WELL HISTORY REPORT

SOBC CS ST. CHARLES CK H-61

January 28, 1971

R. C. Richardson, P. Eng.
Project Manager

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WELL HISTORY REPORT

SOBC CS ST. CHARLES CK H-61

SECTION I - SUMMARY OF WELL DATA

(a) Well Name and Number

SOBC CS St. Charles Creek H-61

(b) Permittee, Licencee or Lessee

SOBC - 50%, Cities Service - 50%

(c) Name of Operator

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

(d) Location

Unit H; Section 61; Grid: 65° 00' N, 123° 45' W

(e) Co-ordinates

Latitude: 64° 50' 24" N, Longitude: 123° 56' 28" W

(f) Permit or Lease Number

Permit No. 4982

(g) Drilling Contractor

Tri-City Drilling Ltd., Rotary Rig Number Two

(h) Drilling Authority

No. 458 Issued November 13, 1970

(i) Classification

Wildcat

(j) Elevations

Ground Elevation: 850', K.B. Elevation: 862'

(k) Spudded

0130 Hrs. December 17, 1970

(l) Completed Drilling

0300 Hrs. January 7, 1971

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

T.D. 3657' P.B.T.D. Surface

(n) Well Status

Dry and Abandoned

(o) Rig Release Date

1600 Hrs. January 14, 1971

(p) Hole Sizes to Total Depth

12-1/4" Hole to 420 Feet
7-7/8" Hole to 3657 Feet

(q) Casing

8-3/4" 24# Casing set at 415.30' K.B.

SECTION II - GEOLOGICAL SUMMARY

(a)

Formation	Sample Tops	Log Tops
Pleistocene/Cretaceous	150'	-
Cretaceous Basal Sandstone	Absent	Absent
Devonian (Headless, Landry ?)	1661'	1656
Landry	1690'	-
Arnica	1850'	1856
Bear Rock	1965'	1956
Mt. Kindle	2730'	2734
Bear Rock Red Beds	3440'	3440
Mt. Franklin	3616'	3616
Total Depth	3657' T.D. Loggers	3641

(b) Cored Intervals

Core #1 (1373'-1430') Cretaceous - 7-13/16" Diamond Bit
Recovered 57 Feet
Core #2 (1430'-1442') Cretaceous - 7-13/16" Diamond Bit
Recovered 11 Feet - Lost 1 Foot
Core #3 (3015'-3060') Mt. Kindle - 7-13/16" Diamond Bit
Recovered 45 Feet

Sidewall Core Samples
Intervals taken: 450, 550, 600, 650, 700, 750, 800, 840, 900, 945, 1000, 1050, 1100, 1150, 1200, 1248, 1311, 1354, 1450, 1498, 1550, 1580 and 1645.

(c) Core Description

CORE #1 1373'-1430' Cretaceous

Cut 57' Recovered 57' Lost 0'

1373'-1425' Shale, dark grey, thick bedded, no dip evident. Rare fossil fragment and plant impression, sometimes pyritized.

1425'-1430' Shale, dark grey, thin bedded, with silty beds. Glauconitic common.

Coring Times: Core #1						
1373'	--	1391'	37 mins.	1409'	38 mins.
74'	37 mins.	92'	39 mins.	1410'	34 mins.
1375'	28 mins.	93'	49 mins.	11'	36 mins.
76'	27 mins.	94'	42 mins.	12'	36 mins.
77'	27 mins.	1395'	34 mins.	13'	--
78'	30 mins.	96'	32 mins.	14'	40 mins.
79'	30 mins.	97'	33 mins.	1415'	38 mins.
1380'	28 mins.	98'	30 mins.	16'	34 mins.
81'	32 mins.	99'	35 mins.	17'	36 mins.
82'	30 mins.	1400'	22 mins.	18'	40 mins.
83'	31 mins.	01'	27 mins.	19'	33 mins.
84'	30 mins.	02'	25 mins.	1420'	39 mins.
1385'	33 mins.	03'	27 mins.	21'	40 mins.
86'	31 mins.	04'	26 mins.	22'	42 mins.
87'	32 mins.	1405'	28 mins.	23'	42 mins.
88'	29 mins.	06'	27 mins.	24'	38 mins.
89'	32 mins.	07'	32 mins.	1425'	40 mins.
1390'	37 mins.	1408'	34 mins.	26'	30 mins.
				27'	25 mins.
				28'	22 mins.
				29'	27 mins.
				1430'	28 mins.

CORE #2 1430'-1442' Cut 12' Recovered 11' Lost 1'

1430'-1441' Shale, dark grey, pyritic.

Coring Times: Core #2						
1430'	--	1435'	22 mins.	1440'	37 mins.
31'	33 mins.	36'	21 mins.	41'	38 mins.
32'	33 mins.	37'	23 mins.	42'	37 mins.
33'	23 mins.	38'	33 mins.		
1434'	25 mins.	1439'	41 mins.		

CORE #3 3015'-3060' Mt. Kindle

Cut 45' Recovered 45' Lost 0'

3015-3026.3'	11.3'	Dolomite, dark brown, fine crystalline, with fair intercrystalline and fine vuggy porosity. Stylolites with bitumen concentrate common.
3026.3-3056.0'	29.7'	Anhydrite, light to dark brown, argillaceous, dolomitic. Very thin bedded in lower 9'.
3056.0-3060.0'	4.0'	Dolomite, dark brown, fine crystalline. Bedding is very thin, no dip apparent except for minor ripple undulations.

Coring Times:	Core #3	3015'	--	3033'	22 mins.	3051'	26 mins.
		16'	15 mins.	34'	22 mins.	52'	30 mins.
		17'	32 mins.	3035'	24 mins.	53'	23 mins.
		18'	32 mins.	36'	25 mins.	54'	24 mins.
		19'	11 mins.	37'	19 mins.	3055'	28 mins.
		3020'	10 mins.	38'	19 mins.	56'	18 mins.
		21'	8 mins.	39'	19 mins.	57'	26 mins.
		22'	9 mins.	3040'	22 mins.	58'	24 mins.
		23'	11 mins.	41'	14 mins.	59'	23 mins.
		24'	11 mins.	42'	22 mins.	3060'	21 mins.
		3025'	10 mins.	43'	23 mins.		
		26'	8 mins.	44'	20 mins.		
		27'	9 mins.	3045'	21 mins.		
		28'	10 mins.	46'	26 mins.		
		29'	14 mins.	47'	30 mins.		
		3030'	17 mins.	48'	33 mins.		
		31'	19 mins.	49'	38 mins.		
		3032'	18 mins.	3050'	32 mins.		

(d) Sample Description

0-150'	Sand, arkosic, pink, silty, with occasional boulders.
150-320'	Siltstone, light grey, glauconitic, occasionally sideritic. Pyrite common.
320-390'	Shale, medium grey.
390-410'	Sandstone, poorly sorted with 10% large, well rounded, polished grains, 90% very fine to silty, but clean, very porous and permeable, glauconitic.
410-420'	Shale, medium grey.
420-480'	Shale, dark grey.
480-540'	Siltstone, white, glauconitic, tight, micromicaceous.
540-1420'	Shale, dark grey, with rare glauconitic siltstone laminae. Ironstone and pyrite usual. At 1140-1150' ironstone is 20% of sample. Noticeably more pyritic from 1320'.
1420-1430'	Siltstone, glauconitic, micromicaceous.
1430-1440'	Shale, dark grey.
1440-1590'	Siltstone, grey and siltstone, white, speckled, and glauconitic, micromicaceous.

1590-1620'	Siltstone, sandy with up to 30% glauconite. Large floating quartz grains.
1620-1655'	Siltstone, tight, rare floating quartz grains.
1655-1690'	Limestone, medium brown, dense, argillaceous, fossiliferous (brachs). Large calcite crystalline fracture filling common.
1690-1750'	Limestone, light brown, faintly pelletal.
1750-1770'	Shale, black, calcareous with limestone interbeds.
1770-1850'	Limestone, light brown and medium brown, strongly pelletal with ostracods common 1770-1790'.
1850-1965'	Dolomite, light brown, sucrose (silt size), becoming dark brown at base. In part slightly bituminous. Trace of pin-point porosity 1940-1960'. Impermeable. No oil stain, no fluorescence.
1965-2040'	Anhydrite, light brown, with interbeds of dense, brown dolomite. Transitional downward to massive anhydrite.
2040-2270'	Anhydrite, white to tan, occasionally grey, massive.
2270-2320'	Anhydrite, in part dolomitic, and in part argillaceous, green-grey in color.
2320-2500'	Anhydrite, with rare dolomite streaks.
2500-2510'	Dolomite, brown, very fine granular, slightly bituminous, traces of stylolites. Powdery anhydrite filling fractures.
2510-2590'	Anhydrite, argillaceous, with possible dark grey-green shale bed 2560-2570'.
2590-2670'	Anhydrite.
2670-2730'	Anhydrite, with dolomite stringers.
2730-2820'	Dolomite, dark brown with brown, argillaceous material. Very argillaceous, slightly bituminous. Anhydrite streaks and anhydritic.
2820-2830'	Anhydrite.
2830-2840'	Dolomite, dark brown, anhydritic.

2840-2850'	Dolomite, sucrose, light brown, no porosity apparent.
2850-2910'	Dolomite, fine granular.
2910-2980'	Dolomite, fine sucrose, light brown, with good drilling breaks at 2912-2915' and 2940-2948' but there is no porosity apparent.
2980-2990'	Anhydrite.
2990-3000'	Dolomite, brown, dense.
3000-3015'	Dolomite, brown, fine sucrose, fair intercrystalline and vuggy porosity.
3015-3060'	(See Core Description.)
3060-3090'	Anhydrite.
3090-3100'	Anhydrite, with dolomite stringers.
3100-3130'	Anhydrite, argillaceous, green-grey.
3130-3140'	Shale, green-grey.
3140-3180'	Anhydrite, becoming dolomitic downward.
3180-3200'	Dolomite, medium brown, crystalline, trace of pin-point porosity.
3200-3210'	Anhydrite, dolomitic.
3210-3230'	Dolomite, brown, with some grey-green, dolomitic shale.
3230-3240'	Anhydrite.
3240-3260'	Dolomite, tan, sucrosic, in part argillaceous and anhydritic.
3260-3300'	Anhydrite, dolomitic, in part grey-green, argillaceous.
3300-3440'	Anhydrite, with argillaceous portions grey, green. Dolomite stringers.
3440-3460'	Shale, brick-red, dolomitic, anhydritic.
3460-3620'	Anhydrite with red shale interbeds and grey-green, argillaceous anhydrite. A few floating irregulate quartz grains in bottom ten feet.

3620-3640'	Dolomite, medium brown and light brown, hard, in large part siliceous and some white, massive chert, waxy green shale partings.
3640-3657'	No sample. Circulation was lost and therefore there were no sample returns to surface. Drilling was about 1 min. per foot 3649-3657', but rough, indicating, together with lost circulation, that large vugs had been encountered.
3657'	Total Depth.

(e) Paleontological Determinations

No Paleontological Determinations.

SECTION III - ENGINEERING SUMMARY

(a) D.S.T. #1 3615-3657'

ZONE: Franklin Mtn.

TIMES: Preflow 10 mins.
ISI 30 mins.
VO 60 mins.
FSI 80 mins.

RECOVERED: 2600' muddy fresh water
8000 ppm. NaCl.

PRESSURES: IHP 1739 psi. FHP 1711 psi.
ISIP 1629 psi. FSIP 1629 psi.
IFP 1629 psi. FFP 1629 psi.
Preflow 949 psi.

REMARKS: Tool plugged on preflow.

(b) No Conductor Pipe Set

Surface Casing: 10 joints 8-5/8, 24.0#, J-55, Rge. 3
New seamless casing landed at 415.30'K.B.
Cemented with 90 sax permafrost cement and tailed in with 120 sax construction cement plus 3% $CaCl_2$.

(c) Bit Record

See attached sheet for the bit record.

(d) Mud Report

The hole was drilled using a gel-chemical system; the following additives:

Gel	770 sax
Sawdust	286 sax
Spersene	57 sax
Caustic	73 sax
Driscose	25 sax
Soda Ash	7 sax
Bicarb of Soda	15 sax
Fiber Seal	46 sax
Fertilizer	6 sax

(e) Deviation Record

Depth	Survey	Depth	Survey
94	¼°	2107	1¼°
201	½°	2429	Mis run
318	Mis run	2650	Mis run
345	7/8°	2682	1½°
676	¼°	2713	1½°
959	1°	3015	1½°
1242	1°	3491	1¼°
1553	3/4°		
1804	3/4°		

(f) Abandonment Plug

Plug #1 (3657'-3500') 90 sax construction cement. Felt @ 3450'
Plug #2 (3025'-2820') 130 sax construction cement. Felt @ 2770'
Plug #3 (1940'-1760') 115 sax construction cement. Felt @ 1705'
Plug #4 (470'-365') 75 sax construction cement + 3% $CaCl_2$. Felt @ 325'
Plug #5 (Surface Plug) 5 sax construction cement.
Welded on plate and erected identification sign.

(g) Lost Circulation Zones

Lost circulation at 3647'-3657' in the Mt. Franklin.
Lost approximately 915 bbls. fluid total.
Mixed lost circulation Plug #1 consisting of 60 sax sawdust in 120 bbls. of mud and pumped down.
Had partial returns.
Mixed lost circulation Plug #2 consisting of 35 sax sawdust and 5 sax fiber in 100 bbl. of mud and pumped down. Established circulation and mixed an additional 31 sax of sawdust and 6 sax fiber in the remainder of the system.
Circulated hole and began screening out lost circulation material. Lost circulation.
Mixed lost circulation Plug #3 consisting of 27 sax of sawdust and 7 sax of redwood fiber in 120 bbls. of mud. No returns.
Mixed lost circulation Plug #4 in six 60 bbl. stages.

(g) Continued

Mixed total 74 sax sawdust and 38 sax redwood fiber. No returns.
Mixed cement Plug #1 consisting of 50 sax construction cement. Cement in place 11.45 A.M. January 9, 1971.
Filled hole satisfactorily. W.O.C. for 7 hrs. and then ran into polish off plug. Did not feel plug. Pumped away 60 bbls. of mud. Pulled out of hole. Hole filled up on its own. No fluid movement in hole after it filled up.

(h) No blowouts.

SECTION IV - LOGS

The following Schlumberger logs were run.

January 10, 1971

Dual induction laterolog 414'-3637'
B.H.C. Sonic/Gamma Ray/Caliper 414'-3638'
Formation density-compensated 1600'-3640'

January 11, 1971

Sidewall neutron porosity 1600'-3640'

SECTION V - ANALYSIS

(a) Core analysis enclosed in back folder.
(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) Lost circulation cement Plug #1
(3509 to 3567)
Cemented with 50 sax construction cement. Cement in place 11:45 A.M. January 9, 1971. Plug was not found after running in to tag it.

SECTION IV - Continued

Abandonment Plug #1: (3657'-3500') Franklin Mtn.
Cemented with 90 sax construction cement. Cement in place 8:05 P.M. January 12, 1971. Tagged Plug #1 after 8 hours W.O.C. at 3450'.

Abandonment Plug #2: (3025'-2820') Mt. Kindle
Cemented with 130 sax construction cement. Cement in place 5:27 A.M. January 13, 1971. Tagged Plug #2 after 8 hours W.O.C. at 2770'.

Abandonment Plug #3: (1940'-1760')
Cemented with 115 sax construction cement. Cement in place 3:00 P.M. January 13, 1971. Tagged Plug #3 after 7 hours W.O.C. at 1705'.

Abandonment Plug #4: (470'-365')
Cemented with 75 sax construction cement plus 3% $CaCl_2$. Cement in place 1:35 A.M. January 14, 1971. Tagged Plug #4 after 9 hours W.O.C. at 325'.

Abandonment Plug #5: Cemented 5 sax cement. Plug in top of casing and welded on steel plate and well sign.

(d) No acidizing or fracturing.

(e) No production tests.

CHEVRON STANDARD LIMITED
BIT RECORD

WELL NAME SOBC CS ST. CHARLES OK CONTRACTOR TRI-CITY DRILLING RIG No. 2 PUMP No 1 D-300

SPUD DATE 0130 HOURS DEC. 17, 1979 RIG RELEASED 1600 HOURS JAN. 14/80 DRILLING DAYS 28 PUMP No 2

B.T No.	MAKE	SIZE	TYPE	DEPTH FROM	DEPTH TO	FOOTAGE	TIME	DRLG. RATE	NOZZLE SIZES	JET VEL	WEIGHT M #	RPM	No 1 PUMP LINER	No 1 PUMP SPM	No 2 PUMP LINER	No 2 PUMP SPM	PUMP PSI	HHP AT BIT	DP ANN.	DC ANN.	MUD WT	MUD VIS	DULL COND T	DULL COND B	DULL COND G
1	HW	12¼	J33	0	420	420	23	18	3-16		18-25	70-100	6½	68			800				9.3	50	4	1	I
2	HW	7⅞	X1G	420	1373	953	16¾	57	2-12 2-11		30	100	5	66			900				8.4	42	3	1	I
3	DRG	7 15/16	◇	1373	1430	57	3¼		-		15	80	5	58			500				8.7	41			
3RR		7 15/16	◇	1430	1443	13	6¼	1.9	-		15	100	5	68			500				8.7	43			
4	HW	7⅞	X1G	1443	1920	477	21½	18.3	3-11		35	90	5	72			1000				9.3	39	5	2	I
5	HW	7⅞	CDV	1920	2107	187	16½	11.3	1-12 2-11		30	80	5	72			1000				9.2	38	5	2	I
6	HW	7⅞	XDV	2107	2429	322	30½	10.5	1-11 2-12		30	90	5	72			1000				9.4	40	4	2	I
7	HW	7⅞	XDV	2429	2650	221	22	10	3-12		30	85	5	72			900				9.5	40	4	1	I
8	HW	7⅞	XDV	2650	3015	365	35½	10	1-11 2-12		35	85	5	72			1000				9.5	37	6	2	I
8RR		7 15/16	◇	3015	3060	45	14¾	3.9	-		18	95	5	56			550				9.6	70			
9	HW	7⅞	XDV	3060	3391	331	33¾	10	3-12		35	95	5	72			950				9.6	47	6	5	I
10	HW	7⅞	XDV	3391	3610	219	25	8.8	1-13 2-12		35	85	5	72			1000				9.7	51	8	6	I
11	HW	7⅞	WD7	3610	3661	51	5	9.4	1-12 2-12		35	70	5	72			1000						4	2	I

PRO-302-10M-7/81

FORM 9 FD

CORE LABORATORIES - CANADA, LTD.

Petroleum Reservoir Engineering
CALGARY, ALBERTA

Company CHEVRON STANDARD LTD. Formation MT KINDLE Page 1 of
Well HEMLOCK / SOBC CITIES SERVICE Coring Equipment File 913-112
Field ST CHARLES CREEK Drilling Fluid GEL MUD Date Report
Province N W T. Elevation Analysts
Location 14°51'N 123°55'W Remarks

CORE #3 3005 - 3060

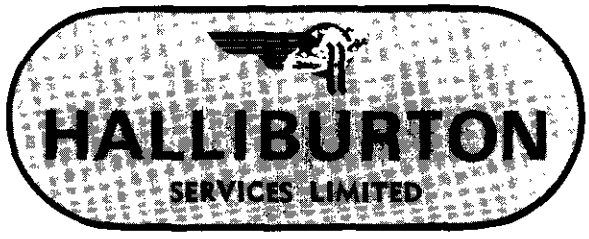
CORE ANALYSIS RESULTS

(Figures in parentheses refer to footnote remarks)

No.	Depth Feet	Ft. Rep.	Permeability Millidarcys Kmax	K90°	Kv	Perm. x Ft.	Porosity Per Cent	Porosity x Feet	Density Bulk	Grain	Visual Examination
			CORE #				Rec. 43.0'	10			
1		1.1	1.90	1.90	0.70	2.09	7.5	10.45	2.58	2.86	1 PPV
2		0.7	2.17	1.84	0.68	1.52	6.8	4.76	2.63	2.83	1 PPV
3		1.1	2.66	2.66	2.46	2.93	8.1	8.91	2.61	2.84	1 PPV F
4		0.8	1.81	1.03	0.48	1.45	5.6	4.48	2.71	2.87	1 PPV A F
5		0.8	0.94	0.88	0.23	0.75	8.8	7.04	2.57	2.82	1 PPV
6		0.5	2.06	1.55	0.30	1.03	8.6	4.30	2.57	2.81	1 PPV F
7		1.1	6.95	6.95	4.02	7.65	3.4	3.74	2.76	2.85	PPV F
8		0.5	8.74	7.96	0.19	4.37	7.0	3.50	2.66	2.86	1 PPV
9		0.8	0.14	0.11	<0.01	0.11	3.2	2.56	2.76	2.85	PPV
10		1.0	0.11	0.09	<0.01	0.11	3.5	3.50	2.75	2.85	PPV Sty
11		0.6	0.12	0.09	<0.01	0.07	3.3	1.98	2.75	2.85	PPV
12		0.9	0.14	0.10	<0.01	0.13	3.6	3.24	2.76	2.87	PPV Sty
13		1.0	0.09	0.09	<0.01	0.09	2.5	2.50	2.78	2.85	Few PPV
		31.1									DENSE
14		1.0	0.37	0.11	<0.01	0.37	3.7	3.70	2.74	2.84	PPV Sty

FORMATION TESTING

Technical Report



CALGARY, ALBERTA

A Halliburton Company

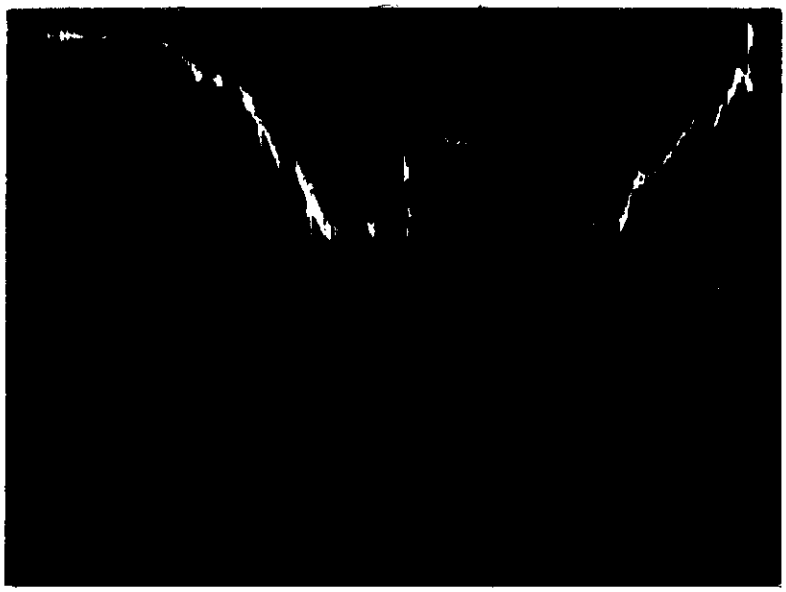
EQUIPMENT DATA

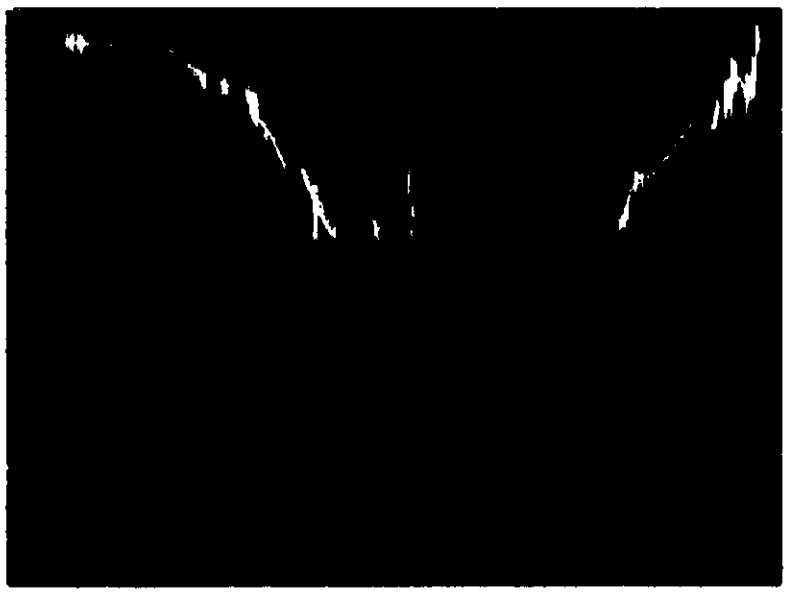
	OD	LENGTH
Reversing Sub	5 3/4	.90
Water Cushion Valve		
DEPTH		3579.96
Drill Pipe & Adapters		
Drill Collars & Adapters		
Handling Sub & Choke	5 3/4	
Dual CIP Valve	4 7/8	5.88
Dual CIP Sampler		
Hydrospring Tester	4 7/8	5.58
DEPTH		3591.42
Multiple CIP Sampler		
Extension Joint		
BT Running Case	5	4.09
DEPTH		3595.51
HT-500 Temp. Recorder		
Hydraulic Jar	5	5.20
VR Safety Joint	5	2.33
Equalizing Crossover		
Packer Assembly	7"–5"	4.60
DEPTH		3607.64
Distributor		
Packer Assembly	7"–5"	4.50
DEPTH		3612.14
Flush Joint Anchor & Equalizing Tube	5	30.00
Crossover Adapter		
Blanked-Off Sub	4 3/4	.80
DEPTH		3642.94
HT-500 Temp. Recorder		
Drill Collars & Adapters		
Flush Joint Anchor & Equalizing Tube	5.00	2.00
Recorder	5.00	4.00
Packer Assembly		
DEPTH		3648.94
Distributor		
Packer Assembly		
DEPTH		
Equalizing Seal		
Anchor Pipe Safety Joint		
Side Wall Anchor		
DEPTH		
Drill Collars & Adapters		
Flush Joint Anchor		
Blanked-Off BT Case	5.00	4.06
DEPTH		3657.00

PRESSURE

TIME

Each horizontal line equal to 1000 psi





FORM 344A

Halliburton SERVICES LIMITED

REFER TO INVOICE NO. 00802

FORMATION TESTING
DATA SHEET

HALLIBURTON DISTRICT: High Level

JOB DATE: January 11, 1971

OWNER OPERATOR OR HIS AGENT STATES THE WELL IS IN CONDITION FOR THE SERVICE JOB TO BE PERFORMED AND SUBMITS THE FOLLOWING DATA

PRESSURE DATA

	TOP	CENTRE	BOTTOM
GAUGE NUMBER	606	3114	542
GAUGE DEPTH	3595	3648	3655
BLANKED OFF	~~YES~~/NO	YES/~~NO~~	YES/~~NO~~
HOUR CLOCK TRAVEL	12 hr.	12 hr.	12 hr.
INITIAL HYDROSTATIC	1713	1737	1730
FIRST FLOW INITIAL		1034	1130
FIRST FLOW FINAL	1320	1215	1220
FIRST CLOSED IN	1615	1634	1640
SECOND FLOW INITIAL	1615	1634	1640
SECOND FLOW FINAL	1615	1634	1640
SECOND CLOSED IN	1615	1634	1640
THIRD FLOW INITIAL			
THIRD FLOW FINAL			
THIRD CLOSED IN			
FINAL HYDROSTATIC	1690	1708	1701

TYPE OF TEST	TESTER	EMPL. NO.
Dual Bottom Hole	G. Wiggett	92403
WITNESS: R. Hansen	DRILLING CONTRACTOR: Tri City #2	

EQUIPMENT AND WELL DATA

FORMATION TESTED: Mt. Franklin	GAUGE DEPTH ____ °F MEAS / TEMPERATURE 85 °F EST.
NET PRODUCTIVE THICKNESS ____ FT.	MUD TYPE: Gel
K B ELEVATION: 865	MUD WEIGHT: 8.8 MUD VISC.: 35
ALL DEPTHS MEASURED FROM: ☑ KB ☐ GROUND	CASING OR HOLE SIZE: 7 7/8"
PACKER DEPTHS TOP ____ BOTTOM 3616	RATHOLE SIZE
DEPTH OF TESTER VALVE: 3591	DRILL PIPE OD 4 1/2" WEIGHT 16.6
CASING PERFORATED INTERVAL	DRILL COLLARS ABOVE TESTER ID 2 7/8" LENGTH 543'
TOTAL DEPTH: 3657	SURFACE CHOKE: 3/4"
AMOUNT AND TYPE CUSHION: Nil	BOTTOM CHOKE: 7/8"

FLUID SAMPLER DATA

SAMPLER PRESSURE AT SURFACE ____ PSIG

RECOVERY: C.C. OIL ____ CU.FT. GAS ____

C.C. WATER ____

C.C. MUD ____

TOTAL LIQUID C.C. ____

SAMPLE SHIPPED TO LABORATORY: YES ☐ NO ☐

OIL GRAVITY ____ API @ ____ °F

GAS/OIL RATIO ____ CU.FT./BBL.

RESISTIVITY/REFRACTOMETER/SP. GR. READING			CHLORIDE CONTENT
RECOVERY WATER	@ ____	°F ____	PPM
RECOVERY MUD FILTRATE	@ ____	°F ____	PPM
MUD PIT SAMPLE FILTRATE	@ ____	°F ____	PPM

TIME PERIODS

	FIRST	SECOND	THIRD		AM	PM
FLOW	10	60		TESTER OPENED		7:20
CLOSED IN	30	80		PACKER UNSEATED		10.20

LIQUID RECOVERY DATA

MEASURED FROM TESTER VALVE: FEET	DESCRIPTION OF LIQUID
2600	Muddy Water
2600	TOTAL LIQUID RECOVERY

GAS FLOW RATE DATA

TYPE OF INSTRUMENT: ☐ CRITICAL FLOW PROVER ☐ PITOT TUBE ☐ ORIFICE WELL TESTER ☐ SIDE STATIC

FLOW TIME	INSTRUMENT PRESSURE "WATER	"MERC.	PSI	ORIFICE SIZE	GAS TEMP.	GAS RATE MCFD @ 60°F

REMARKS: Skidded 6 ft. to bottom. Strong blow dying in 8 minutes of preflow. No blow during final flow. Tool plugged off above choke with shale.

DEPT. OF INDIAN AFFAIRS & NORTHERN DEVELOPMENT OIL & MINERAL DIVISION JUN 10 1971 CALGARY 21, ALBERTA OIL CONSERVATION ENGINEER Northwest Territories & Yukon Territory

COMPANY: CHEVRON STANDARD LIMITED

LEGAL DESCRIPTION: 64° 50' 24" N 123°-56'-28" W

PROVINCE OR TERRITORY: N.W.T.

FIELD OR AREA: ST. CHARLES CREEK

TEST NUMBER: 1

WELL NAME AND NUMBER: SOBC CS ST. CHARLES CK.

TESTED INTERVAL: 3616 - 3657

NOMENCLATURE

AOF = absolute open flow potential, MCFD

AOF_t = theoretical absolute open flow potential if damage were removed, MCFD

B = formation volume factor, res bbl/ST bbl

c = compressibility, psi^{-1}

D = gauge depth from KB, ft

DR = damage ratio, dimensionless

E = KB elevation, ft

F = drill pipe capacity, bbl/ft

G = hydrostatic gradient of recovery fluid, psi/ft

h = net productive thickness of formation, ft

h^1 = thickness of test interval, ft

k = average effective permeability, md

k^1 = estimated average effective permeability, md

m = slope of final CIP buildup plot, psig/cycle ($psig^2$/cycle for gas)

M = slope of flow plot, min^{-1}

P_D = average pressure drop across damaged zone during flow, psig

P_f = reservoir pressure, psig

P_s = wellbore flow pressure, psig

$\bar{P}$ = weighted average wellbore flow pressure, psig

PI = productivity index, bbl/day-psi

PI_t = theoretical productivity index if damage were removed, bbl/day-psi

PS = potentiometric surface, fresh water corrected to 100° F, ft

Q = average liquid production rate during test, bbl/day

Q_g = measured gas production rate, MCFD at 60 F, 14.4 psig, sp. gr. 0.60

Q_m = maximum production rate, U.S. gal/min

Q_{mt} = maximum theoretical production rate if damage were removed, U.S. gal/min

q = flow rate calculated from hydrostatic of recovery, psi/×min

r_i = radius of investigation, ft

r_w = wellbore or shaft radius, ft

R_s = solution gas-oil ratio, MCFD ST bbl

s = fluid saturation, fraction

t = effective flow time, min

t_f = time interval from start of continuous production to some future point of interest, min

T = reservoir temperature, °R

μ = viscosity, cp

x = time increment during which q values are calculated, min

Z = compressibility factor, dimensionless

ϕ = porosity, fraction

θ = time point during the closed-in period, minutes

Subscripts

g = gas

o = oil

w = water

t = total

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS Lab No. C71-2781

Received: Jan.28,1971 Reported: Feb.4,1971

Well: Location: SOBC Cities Service St. Charles Creek H-61
64° 51' N - 123° 55'W

Operator: CHEVRON STANDARD LIMITED Field or Area:

Elev.: K.B. Grd. Zone/Formation: Sample Interval: 3615' - 3657

Method of Production: D.S.T. #1 Sampled from: 0' above tool Sampled by: Date:

OTHER PERTINENT DATA Recovered 2600' fluid (water) Sample #5.

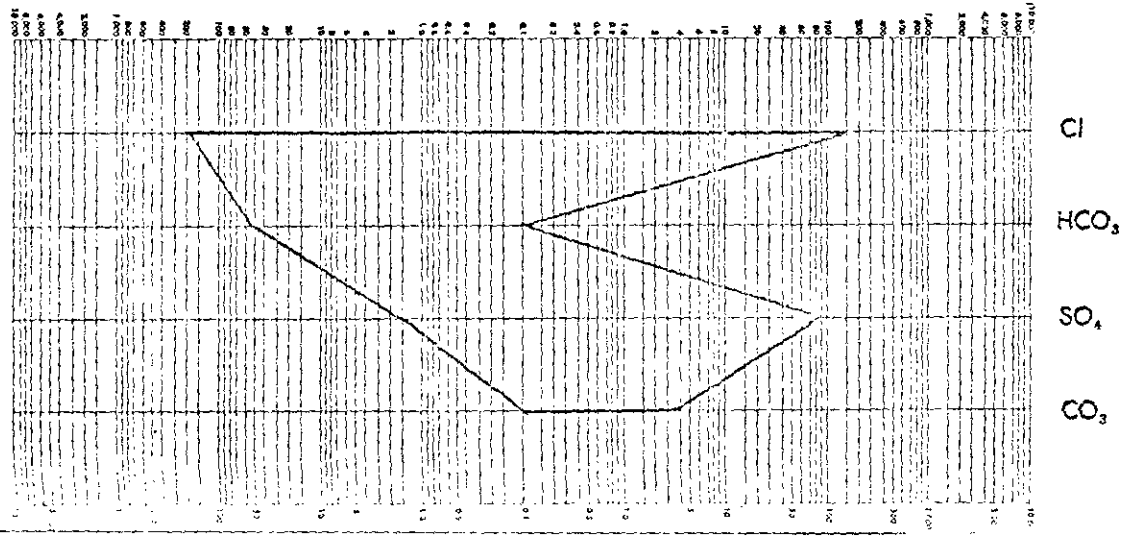
(Signed)

	Na	K	Ca	Mg					SO_4	Cl			CO_3	HCO_3	OH	
Mg./L	4340		1020	19					4150	5300			105		34	
Meq./L	188.82		50.90	1.56					86.32	149.46			3.50		2.00	
Meq. %	39.13		10.55	0.32					17.89	30.97			0.73		0.41	

Total Solids Mg/L: By Evaporation 15,360 Fe Trace Specific Gravity 1.017 @60°F Observed pH 11.2 @ 75 °F

Calculated 14,968 After Ignition 14,570 H_2S Nil Refractive Index 1.3355 @25°C Resistivity 0.531 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

The sample as received, contained a small percentage of sediment. The filtrate was yellow in color.