

CHEVRON SOBC WM E. PINE CREEK YT 0-78

GEOLOGICAL PROGRAM

CONFIDENTIAL - NOT TO BE SHOWN TO UNAUTHORIZED PERSONNEL

The status of this well will be "Tight" therefore, all information regarding the well will be restricted to Chevron Standard personnel and authorized representatives of Western Minerals. Only Company geological and engineering supervision is to be used on this well.

Elevations

Ground Elevation (surveyed) - +1210'  
K.B. Elevation (estimated) - +1225'  
K.B. Elevation (surveyed) -

A. Estimated Depth and Elevation of Significant Markers

	<u>Est. Elevation</u>	<u>Est. Depth</u>
Lower Cretaceous Shale Unit	+1210	Surface
Albian Siltstone Unit	- 800	2025
Johnson Creek Formation	-1150	2375
Paleozoic Unconformity (Upper Devonian)	-1500	2725
Imperial Formation	-1500	2725
Total Depth	-2274	3515
Middle Devonian Carbonate	-8090	9300

Note: These depths are based on seismic events and regional cross sections and are subject to revision based on good sample picks and a surveyed K.B.

B. Objective Horizons

Primary - Johnson Creek Formation

Secondary - Imperial Formation

C. Ditch Samples

Two sets of bagged samples are required, one for Chevron and one for the Geological Survey. One set of washed bottled samples and one set of washed enveloped (double volume) samples are required for Chevron and one set of washed bottled samples is required for Western Minerals. These cuts may be taken from Chevron's bagged set.

Sample interval is as follows:

Surface to T.D. - 10' samples

Five foot samples should be caught at the wellsite geologist's discretion.

D. Penetration Rate Records

A mechanical drilling time recorder should be used on this well.

E. Sample Description

An up-to-date written sample description and a plotted rock log chart must be maintained by the wellsite geologist. A copy of the written description is required by the government. Through cored and/or oil stained intervals a detailed written description of the reservoir characteristics and hydrocarbon shows must be made.

F. Gas Analyzer

A gas detector will not be used on this well. Samples will be canned every 30' for later analysis.

G. Formation Evaluation

General

Well control is sparse in this region and it is possible that reservoir conditions could develop almost anywhere in the section. The wellsite geologist must, therefore, be prepared to evaluate potential reservoirs other than those listed under objective horizons.

It is recommended that the following coring program be executed, both for evaluation of oil and gas potential and for paleontological determinations.

1. Coring and Testing Program

Coring should commence as soon as the Johnson Creek Formation is encountered. If the Johnson Creek Formation is not present commence coring 400' below the top of the Middle Albian Siltstone unit. After cutting a 60' core consult with Calgary office. After the Johnson Creek Formation has been properly evaluated by coring, DST, etc., continue to drill to FTD.

Coring and testing of the Imperial Formation and any reservoir not mentioned above should take place only if substantial effective porosity and hydrocarbon indications are present after consultation with the Calgary office.

After logging is completed, sidewall cores will be taken for paleontological control. One run of the sample barrel with 32 shots each should be sufficient. Positioning of sidewall core shots should be done in consultation with the log analyst.

2. Logging Program

Use Schlumberger

One logging run will be made at T.D.

(a) *Dual Induction Laterolog/S.P.*

Try a 10 m.v. S.P. scale.

Run from T.D. to surface casing.

Vertical scales:

2" = 100' - run linear scale using 0-100 scale on resistivity and 0-100-200 scale on conductivity.

5" = 100' - use logarithmic scale on resistivity.

Both scales will be run from T.D. to surface casing.

A 200' repeat will be run at T.D. or over the zone of interest.

(b) B.H.C. Sonic/Gamma/Caliper (Integrated)

Run from T.D. to surface casing.

Run Caliper 50' inside surface casing.

Run Gamma Ray to surface.

Transit time scales 40-90-140.

Gamma Ray scale 0-150 API units.

Vertical scales: 2" = 100' and 5" = 100' from T.D. to surface casing.

A 200' repeat will be run at T.D. or over the zone of interest.

(c) Formation Density Log (Compensated)/Gamma/Caliper

Run a minimum of 1500' of log over the zones of interest.

Run first 5" = 100' scale on bulk density with correction curve.

Run second 5" = 100' scale on sandstone porosity scale.

A 200' repeat will be run at T.D. or over the zone of interest.

(d) Sidewall Neutron Porosity Log

This log may be run to determine the gas-oil interface in a hydrocarbon zone or if any doubt as to lithology exists, at the discretion of the Formation Evaluation Geologist.

(e) Microlog Caliper

This log may be run over the zones of interest at the discretion of the Formation Evaluation Geologist.

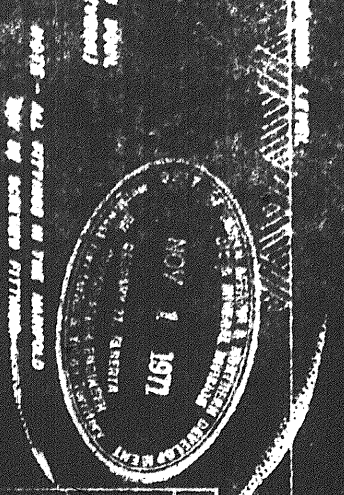
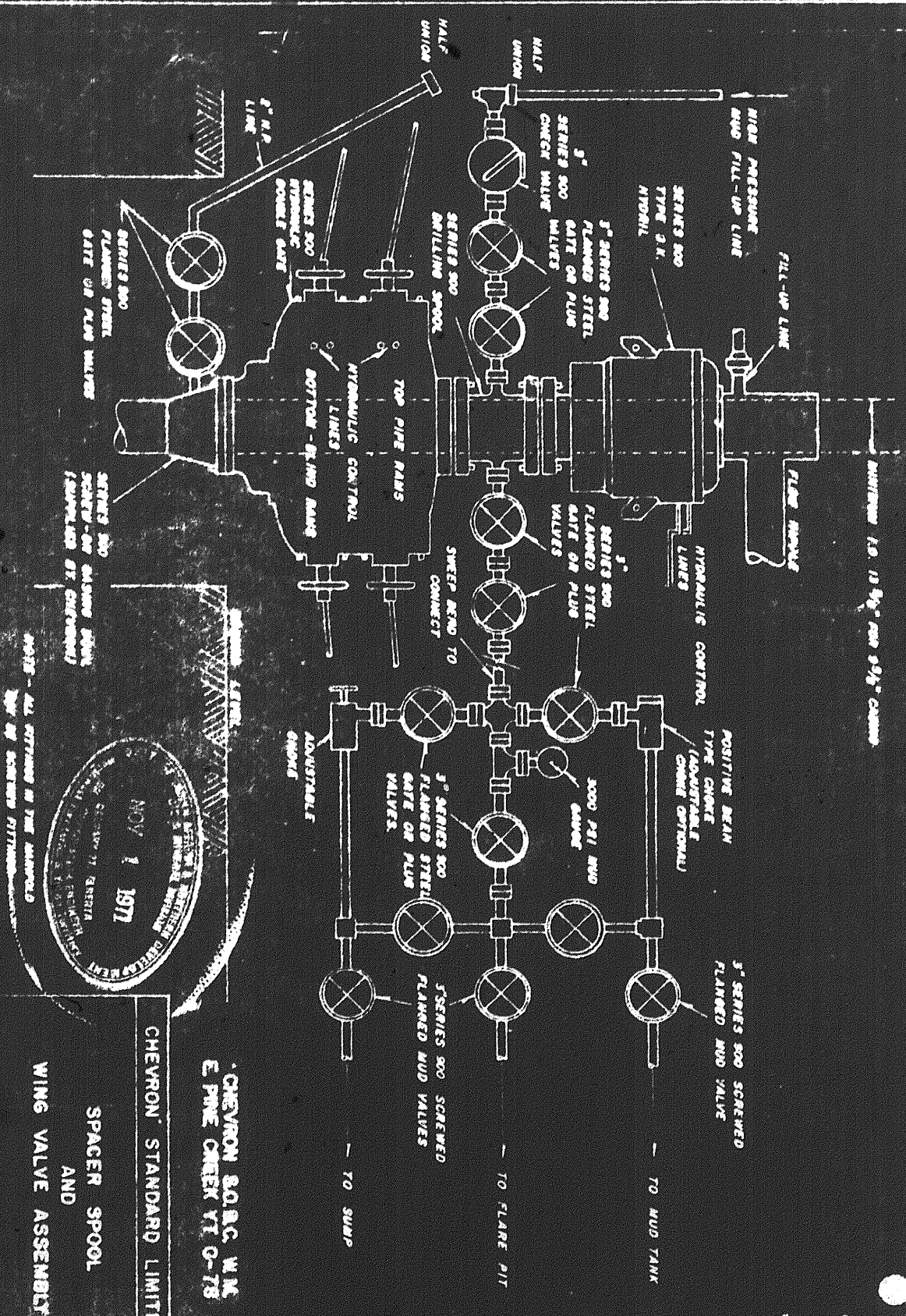


(f) Dipmeter should be available if needed.

(g) Velocity survey will be run immediately after logging. District geophysicist should be notified in advance of logging date.

H. Fluid Samples

1. Representative fluid samples from all DST recoveries are required for lab analysis. Samples are required from the top, middle and bottom of the fluid column. One sample is sufficient for recoveries under 60'. A set of water samples is required by the logging company for  $R_w$  determinations.
2. An extra quart sample of any clean oil, or oil cut liquids obtained on DST is to be taken and forwarded to the Northern Task Force office. The wellsite personnel should have on hand a supply of special containers for these samples. ←
3. Three one quart mud samples should be collected at 15 minute intervals from the flowline prior to each logging run for  $R_m$  and  $R_{mf}$  measurements at the wellsite.
4. Stainless steel containers are to be available to collect a sample of any gases obtained on test.



CHEVRON S.O.B.C. W.M.  
E. PINE CREEK VT. 0-78

CHEVRON STANDARD LIMITED

SPACER SPOOL  
AND  
WING VALVE ASSEMBLY

SCALE	DRAWN	DATE
Not To Scale	E. W. W.	FEB. 10, '70.
A-9057E		