

PUNCH STRUCTURE TEST HOLE NO. 3 GREAT SLAVE LAKE

0 - 107	Clay, gravel and sand
107	<u>Top of Hay River Shale</u>
107 - 125	Shale - gray - green soft slight calcareous shale, some vertical fracturing.
125	<u>Top of Simpson Shale</u>
125 - 147.5	Shale - brown dense, micro-fossiliferous and calcareous.
147.5 - 300	Shale - grey poker-chip type with thin carbonaceous bedding. Bedding at angle of 1° to 2° very soft, slightly calcareous.
300 - 310	Shale - grey green non-calcareous poker-chip type.
310 - 350	No core.
350 - 359	Shale as above, slightly calcareous.
359 - 410	Shale as above.
410 - 450	No core.
450 - 506	Shale - brown-grey, more compact.
506 - 525	Shale - grey-green with slight brownish cast, calcareous occasional 1 inch limey bed.
525 - 538	Shale - as above, no lime beds.
538 - 543	90% replacement of shales by lime.
543 - 566	Shale - grey-green calcareous, occasional thin limey bed.
566 - 607	Shale - Brown sandy dense compact, with occasional micro-fossiliferous. Frequent limey beds up to 4". At 592 a 1/2 inch vug infilled with carbonates and pyrite.
607 - 641	Shale with occasional thin limey bed.
641 - 674	Shale - calcareous, no limey beds.
674 - 707	Shale - highly calcareous, with limey beds to 692.
707 - 850	Shale - dense-brown to dark brown, very limey shale with occasional brachiopod and crinoid.

- 850 - 915 Shale - as above, very limey, with narrow bands of grey-green shale.
- 915 Top of Slave Point (?)
- 915 - 922 Limestone - brown crystalline, some coralline material, poor porosity, spottily oil-stained, positive chloride test.
- 922 - 930 Limestone - as above with slightly porosity from 927 - 930.
- 930 - 944 Limestone - dense crystalline micro-fossiliferous with occasional narrow band of bituminous material.
- 944 - 1069 Limestone - dense crystalline slightly more fossiliferous with occasional argillaceous beds and some thin beds of detrital material.
- 1069 - 1082 Limestone - mainly dense fossiliferous limestone with series of small fractures at 10°. Slight bleeding, slight porosity.
- 1082 - 1085 Limestone - fractured, excellent porosity, good saturation bleeding light oil. Drilling mud heavily oil-cut.
- 1085 - 1090 Limestone - dense fossiliferous.
- 1090 - 1155 Limestone - dense fossiliferous detrital.
- 1155 - 1161 Dolomite - slight pin-point and intergranular porosity from 1140 - 1145. Positive chloride reaction.
- 1161 - 1172 Dolomite - Brown granular. Considerable salt evaporate on core.
- 1172 - 1186 Anhydrous Dolomite - Anhydrite occurs as filling of old vugs and along shaly partings. Up to 60% anhydrite.
- 1186 - 1327 Anhydrous dolomite.
- Total depth 1327.

Copy for A.B. Irwin.

BUREAU OF MINES
DIVISION OF FUELS


CANADA
DEPARTMENT
OF
MINES AND RESOURCES
MINES AND GEOLOGY BRANCH

Lab. No. 1589-52.

FUEL RESEARCH LABORATORIES

OTTAWA, September, 2, 1952.

REPORT OF ANALYSIS

A sample of Crude Oil submitted by A.B. Irwin, Supervisory Petroleum Engineer, Geological Survey of Canada, Yellowknife, N.W.T. as per his letter dated July 29, 1952 to Dr. George Hanson, Chief Geologist and referred to Division of Fuels as per memorandum dated August 5, 1952 from J.F. Caley, Fuels and Resources Division, Geological Survey of Canada.

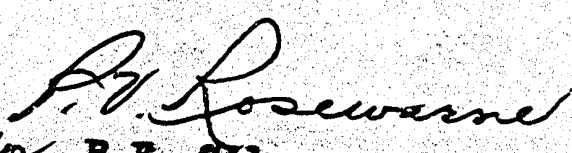
Description of Sample.

"Crude Oil from a depth of 1050 feet in the Punch Test No. 3 drill hole, on Permit 223." Yellowknife, N.W.T.

Details of Analysis:

Colour	Blackish brown
Specific gravity at 60°F.	0.861
Degrees A.P.I. at 60°F.	32.8
Sulphur, % by wt.	0.60
Pour point, °F.	50
Viscosity,	
Saybolt Universal at 70°F., seconds,	93
Saybolt Universal at 100°F., seconds,	57

Reported by: H. McD. Chantler


for R.E. Gilmore,
Chief, Division of Fuels.

ANALYSIS OF OIL SAMPLE FROM PITCH CORE HOLE NO. 3 K. W. T.

by B. A. Refinery

from D 1050

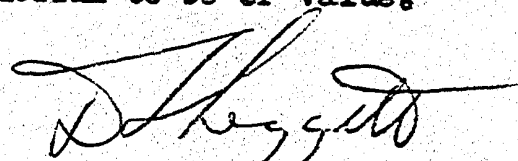
Gravity @ 60°
Pourpoint
S. U. V. @ 100
S. U. V. @ 70
Sulfur

34.2° A. P. I.
+55°
54
78
0.454%

PUNCH PETROLEUMS LIMITED

Progress report - Test hole Punch #3
Week ending night shift - May 22nd, 1952

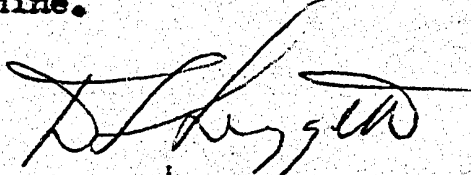
<u>DATE</u>	<u>FOOTAGE</u>	<u>REMARKS</u>
May 16th	0-50'	Overburden - clay with gravel and some boulders to 33'. 33-40' very fine sand (almost quicksand), 40-50' clay and sand with occasional boulder.
May 17.	50-83'	Overburden - clay, sand and gravel. Using Nx casing.
May 18.	83-119'	83-107' Overburden as above. 107'-119' Hay river shales - gray-green, soft, slightly calcareous, some vertical fracturing. Ax casing run ahead of Nx from 107' to obtain circulation.
May 19.	119-125'	Hay River shales as above, reamed with Nx casing to 125'. Pulled Nx casing, lowered 2½" pipe and cemented.
May 20.& 21		Cement setting, drilled out cement and set Ax casing to 125'.
May 22nd	125-300'	Simpson Shales; 125-147.5' brown dense, micro-fossiliferous and calcareous. 147.5'-300' grey with thin carbonaceous bedding, poker chip type. Bedding at slight angle with core (one to two degrees) very soft, sl. calcareous. Core recovered with Ax bit 125-150' and 206-210'. Balance of drilling done with non-coring three way, drag bit. Sludges taken at 10' intervals when not coring but too much lag and adulteration of cuttings in circulating medium to be of value.


D. C. Leggett, P. Eng.

PUNCH PETROLEUMS LIMITED

Progress Report - Test Hole Punch #3
Week ending night shift - May 29th, 1952

<u>DATE</u>	<u>FOOTAGE</u>	<u>REMARKS</u>
May 23.	300-359'	<u>Simpson Shales</u> - 300-310' grey green non-calcareous, poker chip type; 310-350' no core; 350-360' as above, sl. calcareous. Reamed casing down to 140'. Drag bit used to cut shales to 485'.
M May 24.	359-474'	<u>Simpson Shales</u> ; 400-410' as above; 410-450' no core; 450-460' Brown grey, more compact. Reamed Nx casing to 305'.
May 25.	474-548'	<u>Simpson Shales</u> - 485-506' as above; 506-525' greygreen, sl. brown cast, calcareous, occasional limey bed up to 1"; 525-538' as above, no limey beds; 538-543' 90% replacement of shales by lime; 543-548' grey green, calcareous, only occasional narrow limey bed,
May 26.	548-607'	<u>Simpson Shales</u> - 548-586' as last above; 586-607' brown sandy shale, dense compact, occasional micro-fossil, frequent limey beds up to 4", at 592' $\frac{1}{2}$ " vug in limey bed filled with carbonates and little pyrite.
May 27.	607-667'	<u>Simpson Shales</u> - 607-641' occasional narrow limey bed; 641-667' same, calcareous, no limey beds.
May 28.	667-728'	<u>Simpson Shales</u> - 667-674' as above; 674-692' occasional limey bed; from 692' highly calcareous, poker chip.
May 29.	728-750'	<u>Simpson Shales</u> - Highly calcareous, becoming progressively darker from brownish grey green to brown black. 5 hrs. lost fishing broken rods and packing head of machine.


D. C. Leggett, P. Eng.

PUNCH PETROLEUMS LIMITED

Progress report - Test hole Punch #3
Week ending June 2nd - 1952 - Night shift.

<u>DATE</u>	<u>FOOTAGE</u>	<u>REMARKS</u>
May 30	750-812'	Simpson Shales - 750-797 same as previous. 797-912 limey bituminous shales, dense compact dark brown, H2S odor on fresh fracture, occ. brachyopod and crinoid with also some fine pyrite.
May 31	812-871'	Simpson Shales - 812-850' dense limey with bands of brown black shales containing occ. brachyopod and crinoid, little H2S odor. 850-871' limey grey to buff dense shales with narrow bands of grey-green poker chip type.
June 1	871-891'	Simpson Shales - as above, casing dropped to 495' from 305' fishing and pulling casing and putting down again.
June 2	871-944'	Simpson Shales - xxxxxxx 895-915' as above. Slave point Limestone 915-944' - 915-921.5' brown sandy little to fair intergranular and no vuggy porosity. No gas but some bleeding, water present. 927-929.6' same as above only little less bleeding. balance of core to 934' brown, dense argillaceous and some fossils. Considerable odor H2S to fresh surface. 934-944' - dark brown to black fossiliferous considerable brachyopods and crinoids with some corals. Bands of buff to brown argillaceous limestone. Samples canned and sent to Core Labs : 916.5-917.4'; 918.5-919'; 920.3-920.9'; 927.8-928.4'.
June 3	944-1004'	Limestones - 944-985' as above - 985-1004' detrital limestone crystalline, argillaceous, gray to light buff, dense. Pebbles quite fossiliferous.
June 4	1004-1063	As above.
June 5	1063-1119	1063-1068' as above. 1068-1119' detrital, dense brown, finer grained pebbles quite fossiliferous. 1068-1082' series of vertical fractures xxx at 5 - 10 deg with core. with bleeding along fractures and from stylitic fractures partings, also around margins of pebbles. 1082-1085' - open fracture possibly 1/8" with secondary carbonate filling. Free flow fair grade oil with some sweet gas. Mud column allowed to rest for one hour and better than two quarts of oil collected from discharge on lowering rods. Samples to Core Labs:- 1077.6-.078.1'; 1084-1084.6'.

COPY.

D. C. Leggett.

PUNCH PETROLEUMS LIMITED

Progress Report - Test Hole Punch #3
Week ending - June 9th, 1952 - night shift.

<u>DATE</u>	<u>FOOTAGE</u>	<u>REMARKS</u>
June 6	1119-1186'	1119-1129.5' Argillaceous limestone - dense, brown, fine grained - bands of detrital material with pebbles fairly fossiliferous. 1119-1122' slight bleeding from poor intergranular porosity. 1127-1129.5' same. 1129.5-1155.5' Argillaceous limestone, dense, light brown slightly dolomitic with occasional dolomite crystal. 1150-1155.5' some bleeding from pinhead sized vugs. 1155.5-.72 - DOLOMITE, brown, granular, considerable salt evaporate on core, 1155.5-.72 1168': 1157-1161 poor to slight intergranular porosity with slight oil stain. 1172-1186 - Anhydrous dolomite. Anhydrite occurs as filling of old vugs and along shaley partings. Up to 60% Anhydrite. Samples to Core Labs :-m 1077.6-.076.1'; 3084-.084.6' 1121-1121.6'; 1150.7-.51.4'
June 7	1186-1220	Anhydrous Dolomite as above.
June 8	1126- 1276	" " " "
June 9	1276-1327	" " " " . End of hole 1327'. Hole abandoned as objective reached. Cemented 900' to 1200'. 10' cement plug 20' below collar. Tests taken at 600' and 1200' - Hole vertical.

D. C. Leggett

COPY.

CORE LABORATORIES INC.
CALBARY ALBERTA

Company - PUNCH PETROLEUMS LTD.	Date Report - JUNE 24, 1952	Page - 1 of 1
Well - HOLE NO. 3	Elevation -	File - EL-355
Field - WILDCAT	Formation -	Analysts - AG-NC-WH
- N. W. T.	Cores - WIRELINE	Remarks - OFF LOCATION - CANNED CORE

SAMPLE NUMBER	DEPTH REPRESENTED FEET	PERMEABILITY MILLIDARCYS	POROSITY PER CENT	RESIDUAL SATURATION		CHLORIDES P.P.M. ROCK	VISUAL EXAMINATION
				OIL % PORE	TOTAL WATER % PORE		
1	916.6' - 917.5'	0.1	6.8	11.8	29.4	425	Fine grained limestone
2	918.4' - 919.0'	0.1	10.3	17.5	19.4	425	Fine grained limestone
3	920.3' - 920.9'	1.2	6.3	15.9	31.8	568	Fine grained limestone
4	927.8' - 928.4'	0.1	4.8	10.4	29.2	568	Fine grained limestone
5	1077.6' - 1078.1'	0.1	1.6	12.5	25.0	425	Dense, fine grained shaly lime
6	1084.0' - 1084.6'	0.1	1.5	20.0	40.0	425	Dense, fine grained shaly lime
7	1121.0' - 1121.6'	0.1	5.7	3.5	45.6	710	Dense fine grained lime
8	1150.7' - 1151.4'	0.1	6.1	8.2	34.4	1170	Few small vugs, fine grained limestone