

WELL HISTORY REPORT

CHEVRON SOBC WM WHITEFISH YT 1-05

CONFIDENTIAL

WELL HISTORY REPORT

CHEVRON SOBC WM WHITEFISH YT I-05

APRIL 14, 1972



---

R. C. Richardson, P.Eng.

Project Manager

## TABLE OF CONTENTS

	<u>Page</u>
<u>SECTION I - SUMMARY OF WELL DATA</u>	1-2
a) Well Name and Number	
b) Permittee, Licensee or Lessee	
c) Name of Operator	
d) Location	
e) Coordinates	
f) Permit or Lease Number	
g) Drilling Contractor	
h) Drilling Authority	
i) Classification	
j) Elevations	
k) Spudded	
l) Completed Drilling	
m) T.D. and P.B.T.D.	
n) Well Status	
o) Rig Release Date	
p) Hole Sizes to Total Depth	
q) Casing	
r) Engineers and Geologists	
<u>SECTION II - GEOLOGICAL SUMMARY</u>	3-15
a) Formation Tops	3
b) Cored Intervals	3
c) Core Descriptions	3
d) Sample Descriptions	7
e) Paleontological Determinations	15
<u>SECTION III - ENGINEERING SUMMARY</u>	16-18
a) Report of Drillstem Tests	16
b) Casing Record	17
c) Bit Record	17
d) Mud Report	17
e) Deviation Record	18
f) Abandonment Plugs	18
g) Lost Circulation Zones	18
h) Report of Blowouts	18
<u>SECTION IV - LOGS</u>	19

Table of Contents - Continued

	<u>Page</u>
<u>SECTION V - ANALYSIS</u>	20
a) Core Analysis	
b) Water Analysis	
c) Gas Analysis	
d) Oil Analysis	
<u>SECTION VI - COMPLETION SUMMARY</u>	21
a) Tubing Record	
b) Perforation Record	
c) Cementation Record	
d) Acidization and Fracturing Record	
e) Back Pressure and Production Tests	

SECTION I - SUMMARY OF WELL DATA

a) Well Name and Number

Chevron SOBC WM Whitefish YT I-05

b) Permittee, Licensee or Lessee

Western Minerals Limited

c) Name of Operator

Chevron Standard Limited  
400 Fifth Avenue S.W.  
Calgary, Alberta  
T2P 0L7

d) Location

Unit I, Section 5, Grid 67-10 - 137-15

Unique Well Identifier

300I056710137150

e) Coordinates

Latitude: 67° 04' 37" N; Longitude: 137° 15' 25" W

U.W.L.R.

Lat. 67.07695° N.  
Long. 137.25694° W.

f) Permit or Lease Number

Permit No. 2727

g) Drilling Contractor

G. P. Drilling Ltd., Rotary Rig #15

h) Drilling Authority

No. 578, issued February 14, 1972

i) Classification

Wildcat

j) Elevations

Ground elevation - 1,122.5'; K.B. elevation - 1,142.0'

k) Spudded

19:30 hours, February 23, 1972

l) Completed Drilling

13:00 hours, March 24, 1972

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

T.D. - 4,916'; P.B.T.D. - Surface  
Driller

T.D. - 4910'  
Logger.

n) Well Status

Dry and permanently abandoned

o) Rig Release Date

08:00 hours, March 30, 1972

p) Hole Sizes to Total Depth

30" Hole from Surface to 79' K.B.  
12-1/4" Hole from 79' to 861' K.B.  
8-3/4" Hole from 861' to 4,916'

q) Casing

19" O.D. conductor pipe set at 79' K.B.  
9-5/8" J-55, 36# casing set at 859' K.B.

r) Engineers - H. Herring - R. G. Causgrove - J. Veny  
Geologists - B. Herring - P. Collier

SECTION II - GEOLOGICAL SUMMARY

a) Formation Tops

<u>Formation</u>	<u>Depth</u> <u>Samples</u>	<u>Logs</u>	<u>Elevation</u> <u>K.B. 1142'</u>
Spuds in Eagle Plain Fm.			
Blackie Sand	2530?	2185	-1043
L. Cretaceous Shale Unit	2790?	3105	-1963
M. Albian Unconformity	3965?	3650?	-2508
Basal Cretaceous Silt Unit	3965?	3887	-2745
Basal Cretaceous Sand Unit	4690	4690	-3548
Upper Devonian Imperial Fm.	4761	4760	-3618

TOTAL DEPTH 4916'

b) Cored Intervals

<u>Core No.</u>	<u>Interval</u>	<u>Formation</u>	<u>Recovery</u>
1	3986' - 4046'	Lower Cretaceous	60'
2	4047' - 4071'	Lower Cretaceous	16'
3	4456' - 4480'	Lower Cretaceous	18'
4	4696' - 4758'	Lower Cretaceous	11.5'
5	4759' - 4797'	Upper Devonian	38'
6	4798' - 4831'	Upper Devonian	33'

c) Core Description

Core #1 : 3986'-4046' Cut 60' Rec. 60'

Coring Times

3986' - 37, 37, 30, 23, 25, 25, 25, 15, 22, 25,  
 23, 24, 26, 22, 21, 20, 24, 23, 24, 25,  
 62, 19, 11, 7, 11, 12, 12, 14, 17, 21,  
 24, 13, 26, 20, 18, 11, 11, 14, 24, 10,  
 13, 11, 13, 12, 13, 12, 10, 10, 15, 14,  
 11, 14, 29, 14, 13, 15, 15, 15, 10, 15 - 4046'

3986 - 4002.4: Shale, black, slightly silty, micaceous, with 10-20% silt laminae. Lensing and bondinage in silt, minor cross-bedding. Subhorizontal dips. Minor pyrite nodules and bituminous specks.

4002.4-4010.2: Interbedded shale and siltstone, light and dark grey striped. 30% shale, dark grey with abundant bituminous specks; 40% siltstone, light grey, argillaceous; 30% siltstone, light grey, clean, coarse silt grain size. Textures and bedding as above.

- 4010.2-4016.3: Interbedded sandstone, siltstone and shale, light and medium grey-brown; 40% sand, very fine grained, submicromicaceous shale laminae, quartzose, calcareous cement, minor glauconite and iron staining. Cross-bedded and minor ripple marks. Probable small pelecypods. 2' with poor to very poor intergranular porosity (5%). No stain.  
30% silt, argillaceous  
30% shale, silty
- 4016.3-4023.1: Interbedded sandstone and shale, light and dark grey; 40% sand, light grey, very fine grained, silty, lensing and sedimentary bonding; subhorizontal bedding. Accessory muscovite flakes and glauconite. Tight, no show. 60% shale, dark grey, silty; interbeds are on a  $\frac{1}{4}$ " - 1" scale.
- 4023.1: Angular, probably burrowed, contact.
- 4023.1-4032.3: Sandstone, light grey, silty, quartzose, 15% shale and silt interbeds; very fine grained, calcareous cement, finely laminated, depositional dips to 5<sup>o</sup>; accessory mica flakes and glauconite; trace iron staining. 1' with very poor porosity (5%); no show.
- 4032.3-4033.8: Interbedded siltstone and shale, light and dark grey striped; 60% silt, light grey, sandy, cross-bedded and fine lamination; trace noneffective porosity; 40% shale dark grey, silty.
- 4033.8-4035.7: Sandstone, light grey, silty, quartzose, very fine grained; 10% fine shale laminae; small scale cross-bedding, subhorizontal dips; calcareous and silica cements. 5% dark chert grains. 1' with very poor porosity (5%).
- 4035.7-4037.9: Interbedded siltstone and shale, light and dark grey striped; 50% silt, light grey, sandy, cross-bedding; 50% shale, dark grey, silty. Interbeds are on a  $\frac{1}{2}$ " - 2" scale.
- 4037.9-4044.3: Interbedded sandstone and shale, light and dark grey; 60% sand, light grey, silty, quartzose, very fine grained, calcite and silica cements; finely laminated and cross-bedded; accessory mica flakes and glauconite; 5% dark chert grains. 2' with noneffective porosity (3%); no show.
- 4044.3-4046.0: Siltstone, medium grey, sandy and argillaceous; massive bedding; one 3" sand interbed; accessory calcite, biotite flakes and glauconite. Tight.

Core #2 : 4047'-4071' Cut 24' Rec. 16'

Coring Times

4047' - 8, 19, 17, 19, 15, 12, 15, 19, 15, 15,  
13, 16, 16, 14, 17, 15, 18, 14, 13, 15,  
15, 15, 15, 20 - 4071'

4047 - 4071: Interbedded shale and siltstone, light and dark grey striped; 50% silt, subquartzose, medium silt size grains, 1/4" - 3" beds, slightly sandy, calcareous, minor glauconite; "bondinage" due to burrowing, lensing, scour structures and minor cross-bedding. 50% shale, dark grey, bituminous, micaceous (biotite). The percentage of silt beds and their thickness gradually diminishes downwards; silts are coarsest at the top.

Core #3 : 4456'-4480' Cut 24' Rec. 18'

Coring Times

4456' - 16, 22, 21, 18, 21, 24, 20, 21, 19, 24,  
13, 19, 21, 19, 17, 21, 19, 14, 12, 15,  
15, 19, 24, 23 - 4480'

4456 - 4480: Shale, black, silty to very silty, slightly carbonaceous, pyritic; very fissile - poker chip habit; occasional light grey silt laminae and lenses up to 1 cm. Worm tracks and occasional large pelecypods near top.

Core #4 : 4696'-4758' Cut 62' Rec. 11.5'

Coring Times

4696' - 5, 2, 2, 3, 2, 2, 3, 2, 2, 2,  
3, 6, 3, 3, 3, 3, 5, 7, 3, 2,  
3, 2, 3, 2, 3, 3, 3, 2, 3, 2,  
4, 3, 3, 3, 3, 28, 1, 3, 4, 3,  
5, 3, 4, 3, 4, 3, 3, 3, 4, 4,  
4, 3, 3, 3, 3, 5, 3, 3, 3, 4,  
4, 4 - 4758'

4696 - 4707: Sandstone, medium grey brown, quartzose to subquartzose, fine to medium grained; massively bedded - no shale partings; glauconite, iron staining; 20% silica cement; 10-20% chert grains - mainly white chert; one 6" interbed of light grey-white cherty medium to coarse sandstone with steeply dipping laminae. Minor brecciation at top of core; occasional angular large cherty fragments within sand. Fairly well sorted, subrounded grains. 8' with fair intergranular porosity (15-20%); no stain; pale yellow fluorescence.

4707 - 4758: Lost core.

Core #5 : 4759'-4797' Cut 38' Rec. 38'

Coring Times

4759' - 2, 8, 22, 18, 24, 24, 25, 25, 25, 25,  
21, 29, 19, 21, 25, 24, 15, 31, 24, 33,  
17, 16, 19, 35, 27, 32, 29, 28, 33, 55,  
25, 10, 15, 10, 24, 26, 44, 26 - 4797'

4759-4761.5: Sandstone, medium grey, siliceous, cherty and clean, very fine to fine grained; steep dips (20%); ripple marks; 20% silica cement, 40% white chert, 30% quartz and 10% dark grains. Tight; no stain. 25% shale interbeds.

4761.5-4790.0: Interbedded shale and siltstone, dark grey to black; 70% shale, silty; 25% silt, argillaceous, silica cement with minor calcite; minor graded bedding; closed fractures. Minor sandstone interbeds, very fine grained, ripple marked; 1" interbeds; tight.

4790.0-4793.5: Interbedded sandstone, siltstone and shale, medium to dark grey; 50% sand, silty, siliceous, cherty, fine to medium grained; rather poorly sorted, subangular grains; 50% white chert grains, 30% quartz, 10% dark chert and 10% green chert; graded bedding - 2 units of sand to shale with gradation upwards. Tight; no show. 30% silt, shaley; 20% shale. Steep dips throughout (20°-30°).

4793.5-4797.0: Shale, dark grey, silty; mainly rubble - soft and crumbly; numerous pyritic laminae.

Core #6 : 4798'-4831' Cut 33' Rec. 33'

Coring Times

4798' - 17, 28, 34, 34, 16, 31, 28, 22, 19, 22,  
23, 27, 21, 18, 21, 19, 24, 15, 25, 27,  
19, 12, 26, 28, 30, 30, 14, 10, 35, 32,  
24, 68, 5 - 4831'

4798 - 4831: Interbedded shale and sandstone; 80% shale, dark grey to black, very slightly silty, abundant 1" - 2" bedded and nodular ironstone concretions; plant fragments. 20% sand, light grey, silty, subquartzose to cherty, very fine grained to coarse silt size; slumping - contorted bedding, graded bedding and load casts; silica cement; average composition 50% quartz, 30% white chert,

5% green chert, 15% silica cement. Tight, except for abundant subvertical fractures, open in part; spotty stain on open fractures; no permeability; much pyrite and dolomite lining fractures.  
Uniform 20° dip throughout.

d) Sample Description

- |         |  |
|---------|--|
| 100-110 | Coal and plant fragments. Traces of grey, medium grained sandstone. Trace of amber.  |
| 110-120 | Coal, as above.  |
| 120-130 | Sandstone, light grey S&P, medium grained, minor coarse grained chert, subangular quartz, subrounded chert, abundant carbon flecks, noncalcareous. Interstitial silt, no porosity, stain or fluorescence. Much loose sand. |
| 130-140 | Sandstone, as above. Trace of poor, intergranular porosity, dead oil stain or bitumen coating. No cut or fluorescence in CCl <sub>4</sub> .  |
| 140-150 | Sandstone, grey, S&P, medium grained, noncalcareous, subangular quartz and chert grains, silty, argillaceous, minor carbon flecks. Tight. Trace of interbedded coaly shale. Pyrite.  |
| 150-160 | Sandstone, as above.   |
| 160-170 | Sandstone, as above. Coaly partings and streaks. Much loose sand, coarse sand grains. Minor siltstone, grey, argillaceous, noncalcareous. Trace of pyrite.   |
| 170-180 | Siltstone, grey, argillaceous, noncalcareous. Minor coaly sandstone, as above.   |
| 180-190 | Sandstone, grey, S&P, medium grained, subangular quartz, light grey and grey chert, noncalcareous, kaolinitic, silty matrix. Tight. Much coaly flecks, partings, trace of pyrite.  |
| 190-200 | Sandstone, as above. Much coal and coaly partings, interbedded grey siltstone.   |
| 200-210 | Sandstone, grey, medium grained, S&P, subangular quartz and chert, fairly well sorted, silty, argillaceous matrix, abundant carbonaceous flecks. Trace of pyrite, ironstone.   |
| 210-220 | Sandstone, as above.   |
| 220-230 | Sandstone, as above. Much loose sand. Much light brown ironstone.  |

230-240	As above.
240-250	Sandstone, as above. Trace only, of ironstone.
250-260	Siltstone, grey, grading to fine grained sandstone, noncalcareous, argillaceous. Minor sandstone, as above.
260-270	As above.
270-280	Sandstone, grey, S&P, fine to medium grained, argillaceous, noncalcareous, tight. Minor grey siltstone.
280-290	As above. Trace of medium grained grey S&P calcareous sandstone.
290-300	As above. Trace of pyrite.
300-310	Sandstone, as above. Minor grey siltstone, argillaceous. Trace of ironstone, pyrite.
310-320	As above. Traces of coal. Traces of calcareous sandstone.
320-330	Shale, grey, silty in part, noncalcareous, blocky, soft claystone. Much sandstone, as above, trace calcareous.
330-340	Shale, as above. Much sandstone, loose sand, as above. Traces of pyrite and ironstone, calcareous sandstone in part.
340-350	Sandstone, grey, fine to medium grained, S&P, argillaceous calcareous. Shale, grey and brown-grey claystone, silty in part. Trace of pyrite, ironstone.
350-360	Sandstone, grey, S&P, fine to medium grained, noncalcareous few coaly partings. Fairly well sorted quartz and chert grains, subangular, in a silty, argillaceous matrix. Much light grey-brown claystone, as above.
360-370	As above. Trace of grey, calcareous siltstone.
370-380	Sandstone, as above. Much claystone, as above. Much grey, fine grained calcareous, silty sandstone.
380-390	Sandstone, grey, fine grained, calcareous, argillaceous, silt. Trace micaceous, traces carbon flecks. Subangular quartz and chert grains, fair sorting. Minor light brown claystone.
390-400	Sandstone, grey, fine to medium grained, noncalcareous. Abundant carbon flecks. Subangular, fair sorting, argillaceous. Minor silty claystone.

400-410	Sandstone, fine to medium grained, as above. Trace of pyrite.
410-420	Sandstone, as above. Minor brown and grey shale and claystone.
420-430	Sandstone, as above. Much loose sand. Much plant remains.
430-440	As above.
440-450	As above.
450-460	Sandstone, grey, fine grained, calcareous, argillaceous. Minor interbedded light brown claystone.
460-470	As above.
470-480	Clay, grey, lumpy, smooth, bentonitic.
480-490	Clay, as above, soft, smooth.
490-500	Clay, as above.
500-510	As above.
510-520	As above.
520-530	As above.
530-540	Clay, as above, minor grey, blocky shale.
540-550	As above. Trace of light grey argillaceous, fine grained sandstone.
550-560	Sandstone, grey, S&P, fine grained, calcareous, argillaceous, traces of medium and coarse sandstone. Subangular quartz and chert grains, argillaceous, silty matrix. Trace of pyrite.
560-570	Sandstone, as above. Noncalcareous in part.
570-580	Sandstone, as above. Trace of grey, interbedded shale. Trace of pyrite, ironstone.
580-590	Sandstone, as above.
590-600	Sandstone, as above, very argillaceous in part.
600-650	No samples. Lost circulation material.
650-660	Clay, grey, blocky. Much sawdust.

- 660-690 As above. Bentonitic, clay.
- 690-780 Clay, grey, blocky, noncalcareous, bentonitic. Trace of grey, subfissile clayey shale.
- 780-790 No sample. Trip for bit 787'.
- 790-800 Shale, grey, noncalcareous, subfissile to blocky, minor subfissile calcareous shale - 60%. Limestone, pale grey and white, slightly argillaceous, hackly fracture, micritic, trace silty - 25%. Sandstone, grey, fine to medium grained, argillaceous, calcareous, tight - 15%. Trace of pyrite.
- 800-810 Shale, as above - 60%. Sandstone, grey, fine to medium grained, as above - 40%. Trace of pale grey limestone, trace of pyrite.
- 810-820 Sandstone, grey, argillaceous, very fine grained, slightly calcareous, grading in part to grey, calcareous siltstone. Traces of mica, plant remains. Pyrite.
- 820-830 Sandstone, as above. Much pale grey micritic limestone - fracture - filling?
- 830-840 Sandstone, as above. Much grey, micromicaceous, silty, noncalcareous shale. Trace of pyrite.
- 840-900 Silty micaceous shale.
- 900-910 Bf Sst w abun light arg matrix.
- 910-920 Coarse siltst. dk cht gns.
- 920-940 Gy fissile silty sh.
- 940-970 Grey shaly siltstone tr. fine sand.
- 970-985 Grey silty shale.
- 985-1090 S&P Sst. with stringers of silty shale.
- 1090-1100 Stringer(?) of brn microxtalline limestone - argillaceous.
- 1100-1220 Alternation of silty S&P ssts & sandy siltstones.
- 1220-1240 Silty grey shale.
- 1240-1370 Alternation of sand and silt as above. Occasional str. pyritic sh.

1370-1485	Friable soft med brn clay.
1485-1500	Gy shaly siltstone cht gns.
1500-1510	Friable soft med brn clay.
1510-1620	Grey siltstone, chert and quartz grains occ. micaceous interbedded w dk grey fissile shale inoceramus fragments.
1620-1720	Siltstone, grey as above micaceous, pyritic, interbedded with very fine to fine salt and pepper sandstone.
1720-1780	Silty shale with liqnite and plant fragments.
1780-1790	Hard white siltstone, some cherty grains.
1790-1800	Dark grey silty shale.
1800-1810	Friable quartz sst w white shaly matrix, subrounded gr.
1810-1820	Grey micaceous silty shale.
1820-1840	Grey siltstone subangular quartz and cht grains.
1840-1850	Grey fissile shale tr liqnite.
1850-1890	Grey micaceous siltstone, occasionally sandy. Liqnite.
1890-1940	Fine silty sand - salt and pepper. Stringers of poor intergranular porosity interbedded with grey siltstone. Trace liqnite.
1940-1970	Med grey shaly siltstone. Pyritic. Mollusc fragments. Liqnite.
1970-2000	Fine grey silty sand. Pyrite, plant frags, mollusc frags, liqnite.
2000-2010	Grey dark silty shale, fissile, liqnite.
2010-2030	Fine cherty S&P sandstone.
2030-2080	Med grey silty shale occasionally micaceous or pyritic.
2080-2100	Med grey shaly siltstone grading to fine sand. Liqnite.
2100-2110	Dk grey shale tr silt.
2110-2180	Med grey S&P sst interbedded w silty shale. Pyritic, micaceous, liqnite.

- 2180-2220 Clean med light grey quartzitic sst minor chert grains subangular 2-10% porosity ( 10' greater than 5%) interbedded with liqnite.
- 2220-2230 Liqnite.
- 2230-2250 Med brn silty shale.
- 2250-2270 Sandy siltstone S&P texture intbd with fine sst, glauc (tr) mica mollusc frags.
- 2270-2290 Silty shale interbedded with fine sst.
- 2290-2310 Liqnite.
- 2310-2360 Sandy siltstone and silty sand grey S&P text. Interbedded with minor silty shale.
- 2360-2370 Grey silty shale micaceous, pyrite inoceramus frags.
- 2370-2390 Liqnite.
- 2390-2400 Grey brown silty shale.
- 2400-2440 Fine silty S&P sandstone, tr clay grey.
- 2440-2460 Grey fine S&P sst, glauconitic, tr calcite. Mod. porosity (4%).
- 2460-2530 Grey glauconitic silty S&P sst. Interbedded with slightly fissile silty shale.
- 2530-2540 Grey shaly siltstone. Liqnite.
- 2540-2610 Grey salt and pepper sandstone. Glauconitic. 2-6% porosity grain size occ up to 0.5 mm silty matrix.
- 2610-2640 Fine grey S&P sst. Matrix silt and clay occ trace of poor porosity. Glauc.
- 2640-2650 Sst as above with patches containing coarse (1 mm) rounded cht and quartz grains.
- 2650-2700 Med grey S&P sandstone. V fine grained, silty-clay matrix. Glauconitic. Liqnite str.
- 2700-2770 Fine S&P sandstone. Porosity up to 10% in patches, poor to fair permeability. Trace ironstone. Colour of sand grey-grey brown.
- 2770-2790 Sandstone as above but slightly more matrix. Tight.

- 2790-2860 Sl silty fiss dk grey clay tr cht pebbles - rounded fish teeth interbedded with tight, fine grained S&P sst.
- 2860-2900 Very fine to fine salt and pepper sandstone fair intergranular porosity, glauconitic subangular. Some silty-clayey matrix.
- 2900-2930 Fissile somewhat micaceous dark grey silty shale.
- 2930-2940 Shale as above, interbedded with shaly grey siltstone. Quartz, dk cht grains.
- 2940-2950 Fine, salt and pepper sst. tr. glauc.
- 2950-2960 Dk gy fissile silty shale.
- 2960-2980 Shaly siltstone as above.
- 2980-3010 Fine grey clean salt and pepper sst, quartzose cement. Trace poor intercrystalline porosity.
- 3010-3030 Brown micaceous sandy siltstone.
- 3030-3050 Brown micaceous salt and pepper sandstone with shaly partings.
- 3050-3080 Dk gy mic shaly siltst.
- 3080-3110 V fine gy S&P sst.
- 3110-3220 Dk gy mic sh w occ plant frags, intbd w sands and siltst.
- 3220-3370 Dk gy - gy/br shaly siltstone, micaceous, quartzose tr cht.
- 3370-3960 Dk gy micaceous sl silty shale tr fe st nodules. Trace anhydrite in shale.
- 3960-3986 Siltstone, light to medium grey, sandy, silica and calcite cements, numerous mm shale laminae.
- 3986-4071 Cores 1 and 2.
- 4071-4340 Interbedded siltstone and shale, light and dark grey striped. 20-50% siltstone, subquartzose, micaceous, calcareous and siliceous cements; numerous shale laminae. 50-80% shale, carbonaceous, micaceous, subfissile to fissile.
- 4340-4410 Interbedded siltstone and shale, light and dark grey striped. 60% siltstone, sandy, quartzose and glauconitic

- 4340-4410  
(cont'd.) in part, numerous mm shale laminae, calcite and silica cements. 40% shale, silty, micaceous, fissile, non-calcareous.
- 4410-4456 Interbedded sandstone, siltstone and shale, light grey-white and dark grey striped. 40% shale, micaceous, silty. 40% siltstone, sandy, as above. 20% sandstone, very fine grained, thinly interbedded with shales and silts; subquartzose to quartzose, calcite and silica cements; trace very poor intergranular porosity; no show.
- 4456-4480 Core 3.
- 4480-4660 Interbedded siltstone and shale, light and dark grey striped. 60-80% shale, slightly silty, micaceous, subfissile, vein calcite common; stringers of brown silty biosporite towards base of interval. 20-40% siltstone, occurring as mm and sub mm laminae; pyrite common - massive and disseminated forms; trace pyritized worm tracks.
- 4660-4696 Interbedded sandstone and shale. 50-80% sandstone, medium grey-green, very argillaceous and glauconitic (25% glauc, 25% quartz, 20% chert, 10% rock fragments, 20% clay matrix); occasional large, well-rounded quartz grains floating in finer shaly matrix. Minor clean, quartzose sandstone, silicified and tight, except for 2-3' at base of interval with poor intergranular porosity; no show. 20-50% shale, dark grey, silty, locally very glauconitic.
- 4696-4831 Cores 4, 5 and 6.
- 4831-4916 Interbedded sandstone, siltstone and shale. 40-80% shale, dark grey to black, micromicaceous, fissile. 20-50% siltstone, medium grey-brown, sandy, siliceous with shale laminae. 0-30% sandstone, light grey, cherty, siliceous, very fine to medium grained; composition 60% white chert, 30% quartz, 5% dark chert, 5% green chert; poorly sorted, angular to subangular grains. Tight, except for occasional open fractures - no permeability. Trace spotty oil stain on open fracture surfaces.

T.D. - 4916'

e) Paleontological Determinations

Microfloral Ages:     0-3750   : No determinations  
                      3750-3870 : Upper Albian  
                      4030-4716 : Middle Albian to Barremian  
                      4761-4831 : Upper Devonian, late Frasnian or  
                                  early Famennian

Microfaunas obtained from Cores 1 and 2 (3986-4071) indicate a Lower to Middle Albian age. Cores 3 and 4 yielded microfaunas indicative of Barremian to Lower Albian ages in the interval 4466-4697.

SECTION III - ENGINEERING SUMMARY

a) Report of Drillstem Tests (See service reports in attached envelope.)

DST #1        4,645' - 4,758' - Straddle Test  
Zone         Johnson Creek  
Remarks     Missrun - packer seat would not hold

DST #2        4,665' - 4,758' - Straddle Test  
Zone         Johnson Creek  
Remarks     Missrun - packer seat would not hold

DST #3        4,680' - 4,758' - Straddle Test  
Zone         Johnson Creek  
Times         Preflow 10 mins., V.O. 90 mins., ISI 60 mins., FSI 150 mins.  
                  Good initial puff of air. Gas to surface in 11 mins., TSTM,  
                  decreasing and dead in 60 mins.

Recovered    4,400' of gassy muddy fresh water

Pressures    IHP 2337                    FHP 2330                    Preflow 203  
                  ISIP 1975                    FSIP 1983  
                  IFP 1313                    FFP 1970

Remarks     BHT 101°F  
                  Test satisfactory

DST #4        2,192' - 2,202' - Straddle Test

Zone         Cretaceous Sandstone

Times         Preflow 5 Mins., V.O. 90 mins., ISI 60 mins., FSI 150 mins.  
                  Good air blow on preflow. Good air blow on V.O. decreasing  
                  to faint at the end of flow. No G.T.S.

Recovered    1,650' muddy fresh water, with trace of gas

Pressures    IHP 1067                    FHP 1072  
                  ISIP 880                    FSIP 880  
                  IFP 199                    FFP 747

Remarks     BHT 74°F  
                  Test satisfactory

b) Casing Record

Conductor Pipe

25' of 23" O.D., 18½" I.D., ¼" wall, insulated concentric conductor pipe with ¾" O.D. cooling coils. 26' of 19" O.D., ¼" wall conductor pipe set at 59' below ground or 79' K.B.

Conductor pipe cemented with 220 sax of permafrost (cold set) B.J. cement.

Surface Casing

Ran 26 joints (841.74') of 9-5/8", 36#, J-55, 8rd, new, seamless, ST&C, Rge. 2 casing landed at 858.66' K.B.

Cemented casing with 433 sax of type I cement plus 3% CaCl<sub>2</sub>. Cement in place at 05:35 February 26, 1972.

Circulated approximately 30 sax of excess cement. No intermediate and no production casing strings were run.

c) Bit Record

See attached Bit Record sheet.

d) Mud Report

Surface Hole

The 12½" surface hole was drilled from 79' K.B. to 861' using a water-gel-Rapidril mud as the drilling fluid. The following materials were used on surface.

Gel	143 sax
Rapidril	3 sax
Caustic	3 sax
Sawdust	35 sax

Main Hole

The main hole was drilled using a gel-water-Rapidril system to 4,916' T.D. The following materials were used on the main hole.

Gel	340 sax
Sawdust	105 sax (rig floor only)
Caustic	52 sax
Rapidril	105 sax
Soda Ash	2 sax
CMC	15 sax

e) Deviation Record

70 - 1-1/4	505 - 1/4	1210 - 1/2	3180 - 1	3940 - 2-1/4	4696 - 3
107 - 1-1/4	600 - 0	1701 - 1	3650 - 1/3/4	3985 - 2-3/4	4758 - 3
170 - 3/4	690 - 0	1891 - 1	3785 - 2-1/2	4099 - 2-1/2	4790 - 3-3/4
230 - 1/2	720 - 1/4	2275 - 1-3/4	3810 - 2-1/2	4215 - 1-7/8	
320 - 1/2	860 - 1/4	2403 - 1-1/8	3880 - 2-1/4	4303 - 1-1/2	
415 - 1/2	870 - 1/2	2775 - 1	3911 - 2	4456 - 1-3/4	

f) Abandonment Plugs

Plug #1 (4,916'-4,866')	35	sax	Type I Portland Cement	
Plug #2 (4,810'-4,640')	100	sax	Type I Portland Cement	Felt @ 4610'
Plug #3 (2,950'-2,850')	80	sax	Type I Portland Cement plus 2% CaCl <sub>2</sub>	Felt @ 2815'
Plug #4 (2,330'-2,130')	180	sax	Type I Portland Cement plus 2% CaCl <sub>2</sub>	Felt @ 2100'
Plug #5 ( 910'- 810')	70	sax	Type I Portland Cement plus 3% CaCl <sub>2</sub>	Felt @ 806'
Surface Plug	5	sax	Type I Portland Cement	

g) Lost Circulation Zones

While drilling surface hole at 600' circulation was lost. Approximately 166 barrels of mud were lost in the Eagle Plain formation. Circulation was regained by mixing gel, Rapidril and sawdust.

h) Report of Blowouts

No kicks or blowouts on this well.

SECTION IV - LOGS

The following Schlumberger logs were run on March 24-25, 1972.

Dual Induction Laterolog (4,902'-858')  
BHC Sonic/Gamma Ray/Caliper (4,906'-858')  
Formation Density Log (Compensated) (4,905'-858')  
Microlog Caliper (4,905'-858')

Ran Century Geophysical velocity survey.

Ran sidewall cores - 24 shots as follows:

2,197' - Not recovered	4,707'
2,203'	4,708'
4,600'	4,711'
4,610'	4,712'
4,620'	4,713' - Not recovered
4,630'	4,714'
4,640'	4,715'
4,650'	4,716'
4,660'	4,724'
4,669'	4,726'
4,679'	4,732'
4,681'	4,738'

SECTION VI - COMPLETION SUMMARY

a) Tubing Record

No tubing run

b) Perforation Record

No perforations

c) Cementation Record

Abandonment Plug #1 (4,916'-4,866')

Cemented with 35 sax Type I Portland Cement  
Cement in place at 24:00 hours March 27, 1972  
No feel on Plug #1

Abandonment Plug #2 (4,810'-4,640')

Cemented with 100 sax Type I Portland Cement  
Cement in place at 01:00 hours March 28, 1972  
Felt Plug #2 at 4,620' after 8 hours W.O.C.

Abandonment Plug #3 (2,950'-2,850')

Cemented with 80 sax Type I Portland Cement plus 2% CaCl<sub>2</sub>  
Cement in place at 12:00 hours March 28, 1972  
Felt Plug #3 at 2,815' at 20:00 hours March 28, 1972

Abandonment Plug #4 (2,330'-2,130')

Cemented with 180 sax Type I Portland Cement plus 2% CaCl<sub>2</sub>  
Cement in place at 21:10 hours March 28, 1972  
Felt Plug #4 at 2,100' at 05:30 hours March 29, 1972

Abandonment Plug #5 (910'-810')

Cemented with 70 sax Type I Portland Cement plus 3% CaCl<sub>2</sub>  
Cement in place at 06:40 hours March 29, 1972  
Felt Plug #5 at 806' after 12 hours W.O.C.

d) Acidization and Fracturing Record

No acidizing or fracturing operations

e) Back Pressure and Production Tests

No back pressure or production tests

SECTION V - ANALYSIS

a) Core Analysis

Core analysis enclosed in back folder.

b) Water Analysis

Water Analysis enclosed in back folder.

c) Gas Analysis

No Gas Analysis

d) Oil Analysis

No Oil Analysis.

CHEVRON STANDARD LIMITED  
BIT RECORD

CHEVRON SOBC WM  
WELL NAME WHITEFISH YTI-05 CONTRACTOR G.P. RIG No. 15 PUMP No 1 G.700 6 1/4 X 14 DC 555-7" X 2 7/8"  
SPUD DATE FEBRUARY 23, 1972 RIG RELEASED MARCH 30, 1972 DRILLING DAYS 36 PUMP No 2 G.700 5 1/2 X 14 DP 4 1/2" FH

BIT No	MAKE	SIZE	TYPE	DEPTH		FOOTAGE	TIME	DRLG RATE	NOZZLE SIZES	JET VEL	WEIGHT M #	RPM	No. 1 PUMP		No. 2 PUMP		PUMP PSI	HHP AT BIT	DP ANN.	DC ANN.	MUD		DULL COND.			DEV.	REMARKS
				FROM	TO								LINER	SPM	LINER	SPM					WT	VIS	T	B	G		
1S	HW	12 1/4	OSC3	79	788	609	32	22.2	3-22		8-15	125	6 1/4	60	5 1/2	60	650				8.5	40	4	2	I	1/4	2-9" collars
2S	HW	12 1/4	OSC3	788	861	73	3 1/2	20.9	3-22		10	130	6 1/4	61	5 1/2	60	600				9.0	70	1	1	I	1/4	and 10-7 X 2 7/8 - 555'
1	HW	8 3/4	XIG	861	2403	1542	21 1/4	49.3	1-9 2-10	447 403	30	100	6 1/4	50	5 1/2	58	1600	780	130	65	8.6	30	5	2	I	1 1/8	
2	HW	8 3/4	S33	2403	3985	1582	70 1/4	22.6	3-10	403	20 25	50 60	"	"	"	"	1650	"	"	"	9.3	45	2	2	I	2 1/4	Pulled to Core
1B	WEST DRILL	6 3/16	◇	3985	4045	60	18 1/2	3.2	-	-	12	57	"	43	-	-	800	-	-	-	9.2	48	Good	-	-	-	
2C	"	6 3/16	◇	4046	4080	24	8 3/4	3.	-	-	12	57	"	43	-	-	800	-	-	-	9.2	48	Good	-	-	-	
3	HW	8 3/4	XDU	4080	4407	386	27 1/4	9.8	3-10	403	25	60	"	50	-	-	1650	-	-	-	9.4	57	4	1	I	1 3/4	Remain 89 ft in 8 1/4 hrs
4	SEC	8 3/4	S-88	4407	4456	49	3 1/4	15	2-10 1-13		30	50	"	"	-	-	1450	72	-	-	9.6	51	1	1	I	1 3/4	Pulled to Core
RR3C	WEST DRILL	6 3/16	◇	4456	4480	24	8 3/4	2.8	-	-	12	57	"	43	-	-	800	-	-	-	9.6	50	Good	-	-	-	
RR4	SEC	8 3/4	S-88	4480	4620	140	17	8.2	2-10 1-13		20 25	60	"	50	-	-	1350	-	-	-	9.5	71	1	1	I	3	
5	SEC	8 3/4	S-44	4620	4696	76	5 1/4	19.5	2-10 1-13		15 18	80	"	55	-	-	1350	-	-	-	9.5	85	2	1	I	3 1/4	Pulled to Core
RR2C	WEST DRILL	6 3/16	◇	4696	4758	62	4	16.5	-	-	12	75	"	50	-	-	800	-	-	-	9.5	87	Good	-	-	-	
6	REED	8 1/4	SHGS	4696	4758	62	5 1/4	11.8	3-12	-	15	45	"	50	-	-	1600	-	-	-	9.5	87	1	1	I		Remain
3C	WEST DRILL	6 3/16	◇	4758	4797	39	16	3.4	-	-	12	57	"	42	-	-	800	-	-	-	9.5	78	Good	-	-	-	
RR6	REED	8 3/4	SHOT	4758	4798	39	8 1/2	4.7	3-12	-	10	60	"	50	-	-	1400	-	-	-	9.4	93	1	1	I		REEM
RR3C	WEST DRILL	6 3/16	◇	4798	4831	33	13 1/2	2.5	-	-	10	80	"	53	-	-	800	-	-	-	9.4	82	Good	-	-	-	
RR6	REED	8 3/4	SHGS	4831	4869	38	11 1/4	2.1	3-12	-	10	60	"	55	-	-	1100	-	-	-	9.5	91	6	8	O.		Remain 23' in 6 1/4 hrs
RR5	SEC	8 3/4	S44	4869	4916	47	14	3.4	3-13	-	30	40	"	54	-	-	1200	-	-	-	9.5	103	6	5	O		