

CPOG Chevron Gull Creek A-63

WELL HISTORY REPORT

60-42-1-19

CPOG Chevron Gull Creek A-63

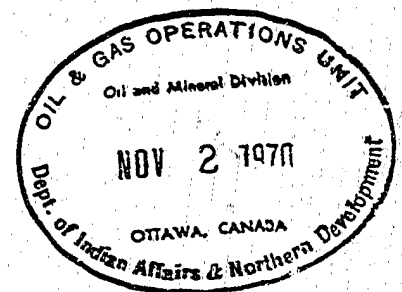
WELL HISTORY REPORT

on

CPOG Chevron Gull Creek A-63

Unit A, Sec. 63, Grid. $60^{\circ}50'N$; $118^{\circ}00'W$

Northwest Territories



CPOG Chevron Gull Creek A-63

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WELL HISTORY REPORTSECTION I

- (a) Well Name and Number:
CPOG Chevron Gull Creek A-63
Unit A, Sec. 63, Grid. 60°50'N ; 118°00'W
- (b) Permittee:
Chevron Standard Limited
- (c) Operator:
Canadian Pacific Oil and Gas Limited
205 Ninth Avenue S.E., Calgary 21, Alberta
- (d) Location:
Unit A, Sec. 63, Grid. 60°50'N ; 118°00'W
Latitude: 60°42'1.19"N Longitude: 118°11'40"W
Universal Well Reference:
Latitude: 60.70033° Longitude: 118.19444°
Unique Well Identifier: 300A636050118000
- (e) Development Well:
Nil
- (f) Permit Number:
3517
- (g) Drilling Contractor:
Regent Drilling Co. Limited
Rig Number 11-H
- (h) Drilling Authority Number:
Number 406, January 21st, 1970
- (i) Classification:
Exploratory Wildcat
- (j) Elevation:
Ground Level 1068 feet
Kelly Bush 1081 feet
- (k) Spud Date:
February 14th, 1970

(l) Completed Drilling:

February 23rd, 1970

(m) Total Depth:

3102 feet - Driller; 3095 feet - Logger.

(n) Well Status:

Dry and Abandon

(o) Rig Release:

February 28th, 1970 at 4:00 P.M.

(p) Hole Sizes:

12 1/4"	0 - 377'
7 7/8"	377' - 3102'

(q) Casing:

8 5/8"	0 - 377'
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Section II Geological Summary

(a)

<u>Formation Tops</u>	<u>Mechanical Logs</u>	<u>Sample</u>
Devonian		30?
Kakisa	577	570
Redknife	726	-
Tathlina	947	945
Twin Falls	1440	-
Hay River	1840	-
Slave Point	2757	2770
Sulphur Point - Presqu'ile	2896	2900
Granite Wash	2998	3000
Precambrian	3053	3060
Total Depth	3102	

(b) Cored Intervals: NIL

(c) Core Description - NIL

Drilling Authority No. 406
Date Issued 21 January 1970

WELL NAME CPOG Chevron Gull Creek A-63

FIELD _____ Area: _____
LOCATION: Unit A Section 63 Grid 60-50-118-00
Latitude 60-42-1.19 Longitude 118-11-40
U.W.L.R. 60.70033 - 118.19444
U.W.I. 300A636050118000

Rig Release Date: _____
Status: _____
Information Release Date 28-02-72

CHANGE OF NAME:

DATE RECEIVED	INDEX
21-1-70	Application for a Drilling Authority. Well Completion Data. Well History Report. Application to Amend a Drilling Authority. Application to change a Well Name.
12-6-70	Application to Abandon a Well or Suspend Drilling . Application to Alter Condition of a Well. Well History Supplement.
14/5/70	Well Completion Data. Work-over Report No. Application to Commingle Production before Measurement. Data for Back Pressure Test on Natural Gas Wells - Monograph 7 Method. Data for Back Pressure Test on Natural Gas Wells - Vitter's Method. M.P.R. - Oil - Calculations. New Oil Well Report. New Gas Well Report. Well Inspection Report. Rig Inspection Report. Battery Inspection Report. Equipment Report. Well Card. New Service Well Report. Monthly Water Flood Operations Report Monthly Water Receipts and Disposal of Fluids Report Logs. Large scale..... Small scale.....

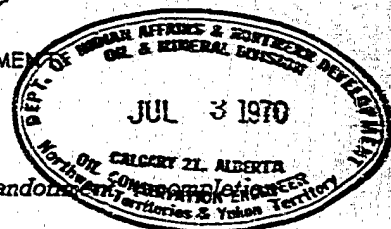


Drilling Authority No. 406
Date Issued 21st January 1970

DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
RESOURCE MANAGEMENT DIVISION

WELL COMPLETION DATA

To be submitted in duplicate within thirty days after the completion, rework, abandonment or suspension of every well.



Well name and number CPOG Chevron Gull Creek A-63
Permit No. 3517 Lease No.
Chevron Standard Ltd. Exploratory Licence No. 1283 (Chevron)
(Permittee, Licensee, Lessee)
Canadian Pacific Oil and Gas Ltd. Exploratory Licence No. 1221
(Operator)
Location: Unit A Section 63 Grid 60°50'N ; 118°00'W
Latitude 60°42'1.19"N Longitude 118°11'40"W
From Established Reference Marker Line 19, Shot Point 37
Universal Well Location Reference Lat. 60.70033° Long. 118.19444°

	DATE	DEPTH	Pool(s)
			Interval(s) open to production
Spudded	Feb. 14/70		
Suspended			
Resumed Operations			
Finished Drilling	Feb. 23/70	3102 Driller	
Deepened		3095' Logger	Elevation: Gr. 1068 K.B. 1081
Complete (gas/oil)			Rig No. 11
Abandoned	Feb. 28/70		Drilling Contractor Regent
Rig released	Feb. 28/70		Contractor's Business Licence No. 501

CASING RECORD

Casing Size (Inches)	Grade	Weight	Amount	Set at -	Sacks of Cement and Additives
1. 8-5/8	K-55	24#	13 fts.	377'	250 + 2% CaCl ₂
2.					
3.					
4.					
5.					
6.					

GEOLOGICAL TOPS	ELEVATION		CORE RECORD					
	Depths	Sub-Sea	From	To	Rec.	From	To	Rec.
Trout River	- - -	- - -						
Kakisa	577	+ 504						
Red Knife	726	+ 355						
Tathlina	947	+ 134						
Twin Falls	1440	- 359						
Hay River	1840	- 759						

GEOLOGICAL TOPS	Depths	Sub-Sea	LOG RECORD			
			Run No.	Type of Log	From	To
Slave Point	2757	-1676				
Sulphur Point	2896	-1815				
Granite Wash	2998	-1917	1	Sidewall Neutron	1592	3092
P.C.	3053	-1972	1	DiL	378	3089
			1	Cont. Dip.	550	3090
			1	Lith. Indent.	1592	3092
			1	Formation Density	1592	3092
			1	SIC-GR	378	3091
			1	Synergetic Dual Mineral	2450	3090
			1	Velocity Survey	378	3091

CEMENTING RECORD (Plug, Squeeze, etc.)				PERFORATING RECORD (Bullet, Jet)				SERVICING RECORD (Acidizing, Fracing, etc.)			
Date	From	To	Remarks	Date	From	To	Remarks	Date	From	To	Remarks
Feb. 27/70	3102'	2900'	Plug #1 - With 80 sacks normal Portland Cement. Displaced with 40 bbls. C.I.P. at 8:15 P.M.								
Feb. 27/70	426'	326'	Plug #2 - With 40 sacks normal Portland Cement. Displaced with 3 bbls. C.I.P. at 9:30 P.M. Tagged plug #2 at 330'.								
				Cut off casing 3' below (drop 5 sacks cement plug)							
Ground Level, welded on plate. Errect Well Identifier.											
DRILL STEM TESTS											

No.	Date	Formation	From	To	V.O. Mins.	I.S.L. Mins.	F.S.L. Mins.	I.S.L.B.H.P.	F.S.L.B.H.P.	I.F.B.H.P.	F.F.B.H.P.	I.H.P.	F.H.P.	REMARKS
1	21/2/70	Slave Point	2773	2800	45	30	30	--	--	--	--	1395	1382	20' drilling mud MISRUN.
2	22/2/70	Slave Point	2778	3008	60	30	60	1185	1197	240	267	1375	1367	560' drilling mud 560 MCF/D. GTS in 3 mins.
3	25/2/70	Sulphur Pt.	2945	2990	90	30	90	1247	1243	188	193	1519	1497	270' ^{gassy} drilling mud, 90' oil cut mud 734 MCF/D. GTS in 3 mins, incr. slightly to end of test.
4	25/2/70	Slave Point	2760	2820	90	30	120	263	770	72	72	1421	1421	40' drilling mud. No GTS.
5	26/2/70	Granite Wash	2994	3102	60	30	90	52	70	32	32	1519	1511	5' drilling mud
6	26/2/70	Sulphur Pt.	2910	2940	60	30	90	77	75	39	44	1480	1472	10' drilling mud

ANALYSIS

Lab. No.	Sample	From	To	Source	Remarks
CAL-2-1782) CBH-1-1933)	Gas	2778	3008	DST #2	
"	Chemical	2773	2800	DST #1	
"	"	2778	3008	DST #2	
"	"	2945	2990	DST #3	
"	"	2760	2820	DST #4	
"	"	2994	3102	DST #5	
"	"	2910	2940	DST #6	
CAL-2-1816	"	2945	2990	DST #3	
CBH-1-1933	Gas	2945	2990	DST #3	

PRESENT STATUS OF WELL

Oil	(Interval)
Gas	(Interval)
Dry	D & A
Susp.	

Company Canadian Pacific Oil and Gas Limited

Signed by [Signature]

Title Drilling Operations Superintendent

Date May 4th, 1970

Forms to be prepared in duplicate and forwarded to the Oil Conservation Engineer, Calgary, Alberta.



File No. _____
Drilling Authority No. 406

DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT

~~RESOURCE MANAGEMENT DIVISION~~
OIL AND MINERAL

Application to Abandon a Well or Suspend Drilling

In compliance with the "Canada Oil and Gas Land Regulations", application is hereby made for approval to abandon, to suspend drilling:—

Name and number of well CPOG Chevron Gull Creek A-63
Location: Unit A Section 63 Grid 60° 50' N ; 118° 00' W
Latitude 60° 42' 1.19" N Longitude 118° 11' 40" W
From Established Reference Marker Line 19, Shot Point 37
Universal Well Location Reference Lat. 60.70033° Long. 118.19444°
Permit No. 3517 Lease No. _____

Chevron Standard Limited

(Permitter, Licensee, Lessee)

Date of commencement of proposed program February 28th, 1970

OIL, GAS, AND WATER ENCOUNTERED
(Depths)

Oil at _____
Gas at 2778 - 3008' (DST #2); 2945 - 2990 (DST #3)
Water at _____
Total Depth 3102 Date of last operations March 1st, 1970
Present condition of well D & A

CASING RECORD

Casing Size O.D. Inches	Weight	Amount	Set At—	Sacks of Cement and Additives	Amount Pulled
1. <u>8 5/8</u>	<u>24</u>	<u>13 jts.</u>	<u>377</u>	<u>250 sacks + 3% CaCl₂</u>	
2.					
3.					
4.					
5.					

PROPOSED ABANDONMENT PROGRAM

Plug		Geological Formation	Number of Sacks of Cement	Remarks
No.	Position			
1	<u>2900 - 3102</u>	<u>T.D. to top of Slave Point</u>	<u>80</u>	
2	<u>326 - 426</u>	<u>Surface</u>	<u>40</u>	<u>Tagged at 330'</u>
3	<u>Surface</u>	<u>Cut off casing 3' below ground level.</u>		
		<u>Run a 5-sack cement plug, weld on plate</u>		
		<u>and erect riser with identification</u>		
		<u>marker.</u>		

The following logs have been run SLC-GR, SNP-GR, DLI, HDT, SRS, Lithology
Other operations proposed _____

Operations to be carried out by Regent Drilling (11) Contractor Licence No. 501
Address 1200 Calgary House, Calgary 1, Alberta Address _____
Responsible Agent in field Leo Navratil
Dated at Calgary, this 4th Day of May, 19 70
Signed by [Signature] Company Canadian Pacific Oil & Gas Limited
Title Drilling Operations Superintendent Operator's Exploratory Licence No. 1221

Note:—The Oil Conservation Engineer's office must be notified before work is commenced.

(For RESOURCE MANAGEMENT DIVISION use only)

APPROVAL

This application has been examined and proposed programme approved, subject to the following conditions:

Confirming oral approval given by Mr. G.E. Blue
on the 27th February 1970.

Dated 12th June, 19 70

[Signature]
Oil Conservation Engineer

Forms to be submitted in triplicate to Oil Conservation Engineer,
Department of Indian Affairs and Northern Development, Calgary, Alberta.

Drilling Authority No. 406

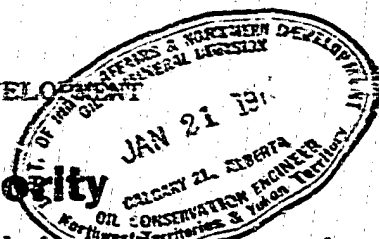
Project No. _____

File No. _____



DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
 RESOURCE MANAGEMENT DIVISION
 OIL AND MINERAL DIVISION

Application for a Drilling Authority



This notice of intention to begin drilling operations, in triplicate, and where required a plan of survey approved by the Surveyor General showing the target area or the site of the well must be submitted and approved before commencing operations.

In compliance with the "Canada Oil and Gas Land Regulations" application is hereby made for approval to drill—

Name and number of well CPOG Chevron Gull Creek A-63
 Location: Unit A Section 63 Grid 60°50'W 118°00'W
 Latitude 60°42'19"W Longitude 118°11'40"W
 From Established Reference Marker Line 19, Spot Point 37
 Universal Well Location Reference Lat. 60.70033°, Long. 118.19444°
 Elevation: Ground 1058' K.P. 1630 feet above sea-level.
 Well is expected to produce from Slave Point formation at a depth
 of about 2768 E.B. feet. Expected total final depth 3480
 Area assigned to well _____
 (for Oil Conservation Engineer's use only)

Permit No. 3517 Beneficiary Chevron Standard Ltd. Acreage 31,324
 Permittee, licensee, or lessee Chevron Standard Ltd.
 Exploratory Licence No. 1283 (Chevron)
 Surface owned by Crown or Crown
 (If alienated submit name and address of owner.)
 Petroleum and natural-gas rights owned by Crown
 We propose to use the following strings of casing, either cemented, or landing as indicated below:—

Casing Size O.D. (Inches)	Weight (Lb./Ft.)	Grade	New or Used	Estimated Depth	Section of Cement
1. <u>8 5/8</u>	<u>24#</u>	<u>J-55</u>	<u>New</u>	<u>350'</u>	<u>To Surface</u>
2. _____	_____	_____	_____	_____	_____
3. _____	_____	_____	_____	_____	_____
4. _____	_____	_____	_____	_____	_____
5. _____	_____	_____	_____	_____	_____

Expected water, gas, and oil horizons and type of control equipment Hy-Drill Model GK 900 x 10"
Ram type B.O.P. Cameron SS 900 x 10". Closing unit Payne - 40 gals.
Shaffer drill pipe Safety valve. Shaffer Kelly Cock.

Well will be drilled with Rotary Rig No. 11-B by Regent Drilling Co. Ltd.
 (Drilling Contractor or company)

Responsible agent of applicant:— Contractor's Business Licence No. 501
 At well _____ At registered office A.W. Groll
 Address _____ Address 205 Ninth Avenue S.E., Calgary 21, Alta.
 It is understood that if changes become necessary, notice of the change of plan will be submitted.
 Dated at Calgary, this 19th day of January, 19 70
 Signed by A.K. Dorn Company Canadian Pacific Oil & Gas Ltd.
 Title Drilling Superintendent Operator's Licence No. 1221
 (For Resource Management Division use only)

APPROVED

This application has been examined and approved subject to the following conditions:—

1. The Company will submit to this office, on Tuesday of each week, the latest reports received by radio on the progress of the well.
2. During well drilling and testing operations, every effort shall be made to ensure

Dated 21st January 19 70 Please see over the page
 Oil Conservation Engineer

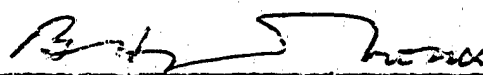
Forms to be submitted to Oil Conservation Engineer,
 Department of Indian Affairs and Northern Development, Calgary, Alberta.

LAND 52-90-1 (3-67)

Unique Well Identifier - 300A636050118000

that drilling fluids, chemicals and wastes shall be disposed of or contained in a manner that will prevent the contamination of adjacent vegetation and surface or sub-surface waters.

3. We draw your attention to Sections 95 and 96 of the Canada Oil and Gas Land Regulations.
4. Intermediate and production strings of casing are to receive the approval of the Oil Conservation Engineer.


B.H.J. Thors, Oil Conservation Engineer



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 7 of 8
Well CPOG Chevron Gull Crk A-63 File CAL-2-1782
CBH-1-1933
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
60 33'39.36 N.L.
Location 118 11'40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth _____
Sampled from DST #5 (Top of Tool) by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 26/70 Date received March 6/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: _____

Resistivity 1.22 Ohm-meters @ 72°F

Insufficient sample for further analysis.



CORE LABORATORIES - CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 8 of 8
Well CPOG Chevron Gull Crk A-63 File CAL-2-1782
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
Location 60 33'39.36 N.L.
118 11'40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth _____
Sampled from DST #6 (Top of Tool) by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 26/70 Date received March 6/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: _____

Resistivity 1.18 Ohm-meters @ 72°F

Insufficient sample for further analysis.



CORE LABORATORIES - CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 1 of 1
Well CPOG Chevron Gull Creek A-63 File CAL-2-1816
Field Wildcat, Northwest Territories Analyst DS
Location 60 33'39.36 N.L.
118 11'40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth 2945'-2990'
Sampled from DST #3 (MFE Tool) by Mr. Gunderson
Drill Stem Testers Ltd.
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 25/70 Date received Mar. 12/70 Date analysed Mar. 19/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 270' Gassy Mud, 90' Oily-Gassy Heavy Mud.

Resistivity = 0.172 Ohm-meters @ 70°F

* Oil = 7.0



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



GAS ANALYSIS

Company Canadian Pacific Oil and Gas Limited Page 1 of 1
Well CPOG Chevron Gull Creek A-63 File CBR-1-1933
Field Wildcat, Northwest Territories Analyst RS
Location 60 33'39.36 N.L.
118 11'40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth 2945'-2990'
Drill Stem
Sampled from DST #3 by Mr. Gunderson, Testers Ltd.
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 25/70 Date received Mar. 10/70 Date analysed Mar. 11/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 270' Gassy Mud, 90' Oily-Gassy Heavy Mud.

COMPONENT	MOLE %	IMP. GPM @ 14.65 psia and 60° F	SPECIFIC GRAVITY	
			Calculated	Measured
Hydrogen	<u>.02</u>		<u>.592</u>	
Helium	<u>.11</u>			
Nitrogen	<u>2.76</u>			
Carbon Dioxide	<u>.01</u>			
Hydrogen Sulphide	<u>.00</u>			
Methane	<u>93.55</u>			
Ethane	<u>2.37</u>			
Propane	<u>.70</u>	<u>.160</u>		
Iso Butane	<u>.10</u>	<u>.027</u>		
Normal Butane	<u>.19</u>	<u>.050</u>		
Iso Pentane	<u>.05</u>	<u>.015</u>		
Normal Pentane	<u>.05</u>	<u>.015</u>		
Hexanes	<u>.05</u>	<u>.017</u>		
Heptanes Plus	<u>.04</u>	<u>.015</u>		
Total	<u>100.00</u>	<u>.299</u>		
Pentanes Plus		<u>.062</u>		

GROSS B.T.U. per SCF 1019.5
Calculated @ 14.65 psia, 60°F, moisture and acid - gas free.

VAPOR PRESSURE of PENTANES PLUS
(calculated) 10.9 psia @ 100°F

Critical Pressure 667.0 psia
Critical Temperature 349.9 °R

Remarks _____



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 7 of 8
Well CPOG Chevron Gull Creek A-63 File CAL-2-1782
CBH-1-1933
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
60 42' 1.19"N.L.
Location 118 11'40.00 W-L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth _____
Sampled from DST #5 (Top of Tool) by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 26/70 Date received March 6/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: _____

Resistivity 1.22 Ohm-meters @ 72°F

Insufficient sample for further analysis.



CORE LABORATORIES - CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 8 of 8
Well Creek CPOG Chevron Gull A-63 File CAL-2-1782
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
Location 60 42' 1.19 N.L. 118 11' 40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth _____
Sampled from DST #6 (Top of Tool) by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 26/70 Date received March 6/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: _____

Resistivity 1.18 Ohm-meters @ 72°F

Insufficient sample for further analysis.



CORE LABORATORIES - CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



GAS ANALYSIS

Company Canadian Pacific Oil and Gas Limited Page 1 of 1
Well CPOG Chevron Gull Creek A-63 File CBH-1-1933
Field Wildcat, Northwest Territories Analyst RS
Location 60 42' 1.19"N.L.
118 11' 40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth 2945'-2990'
Sampled from DST #3 by Drill Stem
Mr. Gunderson, Testers Ltd.
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 25/70 Date received Mar. 10/70 Date analysed Mar. 11/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 270' Gassy Mud, 90' Oily-Gassy Heavy Mud.

<u>COMPONENT</u>	<u>MOLE %</u>	<u>IMP. GPM @ 14.65 psia and 60°F</u>
Hydrogen	<u>.02</u>	
Helium	<u>.11</u>	
Nitrogen	<u>2.76</u>	
Carbon Dioxide	<u>.01</u>	
Hydrogen Sulphide	<u>.00</u>	
Methane	<u>93.55</u>	
Ethane	<u>2.37</u>	
Propane	<u>.70</u>	<u>.160</u>
Iso Butane	<u>.10</u>	<u>.027</u>
Normal Butane	<u>.19</u>	<u>.050</u>
Iso Pentane	<u>.05</u>	<u>.015</u>
Normal Pentane	<u>.05</u>	<u>.015</u>
Hexanes	<u>.05</u>	<u>.017</u>
Heptanes Plus	<u>.04</u>	<u>.015</u>
Total	<u>100.00</u>	<u>.299</u>
Pentanes Plus		<u>.062</u>

SPECIFIC GRAVITY

Calculated .592 Measured _____

GROSS B.T.U. per SCF 1019.5

Calculated @ 14.65 psia, 60°F, moisture and acid - gas free.

VAPOR PRESSURE of PENTANES PLUS

(calculated) 10.9 psia @ 100°F

Critical Pressure 667.0 psia

Critical Temperature 349.9 °R

Remarks _____



CORE LABORATORIES - CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 1 of 1
Well CPOG Chevron Gull Creek A-63 File CAL-2-1816
Field Wildcat, Northwest Territories Analyst DS
Location 60 42' 1.19" N.L. Elevation: K.B. 1081' Grd. 1068'
118 11' 40.00 W.L. Depth 2945'-2990'
Formation _____ by Mr. Gunderson
DST #3 (MFE Tool) Drill Stem Testers Ltd.
Sampled from _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 25/70 Date received Mar. 12/70 Date analysed Mar. 19/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 270' Gassy Mud, 90' Oily-Gassy Heavy Mud.

Resistivity = 0.172 Ohm-meters @ 70°F

% Oil = 7.0

SECTION VI:

Completion Summary:

NIL

(d)

SAMPLE DESCRIPTION

Sample quality very poor from surface casing to and up at approximately 2500', mostly cavings.

Samples start at 40'

- 0 - 40
Cavings of clear and pink quartz, biotite, feldspar, black chert.
- 40 - 160
Limestone: buff and light gray brown, cryptocrystalline, quartzose sandy, argillaceous, dense, hard, some fossil trash, thin wall brachiopods, ostracod.
- 160 - 380
Limestone: cream, light brown gray, micro/very fine crystalline, bituminous stylolites, slightly dolomitic, ostracods, colonial corals, gastropod, crinoid, pellets? some sparry calcite, occasional quartz crystals.
- 380 - 590
Limestone: as above and siltstone; gray, calcareous and siltstone; olive green, very calcareous, argillaceous, sandy with dark brown shale stringers, calcareous, bituminous.
- 590 - 610
Mudstone: olive green, calcareous, silty, very soft.
- 610 - 960
Cavings: cannot interpret.
- 960 - 1000
Shale: medium gray green non-calcareous and shale, olive green, calcareous, very silty.
- 1000 - 1050
Shale: dusky red, slightly dolomitic, soft, fissile becoming interbedded with shale as above with some limestone; light brown, very fine crystalline, bioclastic and siltstone; dark green with light green argillaceous partings.
- 1050 - 1200
Shale: gray, gray-green, calcareous with stringers of sandstone; light green brown, very fine grained, sub-angular and siltstone, light gray green, calcareous, thinly laminated and limestone; light gray brown, very fine crystalline, argillaceous, bioclastic.
- 1200 - 1500
Cavings: cannot interpret.
- 1500 - 2000
Shale: light gray green, calcareous, soft, silty and limestone; buff, very fine/fine crystalline, bioclastic, brachiopod, crinoids, some siltstone, gray calcareous.
- 2000 - 2590
Shale: medium gray green, mottled dark green, calcareous, silty, micro-micaceous.
- 2590 - 2770
Shale: dark brown, brown streak, granular texture, silty, micaceous, bituminous becoming black, very bituminous with some limestone; light gray brown, very fine crystalline.

Slave Point
2770 - 2900

Limestone; buff, light/dark brown, micro/very fine crystalline occasionally medium, sparry calcite, silty, pyritic, bituminous stylolites, bioclastic, brachiopod fragments, algal, pellets?, amphipora, intercrystalline and some earthy porosity, spotty to good oil staining (light green fluorescence), becoming light-medium brown micrite with pellets in sparry calcite cement.

Sulphur Point-Prosquille
2900 - 2950

Limestone: white, light gray brown, very fine crystalline, very slightly argillaceous, micro crystalline, pyrite, some intercrystalline porosity.

2950 - 3000

Dolomite: light brown, very fine/coarse crystalline, slightly argillaceous, sucrosic, trace intercrystalline porosity, stringer of excellent porosity at 2960' with fair oil stain, some loose white coarse dolomite crystals.

"Granite wash"
3000 - 3060

Weathered Granite: white-clear amorphous and coarse grained quartz, pyrite, feldspar, orthoclase, biotite.

Precambrian
3060 - 3100

Granite: pink, white, clear quartz, biotite.

(e) Paleontological Determinations - NIL

SECTION IIIDrill Stem Tests:

DST #1 2773-2800 Slave Point Formation
 Preflow 3 minutes with fair airblow, no blow on
 valve open. Reset after 30 minutes with same
 results. Recovered 20' drilling mud. MTSRUN.

I.S.I. 30 mins.	V.O. 45 mins.	F.S.I. 30 mins.
I.H.P. 1395	F.H.P. 1382	I.S.I.P. 0
F.S.I.P. 0	I.F.P. 0	F.F.P. 0
Temp. 110°		

DST #2 2778-3008 Slave Point thru Sulphur Point
 Preflow 5 minutes with strong air blow. Gas to
 surface in 3 minutes and steady throughout test.

Max. flow rate 560 MCF/d. Recovered 560' drilling mud.

I.S.I. 30 mins.	V.O. 60 mins.	F.S.I. 60 mins.
I.H.P. 1375	F.H.P. 1367	I.S.I.P. 1185
F.S.I.P. 1197	I.F.P. 240	F.F.P. 267
Temp. 108°		

DST #3 2945-2990 Sulphur Point Formation
 Preflow 5 min. with strong air blow. Gas to
 surface in 3 min. at 560 mcf/d. increasing to
 734 mcf. at end of test.

Max. flow rate 734 mcf/d. Recovered 270' ^{gassy} drilling
 mud, 90' oil cut mud.

I.S.I. 30 mins.	V.O. 90 mins.	F.S.I. 90 mins.
I.H.P. 1519	F.H.P. 1497	I.S.I.P. 1247
F.S.I.P. 1243	I.F.P. 188	F.F.P. 193
Temp. 92°		

DST #4 2760-2820 Slave Point Formation
 Preflow 5 min. with fair air blow. Fair air blow
 on valve open decreasing to dead at end of test.
 Recovered 40' drilling mud.

I.S.I. 30 mins.	V.O. 90 mins.	F.S.I. 120 mins.
I.H.P. 1421	F.H.P. 1421	I.S.I.P. 263
F.S.I.P. 770	I.F.P. 72	F.F.P. 72

con't.....

Drill Stem Tests:

con't.

DST #5 2994-3102 (Granite Wash)

Preflow 5 min. with weak air blow. Very weak air
 blow when tool opened and dead in 5 min. Recovered
 3' drilling mud.

I.S.I. 30 mins.	V.O. 60 mins.	F.S.I. 90 mins.
I.H.P. 1519	F.H.P. 1511	I.S.I.P. 52
F.S.I. 70	I.F.P. 32	F.F.P. 32

DST #6 2910-2940 Sulphur Point Formation

Preflow 5 min. with weak air blow. Very weak air
 blow throughout test. Recovered 10' drilling mud.

I.S.I. 30 mins.	V.O. 60 mins.	F.S.I. 90 mins.
I.H.P. 1480	F.H.P. 1472	I.S.I.P. 77
F.S.I.P. 75	I.F.P. 39	F.F.P. 44

DRILL STEM TESTING & CORKING LTD.

EDMONTON: PHONE 433-7292

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

1

Date FEBRUARY 21, 1970.

Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BUILDING,
205 - 9th AVENUE S.E.,

CALGARY 21, ALBERTA.

Well Name CPOC CHEVRON GULL CREEK A-63

Location 60 42'01.19 118 11'40.00

Area N.W.T.

Formation TIGHT HOLE

Est. Pay Thick —

Ticket No. B-1176

Purchase Order No. 29790

Interval 2773' TO 2800'

Test Duration MIS-RUN

Initial Hydrostatic 1395

Final Hydrostatic 1382

Initial Flowing —

Final Flowing — after 45 mins.

Initial Shut-In — after 30 mins.

Final Shut-In — after 30 mins.

Blow NIL

Recovery 20'

Mud Type <u>GEL. CHEM.</u>	Size Full Hole <u>7-7/8"</u>	Size Rubber <u>7"</u>
Mud Wt. <u>9.2</u>	Size Rat Hole <u>—</u>	O.D. Drill Collar <u>6-1/4"</u>
Vis. <u>38</u>	Size & Type Pipe <u>4-1/2" F.H.</u>	O.D. Sub or T.J. <u>5-3/4"</u>
W. L. <u>12.4</u>	Time Circulated <u>1/2</u> Hrs.	Tool Length <u>—</u>
pH <u>12.</u>	Where Circulated <u>ON BOTTOM</u>	Rat Hole Length <u>—</u>
F. C. <u>2/32</u>	Bit off Bottom <u>10.00</u> A.M.	Difference <u>—</u>
Condition <u>10' OF FILL</u>	Formation <u>TIGHT HOLE</u>	Total Depth <u>2800'</u>
TEST EXTRAS: SAFETY JT. PUMP OUT SUB. 3RD RECORDER. SAMPLER.		N/C. FAIL SAFE HEAD.

Type of Test BOTTOM HOLE Wt. to Set Packer 30,000 40,000 To Pull Loose

Initial Puff FAIR Gas Flow NIL Size Bean 3/4" Fluid Cushion —
Temp. 110 Gravity — No. Drill Collars 18(4-H90) Length 539.01' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 1.15 P.M. Recorder No. —
Tool Open 1.47 P.M. Depth Run —
" Closed 1.50 P.M. Hydrostatics —
" Open 2.20 P.M. Flow —
" Closed 3.05 P.M. Initial S.I.P. —
" Loose 3.35 P.M. Final S.I.P. —
" Out 7.00 P.M. Difference —

INSIDE	OUTSIDE	OUTSIDE
3153	2832	3152
2765'	2780'	2785'
1390-1372	1395-1379	1395-1382

Mud 20'
Oil —
Water —
Total 20'
Sampled at TOP OF TOOL

Description of Fluid 20' DRILLING MUD,

Witnessed By: LEO NAVRATIL.

REMARKS: FAIR AIR BLOW ON PRE-FLOW. WHEN TOOL OPENED FOR FLOW, RECEIVED NO BLOW
AT ALL. RE-SET TOOL AFTER 30 MINUTES ON FLOW, DID NOT GET ANY BLOW AT ALL,
COMPLETELY DEAD. SHUT IN AFTER 15 MINUTES MORE FOR FINAL SHUT IN. CHARTS SHOW
TOOL PLUGGED OFF.

TEST MIS-RUN

R.H. GUNDERSON.

Testing Supervisor

L.W. NAVRATIL.

Customer's Representative

D.S.T. # 1

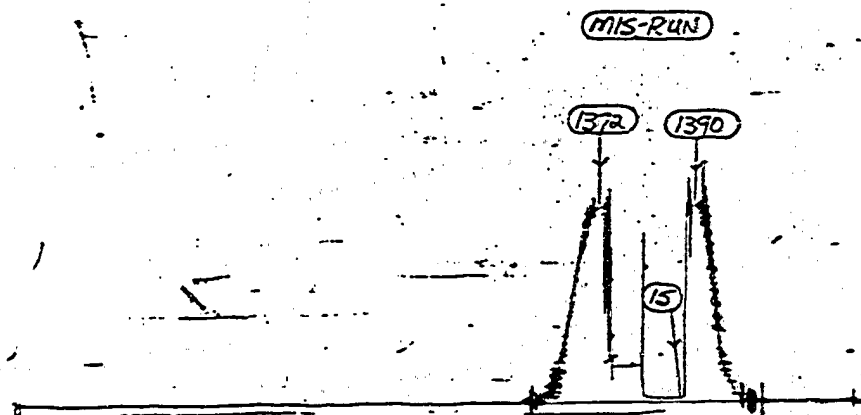
WELL NAME

CPOC CHEVRON GULL CREEK A-63

CPOG CHEVRON GULL CREEK A-63

DST. 1 TICKET B-1176

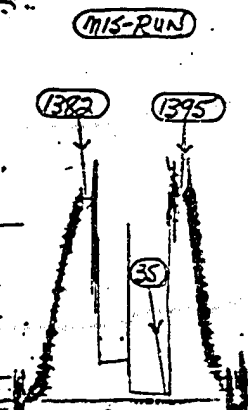
RECORDER 3153



CPOG CHEVRON GULL CREEK A-63

DST. 1 TICKET B-1176

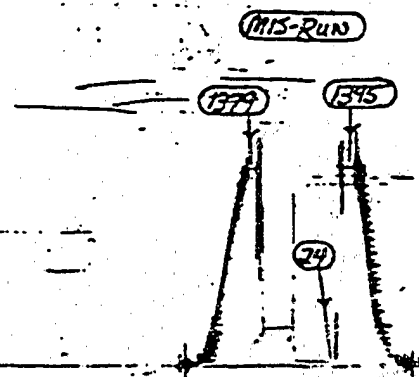
RECORDER 3152



CPOG CHEVRON GULL CREEK A-63

DST. 1 TICKET B-1176

RECORDER 2832



DRILL STEM TESTING & COPI'NG LTD.

EDMONTON: PHONE 433-7292

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

2

Date FEBRUARY 22, 1970.

Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BUILDING,
205 - 9th AVENUE S.E.,
CALGARY 21, ALBERTA.

Well Name CPOG CHEVRON GULL CREEK A-63

Location 60 42'G1.19 118 11'40.00

Area N.W.T.

Formation TIGHT HOLE

Est. Pay Thick. ---

Ticket No. B-1177

Purchase Order No. 29790

Interval 2778' TO 3000'

Test Duration 155 MINUTES

Initial Hydrostatic 1375

Final Hydrostatic 1367

Initial Flowing 240

Final Flowing 267 after 60 mins.

Initial Shut-In 1185 after 30 mins.

Final Shut-In 1197 after 60 mins.

Blow GOOD

Recovery 560'

Mud Type GEL. CHEM. Size Full Hole 7-7/8" Size Rubber 7"

Mud Wt. 9.3 Size Rat Hole --- O.D. Drill Collar 6-1/2"

Vis. 43 Size & Type Pipe 4 1/2" P.H. O.D. Sub or T.J. 5-3/4"

W. L. 7.5 Time Circulated --- Hrs. Tool Length 72.40'

pH 11 Where Circulated ON BOTTOM Rat Hole Length ---

F. C. 2/32 Bit off Bottom --- M. Difference ---

Condition GOOD Formation TIGHT HOLE Total Depth 3000'

TEST EXTRAS: SAFETY JT. DOUBLE SHUT IN. PUMP OUT SUB. 3RD RECORDER. FAIL SAFE HEAD.

Type of Test BOTTOM HOLE Wt. to Set Packer 30,000 10,000 To Pull Loose

Initial Puff GOOD Gas Flow 560 MCF MAX. Size 3/4" Fluid Cushion ---

Temp. 108° Gravity --- No. Drill Collars 18(4-H90) Length 509.01' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 2.15 P. M. Recorder No. ---

Tool Open 6.03 P. M. Depth Run ---

" Closed 6.08 P. M. Hydrostatics ---

" Open 6.38 P. M. Flow ---

" Closed 7.38 P. M. Initial S.I.P. ---

" Loose 8.38 P. M. Final S.I.P. ---

" Out 10.45 P. M. Difference ---

2832	3153	3152
2761'	2798'	2803'
1354-1354	1375-1367	1378-1374
232-256	240-267	249-268
1182	1185	1184
1195	1197	1197
13	12	13

Mud 560'

Oil ---

Water ---

Total 560'

Sampled at TOP, MIDDLE
AND BOTTOM.

Description of Fluid 560' DRILLING MUD.

Witnessed By: LEO NAVRATIL.

REMARKS: GOOD INITIAL PUFF ON PRE-FLOW. GOOD BLOW WITH GAS TO SURFACE IN 3 MINS.
ON FLOW, BLOW REMAINED STEADY THROUGHOUT FLOW PERIOD. GAS MEASURED AT: 560 MCF IN
10, 20, 30, 40, AND 60 MINUTES.

TEST SATISFACTORY.

R. H. GUNDERSON,
Testing Supervisor

L. W. NAVRATIL,
Customer's Representative

D.S.T. # 2
WELL NAME
GULL CREEK A-63

DEFINITIONS

Pw = Shut in well pressure, particular F.S.I.P. psi
 Pf = Flowing well pressure, particularly F.F.P. psi
 Po = Reservoir pressure from F.S.I.P. or plot psi
 T = Time of test influence on reservoir usually flowing time - minutes
 t = Convenient incremental time - minutes
 Q = Daily rate of flow - mcf/day or bbls./day
 m = Slope of build up curve
 E.D.R. = Estimated damage ratio

μ = Viscosity ntipoise
 k = Permeability - millidarcy
 h = Pay thickness - feet
 Z = Gas deviation factor
 A.O.F. = Absolute open flow - million cubic feet/day
 P.I. = Productivity index - mcf. or bbls./day/psi
 g.o. = Subscript denotes gas or oil
 B = Formation volume factor

BUILD UP PRESSURE							FLOWING PRESSURE						
Rec. # 3152		Rec. # 3153		Pw	t	T+t	Rec. # 3152		Rec. # 3153		Pf	t	Q
Initial	Final	Initial	Final			t	Initial	Final	Initial	Final			
940	954	1064	1083	1019	5	13.		236		232	234	5	
1158	1152	1178	1179	1166	10	7.		232		225	229	10	
1182	1184	1182	1186	1185	15	5.		248		243	246	15	
1184	1189	1185	1191	1190	20	4.		251		250	251	20	
1184	1194	1185	1191	1193	25	3.4		258		255	257	25	
1184	1194	1185	1191	1193	30	3.		262		259	261	30	
	1194		1191	1193	35	2.71		264		261	263	35	
	1194		1191	1193	40	2.5		260		255	258	40	
	1195		1194	1195	45	2.33		260		257	259	45	
	1197		1197	1197	50	2.2		260		257	259	50	
	1197		1197	1197	55	2.09		264		259	262	55	
	1197		1197	1197	60	2.		268		267	268	60	

CORRECTED: GAS MEASUREMENT 560 MCF INSTEAD OF 175 MCF.

m = slope of straight line portion of build up curve 174×10^3 $\frac{\text{psi}}{\text{cycle}}$

kh = $\frac{162.6 Q \mu B}{m_o}$ or $\frac{1637 Q g \mu Z \text{temp} (1637) (560) (.010) (.62) (568)}{m_g \frac{174 \times 10^3}{174 \times 10^3}} = 18.5536$ md ft

E.D.R. = $\frac{Po - Pf}{m_o (\log T + 1.75)}$ or $\frac{Po^2 - Pf^2}{m_g (\log T + 3.85) \frac{1347 \times 10^3}{(174 \times 10^3) (1.77 + 3.85)}} = 1.3$ (NIL) no dimension

k = $\frac{kh}{h}$ md

P.I. = $\frac{Q_o}{Po - Pf}$ or $\frac{Q_g}{Po^2 - Pf^2} \frac{560}{1347 \times 10^3} = .4157 \times 10^{-3}$ $\frac{\text{bbls./day/psi}}{\text{mcf/day/psi}}$

ASSUMPTIONS AND LIMITATIONS

Interpretation calculations require necessary assumptions to provide a quick estimation of many of the factors involved. Consequently, the calculations herein should be used as an estimate only, pending more complete analysis and testing. Drill Stem Testers makes no warranty express or implied as to the accuracy of such calculations, evaluations, or opinions, and shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

DRILL STEM TESTERS

TICKET No. *B 1177*

RECORDER No. *3153*

→
+
→

50

40

30

25

20

15

10

9

8

7

6

5

4

3

2

1.5

1

0.5

0.25

0.125

0.0625

0.03125

0.015625

0.0078125

0.00390625

0.001953125

0.0009765625

0.00048828125

0.000244140625

0.0001220703125

0.00006103515625

1000

1100

1200

1300

1400

1500

1600

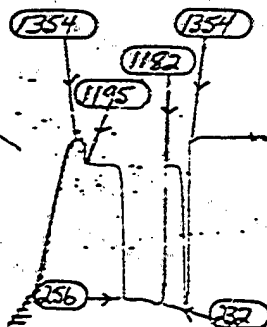
FSIP = X
ISIP = 0

PSI² × 10³

CPOG CHEVRON GULL CREEK A-63

DST-2 TICKET-B-1177

RECORDER-2832

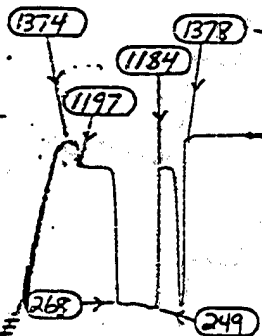


DST-2 REC-H 2832
CPOG Gull Creek A-63

CPOG CHEVRON GULL CREEK A-63

DST-2 TICKET-B-1177

RECORDER-3152

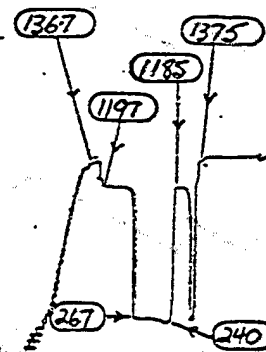


DST-2 REC-H 3152

CPOG CHEVRON GULL CREEK A-63

DST-2 TICKET-B-1177

RECORDER-3153



DST-2 REC-H 3153
CPOG Gull Creek A-63

DRILL STEM TESTING & COPING LTD.

EDMONTON. PHONE 433-7293

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

3

Date FEBRUARY 25, 1970.

Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BLDG.,
205 - 9th AVENUE S.E.,
CALGARY 21, ALBERTA.

Well Name CPOG CHEVRON GULL CREEK A-63

Location 60 42'01.19 118 11'40.00

Area N.W.T.

Formation TIGHT HOLE

Est. Pay Thick ---

Ticket No. B-1178

Purchase Order No. 29790

Interval 2945' TO 2990'

Test Duration 215 MINUTES

Initial Hydrostatic 1519

Final Hydrostatic 1497
PRE- 171

Initial Flowing 188

Final Flowing 193 after 90 mins.

Initial Shut-In 1247 after 30 mins.

Final Shut-In 1243 after 90 mins.

Blow GOOD

Recovery 360'

Mud Type <u>GEL. CHEM.</u>	Size Full Hole <u>7-7/8"</u>	Size Rubber <u>7"</u>
Mud Wt. <u>9.5</u>	Size Rat Hole <u>---</u>	O.D. Drill Collar <u>6-1/4"</u>
Vis. <u>65</u>	Size & Type Pipe <u>4-1/2" F.H.</u>	O.D. Sub or T.J. <u>6-1/8"</u>
W. L. <u>7.2</u>	Time Circulated <u>NIL</u> Hrs.	Tool Length <u>92.10'</u>
pH <u>11.</u>	Where Circulated <u>---</u>	Rat Hole Length <u>---</u>
F. C. <u>2/32</u>	Bit off Bottom <u>PRIOR TO LOGGING</u> M.	Difference <u>---</u>
Condition <u>GOOD</u>	Formation <u>TIGHT HOLE</u>	Total Depth <u>3102'</u>
TEST EXTRAS: <u>SAFETY JT. DOUBLE SHUT IN. PUMP OUT SUB. FAIL SAFE HEAD. 3RD RECORDER.</u>		

Type of Test STRADDLE BY-PASS Wt. to Set Packer 30,000 10,000 To Pull Loose

Initial Puff GOOD Gas Flow 734 MCF MAX. Size 3/4" Fluid Cushion ---

Temp. 92° Gravity --- No. Drill Collars 18 (4 H90) Length 531.09' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 1.00 A.M. Recorder No. ---

Tool Open 2.45 A.M. Depth Run ---

" Closed 2.50 A.M. Hydrostatics ---

" Open 3.20 A.M. Flow ---

" Closed 4.50 A.M. Initial S.I.P. ---

" Loose 6.20 A.M. Final S.I.P. ---

" Out 9.00 A.M. Difference ---

	3152	2832	3153
	2935'	2965'	2970'
	1504-1488	1514-1498	1519-1497
	167-173	203-192	188-193
	1240	1248	1247
	1237	1243	1243
	3	5	4

Mud 270'

Oil CUT MUD- 90'

Water ---

Total 360'

Sampled at DRILL COLLARS.

Description of Fluid 270' GASSY MUD. 90' OIL CUT HEAVY MUD, SLIGHTLY GASSY.

Witnessed By: L. NAVRATIL.

REMARKS: GOOD INITIAL PUFF WITH GAS TO SURFACE IN 3 MINUTES ON PRE-FLOW. GOOD
BLOW, INCREASING SLIGHTLY ON FLOW PERIOD. THEN REMAINED STEADY TO END OF FLOW.
GAS MEASURED W/ MERCURY AT 560 MCF IN 10 MINS. 734 MCF IN 50, 60 AND 90 MINS.
SAMPLER # 15.

TEST SATISFACTORY.

R.H. GUNDERSON.

Testing Supervisor

L.W. NAVRATIL.

Customer's Representative

D.S.T. # 3 WELL NAME CPOG CHEVRON GULL CREEK A-63

DEFINITIONS

P_w = Shut in well pressure, particular F.S.I.P. psi
 P_f = Flowing well pressure, particular F.F.P. psi
 P_o = Reservoir pressure from F.S.I.P. or plot psi
 T = Time of test influence on reservoir usually flowing time - minutes
 t = Convenient incremental time - minutes
 Q = Daily rate of flow - mcf/day or bbls./day
 m = Slope of build up curve
 $E.D.R.$ = Estimated damage ratio

μ = Viscosity - centipoise
 k = Permeability - millidarcy
 h = Pay thickness - feet
 Z = Gas deviation factor
 $A.O.F.$ = Absolute open flow - million cubic feet/day
 $P.I.$ = Productivity index - mcf. or bbls./day/psi
 $g.o.$ = Subscript denotes gas or oil
 B = Formation volume factor

BUILD UP PRESSURE							FLOWING PRESSURE						
Rec. # 2832		Rec. # 3153		Pw	t	T+t	Rec. # 2832		Rec. # 3153		Pf	t	Q
Initial	Final	Initial	Final			t	Initial	Final	Initial	Final			
1211	1129	1232	1172	1151	5	19.		169		169	169	10	
1246	1223	1245	1228	1226	10	10.		169		170	170	20	
1248	1235	1246	1234	1235	15	7.		173		177	175	30	
1248	1238	1246	1237	1238	20	5.5		177		181	179	40	
1248	1239	1247	1238	1239	25	4.6		181		185	183	50	
1248	1239	1247	1238	1239	30	4.		182		186	184	60	
	1240		1239	1240	35	3.57		185		189	187	70	
	1240		1239	1240	40	3.25		190		191	191	80	
	1241		1240	1241	45	3.		192		193	193	90	
	1241		1240	1241	50	2.8							
	1241		1241	1241	55	2.63							
	1242		1241	1242	60	2.5							
	1242		1242	1242	65	2.38							
	1243		1242	1243	70	2.28							
	1243		1242	1243	75	2.2							
	1243		1243	1243	80	2.12							
	1243		1243	1243	85	2.06							
	1243		1243	1243	90	2.							

m = slope of straight line portion of build up curve

$$m = 34 \times 10^3$$

$$k h = \frac{162.6 Q \mu B}{m_o} \quad \text{or} \quad \frac{1637 Q g \mu Z \text{ temp} (1637)(734)(.010)(.62)(552)}{m_g \frac{34 \times 10^3}{1.18 \times 10^3}} = 120.9474$$

$$E.D.R. = \frac{P_o - P_f}{m_o (\log T + 1.75)} \quad \text{or} \quad \frac{P_o^2 - P_f^2}{m_g (\log T + 3.85)} \frac{1.18 \times 10^3}{(34 \times 10^3)(1.95 + 3.85)} = 7.69$$

$$\frac{k}{h} = \frac{k h}{h}$$

$$P.I. = \frac{Q_o}{P_o - P_f} \quad \text{or} \quad \frac{Q_g}{P_o^2 - P_f^2} \frac{734}{1518 \times 10^3} = .4835 \times 10^{-3}$$

ASSUMPTIONS AND LIMITATIONS

Interpretation calculations require necessary assumptions to provide a quick estimation of many of the factors involved. Consequently, the calculations herein should be used as an estimate only, pending more complete analysis and testing. Drill Stem Testers makes no warranty express or implied as to the accuracy of such calculations, evaluations, or opinions, and shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

T + |

50
40
30
25
20
15
10
9
8
7
6
5
4
3
2
1.5
1

DRILL STEM TESTERS

TICKET No. B 1178

RECORDER No. 3153

1300 1350 1400 1450 1500 1550 1600

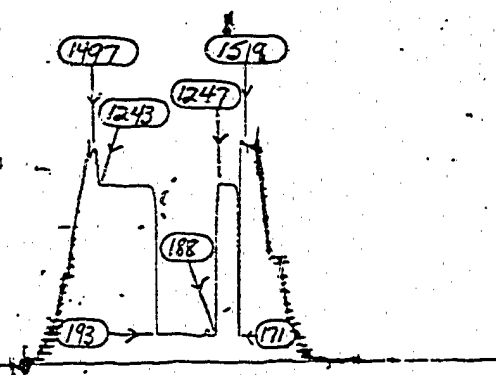
FSIP = x
ISIP = 0

PSI² x 10³

CPOG CHEVRON GULL CREEK A-63

DST-3 TICKET-B-1178

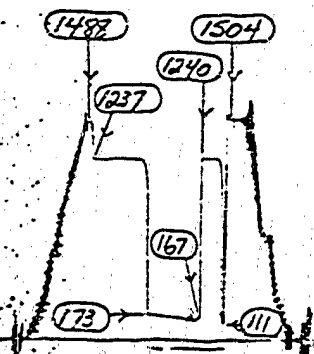
RECORDER-3153



CPOG CHEVRON GULL CREEK A-63

DST-3 TICKET-B-1178

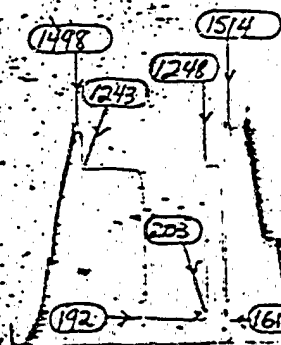
RECORDER-3152



CPOG CHEVRON GULL CREEK A-63

DST-3 TICKET-B-1178

RECORDER-2832



DRILL STEM TESTING & CORING LTD.

EDMONTON: PHONE 433-7293

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

4

Date FEBRUARY 25, 1970.

Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BLDG,
205 - 9th AVENUE S.E.,
CALGARY 21, ALBERTA.

Well Name CPOG CHEVRON GULL CREEK A-63

Location 60 42'01.19 118 11'40.00

Area N.W.T.

Formation TIGHT HOLE

Est. Pay Thick ---

Ticket No. B-1179

Purchase Order No. 29790

Interval 2760' TO 2820'

Test Duration 245 MINUTES

Initial Hydrostatic 1421

Final Hydrostatic 1421

Initial Flowing 72

Final Flowing 72 after 90 mins.

Initial Shut-In 263 after 30 mins.

Final Shut-In 770 after 120 mins.

Blow FAIR - DECREASING

Recovery 40'

Mud Type <u>GEL. CHEM.</u>	Size Full Hole <u>7-7/8"</u>	Size Rubber <u>7"</u>
Mud Wt. <u>9.6</u>	Size Rat Hole <u>---</u>	O.D. Drill Collar <u>6-1/4"</u>
Via <u>65</u>	Size & Type Pipe <u>4-1/2" F.H.</u>	O.D. Sub or T.J. <u>6-1/8"</u>
W. L. <u>7.2</u>	Time Circulated <u>---</u> Hrs.	Tool Length <u>---</u>
pH <u>11.</u>	Where Circulated <u>---</u>	Rat Hole Length <u>---</u>
F. C. <u>2/32</u>	Bit off Bottom <u>---</u> M.	Difference <u>---</u>
Condition <u>GOOD</u>	Formation <u>TIGHT HOLE</u>	Total Depth <u>3102'</u>
TEST EXTRAS: <u>SAFETY JT. DOUBLE SHUT IN. SAMPLER. PUMP OUT SUB. 3RD RECORDER.</u>		

Type of Test STRADDLE BY-PASS Wt. to Set Packer 35,000 10,000 To Pull Loose

Initial Puff FAIR Gas Flow NIL Size Bean 3/4" Fluid Cushion ---

Temp. --- Gravity --- No. Drill Collars 18 (4 H90) Length 531.09' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 10.00 A.M. Recorder No. ---

Tool Open 12.10 P.M. Depth Run ---

" Closed 12.15 P.M. Hydrostatics ---

" Open 12.45 P.M. Flow ---

" Closed 2.15 P.M. Initial S.I.P. ---

" Loose 4.15 P.M. Final S.I.P. ---

" Out 7.00 P.M. Difference ---

3152	2832	3153
2748'	2795'	2800'
1401-1400	1418-1418	1421-1421
59-62	68-72	72-72
254	260	263
754	769	770
500	509	507

Mud 40'

Oil ---

Water ---

Total 40'

Sampled at TOP OF TOOL

Description of Fluid 40' DRILLING MUD.

Witnessed By: L. NAVRATIL.

REMARKS: FAIR INITIAL AIR PUFF. FAIR AIR BLOW AT START OF FLOW. DECREASING
STEADILY TO ALMOST DEAD AT END OF FLOW PERIOD. NO GAS TO SURFACE.
SAMPLER # 13.

TEST SATISFACTORY.

R.H. GUNDERSON.

Testing Supervisor

L.W. NAVRATIL.

Customer's Representative

D.S.T. # 4

WELL NAME

CPOG CHEVRON GULL CREEK A-63

DEFINITIONS

P_w = Shut in well pressure, particularly F.S.I.P. psi
 P_f = Flowing well pressure, particularly F.F.P. psi
 P_o = Reservoir pressure from F.S.I.P. or plot psi
 T = Time of test influence on reservoir usually flowing time - minutes
 t = Convenient incremental time - minutes
 Q = Daily rate of flow - mcf/day or bbls./day
 m = Slope of build up curve
 $E.D.R.$ = Estimated damage ratio

μ = Viscosity - centipoise
 k = Permeability - millidarcy
 h = Pay thickness - feet
 Z = Gas deviation factor
 $A.O.F.$ = Absolute open flow - million cubic feet/day
 $P.I.$ = Productivity index - mcf. or bbls./day/psi
 $g.o.$ = Subscript denotes gas or oil
 B = Formation volume factor

BUILD UP PRESSURE						FLOWING PRESSURE							
Rec. # 2832		Rec. # 3153		Pw	t	T+t	Rec. # 2832		Rec. # 3153		Pf	t	Q
Initial	Final	Initial	Final			t	Initial	Final	Initial	Final			
154	147	165	163		10		71		72			10	
215	221	221	240		20		71		72			20	
260	298	263	315		30		71		72			30	
	368		374		40		71		72			40	
	436		446		50		72		72			50	
	500		505		60		72		72			60	
	556		559		70		72		72			70	
	607		608		80		72		72			80	
	653		655		90		72		72			90	
	696		698		100								
	736		737		110								
	769		770		120								

m = slope of straight line portion of build up curve

$$k h = \frac{162.6 Q \mu B}{m_o} \quad \text{or} \quad \frac{1637 Q g \mu Z \text{ temp}}{m_g}$$

$$E.D.R. = \frac{P_o - P_f}{m_o (\log T + 1.75)} \quad \text{or} \quad \frac{P_o^2 - P_f^2}{m_g (\log T + 3.85)}$$

$$k = \frac{k h}{h}$$

$$P.I. = \frac{Q_o}{P_o - P_f} \quad \text{or} \quad \frac{Q_g}{P_o^2 - P_f^2}$$

psi
cycle
md ft

no dimension

md

bbls/day/psi
mcf/day/psi

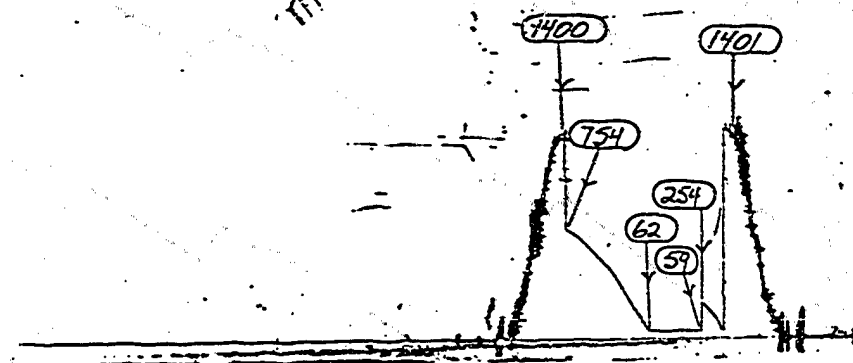
ASSUMPTIONS AND LIMITATIONS

Interpretation calculations require necessary assumptions to provide a quick estimation of many of the factors involved. Consequently, the calculations herein should be used as an estimate only, pending more complete analysis and testing. Drill Stem Testers makes no warranty express or implied as to the accuracy of such calculations, evaluations, or opinions, and shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

CPOG CHEVRON GULL CREEK A-63

DST-4 TICKET-B-1179

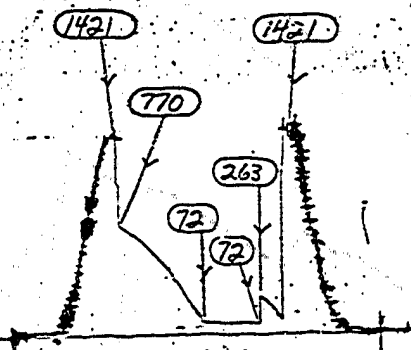
RECORDER-3152



CPOG CHEVRON GULL CREEK A-63

DST-4 TICKET-B-1179

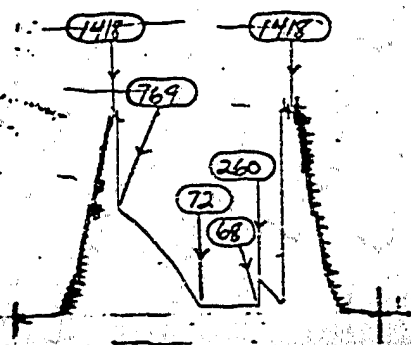
RECORDER-3153



CPOG CHEVRON GULL CREEK A-63

DST-4 TICKET-B-1179

RECORDER-2832



DRILL STEM TESTING & COPI'NG LTD.

EDMONTON: PHONE 433-7293

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

5

Date FEBRUARY 26, 1970.

Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BLDG.,
205 - 9th AVENUE S.E.,
CALGARY 21, ALBERTA.

Well Name CPOG CHEVRON GULL CREEK A-63

Location 60 42'01.19 118 11'40.00

Area N.W.T.

Formation TIGHT HOLE

Est. Pay Thick. ---

Ticket No. B-1180

Purchase Order No. 29790

Interval 2954' TO 3102'

Test Duration 185 MINUTES

Initial Hydrostatic 1519

Final Hydrostatic 1511

Initial Flowing 32

Final Flowing 32 after 60 mins.

Initial Shut-In 52 after 30 mins.

Final Shut-In 70 after 90 mins.

Blow VERY WEAK - DEAD

Recovery 3'

Mud Type <u>GEL. CHEM.</u>	Size Full Hole <u>7-7/8"</u>	Size Rubber <u>7"</u>
Mud Wt. <u>9.4</u>	Size Rat Hole <u>---</u>	O.D. Drill Collar <u>6-1/4"</u>
Vis. <u>60</u>	Size & Type Pipe <u>4-1/2" F.H.</u>	O.D. Sub or T.J. <u>6-1/8"</u>
W. L. <u>4.2</u>	Time Circulated <u>1-1/2</u> Hrs.	Tool Length <u>41.70'</u>
pH <u>12.0</u>	Where Circulated <u>ON BOTTOM</u>	Rat Hole Length <u>---</u>
F. C. <u>2/32</u>	Bit off Bottom <u>1.00</u> P.M.	Difference <u>---</u>
Condition <u>GOOD</u>	Formation <u>TIGHT HOLE</u>	Total Depth <u>3102'</u>
TEST EXTRAS: <u>SAFETY JT. DOUBLE SHUT IN. 3RD RECORDER. PUMP OUT SUB. FAIL SAFE HEAD.</u>		

Type of Test BOTTOM HOLE Wt. to Set Packer 40,000 To Pull Loose

Initial Puff WEAK Gas Flow NIL Size Bean 3/4" Fluid Cushion ---
Temp. --- Gravity --- No. Drill Collars 18(42190) Length 531.09' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 1.30 A.M. Recorder No. ---
Tool Open 2.45 A.M. Depth Run ---
" Closed 2.50 A.M. Hydrostatics ---
" Open 3.20 A.M. Flow ---
" Closed 4.20 A.M. Initial S.I.P. ---
" Loose 5.50 A.M. Final S.I.P. ---
" Out 8.00 A.M. Difference ---

2832	3152	3153
2983'	3001'	3006'
1504-1502	1519-1511	1524-1513
12-12	32-32	32-32
29	52	52
39	70	68
10	18	16

Mud 3'
Oil ---
Water ---
Total 3'
Sampled at TOP OF TOOL

Description of Fluid 3' OF DRILLING MUD.

Witnessed By: L. NAVRATIL.

REMARKS: WEAK INITIAL AIR PUFF ON PRE-FLOW. HAD VERY FEW BUBBLES ON FLOW, THEN
DEAD AFTER 5 MINUTES ON FLOW PERIOD.

TEST SATISFACTORY.

R.H. GUNDERSON.

Testing Supervisor

L.W. NAVRATIL.

Customer's Representative

D.S.T. #

5

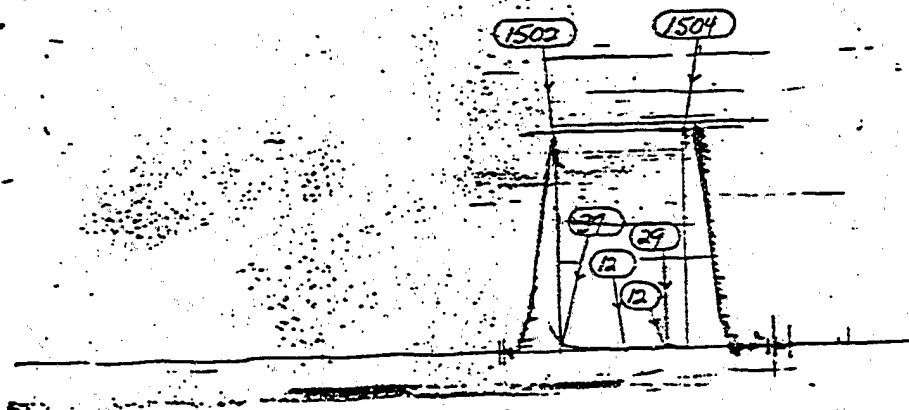
WELL NAME

CPOG CHEVRON GULL CREEK A-63

CPOG CHEVRON GULL CREEK A-63

DST. #5 TICKET #B-1180

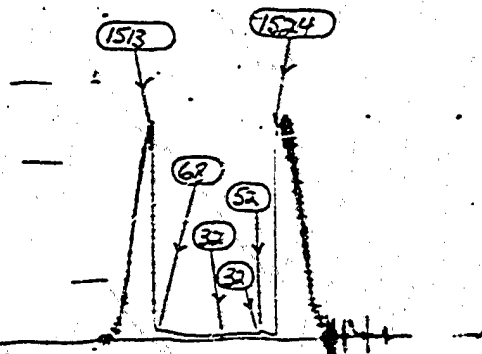
RECORDER #2832



CPOG CHEVRON GULL CREEK A-63

DST. #5 TICKET #B-1180

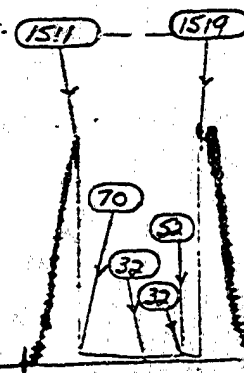
RECORDER #3153



CPOG CHEVRON GULL CREEK A-63

DST. #5 TICKET #B-1180

RECORDER #3152



DRILL STEM TESTING & COPI'NG LTD.

EDMONTON: PHONE 433-7292

CALGARY: PH. 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

6

Date FEBRUARY 26, 1970.
 Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BLDG.,
205 - 9th AVENUE S.E.,
CALGARY 21, ALBERTA.
 Well Name CPOG CHEVRON CULL CREEK A-63
 Location 60 42°01.19 118 11°40.00
 Area N.W.T.
 Formation TIGHT HOLE
 Est. Pay Thick ---
 Ticket No. B-1181
 Purchase Order No. 29790

Interval 2910' TO 2940'
 Test Duration 185 MINUTES
 Initial Hydrostatic 1480
 Final Hydrostatic 1472
 Initial Flowing 39
 Final Flowing 44 after 60 mins.
 Initial Shut-In 77 after 30 mins.
 Final Shut-In 75 after 90 mins.
 Blow WEAK
 Recovery 10'

Mud Type GEL. CHEM. Size Full Hole 7-7/8" Size Rubber 7"
 Mud Wt. 9.4 Size Rat Hole NIL O.D. Drill Collar 6-1/4"
 Vis. 66 Size & Type Pipe 4-1/2" F.H. O.D. Sub or T.J. 6-1/8"
 W. L. 4.2 Time Circulated --- Hrs. Tool Length 108.46'
 pH 12.0 Where Circulated --- Rat Hole Length ---
 F. C. 2/32 Bit off Bottom --- M. Difference ---
 Condition GOOD Formation TIGHT HOLE Total Depth 3102'
 TEST EXTRAS: SAFETY JT. DOUBLE SHUT IN. PUMP OUT SUB. FAIL SAFE HEAD. 3RD RECORDER.
BY-PASS EQUIP. TEX PICKER

Type of Test STRADDLE BY-PASS Wt. to Set Packer 35,000 10,000 To Pull Loose
 Initial Puff WEAK Gas Flow NIL Size Bean 3/4" Fluid Cushion NIL
 Temp. --- Gravity --- No. Drill Collars 18(4H90) Length 531.09' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 9.00 A.M. Recorder No. ---
 Tool Open 10.15 A.M. Depth Run ---
 " Closed 10.20 A.M. Hydrostatics ---
 " Open 10.50 A.M. Flow ---
 " Closed 11.50 A.M. Initial S.I.P. ---
 " Loose 1.20 P.M. Final S.I.P. ---
 " Out 4.00 P.M. Difference ---

	2832	3153	3152
	2902'	2930'	2935'
	1466-1458	1479-1468	1480-1472
	19-20	41-43	39-44
	54	77	77
	48	74	75
	6	3	2

Mud 10'
 Oil ---
 Water ---
 Total 10'
 Sampled at TOP OF TOOL

Description of Fluid 10' OF DRILLING MUD.

Witnessed By: LEO NAVRATIL.
 REMARKS: WEAK INITIAL AIR PUFF. WEAK AIR BLOW THROUGHOUT FLOW PERIOD.

TEST SATISFACTORY.

R.H. GUNDERSON.

Testing Supervisor

L.M. NAVRATIL.

Customer's Representative

D.S.T. # 6

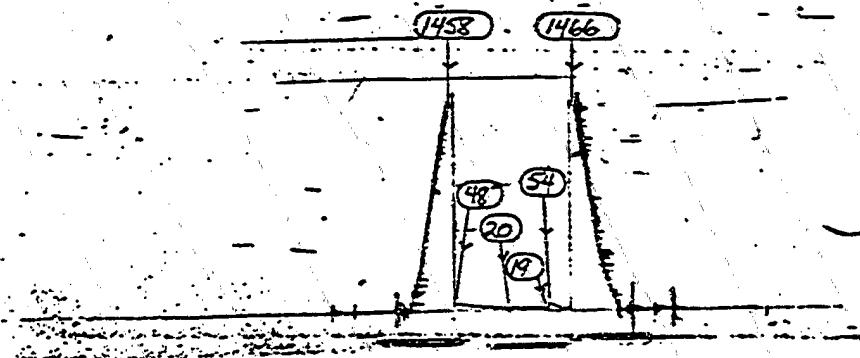
WELL NAME

CPOG CHEVRON CULL CREEK A-63

CPOG CHEVRON GULL CREEK A-63

DIST. 6 TICKET B-1181

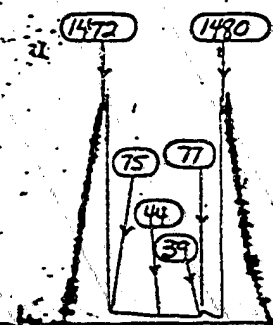
RECORDER 2832



CPOG CHEVRON GULL CREEK A-63

DIST. 6 TICKET B-1181

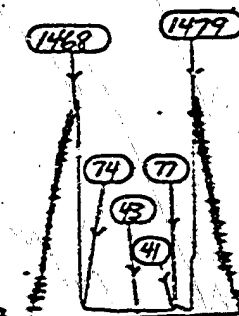
RECORDER 3152



CPOG CHEVRON GULL CREEK A-63

DIST. 6 TICKET B-1181

RECORDER 3153



CASING RECORD

13 joints, 8 5/8", K-55, 24#. Landed at 377' K.B.
with 250 sacks normal cement plus 2% CaCl_2 . Plug
down at 8:45 P.M., February 16th, 1970. With good
returns.

BIT RECORD

1 - 7 7/8
1 - 12 1/4
2 - 12 1/4
1 - 7 7/8
2 - 7 7/8
3 - 7 7/8

0 - 47
0 - 130
130 - 377
377 - 1275
1275 - 2776
2776 - 3102

MUD RECORD

<u>DEPTH</u>	<u>WEIGHT</u>	<u>VISCOSITY</u>	<u>WATER LOSS</u>	<u>FILTER CAKE</u>	<u>P.H.</u>
140	9.1	40		Water	
377	9.5	42		Water	
1270	9.4	32		Water	
1520	8.4	28		Water	
2060	8.5	28		Water	
2800	9.0	43		2/32	12.5
3000	9.3	42	7.6	2/32	12.0
3102	9.6	66	5.4	2/32	12.0

DEVIATIONS

60 - $3/4^\circ$
100 - $3/4^\circ$
130 - $3/4^\circ$
190 - $1/2^\circ$
250 - $1/2^\circ$
370 - $3/4^\circ$
660 - $3/4^\circ$
830 - $1/4^\circ$
1080 - $3/4^\circ$
1230 - 3°
1260 - 3°
1290 - 4°
1320 - $3\ 1/2^\circ$

1350 - 3°
1540 - $2\ 1/2^\circ$
1600 - $2\ 1/2^\circ$
1660 - $1\ 1/2^\circ$
1760 - $1\ 7/8^\circ$
1820 - $1\ 1/2^\circ$
1880 - $1\ 1/2^\circ$
2070 - $3/4^\circ$
2260 - $3/4^\circ$
2500 - $1\ 1/2^\circ$
2560 - $1\ 1/2^\circ$
2710 - 1°
3102 - $1\ 1/4^\circ$

ABANDONMENT PLUGS

Plug #1

3102' - 2900' Cemented with 80 sacks Normal Cement. Displaced with 40 bbls. C.I.P. at 8:15 P.M., February 27th, 1970.

Plug #2

426' - 326' Cemented with 40 sacks Normal Cement. Displaced with 3 bbls. C.I.P. at 9:30 P.M., February 27th, 1970.

Plug #3

Surface drop 5 sacks Cement plug, weld on plate, correct well identifier. February 28th, 1970.

SECTION IV:LOGS:

D.I.L.	3089'-378'	February 23rd, 1970
S.N.P.	3092'-1592'	February 23rd, 1970
SLC-GR	3091'-378'	February 24th, 1970
F.D.L.	3092'-1592'	February 23rd, 1970
Lithology	3092'-1592'	February 23rd, 1970
Continuous Dipmeter	3090'-2550'	February 24rd, 1970
Synergetic Dual Mineral	3090'-2450'	February 23rd, 1970
Velocity Survey	3091'- 378'	February 24th, 1970

CAS

WELL NAME: CPOG Chevron Gull Creek A-63
 LOCATION: 60°33'39.36" N.L. 118°11'40.00" W.L.

LAB. NO.	SAMPLE	ANALYSIS		SOURCE
		FROM	TO	
CBH-1-1933	Gas Analysis	2945'	2990'	DST # 3
CAL-2-1816	Chemical Analysis	2945'	2990'	DST # 3 (MFE Tool)
CAL-2-1782 CBH-1-1933	Chemical Analysis			DST # 1 (top of tool)
CAL-2-1782 CBH-1-1933	Gas Analysis	2778	3008'	DST # 2
CAL-2-1782 CBH-1-1933	Chemical Analysis			DST # 2 (Middle)
CAL-2-1782 CBH-1-1933	Chemical Analysis	2945'	2990'	DST # 3 (Top of Tool)
CAL-2-1782 CBH-1-1933	Chemical Analysis	2760'	2820'	DST # 4 (Top of Tool)
CAL-2-1782 CBH-1-1933	Chemical Analysis	2760'	2820'	DST # 4
CAL-2-1782 CBH-1-1933	Chemical Analysis			DST # 5 (Top of Tool)
CAL-2-1782 CBH-1-1933	Chemical Analysis			DST # 6 (Top of Tool)



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 1 of 8
Well CPOG Chevron Gull Creek A-63 File CAL-2-1782
CBH-1-1913
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
Location 60 42' 1.19"N.L.
118 11'40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth _____
Sampled from DST #1 (top of tool) by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 2/70 Date received March 5.70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: _____

Resistivity 1.09 Ohm-meters @ 72°F

Insufficient sample for further analysis.



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



GAS ANALYSIS

Company Canadian Pacific Oil and Gas Limited Page 2 of 8
Well CPOG Chevron Gull Creek A-63 File CAL-2-1782
Field Wildcat, Gull Creek Area, Northwest Territories Analyst GV FS
Location 60 42° 01.19' N.L. Elevation: K.B. 1081' Grd. 1058'
118 11° 40.00 W.L.
Formation _____ Depth 2778' - 3008'
Sampled from DST #2 by Drill Stem Testers
Sampling pressure 60 psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 22/70 Date received March 5/70 Date analysed March 5/70
Container pressure 60 Mud _____ Water cushion _____
Recovery or flowrate. 175 Mcf Gas, 560' Mud.

COMPONENT	MOLE %	IMP. GPM @ 14.65 psia and 60°F
Hydrogen	.00	
Helium	.11	
Nitrogen	4.80	
Carbon Dioxide	1.29	
Hydrogen Sulphide	.00	
Methane	90.01	
Ethane	2.37	
Propane	.78	.178
Iso Butane	.14	.038
Normal Butane	.24	.063
Iso Pentane	.08	.024
Normal Pentane	.06	.018
Hexanes	.05	.017
Heptanes Plus	.07	.026
Total	100.00	364
Pentanes Plus		.085

SPECIFIC GRAVITY

Calculated .616 Measured _____

GROSS B.T.U. per SCF 1004.9

Calculated @ 14.65 psia, 60°F, moisture and acid - gas free.

VAPOR PRESSURE of PENTANES PLUS

(calculated) 11.0 psia @ 100°F

Critical Pressure 668.2 psia

Critical Temperature 351.3 °R

Remarks DST #3 was all air.



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 3 of 8
Well CPOG Chevron Gull Creek A-63 File CAL-2-1782
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
Location 60 42' 1.19"N.L. Elevation: K.B. 1081' Grd. 1068'
118 11'40.00 W.L.
Formation _____ Depth _____
Sampled from DST #2 (Middle) by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 22/70 Date received March 6/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 175 Mcf Gas, 560' Mud.

Resistivity

0.97 Ohm-meters @ 72°F

Insufficient sample for further analysis.



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 4 of 8
Well CPOG Chevron Gull Creek A-63 File CAL-2-1782
CBH-1-1933
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
60 42' 1.19"N.L.
Location 118 11'40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth 2945' - 2990'
Sampled from DST #3 (Top of Tool) by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 25/70 Date received March 5/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 270' Gassy Mud, 90' Oil-Cut Mud, 7.34 Mcf Gas.

Resistivity

0.163 Ohm-meters @ 72°F

Chloride

25,181 mg/liter



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 5 of 8
Well CPOG Chevron Gull Creek A-63 File CAL-2-1782
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
Location 60 42' 1.19 N.L. ✓
118 11' 40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth 2760' - 2820'
Sampled from DST #4 (Top of Tool) by Drill Stem Testers
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 25/70 Date received March 6/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 40' Mud

Chloride 1,459 mg/liter

Resistivity 1.03 Ohm-meters @ 72°F



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 6 of 8
Well CPOG Chevron Gull Creek A-63 File CAL-2-1782
CBH-1-1933
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
60 42' 1.19" N.L.
Location 118 11' 40.00 W-L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth 2760' - 2820'
Sampled from DST #4 by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 25/70 Date received March 9/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 40' Mud

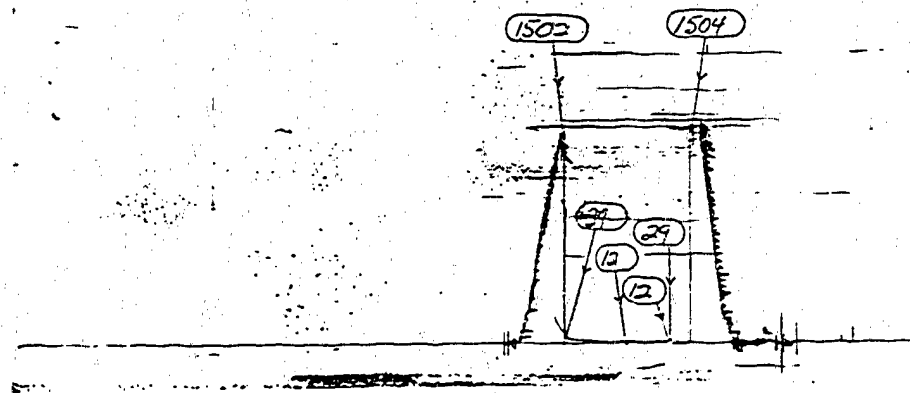
Resistivity 1.13 Ohm-meters @ 72°F

Chloride 1,533 mg/liter

CPOG CHEVRON GULL CREEK A-63

DST. 5 TICKET B-1130

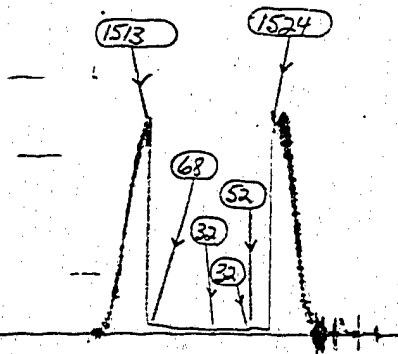
RECORDER 2832



CPOG CHEVRON GULL CREEK A-63

DST. 5 TICKET B-1110

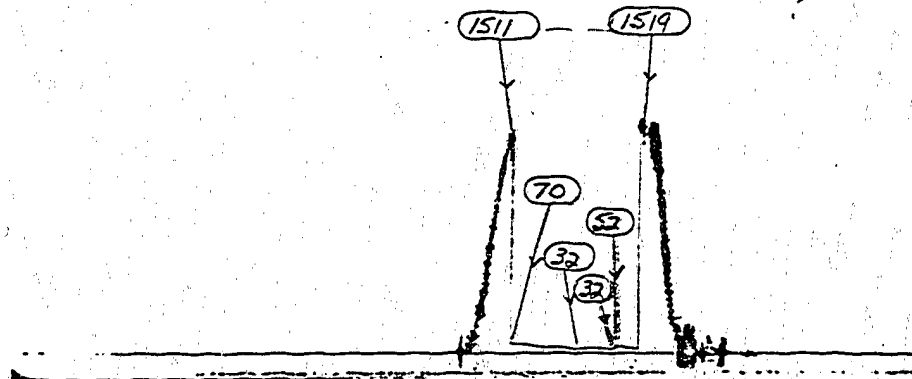
RECORDER 3153



CPOG CHEVRON GULL CREEK A-63

DST. 5 TICKET B-1180

RECORDER 3152



DRILL STEM TESTING & CORING LTD.

EDMONTON: PHONE 433-7293

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

6

Date FEBRUARY 26, 1970.
 Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BLDG.,
205 - 9th AVENUE S.E.,
CALGARY 21, ALBERTA.
 Well Name CPOG CHEVRON GULL CREEK A-63
 Location 60 42'01.19 118 11'40.00
 Area N.W.T.
 Formation TIGHT HOLE
 Est. Pay Thick ---
 Ticket No. B-1181
 Purchase Order No. 29790

Interval 2910' TO 2940'
 Test Duration 185 MINUTES
 Initial Hydrostatic 1480
 Final Hydrostatic 1472
 Initial Flowing 39
 Final Flowing 44 after 60 mins.
 Initial Shut-In 77 after 30 mins.
 Final Shut-In 75 after 90 mins.
 Blow WEAK
 Recovery 10'

Mud Type GEL-CHEM. Size Full Hole 7-7/8" Size Rubber 7"
 Mud Wt. 9.4 Size Rat Hole NIL O.D. Drill Collar 6-1/4"
 Vis. 66 Size & Type Pipe 4-1/2" F.H. O.D. Sub or T.J. 6-1/8"
 W. L. 4.2 Time Circulated --- Hrs. Tool Length 108.46'
 pH 12.0 Where Circulated --- Rat Hole Length ---
 F. C. 2/32 Bit off Bottom --- M. Difference ---
 Condition GOOD Formation TIGHT HOLE Total Depth 3102'
 TEST EXTRAS: SAFETY JT. DOUBLE SHUT IN. PUMP OUT SUB. FAIL SAFE HEAD. 3RD RECORDER.
BY-PASS EQUIP. TEX PACKER

Type of Test STRADDLE BY-PASS Wt. to Set Packer 35,000 10,000 To Pull Loose
 Initial Puff WEAK Gas Flow NIL Size Bean 3/4" Fluid Cushion NIL
 Temp. --- Gravity --- No. Drill Collars 18(41H90) Length 531.09' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 9:00 A.M. Recorder No. 2832
 Tool Open 10:15 A.M. Depth Run 2902'
 " Closed 10:20 A.M. Hydrostatics 1466-1458
 " Open 10:50 A.M. Flow 19-20
 " Closed 11:50 A.M. Initial S.I.P. 54
 " Loose 1:20 P.M. Final S.I.P. 48
 " Out 4:00 P.M. Difference 6

2832	3153	3152
2902'	2930'	2935'
1466-1458	1479-1468	1480-1472
19-20	41-43	39-44
54	77	77
48	74	75
6	3	2

Mud 10'
 Oil ---
 Water ---
 Total 10'
 Sampled at TOP OF TOOL.

Description of Fluid 10' OF DRILLING MUD.

Witnessed By: LEO NAVRATIL.

REMARKS: WEAK INITIAL AIR PUFF. WEAK AIR BLOW THROUGHOUT FLOW PERIOD.

TEST SATISFACTORY.

R.H. GUNDERSON.

Testing Supervisor

L.W. NAVRATIL.

Customer's Representative

D.S.T. # 6

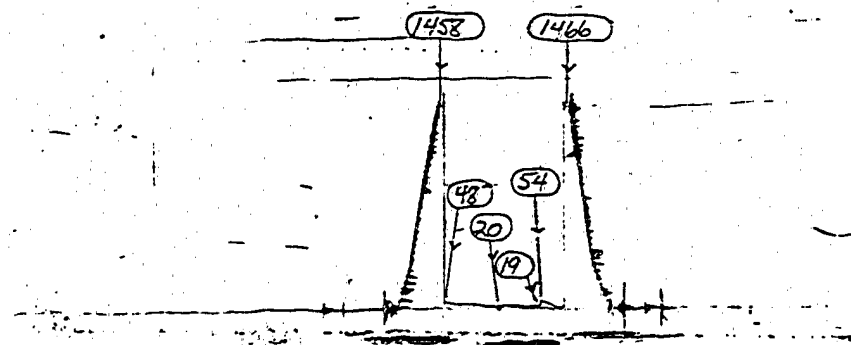
WELL NAME

CPOG CHEVRON GULL CREEK A-63

CPOG CHEVRON GULL CREEK A-63

DST. 6 TICKET B-1181

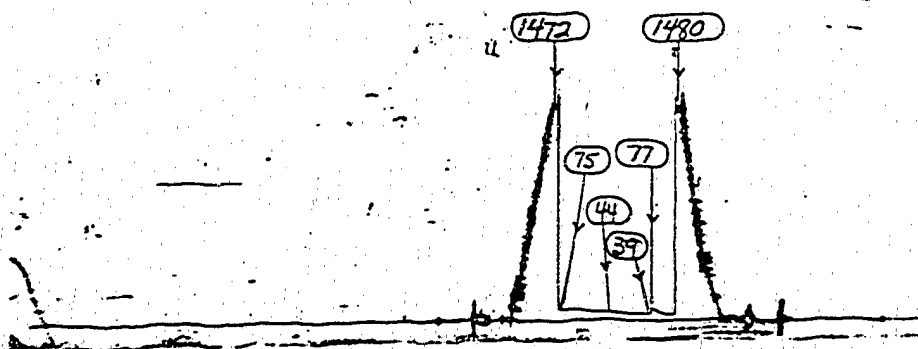
RECORDER 2832



CPOG CHEVRON GULL CREEK A-63

DST. 6 TICKET B-1181

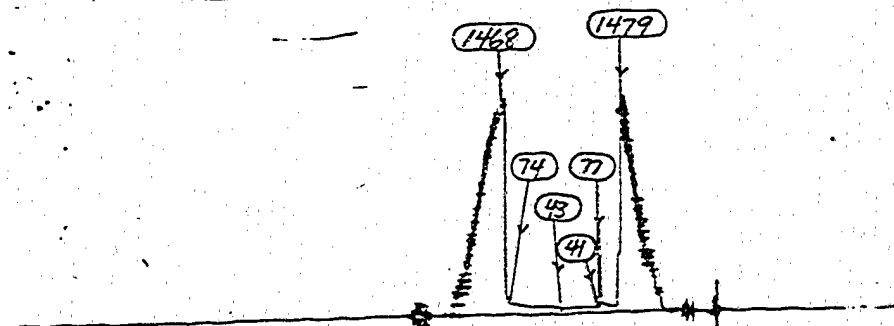
RECORDER 3152



CPOG CHEVRON GULL CREEK A-63

DST. 6 TICKET B-1181

RECORDER 3153



DRILL STEM TESTING & CORING LTD.

EDMONTON: PHONE 433-7293

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

1

Date FEBRUARY 21, 1970.

Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BUILDING,
205 - 9th AVENUE S.E.,

CALGARY 21, ALBERTA.

Well Name CPOG CHEVRON GULL CREEK A-63

Location 60 42'01.19 118 11'40.00

Area N.W.T.

Formation TIGHT HOLE

Est. Pay Thick ---

Ticket No. B-1176

Purchase Order No. 29790

Interval 2773' TO 2800'

Test Duration MIS-RUN

Initial Hydrostatic 1395

Final Hydrostatic 1382

Initial Flowing ---

Final Flowing --- after 45 mins.

Initial Shut-In --- after 30 mins.

Final Shut-In --- after 30 mins.

Blow NIL

Recovery 20'

Mud Type <u>GEL. CHEM.</u>	Size Full Hole <u>7-1/8"</u>	Size Rubber <u>7"</u>
Mud Wt. <u>9.2</u>	Size Rat Hole <u>---</u>	O.D. Drill Collar <u>6-1/4"</u>
Vis. <u>38</u>	Size & Type Pipe <u>4-1/2" F.H.</u>	O.D. Sub or T.J. <u>5-3/4"</u>
W. L. <u>12.4</u>	Time Circulated <u>1/2</u> Hrs.	Tool Length <u>---</u>
pH <u>12.</u>	Where Circulated <u>ON BOTTOM</u>	Rat Hole Length <u>---</u>
F. C. <u>2/32</u>	Bit off Bottom <u>10.00</u> A.M.	Difference <u>---</u>
Condition <u>10' OF FILL</u>	Formation <u>TIGHT HOLE</u>	Total Depth <u>2800'</u>
TEST EXTRAS: <u>SAFETY JT. PUMP OUT SUB. 3RD RECORDER. SAMPLER. N/C. FAIL SAFE HEAD.</u>		

Type of Test BOTTOM HOLE Wt. to Set Packer 30,000 40,000 To Pull Loose

Initial Puff FAIR Gas Flow NIL Size Bean 3/4" Fluid Cushion ---
Temp. 110° Gravity --- No. Drill Collars 18(45H90) Length 539.01' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 1.15 P.M. Recorder No. ---
Tool Open 1.47 P.M. Depth Run ---
" Closed 1.50 P.M. Hydrostatics ---
" Open 2.20 P.M. Flow ---
" Closed 3.05 P.M. Initial S.I.P. ---
" Loose 3.35 P.M. Final S.I.P. ---
" Out 7.00 P.M. Difference ---

INSIDE	OUTSIDE	OUTSIDE
3153	2832	3152
2765'	2780'	2785'
1390-1372	1395-1379	1395-1382

Mud 20'
Oil ---
Water ---
Total 20'
Sampled at TOP OF TOOL

Description of Fluid 20' DRILLING MUD.

Witnessed By: LEO NAVRATIL.

REMARKS: FAIR AIR BLOW ON PRE-FLOW. WHEN TOOL OPENED FOR FLOW, RECIEVED NO BLOW
AT ALL. RE-SET TOOL AFTER 30 MINUTES ON FLOW, DID NOT GET ANY BLOW AT ALL,
COMPLETELY DEAD. SEUT IN AFTER 15 MINUTES MORE FOR FINAL SHUT IN. CHARTS SHOW
TOOL PLUGGED OFF.

TEST MIS-RUN

R.H. GUNDERSON.

Testing Supervisor

L.W. NAVRATIL.

Customer's Representative

D.S.T. # 1

WELL NAME

CPOG CHEVRON GULL CREEK A-63

CPOG CHEVRON GULL CREEK A-63

DST #1 TICKET #B-1176

RECORDER #3153

MIS-RUN

1372

1390

15

CPOG CHEVRON GULL CREEK A-63

DST #1 TICKET #B-1176

RECORDER #3152

MIS-RUN

1372

1395

35

CPOG CHEVRON GULL CREEK A-63

DST #1 TICKET #B-1176

RECORDER #2832

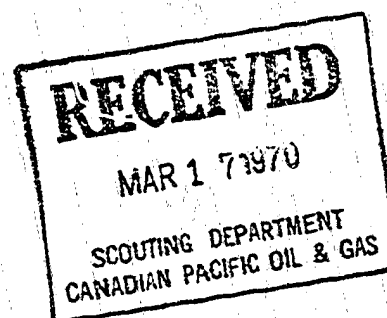
MIS-RUN

1379

1395

24

CHEMICAL ANALYSIS
FOR
CANADIAN PACIFIC OIL AND GAS LIMITED
CPOG CHEVRON GULL CREEK A-63
GULL CREEK AREA
NORTHWEST TERRITORIES



CORE LABORATORIES - CANADA LTD.

Petroleum Reservoir Engineering
CALGARY - EDMONTON - REGINA



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 1 of 8
Well CPOG Chevron Gull Crk A-63 File CAL-2-1782
CBH-1-1933
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
Location 60 33' 39.36 N.L.
118 11' 40.00 W.L. Elevation: K.E. 1081' Grd. 1068'
Formation _____ Depth _____
Sampled from DST #1 (top of tool) by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 2/70 Date received March 5.70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: _____

Resistivity 1.09 Ohm-meters @ 72°F

Insufficient sample for further analysis.



CORE LABORATORIES - CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



GAS ANALYSIS

Company Canadian Pacific Oil and Gas Limited Page 2 of 8
Well CPOG Chevron Gull Crk A-63 File CAL-2-1782
CBH-1-1933
Field Wildcat, Gull Creek Area, Northwest Territories Analyst GV FS
Location 60 33' 39.36 N.L.
118 11' 40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth 2778' - 3008'
Sampled from DST #2 by Drill Stem Testers
Sampling pressure 60 psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 22/70 Date received March 5/70 Date analysed March 5/70
Container pressure 60 Mud _____ Water cushion _____
Recovery or flowrate. 175 Mcf Gas, 560* Mud.

<u>COMPONENT</u>	<u>MOLE %</u>	<u>IMP. GPM @ 14.65 psia and 60°F</u>
Hydrogen	<u>.00</u>	
Helium	<u>.11</u>	
Nitrogen	<u>4.80</u>	
Carbon Dioxide	<u>1.29</u>	
Hydrogen Sulphide	<u>.00</u>	
Methane	<u>90.01</u>	
Ethane	<u>2.37</u>	
Propane	<u>.78</u>	<u>.178</u>
Iso Butane	<u>.14</u>	<u>.038</u>
Normal Butane	<u>.24</u>	<u>.063</u>
Iso Pentane	<u>.08</u>	<u>.024</u>
Normal Pentane	<u>.06</u>	<u>.018</u>
Hexanes	<u>.05</u>	<u>.017</u>
Heptanes Plus	<u>.07</u>	<u>.026</u>
Total	<u>100.00</u>	<u>.364</u>
Pentanes Plus		<u>.085</u>

SPECIFIC GRAVITY

Calculated .616 Measured _____

GROSS B.T.U. per SCF 1004.9

Calculated @ 14.65 psia, 60°F, moisture and acid - gas free.

VAPOR PRESSURE of PENTANES PLUS

(calculated) 11.0 psia @ 100°F

Critical Pressure 668.2 psia

Critical Temperature 351.3 °R

Remarks DST #3 was all air.



CORE LABORATORIES — CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 3 of 8
Well CPOG Chevron Gull Crk A-63 File CAL-2-1782
CBH-1-1933
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
Location 60 33'39.36 N.L.
118 11'40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth _____
Sampled from DST #2 (Middle) by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 22/70 Date received March 6/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 175 Mcf Gas, 560' Mud.

Resistivity

0.97 Ohm-meters @ 72°F

Insufficient sample for further analysis.



CORE LABORATORIES - CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 4 of 8
Well CPOG Chevron Gull Crk A-63 File CAL-2-1782
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
Location 60 33'39.36 N.L.
118 11'40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth 2945' - 2990'
Sampled from DST #3 (Top of Tool) by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 25/70 Date received March 5/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 270' Gassy Mud, 90' Oil-Cut Mud, 7.34 Mcf Gas.

Resistivity 0.163 Ohm-meters @ 72°F
Chloride 25,181 mg/liter



CORE LABORATORIES - CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 5 of 8
Well CPOG Chevron Gull Crk A-63 File CAL-2-1782
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
Location 60 33' 39.36 N.L.
128-13' 40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth 2760' - 2820'
Sampled from DST #4 (Top of Tool) by Drill Stem Testers
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 25/70 Date received March 6/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 40' Mud

Chloride 1,459 mg/liter

Resistivity 1.03 Ohm-meters @ 72°F



CORE LABORATORIES - CANADA LTD.
PETROLEUM RESERVOIR ENGINEERING



Company Canadian Pacific Oil and Gas Limited Page 6 of 8
Well CPOG Chevron Gull Crk A-63 File CAL-2-1782
CBH-1-1933
Field Wildcat, Gull Creek Area, Northwest Territories Analyst DS
Location 60 33'39.36 N.L.
118 11'40.00 W.L. Elevation: K.B. 1081' Grd. 1068'
Formation _____ Depth 2760' - 2820'
Sampled from DST #4 by _____
Sampling pressure _____ psig Sampling temp. _____ °F Ambient temp. _____ °F
Date sampled Feb. 25/70 Date received March 9/70 Date analysed March 10/70
Container pressure _____ Mud _____ Water cushion _____
Recovery or flowrate: 40" Mud

Resistivity 1.13 Ohm-meters @ 72°F

Chloride 1,533 mg/liter

DRILL STEM TESTING & CORING LTD.

EDMONTON: PHONE 433-7293

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

2

Date FEBRUARY 22, 1970.
 Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BUILDING,
205 - 9th AVENUE S.E.,
CALGARY 21, ALBERTA.
 Well Name CPOG CHEVRON GULL CREEK A-63
 Location 60 42'01.19 118 11'40.00
 Area N.W.T.
 Formation TIGHT HOLE
 Est. Pay Thick. —
 Ticket No. B-1177
 Purchase Order No. 29790

Interval 2778' TO 3008'
 Test Duration 155 MINUTES
 Initial Hydrostatic 1375
 Final Hydrostatic 1367
 Initial Flowing 240
 Final Flowing 267 after 60 mins.
 Initial Shut-In 1185 after 30 mins.
 Final Shut-In 1197 after 60 mins.
 Blow GOOD
 Recovery 560'

Mud Type GEL. CHEM. Size Full Hole 7-7/8" Size Rubber 7"
 Mud Wt. 9.3 Size Rat Hole — O.D. Drill Collar 6-1/4"
 Vis. 43 Size & Type Pipe 4-1/2" F.H. O.D. Sub or T.J. 5-3/4"
 W. L. 7.6 Time Circulated 1 Hrs. Tool Length 72.40'
 pH 11 Where Circulated ON BOTTOM Rat Hole Length —
 F. C. 2/32 Bit off Bottom — M. Difference —
 Condition GOOD Formation TIGHT HOLE Total Depth 3008'
 TEST EXTRAS: SAFETY JT. DOUBLE SHUT IN. PUMP OUT SUB. 3RD RECORDER. FAIL SAFE HEAD.
SAMPLER.

Type of Test BOTTOM HOLE Wt. to Set Packer 30,000 10,000 To Pull Loose
 Initial Puff GOOD Gas Flow 560 MCF MAX. Size Bean 3/4" Fluid Cushion —
 Temp. 108 Gravity — No. Drill Collars 18(4 H90) Length 509.01' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 2.15 P. M. Recorder No. —
 Tool Open 6.03 P. M. Depth Run —
 " Closed 6.08 P. M. Hydrostatics —
 " Open 6.38 P. M. Flow —
 " Closed 7.38 P. M. Initial S.I.P. —
 " Loose 8.38 P. M. Final S.I.P. —
 " Out 10.45 P. M. Difference —

2832	3153	3152
2761'	2798'	2803'
1354-1354	1375-1367	1378-1374
232-256	240-267	249-268
1182	1185	1184
1195	1197	1197
13	12	13

Mud 560'
 Oil —
 Water —
 Total 560'
 Sampled at TOP, MIDDLE
AND BOTTOM.

Description of Fluid 560' DRILLING MUD.

Witnessed By: LEO NAVRATIL.

REMARKS: GOOD INITIAL PUFF ON PRE-FLOW. GOOD BLOW WITH GAS TO SURFACE IN 3 MINS
ON FLOW, BLOW REMAINED STEADY THROUGHOUT FLOW PERIOD. GAS MEASURED AT: 560 MCF IN
10, 20, 30, 40, AND 60 MINUTES.

TEST SATISFACTORY.

R.H. GUNDERSON,

Testing Supervisor

L. W. NAVRATIL.

Customer's Representative

D.S.T. # 2

WELL NAME

CPOG CHEVRON GULL CREEK A-63

DEFINITIONS

Pw = Shut in well pressure, particularly F.S.I.P. psi
 Pf = Flowing well pressure, particularly F.F.P. psi
 Po = Reservoir pressure from F.S.I.P. or plot psi
 T = Time of test influence on reservoir usually flowing time - minutes
 t = Convenient incremental time - minutes
 Q = Daily rate of flow - mcf/day or bbls./day
 m = Slope of build up curve
 E.D.R. = Estimated damage ratio

μ = Viscosity - centipoise
 k = Permeability - millidarcy
 h = Pay thickness - feet
 Z = Gas deviation factor
 A.O.F. = Absolute open flow - million cubic feet/day
 P.I. = Productivity index - mcf. or bbls./day/psi
 g.o. = Subscript denotes gas or oil
 B = Formation volume factor

BUILD UP PRESSURE							FLOWING PRESSURE						
Rec. # 3152		Rec. # 3153		Pw	t	T+t	Rec. # 3152		Rec. # 3153		Pf	t	Q
Initial	Final	Initial	Final			t	Initial	Final	Initial	Final			
940	954	1064	1083	1019	5	13.		236		232	234	5	
1158	1152	1178	1179	1166	10	7.		232		225	229	10	
1182	1184	1182	1186	1185	15	5.		248		243	246	15	
1184	1189	1185	1191	1190	20	4.		251		250	251	20	
1184	1194	1185	1191	1193	25	3.4		258		255	257	25	
1184	1194	1185	1191	1193	30	3.		262		259	261	30	
	1194		1191	1193	35	2.71		264		261	263	35	
	1194		1191	1193	40	2.5		260		255	258	40	
	1195		1194	1195	45	2.33		260		257	259	45	
	1197		1197	1197	50	2.2		260		257	259	50	
	1197		1197	1197	55	2.09		264		259	262	55	
	1197		1197	1197	60	2.		268		267	268	60	

CORRECTED: GAS MEASUREMENT 560 MCF INSTEAD OF 175 MCF.

m = slope of straight line portion of build up curve 174×10^3 psi
cycle
md ft

kh = $\frac{162.6 Q \mu B}{m_o}$ or $\frac{1637 Q_g \mu Z \text{ temp} (1637)(560)(.010)(.62)(568)}{m_g \frac{174 \times 10^3}{1347 \times 10^3}} = 18.5536$

E.D.R. = $\frac{P_o - P_f}{m_o (\log T + 1.75)}$ or $\frac{P_o^2 - P_f^2}{m_g (\log T + 3.85) (174 \times 10^3) (1.77 + 3.85)} = 1.3 \text{ (NIL)}$ no dimension

$k = \frac{kh}{h}$ md

P.I. = $\frac{Q_o}{P_o - P_f}$ or $\frac{Q_g}{P_o^2 - P_f^2} \frac{560}{1347 \times 10^3} = .4157 \times 10^{-3}$ mcf/day/psi

ASSUMPTIONS AND LIMITATIONS

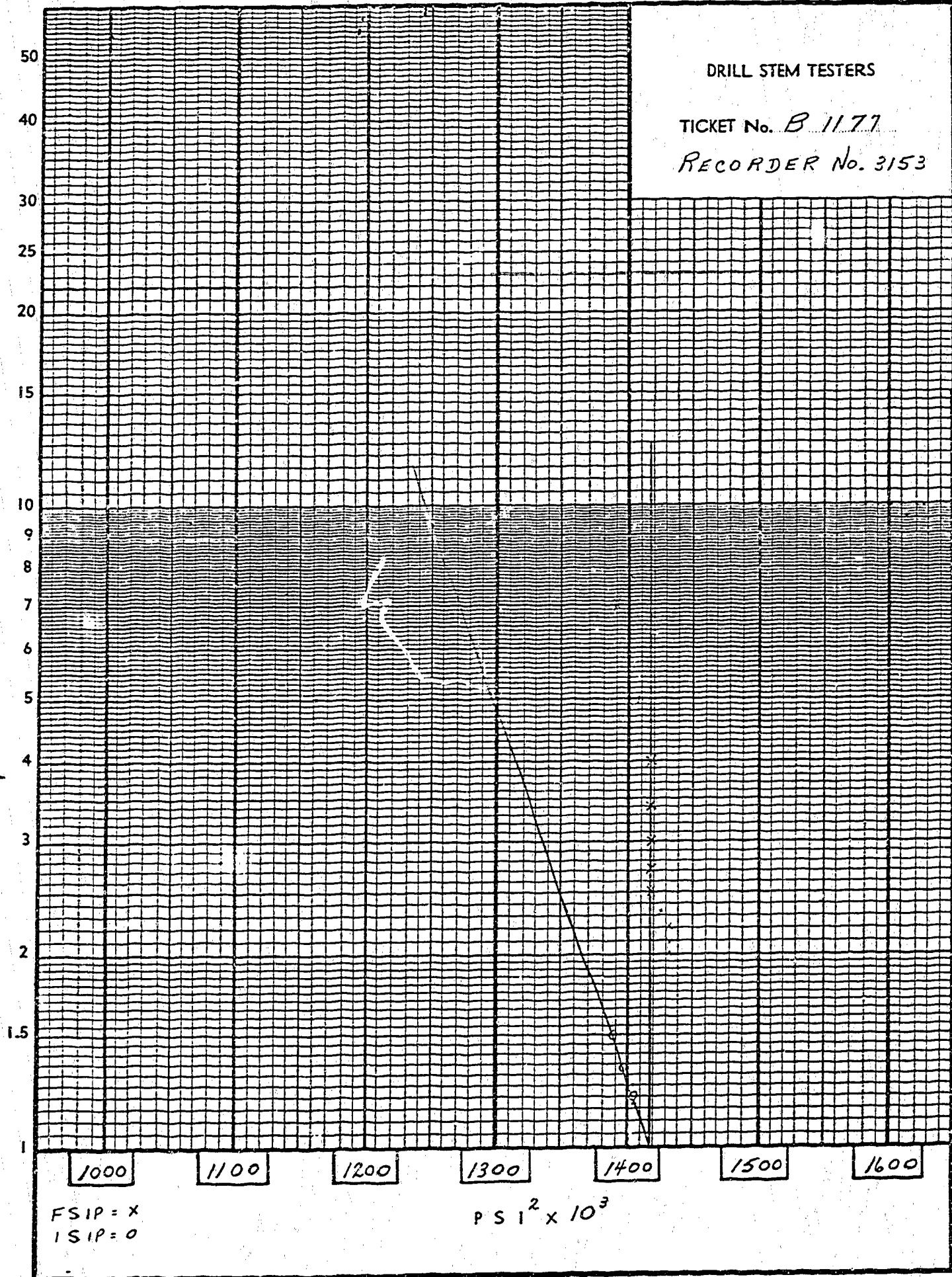
Interpretation calculations require necessary assumptions to provide a quick estimation of many of the factors involved. Consequently, the calculations herein should be used as an estimate only, pending more complete analysis and testing. Drill Stem Testers makes no warranty express or implied as to the accuracy of such calculations, evaluations, or opinions, and shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

DRILL STEM TESTERS

TICKET No. *B 1177*

RECORDER No. 3153

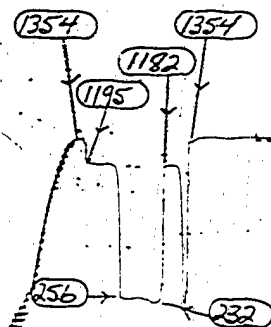
$\frac{T+1}{T}$



CPOG CHEVRON GULL CREEK A-63

DST*2 TICKET*B-1177

RECORDER*2832

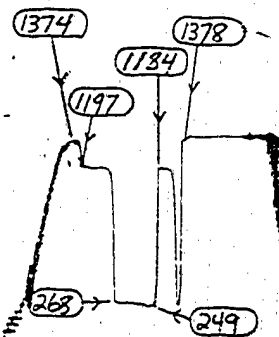


DST #2 Rec H 2832
CPOG Gull Creek A-63

CPOG CHEVRON GULL CREEK A-63

DST*2 TICKET*B-1177

RECORDER*3152

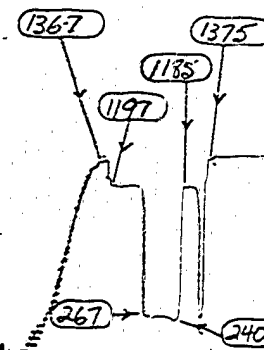


DST #2 Rec H 3152
CPOG Gull Creek A-63

CPOG CHEVRON GULL CREEK A-63

DST*2 TICKET*B-1177

RECORDER*3153



DST #2 Rec H 3153
CPOG Gull Creek A-63

DRILL STEM TESTING & CORING LTD.

EDMONTON: PHONE 433-7293

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

3

Date FEBRUARY 25, 1970.

Interval 2945' TO 2990'

Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BLDG.,
205 - 9th AVENUE S.E.,

Test Duration 215 MINUTES

CALGARY 21, ALBERTA.

Initial Hydrostatic 1519

Well Name CPOG CHEVRON CULL CREEK A-63

Final Hydrostatic 1497
PRE- 171

Location 60 42'01.19 118 11'40.00

Initial Flowing 188

Area N.W.T.

Final Flowing 293 after 90 mins.

Formation TIGHT HOLE

Initial Shut-In 1247 after 30 mins.

Est. Pay Thick ---

Final Shut-In 1243 after 90 mins.

Ticket No. B-1178

Blow GOOD

Purchase Order No. 29790

Recovery 360'

Mud Type	GEL. CHEM.	Size Full Hole	7-7/8"	Size Rubber	7"
Mud Wt.	9.6	Size Rat Hole	---	O.D. Drill Collar	6-1/4"
Vis.	65	Size & Type Pipe	4-1/2" F.H.	O.D. Sub or T.J.	6-1/8"
W. L.	7.2	Time Circulated	NIL	Tool Length	92.10'
pH	11.	Where Circulated	---	Rat Hole Length	---
F. C.	2/32	Bit off Bottom	PRIOR TO LOGGING	Difference	---
Condition	GOOD	Formation	TIGHT HOLE	Total Depth	3102'
TEST EXTRAS:	SAFETY JT. DOUBLE SHUT IN. PUMP OUT SUB. FAIL SAFE HEAD. 3RD RECORDER.				
	BY PASS EQUIP. LEX PACKED. SAMPLED				

Type of Test STRADDLE BY-PASS Wt. to Set Packer 30,000 10,000 To Pull Loose

Initial Puff GOOD Gas Flow 734 MCF MAX. Size 3/4" Fluid Cushion ---
Temp. 92° Gravity --- No. Drill Collars 18(4-1/2" H90) Length 531.09' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 1.00 A.M. Recorder No.
Tool Open 2.45 A.M. Depth Run
" Closed 2.50 A.M. Hydrostatics
" Open 3.20 A.M. Flow
" Closed 4.50 A.M. Initial S.I.P.
" Loose 6.20 A.M. Final S.I.P.
" Out 9.00 A.M. Difference

3152	2832	3153
2935'	2965'	2970'
1504-1488	1514-1498	1519-1497
167-173	203-192	188-193
1240	1248	1247
1237	1243	1243
3	5	4

Mud 270°
Oil CUT MUD- 90°
Water
Total 360°
Sampled at DRILL
COLLARS.

Description of Fluid 270' GASSY MUD. 90' OIL CUT HEAVY MUD, SLIGHTLY GASSY.

Witnessed By: L. NAVRATIL.

REMARKS: GOOD INITIAL PUFF WITH GAS TO SURFACE IN 3 MINUTES ON PRE-FLOW. GOOD BLOW, INCREASING SLIGHTLY ON FLOW PERIOD. THEN REMAINED STEADY TO END OF FLOW. GAS MEASURED W/ MERCURY AT 560 MCF IN 10 MINS. 734 MCF IN 50, 60 AND 90 MINS. SAMPLER # 15.

TEST SATISFACTORY.

R.H. GUNDERSON.

Testing Supervisor

L.W. NAVRATIL.

Customer's Representative

D.S.T. # 3 WELL NAME CPOG CHEVRON CULL CREEK A-63

DEFINITIONS

Pw = Shut in well pressure, particularly F.S.I.P. psi
 Pf = Flowing well pressure, particularly F.F.P. psi
 Po = Reservoir pressure from F.S.I.P. or plot psi
 T = Time of test influence on reservoir usually flowing time - minutes
 t = Convenient incremental time - minutes
 Q = Daily rate of flow - mcf/day or bbls./day
 m = Slope of build up curve
 E.D.R. = Estimated damage ratio

μ = Viscosity - centipoise
 k = Permeability - millidarcy
 h = Pay thickness - feet
 Z = Gas deviation factor
 A.O.F. = Absolute open flow - million cubic feet/day
 P.I. = Productivity index - mcf. or bbls./day/psi
 g.o. = Subscript denotes gas or oil
 B = Formation volume factor

BUILD UP PRESSURE							FLOWING PRESSURE						
Rec. # 2832		Rec. # 3153		Pw	t	T+t	Rec. # 2832		Rec. # 3153		Pf	t	Q
Initial	Final	Initial	Final			t	Initial	Final	Initial	Final			
1211	1129	1232	1172	1151	5	19.		169		169	169	10	
1246	1223	1245	1228	1226	10	10.		169		170	170	20	
1248	1235	1246	1234	1235	15	7.		173		177	175	30	
1248	1238	1246	1237	1238	20	5.5		177		181	179	40	
1248	1239	1247	1238	1239	25	4.6		181		185	183	50	
1248	1239	1247	1238	1239	30	4.		182		186	184	60	
	1240		1239	1240	35	3.57		185		189	187	70	
	1240		1239	1240	40	3.25		190		191	191	80	
	1241		1240	1241	45	3.		192		193	193	90	
	1241		1240	1241	50	2.8							
	1241		1241	1241	55	2.63							
	1242		1241	1242	60	2.5							
	1242		1242	1242	65	2.38							
	1243		1242	1243	70	2.28							
	1243		1242	1243	75	2.2							
	1243		1243	1243	80	2.12							
	1243		1243	1243	85	2.06							
	1243		1243	1243	90	2.							

m = slope of straight line portion of build up curve $m = 34 \times 10^3$ psi
cycle
md ft

kh = $\frac{162.6 Q \mu B}{m_o}$ or $\frac{1637 Q g \mu Z \text{ temp} (1637) (734) (.010) (.62) (552)}{m_g \frac{34 \times 10^3}{1518 \times 10^3}} = 120.9474$

E.D.R. = $\frac{P_o - P_f}{m_o (\log T + 1.75)}$ or $\frac{P_o^2 - P_f^2}{m_g (\log T + 3.85) (34 \times 10^3) (1.95 + 3.85)} = 7.69$ no dimension

$k = \frac{kh}{h}$ md

P.I. = $\frac{Q_o}{P_o - P_f}$ or $\frac{Q_g}{P_o^2 - P_f^2} \frac{734}{1518 \times 10^3} = .4835 \times 10^{-3}$ bbls./day/psi
mcf/day/psi

ASSUMPTIONS AND LIMITATIONS

Interpretation calculations require necessary assumptions to provide a quick estimation of many of the factors involved. Consequently, the calculations herein should be used as an estimate only, pending more complete analysis and testing. Drill Stem Testers makes no warranty express or implied as to the accuracy of such calculations, evaluations, or opinions, and shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

DRILL STEM TESTERS

TICKET No. *B 1178*

RECORDER No. *3153*

$\frac{T + \frac{1}{2}}{f}$

50
40
30
25
20
15
10
9
8
7
6
5
4
3
2
1.5
1

1300

1350

1400

1450

1500

1550

1600

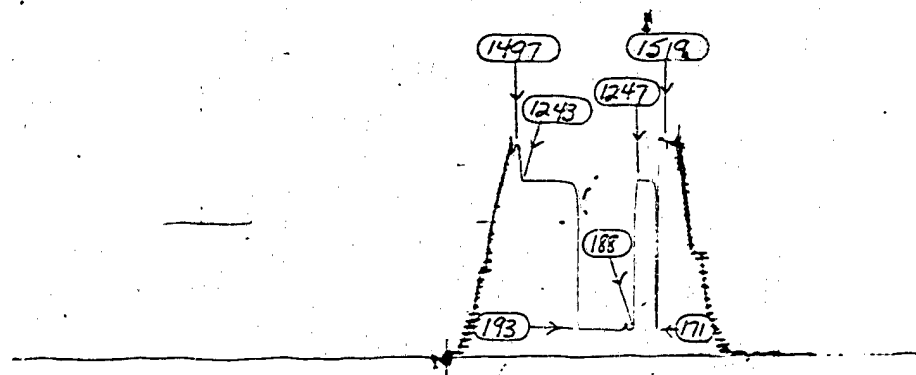
FSIP = x
ISIP = 0

$PSI^2 \times 10^3$

CPOG CHEVRON GULL CREEK A-63

DST#3 TICKET#B-1178

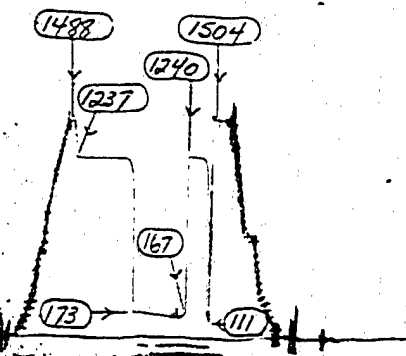
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CPOG CHEVRON GULL CREEK A-63

DST#3 TICKET#B-1178

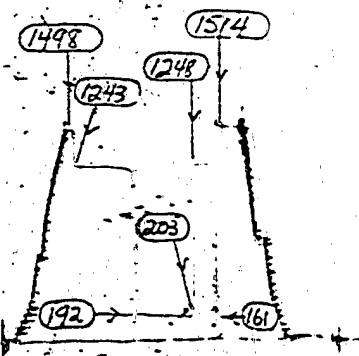
RECORDER#3152



CPOG CHEVRON GULL CREEK A-63

DST#3 TICKET#B-1178

RECORDER#2832



DRILL STEM TESTING & CORING LTD.

EDMONTON: PHONE 463-7293

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

4

Date FEBRUARY 25, 1970.

Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BLDG,
205 - 9th AVENUE S.E.,
CALGARY 21, ALBERTA.

Well Name CPOG CHEVRON GULL CREEK A-63

Location 60 42'01.19 118 11'40.00

Area N.W.T.

Formation TIGHT HOLE

Est. Pay Thick —

Ticket No. B-1179

Purchase Order No. 29790

Interval 2760' TO 2820'

Test Duration 245 MINUTES

Initial Hydrostatic 1421

Final Hydrostatic 1421

Initial Flowing 72

Final Flowing 72 after 90 mins.

Initial Shut-In 263 after 30 mins.

Final Shut-In 770 after 120 mins.

Blow FAIR - DECREASING

Recovery 40'

Mud Type <u>GEL. CHEM.</u>	Size Full Hole <u>7-7/8"</u>	Size Rubber <u>7"</u>
Mud Wt. <u>2.5</u>	Size Rat Hole <u>—</u>	O.D. Drill Collar <u>6-1/4"</u>
Vis. <u>65</u>	Size & Type Pipe <u>4-1/2" P.H.</u>	O.D. Sub or T.J. <u>6-1/8"</u>
W. L. <u>7.2</u>	Time Circulated <u>—</u> Hrs.	Tool Length <u>—</u>
pH <u>11</u>	Where Circulated <u>—</u>	Rat Hole Length <u>—</u>
F. C. <u>2/32</u>	Bit off Bottom <u>—</u> M.	Difference <u>—</u>
Condition <u>GOOD</u>	Formation <u>TIGHT HOLE</u>	Total Depth <u>3102'</u>

TEST EXTRAS: SAFETY JT. DOUBLE SHUT IN. SAMPLER. PUMP OUT SUB. 3RD RECORDER.
BY PASS ROUTE. WALL SAMPLE HEAD.

Type of Test STRADDLE BY-PASS Wt. to Set Packer 35,000 10,000 To Pull Loose

Initial Puff FAIR Gas Flow NIL Size Bean 3/4" Fluid Cushion —
Temp. — Gravity — No. Drill Collars 18(4 1/2 H90) Length 531.09' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

Started In 10.00 A.M. Recorder No. —
Tool Open 12.10 P.M. Depth Run —
" Closed 12.15 P.M. Hydrostatics —
" Open 12.45 P.M. Flow —
" Closed 2.15 P.M. Initial S.I.P. —
" Loose 4.15 P.M. Final S.I.P. —
" Out 7.00 P.M. Difference —

3152	2832	3153
2748'	2795'	2800'
1401-1400	1418-1418	1421-1421
59-62	68-72	72-72
254	260	263
754	769	770
500	509	507

Mud 40'
Oil —
Water —
Total 40'
Sampled at TOP OF TOOL

Description of Fluid 40' DRILLING MUD.

Witnessed By: L. NAVRATIL.

REMARKS: FAIR INITIAL AIR PUFF. FAIR AIR BLOW AT START OF FLOW. DECREASING
STEADILY TO ALMOST DEAD AT END OF FLOW PERIOD. NO GAS TO SURFACE.
SAMPLER # 13.

TEST SATISFACTORY.

R.E. GUNDERSON.

Testing Supervisor

L.W. NAVRATIL.

Customer's Representative

D.S.T. # 4

WELL NAME

CPOG CHEVRON GULL CREEK A-63

DEFINITIONS

P_w = Shut in well pressure, particularly F.S.I.P. psi
P_f = Flowing well pressure, particularly F.F.P. psi
P_o = Reservoir pressure from F.S.I.P. or plot psi
T = Time of test influence on reservoir usually flowing time - minutes
t = Convenient incremental time - minutes
Q = Daily rate of flow - mcf/day or bbls./day
m = Slope of build up curve
E.D.R. = Estimated damage ratio

μ = Viscosity - centipoise
k = Permeability - millidarcy
h = Pay thickness - feet
Z = Gas deviation factor
A.O.F. = Absolute open flow - million cubic feet/day
P.I. = Productivity index - mcf. or bbls./day/psi
g.o. = Subscript denotes gas or oil
B = Formation volume factor

BUILD UP PRESSURE						FLOWING PRESSURE							
Rec. # 2832		Rec. # 3153		P _w	t	T+t	Rec. # 2832		Rec. # 3153		P _f	t	Q
Initial	Final	Initial	Final			t	Initial	Final	Initial	Final			
154	147	165	163		10		71		72		10		
215	221	221	240		20		71		72		20		
260	298	263	315		30		71		72		30		
	368		374		40		71		72		40		
	436		446		50		72		72		50		
	500		505		60		72		72		60		
	556		559		70		72		72		70		
	607		608		80		72		72		80		
	653		655		90		72		72		90		
	696		698		100								
	736		737		110								
	769		770		120								

m = slope of straight line portion of build up curve

$$kh = \frac{162.6 Q \mu B}{m_o} \quad \text{or} \quad \frac{1637 Q g \mu Z \text{ temp}}{m_g}$$

$$E.D.R. = \frac{P_o - P_f}{m_o (\log T + 1.75)} \quad \text{or} \quad \frac{P_o^2 - P_f^2}{m_g (\log T + 3.85)}$$

$$\frac{k}{h} = \frac{kh}{h}$$

$$P.I. = \frac{Q_o}{P_o - P_f} \quad \text{or} \quad \frac{Q_g}{P_o^2 - P_f^2}$$

psi
cycle
md ft

no dimension

md

bbls/day/psi
mcf/day/psi

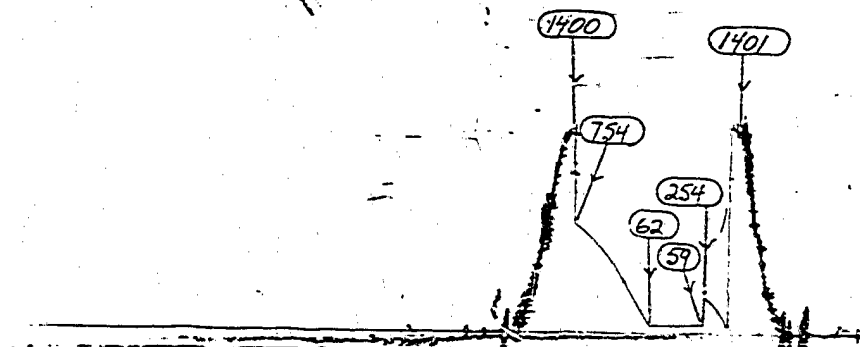
ASSUMPTIONS AND LIMITATIONS

Interpretation calculations require necessary assumptions to provide a quick estimation of many of the factors involved. Consequently, the calculations herein should be used as an estimate only, pending more complete analysis and testing. Drill Stem Testers makes no warranty express or implied as to the accuracy of such calculations, evaluations, or opinions, and shall not be liable for any loss or damage, whether due to negligence or otherwise, in connection with such calculations and opinions.

CPOG CHEVRON GULL CREEK A-63

DST-4 TICKET-B-1179

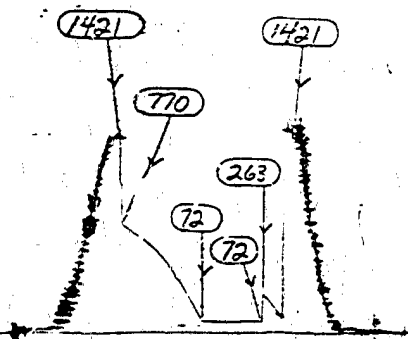
RECORDER-3152



CPOG CHEVRON GULL CREEK A-63

DST-4 TICKET-B-1179

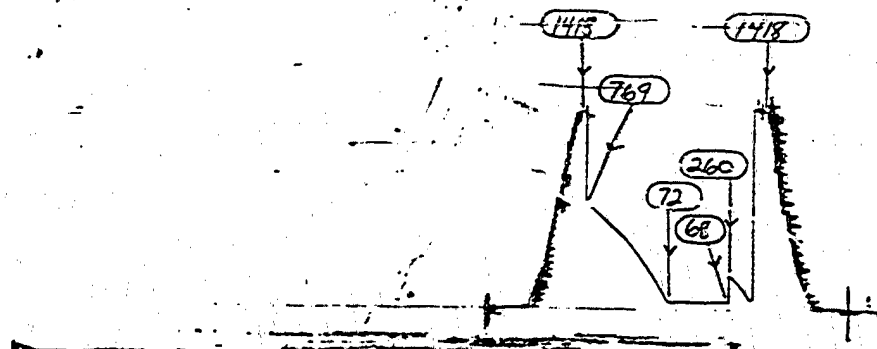
RECORDER-3153



CPOG CHEVRON GULL CREEK A-63

DST-4 TICKET-B-1179

RECORDER-2832



DRILL STEM TESTING & CORING LTD.

EDMONTON: PHONE 433-7293

CALGARY: PHONE 269-2925

P.O. BOX 4188, EDMONTON, ALBERTA

TEST NUMBER

5

Date FEBRUARY 26, 1970

Customer CANADIAN PACIFIC OIL & GAS LIMITED,
NATURAL RESOURCES BLDG.,
205 - 9th AVENUE S.E.,

CALGARY 21, ALBERTA.

Well Name CPOG CHEVRON GULL CREEK A-63

Location 60 42'01.19 118 11'40.00

Area N.W.T.

Formation TIGHT HOLE

Est. Pay Thick —

Ticket No. B-1180

Purchase Order No. 29790

Interval 2994' TO 3102'

Test Duration 185 MINUTES

Initial Hydrostatic 1519

Final Hydrostatic 1511

Initial Flowing 32

Final Flowing 32 after 60 mins.

Initial Shut-In 52 after 30 mins.

Final Shut-In 70 after 90 mins.

Blow VERY WEAK - DEAD

Recovery 3'

Mud Type	GEL. CHEM.	Size Full Hole	7-7/8"	Size Rubber	7"
Mud Wt.	9.4	Size Rat Hole	—	O.D. Drill Collar	6-1/4"
Vis.	60	Size & Type Pipe	4-1/2" F.H.	O.D. Sub or T.J.	6-1/8"
W. L.	4.2	Time Circulated	1-1/2 Hrs.	Tool Length	41.70'
pH	12.0	Where Circulated	ON BOTTOM	Rat Hole Length	—
F. C.	2/32	Bit off Bottom	1.00 P.M.	Difference	—
Condition	GOOD	Formation	TIGHT HOLE	Total Depth	3102'
TEST EXTRAS: SAFETY JT. DOUBLE SHUT IN. 3RD RECORDER. PUMP OUT SUB. FAIL SAFE HEAD.					

Type of Test BOTTOM HOLE Wt. to Set Packer 40,000 To Pull Loose

Initial Puff WEAK Gas Flow NIL Size Bean 3/4" Fluid Cushion —
Temp. — Gravity — No. Drill Collars 18(42H90) Length 531.09' I.D.'s 2-7/8"

PRESSURES

FLUID RECOVERY

	Recorder No.	2832	3152	3153
Started In 1.30 A.M.	2983'	2983'	3001'	3006'
Tool Open 2.45 A.M.	1504-1502	1519-1511	1524-1513	
" Closed 2.50 A.M.	12-12	32-32	32-32	
" Open 3.20 A.M.	29	52	52	
" Closed 4.20 A.M.	39	70	68	
" Loose 5.50 A.M.	10	18	16	
" Out 8.00 A.M.				

Mud 3'
Oil —
Water —
Total 3'
Sampled at TOP OF TOOL

Description of Fluid 3' OF DRILLING MUD.

Witnessed By: L. NAVRATIL.

REMARKS: WEAK INITIAL AIR PUFF ON PRE-FLOW. HAD VERY FEW BUBBLES ON FLOW, THEN DEAD AFTER 5 MINUTES ON FLOW PERIOD.

TEST SATISFACTORY.

R.H. GUNDERSON.

Testing Supervisor

L.W. NAVRATIL.

Customer's Representative

D.S.T. # 5

WELL NAME

CPOG CHEVRON GULL CREEK A-63

CPOG CHEVRON-GULL CREEK

A-63

CPOG CHEVRON GULL CREEK A-63

D.A. 406 - Daily Tour Reports

REGENT DRILLING LIMITED

DAY WORK RECORD

PUMPS

MANUFACTURER	TYPE	STROKE LENGTH
NO. 1 <i>EMCO</i>	<i>0300</i>	<i>14</i>
NO. 2 <i>EMCO</i>	<i>175</i>	<i>12</i>

LAST CASING SIZE LAST CASING SET AT

DATE *Feb 28/70*
RIG NO. *11-11*

WELL NAME *CPOH A-63*
600 #1 min 1.19 sec 118° 20 min to sec 6 L
LOCATION LSD. SEC. TWP. RGE.

DATE *FEB. 28/70* REPORT NO.

PLEASE SHOW FOOTAGE MADE WHILE
"CONTROL DRILLING" AS WELL AS HOURS
AND ALSO RECORD CORE CUTTERS, CATCHERS, SWAB RUBBERS, ETC.

TOUR NO. 1 MIDNIGHT TO 8 A.M. HOURS

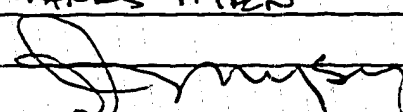
DRILLER <i>R. GUNDEL</i>	<i>8</i>
DERRICK <i>B. GARDNER</i>	<i>8</i>
FLOOR <i>B. GAMBLIN</i>	<i>8</i>
FLOOR <i>M. CLARK</i>	<i>8</i>
FLOOR <i>O. MACDONALD</i>	<i>8</i>
FIREMAN	
MECHANIC	
INJURIES	

FROM		FOOTAGE		TOTAL DEPTH		HOURS ON BOTTOM		DRILL PIPE WEIGHT		NO. AND SIZE OF D.C.'S		D.C. WEIGHT		TRIPS		NO OF LINES		TOTAL TON MILES		LINE CUT FEET		AT MILES		FEET LEFT ON SPOOL		DATE OF LAST CUT		AT SURVEYS		DEGREES					
NO.		DRILLING STRING		BITS RUN NO.		SIZE		NOZZLE SIZE		SERIAL NO.		TYPE		WEIGHT		RPM		FOOTAGE FROM		FOOTAGE TO		FOOTAGE		HOURS		CORED FROM		CORED TO		REAMED FROM		REAMED TO		CONDITION	
		STANDS		FT.																															
		SINGLES		FT.																															
		D.C.'S		FT.																															
		SUB		FT.		MUD		12 MID.		2 A.M.		4 A.M.		6 P.M.		WATER LOSS		FILTER CAKE		PH		GENERAL REMARKS													
		SUB		FT.		WEIGHT																													
		BIT OR C.B.		FT.		VISCOSITY										ADDITIVES		felt Plug #2 @ 330'																	
				FT.		PUMP PRESSURE																													
		KELLY IN		FT.		R.P.M. PUMP NO. 1																													
				FT.		R.P.M. PUMP NO. 2																													
TOTAL				FT.		PUMP NO. 1 LINER SIZE				PUMP NO. 2 LINER SIZE																									

REMARKS	START	STOP	INT VAL
<i>Log down drill pipe to 600</i>			
<i>Set Collar</i>		<i>200</i>	<i>2</i>
<i>Clean mud tank</i>		<i>200</i>	
<i>Log down Kelly Manifold</i>		<i>200</i>	<i>4:30 1/2</i>
<i>Run on feed plug and</i>		<i>430</i>	
<i>Log down drill pipe</i>		<i>530</i>	<i>1</i>
<i>Clean out pump and</i>		<i>530</i>	
<i>Run down B.O.S</i>		<i>800</i>	<i>2 1/2</i>

TOUR NO. 2 8 A.M. TO 4 P.M. HOURS

DRILLER <i>J. Dack</i>	<i>10</i>
DERRICK <i>S. Larratt</i>	<i>10</i>
FLOOR <i>R. Basin</i>	<i>10</i>
FLOOR <i>J. Smith</i>	<i>10</i>
FLOOR <i>R. Tate</i>	<i>10</i>
FIREMAN	
MECHANIC	
INJURIES	

FROM		FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM		DRILL PIPE WEIGHT		NO. AND SIZE OF D.C.'S		D.C. WEIGHT		TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT	SURVEYS	DEGRE
NO.	DRILLING STRING		BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAM-ED TO	CONDIT-ION			
	STANDS		FT.																		
	SINGLES		FT.																		
	D.C.'S		FT.																		
	SUB		FT.	MUD	8 A.M.	10 A.M.	12 NOON	2 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS									
	SUB		FT.	WEIGHT																	
	BIT OR C.B.		FT.	VISCOSITY					ADDITIVES												
			FT.	PUMP PRESSURE																	
	KELLY IN		FT.	R.P.M. PUMP NO.1																	
			FT.	R.P.M. PUMP NO.2																	
			FT.	PUMP NO. 1 LINER SIZE	PUMP NO. 2 LINER SIZE																
TOTAL																					
Log Released @ 4:00 P.M. + THANKS MEN 																					

REMARKS	START	STOP	INT VAL
<i>Tearing Out Baps.</i>		<i>8:00</i>	<i>10</i>
<i>Chan out collar cutoff</i>		<i>4:20</i>	<i>4:00</i>
<i>Cy weld on plate</i>			
<i>Tear out floor line</i>		<i>4:00</i>	<i>8</i>
<i>Tear in Baps</i>		<i>4:00</i>	<i>2</i>
<i>Flaming out</i>		<i>4:00</i>	<i>2</i>

TOUR NO. 3 4 P.M. TO MIDNIGHT HOURS

DRILLER <i>BE. CZAP</i>	<i>10</i>
DERRICK <i>J. Boyko</i>	<i>10</i>
FLOOR <i>R. JARVIS</i>	<i>10</i>
FLOOR <i>BE. HIEN</i>	<i>10</i>
FLOOR <i>E. MARTIN</i>	<i>10</i>
FIREMAN	
MECHANIC	
INJURIES	

FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT	SURVEYS	DEGREES		
NO.	DRILLING STRING		BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAM-ED TO	CONDIT-ION
	STANDS		FT.															
	SINGLES		FT.															
	D.C.'S		FT.															
	SUB		FT.	MUD	4 P.M.	6 P.M.	8 P.M.	10 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS						
	SUB		FT.	WEIGHT														
	BIT OR C.B.		FT.	VISCOSITY					ADDITIVES									
			FT.	PUMP PRESSURE														
	KELLY IN		FT.	R.P.M. PUMP NO. 1														
				R.P.M. PUMP NO. 2														
TOTAL			FT.	PUMP NO. 1 LINER SIZE		PUMP NO. 2 LINER SIZE												

REMARKS	START	STOP	INT VAL
<i>Tearing out</i>		<i>8:00</i>	<i>10</i>

DRILL PIPE SIZE	TYPE	TOTAL NO. OF JOINTS	DATE LAST SONOSCOPIED	FOOTAGE DRILLED SINCE LAST SONOSCOPIED	TOTAL FOOTAGE DRILLED	LAST CALIPER DATE	RESULTS	CODE LETTER OF STRING
B.O.P.'S TESTED	ELAPSED TIME	PRESSURE	RESULTS	TOTCO RING ON BIT NO.				

TOOLPUSHER *A. Corbett*
APPROVED BY *J. M. Smith*

DAY WORK RECORD

DATE Feb 27/50 REPORT NO. 14

PUMPS			DATE		WELL NAME		REPORT NO.	
MANUFACTURER	TYPE	STROKE LENGTH						
NO. 1			LAST CASING SIZE		LAST CASING SET AT		DATE	
NO. 2			FOOTAGE		TOTAL DEPTH		RIG NO.	
TOUR NO. 1 MIDNIGHT TO 8 A.M. HOURS			FROM		TOTAL DEPTH		DRILL PIPE WEIGHT	
DRILLER			NO.		DRILLING STRING		BITS RUN NO.	
DERRICK			STANDS		251601		7 7/8 3-11	
FLOOR			SINGLES		FT.		Circ. 4 U.C. O.	
FLOOR			D.C.'S		539.0			
FLOOR			SUB		FT.		MUD	
FLOOR			SUB		FT.		WEIGHT	
FIREMAN			BIT OR C.B.		FT.		VISCOSITY	
MECHANIC			PUMP PRESSURE		FT.		PUMP NO. 1	
INJURIES			KELLY IN		41		PUMP NO. 2	
TOTAL			3102.26		PUMP NO. 1 LINER SIZE		PUMP NO. 2 LINER SIZE	
TOUR NO. 2 8 A.M. TO 4 P.M. HOURS			FROM		TOTAL DEPTH		DRILL PIPE WEIGHT	
DRILLER			NO.		DRILLING STRING		BITS RUN NO.	
DERRICK			STANDS		251601		7 7/8 3-11	
FLOOR			SINGLES		FT.		Return	
FLOOR			D.C.'S		539.0			
FLOOR			SUB		FT.		MUD	
FLOOR			SUB		FT.		WEIGHT	
FIREMAN			BIT OR C.B.		FT.		VISCOSITY	
MECHANIC			PUMP PRESSURE		FT.		PUMP NO. 1	
INJURIES			KELLY IN		41.00		PUMP NO. 2	
TOTAL			3102.27		PUMP NO. 1 LINER SIZE		PUMP NO. 2 LINER SIZE	
TOUR NO. 3 4 P.M. TO MIDNIGHT HOURS			FROM		TOTAL DEPTH		DRILL PIPE WEIGHT	
DRILLER			NO.		DRILLING STRING		BITS RUN NO.	
DERRICK			STANDS		FT.			
FLOOR			SINGLES		FT.			
FLOOR			D.C.'S		FT.			
FLOOR			SUB		FT.		MUD	
FLOOR			SUB		FT.		WEIGHT	
FIREMAN			BIT OR C.B.		FT.		VISCOSITY	
MECHANIC			PUMP PRESSURE		FT.		PUMP NO. 1	
INJURIES			KELLY IN				PUMP NO. 2	
TOTAL			FT.		PUMP NO. 1 LINER SIZE		PUMP NO. 2 LINER SIZE	
DRILL PIPE SIZE			TYPE		TOTAL NO. OF JOINTS		DATE LAST SONOSCOPED	
B.O.P.'S TESTED			ELAPSED TIME		PRESSURE		RESULTS	
LAST CALIPER DATE			RESULTS		CODE LETTER OF STRING		TOOLPUSHER	
TOTCO RING ON BIT NO.			APPROVED BY					

REGENT DRILLING LIMITED

DAY WORK RECORD

PUMPS

MANUFACTURER	TYPE	STROKE LENGTH
NO. 1 <i>EMSCO</i>	<i>D300</i>	<i>14</i>
NO. 2 <i>EMSCO</i>	<i>D175</i>	<i>12</i>

LAST CASING SIZE	LAST CASING SET AT
<i>8 3/8</i>	<i>276</i>

DATE *Feb 26/70*
RIG NO. *11-H*

WELL NAME *CE O H A-65*
60° 41' MIN 1.19 sec PL. 118° 20' MIN 1.05 sec WL.
LOCATION *LSD.* SEC. *---* TWP. *---* RGE. *---*

DATE *Feb 26/70* REPORT NO. *13*

PLEASE SHOW FOOTAGE MADE WHILE
"CONTROL DRILLING" AS WELL AS HOURS
AND ALSO RECORD CORE CUTTERS, CATCHERS, SWAB RUBBERS, ETC.

EACH EMPLOYEE MUST SIGN THIS BOOK
TOUR NO. 1 MIDNIGHT TO 8 A.M. HOURS

DRILLER <i>P. Gussillex</i>	<i>8</i>
DERRICK <i>B. Garolke</i>	<i>8</i>
FLOOR <i>W. Gambelin</i>	<i>8</i>
FLOOR <i>M. Clark</i>	<i>8</i>
FLOOR <i>B. Macdonald</i>	<i>8</i>
FIREMAN	
MECHANIC	
INJURIES	

FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT	SURVEYS	DEGREE	
					18-1/8	36		8	7340	68	7118	958	FEB 24				
NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAM-ED TO	CONDIT-ION
	STANDS	FT.															
	SINGLES	FT.															
	D.C.'S	FT.															
	SUB	FT.	MUD	12 MID.	2 A.M.	4 A.M.	6 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS						
	SUB	FT.	WEIGHT						DST #5			1ST PRE FLOW - 5 MIN					
	BIT OR C.B.	FT.	VISCOSITY					ADDITIVES				1ST		30 MIN			
		FT.	PUMP PRESSURE									FLOW		60 MIN			
	KELLY IN	FT.	R.P.M. PUMP NO.1									FS!		90 MIN			
			R.P.M. PUMP NO.2														
TOTAL		FT.	PUMP NO. 1 LINER SIZE	PUMP NO. 2 LINER SIZE													

REMARKS	START	STOP	INT. VAL
<i>Make up packer</i>	<i>1200</i>	<i>130</i>	<i>1 1/2</i>
<i>Run in bit #5 & rig</i>	<i>130</i>		
<i>to test</i>		<i>245</i>	<i>1 1/4</i>
<i>Test #5</i>	<i>245</i>	<i>600</i>	<i>3 1/4</i>
<i>Test test #5 and log</i>	<i>600</i>	<i>6</i>	
<i>down test tools</i>	<i>400</i>		

DRILLER <i>J. Dach</i>	<i>8 1/2</i>
DERRICK <i>S. Larratt</i>	<i>8 1/2</i>
FLOOR <i>R. Bonin</i>	<i>8 1/2</i>
FLOOR <i>E. Smith</i>	<i>8 1/2</i>
FLOOR <i>R. Lute</i>	<i>8 1/2</i>
FIREMAN	
MECHANIC	
INJURIES	

FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS	DEGREE		
3102	NIL	3102	NIL	80000	18x6 1/8	38000		8	7395	68	7118	958	Feb 24				
NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	PPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAM-ED TO	CONDIT-ION
27	STANDS	2516.0 FT.															
	SINGLES	FT.															
18	D.C.'S	539.01 FT.															
2	SUB C.O.	6.25 FT.	MUD	8 A.M.	10 A.M.	12 NOON	2 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS						
	SUB	FT.	WEIGHT														
	BIT OR C.B.	FT.	VISCOSITY					ADDITIVES	D-51 #6 Pre-Flow - 5 minutes								
		FT.	PUMP PRESSURE						15.1 - 30 minutes								
1	KELLY IN	41.00 FT.	R.P.M. PUMP NO.1						Flow - 60 minutes								
			R.P.M. PUMP NO.2						F. & D. - 90 minutes								
TOTAL		3102.27	FT.	PUMP NO. 1 LINER SIZE	5'x14"	PUMP NO. 2 LINER SIZE	5 1/2"x12"	Rocentry - 10 feet of Drilling Mud									

REMARKS	START	STOP	INT. VAL
<i>Make up Packer #6</i>	<i>800</i>	<i>900</i>	<i>1</i>
<i>Run in</i>	<i>900</i>	<i>1015</i>	<i>1 1/4</i>
<i>Rig to test and testing</i>	<i>1015</i>	<i>115</i>	<i>3</i>
<i>Test test #6</i>	<i>115</i>	<i>300</i>	<i>1 3/4</i>
<i>Service test tools and load</i>	<i>300</i>		
<i>Out some</i>	<i>400</i>		<i>1</i>

DRILLER <i>H. Lapp</i>	<i>8 5/8</i>
DERRICK <i>J. Bayler</i>	<i>8 5/8</i>
FLOOR <i>R. Lang</i>	<i>8 5/8</i>
FLOOR <i>A. Nier</i>	<i>8 5/8</i>
FLOOR <i>E. Martin</i>	<i>8 5/8</i>
FIREMAN	
MECHANIC	
INJURIES	

FROM		FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT	SURVEYS	DEGREE	
					80000	18 1/8	38000		8	7452	68	7118	958	Feb 24				
NO.	DRILLING STRING		BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAM-ED TO	CONDIT-ION
27	STANDS	2516.01	FT.															
	SINGLES		FT.															
18	D.C.'S	539.01	FT.															
2	SUB	6.25	FT.	MUD	4 P.M.	6 P.M.	8 P.M.	10 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS						
	SUB		FT.	WEIGHT				9.4	-	-	12							
	BIT OR C.B.		FT.	VISCOSITY				54	ADDITIVES									
			FT.	PUMP PRESSURE														
	KELLY IN	41.00	FT.	R.P.M. PUMP NO. 1	—————													
				R.P.M. PUMP NO. 2	CIRC ACCT													
TOTAL				3102.27	FT.	PUMP NO. 1 LINER SIZE		PUMP NO. 2 LINER SIZE										

REMARKS	START	STOP	INT. VAL
<i>Local test test tools</i>	<i>400</i>	<i>445</i>	<i>3/4</i>
<i>Run in @ Bit</i>	<i>445</i>	<i>600</i>	<i>1 1/4</i>
<i>Circulate W.O.D.</i>	<i>600</i>	<i>12</i>	<i>6</i>

DRILL PIPE SIZE <i>4 1/2</i>	TYPE <i>F.H.</i>	TOTAL NO. OF JOINTS <i>120</i>	DATE LAST SONOSCOPED	FOOTAGE DRILLED SINCE LAST SONOSCOPED	TOTAL FOOTAGE DRILLED	LAST CALIPER DATE	RESULTS	CODE LETTER OF STRING
B.O.P.'S TESTED	ELAPSED TIME <i>1 1/4 hr</i>	PRESSURE <i>closed, normal</i>	RESULTS <i>OK</i>	TOTCO RING ON BIT NO.				

TOOLPUSHER *A. Corbett*
APPROVED BY *[Signature]*

DAY WORK RECORD

DATE FEB 24/70 REPORT NO. 11

PLEASE SHOW FOOTAGE MADE WHILE
"CONTROL DRILLING" AS WELL AS HOURS
AND ALSO RECORD CORE CUTTERS, CATCHERS, SWAB RUBBERS, ETC.

[illegible]

REGENT DRILLING LIMITED

DAY WORK RECORD

DATE Feb 23rd / 70 REPORT NO. 10

PUMPS	MANUFACTURER	TYPE	STROKE LENGTH
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NO. 1	<u>Omeco</u>	<u>D-300</u>	<u>14"</u>
NO. 2	<u>Omeco</u>	<u>D-175</u>	<u>12"</u>

EACH EMPLOYEE MUST SIGN THIS BOOK
TOUR NO. 1 MIDNIGHT TO 8 A.M. HOURS

DRILLER D. Lang 8

DERRICK J. Bayliss 8

FLOOR D. Jensen 8

FLOOR R. Lang 8

FLOOR H. Nien 8

FIREMAN

MECHANIC

INJURIES

LAST CASING SIZE	LAST CASING SET AT
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FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM
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NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDITION
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STANDS	FT.	3	7 7/8	3-11	577898	SCM	33/38	760	2716	3060	284	23					
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SINGLES	2484.36	FT.															
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D.C.'S	539.01	FT.															
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SUB CO	6.25	FT.															
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SUB		FT.															
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BIT OR C.B.		FT.															
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		FT.															
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		FT.															
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KELLY IN	3038	FT.															
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		FT.															
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TOTAL	3060.00	FT.															
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FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM
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NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDITION
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STANDS	FT.	3	7 7/8	3-11	577898	SCM	33/38	4555	2716	310							
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SINGLES	2516.01	FT.															
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D.C.'S	539.01	FT.															
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SUB S	6.25	FT.															
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SUB		FT.															
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BIT OR C.B.		FT.															
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		FT.															
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KELLY IN	41	FT.															
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TOTAL	3102.27	FT.															
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FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM
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NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDITION
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STANDS	2516.01	FT.															
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SINGLES		FT.															
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D.C.'S	539.01	FT.															
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SUB CO	6.25	FT.															
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SUB		FT.															
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BIT OR C.B.		FT.															
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		FT.															
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KELLY IN	41.00	FT.															
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TOTAL	3102.27	FT.															
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FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM
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NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDITION
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STANDS	2516.01	FT.															
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SINGLES		FT.															
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D.C.'S	539.01	FT.															
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SUB CO	6.25	FT.															
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SUB		FT.															
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DATE Feb 23rd / 70

RIG NO. 11-H

DRILL PIPE WEIGHT 18.6 LBS

NO. AND SIZE OF D.C.'S 38

D.C. WEIGHT 38000

TRIPS 8

NO OF LINES 8

TOTAL TON MILES 7057

LINE CUT FEET 68

AT MILES 6550

FEET LEFT ON SPOOL 1026

DATE OF LAST CUT Feb 12

AT SURVEYS DEGREES

REMARKS

Finish up with test tool

Run in w/ Bit 3'

Break Circ clean to Bottom

Drill ahead

WELL NAME C. P. O. C. A-63

60° 41' N 119° 52' E 115020H 40SEC WL

LOCATION LSD. SEC. TWP. RGE.

DATE Feb 23rd / 70

RIG NO. 11-H

DRILL PIPE WEIGHT 18.6 LBS

NO. AND SIZE OF D.C.'S 38

D.C. WEIGHT 38000

TRIPS 8

NO OF LINES 8

TOTAL TON MILES 7057

LINE CUT FEET 68

AT MILES 6550

FEET LEFT ON SPOOL 1026

DATE OF LAST CUT Feb 12

AT SURVEYS DEGREES

REMARKS

Finish up with test tool

Run in w/ Bit 3'

Break Circ clean to Bottom

Drill ahead

WELL NAME C. P. O. C. A-63

60° 41' N 119° 52' E 115020H 40SEC WL

LOCATION LSD. SEC. TWP. RGE.

REGENT DRILLING LIMITED

DAY WORK RECORD

DATE Feb 22nd REPORT NO. 9

MANUFACTURER	TYPE	STROKE LENGTH
NO. 1 <u>Danco</u>	<u>D-300</u>	<u>14"</u>
NO. 2 <u>Danco</u>	<u>D-175</u>	<u>12"</u>

LAST CASING SIZE	LAST CASING SET AT
<u>8 5/8</u>	<u>376'</u>

DATE Feb 22nd 70

WELL NAME C.P.O.C. A-63
60° 41' N 119° 50' E 1180 20" 4050' W L

RIG NO. 11-H LOCATION LSD. _____ SEC. _____ TWP. _____ RGE. _____

TOUR NO. 1 MIDNIGHT TO 8 A.M. HOURS

FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT	SURVEYS	DEGREES	
2823	122	2945	8	76000	18 6/8	38000		8	6939	68	6550	1026	Feb 12				
NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAM-ED TO	CONDIT-ION
25	STANDS	FT.	3	7 7/8	3-11	577898	SCM	35	60	2776	2945	169	13				Run
1	SINGLES	2359.47					38										
18	D.C.'S	539.01	FT.														
2	SUB C.O.	6.25	FT.	MUD	12 MID.	2 A.M.	4 A.M.	6 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS					
	SUB		FT.	WEIGHT	9.4	9.4	9.3	9.1	7	2/32	1 1/2	Safety meeting					
	BIT OR C.B.		FT.	VISCOSITY	43	45	42	38	ADDITIVES WATER			Chock landing of tools					
			FT.	PUMP PRESSURE	975	975	9.75	975	CEL 2400 #			Fuel 26" top tank					
	KELLY IN	41.00	FT.	R.P.M. PUMP NO. 1	62	62	62	62	RD III 200 #								
				R.P.M. PUMP NO. 2	TANKS			CAUSTIC 200 #									
TOTAL 2945.00				FT.	PUMP NO. 1 LINER SIZE 5'X14"			PUMP NO. 2 LINER SIZE 5'X12"									

REMARKS

START	STOP	INT VAL
12	8	8 hrs

TOUR NO. 2 8 A.M. TO 4 P.M. HOURS

TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL		TOTAL</	
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REMARKS

Drill 70 hole	800	1200	4
Circ before Hartington run	200		
Test #2	1230	1/2	
Hart Out measured 2 drill.	1230		
collar run in same	200	1/2	
Make up test tools	200		
and run in same	400	2	

TOUR NO. 3 4 P.M. TO MIDNIGHT HOURS

TOTAL		FT.		LINER SIZE		LINER SIZE		100' CAUSTIC		FEET LEFT ON SPOOL		DATE OF LAST CUT		AT SURVEYS		DEG	
FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT	SURVEYS	DEG	
3008	NIL	3008	N.I.L	76000	18 1/2	38000		8	7057	68	6550	1026	Feb 12				
NO.	DRILLING STRING		BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO
26	STANDS	2422.60	FT.														
	SINGLES		FT.														
18	D.C.'S	539.01	FT.														
2	SUB C.C.	6.25	FT.	MUD	4 P.M.	6 P.M.	8 P.M.	10 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS					
	SUB		FT.	WEIGHT						2/32		Held Safety Meeting					
	BIT OR C.B.		FT.	VISCOSITY					ADDITIVES			Topic Hard steel fast					
			FT.	PUMP PRESSURE								lenses					
	KELLY IN	41.00	FT.	R.P.M. PUMP NO. 1								Initial of frame for blow					
				R.P.M. PUMP NO. 2								When tool required for surface					
TOTAL	3008.86	FT.	PUMP NO. 1 LINER SIZE	5'X14"	PUMP NO. 2 LINER SIZE	5'X12"	in 3 mins. Ready flow at 175										
													LAST	RESULTS	CODE LETTER		

REMARKS

Rig to test and testing	4:00	8:45	4 3/4
Pull Packard lease and	8:45		
Pull Out	10:45	2	
Test Out Test tools	10:45		
and Service same	12:00	1 1/4	
DST #2. 2778 - 3008			
Preflow 3 mins.	6:03	6:08	
Initial Shut in 30 Mins.	6:08	6:38	
Flow Period 45 Mins.	6:38	7:38	
Final Shut in 30 Mins.	7:38	8:38	

DRILL PIPE SIZE	TYPE
<u>1 1/2"</u>	<u>F.H.</u>

TOTAL NO. OF JOINTS	DATE LAST SONOSCOPE	FOOTAGE DRILLED SINCE LAST SONOSCOPE	TOTAL FOOTAGE DRILLED	LAST CALIPER DATE	RESULTS	CODE LETTER OF STRING
120						

TOOLPUSHER A Corbett

APPROVED BY L.W. Nawratil

DAY WORK RECORD

DATE FEB 21ST/70 REPORT NO. 8

PLEASE SHOW FOOTAGE MADE WHILE
"CONTROL DRILLING" AS WELL AS HOURS
ALSO RECORD CORE CUTTERS, CATCHERS, SWAB RUBBERS, ETC.

PUMPS				WELL NAME										DATE		REPORT NO.					
MANUFACTURER		TYPE		STROKE LENGTH		C.P.O.C. A-63										Feb 21 st 70		8			
NO. 1				D-300		14'		LAST CASING SIZE		LAST CASING SET AT		60° 41' 19" SEC N. 118° 20' 40" SEC W.									
NO. 2				D-175		12'		8 3/8		336'		RIG NO. 11-H									
TOUR NO. 1				MIDNIGHT TO 8 A.M.		HOURS		LOCATION LSD. SEC. TWP. RGE.													
DRILLER				J. Lapp		8		REMARKS													
DERRICK				J. Boyle		8		TIME													
FLOOR				J. Tendon		8		START STOP INT. VAL.													
FLOOR				R. Lang		8															
FLOOR				H. Hien		8															
FIREMAN																					
MECHANIC																					
INJURIES																					
TOUR NO. 2				8 A.M. TO 4 P.M.		HOURS															
DRILLER				R. Gonsolley		8															
DERRICK				B. GARDNER		8															
FLOOR				I. E. GAMBLIN		8															
FLOOR				M. Clark		8															
FLOOR				C. MACDONALD		8															
FIREMAN																					
MECHANIC																					
INJURIES																					
TOUR NO. 3				4 P.M. TO MIDNIGHT		HOURS															
DRILLER				J. Daeh		8															
DERRICK				J. Larratt		8															
FLOOR				R. Bonin		8															
FLOOR				R. Lott		8															
FLOOR				E. Gamblin		6															
FIREMAN																					
MECHANIC																					
INJURIES																					
TOUR NO. 4				MIDNIGHT TO 8 A.M.		HOURS															
DRILLER				J. Lapp		8															
DERRICK				J. Boyle		8															
FLOOR				J. Tendon		8															
FLOOR				R. Lang		8															
FLOOR				H. Hien		8															
FIREMAN																					
MECHANIC																					
INJURIES																					
TOUR NO. 5				8 A.M. TO 4 P.M.		HOURS															
DRILLER				R. Gonsolley		8															
DERRICK				B. GARDNER		8															
FLOOR				I. E. GAMBLIN		8															
FLOOR				M. Clark		8															
FLOOR				C. MACDONALD		8															
FIREMAN																					
MECHANIC																					
INJURIES																					
TOUR NO. 6				4 P.M. TO MIDNIGHT		HOURS															
DRILLER				J. Daeh		8															
DERRICK				J. Larratt		8															
FLOOR				R. Bonin		8															
FLOOR				R. Lott		8															
FLOOR				E. Gamblin		6															
FIREMAN																					
MECHANIC																					
INJURIES																					
TOUR NO. 7				8 A.M. TO 4 P.M.		HOURS															
DRILLER				R. Gonsolley		8															
DERRICK				B. GARDNER		8															
FLOOR				I. E. GAMBLIN		8															
FLOOR				M. Clark		8															
FLOOR				C. MACDONALD		8															
FIREMAN																					
MECHANIC																					
INJURIES																					
TOUR NO. 8				4 P.M. TO MIDNIGHT		HOURS															
DRILLER				J. Daeh		8															
DERRICK				J. Larratt		8															
FLOOR				R. Bonin		8															
FLOOR				R. Lott		8															
FLOOR				E. Gamblin		6															
FIREMAN																					
MECHANIC																					
INJURIES																					
TOUR NO. 9				8 A.M. TO 4 P.M.		HOURS															
DRILLER				R. Gonsolley		8															
DERRICK				B. GARDNER		8															
FLOOR				I. E. GAMBLIN		8															
FLOOR				M. Clark		8															
FLOOR				C. MACDONALD		8															
FIREMAN																					
MECHANIC																					
INJURIES																					
TOUR NO. 10				4 P.M. TO MIDNIGHT		HOURS															
DRILLER				J. Daeh		8															
DERRICK				J. Larratt		8															
FLOOR				R. Bonin		8															
FLOOR				R. Lott		8															
FLOOR				E. Gamblin		6															
FIREMAN						</															

REGENT DRILLING LIMITED

DAY WORK RECORD

DATE Feb 20th 70 REPORT NO. 7

PUMPS			MANUFACTURER		TYPE	STROKE LENGTH	LAST CASING SIZE		LAST CASING SET AT		DATE <u>Feb 20th 70</u>		WELL NAME <u>C.P.O. Co. A-63</u>		LOCATION <u>60° 41' N 119° 50' E 1180 20 M 40 SEC W.L.</u>		RIG NO. <u>11-H</u>		SEC. <u>W.L.</u>		TWP. <u>11-H</u>		RGE. <u>W.L.</u>		REMARKS		TIME	
TOUR NO. 1 MIDNIGHT TO 8 A.M.		HOURS	FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS	DEGREES	REMARKS		START	STOP	INT VAL					
DRILLER	<u>J. L. Boyd</u>	8	1783	277	2060	7 1/4	66000	18-6 1/8	38000	8	6650	68	6550	1026	Feb 12	1830	1 1/2	1880	1 1/2	Drill Reduced Weight		12	3 30	3 1/2				
DERRICK	<u>J. Boyd</u>	8	16	STANDS	1493.92	2	7 1/8	3-11	18700	X3A	30	110	1275	2060	785	25 1/4	1940	1 1/2	Run Survey & Run	2 30	2 45	1 1/4						
FLOOR	<u>D. Jensen</u>	8	1	SINGLES															Run Survey @ 1880	2 45	4 45	2						
FLOOR	<u>R. Lang</u>	8	18	D.C.'S	539.01														Drill	4 45	5	1 1/4						
FLOOR	<u>H. Hien</u>	8	2	SUB X.O	6.35	FT.	MUD	12 MID.	2 A.M.	4 A.M.	6 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS				Run Survey @ 1940	6	6 15	1 1/4						
FIREMAN				SUB		FT.	WEIGHT	8.7	8.6	8.5	8.5								checked all fire extinguishers	6 15	8	1 3/4						
MECHANIC				BIT OR C.B.		FT.	VISCOSITY	28	28	28	28	ADDITIVES	WATER				"held safety meeting on sand"											
INJURIES																			free Taptank 4' 10"									
TOTAL			2060.00	FT.																								
TOUR NO. 2 8 A.M. TO 4 P.M.		HOURS	FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS	DEGREES	REMARKS									
DRILLER	<u>R. Gurnsey</u>	8	2060	400	2460	7 1/2	70M	18-6 1/8	38	8	6650	68	6550	1026	Feb 12	2260	2 1/2	2270	2 1/2	Run Survey 2070-24		8 00	8 15	1 1/4				
DERRICK	<u>B. GARDNER</u>	8	20	STANDS		2	7 1/8	3-11	18700	X3A	30	110	1275	2460	1185	32 3/4				Drill 1 1/2 hole	8 15	11 45	3 1/2					
FLOOR	<u>E. GAMBLIN</u>	8	1	SINGLES	1844.10														Survey 2260 24	11 45	12 00	1 1/4						
FLOOR	<u>M. CLARK</u>	8	18	D.C.'S	539.01														Drill	12 00	4 00	4						
FLOOR	<u>D. Macdonald</u>	8	2	SUB S	625	FT.	MUD	8 A.M.	10 A.M.	12 NOON		WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS													
FIREMAN				SUB		FT.	WEIGHT	8.5	8.5	8.7	8.7								Safety Meeting									
MECHANIC				BIT OR C.B.		FT.	VISCOSITY	28	28	28	28	ADDITIVES	WATER				Heavy Conditions											
INJURIES																												
TOTAL			2460.36	FT.																								
TOUR NO. 3 4 P.M. TO MIDNIGHT		HOURS	FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS	DEGREES	REMARKS									
DRILLER	<u>J. D. Dack</u>	8	2460	280	2740	6 3/4	11300	18-6 1/8	38000	8	6650	68	6550	1026	Feb 12	2500	2 1/2	2560	2 1/2	Drilling		4 00	4 30	1 1/2				
DERRICK	<u>S. Lussick</u>	8	23	STANDS	2171.64	2	7 1/8	3-11	18700	X3A	30	110	1275	2740	1465	39 1/2				Run Survey - Set Rig + B.O.P.	4 30	4 45	1 1/4					
FLOOR	<u>R. Babin</u>	8	1	SINGLES															Drilling	4 45	6 45	2						
FLOOR	<u>R. Late</u>	8	18	D.C.'S	539.01														Run Survey	6 45	7 05	1 1/4						
FLOOR			2	SUB	625	FT.	MUD	4 P.M.	6 P.M.	8 P.M.	10 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS				Drilling	7 05	8 30	1 1/2						
FIREMAN				SUB		FT.	WEIGHT	9.0	8.6	8.7	8.9	15.0	3 1/2	12	Displaced hole and tanks				Run Survey	8 30	8 45	1 1/4						
MECHANIC				BIT OR C.B.		FT.	VISCOSITY	28	28	31	30	ADDITIVES	water				Works on low clutch				8 45	9 00	1 1/4					
INJURIES																			Drilling	9 00	11 00	2						
TOTAL			2740.90	FT.																Run Survey	11 00	11 15	1 1/4					
TOUR NO. 4 11 P.M. TO 5 A.M.		HOURS	FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS	DEGREES	REMARKS									
DRILLER	<u>J. D. Dack</u>	8	2740	280	2740	6 3/4	11300	18-6 1/8	38000	8	6650	68	6550	1026	Feb 12	2500	2 1/2	2560	2 1/2	Drilling		11 15	12 05	3 1/4				
DERRICK	<u>S. Lussick</u>	8	23	STANDS	2171.64	2	7 1/8	3-11	18700	X3A	30	110	1275	2740	1465	39 1/2				Run Survey								
FLOOR	<u>R. Babin</u>	8	1	SINGLES															Drilling									
FLOOR	<u>R. Late</u>	8	18	D.C.'S	539.01														Drilling									
FLOOR			2	SUB	625	FT.	MUD	4 P.M.	6 P.M.	8 P.M.	10 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS				Run Survey									
FIREMAN				SUB		FT.	WEIGHT	9.0	8.6	8.7	8.9	15.0	3 1/2	12	Displaced hole and tanks				Works on low clutch									
MECHANIC				BIT OR C.B.		FT.	VISCOSITY	28	28	31	30	ADDITIVES	water				Drilling											
INJURIES																			Run Survey									
TOTAL			2740.90	FT.																Drilling								
TOUR NO. 5 5 A.M. TO 11 P.M.		HOURS	FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS	DEGREES	REMARKS									
DRILLER	<u>J. D. Dack</u>	8	2740	280	2740	6 3/4	11300	18-6 1/8	38000	8	6650	68	6550	1026	Feb 12	2500	2 1/2	2560	2 1/2	Drilling								
DERRICK	<u>S. Lussick</u>	8	23	STANDS	2171.64	2	7 1/8	3-11	18700	X3A	30	110	1275	2740	1465	39 1/2				Run Survey								
FLOOR	<u>R. Babin</u>	8	1	SINGLES															Drilling									
FLOOR	<u>R. Late</u>	8	18	D.C.'S	539.01														Drilling									
FLOOR			2	SUB	625	FT.	MUD	4 P.M.	6 P.M.	8 P.M.	10 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS				Run Survey									
FIREMAN				SUB		FT.	WEIGHT	9.0	8.6	8.7	8.9	15.0	3 1/2	12	Displaced hole and tanks				Works on low clutch									
MECHANIC				BIT OR C.B.		FT.	VISCOSITY	28	28	31	30	ADDITIVES	water				Drilling											
INJURIES																			Run Survey									
TOTAL			2740.90	FT.																Drilling								

TOOLPUSHER A. C. Conketh
 APPROVED BY L. W. Knapik

REGENT DRILLING LIMITED

DAY WORK RECORD

PUMPS		MANUFACTURER		TYPE	STROKE LENGTH	LAST CASING SIZE		LAST CASING SET AT		DATE	WELL NAME	LOCATION		SEC.	TWP.	RGE.	DATE	REPORT NO.					
D-300		D-175		14"	12"	85/8		376'		Feb 19 70	C.P.O.G. A.63	60° 44' M 119 SEC. N. L. 1180 20M 40 SEC W. L.					Feb 19 70	6					
TOUR NO. 1 MIDNIGHT TO 8 A.M.		HOURS																					
DRILLER	J. Lapp	8	1270	56	1326 5/2	57	100	18	4 1/2	33	8	6640	68	6550	1026	Feb 12	1290 4/4	Drill	12 12 15 1/4				
DERRICK	T. Boy	8	8	STANDS	74789 FT.	1	7 7/8	3-10	579359	STIR	190	377	1275	898	22 1/2			Drill	12 30 12 30 1/4				
FLOOR	D. Johnson	8	8	SINGLES	FT.	2	7 7/8	3-11	18700	X3A	37	190	1275	1326	51 1/2			Drill	1 5 3 15 2				
FLOOR	R. Lang	8	18	D.C.'S	539.01 FT.													Drill	3 5 6 30 3 1/4				
FLOOR	D. Hien	8	2	SUB	625 FT.	MUD	12 MID.	2 A.M.	4 A.M.	6 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS				Drill	6 30 6 45 1/4				
FIREMAN				BIT OR C.B.	FT.	WEIGHT	9.7		8.6	84									Drill	6 45 8 1 1/4			
MECHANIC				PUMP PRESSURE	FT.	1250		900	900	SEPERAN 25#													
INJURIES				KELLY IN	32.85 FT.	R.P.M.	PUMP NO. 1																
TOTAL					1326.00 FT.	PUMP NO. 1 LINER SIZE	5" X 14"	PUMP NO. 2 LINER SIZE	5" X 12"											Fuel Top tank 22" Bottom tank 8"			
TOUR NO. 2 8 A.M. TO 4 P.M.		HOURS																					
DRILLER	G. Consoley	8	1326	195	1521 6 3/4	60M	18 1/8	38	8	6640	68	6650	1026	Feb 12	1350	3 1/2		Drilling	8 30 8 30 1/2				
DERRICK	B. GARDNER	8	10	STANDS	FT.	2	7 7/8	3-11	18700	X3A	30	60	146	1376	1521	246	1 1/4	Drill	8 45 9 00 1 1/4				
FLOOR	E. CAMBLIN	8	8	SINGLES	93505 FT.													Survey	10 00 10 15 1/4				
FLOOR	M. CLARK	8	18	D.C.'S	539.01 FT.													Drill	10 15 11 15 1				
FLOOR	MACDONALD	8	2	SUB	625 FT.	MUD	8 A.M.	10 A.M.	12 NOON	2 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS				Survey	11 15 11 30 1/4				
FIREMAN				BIT OR C.B.	FT.	WEIGHT	8.4	8.4	8.4	8.4									Drill	11 30 12 15 3/4			
MECHANIC				PUMP PRESSURE	FT.	800	800	800	800	FRESH WATER									Survey	12 15 12 30 1/4			
INJURIES				KELLY IN	41 FT.	R.P.M.	PUMP NO. 1	64	64	66	66	25# SEPERAN					Fuel Top tank 25" Bottom tank empty						
TOTAL					1521 31 FT.	PUMP NO. 1 LINER SIZE	5	PUMP NO. 2 LINER SIZE	5 1/2														
TOUR NO. 3 4 P.M. TO MIDNIGHT		HOURS																					
DRILLER	J. Dash	8	1521	262	1783 6 3/4	64	1000	18 1/8	38	8	6650	68	6650	1026	Feb 12	1540	2 1/2	Drilling	4 00 4 30 1 1/2				
DERRICK	J. Lassett	8	13	STANDS	12135 FT.	2	7 7/8	3-11	18700	X3A	20	100	1275	1793	508	18		Run Survey	4 30 4 45 1/4				
FLOOR	R. Bonin	8	8	SINGLES	FT.													Drilling	4 45 6 30 1 3/4				
FLOOR	R. Late	8	18	D.C.'S	539.01 FT.													Work light connection	6 30 6 45 1/4				
FLOOR		8	2	SUB	625 FT.	MUD	4 P.M.	6 P.M.	8 P.M.	10 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS				Run Survey	6 45 7 00 1/4				
FIREMAN				BIT OR C.B.	FT.	WEIGHT	8.4	8.4	8.5	8.4									Drilling	7 00 8 30 1 1/2			
MECHANIC				PUMP PRESSURE	FT.	750	750	800	800	Line - 500# F									Run Survey	8 30 8 45 1/4			
INJURIES				KELLY IN	25.00 FT.	R.P.M.	PUMP NO. 1		56	56									Drilling	8 45 11 00 2 1/4			
TOTAL					1783.77 FT.	PUMP NO. 1 LINER SIZE	5" X 14"	PUMP NO. 2 LINER SIZE	5" X 12"														
DRILL PIPE SIZE	4 1/2"	TYPE	F.H.	TOTAL NO. OF JOINTS	120	DATE LAST SONOSCOPED			FOOTAGE DRILLED SINCE LAST SONOSCOPED			TOTAL FOOTAGE DRILLED			LAST CALIPER DATE			RESULTS	CODE LETTER OF STRING				
B.O.P.'S TESTED	4 1/2" Ramo-Hydil	ELAPSED TIME	closed	PRESSURE	opened	RESULTS	D.K		TOTCO RING ON BIT NO.	2													
TOOLPUSHER <i>A. Consoley</i>																							
APPROVED BY <i>W. J. Consoley</i>																							

DAY WORK RECORD

[illegible]

REGENT DRILLING LIMITED

DAY WORK RECORD

PUMPS

MANUFACTURER	TYPE	STROKE LENGTH
NO. 1 <i>Omeco</i>	<i>D-300</i>	<i>14"</i>
NO. 2 <i>Omeco</i>	<i>D-175</i>	<i>12"</i>

LAST CASING SIZE	LAST CASING SET AT
<i>85/8</i>	<i>377'</i>

DATE *FEB 17th 1970*

WELL NAME *C.P.O.C. A-63*

DATE *FEB 17th 1970* REPORT NO. *4*

60° 40m 4.19 SEC. N.L. 1180 20M 40 SEC. WL

RIG NO. *11-H*

LOCATION LSD. SEC. TWP. RGE.

PLEASE SHOW FOOTAGE MADE WHILE
"CONTROL DRILLING" AS WELL AS HOURS
AND ALSO RECORD CORE CUTTERS, CATCHERS, SWAB RUBBERS, ETC.

EACH EMPLOYEE MUST SIGN THIS BOOK
TOUR NO. 1 MIDNIGHT TO 8 A.M. HOURS

DRILLER <i>J. D. App</i>	<i>8</i>
DERRICK <i>J. Bayless</i>	<i>8</i>
FLOOR <i>D. Jensen</i>	<i>8</i>
FLOOR <i>R. Sang</i>	<i>8</i>
FLOOR <i>Hobbs</i>	<i>8</i>
FIREMAN	
MECHANIC	
INJURIES	

FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS		DEGREE	
		377						8	6620	68	6550	1026	Feb 12				
NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAM-ED TO	CONDIT-ION
	STANDS	FT.															
	SINGLES	FT.															
	D.C.'S	FT.															
	SUB	FT.	MUD	12 MID.	2 A.M.	4 A.M.	6 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS						
	SUB	FT.	WEIGHT								Safety Meeting BOP Equipment						
	BIT OR C.B.	FT.	VISCOSITY					ADDITIVES									
		FT.	PUMP PRESSURE														
	KELLY IN	FT.	R.P.M. PUMP NO. 1														
			R.P.M. PUMP NO. 2														
TOTAL		FT.	PUMP NO. 1 LINER SIZE 5"X14"	PUMP NO. 2 LINER SIZE 5"X12"													

REMARKS	START	STOP	INT VAL
<i>W.O.C.</i>	<i>12</i>	<i>4</i>	<i>8 1/2</i>

TOUR NO. 2
8 A.M. TO 4 P.M. HOURS

DRILLER <i>R. Pennington</i>	<i>8</i>
DERRICK <i>B. B. B. B.</i>	<i>8</i>
FLOOR <i>E. B. B. B.</i>	<i>8</i>
FLOOR <i>M. Clark</i>	<i>8</i>
FLOOR <i>J. Macdonald</i>	<i>8</i>
FIREMAN	
MECHANIC	
INJURIES	

LINER SIZE 3 1/2" I.D.																		LINER SIZE 3 1/2" I.D.																	
FROM		FOOTAGE		TOTAL DEPTH		HOURS ON BOTTOM		DRILL PIPE WEIGHT		NO. AND SIZE OF D.C.'S		D.C. WEIGHT		TRIPS		NO OF LINES		TOTAL TON MILES		LINE CUT FEET		AT MILES		FEET LEFT ON SPOOL		DATE OF LAST CUT		AT SURVEYS		DEGREES					
NO.	DRILLING STRING			BITS RUN NO.		SIZE		NOZZLE SIZE		SERIAL NO.		TYPE		WEIGHT		RPM		FOOTAGE FROM		FOOTAGE TO		FOOTAGE		HOURS		CORED FROM		CORED TO		REAMED FROM		REAM-ED TO		CONDIT-ION	
	STANDS			FT.																															
	SINGLES			FT.																															
	D.C.'S			FT.																															
	SUB			FT.		MUD		8 A.M.		10 A.M.		12 NOON		2 P.M.		WATER LOSS		FILTER CAKE		PH		GENERAL REMARKS													
	SUB			FT.		WEIGHT																Solitary Cracking													
	BIT OR C.B.			FT.		VISCOSITY										ADDITIVES						P.O.P.S. Solvent													
				FT.		PUMP PRESSURE																in Van Ilyd K.O.P.													
	KELLY IN			FT.		R.P.M. PUMP NO.1																Equipment													
				FT.		R.P.M. PUMP NO.2																1													
TOTAL				FT.		PUMP NO. 1 LINER SIZE				PUMP NO. 2 LINER SIZE																									

REMARKS	START	STOP	INT VAL
<i>W.O.C. , Apple up</i>	<i>800</i>	<i>400</i>	<i>8</i>

TOUR NO. 3
4 P.M. TO MIDNIGHT HOURS

DRILLER <i>J. Dack</i>	<i>8</i>
DERRICK <i>S. L. L. L.</i>	<i>8</i>
FLOOR <i>R. B. B. B.</i>	<i>8</i>
FLOOR <i>R. L. L. L.</i>	<i>8</i>
FLOOR <i>M. Clarke</i>	<i>5</i>
FIREMAN	
MECHANIC	
INJURIES	

FROM		FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS	DEGREES		
377					3400	10 1/8	20000		8	6620	68	6550	1026	Jul 12				
NO.	DRILLING STRING		BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDITION
	STANDS	FT.	1	7 7/8	3-10	579359	5400			377								
1	SINGLES	31.54 FT.																
10	D.C.'S	300.33 FT.																
2	SUB C.O.	6.25 FT.	MUD	4 P.M.	6 P.M.	8 P.M.	10 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS							
	SUB	FT.	WEIGHT											Checked Meter Shut off				
	BIT OR C.B.	FT.	VISCOSITY					ADDITIVES	Pressure tested Blind Rams 1000'									
		FT.	PUMP PRESSURE					15 mins	field O.K.									
	KELLY IN	41.00 FT.	R.P.M. PUMP NO. 1					Pressure tested Hydraulic 1000' 15 min										
			R.P.M. PUMP NO. 2					Pressure tested 4 1/2" Rams 15 min										
TOTAL		FT.	PUMP NO. 1	5"X14"	PUMP NO. 2	5"X12"												

REMARKS	START	STOP	INT VAL
<i>W.O.C.</i>			<i>4 1/2</i>
<i>Check Meter Shut-off</i>			
<i>Check Blind Rams</i>			
<i>Run in Collars</i>			
<i>Pressure test Hydral</i>			
<i>and 4 1/2" Pipe Rams</i>			<i>8 1/2 4 3/4</i>
<i>Check Meter Shut-off</i>			
<i>Drill out plug float</i>			<i>8 1/2</i>
<i>Pressure tested Blind Rams 1000# cement and shoe</i>			<i>12 3 1/4</i>
<i>15 mins held O.K.</i>			
<i>Pressure tested Hydral 1000# 15 mins - held O.K.</i>			
<i>Pressure tested 4 1/2" Rams 15 mins - held O.K.</i>			

DRILL PIPE SIZE <i>4 1/2"</i>	TYPE <i>F.H.</i>	TOTAL NO. OF JOINTS <i>120</i>	DATE LAST SONOSCOPIED	FOOTAGE DRILLED SINCE LAST SONOSCOPIED	TOTAL FOOTAGE DRILLED	LAST CALIPER DATE	RESULTS	CODE LETTER OF STRING
D.O.P.'S TESTED	ELAPSED TIME	PRESSURE	RESULTS	TOTCO RING ON BIT NO. <i>One</i>				

TOOLPUSHER *A. Carlett*

APPROVED BY *T. J. Marshall*

REGENT DRILLING LIMITED

DAY WORK RECORD

PUMPS			DATE		WELL NAME		DATE		REPORT NO.	
MANUFACTURER	TYPE	STROKE LENGTH								
NO. 1 <i>Donner</i>	D-300	14"	LAST CASING SIZE		LAST CASING SET AT		DATE <i>Feb 16th /70</i>		WELL NAME <i>C.P.O.C. A.63</i>	
NO. 2 <i>Donner</i>	D-175	12	<i>8 1/4</i>		<i>377</i>		RIG NO. <i>11-H</i>		LOCATION <i>60° 44' N 119 SEC. N.L. 1180 20M HUSEC WL</i>	
TOUR NO. 1 MIDNIGHT TO 8 A.M. HOURS			FROM		FOOTAGE		TOTAL DEPTH		HOURS ON BOTTOM	
			<i>262</i>		<i>85347</i>		<i>8</i>		<i>34000</i>	
DRILLER <i>H. Lapp</i>			NO.		DRILLING STRING		BITS RUN NO.		SIZE	
			<i>8</i>				<i>3A</i>		<i>12 1/4 3-13</i>	
DERRICK <i>J. Bay</i>			STANDS		FT.		NOZZLE SIZE		SERIAL NO.	
			<i>8</i>				<i>16 1/8 190</i>		<i>1049</i>	
FLOOR <i>A. T. Jones</i>			SINGLES		FT.		RPM		FOOTAGE FROM	
			<i>8</i>				<i>130</i>		<i>347</i>	
FLOOR <i>R. Lang</i>			D.C.'S		300.33		FOOTAGE TO		FOOTAGE HOURS	
			<i>8</i>		<i>10</i>		<i>21733 1/4</i>		<i>1026</i>	
FLOOR <i>H. Hien</i>			SUB		7.28		CORED FROM		CORED TO	
			<i>8</i>		<i>3</i>		<i>1026</i>		<i>Feb 12</i>	
FIREMAN			SUB		MUD		REAMED FROM		REAMED TO	
					12 MID. 2 A.M. 4 A.M. 6 P.M.		<i>1026</i>		<i>Feb 12</i>	
MECHANIC			BIT OR C.B.		WEIGHT		CONDITION		DEGREES	
					9.5 9.5 9.5					
INJURIES			PUMP PRESSURE		600 600 600 650		GENERAL REMARKS			
			R.P.M. PUMP NO. 1		50 60 50		Safety Meeting			
			R.P.M. PUMP NO. 2		60 60 60 60		Fuel 54" top tank			
			KELLY IN		3939		Bottom 12" 1/2			
			TOTAL		347.00					
			PUMP NO. 1 LINER SIZE		5" x 1 1/4"					
			PUMP NO. 2 LINER SIZE		5" x 1 1/2"					
TOUR NO. 2 8 A.M. TO 4 P.M. HOURS			FROM		FOOTAGE		TOTAL DEPTH		HOURS ON BOTTOM	
			<i>347</i>		<i>30</i>		<i>377</i>		<i>4 3/4</i>	
DRILLER <i>G. Gonsolles</i>			NO.		DRILLING STRING		BITS RUN NO.		SIZE	
			<i>8</i>				<i>3A</i>		<i>12 1/4 3-13</i>	
DERRICK <i>B. GARDNER</i>			STANDS		FT.		NOZZLE SIZE		SERIAL NO.	
			<i>8</i>				<i>16 1/8 190</i>		<i>1049</i>	
FLOOR <i>E. GAMBLIN</i>			SINGLES		31 3/4		RPM		FOOTAGE FROM	
			<i>8</i>		<i>1</i>		<i>80</i>		<i>130</i>	
FLOOR <i>M. Chack</i>			D.C.'S		300.33		FOOTAGE TO		FOOTAGE HOURS	
			<i>8</i>		<i>10</i>		<i>247</i>		<i>38</i>	
FLOOR <i>O. Macdonald</i>			SUB		7.28		CORED FROM		CORED TO	
			<i>8</i>		<i>3</i>		<i>1026</i>		<i>Feb 12</i>	
FIREMAN			SUB		MUD		REAMED FROM		REAMED TO	
					8 A.M. 10 A.M. 12 NOON 2 P.M.		<i>1026</i>		<i>Feb 12</i>	
MECHANIC			BIT OR C.B.		WEIGHT		CONDITION		DEGREES	
					4.5 4.5 9.5					
INJURIES			PUMP PRESSURE		650 650 650		GENERAL REMARKS			
			R.P.M. PUMP NO. 1		66 66 66		Board 348 6'			
			R.P.M. PUMP NO. 2		66 66 66		Yelling 349 39			
			KELLY IN		38		68			
			TOTAL		377.15					
			PUMP NO. 1 LINER SIZE		5" x 1 1/4"					
			PUMP NO. 2 LINER SIZE		5" x 1 1/2"					
TOUR NO. 3 4 P.M. TO MIDNIGHT HOURS			FROM		FOOTAGE		TOTAL DEPTH		HOURS ON BOTTOM	
			<i>347</i>		<i>NIL</i>		<i>377</i>		<i>NIL</i>	
DRILLER <i>J. Dack</i>			NO.		DRILLING STRING		BITS RUN NO.		SIZE	
			<i>8</i>				<i>3A</i>		<i>12 1/4 3-13</i>	
DERRICK <i>J. Barrott</i>			STANDS		FT.		NOZZLE SIZE		SERIAL NO.	
			<i>8</i>				<i>16 1/8 190</i>		<i>1049</i>	
FLOOR <i>R. Barin</i>			SINGLES		31.54		RPM		FOOTAGE FROM	
			<i>8</i>		<i>1</i>		<i>80</i>		<i>130</i>	
FLOOR <i>R. Lati</i>			D.C.'S		300.33		FOOTAGE TO		FOOTAGE HOURS	
			<i>8</i>		<i>10</i>		<i>247</i>		<i>38</i>	
FLOOR <i>R. Macdonald</i>			SUB		7.28		CORED FROM		CORED TO	
			<i>4</i>		<i>3</i>		<i>1026</i>		<i>Feb 12</i>	
FIREMAN			SUB		MUD		REAMED FROM		REAMED TO	
					4 P.M. 6 P.M. 8 P.M. 10 P.M.		<i>1026</i>		<i>Feb 12</i>	
MECHANIC			BIT OR C.B.		WEIGHT		CONDITION		DEGREES	
					4.5 4.5 9.5					
INJURIES			PUMP PRESSURE		650 650 650		GENERAL REMARKS			
			R.P.M. PUMP NO. 1		66 66 66		Run casing			
			R.P.M. PUMP NO. 2		66 66 66		Liner casing. Rig to land at 12 00			
			KELLY IN		38.00		From 12 00 to 8 00 5TH cementing and pump plug			
			TOTAL		377.15		R55 - 24 lb. casing 3 W.O.C.			
			PUMP NO. 1 LINER SIZE		5" x 1 1/4"		centerlines & Davis & Hart collar			
			PUMP NO. 2 LINER SIZE		5" x 1 1/2"		6 shoe			
DRILL PIPE SIZE			TYPE		TOTAL NO. OF JOINTS		DATE LAST SONOSCOPED		FOOTAGE DRILLED SINCE LAST SONOSCOPED	
<i>4 1/2"</i>			<i>P.H.</i>		<i>120</i>				<i>120</i>	
B.O.P.'S TESTED			ELAPSED TIME		PRESSURE		RESULTS		CODE LETTER OF STRING	
TOOLPUSHER			APPROVED BY							
<i>A. Carlett</i>			<i>W. Macdonald</i>							

REGENT DRILLING LIMITED

DAY WORK RECORD

PUMPS			DATE <u>FEB 15th 1970</u>		WELL NAME <u>C. P. O. G. A. 63</u>		DATE <u>FEB 15/70</u>		REPORT NO. <u>2</u>	
MANUFACTURER	TYPE	STROKE LENGTH	LAST CASING SIZE		LAST CASING SET AT		RIG NO. <u>11-H</u>		LOCATION <u>60° 40' N 41° 19' SEC. 12 E 1180 20 M 40' W</u>	
TOUR NO. 1 MIDNIGHT TO 8 A.M.			HOURS		FOOTAGE		TOTAL DEPTH		HOURS ON BOTTOM	
DRILLER	<u>G. CZAPP</u>	<u>8</u>	141	43	184	73/4	2600	5-6 1/4	10000	8
DERRICK	<u>J. BOYKO</u>	<u>8</u>	STANDS		FT.	3A	12 1/4	3-13	1049	150
FLOOR	<u>D. JENSEN</u>	<u>8</u>	SINGLES		FT.					130
FLOOR	<u>R. LANG</u>	<u>8</u>	D.C.'S		152.02					184
FLOOR	<u>G. HIEN</u>	<u>8</u>	SUB		7.28	FT.	MUD	12 MID.	2 A.M.	4 A.M.
FIREMAN			SUB		FT.	WEIGHT	9.1	9.1	9.1	9.2
MECHANIC			BIT OR C.B.		FT.	VISCOSITY	40	36	36	38
INJURIES			PUMP PRESSURE		850	850	850	850		
TOTAL			184.00		FT.	PUMP NO. 1 LINER SIZE	5" x 14"	PUMP NO. 2 LINER SIZE	5" x 12"	
TOUR NO. 2 8 A.M. TO 4 P.M.			HOURS		FOOTAGE		TOTAL DEPTH		HOURS ON BOTTOM	
DRILLER	<u>R. GUNSON</u>	<u>12</u>	184	31	215	7	30M	6-6 1/4	12M	8
DERRICK	<u>B. GARDNER</u>	<u>12</u>	STANDS		FT.	3A	12 1/4	3-13	1049	150
FLOOR	<u>E. GAMBLIN</u>	<u>12</u>	SINGLES		FT.					130
FLOOR	<u>M. CLARK</u>	<u>12</u>	D.C.'S		182.65					215
FLOOR	<u>J. MACDONALD</u>	<u>12</u>	SUB		728	FT.	MUD	8 A.M.	10 A.M.	12 NOON
FIREMAN			SUB		FT.	WEIGHT	9.2	9.3	9.2	9.2
MECHANIC			BIT OR C.B.		FT.	VISCOSITY	36	38	38	37
INJURIES			PUMP PRESSURE		850	850	850	850		
TOTAL			215.96		FT.	PUMP NO. 1 LINER SIZE	5"	PUMP NO. 2 LINER SIZE	5 1/2"	
TOUR NO. 3 4 P.M. TO MIDNIGHT			HOURS		FOOTAGE		TOTAL DEPTH		HOURS ON BOTTOM	
DRILLER	<u>G. CZAPP</u>	<u>4</u>	285	49	264	7 3/4	3200	8-6 1/4	16000	8
DERRICK	<u>J. BOYKO</u>	<u>4</u>	STANDS		FT.	3A	12 1/4	3-13	1049	150
FLOOR	<u>D. JENSEN</u>	<u>4</u>	SINGLES		FT.					130
FLOOR	<u>R. LANG</u>	<u>4</u>	D.C.'S		239.58					262
FLOOR	<u>G. HIEN</u>	<u>4</u>	SUB		7.28	FT.	MUD	4 P.M.	6 P.M.	8 P.M.
FIREMAN			SUB		FT.	WEIGHT	9.3	9.4	9.4	9.4
MECHANIC			BIT OR C.B.		FT.	VISCOSITY	37	38	36	37
INJURIES			PUMP PRESSURE		850	850	850	850		
TOTAL			264.00		FT.	PUMP NO. 1 LINER SIZE	5" x 14"	PUMP NO. 2 LINER SIZE	5 1/2" x 12"	
TOUR NO. 4 12 P.M. TO 4 P.M.			HOURS		FOOTAGE		TOTAL DEPTH		HOURS ON BOTTOM	
DRILLER	<u>G. CZAPP</u>	<u>4</u>	285	49	264	7 3/4	3200	8-6 1/4	16000	8
DERRICK	<u>J. BOYKO</u>	<u>4</u>	STANDS		FT.	3A	12 1/4	3-13	1049	150
FLOOR	<u>D. JENSEN</u>	<u>4</u>	SINGLES		FT.					130
FLOOR	<u>R. LANG</u>	<u>4</u>	D.C.'S		239.58					262
FLOOR	<u>G. HIEN</u>	<u>4</u>	SUB		7.28	FT.	MUD	4 P.M.	6 P.M.	8 P.M.
FIREMAN			SUB		FT.	WEIGHT	9.3	9.4	9.4	9.4
MECHANIC			BIT OR C.B.		FT.	VISCOSITY	37	38	36	37
INJURIES			PUMP PRESSURE		850	850	850	850		
TOTAL			264.00		FT.	PUMP NO. 1 LINER SIZE	5" x 14"	PUMP NO. 2 LINER SIZE	5 1/2" x 12"	

DRILL PIPE SIZE	<u>4 1/2</u>	TYPE	<u>FH</u>	TOTAL NO. OF JOINTS	<u>220</u>	DATE LAST SONO SCOPED		FOOTAGE DRILLED SINCE LAST SONO SCOPED		TOTAL FOOTAGE DRILLED		LAST CALIPER DATE		RESULTS		CODE LETTER OF STRING	
B.O.P.'S TESTED	<u>2</u>	ELAPSED TIME		PRESSURE		RESULTS		TOTCO RING ON BIT NO.									

TOOLPUSHER A. Corbett
 APPROVED BY P. W. Mawardi

REGENT DRILLING LIMITED

DAY WORK RECORD

PUMPS			DATE		WELL NAME		DATE		REPORT NO.	
MANUFACTURER	TYPE	STROKE LENGTH								
NO. 1 <i>Emasa</i>	<i>D-300</i>	<i>14"</i>	LAST CASING SIZE		LAST CASING SET AT		DATE <i>Feb. 14/70</i>		WELL NAME <i>C.P.O. A-63</i>	
NO. 2 <i>Emasa</i>	<i>D-175</i>	<i>12"</i>					RIG NO. <i>11-H</i>		LOCATION <i>60° 40' N 119° 20' W</i>	
EACH EMPLOYEE MUST SIGN THIS BOOK			FOOTAGE		TOTAL DEPTH		HOURS ON BOTTOM		PLEASE SHOW FOOTAGE MADE WHILE "CONTROL DRILLING" AS WELL AS HOURS AND ALSO RECORD CORE CUTTERS, CATCHERS, SWAB RUBBERS, ETC.	
TOUR NO. 1 MIDNIGHT TO 8 A.M. HOURS			<i>0 47</i>		<i>47</i>		<i>6</i>		DATE <i>Feb. 14/70</i>	
DRILLER <i>T. Dack</i>	<i>8</i>		NO. DRILLING STRING		BITS RUN NO.		SIZE		NO. AND SIZE OF D.C.'S	
DERRICK <i>S. Latort</i>	<i>8</i>		STANDS		FT.		<i>19</i>		NO. AND SIZE OF D.C.'S	
FLOOR <i>R. Bonin</i>	<i>8</i>		SINGLES		FT.				NO. AND SIZE OF D.C.'S	
FLOOR <i>E. Smith</i>	<i>8</i>		D.C.'S		FT.				NO. AND SIZE OF D.C.'S	
FLOOR <i>R. Late</i>	<i>8</i>		SUB		FT.		<i>625</i>		NO. AND SIZE OF D.C.'S	
FIREMAN			SUB		FT.		WEIGHT		NO. AND SIZE OF D.C.'S	
MECHANIC			BIT OR C.B.		FT.		VISCOSITY		NO. AND SIZE OF D.C.'S	
INJURIES <i>E. Smith</i>			KELLY IN		FT.		<i>41.00</i>		NO. AND SIZE OF D.C.'S	
TOTAL			<i>47.25</i>		FT.		PUMP NO. 1 LINER SIZE <i>5"X14"</i>		PUMP NO. 2 LINER SIZE <i>5"X12"</i>	
TOUR NO. 2 8 A.M. TO 4 P.M. HOURS			<i>0 83</i>		<i>83</i>		<i>5 3/4</i>		DATE <i>Feb. 14/70</i>	
DRILLER <i>G. Czapp</i>	<i>10</i>		NO. DRILLING STRING		BITS RUN NO.		SIZE		NO. AND SIZE OF D.C.'S	
DERRICK <i>J. Boyko</i>	<i>10</i>		STANDS		FT.		<i>2A</i>		NO. AND SIZE OF D.C.'S	
FLOOR <i>D. Jensen</i>	<i>10</i>		SINGLES		FT.				NO. AND SIZE OF D.C.'S	
FLOOR <i>R. L. Mabe</i>	<i>10</i>		D.C.'S		FT.		<i>61-29</i>		NO. AND SIZE OF D.C.'S	
FLOOR <i>G. Hien</i>	<i>10</i>		SUB		FT.		<i>7.28</i>		NO. AND SIZE OF D.C.'S	
FIREMAN			SUB		FT.		WEIGHT		NO. AND SIZE OF D.C.'S	
MECHANIC			BIT OR C.B.		FT.		VISCOSITY		NO. AND SIZE OF D.C.'S	
INJURIES			KELLY IN		FT.		<i>15.00</i>		NO. AND SIZE OF D.C.'S	
TOTAL			<i>83.00</i>		FT.		PUMP NO. 1 LINER SIZE <i>5"X14"</i>		PUMP NO. 2 LINER SIZE <i>5"X12"</i>	
TOUR NO. 3 4 P.M. TO MIDNIGHT HOURS			<i>83 58</i>		<i>141</i>		<i>6 3/4</i>		DATE <i>Feb. 14/70</i>	
DRILLER <i>K. Garsdick</i>	<i>8</i>		NO. DRILLING STRING		BITS RUN NO.		SIZE		NO. AND SIZE OF D.C.'S	
DERRICK <i>B. Garsdick</i>	<i>8</i>		STANDS		FT.		<i>2A</i>		NO. AND SIZE OF D.C.'S	
FLOOR <i>E. Gambler</i>	<i>8</i>		SINGLES		FT.		<i>3A</i>		NO. AND SIZE OF D.C.'S	
FLOOR <i>M. Clark</i>	<i>8</i>		D.C.'S		FT.		<i>12292</i>		NO. AND SIZE OF D.C.'S	
FLOOR <i>B. MacDonald</i>	<i>8</i>		SUB		FT.		<i>728</i>		NO. AND SIZE OF D.C.'S	
FIREMAN			SUB		FT.		WEIGHT		NO. AND SIZE OF D.C.'S	
MECHANIC			BIT OR C.B.		FT.		VISCOSITY		NO. AND SIZE OF D.C.'S	
INJURIES			KELLY IN		FT.		<i>11</i>		NO. AND SIZE OF D.C.'S	
TOTAL			<i>141 20</i>		FT.		PUMP NO. 1 LINER SIZE <i>5"X14"</i>		PUMP NO. 2 LINER SIZE <i>5"X12"</i>	
DRILL PIPE SIZE <i>4 1/2"</i> TYPE <i>FH</i>			TOTAL NO. OF JOINTS <i>220</i>		DATE LAST SONOSCOPIED		FOOTAGE DRILLED SINCE LAST SONOSCOPIED		TOTAL FOOTAGE DRILLED	
B.O.P.'S TEST			ELAPSED TIME		PRESSURE		RESULTS		TOTO RING ON BIT	
TOOLPUSHER <i>A. Carlett</i>			APPROVED BY <i>A. Carlett</i>							

REGENT DRILLING LIMITED

DAY WORK RECORD

PUMPS

MANUFACTURER	TYPE	STROKE LENGTH
NO. 1 <i>Emser</i>	<i>D-300</i>	<i>14"</i>
NO. 2 <i>Emser</i>	<i>D-175</i>	<i>12"</i>

LAST CASING SIZE LAST CASING SET AT

DATE *FEB 13th / 70*

WELL NAME *GDR CPM A-13*

DATE *FEB 13 / 70*

REPORT NO.

60° 40' 4.19" Sec. N. 118° 20' 42" E. 10.2

LOCATION LSD. SEC. TWP. RGE.

PLEASE SHOW FOOTAGE MADE WHILE "CONTROL DRILLING" AS WELL AS HOURS

AND ALSO RECORD CORE CUTTERS, CATCHERS, SWAB RUBBERS, ETC.

TOUR NO. 1 MIDNIGHT TO 8 A.M. HOURS

DRILLER <i>J. Daah</i>	<i>11</i>
DERRICK <i>S. Larratt</i>	<i>11</i>
FLOOR <i>R. Brown</i>	<i>11</i>
FLOOR <i>E. Smith</i>	<i>11</i>
FLOOR <i>R. Latt</i>	<i>11</i>
FIREMAN	
MECHANIC	
INJURIES	

FROM		FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS		DEGREES	
NO.	DRILLING STRING		BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAM-ED TO	CONDIT-ION
	STANDS		FT.															
	SINGLES		FT.															
	D.C.'S		FT.															
	SUB		FT.	MUD	12 MID.	2 A.M.	4 A.M.	6 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS						
	SUB		FT.	WEIGHT														
	BIT OR C.B.		FT.	VISCOSITY					ADDITIVES									
			FT.	PUMP PRESSURE														
	KELLY IN		FT.	R.P.M. PUMP NO.1														
				R.P.M. PUMP NO.2														
TOTAL			FT.	PUMP NO. 1 LINER SIZE			PUMP NO. 2 LINER SIZE											

REMARKS	START	STOP	INT. VAL.
<i>Rigging Up</i>	<i>8:00</i>	<i>5:00</i>	<i>9</i>
	<i>10:00</i>	<i>12:00</i>	<i>2</i>
			<i>11</i>

TOUR NO. 2 8 A.M. TO 4 P.M. HOURS

DRILLER <i>G. Czapp</i>	<i>14</i>
DERRICK <i>J. Boyko</i>	<i>14</i>
FLOOR <i>D. Jensen</i>	<i>14</i>
FLOOR <i>R. Lange</i>	<i>14</i>
FLOOR <i>G. Hien</i>	<i>14</i>
FIREMAN	
MECHANIC	
INJURIES	

FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT	SURVEYS	DEGREES	
								8	6550	88	6550	1026	Feb. 12				
NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDITION
	STANDS	FT.															
	SINGLES	FT.															
	D.C.'S	FT.															
	SUB	FT.	MUD	8 A.M.	10 A.M.	12 NOON	2 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS						
	SUB	FT.	WEIGHT														
	BIT OR C.B.	FT.	VISCOSITY					ADDITIVES									
		FT.	PUMP PRESSURE														
	KELLY IN	FT.	R.P.M. PUMP NO.1														
			R.P.M. PUMP NO.2														
TOTAL		FT.	PUMP NO. 1 LINER SIZE	PUMP NO. 2													

REMARKS	START	STOP	INT. VAL.
<i>Rig up</i>	<i>8</i>	<i>10:14</i>	<i>14:45</i>

TOUR NO. 3 4 P.M. TO MIDNIGHT HOURS

DRILLER	
DERRICK	
FLOOR	
FLOOR	
FLOOR	
FIREMAN	
MECHANIC	
INJURIES	

FROM		FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS		NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT	SURVEYS	DEGREES	
NO.	DRILLING STRING			BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDIT-ION
	STANDS		FT.																
	SINGLES		FT.																
	D.C.'S		FT.																
	SUB		FT.	MUD	4 P.M.	6 P.M.	8 P.M.	10 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS							
	SUB		FT.	WEIGHT															
	BIT OR C.B.		FT.	VISCOSITY					ADDITIVES										
			FT.	PUMP PRESSURE															
	KELLY IN		FT.	R.P.M. PUMP NO. 1															
				R.P.M. PUMP NO. 2															
TOTAL				FT.	PUMP NO. 1	PUMP NO. 2													

REMARKS	START	STOP	INT. VAL.
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DRILL PIPE SIZE	TYPE	TOTAL NO. OF JOINTS	DATE LAST SONOSCOPED	FOOTAGE DRILLED SINCE LAST SONOSCOPED	TOTAL FOOTAGE DRILLED	LAST CALIPER DATE	RESULTS	CODE LETTER OF STRING
B.O.P.'S TESTED	ELAPSED TIME	PRESSURE	RESULTS	TOTCO RING ON BIT NO.				

TOOLPUSHER *A. Conkett*

APPROVED BY

REGENT DRILLING LIMITED

DAY WORK RECORD

DATE Feb 12th 70 REPORT NO. _____

PLEASE SHOW FOOTAGE MADE WHILE
"CONTROL DRILLING" AS WELL AS HOURS
AND ALSO RECORD CORE CUTTERS, CATCHERS, SWAB RUBBERS, ETC.

PUMPS		
MANUFACTURER	TYPE	STROKE LENGTH
NO. 1		
NO. 2		

EACH EMPLOYEE MUST SIGN THIS BOOK
TOUR NO. 1 MIDNIGHT TO 8 A.M. HOURS

DRILLER	T. DACH	11
DERRICK	S. LARRET	11
FLOOR	R. BANIN	11
FLOOR	E. SMITH	17
FLOOR	R. COTE	11
FIREMAN		
MECHANIC		
INJURIES		

TOUR NO. 2
8 A.M. TO 4 P.M. HOURS

DRILLER	G. CZAPPA	11
DERRICK	J. BAYKO	11
FLOOR	D. JENSEN	14
FLOOR	R. LANCE	11
FLOOR	G. HIEN	11
FIREMAN		
MECHANIC		
INJURIES		

TOUR NO. 3
4 P.M. TO MIDNIGHT HOURS

DRILLER		
DERRICK		
FLOOR		
FLOOR		
FLOOR		
FIREMAN		
MECHANIC		
INJURIES		

DRILL PIPE SIZE	TYPE	TOTAL NO. OF JOINTS	DATE LAST SONOSCOPED	FOOTAGE DRILLED SINCE LAST SONOSCOPED	TOTAL FOOTAGE DRILLED	LAST CALIPER DATE	RESULTS	CODE LETTER OF STRING
B.O.P.'S TESTED		ELAPSED TIME		PRESSURE	RESULTS	TOTCO RING ON BIT NO.		

FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS DEGREES			
NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDIT-ION
STANDS		FT.															
SINGLES		FT.															
D.C.'S		FT.															
SUB		FT.	MUD	12 MID.	2 A.M.	4 A.M.	6 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS						
SUB		FT.	WEIGHT														
BIT OR C.B.		FT.	VISCOSITY								ADDITIVES						
		FT.	PUMP PRESSURE														
KELLY IN		FT.	R.P.M. PUMP NO. 1														
			R.P.M. PUMP NO. 2														
TOTAL		FT.	PUMP NO. 1 LINER SIZE			PUMP NO. 2 LINER SIZE											

REMARKS	START	STOP	INT. VAL.
T. g up	8	7	5 hrs
T. g up	8	7	11 hrs

TOOLPUSHER A. Corbett

APPROVED BY _____

DAY WORK RECORD

[illegible]

REGENT DRILLING LIMITED

DAY WORK RECORD

PUMPS			DATE <u>Feb 10 1970</u>		WELL NAME <u>CBOG A.63</u>		DATE _____		REPORT NO. _____												
MANUFACTURER	TYPE	STROKE LENGTH	LAST CASING SIZE		LAST CASING SET AT		RIG NO. <u>11</u>		LOCATION <u>LSO</u> SEC. _____ TWP. _____ RGE. _____												
TOUR NO. 1 MIDNIGHT TO 8 A.M.			FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS DEGREES	REMARKS	START	STOP	INT VAL
DRILLER	<u>T. DACH</u>	<u>9</u>	NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDIT-ION	<u>TEAR OUT RIG + LOAD TRUCKS</u> <u>8:00</u> <u>5:00</u> <u>9</u>
DERRICK	<u>S. LARBAT</u>	<u>9</u>	STANDS	FT.																	
FLOOR	<u>R. BANIN</u>	<u>9</u>	SINGLES	FT.																	
FLOOR	<u>E. SMITH</u>	<u>9</u>	D.C.'S	FT.																	
FLOOR	<u>R. COLE</u>	<u>9</u>	SUB	FT.	MUD	12 MID.	2 A.M.	4 A.M.	6 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS								
FIREMAN		<u>9</u>	SUB	FT.	WEIGHT																
MECHANIC		<u>9</u>	BIT OR C.B.	FT.	VISCOSITY																
INJURIES			KELLY IN	FT.	R.P.M. PUMP NO. 1																
						R.P.M. PUMP NO. 2															
			TOTAL			FT.	PUMP NO. 1 LINER SIZE	PUMP NO. 2 LINER SIZE													
TOUR NO. 2 8 A.M. TO 4 P.M.			FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS DEGREES	REMARKS	START	STOP	INT VAL
DRILLER	<u>G. CZEPPE</u>	<u>9</u>	NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDIT-ION	<u>TEAR OUT RIG + LOAD TRUCKS</u> <u>8:00</u> <u>5:00</u> <u>9</u>
DERRICK	<u>J. BOYKO</u>	<u>9</u>	STANDS	FT.																	
FLOOR	<u>D. JENSEN</u>	<u>9</u>	SINGLES	FT.																	
FLOOR	<u>R. LANG</u>	<u>9</u>	D.C.'S	FT.																	
FLOOR	<u>G. HIEN</u>	<u>9</u>	SUB	FT.	MUD	8 A.M.	10 A.M.	12 NOON	2 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS								
FIREMAN			SUB	FT.	WEIGHT																
MECHANIC			BIT OR C.B.	FT.	VISCOSITY																
INJURIES			KELLY IN	FT.	R.P.M. PUMP NO. 1																
						R.P.M. PUMP NO. 2															
			TOTAL			FT.	PUMP NO. 1 LINER SIZE	PUMP NO. 2 LINER SIZE													
TOUR NO. 3 4 P.M. TO MIDNIGHT			FROM	FOOTAGE	TOTAL DEPTH	HOURS ON BOTTOM	DRILL PIPE WEIGHT	NO. AND SIZE OF D.C.'S	D.C. WEIGHT	TRIPS	NO OF LINES	TOTAL TON MILES	LINE CUT FEET	AT MILES	FEET LEFT ON SPOOL	DATE OF LAST CUT	AT SURVEYS DEGREES	REMARKS	START	STOP	INT VAL
DRILLER			NO.	DRILLING STRING	BITS RUN NO.	SIZE	NOZZLE SIZE	SERIAL NO.	TYPE	WEIGHT	RPM	FOOTAGE FROM	FOOTAGE TO	FOOTAGE	HOURS	CORED FROM	CORED TO	REAMED FROM	REAMED TO	CONDIT-ION	
DERRICK			STANDS	FT.																	
FLOOR			SINGLES	FT.																	
FLOOR			D.C.'S	FT.																	
FLOOR			SUB	FT.	MUD	4 P.M.	6 P.M.	8 P.M.	10 P.M.	WATER LOSS	FILTER CAKE	PH	GENERAL REMARKS								
FIREMAN			SUB	FT.	WEIGHT																
MECHANIC			BIT OR C.B.	FT.	VISCOSITY																
INJURIES			KELLY IN	FT.	R.P.M. PUMP NO. 1																
						R.P.M. PUMP NO. 2															
			TOTAL			FT.	PUMP NO. 1 LINER SIZE	PUMP NO. 2 LINER SIZE													
DRILL PIPE SIZE	TYPE	TOTAL NO. OF JOINTS	DATE LAST SONOSCOPED	FOOTAGE DRILLED SINCE LAST SONOSCOPED	TOTAL FOOTAGE DRILLED	LAST CALIPER DATE	RESULTS	CODE LETTER OF STRING													
B.O.P.'S TESTED		ELAPSED TIME		PRESSURE		RESULTS		TOTCO RING ON BIT NO.													

TOOLPUSHER R. Orkett
 APPROVED BY _____

SONIC LOG
AND
WELL GEOPHONE SURVEY

CPOG CHEVRON GULL CREEK A-63
60°50' N. LAT. 118°15' W. LONG.
NORTHWEST TERRITORIES, CANADA

FOR
CENTRAL-DEL RIO OILS LIMITED
CANADIAN PACIFIC OIL AND GAS LIMITED
CALGARY, ALBERTA

INTEGRATED VELOCITY SERVICES LTD.
CALGARY, ALBERTA



INDEX

OPERATIONAL STATISTICS

Pages 1 to 4

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BACK COVER:

Calibrated Sonic Log
Digital Velocity Data Analysis
Synthetic Seismogram

OPERATIONAL STATISTICS

Client: Central-Del Rio Oils Limited
Canadian Pacific Oil and Gas Limited

Well: CPOG Chevron Gull Creek A-63

Location: 60°50' N. Lat. 118°15' W. Long., N.W.T.

Survey Contractors:

Schlumberger of Canada

Abbreviated Geophone Survey - Integrated Velocity Services Ltd.

Survey Date: February 24, 1970

K.B. Elevation: 1081 Ft. A.S.L.

Ground Level: 1068 Ft. A.S.L.

Total Depth: Driller: 3100 Ft.
S.O.C.: 3093 Ft.

Casing: 376 Ft.

Sonic Tool Dimensions:

Spacing: 3 Ft.
Span: 2 Ft. (B.H.C.)

Geophone Levels Surveyed: 7

Maximum Shot Hole Charge: 5 Lb. Hi Velocity 60%

Minimum Shot Hole Charge: 5/8 Lb. Hi Velocity 60%

Maximum Shot Depth: 60 Ft.

Minimum Shot Depth: 11 Ft.

Total Explosives Used:

Well Geophone Survey: 19 3/8 Lb. Hi Velocity 60%
14 Seismic Caps

Near Surface Velocity Survey: 5 Lb. Hi velocity 60%
13 Seismic Caps

Reflection Spread:

Six stations (60 Ft. separation) recorded

simultaneously with velocity test shots.

Three geophones per trace (20 Ft. separation).

Operating Time:

Well Geophone Survey:

Well Available: 11:45 A.M. February 24, 1970

Well Released: 2:00 P.M. February 24, 1970

Near Surface Velocity Survey:

Well Available: 2:00 P.M. February 24, 1970

Well Released: 3:00 P.M. February 24, 1970

Velocity Records

Trace Arrangement

Trace #1	-	Time Break
Trace #2	-	Uphole Time
Trace #3	-	Well Geophone: Low Gain Setting
Trace #4	-	Well Geophone: Medium Gain Setting
Trace #5	-	Well Geophone: High Gain Setting
Trace #6	-	Not Used
Traces #7 to #12 Inc.	-	Surface Reflection Profile

ACOUSTIC LOG - WELL GEOPHONE SURVEY COMPARISON

Datum Elevation: 920 Ft. A.S.L.

<u>D</u> <u>K.B.</u>	<u>T_c</u> (Geo.)	<u>T_c</u> (Log)	<u>Δtc</u>
450	.0190	.0188	+.0002
950	.0540	.0548	-.0008
1450	.1110	.1119	-.0009
1950	.1520	.1524	-.0004
2450	.2000	.2000	.0000
2760	.2300	.2297	+.0003
3060	.2460	.2459	+.0001

Interval transit times recorded by the Sonic Log were transferred to a digital tape in one foot increments. A digital computer was employed to reconcile the log data and the well geophone survey data. A copy of the digital analysis is contained in the back cover of the report folder.

The original log data recorded by the one foot span Sonic Log (B.H.C.) was resolved to an equivalent three foot span by summing and averaging the individual interval transit times as follows:

Where d = depth below K.B. (1 Ft. Intervals)
 t = interval transit time (1 Foot span) at depth d ,
and t_r = resolved interval transit time

Then equivalent three foot interval transit times
are derived as follows:

$$t_{r_1} = t_1 \text{ at depth } d_1$$

$$t_{r_2} = \frac{t_1 + t_2}{2} \text{ at depth } d_2$$

$$t_{r_3} = \frac{t_1 + t_2 + t_3}{3} \text{ at depth } d_3$$

and

$$t_{r_n} = \frac{t_{(n-1)} + t_n + t_{(n+1)}}{3} \text{ at}$$

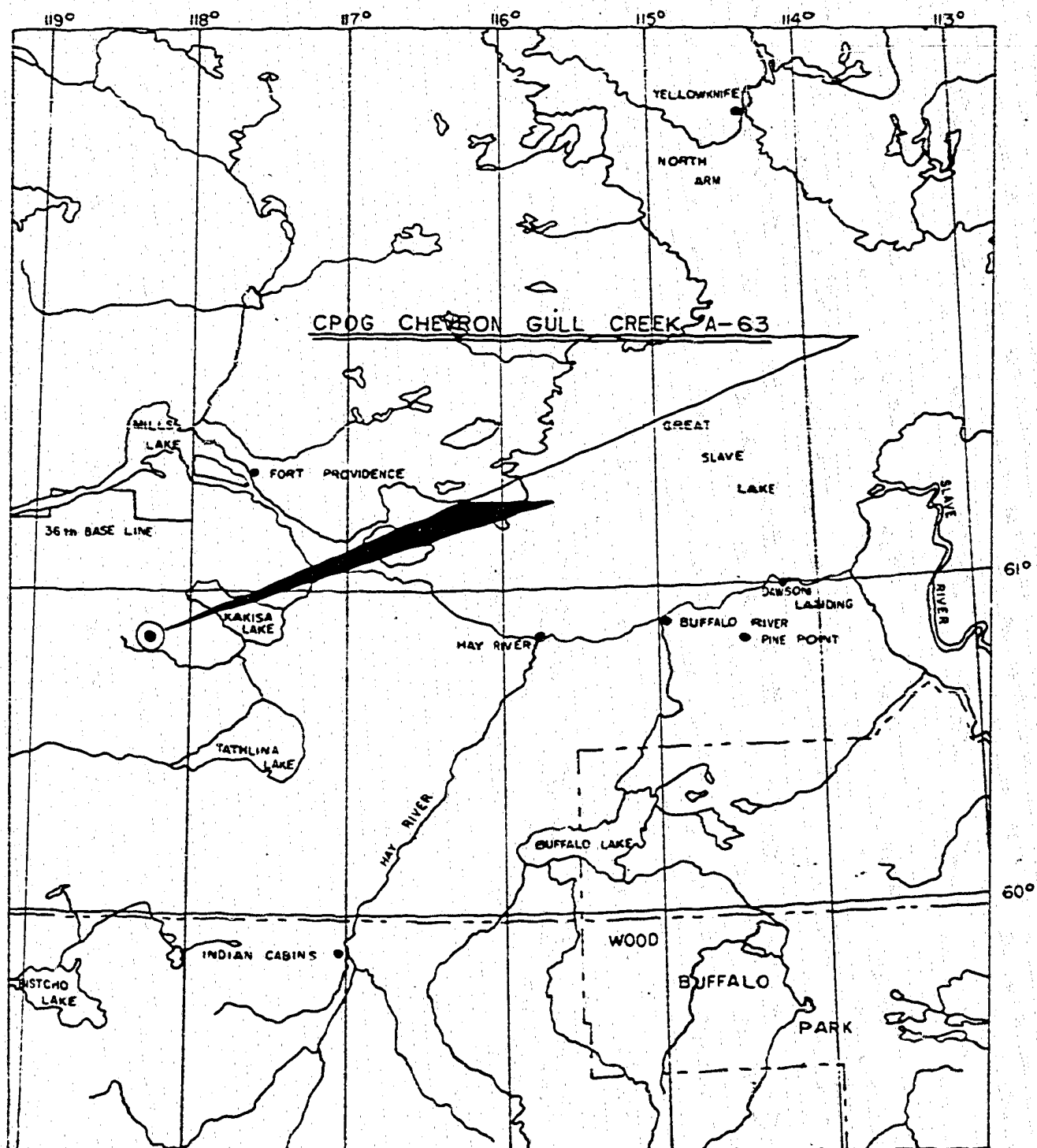
Depth d_n

The corrected and resolved interval transit times
were then plotted utilizing an automatic digital plotter on appro-
priate log scale paper in a depth scale of 1 inch to 100 feet of
well depth.

Respectfully submitted,
INTEGRATED VELOCITY SERVICES LTD.,



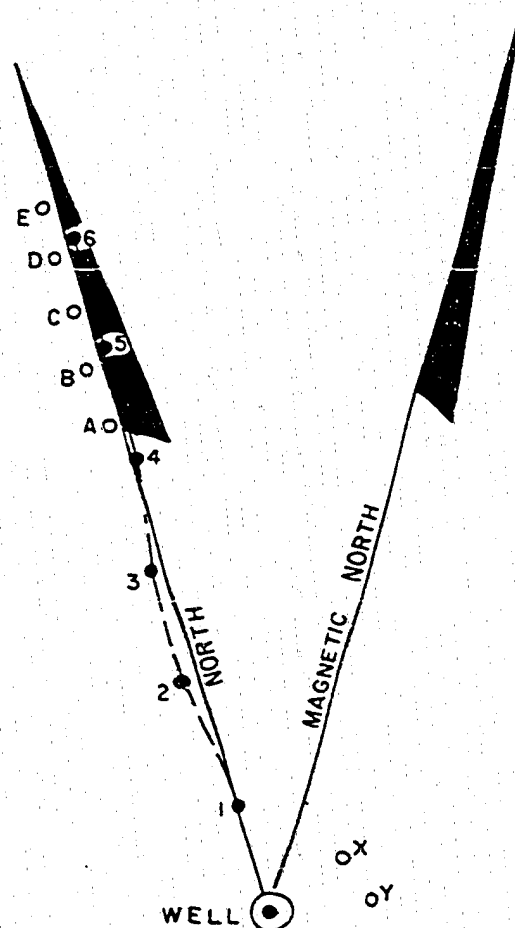
R.D. May,
Interpretation Supervisor.



● WELL LOCATION

SHOOTING PLAN

Well CPOG CHEVRON GULL CREEK A-63
 Location 60° 50' N.LAT. 118° 15' W. LONG. N.W.T.
 Scale: 1" = 100'



LEGEND:

Well 
 Shot Point 
 Geophone 

A	1069'	270'	N	1°00' W
B	1069'	300'	N	1°30' W
C	1070'	330'	N	1°00' W
D	1070'	360'	N	1°15' W
E	1071'	385'	N	1°00' W

ELEVATION

K.B. 1081

3100 feet

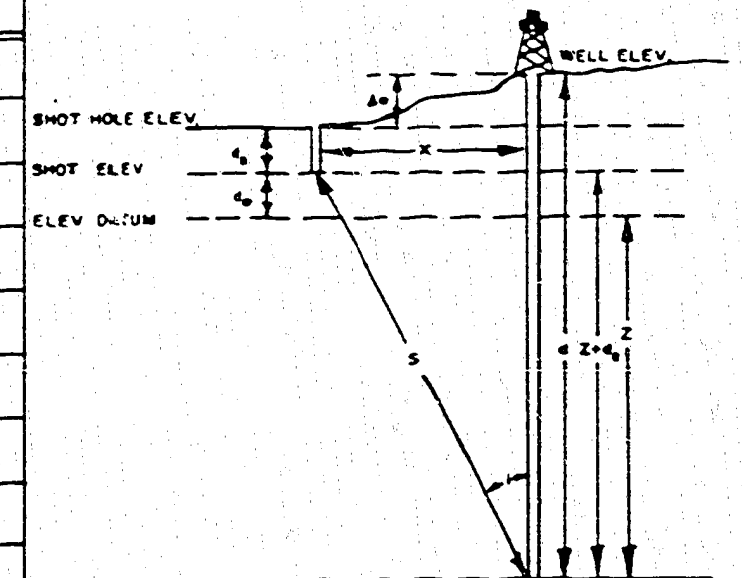
inches to 376 feet

ELEVATION DATUM

920 feet above sea level

DATUM VELOCITY

9000 feet / second

[illegible]

- X = Horizontal distance from well to shot point
- d = Well geophone depth measured from well elevation
- d_s = Depth of shot.
- d_e = Difference in elevation between shot and elevation datum
- Δe = Difference in elevation between well and shot point.
- Z = Well geophone depth measured from elevation datum
 $= d - (K.B. \text{ elevation} - \text{elevation datum})$
- $Z + d_s$ = Well geophone depth measured from shot elevation
 $= d - d_s - \Delta e$
- S = Straight line travel path from shot to well geophone
- T = Observed time from shot to well geophone
- t_{sh} = Uphole time of shot or other surface reference time
- t_v = Vertical time from shot to elevation datum
- $\frac{C}{V}$

$$\cos \theta = \frac{Z + d_0}{\sqrt{Z^2 + (Z + d_0)^2}}$$

$\overline{T}$: Vertical travel time from shot elevation to well geophone.
 • Cos θ T

T_c = Vertical travel time from elevation datum to well geophone.
 $= \bar{T} - t_d$

V_c = Topmost velocity in consolidated layer

$$V_0 = \frac{Z}{T_c} = \text{Average velocity}$$
$$V_1 = \frac{\Delta Z}{\Delta T_c} = \text{interval velocity}$$

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NEAR SURFACE VELOCITY DATA

WELL: CPOG Chevron Gull Creek A-63

SHOT POINT: Y

S.P. ELEV.: 1068 Ft.

K.B. ELEV.: 1081 Ft.

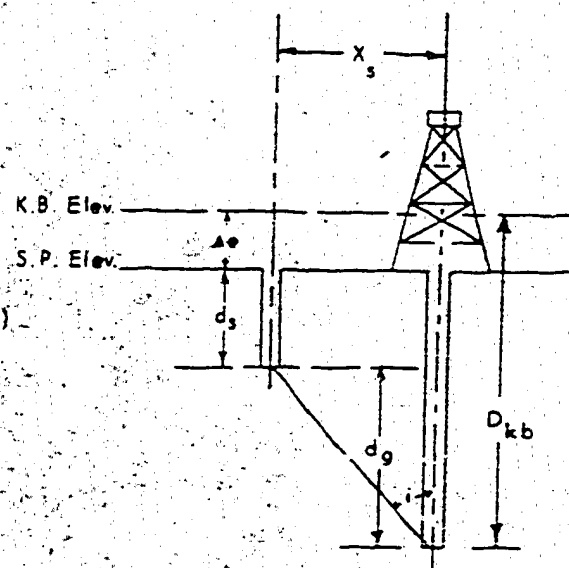
 X_s : 53 Ft.

$$d_g = D_{kb} - (d_s + ae)$$

$$X_s = \tan i \cdot d_g$$

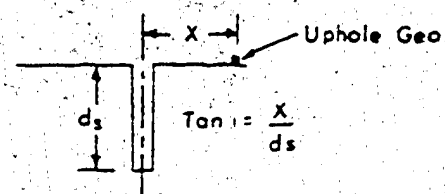
$$(\cos i)(T) =$$

$$\bar{T} + \tan h(\cos i) = T_c$$



Rec No	D_{kb}	d_s	$\frac{X_s}{d_g}$	ae	d_g	T	$\cos i$	$\bar{T}$	T_c
15A	450	30	.006	13	407	.034	.9916	.034	.040
16B	350	29	.005		308	.031	.9855	.031	.036
17C	300	29	.005		258	.029	.9796	.028	.033
18D	250	29	.006		208	.026	.9690	.025	.031
19E	225	29	.006		183	.024	.9605	.023	.029
20F	200	29	.006		158	.021	.9481	.020	.026
21G	175	29	.006		133	.018	.9290	.017	.023
22H	150	29	.006		108	.017	.8977	.015	.021
23J	125	29	.006		83	.014	.8428	.012	.018
24J	100	29	.006		58	.012	.7382	.009	.015
25K	75	29	.005		33	.010	.5286	.005	.010
26L	50	29	.005		8	.008	.1493	.001	.006
27M	25	23	.005	13	-11	.009	-.2032	-.002	.003

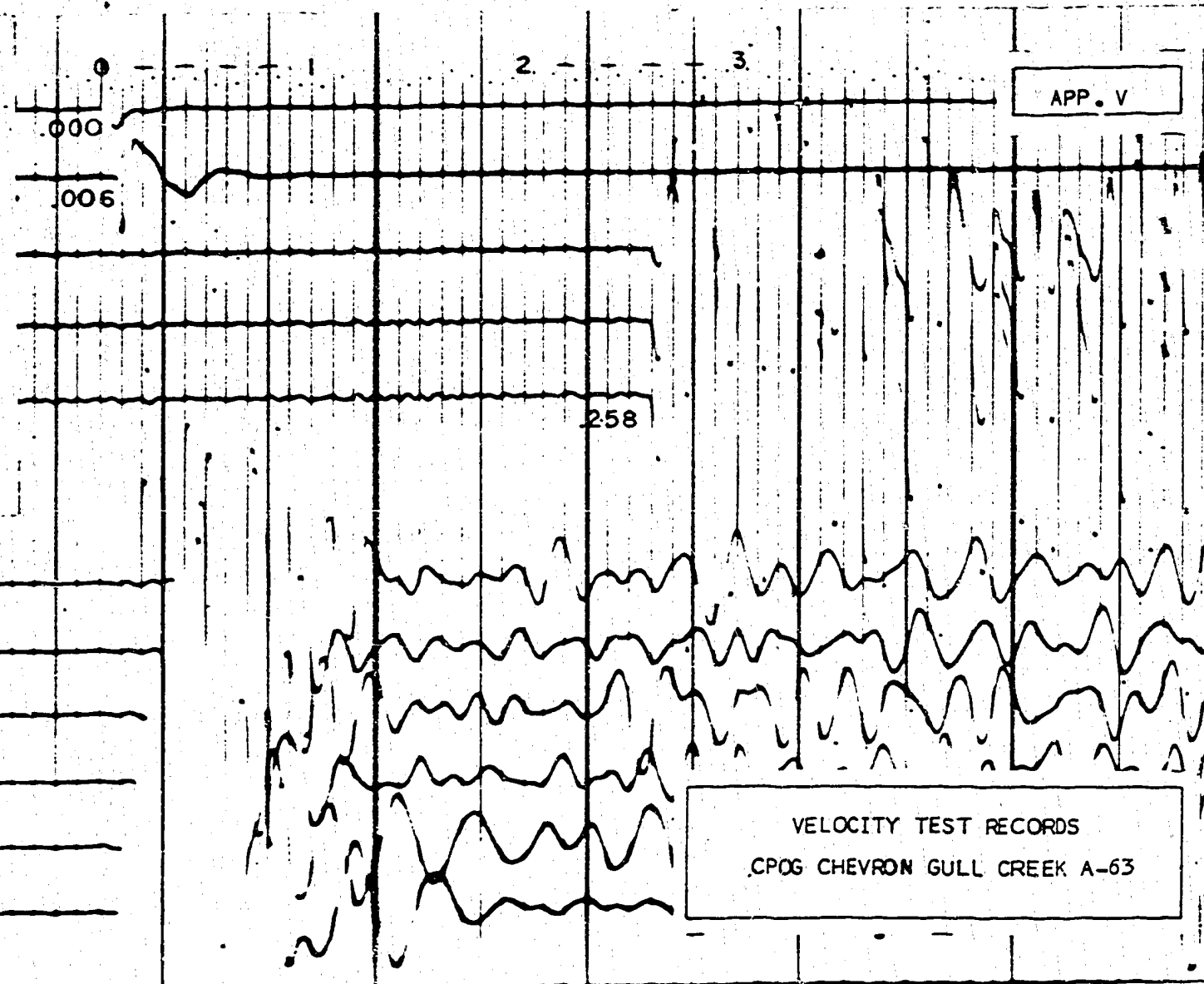
Uphole Time Correction:

Horizontal Offset: (X)Shot Depth: (d_s)Uphole Time: (T_{uh}) $\tan i =$ $\cos i =$ $(T_{uh})(\cos i) =$ 

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Well CPOG Chevron Gull Creek A-63
Record No. 148 WELL GEOPHONE
Well Geophone Depth 3060 ft. (K.B.)
Shot Point D Amp. Gain 60 % 15 %
Charge 5 lbs. Shot Depth 58 ft.
Filter 30-64 Geo/Trace 3
Date February 24, 1970

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Well CPOG Chevron Gull Creek A-63

Record No. 40 WELL GEOPHONE

Well Geophone Depth 450 ft. (K.B.)

Shot Point A Amp. Gain 60 % 15 %

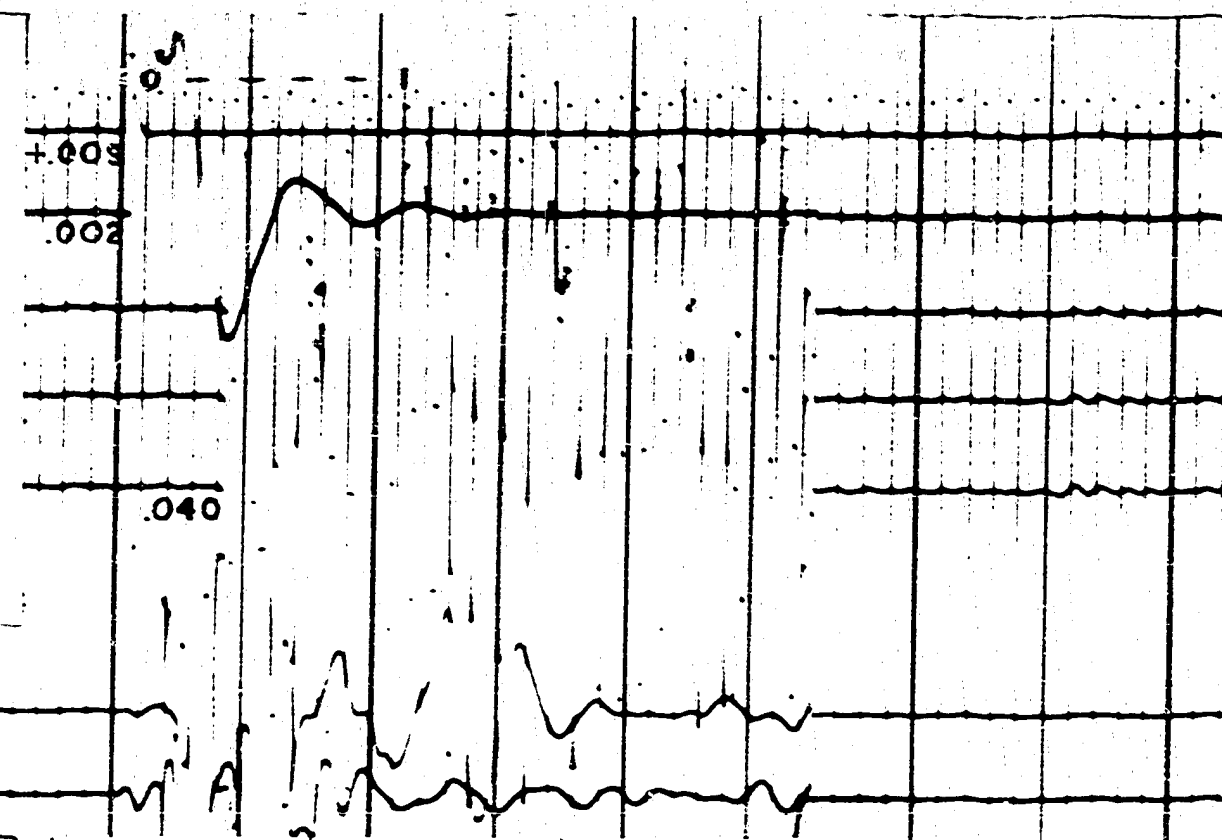
Charge 5/8 lbs. Shot Depth 11 ft

Filter 30-64 Geo/Trace 3

Date February 24, 1970

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Well CPOG Chevron Gull Creek A-63

Record No. 5A WELL GEOPHONE

Well Geophone Depth 950 ft. (K.B.)

Shot Point B Amp. Gain 60 % 15 %

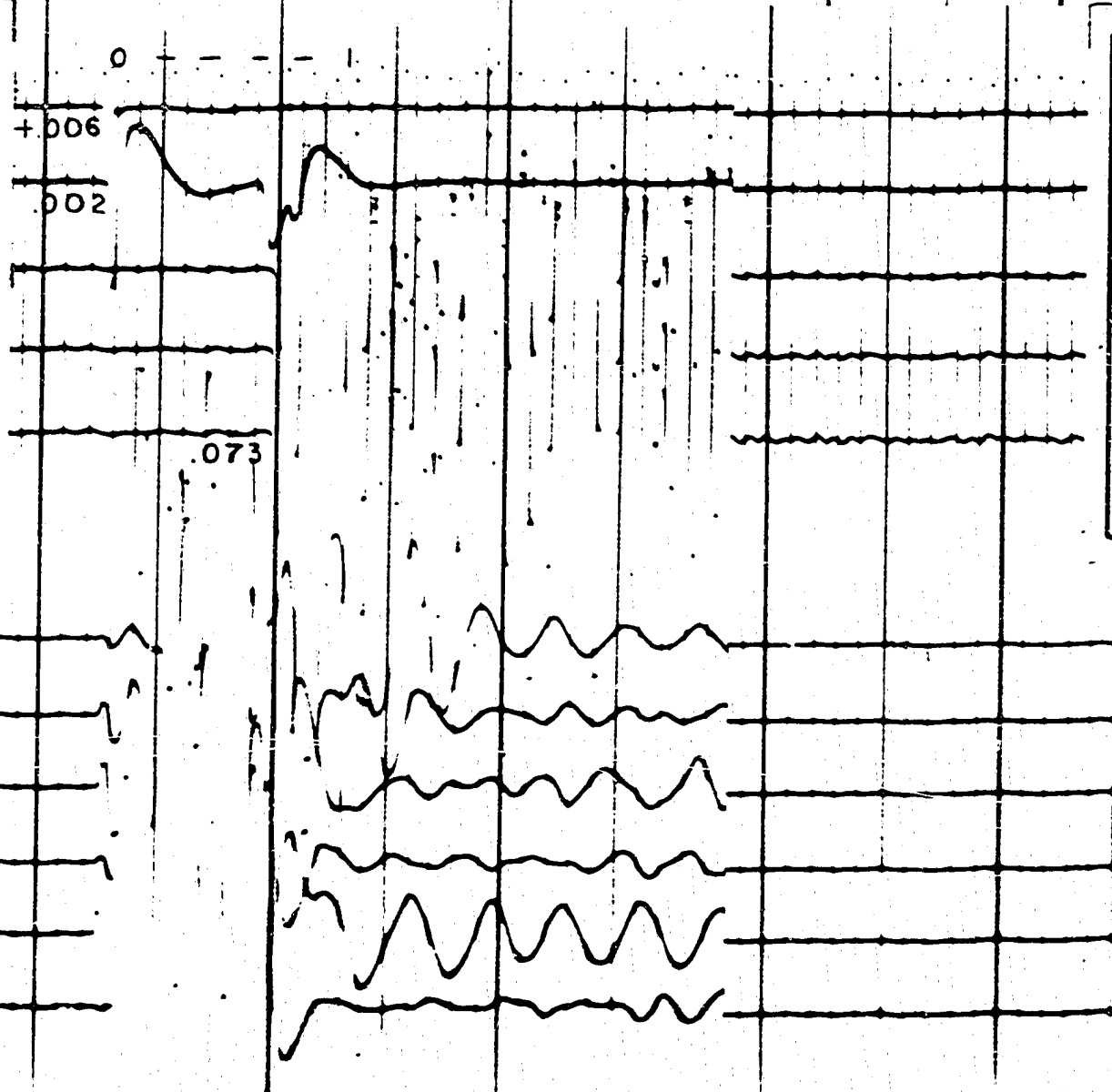
Charge 5/8 lbs. Shot Depth 11 ft.

Filter 30-64 Geo/Trace 3

Date February 24, 1970

INTEGRATED

Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63

Record No. 6B WELL GEOPHONE

Well Geophone Depth 1450 ft. (K.B.)

Shot Point B Amp. Gain 60 % 15 %

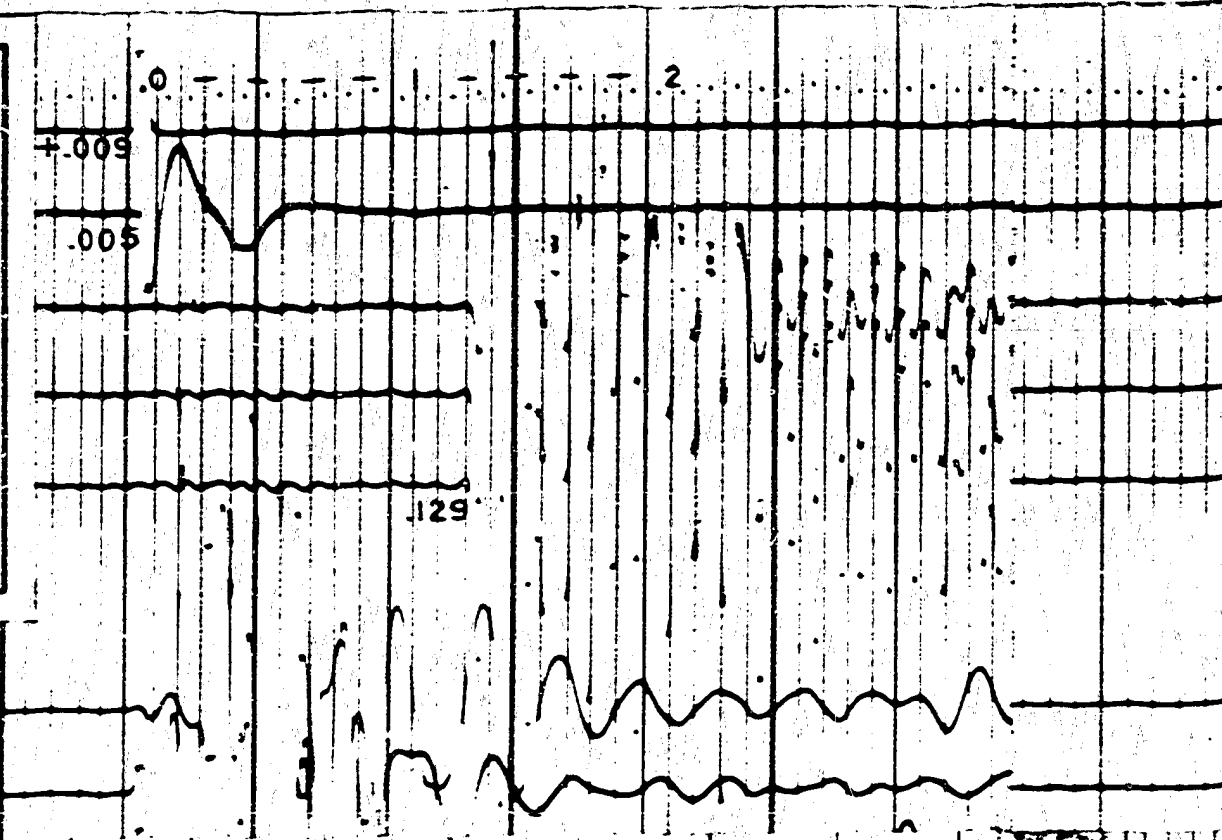
Charge 5/8 lbs. Shot Depth 12 ft.

Filter 30-64 Geo/Trace 3

Date February 24, 1970

INTEGRATED

Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63

Record No. 7C WELL GEOPHONE

Well Geophone Depth 1950 ft. (K.B.)

Shot Point B Amp. Gain 60 % 15 %

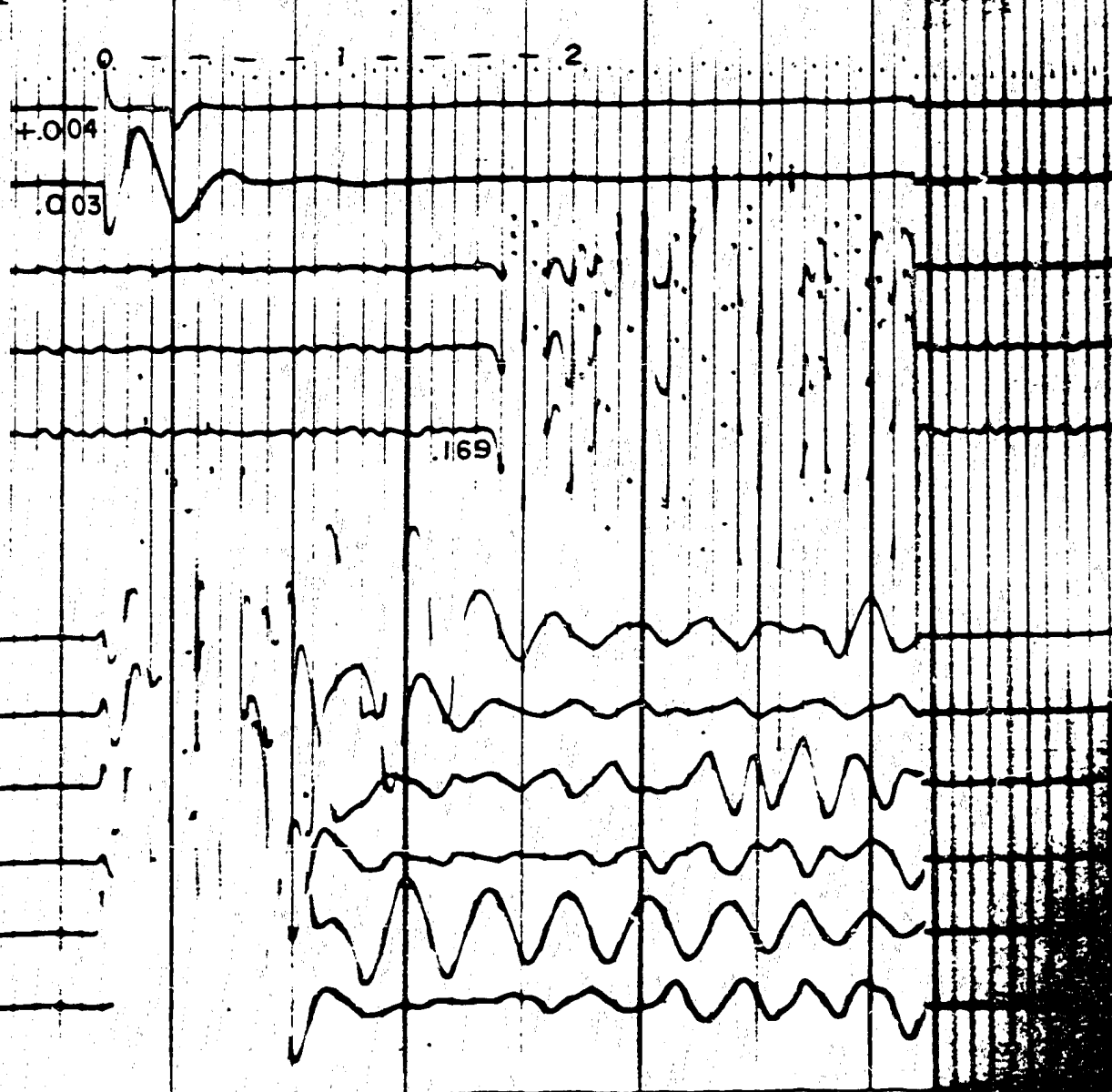
Charge 5/8 lbs. Shot Depth 15 ft.

Filter 30-64 Geo/Trace 3

Date February 24, 1970

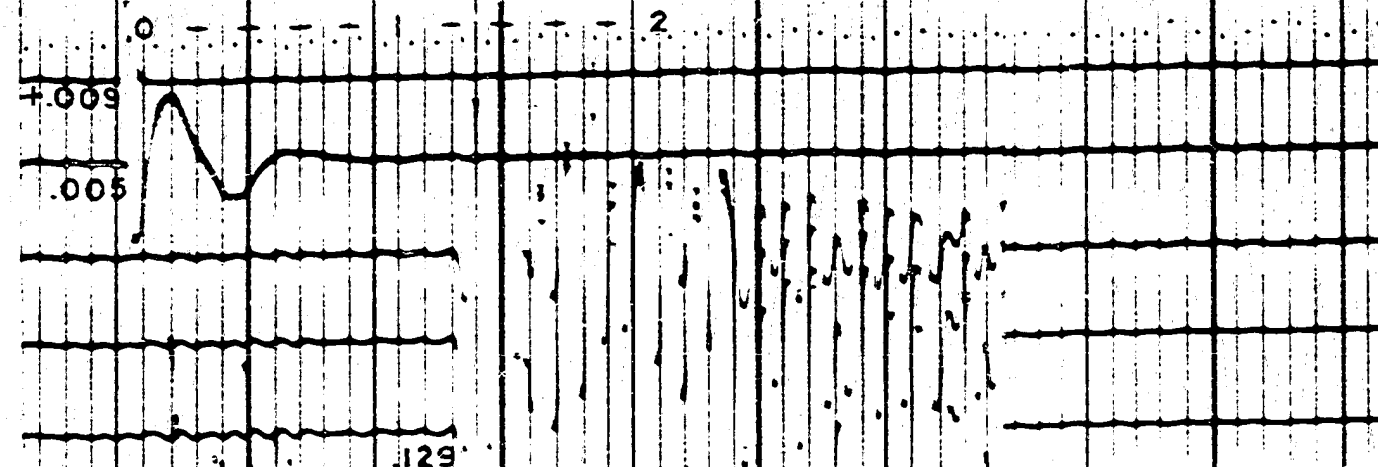
INTEGRATED

Velocity Services Ltd.



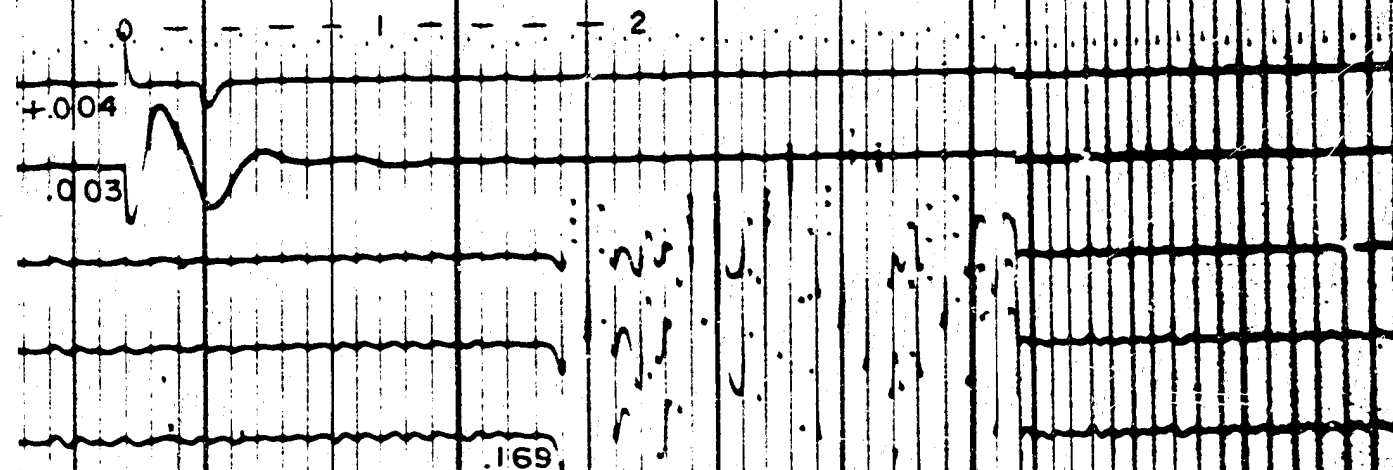
Well CPOG Chevron Gull Creek A-63
Record No. 68 WELL GEOPHONE
Geophone Depth 1450 ft. (K.B.)
Shot Point B Amp Gain 60 % 15 %
Charge 5/8 lbs Shot Depth 12 ft.
Filter 30-64 Geo/Trace 3
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



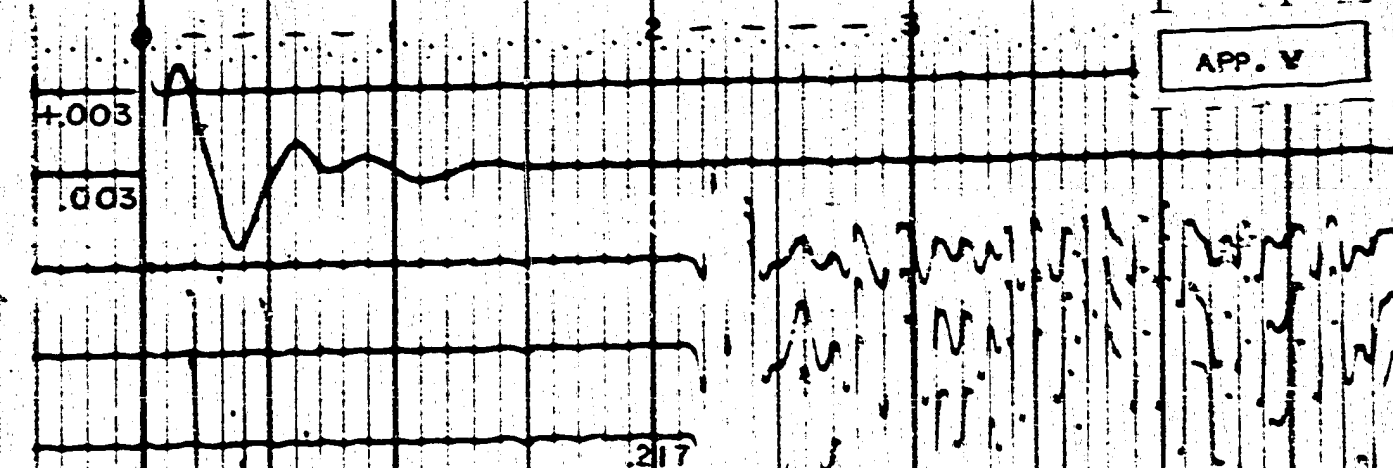
Well CPOG Chevron Gull Creek A-63
Record No. 70 WELL GEOPHONE
Geophone Depth 1950 ft. (K.B.)
Shot Point B Amp Gain 60 % 15 %
Charge 5/8 lbs Shot Depth 15 ft.
Filter 30-64 Geo/Trace 3
Date February 24, 1970

INTEGRATED
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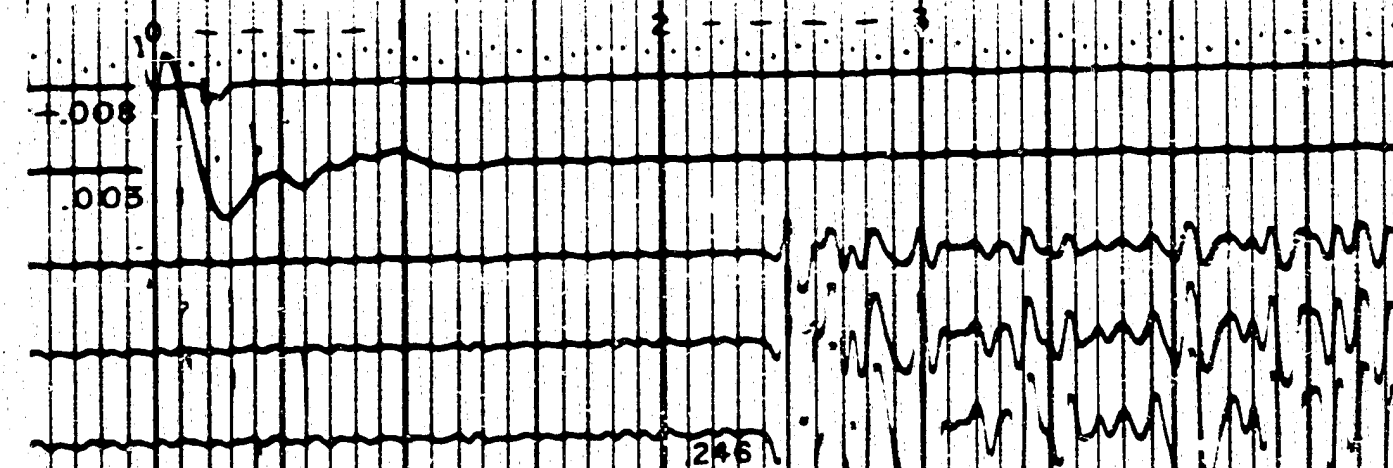
Well CPOG Chevron Gull Creek A-63
Record No. 80 WELL GEOPHONE
Well Geophone Depth 2450 ft. (K.B.)
Shot Point B Amp Gain 60 % 15 %
Charge 1 1/4 lbs Shot Depth 14 ft.
Filter 30-64 Geo/Trace 3
Date February 24, 1970

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Well CPOG Chevron Gull Creek A-63
Record No. 10F WELL GEOPHONE
Well Geophone Depth 2750 ft. (K.B.)
Shot Point B Amp Gain 60 % 15 %
Charge 1 1/4 lbs Shot Depth 11 ft.
Filter 30-64 Geo/Trace 3
Date February 24, 1970

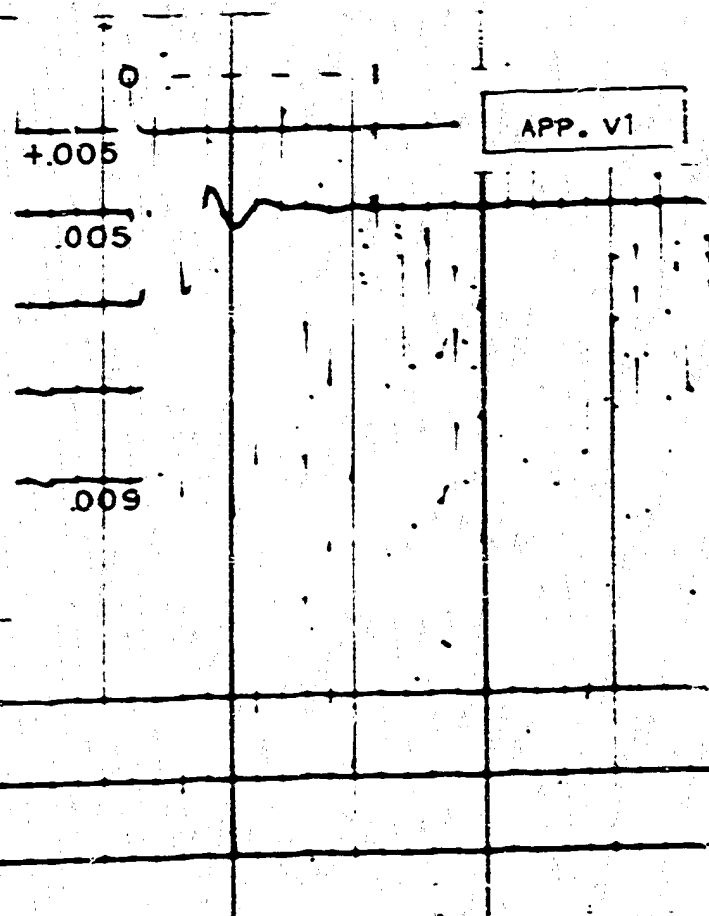
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VELOCITY TEST RECORDS
CPOG CHEVRON GULL CREEK A-63

Well CPOG Chevron Gull Creek A-63
Record No 27M WELL GEOPHONE
Well Geophone Depth 25 ft (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 23 ft
Filter _____ Geo/Trace _____
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



NEAR SURFACE VELOCITY RECORDS
CPOG CHEVRON GULL CREEK A-63

Well CPOG Chevron Gull Creek A-63

Record No. 15A WELL GEOPHONE

Well Geophone Depth 450 ft. (K.B.)

Shot Point Y Amp. Gain 60 % 18 %

Charge 5/8 lbs. Shot Depth 30 ft.

Filter Geo./Trace

Date February 24, 1970

INTEGRATED

Velocity Services Ltd.

0
+0.003
0.006
0.034

Well CPOG Chevron Gull Creek A-63

Record No. 17C WELL GEOPHONE

Well Geophone Depth 300 ft. (K.B.)

Shot Point Y Amp. Gain 60 % 15 %

Charge 5/8 lbs. Shot Depth 29 ft.

Filter Geo./Trace

Date February 24, 1970

INTEGRATED

Velocity Services Ltd.

0
0.000
0.005
0.029

Well CPOG Chevron Gull Creek A-63

Record No. 16B WELL GEOPHONE

Well Geophone Depth 350 ft. (K.B.)

Shot Point Y Amp. Gain 60 % 15 %

Charge 5/8 lbs. Shot Depth 29 ft.

Filter Geo./Trace

Date February 24, 1970

INTEGRATED

Velocity Services Ltd.

0
0.000
0.005
0.031

Well CPOG Chevron Gull Creek A-63

Record No. 18D WELL GEOPHONE

Well Geophone Depth 250 ft. (K.B.)

Shot Point Y Amp. Gain 60 % 15 %

Charge 5/8 lbs. Shot Depth 29 ft.

Filter Geo./Trace

Date February 24, 1970

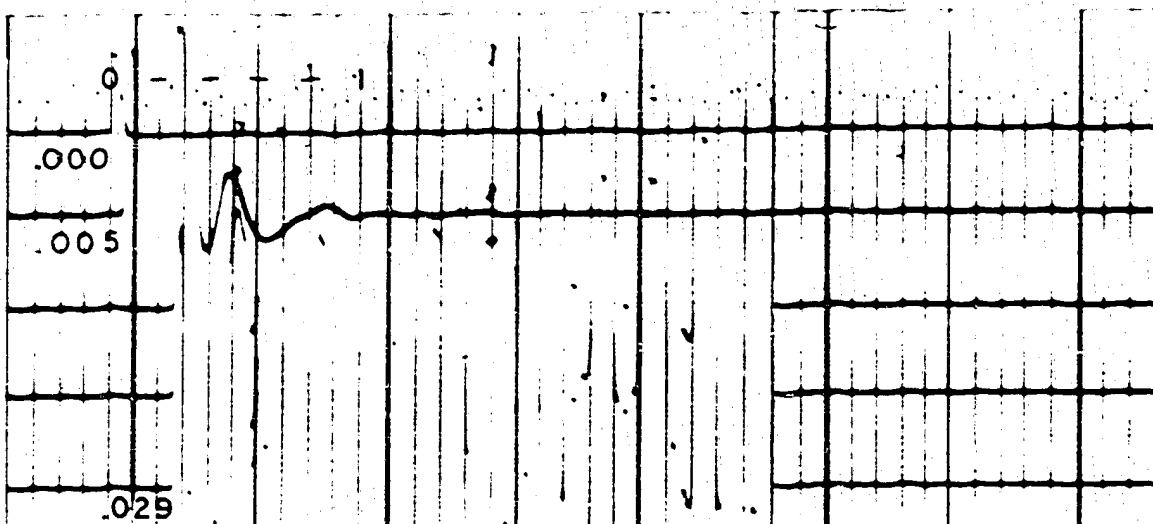
INTEGRATED

Velocity Services Ltd.

0
0.007
0.006
0.026

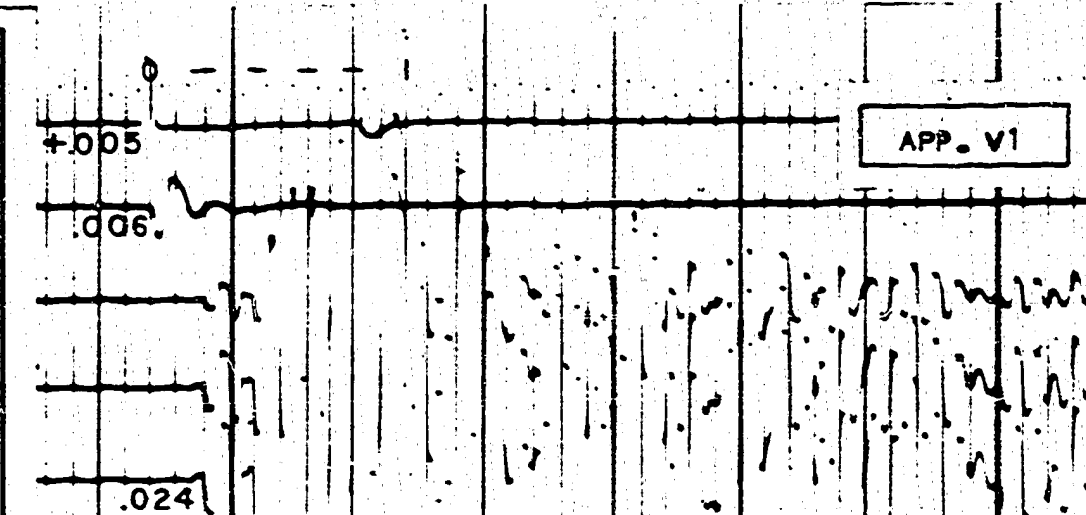
Well CPOG Chevron Gull Creek A-63
Record No. 17C WELL GEOPHONE
Well Geophone Depth 300 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 29 ft.
Filter Geo./Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



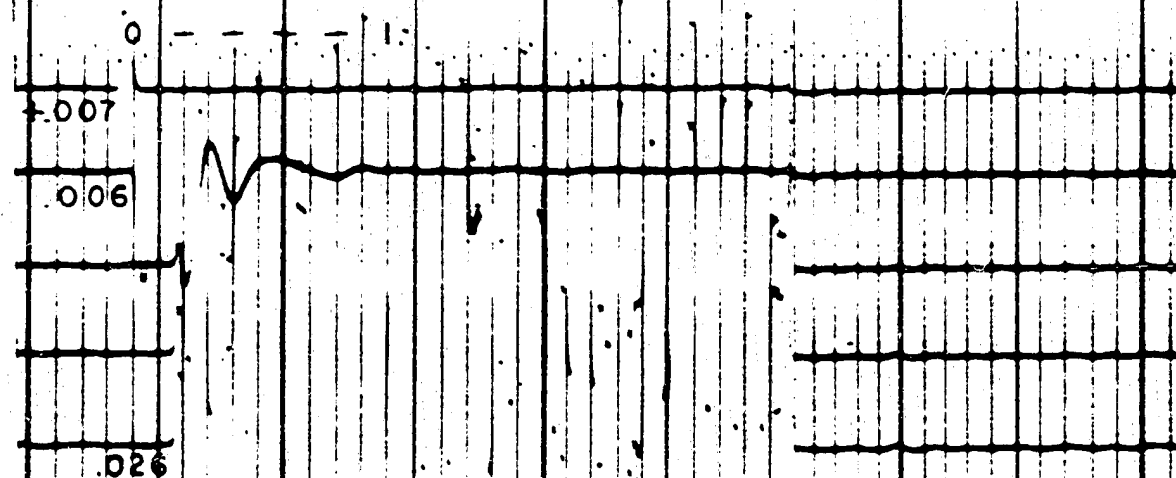
Well CPOG Chevron Gull Creek A-63
Record No. 19E WELL GEOPHONE
Well Geophone Depth 225 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 29 ft.
Filter Geo./Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



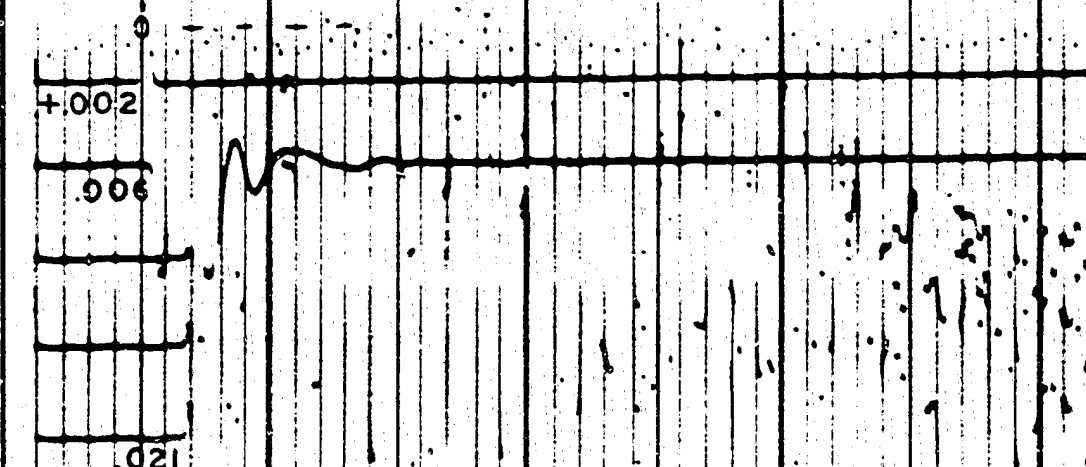
Well CPOG Chevron Gull Creek A-63
Record No. 18D WELL GEOPHONE
Well Geophone Depth 250 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 29 ft.
Filter Geo./Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 20F WELL GEOPHONE
Well Geophone Depth 200 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo./Trace
Date February 24, 1970

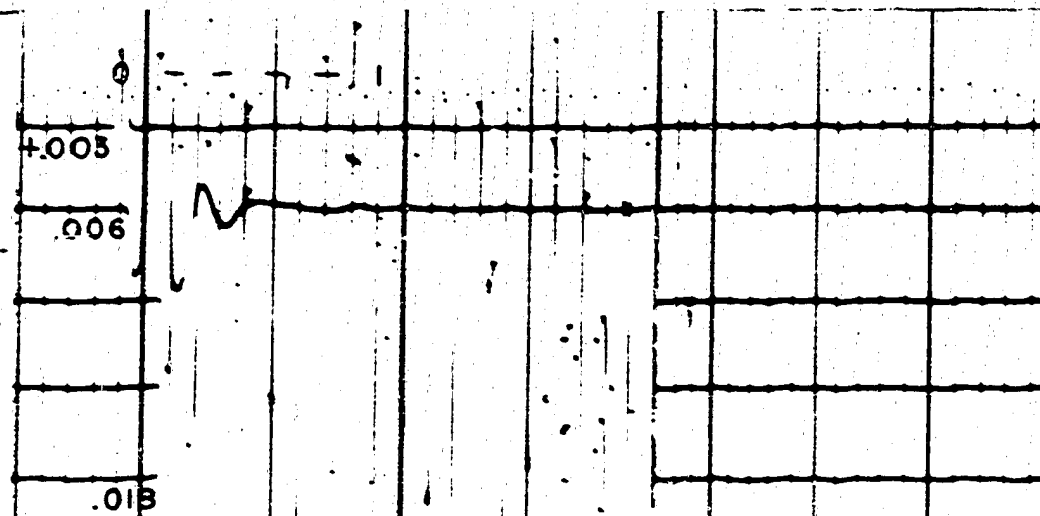
INTEGRATED
Velocity Services Ltd.



NEAR SURFACE VELOCITY RECORDS
CPOG CHEVRON GULL CREEK A-63

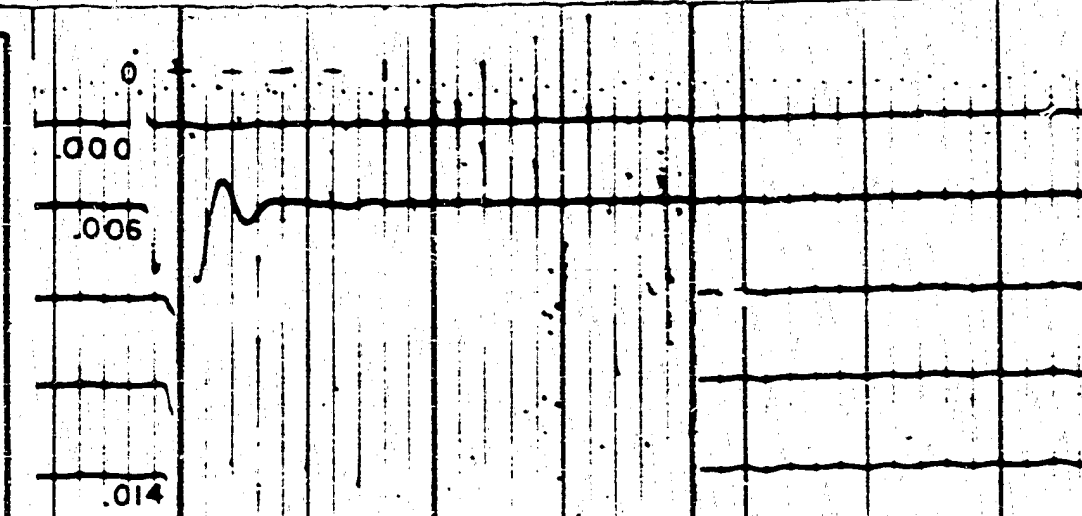
Well CPOG Chevron Gull Creek A-63
Record No. 21G WELL GEOPHONE
Well Geophone Depth 175 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



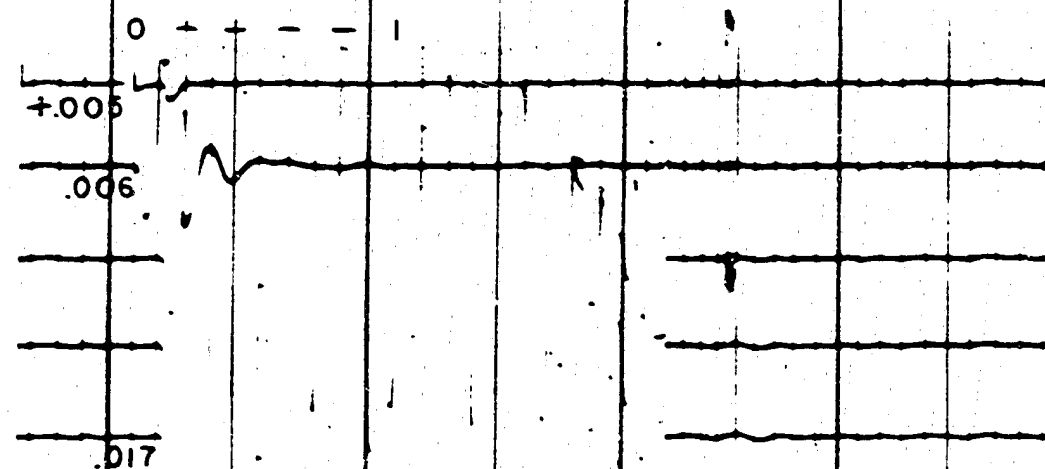
Well CPOG Chevron Gull Creek A-63
Record No. 23I WELL GEOPHONE
Well Geophone Depth 125 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 22H WELL GEOPHONE
Well Geophone Depth 150 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 24J WELL GEOPHONE
Well Geophone Depth 100 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 231 WELL GEOPHONE
Well Geophone Depth 125 ft (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.

0
0.00
0.006
0.014

0
+0.003
0.006
0.012

Well CPOG Chevron Gull Creek A-63
Record No. 25K WELL GEOPHONE
Well Geophone Depth 75 ft (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.

0
0.00
0.005
0.010

APP. V1

Well CPOG Chevron Gull Creek A-63
Record No. 24J WELL GEOPHONE
Well Geophone Depth 100 ft (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.

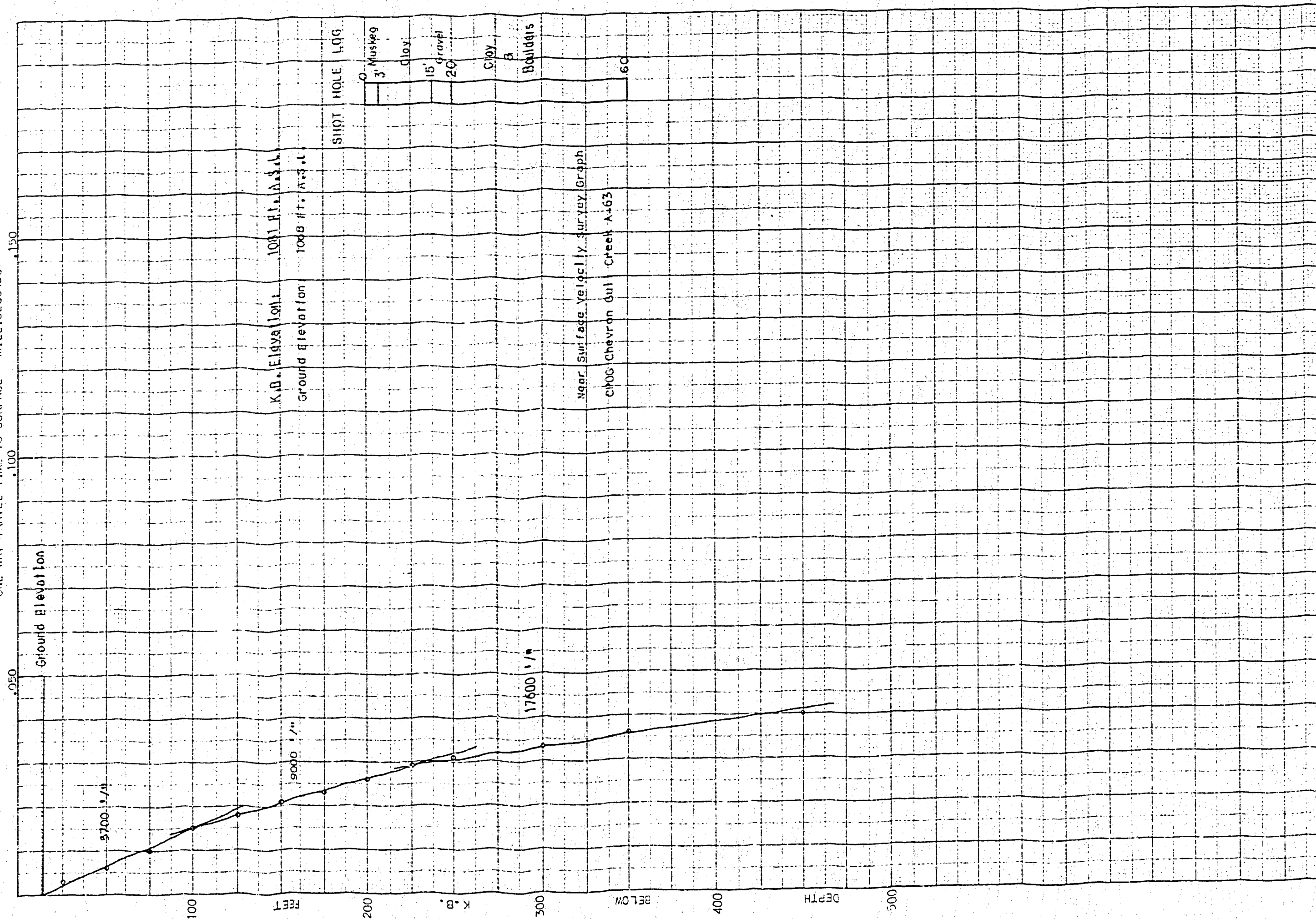
Well CPOG Chevron Gull Creek A-63
Record No. 26L WELL GEOPHONE
Well Geophone Depth 50 ft (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.

0
+0.005
0.005
0.008

NEAR SURFACE VELOCITY RECORDS
CPOG CHEVRON GULL CREEK A-63

ONE WAY TRAVEL TIME TO SURFACE - MILLISECONDS



CPOG Chevron Gull Creek A-63

LOCATION:

60°50' N. Lat., 116°15' W. Long., Northwest Territories

K.B. ELEV:

1081 FT. DATUM ELEV.: 920 FT.

DATUM VELOCITY:

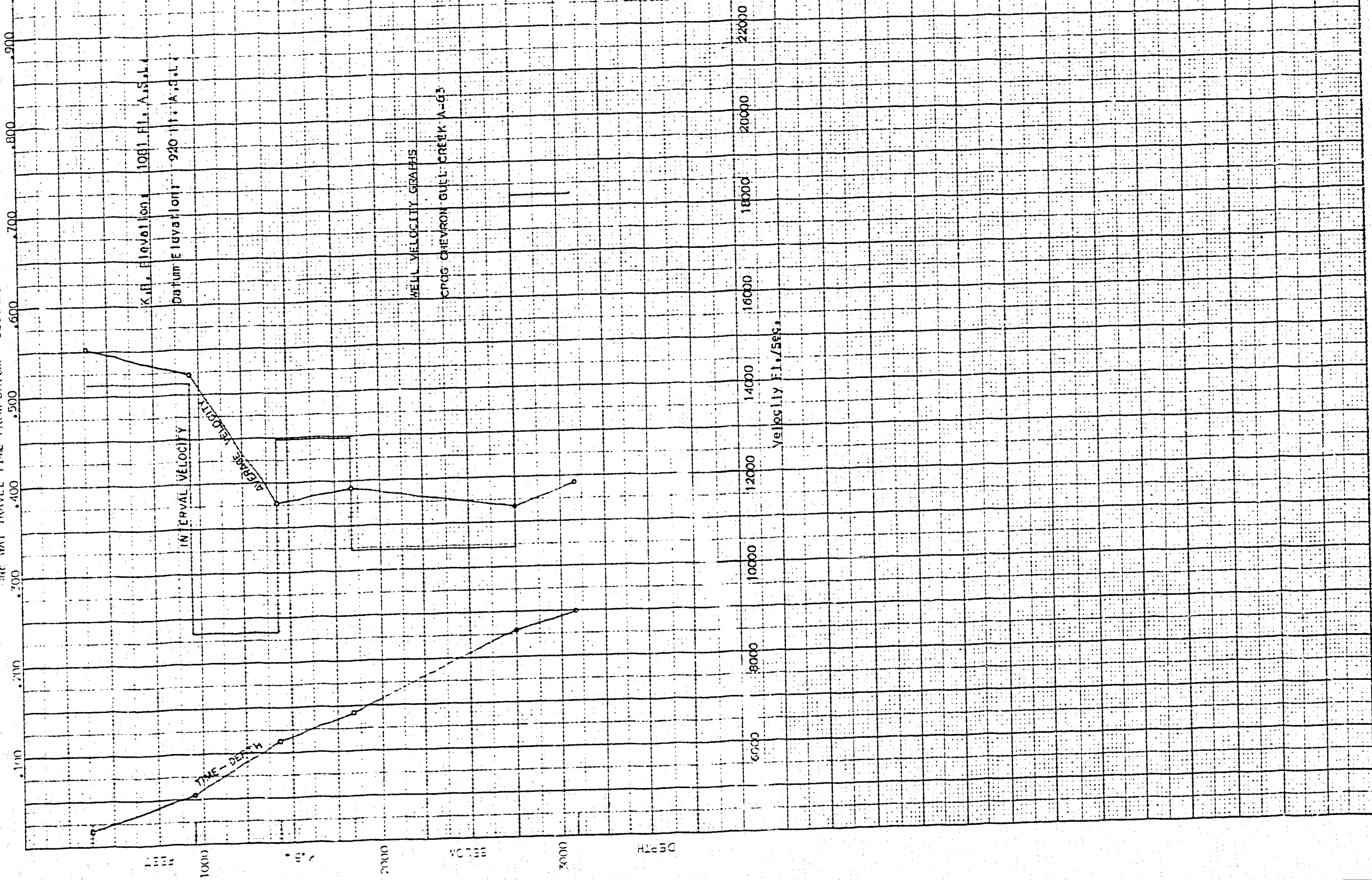
FT./SEC.

[illegible]

INTEGRATED

Velocity Services Ltd.

ONE WAY TRAVEL TIME FROM DATUM - SECONDS



WELL: CPOG Chevron Gull Creek A-63

LOCATION: 60°50' N. Lat., 118°15' W. Long., Northwest Territories

COMPANY: Central-Del Rio Oils Limited
Canadian Pacific Oil and Gas Limited

ACOUSTIC LOG: Schlumberger of Canada

K.B. ELEV. 1081 Ft. A.S.L. SEISMIC DATUM ELEV. 920 Ft. A.S.L.

LEGEND

D_{KB}	Depth Below Kelly Bushing
D_c	Well Geophone Calibrating Level (K B)
D_s	Top of Logged Interval
D_r	Depth Below Calibrated Starting Time
T_s	Calibrated Starting Time At Depth D_s
T_c	Vertical Travel Time From Seismic Elevation Datum To Well Geophone
T_{Lu}	Arbitrary Uncorrected Integrated Time (Acoustic Log)
T_{Lr}	Uncorrected Integrated Time Equated From Calibrated Starting Time (T_s)
T_{Lc}	Corrected Integrated Time
T_L	Uncorrected Integrated Time Equated From Shallowest Well Geophone Arrival Time
ΔT_u	Uncorrected Integrated Travel Time Interval $D_c - D_s$ (Acoustic Log)
ΔT_{Lr}	(D_r) (t/c)
Δt_c	$T_c - T_{Lc}$
t/c	Calibrating Adjustment (Acoustic Log) - applied to uncorrected integrated time and graphically derived from average slope(empirical) plotted from $T_c - T_L$ summation

ACOUSTIC LOG - WELL GEOPHONE SURVEY CALIBRATION COMPUTATIONS

CALIBRATED STARTING TIME

Well Geophone Calibrating Level (D_c)	3060	Ft. K. B.
Top of Logged Interval (D_s) :	378	Ft. K. B.
Vertical Travel Time - Geophone (T_c)	.2450	Sec.

Calibrating Adjustments (t/c)

Log Section	Depth Below K. B.	Calibrating Adjustment
1	378 Ft. to 3060 Ft.	+2.9 μ sec. / ft.
	Ft. to Ft.	μ sec. / ft.
	Ft. to Ft.	μ sec. / ft.
	Ft. to Ft.	μ sec. / ft.
	Ft. to Ft.	μ sec. / ft.

$$\begin{aligned} T_s &= T_c - \left[\Delta T_u + (D_c - D_s) (t/c) \right] \\ &= .2460'' - \left[.2238'' + (3060' - 378') (+2.9 \text{ usec./ft.}) \right] \\ &= .2460'' - (.2238'' + .0078'') \\ &= .0144'' \end{aligned}$$

[illegible]

- INTEGRATED

— Velocity Services Ltd.

1 of 2

STATIONS

/ ft

/ ft

/ ft

/ ft

/ ft

Log Section	D _{K.B.}	T _c	T _{Lu}	ΔT _{Lu}	T _{Lr}	D _r	ΔT _{Lr}	T _{Lc}	ΔT _c		T _L	T _c -T _L
1	378		.0000		.0144	0	.0000	.0144				
				.0043								
	450	.0190	.0043		.0187	72	.0002	.0189	+.0001		.0190	.0000
				.0345								
	950	.0540	.0388		.0532	572	.0017	.0549	-.0009		.0535	+.0005
				.0557								
	1450	.1110	.0945		.1099	1072	.0031	.1120	-.0010		.1092	+.0018
				.0390								
	1950	.1520	.1335		.1479	1572	.0046	.1525	-.0005		.1482	+.0038
				.0461								
	2450	.2000	.1796		.1940	2072	.0060	.2000	.0000		.1943	+.0057
				.0289								
	2760	.2300	.2095		.2229	2382	.0069	.2298	.0002		.2232	+.0068
				.0153								
	3060	.2460	.2238		.2382	2682	.0078	.2460	.0000		.2385	+.0075

T_c - T_L - milliseconds

.0200 (-) .0000 (+) .0200

(1) Calibrating Adjustment:

$$T_c - T_L = \frac{T_c - T_L(\text{int.})}{D_c - D_c(\text{int.})}$$

$$= (.0000) - (.0075)$$

$$450 - 3050$$

$$= +2.9 \text{ Microseconds Per Foot}$$

INTERVAL TRANSIT TIME INCREASE

D_{c(int.)} : Deepest Well Geophone Depth (K.B.) In
Calibrated Section

$$T_c - T_L = T_c - T_L \text{ at } D_c$$

(T_c - T_L)(int.) : Best - Fit Slope Intercept At
D_{c(int.)}

$$T_c - T_L(\text{int.})$$

.0075 Sec.

DIGITAL VELOCITY DATA ANALYSIS



WELL - CP03 Chevron Gull Creek A-63
 LOCATION - 60°50' N. Lat., 118°15' W. Long., Northwest Territories
 COMPANY - Central-Del Rio Oils Limited - Canadian Pacific Oil and Gas Ltd.
 KB. ELEVATION - 1081 Ft. A.S.L.
 DATUM ELEVATION - 920 Ft. A.S.L.
 ACOUSTIC LOG - Schlumberger of Canada

$$\frac{V_2 + V_1}{V_2 - V_1} \text{ (".001" Int. Time)}$$

Interval Velocity (.001" Travel Time)

Uncalibrated Integrated Time

Calibrated Integrated Time

Computrex Card No.

Depth Below Datum

Depth Below Kelly Bushing

1	0.0150	367	.0006	17006	0.0403-
2	0.0160	404	.0015	16501	0.0157
3	0.0170	421	.0025	17028	0.0212-
4	0.0180	437	.0034	16319	0.0106-
5	0.0190	453	.0044	15977	0.0005
6	0.0200	469	.0053	15993	0.0237-
7	0.0210	484	.0063	15251	0.0179-
8	0.0220	499	.0073	14713	0.0226-
9	0.0230	513	.0082	14061	0.0074-
10	0.0240	527	.0092	13853	0.0212
11	0.0250	541	.0101	14453	0.0323-
12	0.0260	554	.0111	13016	0.0215-
13	0.0270	567	.0121	12467	0.0296
14	0.0280	580	.0130	13228	0.0936
15	0.0290	596	.0140	15961	0.0318
16	0.0300	613	.0149	17012	0.0525-
17	0.0310	628	.0159	15313	0.0617-
18	0.0320	642	.0169	13531	0.0036-
19	0.0330	655	.0178	13433	0.0776
20	0.0340	671	.0188	15695	0.0203-
21	0.0350	687	.0197	16336	0.0404
22	0.0360	704	.0207	16294	0.0672-
23	0.0370	721	.0216	17592	0.1013
24	0.0380	736	.0226	14612	0.0450-
25	0.0390	749	.0235	13574	0.1018-
26	0.0400	763	.0245	13376	0.0544-
27	0.0410	776	.0254	13503	0.1261
28	0.0420	790	.0264	13466	0.0047
29	0.0430	800	.0274	10449	0.0913-
30	0.0440	814	.0284	13466	0.1261
31	0.0450	827	.0293	13674	0.0076
32	0.0460	840	.0302	13148	0.0196-
33	0.0470	853	.0312	12625	0.0203-
34	0.0480	867	.0322	13690	0.0404
35	0.0490	879	.0332	11966	0.0672-
36	0.0500	893	.0341	14665	0.1013
37	0.0510	907	.0351	13402	0.0450-
38	0.0520	918	.0361	10924	0.1018-
39	0.0530	930	.0370	12172	0.0544-
40	0.0540	942	.0379	12502	0.1261
41	0.0550	953	.0390	10407	0.0047
42	0.0560	962	.0399	9433	0.0491-
43	0.0570	970	.0408	8375	0.0594-
44	0.0580	979	.0419	8100	0.0167-
45	0.0590	987	.0428	8886	0.0463
46	0.0600	996	.0439	8196	0.0404
47	0.0610	1003	.0447	7775	0.0264-
48	0.0620	1011	.0458	7258	0.0344-
49	0.0630	1021	.0468	9950	0.1264
50	0.0640	1029	.0477	8349	0.0875-
51	0.0650	1037	.0486	8506	0.0094
52	0.0660	1046	.0497	8669	0.0094
53	0.0670	1056	.0507	9708	0.0565
54	0.0680	1065	.0516	9258	0.0237-
55	0.0690	1074	.0526	8892	0.0202-
56	0.0700	1083	.0536	8669	0.0127-
57	0.0710	1091	.0545	8609	0.0035-
58	0.0720	1100	.0555	9071	0.0261
59	0.0730	1109	.0565	8857	0.0119-
60	0.0740	1118	.0574	8945	0.0049
61	0.0750	1126	.0584	8254	0.0402-
62	0.0760	1135	.0594	8762	0.0299
63	0.0770	1143	.0603	8297	0.0273-
64	0.0780	1152	.0614	8144	0.0093-
65	0.0790	1160	.0624	7880	0.0165-
66	0.0800	1168	.0633	9027	0.0678
67	0.0810	1178	.0643	9671	0.0344
68	0.0820	1187	.0653	8711	0.0522-
69	0.0830	1196	.0663	8936	0.0128
70	0.0840	1205	.0673	8669	0.0152-
71	0.0850	1212	.0681	7827	0.0510-
72	0.0860	1221	.0692	8661	0.0506
73	0.0870	1228	.0701	7079	0.1008-
74	0.0880	1237	.0711	8883	0.1133
75	0.0890	1245	.0721	7780	0.0637-
76	0.0900	1253	.0730	8741	0.0577
77	0.0910	1262	.0741	8301	0.0258-
78	0.0920	1270	.0750	8245	0.0034-
79	0.0930	1280	.0760	9496	0.0705
80	0.0940	1289	.0770	9543	0.0025
81	0.0950	1299	.0779	9910	0.0109
82	0.0960	1307	.0789	8340	0.0869-
83	0.0970	1315	.0798	8178	0.0098-
84	0.0980	1324	.0809	8426	0.0149
85	0.0990	1334	.0819	9532	0.0616
86	0.1000	1342	.0828	8454	0.0599-
87	0.1010	1351	.0838	8619	0.0997
88	0.1020	1359	.0847	8618	0.0001-
89	0.1030	1367	.0857	8103	0.0308-
90	0.1040	1377	.0867	9319	0.0698
91	0.1050	1387	.0877	9852	0.0278
92	0.1060	1395	.0886	8490	0.0745-
93	0.1070	1403	.0896	8357	0.0079-
94	0.1080	1412	.0906	8796	0.0256
95	0.1090	1421	.0916	8619	0.0102-
96	0.1100	1429	.0925	8288	0.0196-
97	0.1110	1438	.0935	9136	0.0487
98	0.1120	1451	.0945	12325	0.1486
99	0.1130	1463	.0955	12087	0.0097-
100	0.1140	1475	.0964	12541	0.0184
101	0.1150	1489	.0974	13453	0.0350
102	0.1160	1504	.0983	15291	0.0625
103	0.1170	1518	.0993	13610	0.0568-
104	0.1180	1531	.1003	13228	0.0142-
105	0.1190	1544	.1012	12773	0.0175-
106	0.1200	1557	.1022	12939	0.0064
107	0.1210	1570	.1031	13351	0.0156
108	0.1220	1583	.1041	13447	0.0035
109	0.1230	1597	.1051	13415	0.0012-
110	0.1240	1609	.1060	12310	0.0429-
111	0.1250	1621	.1070	11709	0.0250-
112	0.1260	1633	.1080	11836	0.0054
113	0.1270	1645	.1090	11942	0.0044
114	0.1280	1660	.1099	11949	0.1217
115	0.1290	1673	.1109	13002	0.0765-
116	0.1300	1685	.1118	12548	0.0200-
117	0.1310	1697	.1128	11345	0.0502-
118	0.1320	1710	.1138	12977	0.0002

69	0.0830	1196	.0663	1035	8936	0.0128
70	0.0840	1205	.0673	1044	8669	0.0152
71	0.0850	1212	.0681	1051	7827	0.0510
72	0.0860	1221	.0692	1060	8661	0.0506
73	0.0870	1228	.0701	1067	7075	0.1008
74	0.0880	1237	.0711	1076	8883	0.1133
75	0.0890	1245	.0721	1084	7788	0.0657
76	0.0900	1253	.0730	1092	6741	0.0577
77	0.0910	1262	.0741	1101	8301	0.0258
78	0.0920	1270	.0750	1109	8245	0.0034
79	0.0930	1280	.0760	1119	9496	0.0705
80	0.0940	1289	.0770	1128	9543	0.0025
81	0.0950	1299	.0779	1138	9910	0.0189
82	0.0960	1307	.0789	1146	8340	0.0860
83	0.0970	1315	.0798	1154	0178	0.0098
84	0.0980	1324	.0809	1163	8426	0.0149
85	0.0990	1334	.0819	1173	9532	0.0616
86	0.1000	1342	.0828	1181	8454	0.0599
87	0.1010	1351	.0838	1190	8619	0.0097
88	0.1020	1359	.0847	1198	8618	0.0001
89	0.1030	1367	.0857	1206	8103	0.0308
90	0.1040	1377	.0867	1216	9319	0.0698
91	0.1056	1387	.0877	1226	9852	0.0278
92	0.1060	1395	.0886	1234	8496	0.0743
93	0.1070	1403	.0896	1242	8357	0.0079
94	0.1080	1412	.0906	1251	8796	0.0256
95	0.1090	1421	.0916	1260	8619	0.0102
96	0.1100	1429	.0925	1268	8288	0.0196
97	0.1110	1438	.0935	1277	9136	0.0487
98	0.1120	1451	.0945	1290	12325	0.1486
99	0.1130	1463	.0955	1302	12087	0.0097
100	0.1140	1475	.0964	1314	12541	0.0184
101	0.1150	1489	.0974	1328	13453	0.0350
102	0.1160	1504	.0983	1343	15251	0.0626
103	0.1170	1518	.0993	1357	13610	0.0568
104	0.1180	1531	.1003	1370	13228	0.0142
105	0.1190	1544	.1012	1383	12773	0.0175
106	0.1200	1557	.1022	1396	12939	0.0064
107	0.1210	1570	.1031	1409	13351	0.0156
108	0.1220	1583	.1041	1422	13447	0.0035
109	0.1230	1597	.1051	1436	13415	0.0012
110	0.1240	1609	.1060	1448	12310	0.0429
111	0.1250	1621	.1070	1460	11709	0.0250
112	0.1260	1633	.1080	1472	11836	0.0054
113	0.1270	1645	.1090	1484	11942	0.0044
114	0.1280	1660	.1109	1499	15251	0.1217
115	0.1290	1673	.1109	1512	13082	0.0765
116	0.1300	1685	.1118	1524	12568	0.0200
117	0.1310	1697	.1128	1536	11365	0.0502
118	0.1320	1710	.1138	1549	12977	0.0662
119	0.1330	1723	.1147	1562	13790	0.0303
120	0.1340	1735	.1156	1574	11813	0.0772
121	0.1350	1747	.1166	1586	12062	0.0104
122	0.1360	1760	.1176	1599	12875	0.0326
123	0.1370	1775	.1186	1614	14655	0.0646
124	0.1380	1780	.1195	1627	12862	0.0651
125	0.1390	1800	.1205	1639	11836	0.0415
126	0.1400	1813	.1214	1652	13337	0.0396
127	0.1410	1826	.1224	1665	12913	0.0161
128	0.1420	1839	.1234	1678	13016	0.0039
129	0.1430	1850	.1243	1689	11543	0.0599
130	0.1440	1861	.1253	1700	10935	0.0270
131	0.1450	1872	.1262	1711	10990	0.0025
132	0.1460	1883	.1272	1722	10753	0.0109
133	0.1470	1894	.1282	1733	10507	0.0115
134	0.1480	1904	.1292	1743	10416	0.0043
135	0.1490	1913	.1302	1754	10659	0.0115
136	0.1500	1925	.1311	1764	10570	0.0041
137	0.1510	1936	.1321	1775	10497	0.0034
138	0.1520	1946	.1330	1785	10593	0.0045
139	0.1530	1957	.1340	1796	10467	0.0059
140	0.1540	1967	.1350	1806	10395	0.0034
141	0.1550	1978	.1360	1817	10547	0.0072
142	0.1560	1988	.1369	1827	10537	0.0004
143	0.1570	1999	.1379	1838	10722	0.0087
144	0.1580	2010	.1389	1849	10680	0.0019
145	0.1590	2020	.1398	1859	10630	0.0009
146	0.1600	2031	.1408	1870	10753	0.0043
147	0.1610	2042	.1418	1881	10577	0.0082
148	0.1620	2052	.1427	1891	10604	0.0012
149	0.1630	2063	.1437	1902	10477	0.0060
150	0.1640	2073	.1446	1912	10672	0.0092
151	0.1650	2084	.1456	1923	10639	0.0015
152	0.1660	2095	.1466	1934	10743	0.0048
153	0.1670	2106	.1476	1945	10881	0.0063
154	0.1680	2116	.1485	1955	10649	0.0107
155	0.1690	2127	.1496	1966	10427	0.0105
156	0.1700	2137	.1505	1976	10504	0.0036
157	0.1710	2148	.1515	1987	10557	0.0025
158	0.1720	2158	.1524	1997	10615	0.0027
159	0.1730	2169	.1534	2008	10711	0.0045
160	0.1740	2180	.1544	2019	10701	0.0004
161	0.1750	2191	.1554	2030	10806	0.0040
162	0.1760	2201	.1563	2040	10752	0.0025
163	0.1770	2212	.1573	2051	10701	0.0023
164	0.1780	2223	.1583	2062	10608	0.0043
165	0.1790	2234	.1593	2073	10935	0.0151
166	0.1800	2244	.1601	2083	10810	0.0057
167	0.1810	2255	.1611	2094	10649	0.0075
168	0.1820	2266	.1621	2105	10764	0.0053
169	0.1830	2276	.1630	2115	10638	0.0058
170	0.1840	2287	.1640	2126	10701	0.0029
171	0.1850	2298	.1650	2137	10649	0.0024
172	0.1860	2309	.1660	2148	10913	0.0122
173	0.1870	2319	.1669	2158	10683	0.0106
174	0.1880	2330	.1679	2169	10670	0.0006
175	0.1890	2340	.1689	2179	10236	0.0197
176	0.1900	2351	.1699	2190	10214	0.0020
177	0.1910	2361	.1709	2200	10020	0.0095
178	0.1920	2371	.1719	2210	10020	0.0000
179	0.1930	2381	.1728	2220	9950	0.0035
180	0.1940	2390	.1737	2229	9889	0.0031
181	0.1950	2401	.1748	2240	10037	0.0074
182	0.1960	2411	.1758	2250	10020	0.0008
183	0.1970	2421	.1767	2260	9990	0.0015
184	0.1980	2431	.1777	2270	9965	0.0013
185	0.1990	2440	.1786	2279	10010	0.0022
186	0.2000	2450	.1795	2289	10046	0.0017
187	0.2010	2461	.1806	2300	10172	0.0062
188	0.2020	2471	.1816	2310	10070	0.0050
189	0.2030	2481	.1825	2320	10235	0.0081
190	0.2040	2491	.1835	2330	10204	0.0015
191	0.2050	2501	.1844	2340	10162	0.0020
192	0.2060	2511	.1854	2350	10120	0.0020
193	0.2070	2522	.1864	2361	10101	0.0009
194	0.2080	2532	.1874	2371	10341	0.0117
195	0.2090	2542	.1883	2381	10743	0.0190
196	0.2100	2553	.1893	2392	11123	0.0173
197	0.2110	2564	.1903	2403	11306	0.0081
198	0.2120	2575	.1912	2414	11329	0.0010
199	0.2130	2586	.1922	2425	10577	0.0343
200	0.2140	2597	.1932	2436	11123	0.0251
201	0.2150	2608	.1941	2447	10801	0.0110
202	0.2160	2619	.1951	2458	10070	0.0387
203	0.2170	2629	.1961	2468	9469	0.0343
204	0.2180	2638	.1970	2477	10224	0.0020
205	0.2190	2648	.1980	2487	10741	0.0402
206	0.2200	2657	.1990	2496	9852	0.0432
207	0.2210	2668	.2000	2507	10121	0.0134
208	0.2220	2678	.2009	2517	10368	0.0120
209	0.2230	2688	.2019	2527	10090	0.0135
210	0.2240	2698	.2028	2537	9832	0.0120
211	0.2250	2709	.2039	2548	10964	0.0344
212	0.2260	2719	.2048	2558	10608	0.0165
213	0.2270	2729	.2058	2568	14161	0.1434
214	0.2280	2739	.2067	2578	18014	0.1197
215	0.2290	2750	.2077	2589	18810	0.0216
216	0.2300	2764	.2087	2603	18903	0.0024
217	0.2310	2782	.2096	2621	19017	0.0070
218	0.2320	2801	.2106	2640	19287	0.0053
219	0.2330	2820	.2115	2659	19055	0.0007
220	0.2340	2839	.2125	2678	18883	0.0045
221	0.2350	2858	.2134	2697	19065	0.0048
222	0.2360	2878	.2144	2717	19405	0.0088
223	0.2370	2897	.2153	2736	16772	0.0166
224	0.2380	2915	.2162	2754	19093	0.0085
225	0.2390	2935	.2172	2774	16977	0.0586
226	0.2400	2954	.2181	2793	15487	0.0459
227	0.2410	2973	.2191	2812	17643	0.0651
228	0.2420	2992	.2200	2831	18680	0.0285
229	0.2430	3009	.2210	2848	18707	0.0007
230	0.2440	3024	.2219	2863		
231	0.2450	3042	.2229	2881		
232	0.2460	3061	.2238	2900		
233	0.2470	3079	.2247	2918		

DN 406

Velocity Survey

CPOG CHEVRON GULL CREEK A-63

Lat: $60^{\circ}50^1$ N Long: $118^{\circ}15^1$ W

N.W.T.

SONIC LOG
AND
WELL GEOPHONE SURVEY

CPOG CHEVRON GULL CREEK A-63
60°50' N. LAT. 118°15' W. LONG.
NORTHWEST TERRITORIES, CANADA

FOR
CENTRAL-DEL RIO OILS LIMITED
CANADIAN PACIFIC OIL AND GAS LIMITED
CALGARY, ALBERTA

INTEGRATED VELOCITY SERVICES LTD.
CALGARY, ALBERTA



INDEX

OPERATIONAL STATISTICS

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BACK COVER:

Calibrated Sonic Log
Digital Velocity Data Analysis
Synthetic Seismogram

OPERATIONAL STATISTICS

Client: Central-Del Rio Oils Limited
Canadian Pacific Oil and Gas Limited

Well: CPOG Chevron Gull Creek A-63

Location: 60°50' N. Lat. 118°15' W. Long., N.W.T.

Survey Contractors:

Schlumberger of Canada

Abbreviated Geophone Survey - Integrated Velocity Services Ltd.

Survey Date: February 24, 1970

K.B. Elevation: 1081 Ft. A.S.L.

Ground Level: 1068 Ft. A.S.L.

Total Depth: Driller: 3100 Ft.
S.O.C.: 3093 Ft.

Casing: 376 Ft.

Sonic Tool Dimensions:

Spacing: 3 Ft.
Span: 2 Ft. (B.H.C.)

Geophone Levels Surveyed: 7

Maximum Shot Hole Charge: 5 Lb. Hi Velocity 60%

Minimum Shot Hole Charge: 5/8 Lb. Hi Velocity 60%

Maximum Shot Depth: 60 Ft.

Minimum Shot Depth: 11 Ft.

Total Explosives Used:

Well Geophone Survey: 19 3/8 Lb. Hi Velocity 60%
14 Seismic Caps

Near Surface Velocity Survey: 5 Lb. Hi Velocity 60%
13 Seismic Caps

Reflection Spread:

Six stations (60 Ft. separation) recorded

simultaneously with velocity test shots.

Three geophones per trace (20 Ft. separation).

Operating Time:

Well Geophone Survey:

Well Available: 11:45 A.M. February 24, 1970

Well Released: 2:00 P.M. February 24, 1970

Near Surface Velocity Survey:

Well Available: 2:00 P.M. February 24, 1970

Well Released: 3:00 P.M. February 24, 1970

Velocity Records

Trace Arrangement

Trace #1	-	Time Break
Trace #2	-	Uphole Time
Trace #3	-	Well Geophone: Low Gain Setting
Trace #4	-	Well Geophone: Medium Gain Setting
Trace #5	-	Well Geophone: High Gain Setting
Trace #6	-	Not Used
Traces #7 to #12 Inc.	-	Surface Reflection Profile

ACOUSTIC LOG - WELL GEOPHONE SURVEY COMPARISON

Datum Elevation: 920 Ft. A.S.L.

<u>D K.B.</u>	<u>T_c (Geo.)</u>	<u>T_c (Log)</u>	<u>Δtc</u>
450	.0190	.0188	+.0002
950	.0540	.0548	-.0008
1450	.1110	.1119	-.0009
1950	.1520	.1524	-.0004
2450	.2000	.2000	.0000
2760	.2300	.2297	+.0003
3060	.2460	.2459	+.0001

Interval transit times recorded by the Sonic Log were transferred to a digital tape in one foot increments. A digital computer was employed to reconcile the log data and the well geophone survey data. A copy of the digital analysis is contained in the back cover of the report folder.

The original log data recorded by the one foot span Sonic Log (B.H.C.) was resolved to an equivalent three foot span by summing and averaging the individual interval transit times as follows:

Where d = depth below K.B. (1 Ft. Intervals)
 t = interval transit time (1 Foot span) at depth d ,
and t_r = resolved interval transit time

Then equivalent three foot interval transit times
are derived as follows:

$$t_{r_1} = t_1 \text{ at depth } d_1$$

$$t_{r_2} = \frac{t_1 + t_2}{2} \text{ at depth } d_2$$

$$t_{r_3} = \frac{t_1 + t_2 + t_3}{3} \text{ at depth } d_3$$

and

$$t_{r_n} = \frac{t_{(n-1)} + t_n + t_{(n+1)}}{3} \text{ at}$$

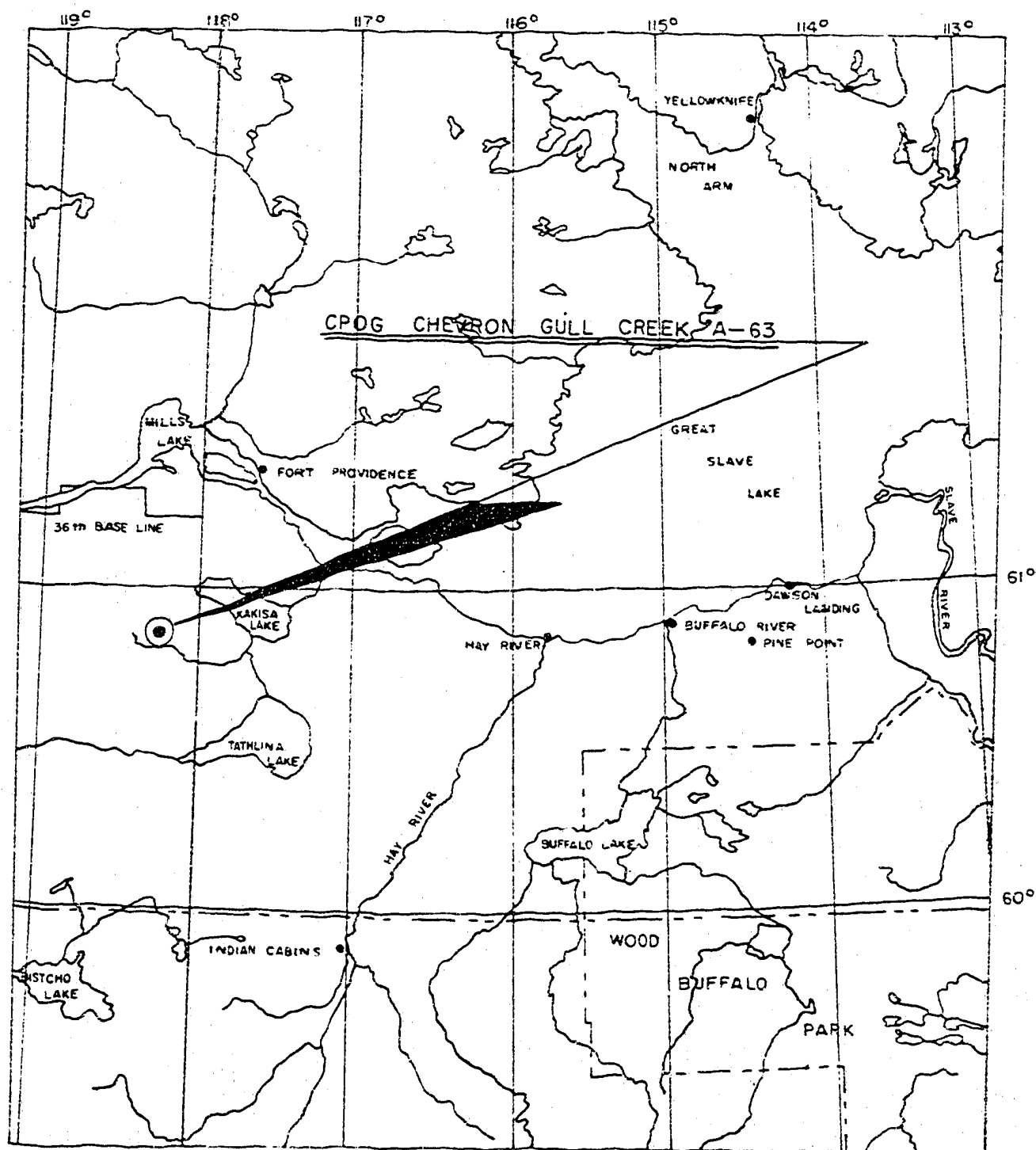
Depth d_n

The corrected and resolved interval transit times
were then plotted utilizing an automatic digital plotter on appro-
priate log scale paper in a depth scale of 1 inch to 100 feet of
well depth.

Respectfully submitted,
INTEGRATED VELOCITY SERVICES LTD.,



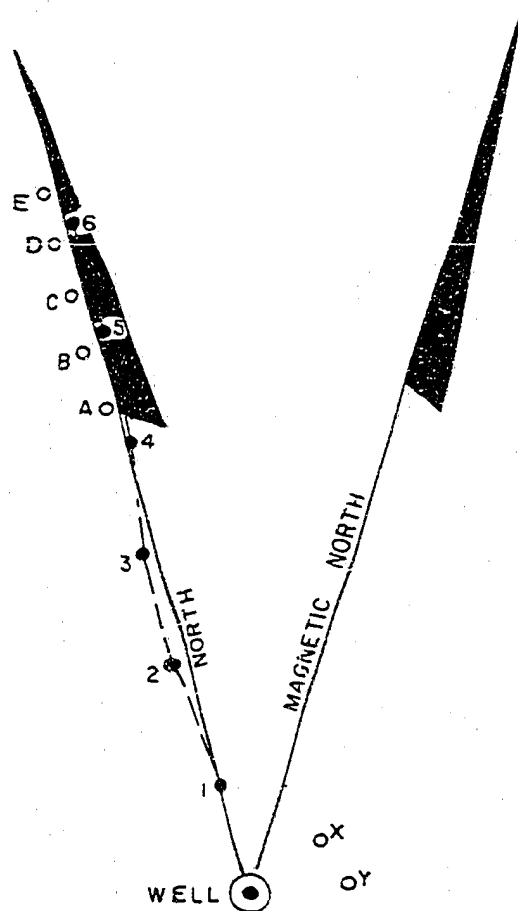
R.D. May,
Interpretation Supervisor.



● WELL LOCATION

SHOOTING PLAN

Well CPOG CHEVRON GULL CREEK A-63
 Location 60° 50' N. LAT. 118° 15' W. LONG. N.W.T.
 Scale 1" = 100'



LEGEND:

Well (circle with a dot)
 Shot Point (open circle)
 Geophone (solid dot)

S.P.-ELEVATION-DISTANCE-DIRECTION

A

1069*

270'

N

1°00'W

B

1069*

300'

N

1°30'W

C

1070*

330'

N

1°00'W

D

1070*

360'

N

1°15'W

E

1071*

385'

N

1°00'W

S.P.-ELEVATION-DISTANCE-DIRECTION

WELL

ELEVATION

K.B. 1081 feet

TOTAL DEPTH

3100 feet

CASING RECORD

inches to 376 feet

WELL NAME:

CPOG Chevron Gull Creek A-63

LOCATION:

60°50' N. Lat., 118°15' W. Long., Northwest Territories

COMPANY:

Central-Del Rio Oils Limited - Canadian Pacific Oil and Gas Limited

SURVEY CONTRACTOR:

Integrated Velocity Services Ltd.

SURVEY DATE:

February 24, 1970

ELEVATION DATUM

920 feet above sea level

DATUM VELOCITY

9000 feet/second

FORMATION	Record Number	Shot Hole Number	d	d _s	t _{uh}	Shot Hole Elevation	d _e	Δe	Δe+d _s	t _e	T	Z+d _e	X	Cos i	T̄	T _c	Z	V _a	ΔZ	ΔT _c	V _i
	4D	A	450	11	.002	1069	138	12	23	.015	.040	427	270	.8452	.034	.019	289	15211			
	5A	B	950	11	.002		138		23		.073	927	300	.9514	.069	.054	789	14611	500	.035	14286
	6B	B	1450	12	.005		137		24		.129	1426		.9786	.126	.111	1289	11613	500	.057	8772
	7C	B	1950	15	.003		134		27		.169	1923		.9881	.167	.152	1789	11770	500	.041	12195
	8D	B	2450	14	.003		135		26		.217	2424		.9924	.215	.200	2289	11445	500	.048	10417
	10F	B	2760	11	.003	1069	138	12	23	.015	.246	2737	300	.9941	.245	.230	2599	11300	310	.030	10333
	14B	D	3060	58	.006	1070	21	11	69	.010	.258	2991	360	.9928	.256	.246	2899	11785	300	.016	18750

X = Horizontal distance from well to shot point
 d = Well geophone depth measured from well elevation
 d_s = Depth of shot.
 d_e = Difference in elevation between shot and elevation datum
 Δe = Difference in elevation between well and shot point.
 Z = Well geophone depth measured from elevation datum
 $= d - (K.B. \text{ elevation} - \text{elevation datum})$
 $Z+d_e$ = Well geophone depth measured from shot elevation
 $= d - d_s - \Delta e$
 S = Straight line travel path from shot to well geophone.
 T = Observed time from shot to well geophone.
 t_{uh} = Uphole time at shot or other surface reference time
 t_e = Vertical time from shot to elevation datum
 $= \frac{d_s}{V_a}$
 $\text{Cos } i = \frac{Z+d_e}{\sqrt{X^2 + (Z+d_e)^2}}$
 $\bar{T}$ = Vertical travel time from shot elevation to well geophone.
 $= \text{Cos } i \cdot T$
 T_c = Vertical travel time from elevation datum to well geophone.
 $= \bar{T} - t_e$
 V_e = Truest velocity in consolidated layer
 $V_a = \frac{Z}{T_c}$ = Average velocity.
 $V_i = \frac{\Delta Z}{\Delta T_c}$ = Interval velocity.

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NEAR SURFACE VELOCITY DATA

WELL: CPOG Chevron Gulf Creek A-63

SHOT POINT: Y

S.P. ELEV.: 1068 Ft.

K.B. ELEV.: 1081 Ft.

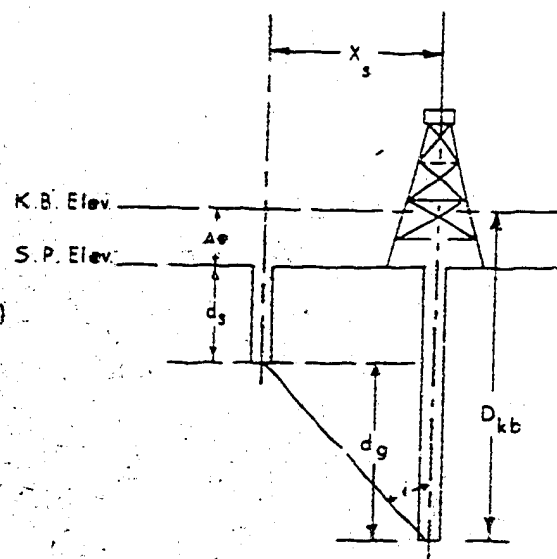
 X_s : 53 Ft.

$$d_g = D_{kb} - (d_s + se)$$

$$X_s = \tan i \cdot d_g$$

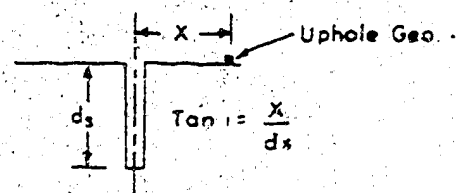
$$(\cos i)(T) = \bar{T}$$

$$\bar{T} + t_{uh}(\cos i) = T_c$$



Rec. No.	D_{kb}	d_s	t_{uh}	se	d_g	T	$\cos i$	$\bar{T}$	T_c
15A	450	30	.006	13	407	.034	.9916	.034	.040
16B	350	29	.005		328	.031	.9855	.031	.036
17C	300	29	.005		258	.029	.9796	.028	.033
18D	250	29	.006		208	.026	.9690	.025	.031
19E	225	29	.006		183	.024	.9605	.023	.029
20F	200	29	.006		158	.021	.9481	.020	.026
21G	175	29	.006		133	.018	.9290	.017	.023
22H	150	29	.006		108	.017	.8977	.015	.021
23I	125	29	.006		83	.014	.8428	.012	.018
24J	100	29	.006		58	.012	.7382	.009	.015
25K	75	29	.005		33	.010	.5286	.005	.010
26L	50	29	.005		8	.008	.1493	.001	.006
27M	25	23	.005	13	-11	.009	-.2032	-.002	.003

Uphole Time Correction:

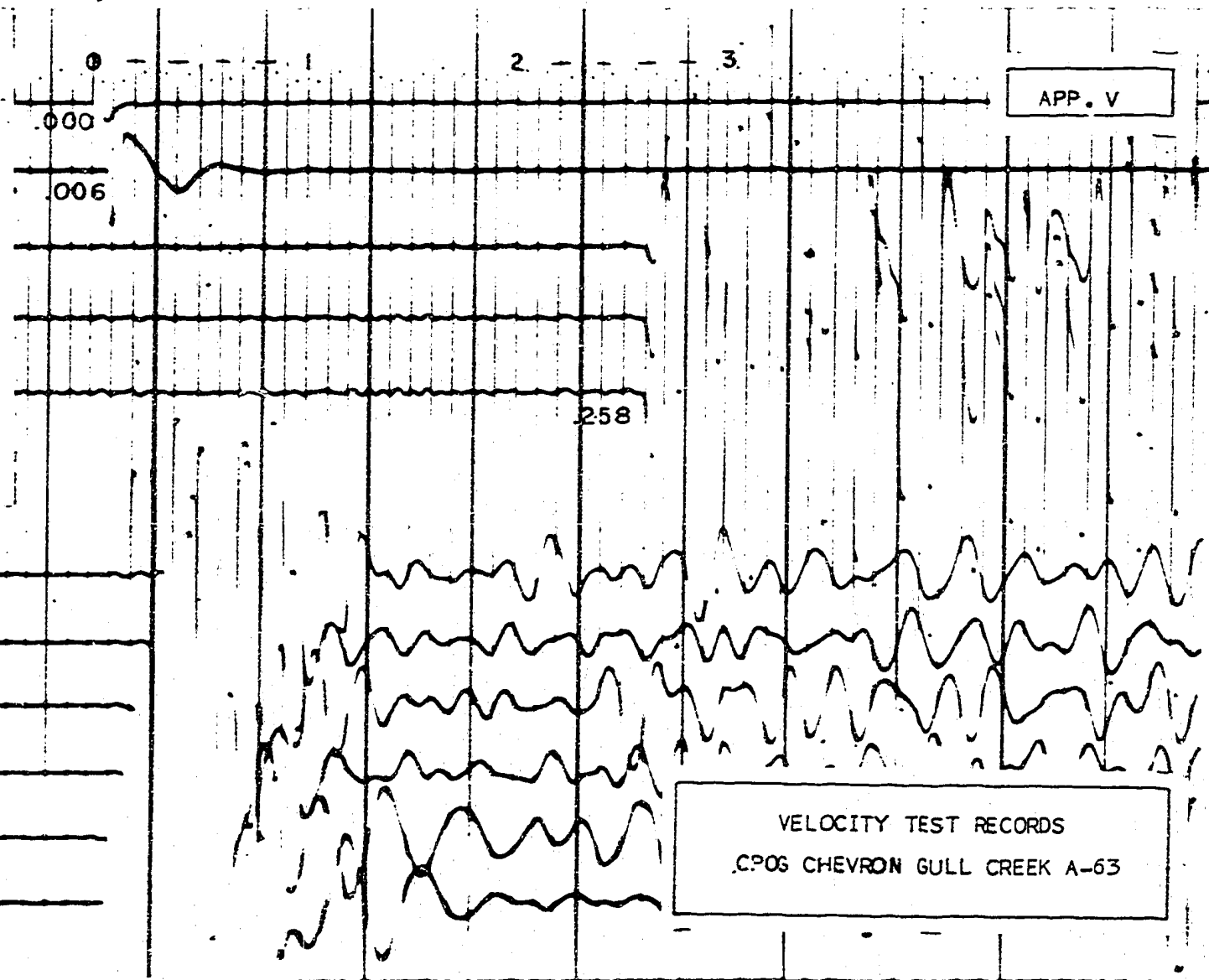
Horizontal Offset: (X)Shot Depth: (d_s)Uphole Time: (T_{uh})Tan i =Cos i =(T_{uh})(Cos i) =

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Well CPOG Chevron Gull Creek A-63
Record No. 14B WELL GEOPHONE
Well Geophone Depth 3060 ft (K.B.)
Shot Point D Amp. Gain 60 % 15 %
Charge 5 lbs. Shot Depth 58 ft.
Filter 30-64 Geo/Trace 3
Date February 24, 1970

INTEGRATED

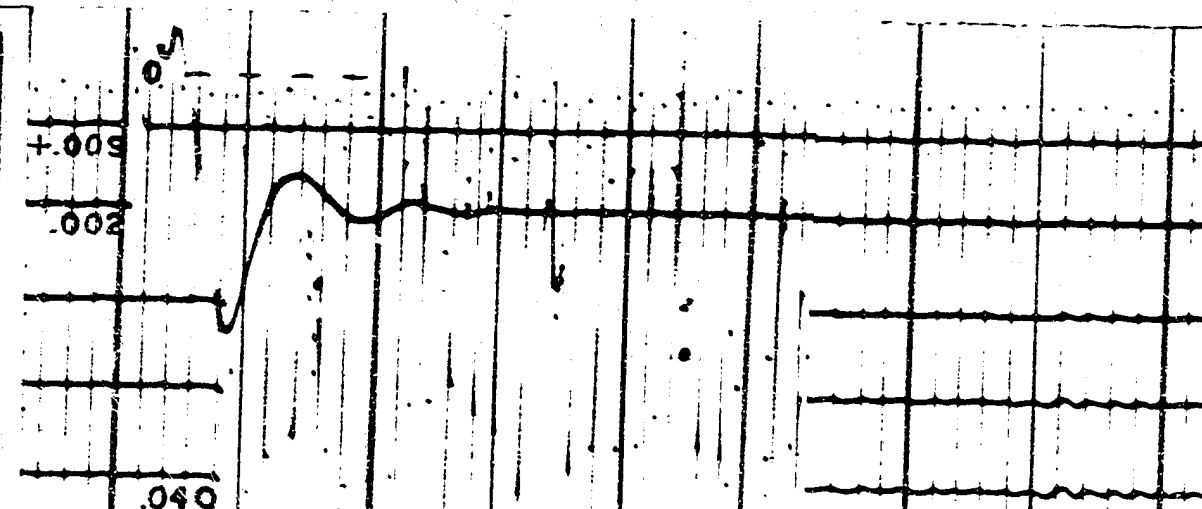
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 40 WELL GEOPHONE
Well Geophone Depth 450 ft. (K.B.)
Shot Point A Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 11 ft.
Filter 30-64 Geo/Trace 3
Date February 24, 1970

INTEGRATED

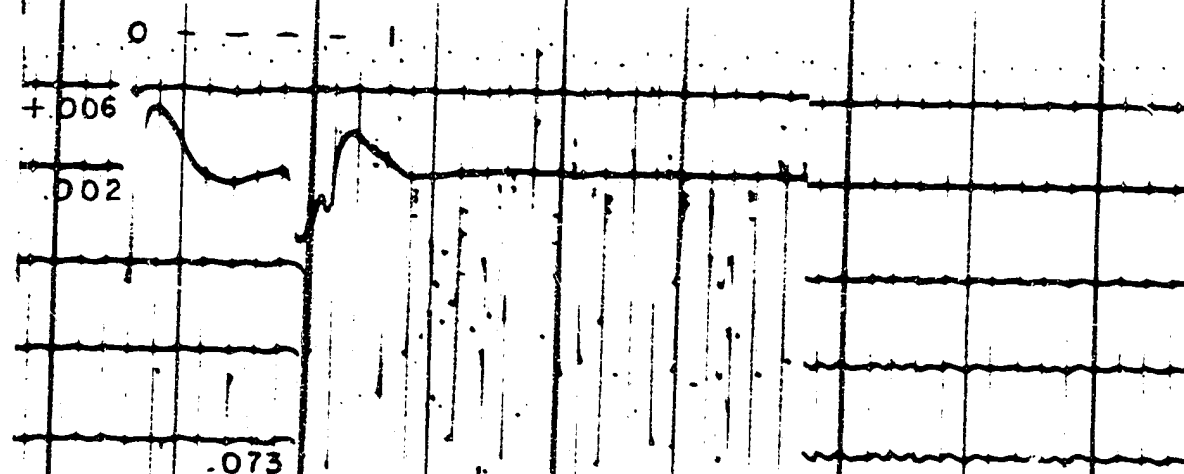
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 5A WELL GEOPHONE
Well Geophone Depth 950 ft. (K.B.)
Shot Point B Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 11 ft.
Filter 30-64 Geo/Trace 3
Date February 24, 1970

INTEGRATED

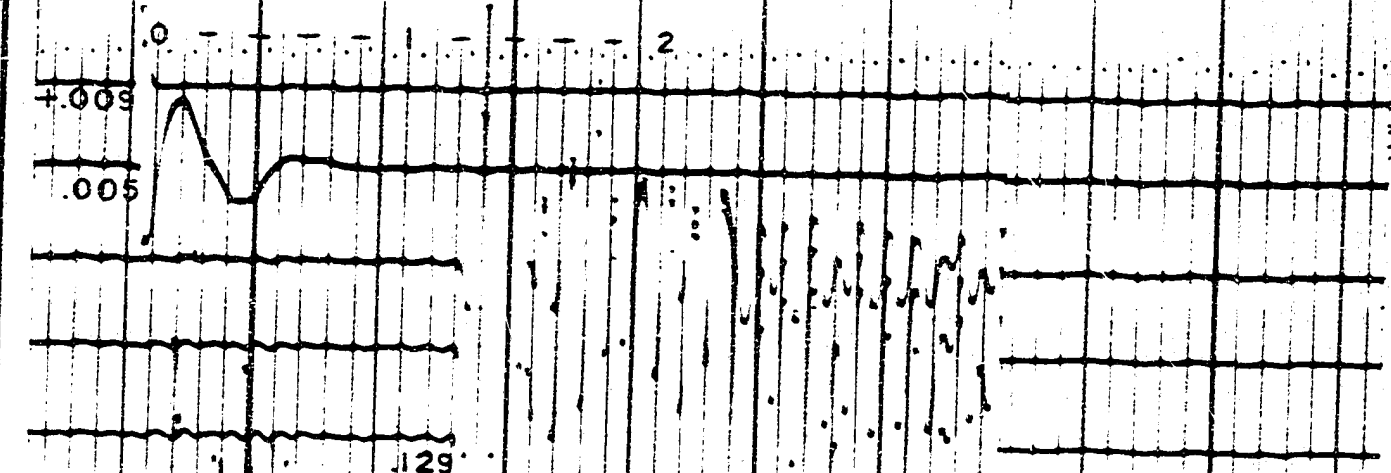
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 6B WELL GEOPHONE
Well Geophone Depth 1450 ft. (K.B.)
Shot Point B Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 12 ft.
Filter 30-64 Geo/Trace 3
Date February 24, 1970

INTEGRATED

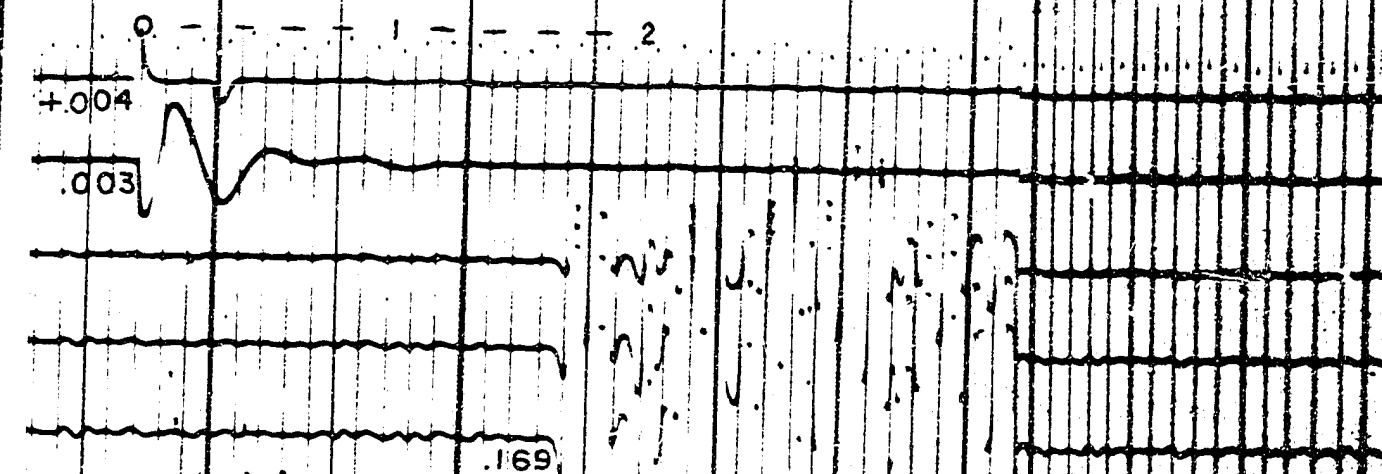
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 7C WELL GEOPHONE
Well Geophone Depth 1950 ft. (K.B.)
Shot Point B Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 15 ft.
Filter 30-64 Geo/Trace 3
Date February 24, 1970

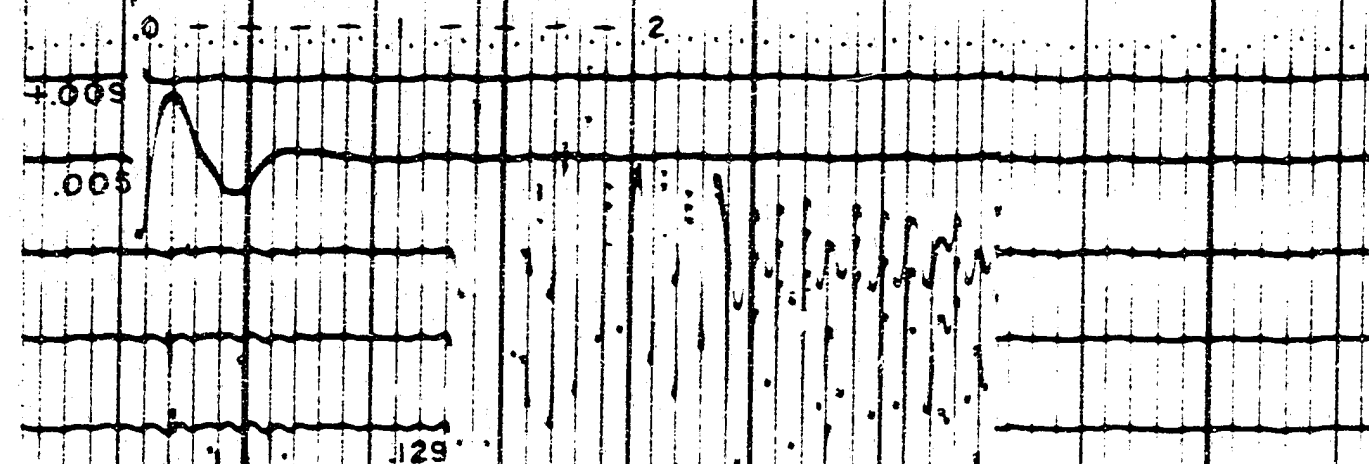
INTEGRATED

Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 68 WELL GEOPHONE
Well Geophone Depth 1450 ft. (K.B.)
Shot Point B Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 12 ft.
Filter 30-64 Geo./Trace 3
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



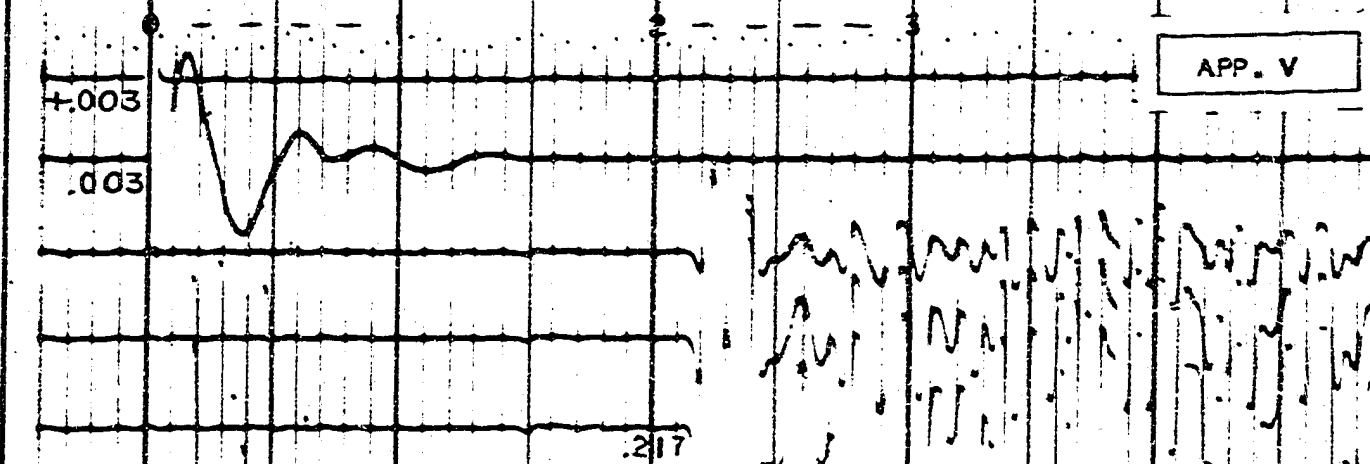
Well CPOG Chevron Gull Creek A-63
Record No. 70 WELL GEOPHONE
Well Geophone Depth 1950 ft. (K.B.)
Shot Point B Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 15 ft.
Filter 30-64 Geo./Trace 3
Date February 24, 1970

INTEGRATED
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Well CPOG Chevron Gull Creek A-63
Record No. 80 WELL GEOPHONE
Well Geophone Depth 2450 ft. (K.B.)
Shot Point B Amp. Gain 60 % 15 %
Charge 1 1/4 lbs. Shot Depth 14 ft.
Filter 30-64 Geo./Trace 3
Date February 24, 1970

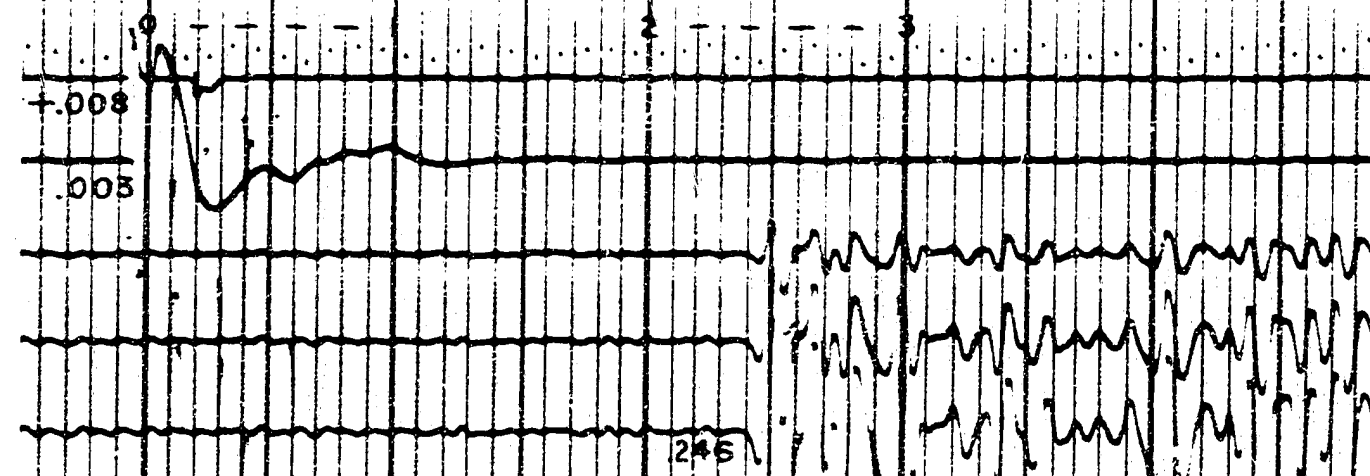
INTEGRATED
Velocity Services Ltd.



APP. V

Well CPOG Chevron Gull Creek A-63
Record No. 10F WELL GEOPHONE
Well Geophone Depth 2760 ft. (K.B.)
Shot Point B Amp. Gain 60 % 15 %
Charge 1 1/4 lbs. Shot Depth 11 ft.
Filter 30-64 Geo./Trace 3
Date February 24, 1970

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VELOCITY TEST RECORDS
CPOG CHEVRON GULL CREEK A-63

Well CPOG Chevron Gull Creek A-63

Record No 27M WELL GEOPHONE

Well Geophone Depth 25 ft. (K.B.)

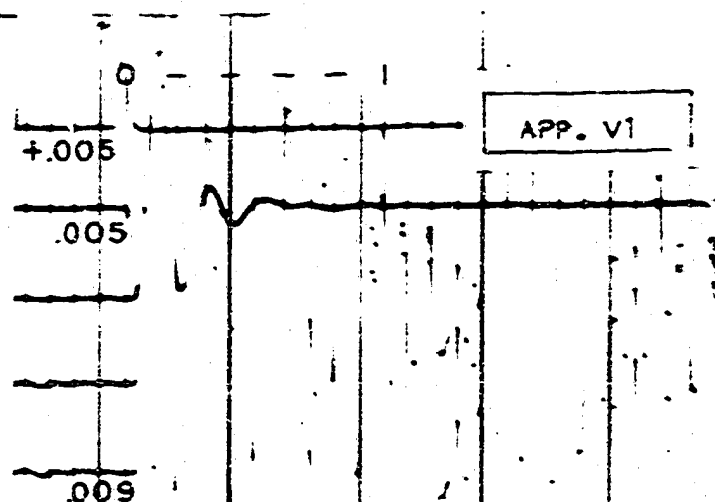
Shot Point Y Amp. Gain 60 % 15 %

Charge 5/16 lbs. Shot Depth 23 ft

Filter Geo/Trace

Date February 24, 1970

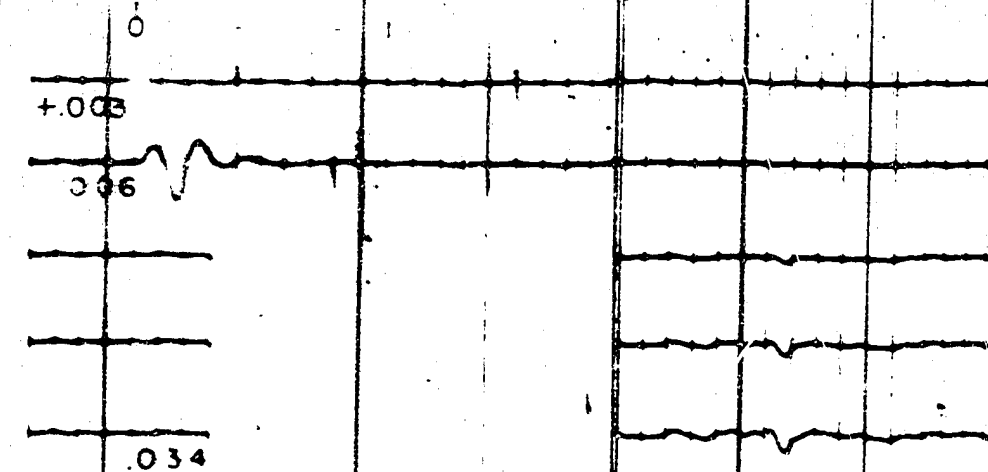
INTEGRATED
Velocity Services Ltd.



NEAR SURFACE VELOCITY RECORDS
CPOG CHEVRON GULL CREEK A-63

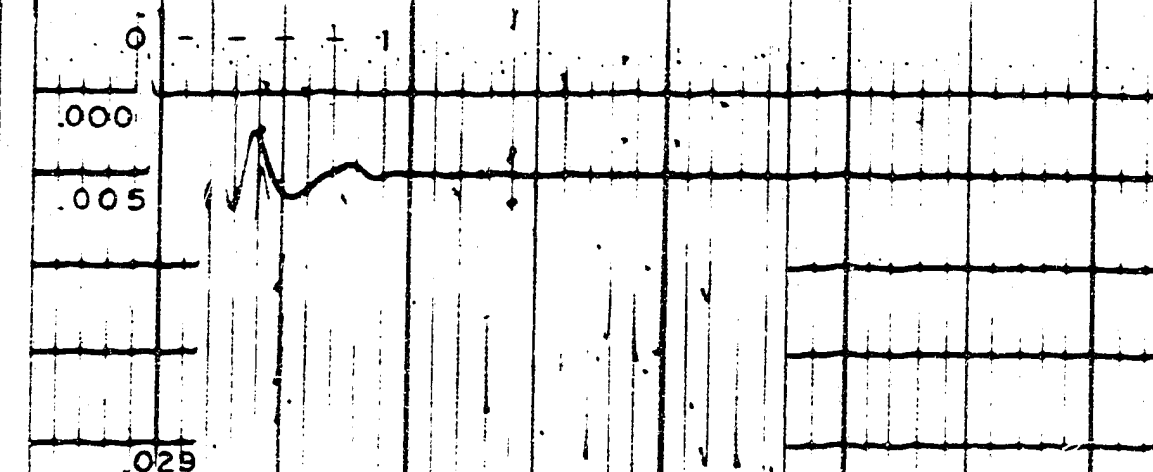
Well CPOG Chevron Gull Creek A-63
Record No. 15A WELL GEOPHONE
Well Geophone Depth 450 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 18 %
Charge 5/8 lbs. Shot Depth 30 ft.
Filter Geo./Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



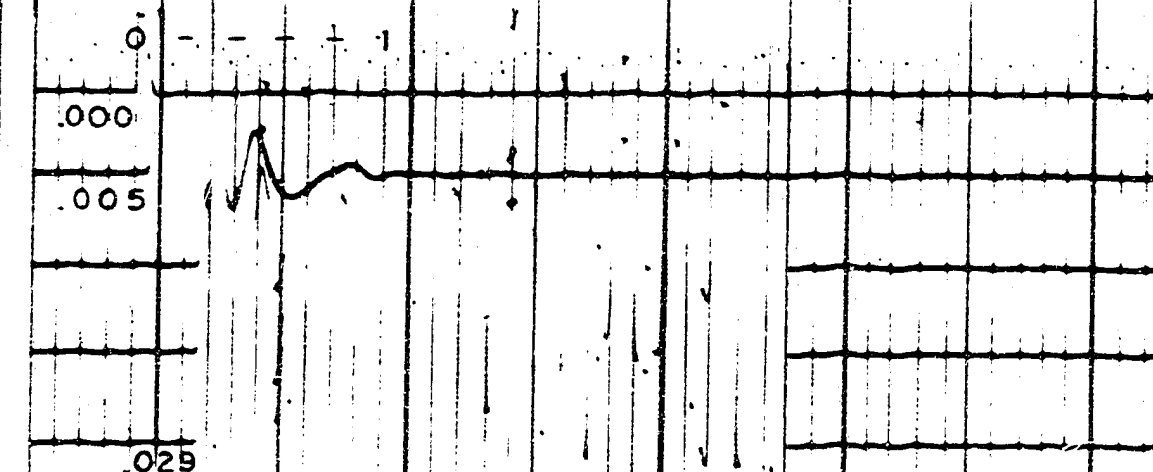
Well CPOG Chevron Gull Creek A-63
Record No. 17C WELL GEOPHONE
Well Geophone Depth 300 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 29 ft.
Filter Geo./Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



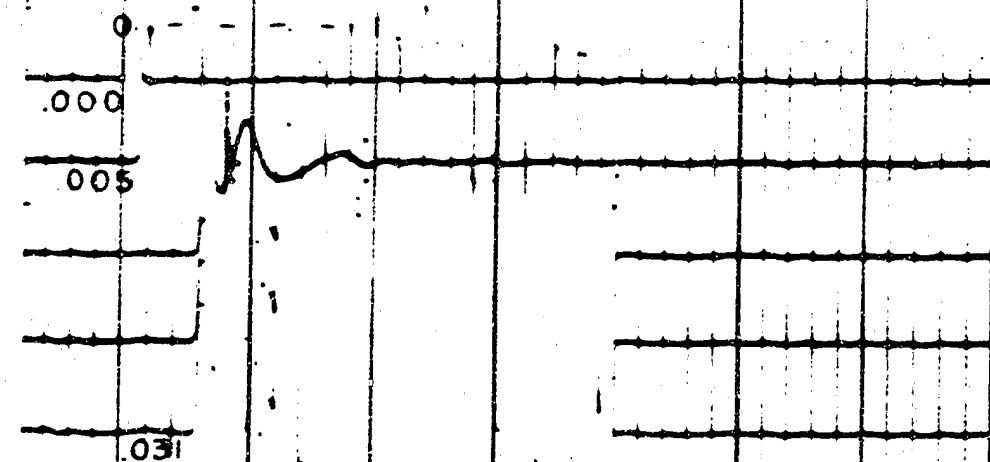
Well CPOG Chevron Gull Creek A-63
Record No. 19E WELL GEOPHONE
Well Geophone Depth 225 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 29 ft.
Filter Geo./Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



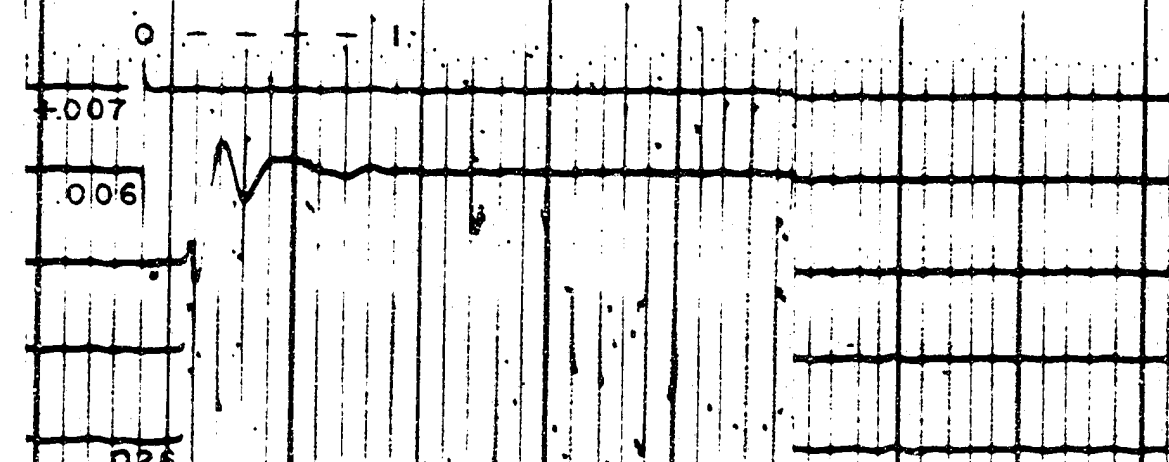
Well CPOG Chevron Gull Creek A-63
Record No. 16B WELL GEOPHONE
Well Geophone Depth 350 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 29 ft.
Filter Geo./Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



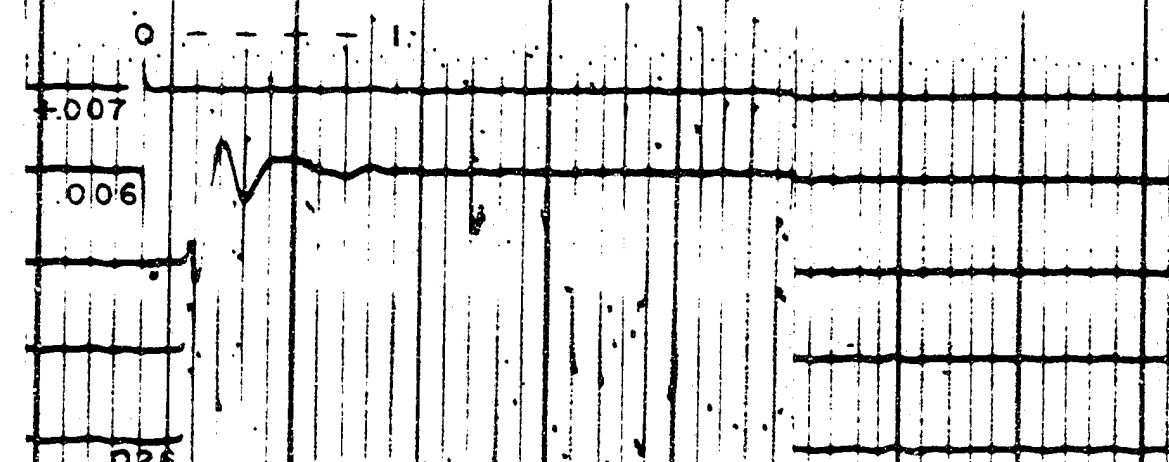
Well CPOG Chevron Gull Creek A-63
Record No. 18D WELL GEOPHONE
Well Geophone Depth 250 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 29 ft.
Filter Geo./Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



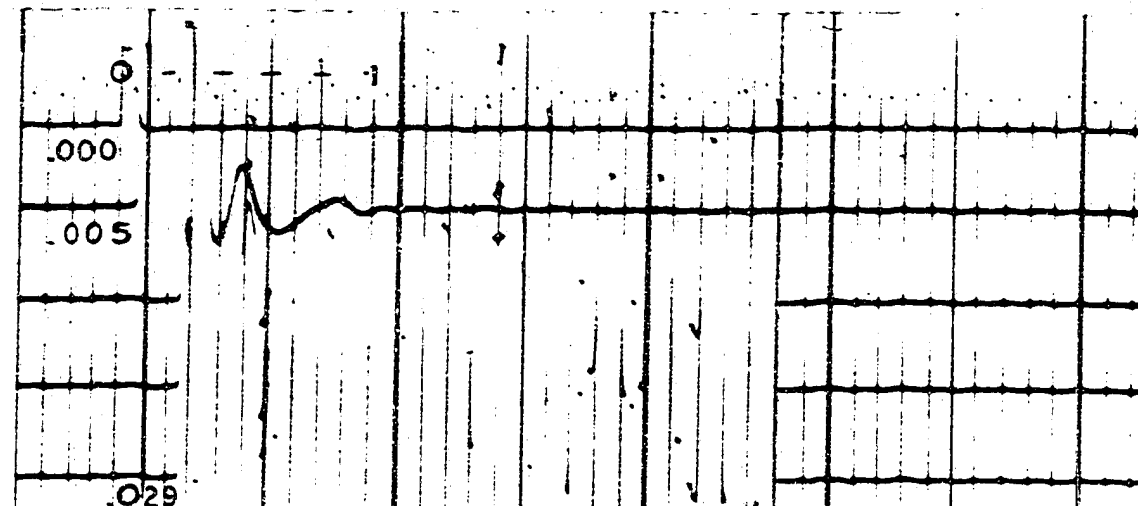
Well CPOG Chevron Gull Creek A-63
Record No. 20F WELL GEOPHONE
Well Geophone Depth 200 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo./Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



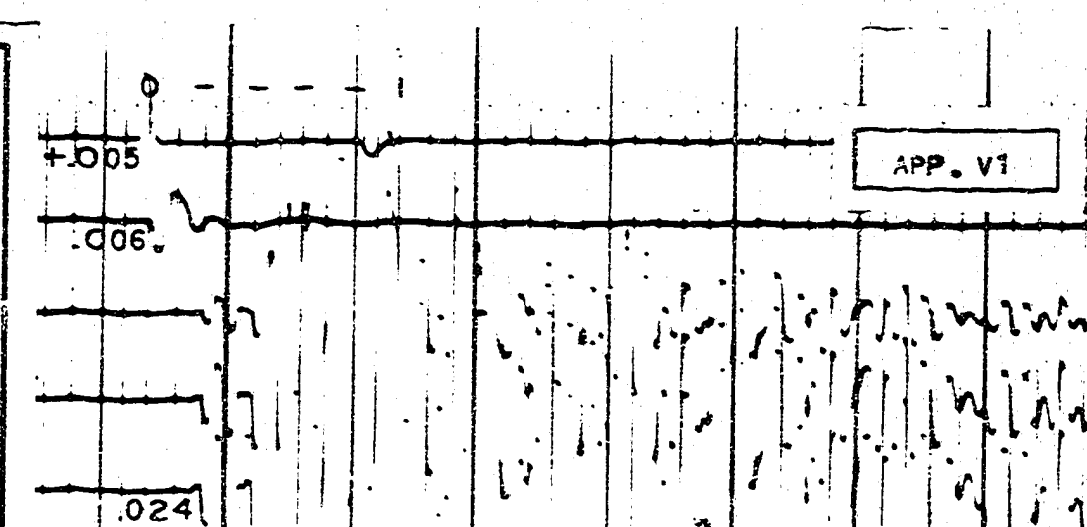
Well CPOG Chevron Gull Creek A-63
Record No. 17C WELL GEOPHONE
Well Geophone Depth 300 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



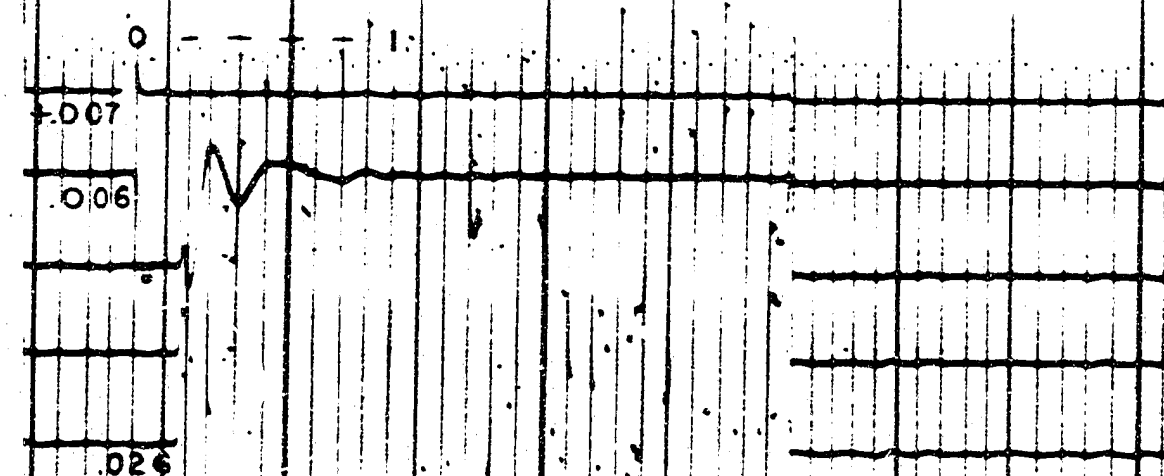
Well CPOG Chevron Gull Creek A-63
Record No. 19E WELL GEOPHONE
Well Geophone Depth 225 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



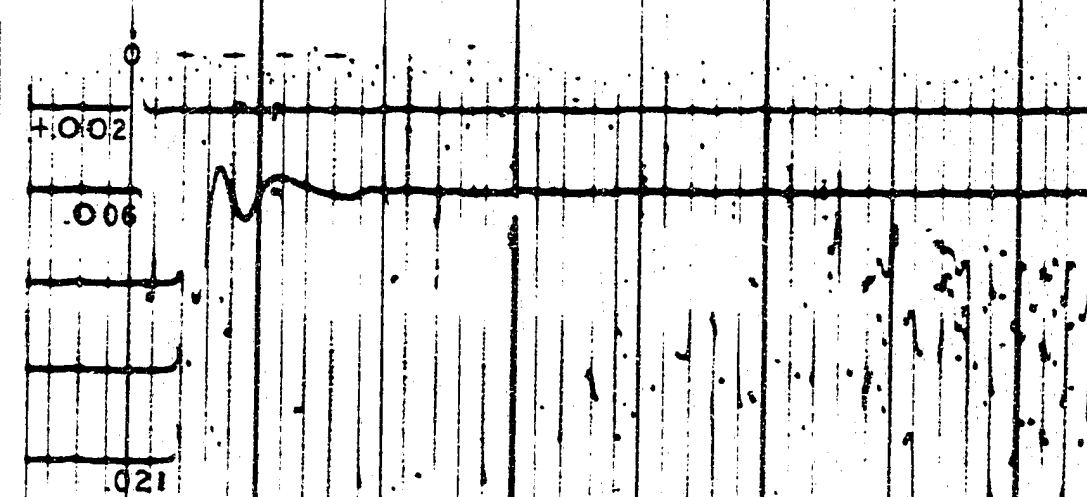
Well CPOG Chevron Gull Creek A-63
Record No. 18D WELL GEOPHONE
Well Geophone Depth 250 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/8 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 20F WELL GEOPHONE
Well Geophone Depth 200 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.

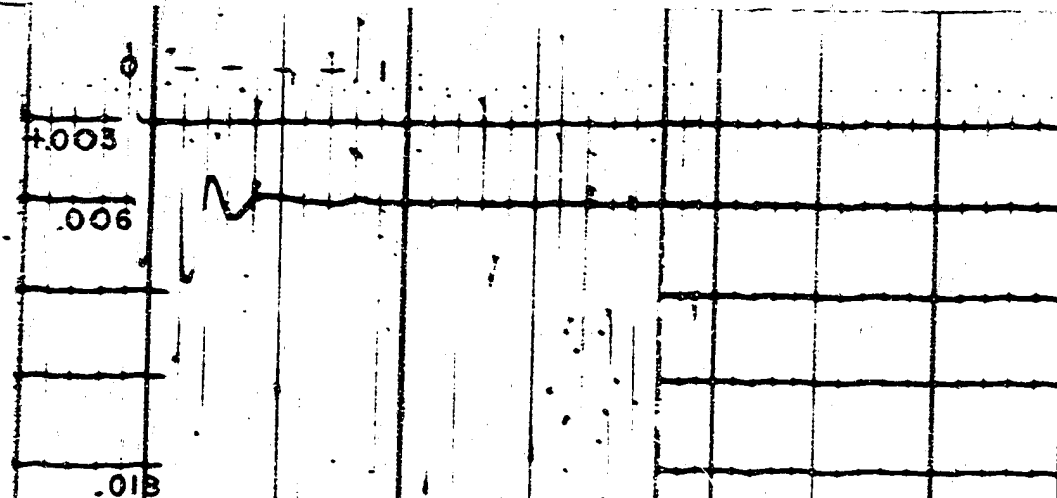


NEAR SURFACE VELOCITY RECORDS
CPOG CHEVRON GULL CREEK A-63

Well CPOG Chevron Gull Creek A-63
Record No. 216 WELL GEOPHONE
Well Geophone Depth 175 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED

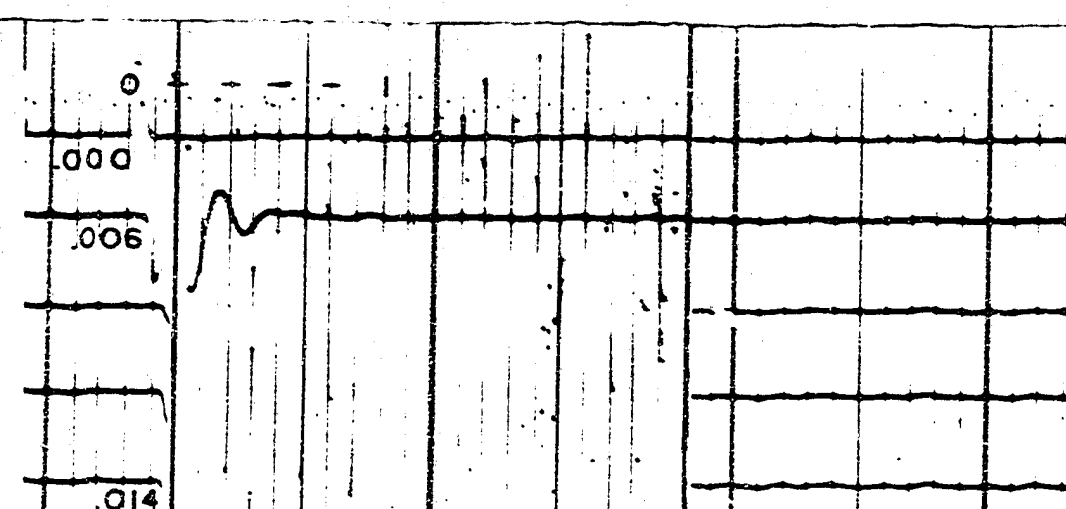
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 231 WELL GEOPHONE
Well Geophone Depth 125 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED

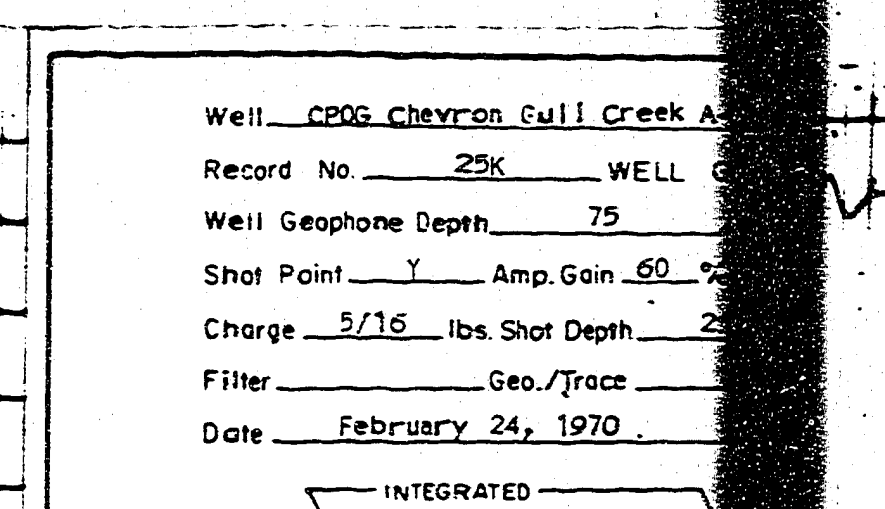
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A
Record No. 25K WELL G
Well Geophone Depth 75
Shot Point Y Amp. Gain 60 %
Charge 5/16 lbs. Shot Depth 2
Filter Geo/Trace
Date February 24, 1970

INTEGRATED

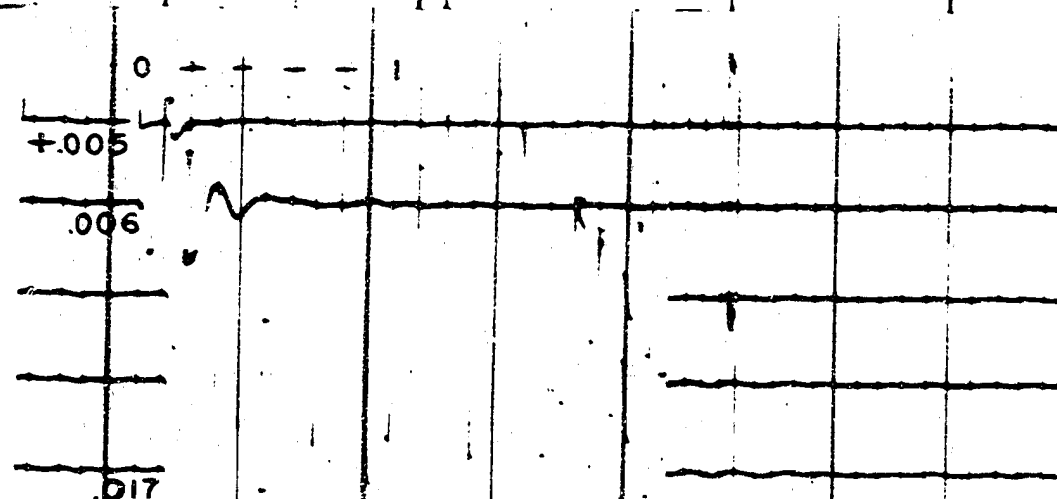
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 22H WELL GEOPHONE
Well Geophone Depth 150 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED

Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 24J WELL GEOPHONE
Well Geophone Depth 100 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED

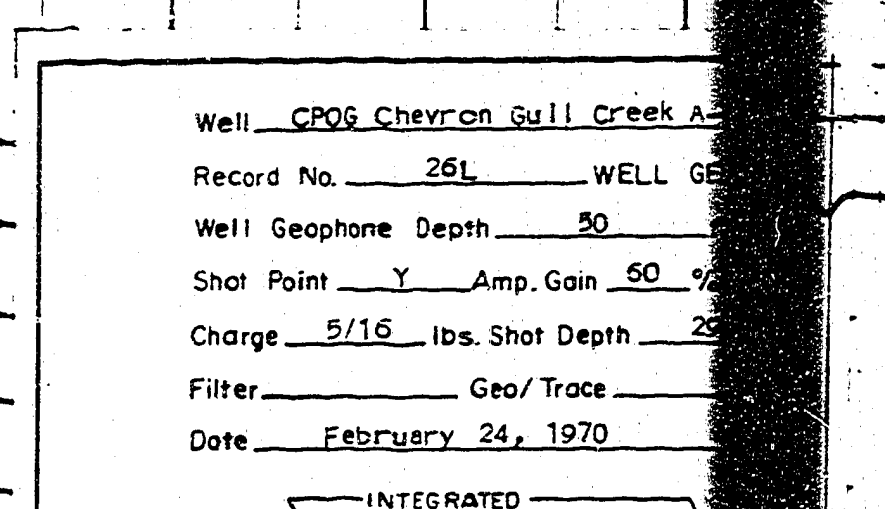
Velocity Services Ltd.



Well CPOG Chevron Gull Creek A
Record No. 26L WELL GE
Well Geophone Depth 50
Shot Point Y Amp. Gain 60 %
Charge 5/16 lbs. Shot Depth 29
Filter Geo/Trace
Date February 24, 1970

INTEGRATED

Velocity Services Ltd.



Well CPOG Chevron Gull Creek A-63
Record No. 231 WELL GEOPHONE
Well Geophone Depth 125 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.

0
0.00
0.006
0.014

Well CPOG Chevron Gull Creek A-63
Record No. 25K WELL GEOPHONE
Well Geophone Depth 75 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.

0
0.00
0.005
0.010

APP. V1

Well CPOG Chevron Gull Creek A-63
Record No. 24J WELL GEOPHONE
Well Geophone Depth 100 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.

0
0.003
0.006
0.012

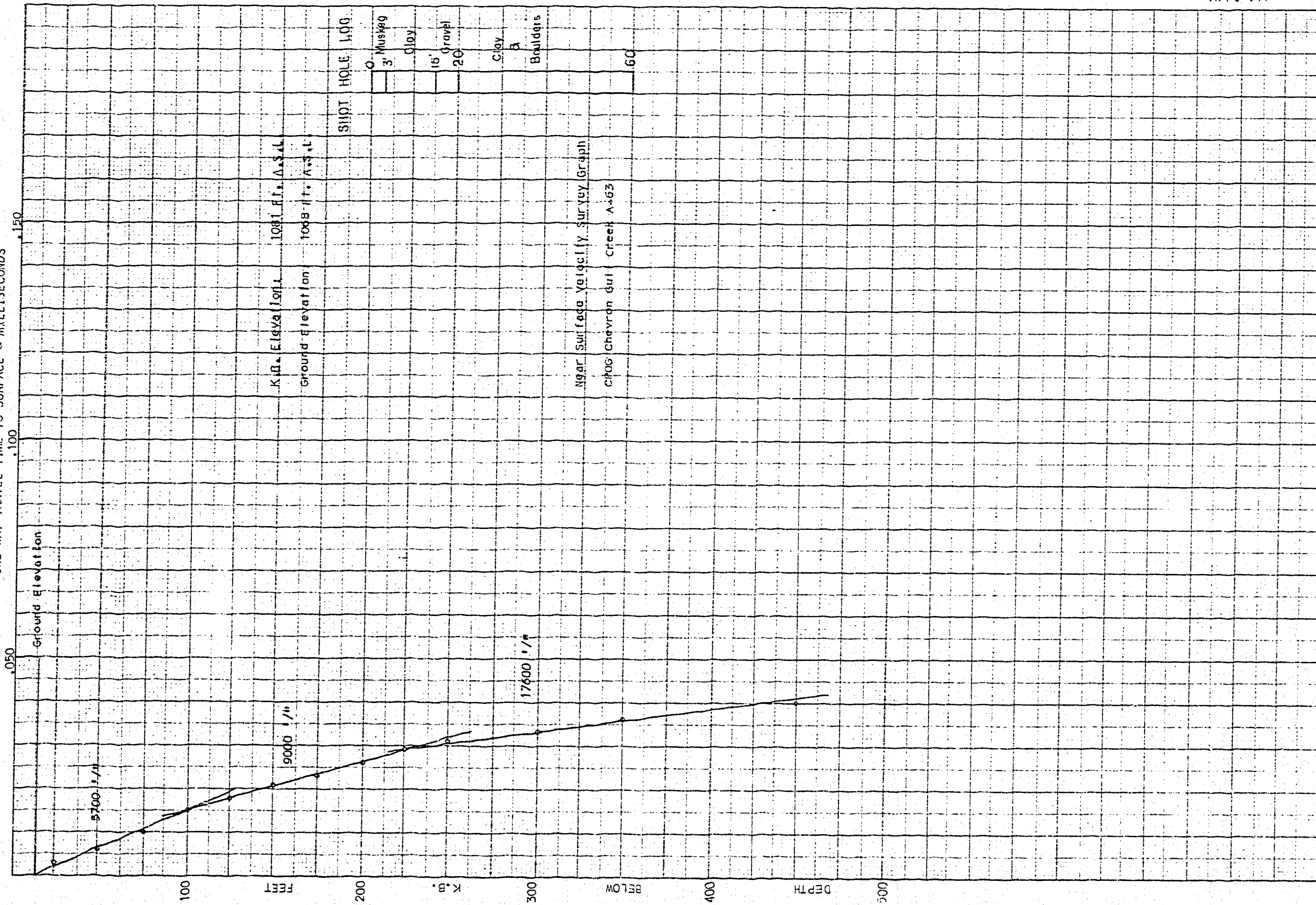
Well CPOG Chevron Gull Creek A-63
Record No. 26L WELL GEOPHONE
Well Geophone Depth 50 ft. (K.B.)
Shot Point Y Amp. Gain 60 % 15 %
Charge 5/16 lbs. Shot Depth 29 ft.
Filter Geo/Trace
Date February 24, 1970

INTEGRATED
Velocity Services Ltd.

0
0.005
0.008

NEAR SURFACE VELOCITY RECORDS
CPOG CHEVRON GULL CREEK A-63

ONE WAY TRAVEL TIME TO SURFACE - MILLISECONDS



WELL: CPOG Chevron Gull Creek A-63
LOCATION: 50°50' N. Lat., 118°15' W. Long., Northwest Territories
K.B. ELEV: 1081 FT. DATUM ELEV: 920 FT.
DATUM VELOCITY: FT./SEC.

K.B. ELEV: 1081 FT. DATUM ELEV: 920 FT.

K.B. ELEV: 1081 FT. DATUM ELEV: 920 FT.

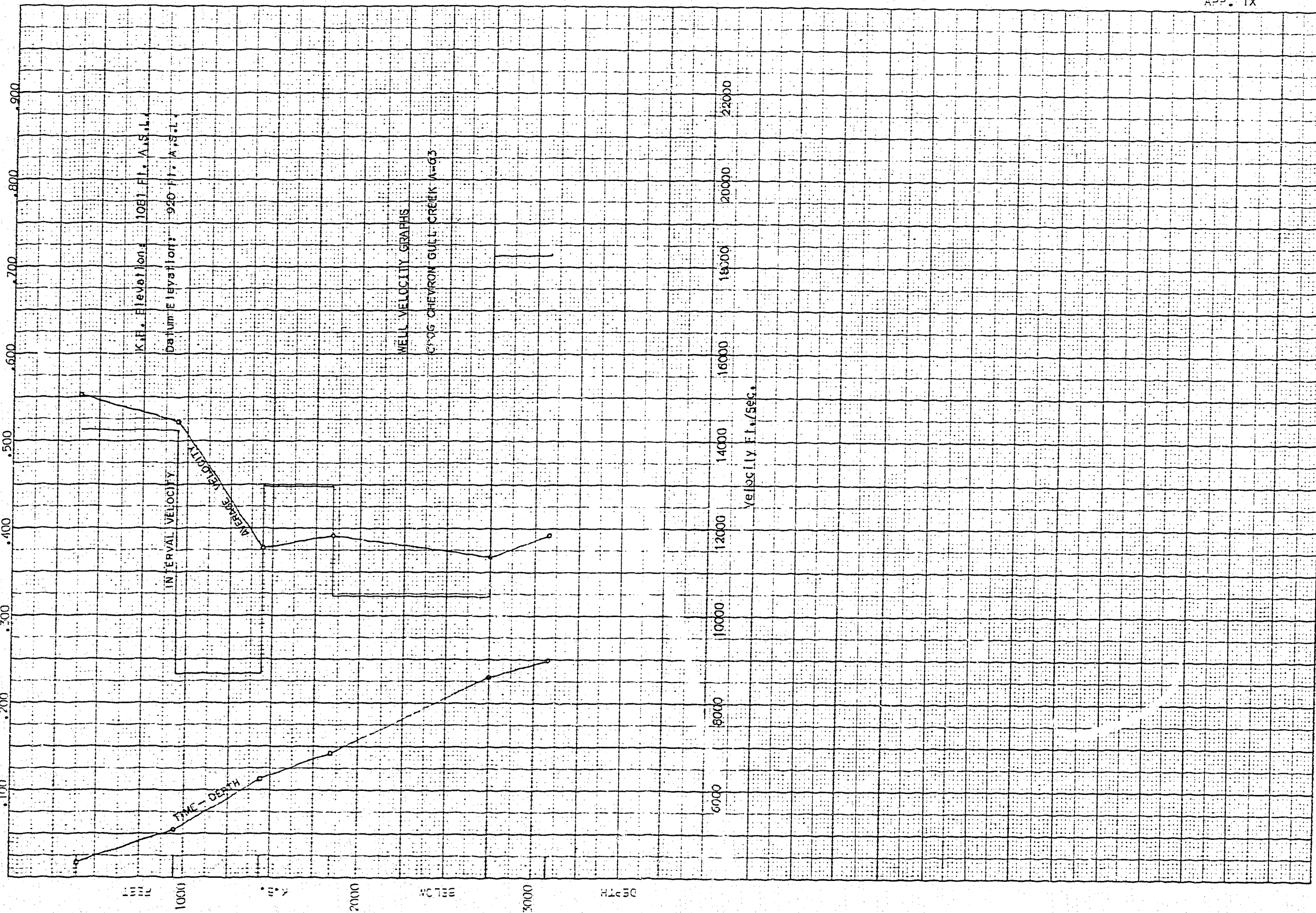
DATUM VELOCITY: FT./SEC.

[illegible]

INTEGRATED

- Velocity Services Ltd.

ONE WAY TRAVEL TIME FROM DATUM - SECONDS



<u>LEGEND</u>	
$D_{K.B.}$	Depth Below Kelly Bushing
D_c	Well Geophone Calibrating Level (K.B.)
D_s	Top of Logged Interval
D_r	Depth Below Calibrated Starting Time
T_s	Calibrated Starting Time At Depth D_s
T_c	Vertical Travel Time From Seismic Elevation Datum To Well Geophone
T_{Lu}	Arbitrary Uncorrected Integrated Time (Acoustic Log)
T_{Lr}	Uncorrected Integrated Time Equated From Calibrated Starting Time (T_s)
T_{Lc}	Corrected Integrated Time
T_L	Uncorrected Integrated Time Equated From Shallowest Well Geophone Arrival Time
ΔT_u	Uncorrected Integrated Travel Time Interval $D_c - D_s$ (Acoustic Log)
ΔT_{Lr}	$(D_r) (t/c)$
Δt_c	$T_c - T_{Lc}$
t/c	Calibrating Adjustment (Acoustic Log) - applied to uncorrected integrated time and graphically derived from average slope(empirical) plotted from $T_c - T_L$ summation

$$\begin{aligned} T_s &= T_c - \left[\Delta T_u + (D_c - D_s) (t/c) \right] \\ &= .2460'' - \left[.2238'' + (3060' - 378') (+2.9 \text{ usec./ft.}) \right] \\ &= .2460'' - (.2238'' + .0078'') \\ &= .0144'' \end{aligned}$$

[illegible]

- INTEGRATED

-Velocity Services Ltd.

DIGITAL VELOCITY DATA ANALYSIS



WELL - CPOG Chevron Gull Creek A-63
 LOCATION - 60°50' N. Lat., 118°15' W. Long., Northwest Territories
 COMPANY - Central-Del Rio Oils Limited - Canadian Pacific Oil and Gas Ltd.
 KB. ELEVATION - 1081 Ft. A.S.L.
 DATUM ELEVATION - 920 Ft. A.S.L.
 ACOUSTIC LOG - Schlumberger of Canada

Computrex Card No.	Calibrated Integrated Time	Depth Below Kelly Bushing	Uncalibrated Integrated Time	Depth Below Datum	Interval Velocity (.001" Travel Time)	Reflection Coefficients $\frac{V_2 - V_1}{V_2 + V_1}$ (.001" Int. Time)
1	0.0150	387	.0006	226	17828	
2	0.0160	404	.0015	243	16501	0.0403-
3	0.0170	421	.0025	260	17028	0.0157
4	0.0180	437	.0034	276	16313	0.0212-
5	0.0190	453	.0044	292	15977	0.0106-
6	0.0200	469	.0053	308	15993	0.0005-
7	0.0210	484	.0063	323	15251	0.0237-
8	0.0220	499	.0073	338	14713	0.0179-
9	0.0230	513	.0082	352	14061	0.0226-
10	0.0240	527	.0092	366	13853	0.0074-
11	0.0250	541	.0101	380	14453	0.0212
12	0.0260	554	.0111	393	13016	0.0523-
13	0.0270	567	.0121	406	12467	0.0215-
14	0.0280	588	.0130	419	13228	0.0296
15	0.0290	596	.0140	435	15961	0.0036
16	0.0300	613	.0149	452	17012	0.0318
17	0.0310	628	.0159	467	15313	0.0525-
18	0.0320	642	.0169	481	13531	0.0617-
19	0.0330	655	.0178	494	13433	0.0036-
20	0.0340	671	.0188	510	15695	0.0776
21	0.0350	687	.0197	526	16336	0.0200
22	0.0360	704	.0207	543	16294	0.0013-

6	0.0200	469	.0053	308	15993	0.0005
7	0.0210	484	.0063	323	15251	0.0237-
8	0.0220	499	.0073	338	14713	0.0179-
9	0.0230	513	.0082	352	14061	0.0226-
10	0.0240	527	.0092	366	13853	0.0074-
11	0.0250	541	.0101	380	14453	0.0212
12	0.0260	554	.0111	393	13016	0.0523-
13	0.0270	567	.0121	406	12467	0.0215-
14	0.0280	580	.0130	419	13228	0.0296
15	0.0290	596	.0140	435	15961	0.0936
16	0.0300	613	.0149	452	17012	0.0318
17	0.0310	628	.0159	467	15313	0.0525-
18	0.0320	642	.0169	481	13531	0.0617-
19	0.0330	655	.0178	494	13433	0.0836-
20	0.0340	671	.0188	510	15695	0.0776
21	0.0350	687	.0197	526	16336	0.0200
22	0.0360	704	.0207	543	16294	0.0013-
23	0.0370	721	.0216	560	17592	0.0383
24	0.0380	736	.0226	575	14612	0.0925-
25	0.0390	749	.0235	588	13574	0.0368-
26	0.0400	763	.0245	602	13376	0.0073-
27	0.0410	776	.0254	615	13503	0.0047
28	0.0420	790	.0264	629	13466	0.0013-
29	0.0430	800	.0274	639	10449	0.1261-
30	0.0440	814	.0284	653	13466	0.1261
31	0.0450	827	.0293	666	13674	0.0076
32	0.0460	840	.0302	679	13148	0.0196-
33	0.0470	853	.0312	692	12625	0.0203-
34	0.0480	867	.0322	706	13690	0.0404
35	0.0490	879	.0332	718	11966	0.0672-
36	0.0500	893	.0341	732	14665	0.1013
37	0.0510	907	.0351	746	13402	0.0450-
38	0.0520	918	.0361	757	10924	0.1018-
39	0.0530	930	.0370	769	12172	0.0540
40	0.0540	942	.0379	781	12502	0.0133
41	0.0550	953	.0398	792	10407	0.0914-
42	0.0560	962	.0399	801	9433	0.0491-
43	0.0570	970	.0408	809	8375	0.0594-
44	0.0580	979	.0419	818	8100	0.0167-
45	0.0590	987	.0428	826	8886	0.0463
46	0.0600	996	.0439	835	8196	0.0404-
47	0.0610	1003	.0447	842	7775	0.0264-
48	0.0620	1011	.0458	850	7258	0.0344-
49	0.0630	1021	.0468	860	9950	0.1564
50	0.0640	1029	.0477	868	8349	0.0875-
51	0.0650	1037	.0486	876	8508	0.0094
52	0.0660	1046	.0497	885	8669	0.0094
53	0.0670	1056	.0507	895	9708	0.0565
54	0.0680	1065	.0516	904	9258	0.0237-
55	0.0690	1074	.0526	913	8892	0.0282-
56	0.0700	1083	.0536	922	8669	0.0127-
57	0.0710	1091	.0545	930	8609	0.0035-
58	0.0720	1100	.0555	939	9071	0.0261
59	0.0730	1109	.0565	948	8857	0.0119-
60	0.0740	1118	.0574	957	8945	0.0049
61	0.0750	1126	.0584	965	8254	0.0402-
62	0.0760	1135	.0594	974	8762	0.0299
63	0.0770	1143	.0603	982	8297	0.0273-
64	0.0780	1152	.0614	991	8144	0.0093-
65	0.0790	1160	.0624	999	7880	0.0165-
66	0.0800	1168	.0633	1007	9027	0.0678
67	0.0810	1178	.0643	1017	9671	0.0344
68	0.0820	1187	.0653	1026	8711	0.0522-
69	0.0830	1196	.0663	1035	8936	0.0128
70	0.0840	1205	.0673	1044	8669	0.0152-
71	0.0850	1212	.0681	1051	7827	0.0510-
72	0.0860	1221	.0692	1060	8661	0.0506
73	0.0870	1228	.0701	1067	7075	0.1008-
74	0.0880	1237	.0711	1076	8883	0.1133
75	0.0890	1245	.0721	1084	7788	0.0657-
76	0.0900	1253	.0730	1092	8741	0.0577
77	0.0910	1262	.0741	1101	8301	0.0258-
78	0.0920	1270	.0750	1109	8245	0.0034-
79	0.0930	1280	.0760	1119	9496	0.0705
80	0.0940	1289	.0770	1128	9543	0.0025
81	0.0950	1299	.0779	1138	9910	0.0189
82	0.0960	1307	.0789	1146	8340	0.0860-
83	0.0970	1315	.0798	1154	8178	0.0098-
84	0.0980	1324	.0809	1163	8426	0.0149
85	0.0990	1334	.0819	1173	9532	0.0616
86	0.1000	1342	.0828	1181	8454	0.0599-
87	0.1010	1351	.0838	1190	8619	0.0097
88	0.1020	1359	.0847	1198	8618	0.0001-
89	0.1030	1367	.0857	1206	8103	0.0308-
90	0.1040	1377	.0867	1216	9319	0.0698
91	0.1050	1387	.0877	1226	9852	0.0278

78	0.0920	1270	.0750	1109	8245	0.0834-
79	0.0930	1286	.0760	1119	9496	0.0705
80	0.0940	1289	.0770	1128	9543	0.0825
81	0.0950	1299	.0779	1138	9910	0.0189
82	0.0960	1307	.0789	1146	8340	0.0860-
83	0.0970	1315	.0798	1154	8178	0.0098-
84	0.0980	1324	.0809	1163	8426	0.0149
85	0.0990	1334	.0819	1173	9532	0.0616
86	0.1000	1342	.0828	1181	8454	0.0599-
87	0.1010	1351	.0838	1190	8619	0.0097
88	0.1020	1359	.0847	1198	8618	0.0001-
89	0.1030	1367	.0857	1206	8103	0.0308-
90	0.1040	1377	.0867	1216	9319	0.0698
91	0.1050	1387	.0877	1226	9852	0.0278
92	0.1060	1395	.0886	1234	8490	0.0743-
93	0.1070	1403	.0896	1242	8357	0.0079-
94	0.1080	1412	.0906	1251	8796	0.0256
95	0.1090	1421	.0916	1260	8619	0.0102-
96	0.1100	1429	.0925	1268	8288	0.0196-
97	0.1110	1438	.0935	1277	9136	0.0487
98	0.1120	1451	.0945	1290	12325	0.1486
99	0.1130	1463	.0955	1302	12087	0.0097-
100	0.1140	1475	.0964	1314	12541	0.0184
101	0.1150	1489	.0974	1328	13453	0.0358
102	0.1160	1504	.0983	1343	15251	0.0626
103	0.1170	1518	.0993	1357	13610	0.0568-
104	0.1180	1531	.1003	1370	13228	0.0142-
105	0.1190	1544	.1012	1383	12773	0.0175-
106	0.1200	1557	.1022	1396	12939	0.0064
107	0.1210	1570	.1031	1409	13351	0.0156
108	0.1220	1583	.1041	1422	13447	0.0035
109	0.1230	1597	.1051	1436	13415	0.0012-
110	0.1240	1609	.1060	1448	12318	0.0429-
111	0.1250	1621	.1070	1460	11709	0.0250-
112	0.1260	1633	.1080	1472	11836	0.0054
113	0.1270	1645	.1090	1484	11942	0.0044
114	0.1280	1660	.1099	1499	15251	0.1217
115	0.1290	1673	.1109	1512	13082	0.0765-
116	0.1300	1685	.1118	1524	12568	0.0200-
117	0.1310	1697	.1128	1536	11365	0.0502-
118	0.1320	1710	.1138	1549	12977	0.0662
119	0.1330	1723	.1147	1562	13790	0.0303
120	0.1340	1735	.1156	1574	11813	0.0772-
121	0.1350	1747	.1166	1586	12062	0.0104
122	0.1360	1760	.1176	1599	12875	0.0326
123	0.1370	1775	.1186	1614	14655	0.0646
124	0.1380	1788	.1195	1627	12862	0.0651-
125	0.1390	1800	.1205	1639	11836	0.0415-
126	0.1400	1813	.1214	1652	13337	0.0596
127	0.1410	1826	.1224	1665	12913	0.0161-
128	0.1420	1839	.1234	1678	13016	0.0039
129	0.1430	1850	.1243	1689	11543	0.0599-
130	0.1440	1861	.1253	1700	10935	0.0270-
131	0.1450	1872	.1262	1711	10990	0.0025
132	0.1460	1883	.1272	1722	10753	0.0199-
133	0.1470	1894	.1282	1733	10507	0.0115-
134	0.1480	1904	.1292	1743	10416	0.0043-
135	0.1490	1915	.1302	1754	10659	0.0115
136	0.1500	1925	.1311	1764	10570	0.0041-
137	0.1510	1936	.1321	1775	10497	0.0034-
138	0.1520	1946	.1330	1785	10593	0.0045
139	0.1530	1957	.1340	1796	10467	0.0059-
140	0.1540	1967	.1350	1806	10395	0.0034-
141	0.1550	1978	.1360	1817	10547	0.0072
142	0.1560	1988	.1369	1827	10537	0.0004-
143	0.1570	1999	.1379	1838	10722	0.0087
144	0.1580	2010	.1389	1849	10680	0.0019-
145	0.1590	2020	.1398	1859	10660	0.0009-
146	0.1600	2031	.1408	1870	10753	0.0043
147	0.1610	2042	.1418	1881	10577	0.0082-
148	0.1620	2052	.1427	1891	10604	0.0012
149	0.1630	2063	.1437	1902	10477	0.0060-
150	0.1640	2073	.1446	1912	10672	0.0092
151	0.1650	2084	.1456	1923	10639	0.0015-
152	0.1660	2095	.1466	1934	10743	0.0048
153	0.1670	2106	.1476	1945	10881	0.0063
154	0.1680	2116	.1485	1955	10649	0.0107-
155	0.1690	2127	.1496	1966	10427	0.0105-
156	0.1700	2137	.1505	1976	10504	0.0036
157	0.1710	2148	.1515	1987	10557	0.0025
158	0.1720	2158	.1524	1997	10615	0.0027
159	0.1730	2169	.1534	2008	10711	0.0045
160	0.1740	2180	.1544	2019	10701	0.0004-
161	0.1750	2191	.1554	2030	10806	0.0068
162	0.1760	2201	.1563	2040	10752	0.0025-
163	0.1770	2212	.1573	2051	10701	0.0023-

154	0.1583	2118	.1487	1955	10349	0.0107-
155	0.1690	2127	.1496	1966	10427	0.0105-
156	0.1700	2137	.1505	1976	10504	0.0038
157	0.1710	2148	.1515	1987	10557	0.0025
158	0.1720	2158	.1524	1997	10615	0.0027
159	0.1730	2169	.1534	2008	10711	0.0045
160	0.1740	2180	.1544	2019	10701	0.0084-
161	0.1750	2191	.1554	2030	10806	0.0048
162	0.1760	2201	.1563	2040	10752	0.0025-
163	0.1770	2212	.1573	2051	10701	0.0023-
164	0.1780	2223	.1583	2062	10608	0.0043-
165	0.1790	2234	.1593	2073	10935	0.0151
166	0.1800	2244	.1601	2083	10810	0.0057-
167	0.1810	2255	.1611	2094	10649	0.0075-
168	0.1820	2266	.1621	2105	10764	0.0053
169	0.1830	2276	.1630	2115	10638	0.0058-
170	0.1840	2287	.1640	2126	10701	0.0029
171	0.1850	2298	.1650	2137	10649	0.0024-
172	0.1860	2309	.1660	2148	10913	0.0122
173	0.1870	2319	.1669	2158	10663	0.0106-
174	0.1880	2330	.1679	2169	10670	0.0006-
175	0.1890	2340	.1689	2179	10256	0.0197-
176	0.1900	2351	.1699	2190	10214	0.0020-
177	0.1910	2361	.1709	2200	10020	0.0095-
178	0.1920	2371	.1719	2210	10020	0.0000-
179	0.1930	2381	.1728	2220	9950	0.0035-
180	0.1940	2390	.1737	2229	9889	0.0031-
181	0.1950	2401	.1746	2240	10037	0.0074
182	0.1960	2411	.1758	2250	10020	0.0008-
183	0.1970	2421	.1767	2260	9990	0.0015-
184	0.1980	2431	.1777	2270	9990	0.0000-
185	0.1990	2440	.1786	2279	9965	0.0013-
186	0.2000	2450	.1795	2289	10010	0.0022
187	0.2010	2461	.1806	2300	10046	0.0017
188	0.2020	2471	.1816	2310	10172	0.0062
189	0.2030	2481	.1825	2320	10070	0.0050-
190	0.2040	2491	.1835	2330	10235	0.0081
191	0.2050	2501	.1844	2340	10204	0.0015-
192	0.2060	2511	.1854	2350	10162	0.0020-
193	0.2070	2522	.1864	2361	10120	0.0020-
194	0.2080	2532	.1874	2371	10101	0.0009-
195	0.2090	2542	.1883	2381	10341	0.0117
196	0.2100	2553	.1893	2392	10743	0.0190
197	0.2110	2564	.1903	2403	11123	0.0173
198	0.2120	2575	.1912	2414	11306	0.0081
199	0.2130	2586	.1922	2425	11329	0.0010
200	0.2140	2597	.1932	2436	10577	0.0343-
201	0.2150	2608	.1941	2447	11123	0.0251
202	0.2160	2619	.1951	2458	10881	0.0110-
203	0.2170	2629	.1961	2468	10870	0.0387-
204	0.2180	2638	.1970	2477	9403	0.0343-
205	0.2190	2648	.1980	2487	9469	0.0035
206	0.2200	2657	.1990	2496	9432	0.0020-
207	0.2210	2668	.2000	2507	10224	0.0402
208	0.2220	2678	.2009	2517	10741	0.0246
209	0.2230	2688	.2019	2527	9852	0.0432-
210	0.2240	2698	.2028	2537	10121	0.0134
211	0.2250	2709	.2039	2548	10368	0.0120
212	0.2260	2719	.2048	2558	10090	0.0135-
213	0.2270	2729	.2058	2568	9632	0.0129-
214	0.2280	2739	.2067	2578	10964	0.0544
215	0.2290	2750	.2077	2589	10608	0.0165-
216	0.2300	2764	.2087	2603	14161	0.1434
217	0.2310	2782	.2096	2621	18014	0.1197
218	0.2320	2801	.2106	2640	18810	0.0216
219	0.2330	2820	.2115	2659	18903	0.0024
220	0.2340	2839	.2125	2678	19017	0.0030
221	0.2350	2858	.2134	2697	19287	0.0070
222	0.2360	2878	.2144	2717	19083	0.0053-
223	0.2370	2897	.2153	2736	19855	0.0007-
224	0.2380	2915	.2162	2754	18883	0.0045-
225	0.2390	2935	.2172	2774	19065	0.0048
226	0.2400	2954	.2181	2793	19405	0.0088
227	0.2410	2973	.2191	2812	18772	0.0166-
228	0.2420	2992	.2200	2831	19093	0.0085
229	0.2430	3009	.2210	2848	16977	0.0586-
230	0.2440	3024	.2219	2863	15487	0.0459-
231	0.2450	3042	.2229	2881	17647	0.0651
232	0.2460	3061	.2238	2900	18680	0.0285
233	0.2470	3079	.2247	2918	18707	0.0007