number

Permit No. 4983

g) Drilling Contractor

Tri-City Drilling Ltd., Rotary Rig number Two.

h) Drilling Authority

No. 521 issued March 24, 1971.

i) Classification

Wildcat

j) Elevations

Ground Elevation: 815', K.B. Elevation: 827'

k) Spudded

1700 Hrs. November 22, 1971

l) Completed Drilling

1500 Hrs. December 6, 1971

m) T.D. and P.B.T.D.

T.D. 2515' P.B.T.D. - Surface

n) Well Status

Dry and abandoned

o) Rig Release Date

12:00 Midnight December 11, 1971

p) Hole Sizes to Total Depth

12-1/4" Hole to 682'
7-7/8" Hole to 2515'

q) Casing

8-5/8", 24#, K-55, ST & C Casing set at 674.90' K.B.

SECTION II - GEOLOGICAL SUMMARY

a) <u>Formation</u>	<u>Sample Tops</u>	<u>Log Tops</u>
Glacial Drift	0-550	-
Cretaceous	550	-
Cretaceous Shale	930	925
Cretaceous Basal Sandstone	Absent	Absent
Silty Zone	2040	2010
Paleozoic-Landry	2244	2250
Arnica	2397	2428
Bear Rock	2490	2486

b) Cored Intervals

Core #1 - 2200-2250' Cretaceous/Devonian

Core #2 - 2252-2311' Devonian

Core #3 - 2311-2315' Devonian

c) Cored Descriptions

S.O.B.C. CS Great Bear River N-30

Core #1 2200-2250' Cretaceous/Devonian

2200.0-2224.8 Siltstone and shale. Predominantly (75%) siltstone soft-rock conglomerate in dark grey shale matrix. Indistinct bedding, one thin (0.1 foot) coarse grained tight quartzose sandstone bed.

2224.8-2245.1 Shale, dark grey with 10% siltstone as above. Some current-bedded siltstone, but most occurs as soft-rock conglomerate. Thin (0.2 foot) coarse grained, poorly sorted, tight sandstone bed at 41.0 feet.

2245.1-2252.0 Limestone, dark brown, micro-crystalline. This is rubble in black calcareous shale. One small (2 cm) brach noted.

Coring Times:

2200-2210	26, 34, 4, 5, 22, 22, 25, 23, 20, 25
10-2220	25, 25, 25, 21, 22, 21, 25, 24, 23, 26
20-2230	24, 25, 23, 23, 25, 25, 23, 27, 26, 33
30-2240	34, 30, 26, 24, 25, 33, 26, 22, 28, 23
40-2250	21, 29, 30, 31, 30, 35, 39, 40, 30, 54?
50-2252	40, 60.

S.O.B.C. CS Great Bear River N-30

Core #2 2252-2311' Devonian

Cut 59' - Recovered 37' - Lost 22'

2252.6-2254.0	Limestone, rubbly, dark brown, microcrystalline, in black calcareous shale matrix.
2254.0-2267.7	Limestone and shale. Thin (3 cm - 10 cm) interbedded black calcareous shale and dark brown crypto crystalline limestone.
2267.7-2282.7	Limestone, dark brown, microcrystalline, with some zones of thinly interbedded black calcareous shale.
2282.7-2787.6	Shale and limestone, interbedded above types, shale predominant.
2287.6-2289.1	Limestone olive grey, lithographic Ostracods? Pellets? very faint.

Coring Times:

2252-2260	30, 34, 23, 32, 49, 42
61-2270	45, 35, 36, 30, 32, 35, 36, 32, 36, 36
71-2280	46, 40, 30, 26, 33, 34, 34, 36, 36, 33
81-2290	33, 36, 36, 34, 30, 30, 32, 35, 50, 37
91-2300	32, 45, 47, 47, 45, 32, 60, 55, 30, 33
2301-2311	47, 55, 35, 38, 38, 32, 33, 38, 37, 37?

Core #3 2311-2315' Devonian

Cut 4' - Recovered 4'

2311-2315	Limestone, dark brown and dark olive, crypto-crystalline.
-----------	---

Coring Times:

2311-2315	36, 36, 36, 36.
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d) Sample Descriptions

S.O.B.C. CS Great Bear River N-30 - K.B. 828'

Sample Description

0-70	Claystone, grey with imbedded arkosis sandstone grains.
70-100	Gravel, derived from preCambrian
100-230	Claystone grey with imbedded arkose.

Sample Description (continued)

230-400	Gravel and sand.
400-460	Claystone as above.
460-540	Gravel and boulders from preCambrian.
675-	Surface casing.
540-690	Siltstone, light grey, quartzose, very slightly calcareous, very slightly glauconitic argillaceous, tight.
690-720	Siltstone, as above, and some floating coarse sand grains in matrix of white bentonitic claystone matrix. Abundant shield-derived pebbles and fragments. Traces of brown, micro-crystalline dolomite (typical Devonian Bear Rock formation).
720-730	Sandstone, coarse quartzose sandstone in firm white bentonitic claystone matrix.
730-780	Siltstone and conglomerate? Siltstone, light grey, quartzose, argillaceous. Dolomite (Bear Rock formation) up to 25% and abundant preCambrian derived pebbles. Some grains and pebbles in white claystone matrix. These rocks drill like homogeneous rocks, not like a conglomerate.
780-790	Dolomite, dark brown, micro-crystalline (suspect these may be chips and small pebbles in white claystone matrix).
790-810	Siltstone, preCambrian pebbles, and Bear Rock dolomite.
810-820	Dolomite (Bear Rock).
820-860	Siltstone, white bentonitic claystone with pre-Cambrian pebbles.
860-870	Dolomite (Bear Rock).
870-930	Siltstone, white bentonitic claystone with quartz and preCambrian pebbles and sand, and Bear Rock dolomite.
940-	Lost circulation.
930-950	Shale, black, platy, micro-micaceous.
950-1070	Shale as above, with laminae of light grey, micro-micaceous, slightly glauconitic siltstone.
1070-1080	Siltstone, light grey, quartzose, micro-micaceous, slightly glauconitic.
980-1350	Shale, dark grey, silty, micro-micaceous with occasional light grey quartzose siltstone lamina. Some ironstone from 1240.
1350-2030	Shale, dark grey, micro-micaceous, blocky, rare glauconite lamina.
2030-2140	Siltstone, salt and pepper, calcareous cement, slightly glauconitic. Dark grey shale interbeds. Carbonaceous partings.
2140-2170	Siltstone, as above, and siltstone, dark grey argillaceous.

Sample Descriptions (continued)

2170-2200	Siltstone, as above, very glauconitic.
2200-2252	Start Core #1 - see core description.
2252-2311	See Core #2.
2311-2315	See Core #3.
2320-2380	Limestone, dark brown, dark olive, micro-crystalline. Abundant calcite crystals and veining. Possible black calcareous shale interbeds. Traces of Ostracods.
2350-2400	Limestone, dark cream and dark olive, crypto crystalline. Tr. pelletal limestone.
2400-2430	Dolomite, brown and dark brown, argillaceous. Trace of pin-point porosity. Estimated porosity 10% in 5% of sample. No oil show.
2430-2440	Dolomite as above. Good porosity (15%) vuggy and intercrystalline from 2430-2435. No oil shows.
2440-2490	Dolomite, dark brown and brown, argillaceous with interbedded dark grey shale.
2490-2515	Anhydrite, light brown.
2515'	T.D.

e) Paleontological Determinations

No paleontological determinations.

SECTION III - ENGINEERING SUMMARY

a) D.S.T. #1 2396-2515' Bottom Hole Test.

Zone Arnica

Times Preflow 3 mins.
ISI 60 mins.
VO 60 mins.
FSI 120 mins.

Recovered 80' drilling mud.
532' salt water
7700 ppm. Na Cl.

Pressures IHP 1111 psi FHP 1109 psi
ISIP 984 psi FSIP 869 psi
IFP 85 psi FFP 295 psi
BHT: 94°F.

Remarks Test satisfactory.

D.S.T. #2 2298-2348 Straddle, Bypass Test.

Zone Landry

Times Preflow 3 mins.
ISI 60 mins.
VO 30 mins.
FSI 120 mins.

Recovered 140' Drilling fluid
1335' Fresh water.

Pressures IHP 1087 psi FHP 972 psi
ISIP 958 psi FSIP 958 psi
IFP 445 psi FFP 704 psi
BHT: 94°F.

Remarks Test satisfactory.

b) Casing Record

No conductor pipe set.

Surface Casing

Ran 20 joints (662.48') of 8-5/8", 24#, K-55, ST & C, new seamless casing, landed at 674.90' K.B., cemented with 90 sacks permafrost cement and tailed in with 325 sacks of construction cement plus 3% Ca Cl₂ plus 0.5% CFR-2. Cement displaced with 42 Bbls. of water. No cement returns.

Surface Casing (continued)

Recemented with 2" pipe down annulus with 42 sacks construction cement plus 3% Ca Cl₂ - Permafrost cement returns.

Note: The drilling authority had approved the setting of 300' of surface casing, however, the glacial drift formation was 550' thick and it was decided to run the additional casing to comply with the ~~State~~ ^{On-site Minimum Drilling} request of April 2, 1971, to make sure that the casing is set a minimum of 75' into a competent formation.

No intermediate and no production casing strings were run.

c) Bit Record

See attached sheet for Bit Record.

d) Mud Report

The hole was drilled using a gel-chemical system; the additives were as follows:

Gel	529 sax
Caustic	15 sax
Sawdust	55 sax
Soda Ash	15 sax
Spersene	3 sax
Peltex	2 sax
Fertilizer	3 sax
CMC	1 sax.

e) Deviation Record

<u>Depth</u>	<u>Survey</u>	<u>Depth</u>	<u>Survey</u>
121	3/4°	873	3/4°
245	3/4°	1219	3/4°
332	1°	1623	1°
454	1°	2129	2 1/2°
567	1°	2287	2°
650	1°	2515	2-3/4°
682	7/8°		

f) Abandonment Plug

Plug #1 (2300-2515') 90 sax construction cement.
Plug #2 (900-1070') 100 sax construction cement + 3% Ca Cl₂
felt plug at 870'.
Plug #3 (630-730') 70 sax construction cement + 3% Ca Cl₂
felt plug at 617'.

Abandonment Plug (continued)

Plug #4 (Surface plug) 5 sax construction cement. Well capped with well identifier.

g) Lost Circulation Zones

Lost circulation at 940' in Cretaceous. Lost approximately 200 Bbls. fluid total. Regained circulation by raising viscosity with bentonite and caustic, and adding 15 sax of sawdust.

h) No blowouts.

SECTION IV - LOGS

The following Schlumberger logs were run December 7, 1971:

Dual induction laterolog 675-2515'
B.H.C. Sonic/Gamma Ray/Caliper 675-2515'
Formation density-compensated 2000-2515'.

SECTION V - ANALYSIS

- a) Core analysis - dense - not analyzed.
- b) Water analysis - enclosed in back folder.
- c) No gas analysis.
- d) No oil analysis.

SECTION VI - COMPLETION SUMMARY

- a) No tubing run.
- b) No perforations.
- c) Abandonment Plug #1: (2300-2515') Arnica and Bear Rock.
Cemented with 90 sax construction cement.
Cement in place 4:45 P.M., December 10, 1971.
No tag.

Abandonment Plug #2: (900-1070') Cretaceous.
Cemented with 100 sax construction cement plus 3% Ca Cl₂. Cement
in place 6:00 P.M., December 10, 1971. Tagged plug #2 at 870',
after 8 hours W.O.C.

Abandonment Plug #3: (630-730') Cretaceous.
Cemented with 70 sax of construction cement plus 3% Ca Cl₂. Cement
in place 7:00 A.M., December 11, 1971. Tagged plug #3 at 617' after
12 hours W.O.C.

Abandonment Plug #4: (Surface Plug).
5 sax plug in top of casing and welded in steel plate and well
identifier sign.

- d) No acidizing or fracturing.
- e) No production tests.

CHEVRON STANDARD LIMITED BIT RECORD

WELL NAME S.O.B.C. CS Great Bear River
N-30

CONTRACTOR Tri-City

RIG No. 2

PUMP No 1 D-300

DATE Nov. 22/71

RIG RELEASED Dec. 11/71

DRILLING DAYS 14

PUMP No 2 -

NO	DATE	TIME	DEPTH	GPM	L.M.	DRILL RATE	NOZZLE SIZE	JET VEL	WEIGHT M #	RPM	No 1 PUMP		No 2 PUMP		PUMP PSI	HHP AT BIT	OP ANN	GC ANN	MUD		DULL COND			DEV
											INCH	CM	INCH	CM					WT	VS	1	2	3	
							1-24																	
1			12' GOC-	0	285	285	14-3/4	2-18	10	100	6-3/4	72			650				-	36	6	2	1	3/4°
2			" "		285	454	169	11		100	6-3/4	72			650					55	6	2	1	1°
3A			HTC 8-5/8GSC-3	454	498	44	1-3/4	2-18	10	100	6-3/4	74			650					85	6	2	1	1°
4			HTC 12" X10	498	520	22	7 1/2	2-18	10	100	6-3/4	74			(Work on boulder in hole)					70	6	2	1	1°
5			HTC 12' GWT	520	632	162	12 1/4	2-24	15	100	6-3/4	72			650					70	5	2	1	7/8°
							1-10																	
1			HTC 7-7/8GSC10	682	1493	816	21	2-11	25	90	6-3/4	65			1200				8.3	28	5	3	1	3/4°
2			HTC 7-7/8 "	1498	2037	569	19	3-11	20	90	5	72			1050				8.6	55	4	2	1	2°
3			HTC 7-7/8GSC10-J1037	2290	133	9-3/4		2-14	25	85	5	72			650				9.1	50	3	5	1	2 1/2°
							1-13																	
10			7-13/16 G 2200	2252	52	24 1/2		-	15	60	5	60			600				9.2	55				
10			R.R 7-13/16 G 2352	2311	59	33 1/2		-	15	60	5	60			600				9.1	55				
10			R.R 7-13/16 G 2311	2313	4	27		-	15	60	5	60			600				9.0	50				
4			HTC 7-7/8ODVJ	2315	2515	200	21-3/4	3-16	25	80	5	72			400				9.0	60	6	8	1	2-3/4

CONFIDENTIAL

UNTIL

30/10/92

SUBC ORIENT BEAR R M-35 70492 31/02/21

64° 59' 45" N 124° 04' 51" W

FLD NAME--	DEPTH	S1	S2	TMAXADJ	PI	TOC	HI
FLD NO.---	1	5	8	9	3	2	6
1-	10.	0.04	0.04	*****	0.50	0.09	44.
2-	40.	0.11	0.06	*****	0.65	0.12	50.
3-	70.	0.09	0.04	*****	0.69	0.07	57.
4-	100.	0.05	0.00	*****	1.00	0.04	0.
5-	160.	0.05	0.00	*****	1.00	0.00	0.
6-	190.	0.21	0.06	*****	0.78	0.18	33.
7-	220.	0.30	0.24	*****	0.56	0.39	62.
8-	250.	0.03	0.06	*****	0.33	0.27	22.
9-	290.	0.60	0.60	425.	0.50	0.66	91.
10-	310.	0.08	0.01	*****	0.89	0.07	14.
11-	340.	0.26	0.20	*****	0.57	0.29	69.
12-	390.	0.12	0.07	*****	0.63	0.17	41.
13-	400.	0.36	0.41	428.	0.47	0.64	64.
14-	430.	0.34	0.32	424.	0.52	0.56	57.
15-	500.	0.31	0.01	*****	0.97	0.04	25.
16-	520.	0.05	0.00	*****	1.00	0.00	0.
17-	560.	0.36	0.14	*****	0.72	0.21	67.
18-	590.	0.29	0.13	*****	0.69	0.26	50.
19-	610.	0.25	0.14	*****	0.64	0.03	467.
20-	630.	0.74	0.27	440.	0.73	0.31	87.
21-	660.	0.29	0.12	*****	0.71	0.23	52.
22-	670.	0.18	0.07	*****	0.72	0.16	44.
23-	700.	0.09	0.11	*****	0.45	0.09	122.
24-	730.	0.37	0.18	*****	0.67	0.24	75.
25-	760.	0.38	0.16	*****	0.70	0.13	123.
26-	790.	0.36	0.12	*****	0.75	0.12	100.
27-	820.	0.45	0.17	*****	0.73	0.13	131.
28-	850.	0.26	0.08	*****	0.76	0.09	89.
29-	880.	0.23	0.06	*****	0.79	0.12	50.
30-	910.	0.31	0.39	*****	0.44	0.40	97.
31-	940.	0.30	0.13	*****	0.70	0.23	37.
32-	980.	3.87	0.63	*****	0.86	0.59	107.
33-	1000.	0.57	0.89	439.	0.39	0.79	113.
34-	1030.	2.29	1.76	434.	0.57	1.07	164.
35-	1060.	0.34	0.32	438.	0.40	0.71	73.
36-	1090.	0.29	0.33	440.	0.47	0.50	66.
37-	1120.	0.28	0.30	437.	0.48	0.59	51.
38-	1150.	0.24	0.37	439.	0.39	0.61	61.
39-	1170.	0.32	0.46	437.	0.41	0.64	72.
40-	1210.	0.33	0.64	439.	0.34	0.75	85.
41-	1240.	0.31	0.67	437.	0.32	0.79	85.
42-	1270.	0.25	0.50	439.	0.33	0.68	74.
43-	1300.	0.25	0.54	440.	0.32	0.74	73.
44-	1330.	0.23	0.48	438.	0.32	0.71	68.
45-	1360.	0.20	0.50	440.	0.29	0.78	64.
46-	1390.	0.19	0.47	439.	0.29	0.66	71.
47-	1420.	0.24	0.68	439.	0.26	0.82	83.
48-	1450.	0.41	1.07	440.	0.28	0.94	114.
49-	1480.	0.29	0.60	441.	0.33	0.80	75.
50-	1510.	0.39	0.62	438.	0.39	0.79	78.
51-	1540.	0.32	0.78	442.	0.29	0.84	93.
52-	1570.	0.27	0.57	440.	0.32	0.79	72.
53-	1600.	0.21	0.48	443.	0.30	0.78	62.
54-	1630.	0.23	0.55	443.	0.29	0.80	69.
55-	1660.	0.24	0.51	445.	0.32	0.71	72.
56-	1690.	0.27	0.49	443.	0.36	0.77	64.
57-	1720.	0.22	0.50	442.	0.31	0.69	72.
58-	1750.	0.22	0.25	442.	0.47	0.61	41.
59-	1780.	0.31	0.25	444.	0.55	0.57	44.

60-	1810.	0.23	0.36	443.	0.39	0.64	56.
61-	1840.	0.20	0.25	443.	0.44	0.59	42.
62-	1870.	0.18	0.26	444.	0.41	0.52	50.
63-	1900.	0.26	0.25	440.	0.51	0.50	50.
64-	1930.	0.23	0.25	444.	0.48	0.51	49.
65-	1960.	0.33	0.28	443.	0.54	0.54	52.
66-	1990.	0.30	0.24	445.	0.56	0.61	39.
67-	2020.	0.39	0.32	443.	0.55	0.64	50.
68-	2050.	0.31	0.39	443.	0.44	0.70	56.
69-	2080.	0.40	0.43	443.	0.48	0.62	69.
70-	2110.	0.28	0.31	445.	0.47	0.46	67.
71-	2140.	0.25	0.35	446.	0.42	0.50	70.
72-	2170.	0.29	0.36	445.	0.45	0.62	58.
73-	2200.	0.29	0.34	445.	0.46	0.54	63.

**** NUMBER OF VECTORS TESTED = 73

**** NUMBER OF VECTORS LISTED = 73



TECHNICAL REPORT

JOHNSTON

[illegible]



D06425		PRESSURE DATA				FLUID SAMPLE REPORT	
INSTRUMENT NO.		AK1-2527	AK1-2593			Sample No. _____	
CAPACITY (psig)		4000	3250			Type _____	
INSTRUMENT DEPTH FT.		2333	2339			Depth _____	
INSTRUMENT OPENING		Outside	Outside			Volume _____	
PRESSURE GRADIENT psi/FT.							
WELL TEMP. °F. 94							
INITIAL HYDROSTATIC A		1088#	1087#			Sample Pressure: _____ psig. at Surface	
FIRST FLOW B		354#	355#			Gravity API @ °F	
B-1		371#	375#			Gas, Oil Ratio Cu.Ft. bbl.	
INITIAL SHUT-IN C		958#	958#			Recovery: _____ Cu. Ft. Gas _____ cc. Oil _____ cc. Water _____ cc. Mud _____ Total Liquid cc. _____	
SECOND FLOW D		439#	445#				
D-1		702#	704#				
SECOND SHUT-IN E							
THIRD FLOW F							
F-1							
FINAL SHUT-IN G		957#	958#				
FINAL HYDROSTATIC H		970#	972#				

REMARKS:

[illegible]

**JOHNSTON TESTERS**

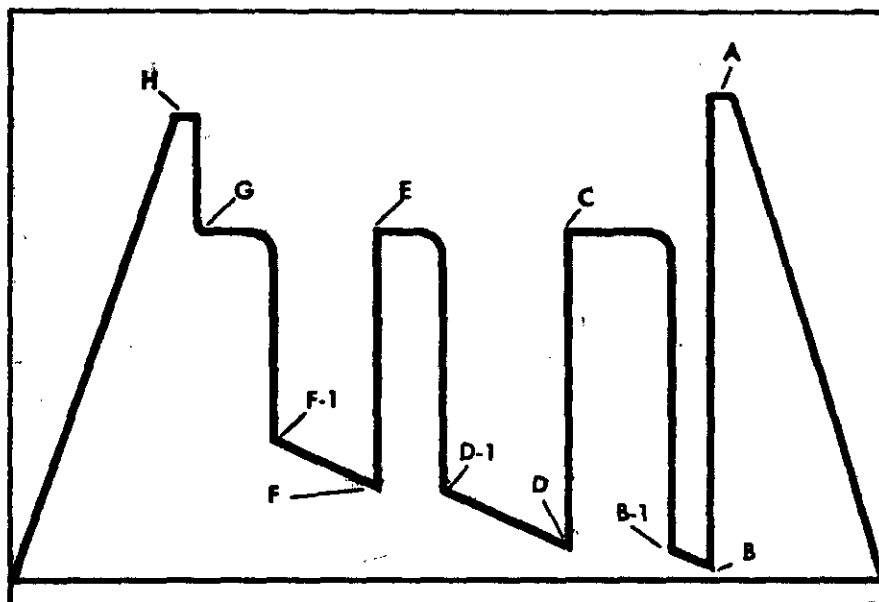
321 50TH AVENUE S.E. • CALGARY 24, ALBERTA • PH. 255-1151

A DIVISION OF SCHLUMBERGER CANADA LIMITED

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTSFIELD
REPORT NO.RECORDER NO.

D06425

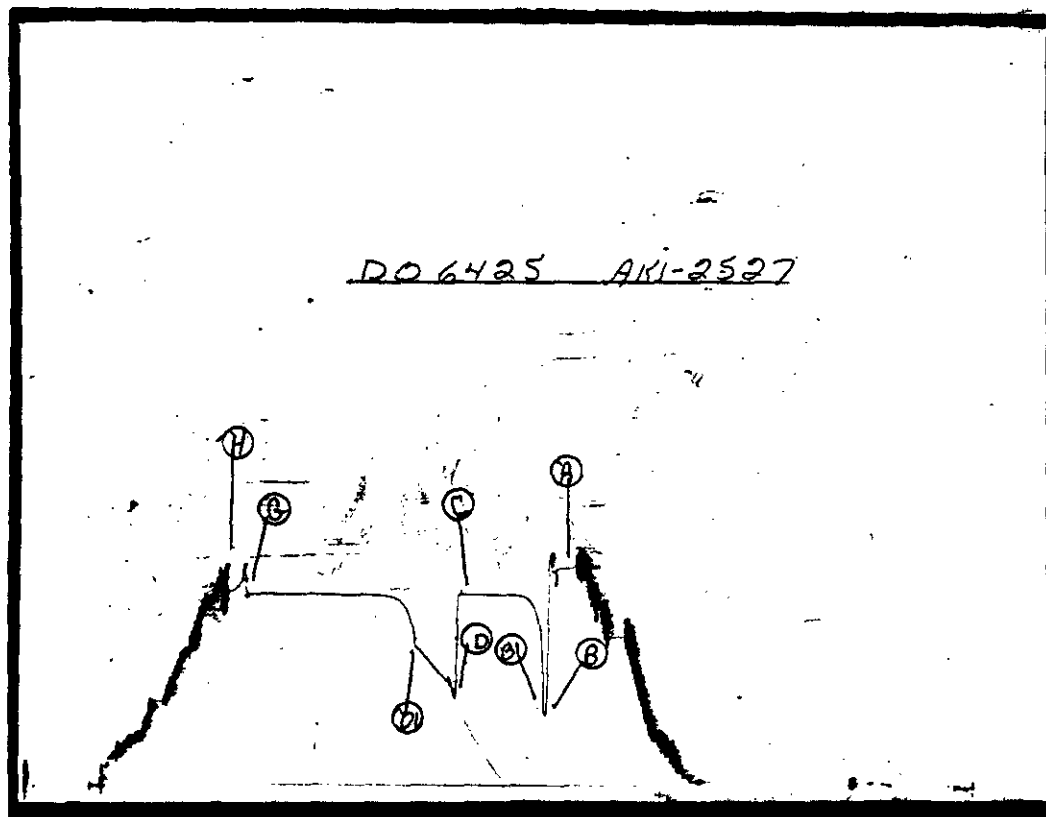
AK1-2527



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



**JOHNSTON TESTERS**

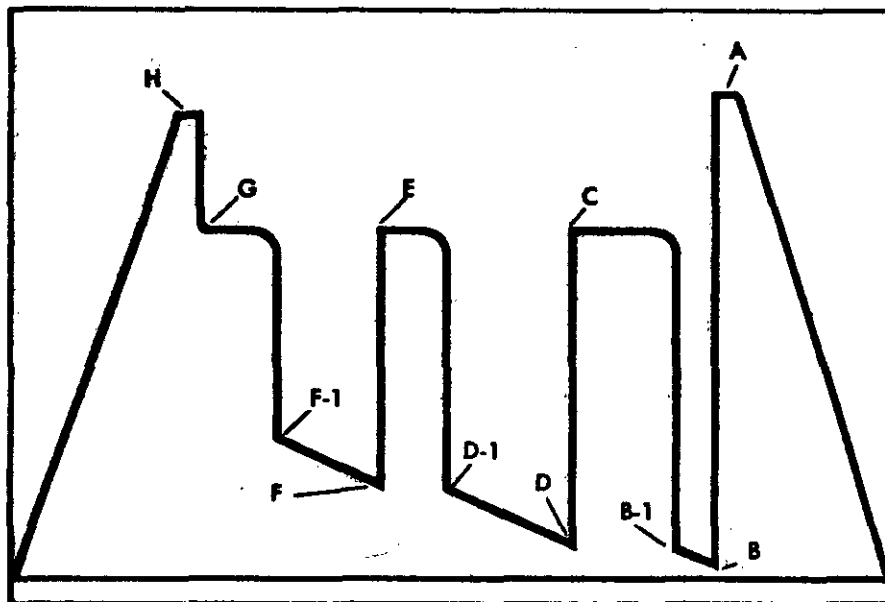
321 - 50TH AVENUE S.E. • CALGARY 24, ALBERTA • PH. 255-1151

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GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTSFIELD
RECORD NO.REORDER NO.

D06425

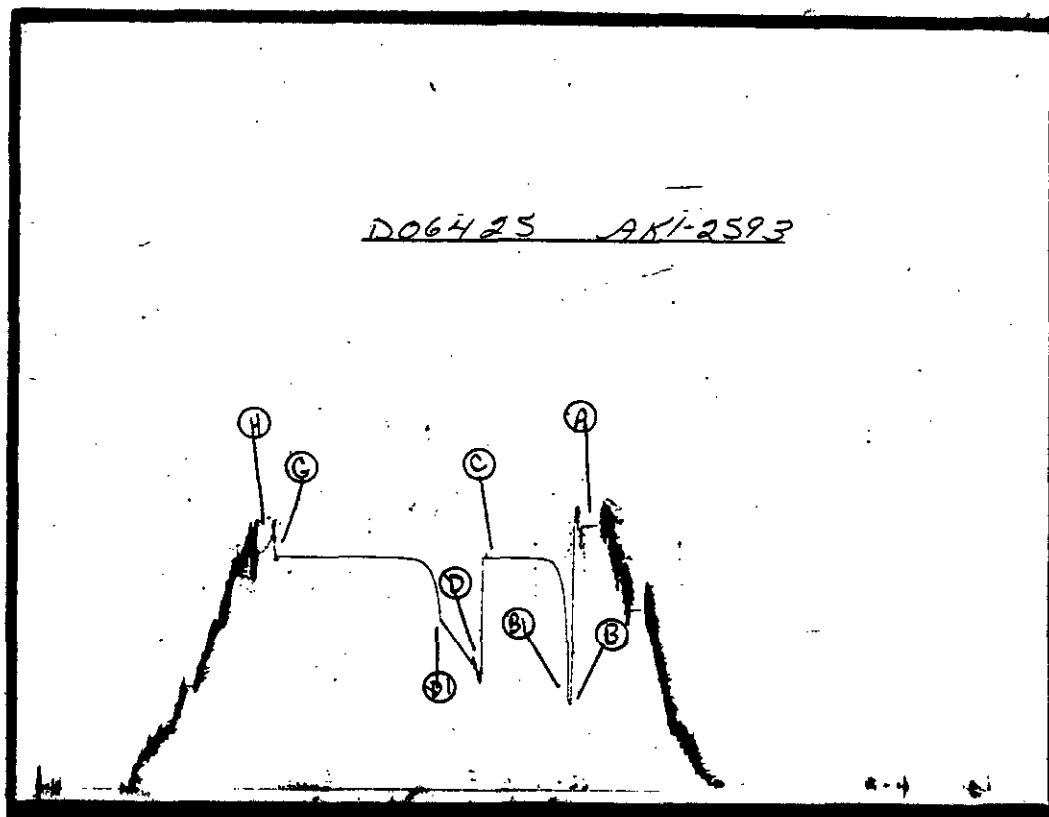
AKI-2593



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





TECHNICAL REPORT

JOHNSTON



JOHNSTON TESTERS 321-50TH AVENUE S.E. • CALGARY 24, ALBERTA • PH. 255-1151
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TEST DATA					TOOL SEQUENCE		
Formation	Zone Thickness		Fr.		Tool	Length	O.D.
Interval	2396	To 2515	T.D. 2515	Fr.	P.O. Sub	.75	
Type of Test	Open hole, Bottom hole.				Sub	.80	
Time Started in Hole	0530	Hrs.	Tool Opened	0703	Hrs.	MFE Tool	9.10
First Flow	3	Min.	Initial Shut-In	60	Min.	Bypass Tool	3.00
Second Flow	60	Min.	Second Shut In		Min.	Jars	6.85
Third Flow		Min.	Final Shut In	120	Min.	Safety Joint	1.75
Pulled Loose @	1120	Hrs.	Out of Hole	1330	Hrs.	S.S. & Packer	9.20 7"
Wt. Set on Packers	40,000	=	Pulled Loose Wt.	15,000	=	T.C. & Packer	5.20 7"
Description of Blow During Test	Weak initial puff, Weak air blow throughout test.				Total	36.65	
FLUID RECOVERY Was Test Reverse Circulated Yes ☐ No ☒ Total Fluid Recovered 612' Fr. Description of Fluid Recovered 80' Drilling fluid. 532' Salt water.					Stub	1.10	
					Perf	5.00	
					Recorder	5.60	
					Perf	5.00	
					Recorder	5.60	
					Perfa	6.00	
					Sub	.85	
					Drill Collar	86.85	
					Sub	.85	
					B.N. & Perf	1.75	
					Total Interval	118.60	
GAS BLOW MEASUREMENT							
Measured With I.D. Riser							
Type of Instrument							
Time	Sfcs. Choke	Reading psi inches	M Cubic Feet Day				
		T.S.T.M.					
REMARKS. Test satisfactory.					TOTAL LENGTH 155.25		
					Elevation 827 KB 815 GL		
					Bottom Hole Choke Size 1/2"		
					Fluid Cushion Type Nil Amt.		
					MUD AND HOLE DATA		
					Mud Type W.L. 9.6		
					Filter Cake 2/32 Visc. 90 Wt. 9.0		
					Time Taken		
					Contractor Tri-City Drilling Rig No. 2		
					Drill Pipe Size 4 1/2" XH		
					Drill Collar Size 2 7/8" ID Length 375'		
					Main Hole Size 7 7/8"		
					Rat Hole Size		
RESISTIVITY					CHLORIDE CONTENT		
Recovery Water	41	°F.	7700	ppm.			
Mud Pit sample filtrate	41	°F.		ppm.			
District	N.W.T.	Ticket No.	D06423	Date	December 8/71	Test No.	1 J.T. No. 1
Company	Chevron Standard Limited			Address #400 - 5th Ave. S.W.			
Well Name	SOBC CS Great River N-30			Calgary 1, Alberta			
Number	64059'45"N 124004'51"W			Field Great Bear River Province N.W.T.			
Formation				Co. Rep. D. Clark			
and Interval	2396 - 2515			Technician J.A. Mooney			
Distribution of Reports							
6 - Calgary Attention: Information Centre							

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A DIVISION OF SHELMBERGER CANADA LIMITED

DOB423		PRESSURE DATA		FLUID SAMPLE REPORT	
STRUMENT No.		AK1-2099	AK1-2593		
CAPACITY (psig)		2000	3250		
INSTRUMENT DEPTH FT.		2402	2413		
INSTRUMENT OPENING		Outside	Outside		
PRESSURE GRADIENT psi/FT.					
WELL TEMP. °F.	94				
INITIAL HYDROSTATIC	A	1105#	1111#		
FIRST FLOW	B	46#	53#		
	B-1	66#	70#		
INITIAL SHUT-IN	C	979#	984#		
SECOND FLOW	D	82#	85#		
	D-1	287#	295#		
SECOND SHUT-IN	E				
THIRD FLOW	F				
	F-1				
FINAL SHUT-IN	G	863#	869#		
FINAL HYDROSTATIC	H	1102#	1109#		
Sample No. _____					
Type _____ 5					
Depth _____ 2370					
Volume _____ 2500 cc					
Sample Pressure: _____					
psig. at Surface					
Gravity _____ API @ _____ °F					
Gas/Oil Ratio _____ Cu.Ft. bbl					
Recovery: _____					
Cu. Ft. Gas _____					
cc. Oil _____					
cc. Water _____					
cc. Mud _____					
Total Liquid cc. _____					

REMARKS: MFE Samples given to D. Clark at location.

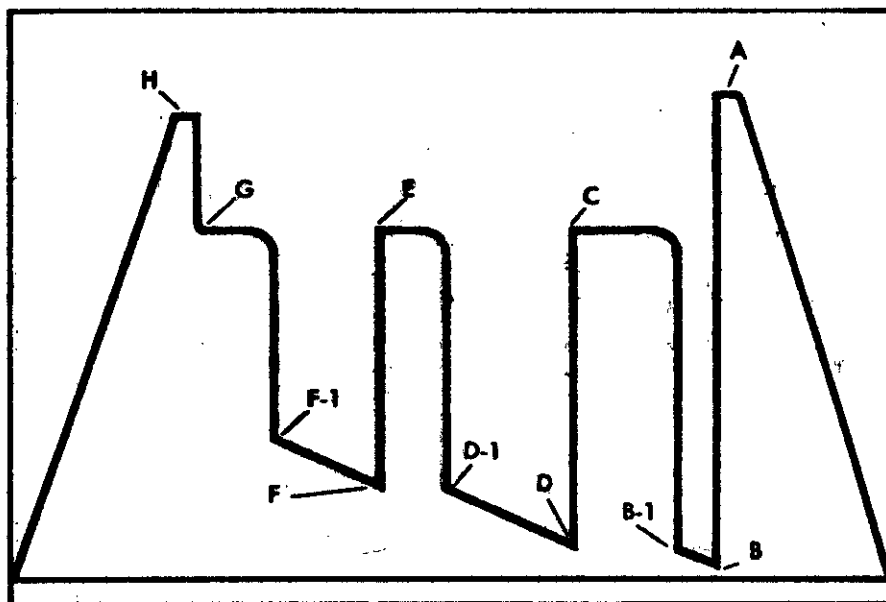
PRESSURE INCREMENTS On recorder # AK1-2593

INITIAL SHUT-IN			FINAL SHUT-IN					
POINT MINUTES	PRESSURE	$\frac{T + \Delta T}{\Delta T}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta T}{\Delta T}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta T}{\Delta T}$
0	70		0	295				
5	897	2.00	5	490	13.60			
10	920	1.50	10	527	7.30			
15	934	1.33	15	557	5.30			
20	945	1.25	20	585	4.15			
25	955	1.20	25	610	3.52			
30	962	1.17	30	634	3.10			
35	967	1.14	35	655	2.80			
40	972	1.13	40	675	2.58			
45	976	1.11	45	692	2.40			
50	979	1.10	50	710	2.26			
55	981	1.09	55	726	2.15			
60	984	1.08	60	742	2.05			
			65	756	1.97			
			70	769	1.90			
			75	783	1.84			
			80	795	1.79			
			85	806	1.74			
			90	816	1.70			
			95	825	1.66			
			100	835	1.63			
			105	845	1.60			
			110	853	1.57			
			115	861	1.55			
			120	869	1.52			

**JOHNSTON TESTERS**

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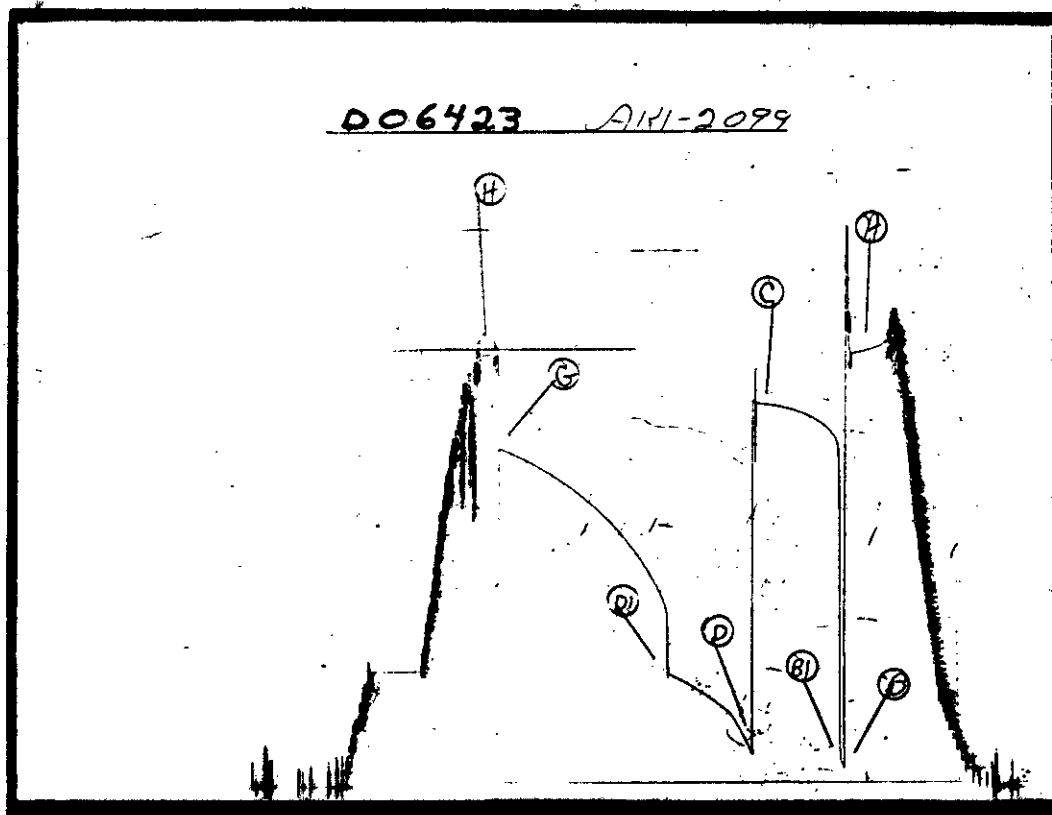
A DIVISION OF SCHLUMBERGER CANADA LIMITED

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTSFIELD
REPORT NO.RECORDER NO.**D06423****AK1-2099**

- 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).

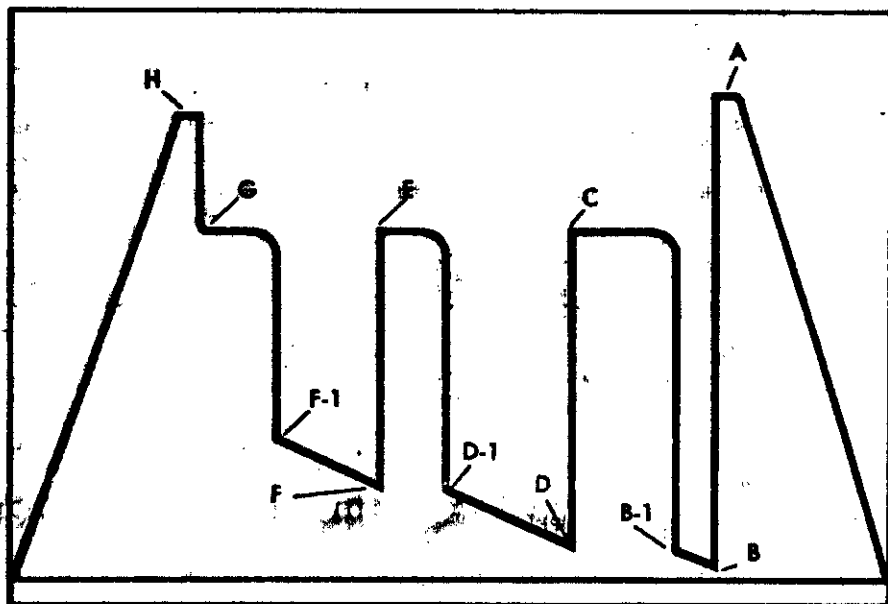
- A-1, A-2, A-3, etc. Initial Hyd. Pressures
- Z — Special pressure points such as pumping pressures recorded for formation breakdown.



**JOHNSTON TESTERS**

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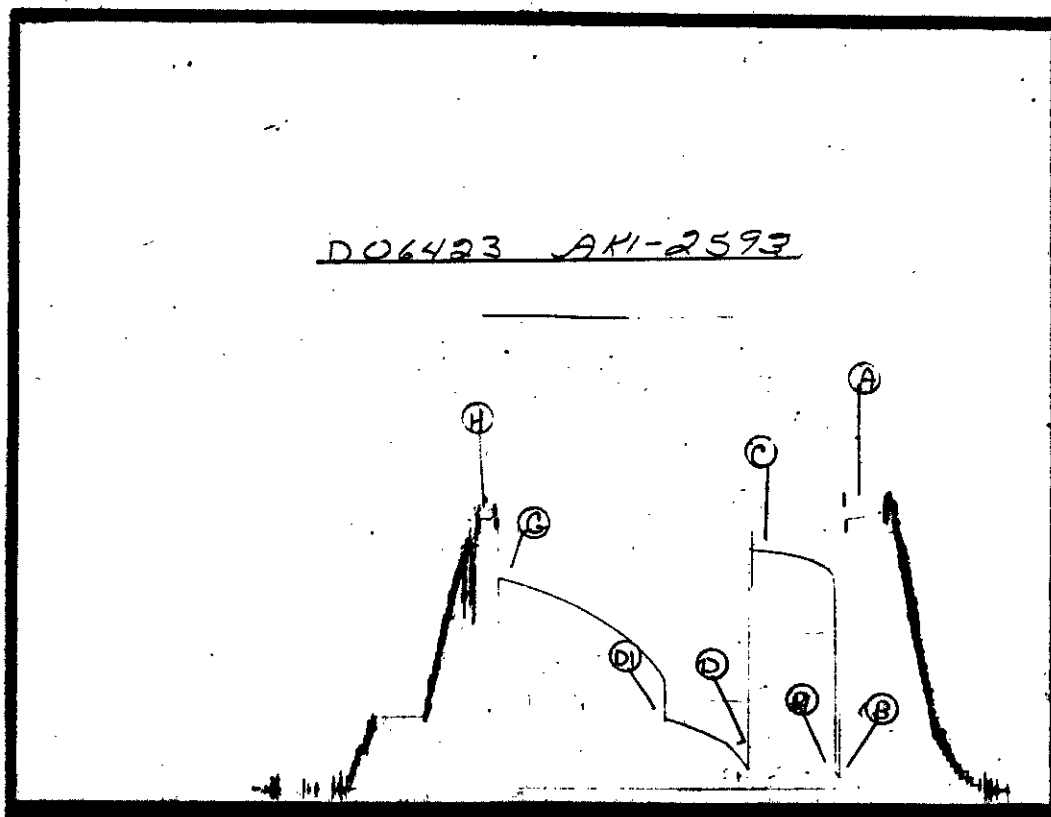
A DIVISION OF SCHLUMBERGER CANADA LIMITED

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTSFIELD
REPORT NO.RECORDER NO.**D06423****AK1-2593**

- 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
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WELL NAME: GT-BEAR R-N-80.

ISPG CORE AND SAMPLE REPOSITORY

NOTE: ADDITIONAL GEOCHEMICAL DATA EXISTS FOR THIS WELL BUT IS
CONFIDENTIAL UNTIL 30/10/92.

AT THIS TIME THE DATA WILL BE INCORPORATED INTO THE WELL FILE.

IF THIS DATE HAS PASSED AND THE MATERIAL DOES NOT APPEAR TO BE HERE IN
THE FILE, PLEASE ASK ONE OF THE STAFF FOR IT SO THAT IS MAY BE
INCORPORATED.

THANK YOU.



TECHNICAL REPORT

JOHNSTON

TEST DATA					
Formation	Zone Thickness		Ft.		
Interval	2298	To	2348	T.D.	2515 Ft.
Type of Test	Open hole, Straddle, Bypass				
Time Started in Hole	0500 Hrs.	Tool Opened	0643 Hrs.		
First Flow	3 Min.	Initial Shut-In	60 Min.		
Second Flow	30 Min.	Second Shut In			
Third Flow		Final Shut In	120 Min.		
Pulled Loose @	1030 Hrs.	Out of Hole	1300 Hrs.		
Wt. Set on Packers	40,000 #	Pulled Loose Wt.	20,000 #		
Description of Fluid During Test	Good initial puff. Good blow on second flow, decreasing.				
FLUID RECOVERY Was Test Reverse Circulated Yes ☐ No ☒					
Total Fluid Recovered	1475		Ft.		
Description of Fluid Recovered	140' Drilling fluid, 1335' Fresh water.				
GAS BLOW MEASUREMENT					
Measured With		I.D. Riser			
Type of Instrument					
Time	Sfcs. Choke	Reading psi inches	M Cubic Feet Day		
		NIL			
REMARKS: Test satisfactory.					
RESISTIVITY CHLORIDE CONTENT					
Recovery Water	@	°F.	ppm.		
Mud Pif sample filtrate	@	°F.	ppm.		
District	N.W.T.	Ticket No.	D06425	Date	December 9/71
Company	Chevron Standard Limited	Test No.	2	J.T. No.	2
Well Name	SOBC CS Great Bear River N-30	Address #400 - 5th Ave. S.W. Calgary 1, Alberta			
Number	65°59'45"N 124°04'51"W	Field	Great Bear River	Province	Alberta
Formation		Co. Rep	D. Clark		
and Interval	2298 - 2348	Technician	J.A. Mooney		
Distribution of Reports 6 - Calgary Attention: Information Centre					



D06425		PRESSURE DATA		FLUID SAMPLE REPORT	
INSTRUMENT No.		AK1-2527	AK1-2593		
CAPACITY (psig)		4000	3250		
INSTRUMENT DEPTH FT.		2333	2339		
INSTRUMENT OPENING		Outside	Outside		
PRESSURE GRADIENT psi/FT.					
WELL TEMP. °F.	94				
INITIAL HYDROSTATIC	A	1088#	1087#		
FIRST FLOW	B	354#	355#		
	B-1	371#	375#		
INITIAL SHUT-IN	C	958#	958#		
SECOND FLOW	D	439#	445#		
	D-1	702#	704#		
SECOND SHUT-IN	E				
THIRD FLOW	F				
	F-1				
FINAL SHUT-IN	G	957#	958#		
FINAL HYDROSTATIC	H	970#	972#		
Sample No. _____					
Type _____					
Depth _____					
Volume _____					
Sample Pressure: _____					
psig. at Surface _____					
Gravity _____ API _____ °F _____					
Gas, Oil Ratio _____ Cu.Ft. bbl. _____					
Recovery: _____					
Cu. Ft. Gas _____					
cc. Oil _____					
cc. Water _____					
cc. Mud _____					
Total Liquid cc. _____					

REMARKS:

[illegible]

**JOHNSTON TESTERS**

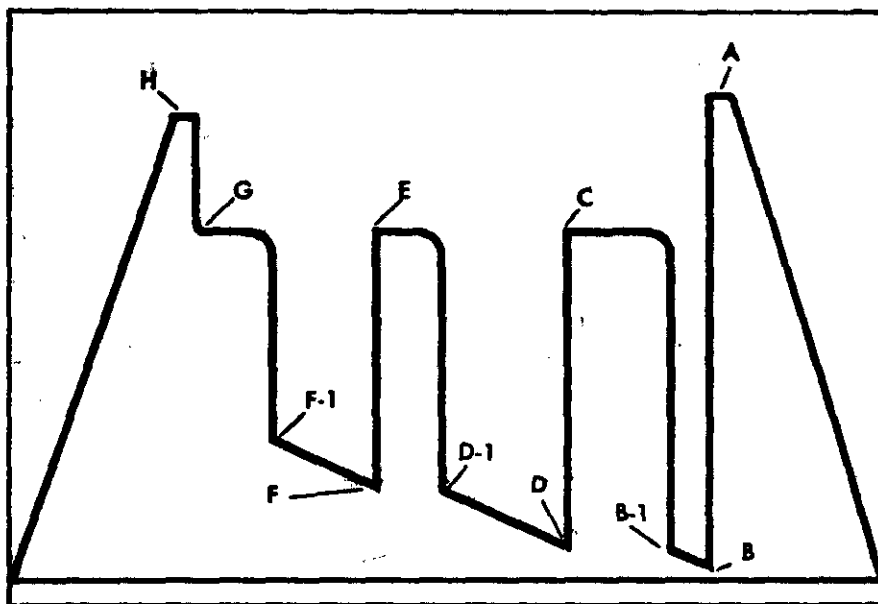
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GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTSFIELD
REPORT NO.RECORDER NO.

D06425

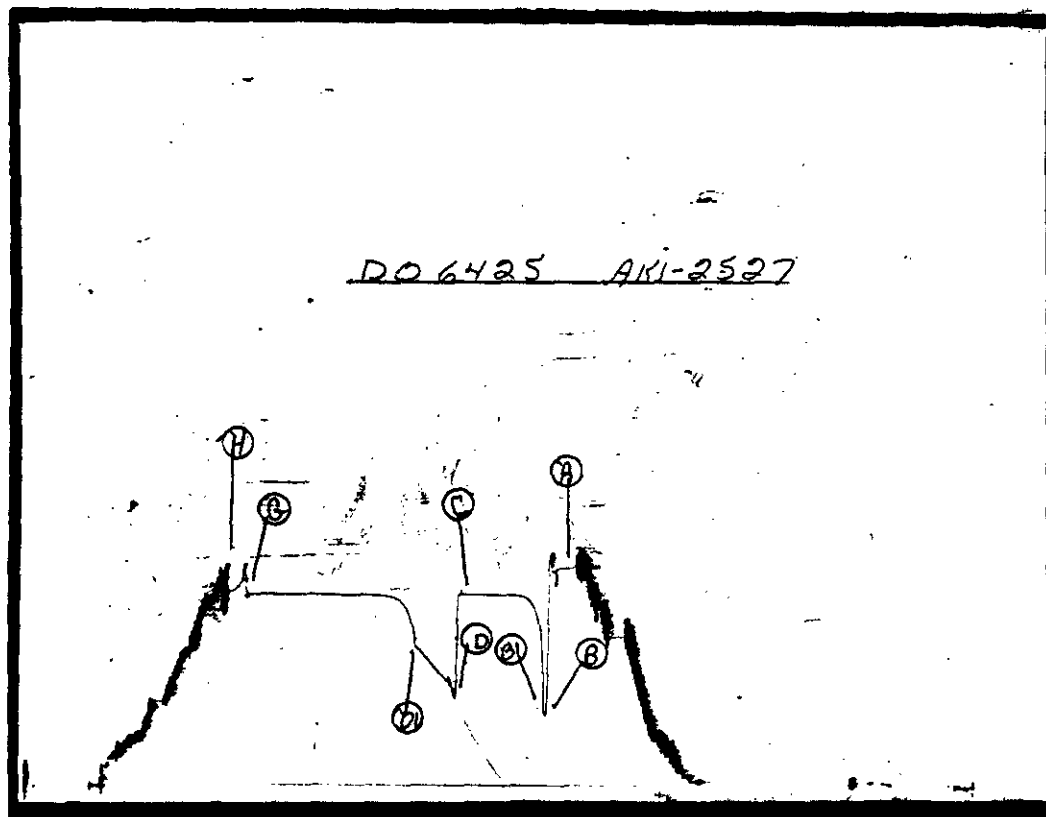
AK1-2527



- 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
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**JOHNSTON TESTERS**

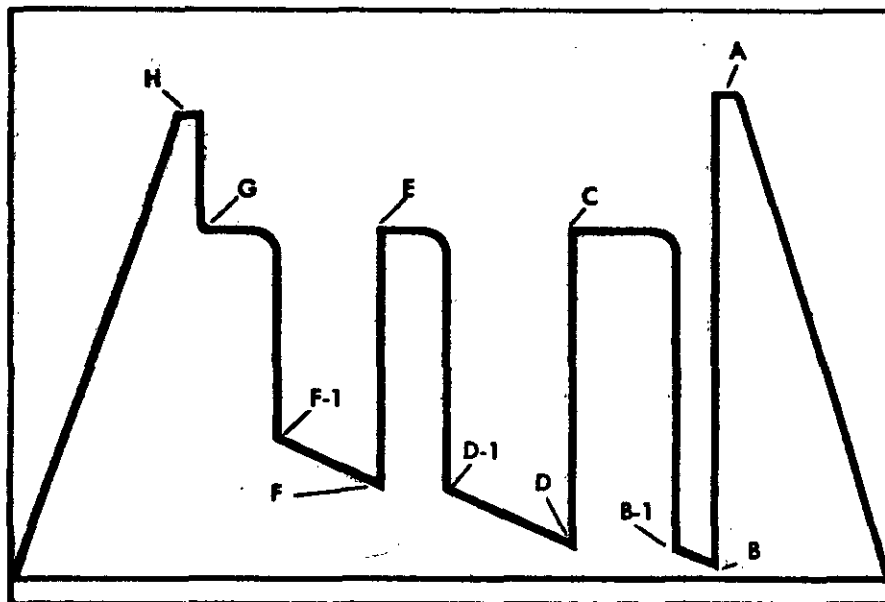
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GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTSFIELD
RECORD NO.REORDER NO.

D06425

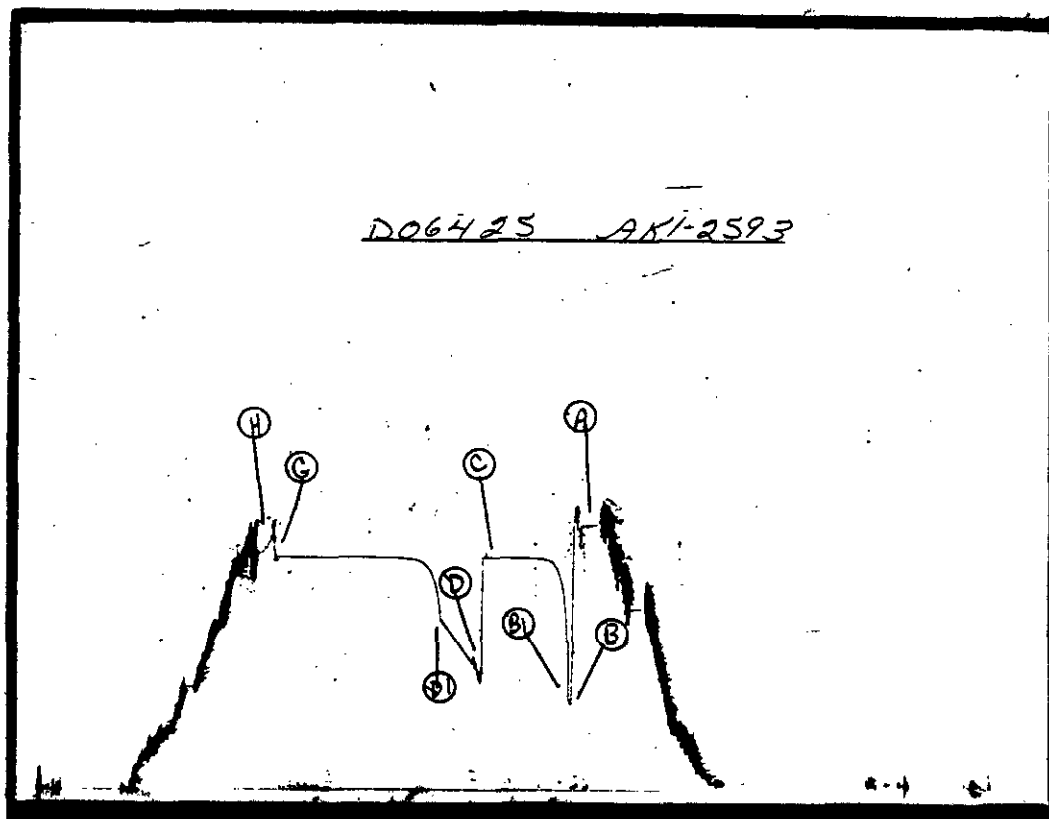
AKI-2593



- 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

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- A-1, A-2, A-3, etc. Initial Hyd. Pressures
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TECHNICAL REPORT



JOHNSTON TESTERS 321-50TH AVENUE S.E. - CALGARY 24, ALBERTA - PH. 255-1151
A DIVISION OF SCHLUMBERGER CANADA LIMITED

TEST DATA						TOOL SEQUENCE		
Formation	Zone Thickness		Fr.		Tool	Length	O.D.	
Interval 2396	To 2515	T.D. 2515	Fr.		P.O. Sub	.75		
Type of Test Open hole, Bottom hole.					Sub	.80		
Time Started in Hole 0530	Hrs.	Tool Opened 0703	Hrs.		MFE Tool	9.10		
First Flow 3	Min.	Initial Shut-In 60	Min.		Bypass Tool	3.00		
Second Flow 60	Min.	Second Shut In	Min.		Jars	6.85		
Third Flow	Min.	Final Shut In 120	Min.		Safety Joint	1.75		
Pulled Loose @ 1120	Hrs.	Out of Hole 1330	Hrs.		S.S. & Packer	9.20	7"	
Wt. Set on Packers 40,000	=	Pulled Loose Wt. 15,000	=		T.C. & Packer	5.20	7"	
Description of Blow During Test Weak initial puff, Weak air blow throughout test.					Total	36.65		
FLUID RECOVERY Was Test Reverse Circulated Yes ☐ No ☒ Total Fluid Recovered 612' Fr Description of Fluid Recovered 80' Drilling fluid. 532' Salt water.					Stub	1.10		
					Perf	5.00		
					Recorder	5.60		
					Perf	5.00		
					Recorder	5.60		
					Perfa	6.00		
					Sub	.85		
					Drill Collar	86.85		
					Sub	.85		
					B.N. & Perf	1.75		
Total Interval	118.60							
GAS BLOW MEASUREMENT								
Measured With				I.D. Riser				
Type of Instrument								
Time	Sfcs. Choke	Reading psi inches	M Cubic Feet Day					
		T.S.T.M.						
REMARKS Test satisfactory.				TOTAL LENGTH 155.25				
				Elevation 827 KB 815 GL				
				Bottom Hole Choke Size 1/2"				
				Fluid Cushion Type Nil Amt.				
MUD AND HOLE DATA								
Mud Type				W.L. 9.6				
Filter Cake 2/32				Visc. 90 Wt. 9.0				
Time Taken								
Contractor Tri-City Drilling				Rig No. 2				
Drill Pipe Size 4 1/2" XH								
Drill Collar Size 2 7/8" ID				Length 375'				
Main Hole Size 7 7/8"								
Rat Hole Size								
RESISTIVITY								
Recovery Water 41 °F.				7700 ppm.				
Mud Pit sample filtrate 41 °F.				ppm.				
CHLORIDE CONTENT								
District N.W.T.		Ticket No. D06423		Date December 8/71		Test No. 1 J.T. No. 1		
Company Chevron Standard Limited		Address #400 - 5th Ave. S.W.						
Well Name SOBC CS Great River N-30		Calgary 1, Alberta						
Number 64059'45"N 124004'51"W		Field Great Bear River Province N.W.T.						
Formation		Co. Rep. D. Clark						
and Interval 2396 - 2515		Technician J.A. Mooney						
Distribution of Reports								
6 - Calgary Attention: Information Centre								

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

A DIVISION OF SCLIMBERGER CANADA LIMITED

DOB423		PRESSURE DATA		FLUID SAMPLE REPORT	
STRUMENT No.		AK1-2099	AK1-2593		Sample No.
CAPACITY (psig)		2000	3250		Type <u>5</u>
INSTRUMENT DEPTH FT.		2402	2413		Depth <u>2370</u>
INSTRUMENT OPENING		Outside	Outside		Volume <u>2500 cc</u>
PRESSURE GRADIENT psi/FT.					
WELL TEMP. °F.	<u>94</u>				
INITIAL HYDROSTATIC	A	<u>1105#</u>	<u>1111#</u>		Sample Pressure:
FIRST FLOW	B	<u>46#</u>	<u>53#</u>		psig. at Surface
	B-1	<u>66#</u>	<u>70#</u>		Gravity API @ °F
INITIAL SHUT-IN	C	<u>979#</u>	<u>984#</u>		Gas/Oil Ratio Cu.Ft. bbl
SECOND FLOW	D	<u>82#</u>	<u>85#</u>		
	D-1	<u>287#</u>	<u>295#</u>		Recovery:
SECOND SHUT-IN	E				Cu. Ft. Gas
THIRD FLOW	F				cc. Oil
	F-1				cc. Water
FINAL SHUT-IN	G	<u>863#</u>	<u>869#</u>		cc. Mud
FINAL HYDROSTATIC	H	<u>1102#</u>	<u>1109#</u>		Total Liquid cc.

REMARKS: MFE Samples given to D. Clark at location.

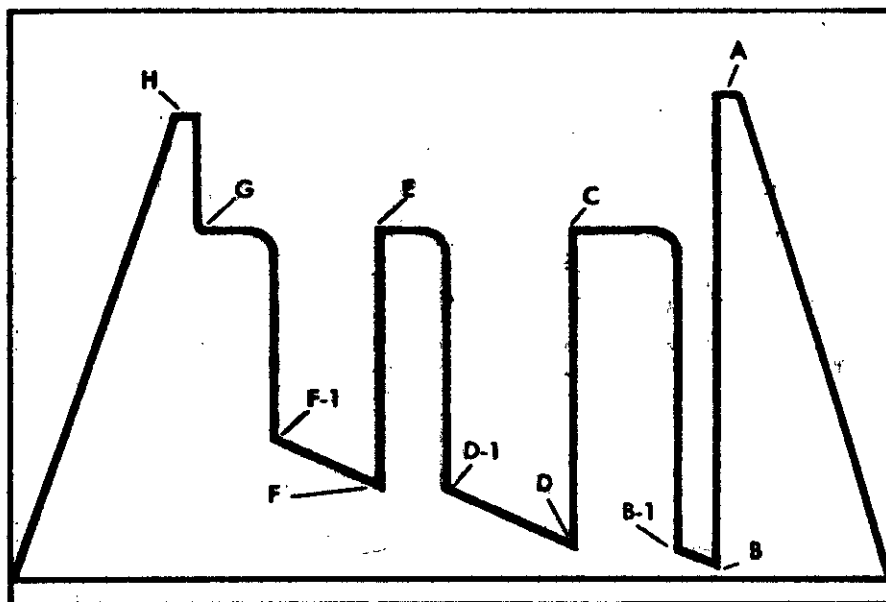
PRESSURE INCREMENTS On recorder # AK1-2593

INITIAL SHUT-IN			FINAL SHUT-IN					
POINT MINUTES	PRESSURE	$\frac{T + \Delta T}{\Delta T}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta T}{\Delta T}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta T}{\Delta T}$
0	70		0	295				
5	897	2.00	5	490	13.60			
10	920	1.50	10	527	7.30			
15	934	1.33	15	557	5.30			
20	945	1.25	20	585	4.15			
25	955	1.20	25	610	3.52			
30	962	1.17	30	634	3.10			
35	967	1.14	35	655	2.80			
40	972	1.13	40	675	2.58			
45	976	1.11	45	692	2.40			
50	979	1.10	50	710	2.26			
55	981	1.09	55	726	2.15			
60	984	1.08	60	742	2.05			
			65	756	1.97			
			70	769	1.90			
			75	783	1.84			
			80	795	1.79			
			85	806	1.74			
			90	816	1.70			
			95	825	1.66			
			100	835	1.63			
			105	845	1.60			
			110	853	1.57			
			115	861	1.55			
			120	869	1.52			

**JOHNSTON TESTERS**

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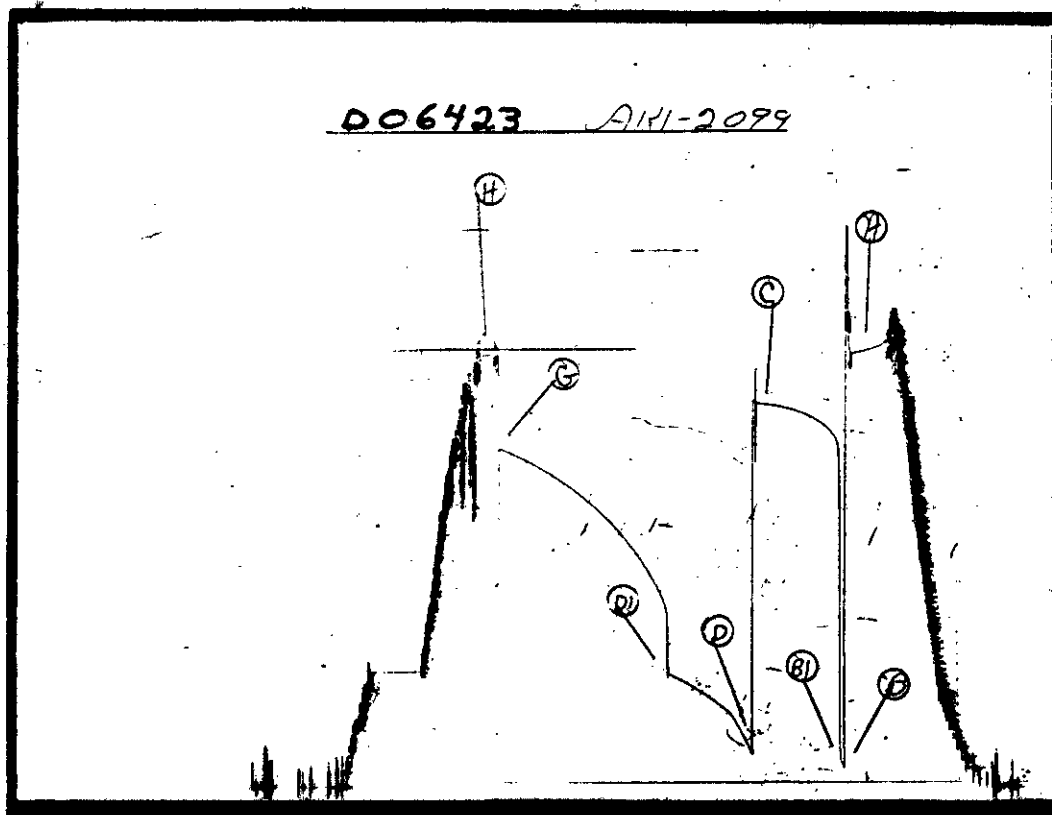
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GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTSFIELD
REPORT NO.RECORDER NO.**D06423****AK1-2099**

- 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).

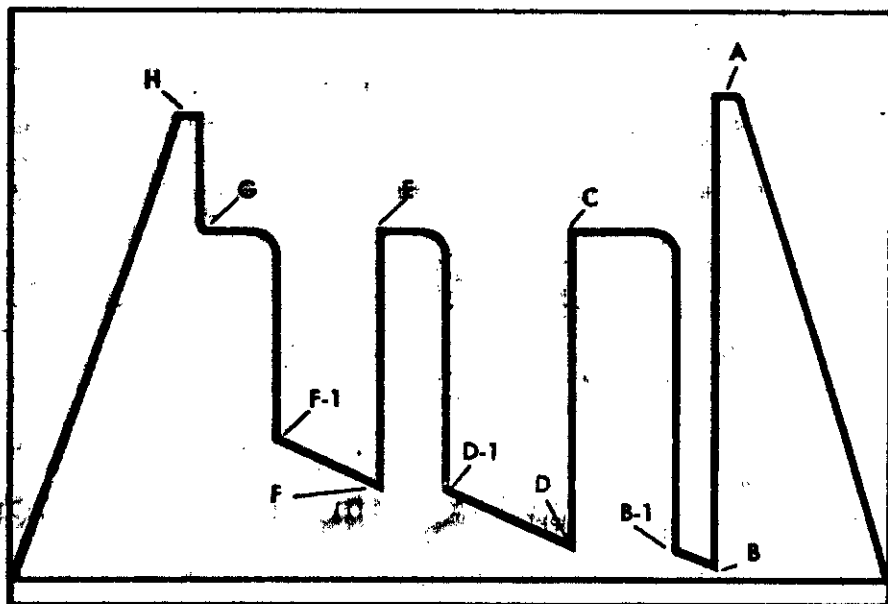
- A-1, A-2, A-3, etc. Initial Hyd. Pressures
- Z — Special pressure points such as pumping pressures recorded for formation breakdown.



**JOHNSTON TESTERS**

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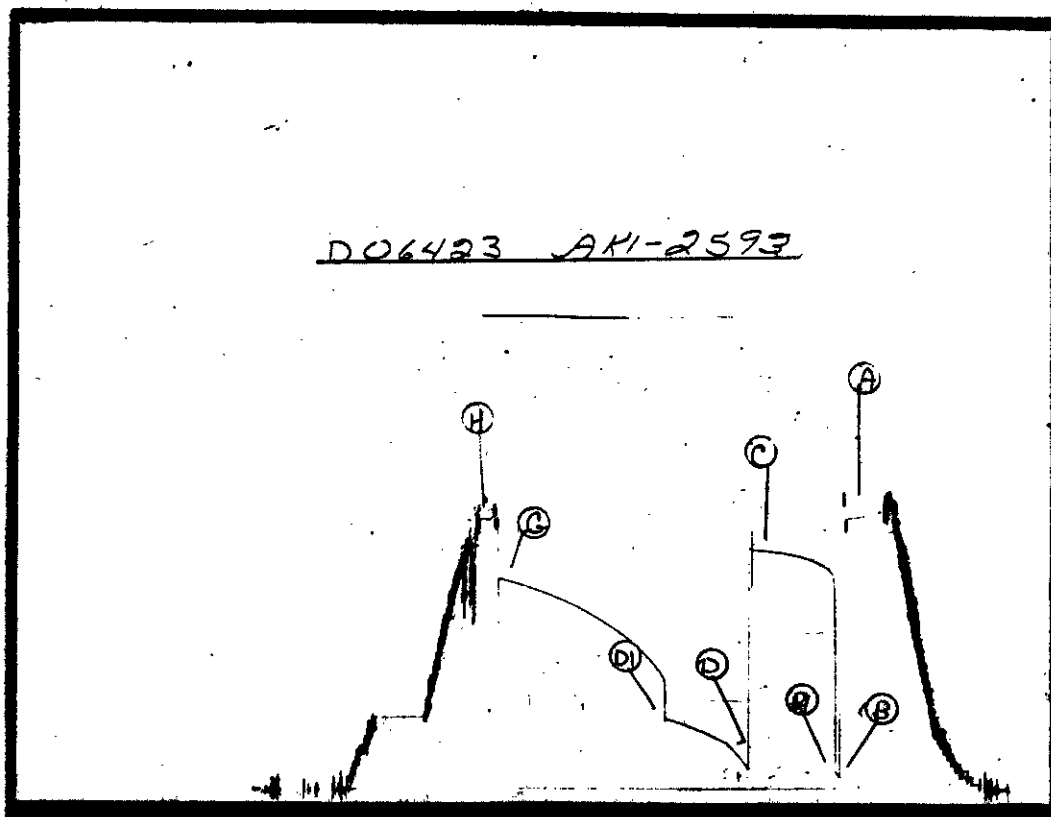
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GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTSFIELD
REPORT NO.RECORDER NO.**D06423****AK1-2593**

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



WELL NAME: GT-BEAR R-N-80.

ISPG CORE AND SAMPLE REPOSITORY

NOTE: ADDITIONAL GEOCHEMICAL DATA EXISTS FOR THIS WELL BUT IS
CONFIDENTIAL UNTIL 30/10/92.

AT THIS TIME THE DATA WILL BE INCORPORATED INTO THE WELL FILE.

IF THIS DATE HAS PASSED AND THE MATERIAL DOES NOT APPEAR TO BE HERE IN
THE FILE, PLEASE ASK ONE OF THE STAFF FOR IT SO THAT IS MAY BE
INCORPORATED.

THANK YOU.

Received: Jan. 18, 1972 Reported: Feb. 1, 1972

Well: Location: SOBC C.S. Bear River N-30

Operator: CHEVRON STANDARD LIMITED

Field or Area: Bear River

Elev.: K.B. 827' Grd. 815' Zone/Formation:

Sample Interval: 2396' - 2575'

Method of Production: D.S.T. #1

Sampled from: Middle of Fluid

Sampled by:

Date: Dec. 8, 1971

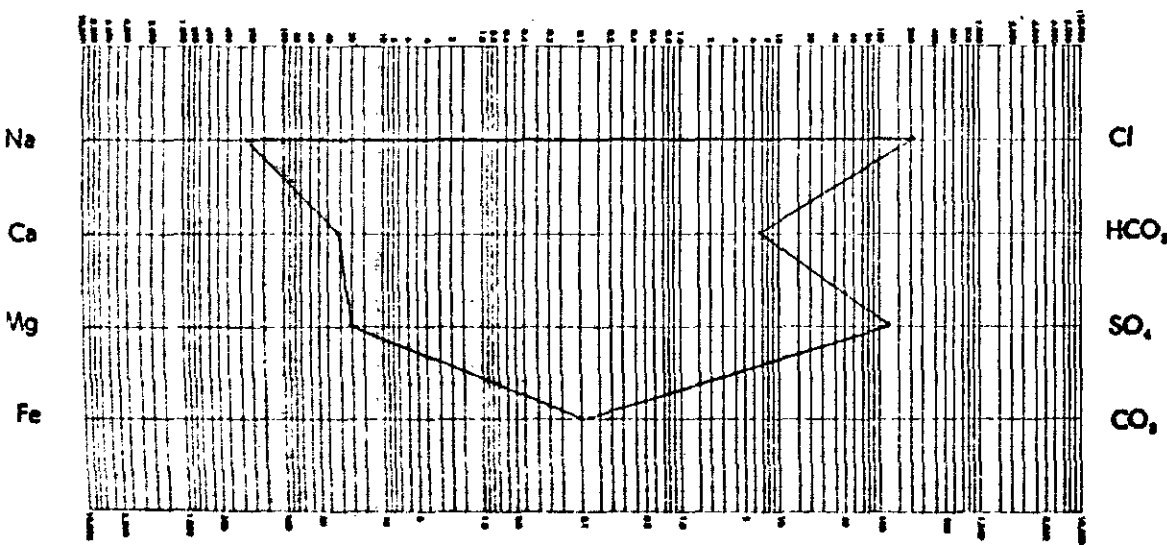
OTHER PERTINENT DATA Information as received on sample bottle.

(Signed)

	Na & K	Ca	Mg					SO ₄	Cl			CO ₃	HCO ₃		
Mg./L	6471	629	255					6041	7150				400		
Eq./L	281.49	31.39	20.96					125.65	201.63				6.56		
Eq. %	42.16	4.70	3.14					18.82	30.20				0.98		

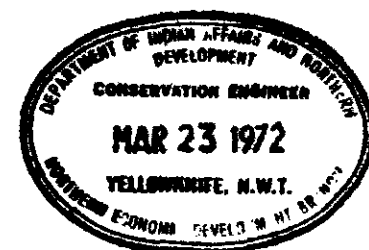
Total Solids Mg/L: By Evaporation 21,052 Fe N11 Specific Gravity 1.021 @60°F Observed pH 8.2 @ 72 °F
 Calculated 20,946 After Ignition 20,348 H₂S N11 Refractive Index 1.3363 @25°C Resistivity 0.384 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Analysis determined on clear colorless filtrate recovered from muddy water. Organic matter detected in evaporated total dissolved solids.



CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS

Lab No. C72-4175-2

Received: Jan. 18, 1972 Reported:

Well: Location: SOBC Great Bear River N-30

Operator: CHEVRON STANDARD LIMITED

Field or Area:

Elev.: K.B. Grd. Zone/Formation:

Sample Interval: 2298' - 2348'

Method of Production: D.S.T. 2

Sampled from: Top of tool

Sampled by:

Date: Dec 9, 1971

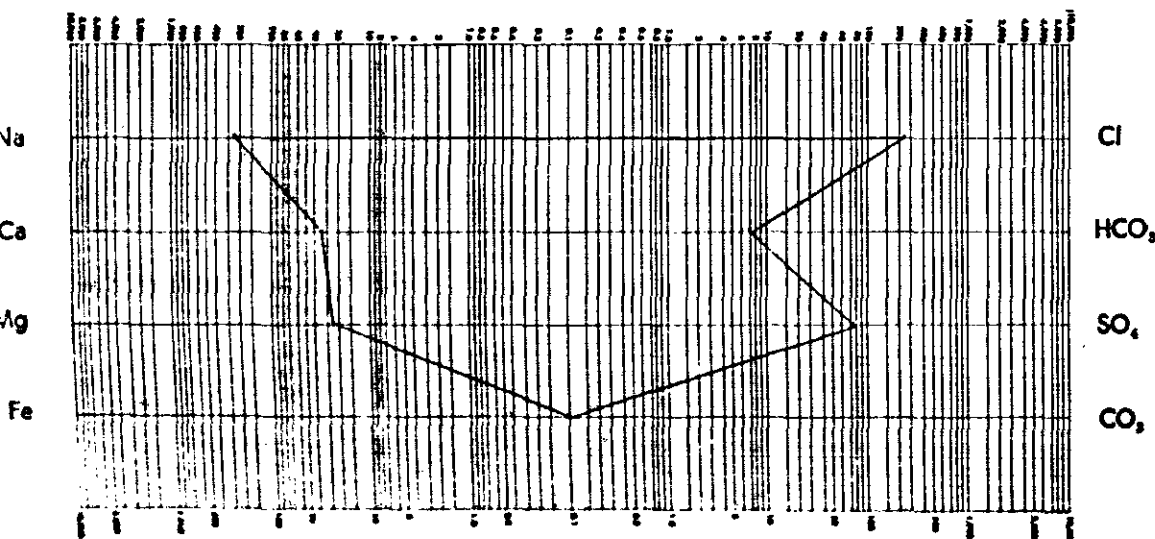
OTHER PERTINENT DATA Recovery: 1475' (Information as written on sample bottle)

(Signed)

	Na & K	Ca	Mg					SO ₄	Cl			CO ₂	HCO ₃		
Mg./L	5859	673	309					3768	8100				430		
eq./L	254.86	33.58	25.40					78.37	228.42				7.05		
q. %	40.60	5.35	4.05					12.49	36.39				1.12		

Total Solids Mg/L: By Evaporation 19,868 Fe Nil Specific Gravity 1.020 @60°F Observed pH 8.2° @ 72 °F
 Calculated 19,139 After Ignition 18,368 H₂S NIL Refractive Index 1.3362 @25°C Resistivity 0.384 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Analysis determined on clear colorless filtrate recovered from muddy water. Organic matter detected in evaporated total dissolved solids.

C72-4175-1 Middle of fluid. Description same as above.

Resistivity: 0.425 OHM-meters at 68°F.

