Canada Oil and Gas Lands Administration — Administration du pétrole et du gaz des terres du Canada

D.A. 1414

Nova Scotia	☐	West Coast	☐	Exploratory	☒
Newfoundland	☐	Northern	☒	Development	☐
Gulf of St. Lawrence	☐	Hudson Bay	☐	Delineation	☐
				Service	☐

AUTHORITY TO DRILL A WELL

APPLICATION

This apolication is submitted with Section 82 of the Canada Oil and Gas Drilling Regulations. When approved under Section 83 of the Regulations, it is the requisite authority for the commencement of drilling operations.

Well Name in Full: CHEVRON EAST HUNE RIVER I-20

Operator: CHEVRON CANADA RESOURCES — Drilling Program No.: 9211-C4-1

Contractor: SHENTAH DRILLING — Permit or Lease No.: (Land Use) N89A263

Drilling Rig or Unit: One (1) — Estimated Well Cost: $1 065 200

Location-Unit: I — Section: 20 — Grid Area: 66° 00' 129° 15'

Coordinates: Lat.: N65° 59' 38.15" — Long.: W129° 17' 16.62"

Area: NORTHERN (N.W.T.) — Field/Pool: Exploratory - Wildcat

Elevation-RT/KB: 100 m (ASL) — Seafloor: N/A (BRT)

Approx. Spud Date: 1990-03-11 — Estimated Days on Location: 12

Anticipated Total Depth: 430 m — Target Horizon(s): Gilmore Lake Sandstone

UWI: 3001206600129150

EVALUATION PROGRAM

Ten-metre sample intervals: Below 339.7 mm surface casing

Five-metre sample intervals: Below 339.7 mm surface casing

Canned sample intervals: N/A

Conventional cores at: As per ADW Submission

Logs and Tests: As per ADW Submission

CASING AND CEMENTING PROGRAM

O.D.	Weight:	Grade:	Setting Depth Below Seafloor:	Cementing Program (Volumes):
508.0 mm	139.9 kg/m	K-55	40 m	* Alaskan Permafrost
339.7 mm	101.2 kg/m	K-55	240 m	* Alaskan Permafrost
177.8 mm	34.2 kg/m	K-55	430 m	** Class "G" + 0.75% CFR-3 + 0.5% Halad 344 + 2% $CaCl_2$

* Cement to Surface ** Caliper + 25% Excess

B.O.P. Equipment: 346.1 mm, 21 000 kPa WP

1 - Hydril "GK" Annular

1 - Shafco "NRS" (double) Ram

Other Information: 1 - Shafco "NRS" (single) Ram

1 - Troy Series 600 Single Drum Drawworks

2 - Continental Emsco Model D8-550 7" x 16" Duplex Mud Pump

Signed: J. H. GARNAR — Title: Manager Drilling Division

Date: 1990-03-08 — Company: CHEVRON CANADA RESOURCES

APPROVAL

An approved copy of this notice is to be posted at each wellsite.

Signed: _____ Engineering Branch

Date: 90-03-09

File: 9211-C4-1-4

Department of Energy, Mines and Resources / Ministère de l'Énergie, des Mines et des Ressources

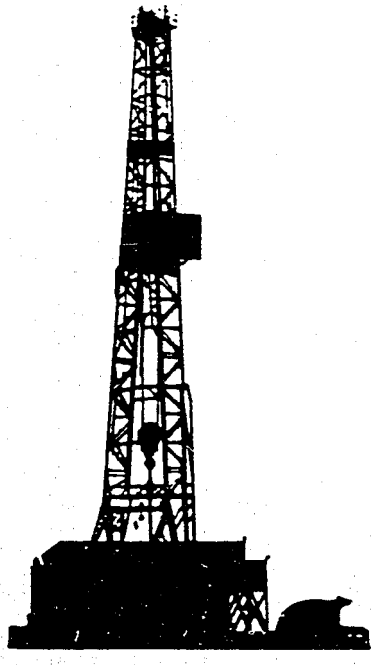
Department of Indian Affairs and Northern Development / Ministère des Affaires indiennes et du Nord canadien

Canada

MF

Chevron Canada Resources

Final Well Report



Chevron East Hume River I-20

65° 59' 38.15" N

129° 17' 16.62" W

FORT GOOD HOPE

OTTAWA COPY 9211-C4-1-4

FINAL WELL REPORT

CHEVRON EAST HUME RIVER I-20

65° 59' 38.15" N

129° 17' 16.62" W

Grid Area 66° 00', 129° 15'

1990-04-25

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FINAL WELL REPORT

INTRODUCTION

i) Summary

The Chevron East Hume River I-20 well location is situated in the northeastern part of the landblock, with the primary objective being porous sands of the Lower Cretaceous Gilmore Lake Member.

The Gilmore Lake Member consists of fluvial, well sorted, medium grained quartzose sandstone with associated shale, coal and sandstone deposited in an interfluvial environment. Porosity in this sand is intergranular and averages 12% with excellent permeability. The trap is stratigraphic with tight Gilmore Lake shale, coal and sandstone forming the lateral seal, and tight Arctic Red sandstone creating the vertical seal. The source rock is believed to be shales of the Gilmore Lake.

ii) Operator, Contractor, and Drilling Unit Used

See General Data

iii) Wellsite Operations

(Refer to Appendix 1)

iv) Formations Penetrated

(Refer to Appendices 2, 3 and 4)

v) Testing Results

(Refer to Appendix 5)

vi) Locality Map

(Refer to Appendix 6)

GENERAL DATA

i) Well Name: Chevron East Hume River I-20
Exploration Agreement Number: EL322
Federal Designation: N 65° 59' 38.15"/W 129° 17' 16.62"
Unit I, Section 20
Grid Area 66° 00', 129° 15'

ii) Well Location:

Wellsite Location

The well was staked at theoretic shot point 3672X line 60X between SP 3663X and 3690X.

Legal Survey Requirements

The well location was surveyed using found stations N-10-1 and N-10-2 from the survey of Chevron Hume River N-10 using conventional methods. The survey was conducted between February 24 and February 26th 1990.

Computations

All coordinates are UTM grid on NAD27 datum and were computed assuming the coordinates of stations N-10-1 and N-10-2.

iii) Unique Well Identifier

Drilling Program No.: 9211-C4-1
Land Use Permit No.: N89A263

iv) Operator and Drilling Contractor

(OPERATOR)

Chevron Canada Resources
500 5 Avenue S.W.
CALGARY, Alberta
T2P 0L7
Phone 234-5000

(CONTRACTOR)

Shehtah Drilling Limited
P.O. Box 1467
YELLOWKNIFE, N.W.T.
X1A 2P1

General Manager: Mr. R. F. (Dick) Gajek
Telephone: (403) 873-4225

v) Drilling Unit

Name:	Shehtah 1E
Type:	2 800 m capacity, Troy Series 600 (600 hp)
Registry:	N/A
Year Built:	1982
Shipyard:	N/A

vi) Position Keeping - N/A

vii) Aircraft Support

a) Company

The Chevron Aircraft which supported the drilling operations consisted of a Hawker Siddeley HS-748, a Cessna Citation C-2 and a Twin Otter.

The Hawker Siddeley and Citation were based in Calgary while the Twin Otter remained at Norman Wells.

b) Charter

Charter Aircraft consisted of North-Wright's Twin Otter and Okanagan's Bell 206B Helicopter. These services supplemented our Company aircraft and were contracted as required.

c) Commercial

Canadian Airlines had daily flights from Calgary to Norman Wells return, which were used periodically to transport supplies, groceries, and equipment.

viii) Drilling Unit Performance - N/A

ix) Difficulties and Delays

a) Conductor Hole

The 660.4 mm conductor hole was drilled to 6 m when circulation was lost. Lost circulation material was mixed, but circulation could not be regained. The hole was drilled to 17 m. A 7.3 m^3 (9 t) Dowell Arctic Set cement plug was mixed to 1800 kg/m^3, pumped, and allowed to set. After waiting on cement, the hole was redrilled with full circulation to 44 m. Circulation was again lost at 44 m, but regained with lost circulation material prior to running 508 mm casing.

Time to drill 660.4 mm conductor hole and regain circulation	= 31 3/4 hours*
Time to run and cement 508.0 mm conductor casing	= 8 hours
TOTAL	39 3/4 hours
	= 12 3/4 hours

*Estimated Delay Time

SUMMARY OF DRILLING OPERATIONS

i) Elevations

Ground:	68.96 m
Fill:	0.70 m
KB to Ground:	5.46 m
KB Elevation:	75.12 m

ii) Total Depth

Drilled:	365 m
Logged:	365 m
Plugged Back:	18 m

iii) Date Spudded

1990-03-12-02:30 hours.
Notified COGLA Yellowknife of spud.

iv) Date Drilling Completed

Drilling was completed 1990-03-19

v) Date of Rig Release

Shehtah Rig 1E was released at 12:00 hrs 1990-03-24

vi) Well Status

Abandoned.

vii) Hole Size and Depth

Hole	Size	Depth
a) Conductor	660.4 mm (26")	44 m (144 ft)
b) Surface	444.5 mm (17 1/2")	234 m (768 ft)
c) Main	215.9 mm (8 1/2")	365 m (1198 ft)

viii) Casing and Cementing Record

HOLE	SIZE	WEIGHT	GRADE	MAKE	NO. OF JTS.	THREAD TYPE	DATE SET	DEPTH SET (m)	CEMENT TYPE & VOLUME
Conductor	508.0 mm	139.9 kg/m	K-55		4	Butt-ress	90-03-13	42.7	3m3 SAPP Water pre-flush followed by 14.0m3 (17.3t) Alaskan Class "G" Permafrost cement c/w 0.15% permafrost retarder mixed to 1760 kg/m3 slurry density
Surface	339.7 mm	101.2 kg/m	K-55	US Steel	19	ST&C	90-03-17	232.7	3m3 SAPP water pre-flush followed by 36.4m3 (44.9t) Alaskan Class "G" Permafrost cement c/w 0.15% permafrost retarder mixed to 1760kg/m3 slurry density

ix) Side Tracked Hole - N/A

x) Drilling Fluid
(Refer to Appendix 7)

HOLE	SIZE mm (in)	TYPE	PROPERTIES									
			Den-sity	Vis-cosity	W.L.	pH	PV	YP	Gel in/10min	Solids	Oil	Cl
Conduc-tor	660.4 (26)	Gel-Chemical	1160	53	14.8	9	13	4	3.5/12	10%	Nil	180
Surface	444.5 (17 1/2)	Gel-Chemical	1120	80	7.8	9.5	33	16	5/10	8%	Nil	200
Main	215.9 (8 1/2)	Gel-Chemical	1110	68	8	9	27	13	4.5/12	7%	Nil	250

xi) Fishing Operations - N/A

xii) Well Kicks

When pulling out of hole after drilling to T.D., the well kicked. The bit was at 251 m, SIDPP = 100 kPa, SICP = 100 kPa. The hole was circulated with original 1120 kg/m^3 mud, holding 400 kPa overkill on the choke. Upon opening the well to atmosphere, a very minor flow was observed. After installing the inside BOP, the pipe was stripped in. A bridge was encountered at 308 m and the hole was then circulated with 1180 kg/m^3 mud. The hole was observed dead after circulation was complete.

xiii) Formation Leak-Off Tests (FLOT)

CASING SIZE mm (in)	SHOE DEPTH	FLUID DENSITY (kg/m3)	MAXIMUM SURFACE PRESSURE (kPa)	EQUIVALENT GRADIENT (kPa/m)	EQUIVALENT MUD DENSITY (kg/m3)	DATE FLOT CONDUCTED
508.0 (20)	42.7 m				N/A	N/A
339.7 (13 3/8)	232.7 m	1120	4 950	32.2	3280	90-03-18

xiv) Time Distribution

	HOURS	DAYS
DRILLING OPERATIONS		
1. Drilling	27 1/2	1.2
2. Tripping	1 1/2	0.1
3. Coring	-	-
4. Deviation Surveys	6 1/4	0.2
5. Rig Service and Tests	1 1/2	0.1
DEAD TIME		
1. Drillstem Testing	56 1/4	2.3
2. Logging	29 1/2	1.2
3. Circulating Samples	1/4	-
4. Casing, Cementing and WOC	129	5.4
5. Hole Conditioning	10 1/4	0.4
6. Rig Move, Up, Down	59 1/2	2.5
7. Completing	-	-
LOST TIME		
1. Fishing	-	-
2. Lost Circulation	26	1.1
3. Repairs	1/2	-
4. Waiting	-	-
5. Miscellaneous	9	0.4
TOTAL:	357	14.9

xv) Deviation Surveys
(Refer to Appendix 8)

xvi) Abandonment Plugs

PLUG NUMBER	INTERVAL	LENGTH (m)	FLUID BETWEEN PLUGS	FORMATION ISOLATED
1	365m - 200m	165 m		Bottom hole
EZSV	133m			
2	133m - 103m	30 m	Water	In 339.7mm surf. csg
3	48m - 18m	30 m	Water	In 339.7mm surf. csg
4	17m - 7m	10 m	Water	In 339.7mm surf. csg
	WELD ON CAP ON 339.7 mm SURFACE CASING 1m BELOW GROUND			

xvii) Composite Well Record

(Refer to Appendix 2)

SUMMARY REPORT

WELL NAME	Chevron East Hume River I-20
LOCATION	Unit I, Sec. 20
COORDINATES	N 65° 59' 38.15" W 129° 17' 16.62" (longitude)
GROUND ELEVATION	68.96 m Fill 0.7 m
KB TO GROUND LEVEL	5.46 m
KB ELEVATION	75.12 m
TOTAL DEPTH	365 m
STATUS	Dry and Abandoned
SPUDDED	1990-03-12-02:30
RIG RELEASE	1990-03-24-12:00
GEOLOGIST	Dave Hendry
ENGINEERS	Bill Marsh, Rod Uchytil, Bill Meyer, Kevin Anderson
CONTRACTOR	Shehtah 1E
MUD LOGGER	Datalog
HOLE SIZE	660 mm Surface to 44 m 444.5 mm 44 m to 234 m 215.9 mm 234 mm to 365 m
CONDUCTOR CASING	Ran 4 joints of 508 mm, 139.9 kg/m, K-55, Buttress. Landed at 42.77 m. Total string 43.02 m. Cemented with 17.3 tonnes of class "G" permafrost cement. C.I.P. 1990-03-13-21:45
SURFACE CASING	Ran 19 joints of 339.7 mm, 101.2 kg/m, K-55, 8rnd, ST & C casing. Landed at 232.7 m. Total string 227.1 m. Cemented with 44.9 tonnes of permafrost cement plus 0.15% retarder. C.I.P. 1990-03-17-08:40

ABANDONMENT PLUGS

Plug #1	365 m	- 200 m
Plug #2	133 m	- 103 m
Plug #3	48 m	- 18 m

DITCH SAMPLES 5 m intervals

One set of vialed samples for Chevron Canada Resources and one set of bagged samples, one set of vialed samples, and one set of canned samples for the COGLA. Samples stored at ISPG.

SAMPLE DESCRIPTION Ground zero - 365 m (Refer to Appendix 3)

WELL SITE ROCK LOG DESCRIPTION Ground zero - 365 m (Refer to Appendix 9)

CORED INTERVALS (Refer to Appendix 4) Side wall cores at 299.5 m, 300.25 m, 302 m, 305 m.

LITHOLOGY (Refer to Appendix 10)

LOST CIRCULATION While drilling conductor hole at 6, 9, 17 and 44 m.

FORMATION TESTS

DST #1 297 m to 302.96 m Arctic Red Sandstone
Inflate Straddle - Baker Oil Tools
Closed Chamber - The Evaluators

Times: 10, 56, 59, 178

Preflow: Closed Chamber.

Valve Open: Closed Chamber.

Recovery: 9 m gassified drilling fluid.

Pressures: (In Kpa)						
	IHP	3 724	1st IFP	362	1st FFP	422
	ISIP	1 129	2nd IFP	414	2nd FFP	448
	FSIP	2 526	FHP	3 698		

Recorder at 300 m BHT 19.1°C

DST #2 58 m to 133 m Surface Sand
Dual Conventional Bottom Hole - Baker Oil Tools
Closed Chamber - The Evaluators

Misrun - lost packer seat during preflow

Recovery: 40 m fluid water from casing

DST #3 58 m to 133 m Surface Sand
Dual Conventional Bottom Hole - Baker Oil Tools

Misrun - Charts indicate pipe was full when tool was opened.

Recovery: 47 m muddy water from casing.

DST #4 58 m to 132.5 m Surface Sand
Inflate Bottom Hole - Baker Oil Tools

Times: 16, 29.5, 60, 93

Preflow: Strong air blow, immediately decreasing to nil in four minutes. No gas to surface.

Valve Open: Very weak air blow decreasing to nil in three minutes. No gas to surface.

Recovery: 15 m muddy water.

Pressures:	IHP	776	1st IFP	457	1st FFP	491
(In Kpa)	ISIP	509	2nd IFP	500	2nd FFP	500
	FSIP	500	FHP	767		

Recorder at 61 m BHT 15°C

BIOSTRATIGRAPHIC DATA N/A

GEOLOGICAL MARKERS
Chevron East Hume River I-20
KB Elevation 75 m (Actual KB 75.12 m)

Formation	Samples Depth - m	Log Depth - m	Log Elevation- m
1. Arctic Red Sandstone	294	288	-213
2. Gilmore Lake Sandstone	302	299	-224
3. Gilmore Lake Shale & Coal	308	307	-232
4. Imperial Shale	324	323	-248
TOTAL DEPTH	365	365	-290

(i) LOGGING

By Computalog (Refer to Appendix 12)

Run #1 - 1990-03-20

DIL-SP	365 m -	232 m
SLD-CNS-SGR-XYCAL	365 m -	232 m
CNS-SGR	365 m -	232 m
MEL-GR	365 m -	232 m
BCS-GR-CAL	365 m -	232 m
SSL-GR-CAL	365 m -	232 m
RSWCT-GR	305 m	
	302 m	
	300.25 m	
	299.5 m	

(ii) FORMATION STIMULATION

N/A

iii) FORMATION & PRODUCTION TEST RESULTS

N/A

Environmental Well Report: N/A

APPENDIX 1

WELLSITE OPERATIONS SUMMARY

DAILY PROGRESS SUMMARY

DATE: 12-03-90 **DAY:** 0 **RIG:** SHEHTAH 1E
K.B.: 75.12m **GRD:** 68.96m
OPERATIONS SUMMARY: Continue moving rig to CHEVRON EAST HUME RIVER I-20, Rig up and prepare to spud.
MIDNIGHT DEPTH: 0 **OPERATION:** Prepare to spud **PROGRESS:** 0

DATE: 13-03-90 **DAY:** 01 **RIG:** SHEHTAH 1E
K.B.: 75.12m **GRD:** 68.96m
OPERATIONS SUMMARY: Prepare to spud. SPUD 12-03-90 at 02:30, drill 1m to 6m, loss circulation, drill to 9m, loss circulation, spot LCM, mix mud, spot LCM slug, drill to 17m, loss circulation, build volume, spot LCM material, circulate hole before cementing, rig in cementers & pump 9t cement until returns to surface, WOC, drill out cement, circulate out contaminated mud, build volume.
MIDNIGHT DEPTH: 17m **OPERATION:** Building volume **PROGRESS:** 17m

DATE: 14-03-90 **DAY:** 02 **RIG:** SHEHTAH 1E
K.B.: 75.12m **GRD:** 68.96m
OPERATIONS SUMMARY: Drill to 44m, lost circulation, mix LCM pill and pump, wiper trip, mix LCM pill and pump, wiper trip, mix LCM pill and pump, POOH to run csg, rig out table and install false floor, run csg, RIH w/drill pipe to tag in adaptor, circ, cement through drill pipe, CIP: 21:45, tag in adaptor did not hold, POOH, mud level static, install circulating head on csg, WOC.
MIDNIGHT DEPTH: 44m **OPERATION:** Wait on cement **PROGRESS:** 27m

DATE: 15-03-90 **DAY:** 03 **RIG:** SHEHTAH 1E
K.B.: 75.12m **GRD:** 68.96m
OPERATIONS SUMMARY: WOC, nipple up diverter, RIH w/bit, displace hole, pressure test, drill out cement, displace to mud, cement contaminated mud, dump clobbered mud, build volume, drill ahead.
MIDNIGHT DEPTH: 60m **OPERATION:** Drilling **PROGRESS:** 16m

DATE: 16-03-90 **DAY:** 04 **RIG:** SHEHTAH 1E
K.B.: 75.12m **GRD:** 68.96m
OPERATIONS SUMMARY: Drill to 102m, with surveys, POOH for survey barrel RIH, POOH for plugged jets, RIH, sirc out sand, clean to bottom and circ out sand, drill ahead with surveys.
MIDNIGHT DEPTH: 195m **OPERATION:** Drilling **PROGRESS:** 135m

DATE: 17-03-90 **DAY:** 05 **RIG:** SHEHTAH 1E
K.B.: 75.12m **GRD:** 68.96m
OPERATIONS SUMMARY: Drill to 222m, POOH laying down 9" collars, pick up monel and 6" collars, RIH taking directional surveys every 50m, drill ahead to 234m, attempt to POOH, very tight, pump out pipe and collars to 110m, pull up into casing, RIH to 100m, could not pump, POOH and unplug bit and monel, RIH breaking circulation every stand, circ on bottom, POOH for casing, rig to run casing, start to run casing.
MIDNIGHT DEPTH: 234m **OPERATION:** Begin running casing **PROGRESS:** 39m

DATE: 18-03-90 DAY: 06 RIG: SHEHTAH 1E
K.B.: 75.12 m GRD: 68.96 m
OPERATIONS SUMMARY: Run casing, circulate casing, rig in cementers, cement with 44.9t of Permafrost cement with 0.15% permafrost retarder. CIP at 08:40 17-03-90, rig out cementers, WOC, slack off landing joint, nipple down diverter, cut conductor, install BOP's, nipple up.
MIDNIGHT DEPTH: 234 m OPERATION: Nipple up PROGRESS: 0.0 m

DATE: 19-03-90 DAY: 07 RIG: SHEHTAH 1E
K.B.: 75.12 m GRD: 68.96 m
OPERATIONS SUMMARY: Finish nippling up BOP's and manifold, pressure test, RIH with 311mm bit, pressure test, POOH, wait on welder rebuilding flow nipple, drill out cement and formation to 238m, displace hole to mud, run formation leak off test, POOH, change to 216mm bit, RIH.
MIDNIGHT DEPTH: 238 m OPERATION: Drilling PROGRESS: 4 m

DATE: 20-03-90 DAY: 08 RIG: SHEHTAH 1E
K.B.: 75.12 m GRD: 68.96 m
OPERATIONS SUMMARY: Drill to 365m, circ bottoms up, survey at 355m, pull 2 tight stands, survey, pull 2 more tight stands, well kicked, installed stabbing valve and kelly, well stabilized at 100 kPa, circ well to 1120kg mud with 400 kPa overkill, opened well, minor flow, shut in well and stripped in, hit bridge, circ to 1180kg mud, well dead on check, ream to bottom, circ hole to 1250kg mud for appropriate trip margin, POOH to log, log with Computalog.
MIDNIGHT DEPTH: 365 m OPERATION: Logging PROGRESS: 127 m

DATE: 21-03-90 DAY: 09 RIG: SHEHTAH 1E
K.B.: 75.12 m GRD: 68.96 m
OPERATIONS SUMMARY: Continue logging with Computalog until 13:00, RIH, circ and condition mud, POOH to DST, make up DST tool, RIH, run DST #1 over 297m-302m interval.
MIDNIGHT DEPTH: 365 m OPERATION: Testing PROGRESS: 0.0 m

DATE: 22-03-90 DAY: 10 RIG: SHEHTAH 1E
K.B.: 75.12 m GRD: 68.96 m
OPERATIONS SUMMARY: Continue DST #1, POOH with DST, lay down tool, RIH for clean out trip, POOH, rig up loggers for SFT, SFT parted when picking it up from catwalk, tool broken internally, switched to sidewall cores, RIH and cut 4 sidewall cores, POOH, rig out loggers, lay down collars and pick up drill pipe to cement off hole back to surface casing, run abandonment plug #1. POOH.
MIDNIGHT DEPTH: 365 m OPERATION: POOH PROGRESS: 0.0 m

DATE: 23-03-90 DAY: 11 RIG: SHEHTAH 1E
K.B.: 75.12 m GRD: 68.96 m
OPERATIONS SUMMARY: Run and set EZSV bridge plug at 133m on drill pipe, inside 339.7mm casing, POOH with DP. Pressure test plug to 10500 kPa. RIH with 80m of DP and blow water out of casing with air. Wait on perforators. Run GR-CCL correlation log. Correlate on depth to SLD-CNS-SGR log dated 90-03-19. RIH perforating guns and perforate the intervals 67.0m-73.5m and 60.0m-63.5m with charges at 90 degree phasing.
MIDNIGHT DEPTH: 365 m OPERATION: FU to DST PROGRESS: 0.0 m

DATE: 24-03-90 DAY: 12 RIG: SHEHTAH 1E
K.B.: 75.12 m GRD: 68.96 m
OPERATIONS SUMMARY: Pick up and RIH with bottom hole conventional tool and set packers, run DST #2, packer seat failed, POOH with DST tools. RIH with bottom hole conventional tool and set packers, run DST #3, POOH with DST tools, charts indicated valve was open on tool when RIH, test results were invalid. Pick up bottom hole inflate tools and RIH, run DST #4, POOH and lay down test tools, test was successful. RIH with open ended DP to 133m, run abandonment plug #2. POOH. Run and set EZSV bridge plug at 48m on wireline. Pressure test plug to 10500 kPa. RIH with open ended DP to 48m and run abandonment plug #3. Cement mousehole. Rig out cementers, POOH and lay down DP. Nipple down BOP's.
MIDNIGHT DEPTH: 365 m OPERATION: L/D BOP's PROGRESS: 0.0 m

DATE: 25-03-90 DAY: 13 RIG: SHEHTAH 1E
K.B.: 75.12 m GRD: 68.96 m
OPERATIONS SUMMARY: Nipple down BOP's. Clean mud tanks and cellar. Dig down and cut 339.7mm casing off 1 m below ground level. Fill casing with 10 m cement plug to surface. Weld cap on 339.7mm casing, weld name plate and post on casing cap. Lay down derrick at 11:30 hours. Rig released at 12:00 hours, 1990-03-24.
MIDNIGHT DEPTH: 365 m OPERATION: Tearing Out PROGRESS: 0.0 m

APPENDIX 2

COMPOSITE WELL RECORD

APPENDIX 3

SAMPLE DESCRIPTION

CHEVRON EAST HUME RIVER I-20

SAMPLE DESCRIPTIONS

5-10 LOST CIRCULATION at 6m & 9m.
SANDSTONE: brown, loose grains, medium to very coarse grained, black argillite, black chert, clear quartz, orange stained quartz, very fine sandstone, volcanic greenstone? reddish granitic grains, mica, chloritic grains, brownish limestone, moderately sorted, angular, subangular, subrounded and rounded grains, no recovered cement, probably good porosity, no stain or cut.

10-15 SANDSTONE: as above.

15-20 SANDSTONE: medium-coarse-very coarse grained, clear, white and rusty quartz, dark grey and black argillite and chert, very fine sandstone grains, granitic grains, microcrystalline limestone, yellow dolomite, loose grains only, unconsolidated, angular, subangular, subrounded and rounded, no stain or cut.

20-25 SANDSTONE: as above, medium to very coarse grained, increasing yellow microcrystalline to very finely crystalline silty dolomite grains, unconsolidated, no stain or cut.

25-30 MUDSTONE: brown, silty, sandy, swells and breaks apart in water. The washing and sieving tends to wash away the mudstone leaving a sample biased towards sand.
SANDSTONE: medium to coarse grained as above.

30-35 MUDSTONE/CLAY: brown, silty, very fine quartz sand grains, bentonitic, totally breaks apart in water, calcareous, medium to coarse sand grains are probably all cavings.

35-40 VERY POOR SAMPLE, overwashed, wood from loss circulation material, cement, coarse sand cavings.
MUDSTONE/CLAY: brown, silty, very fine quartz grains, bentonitic, calcareous.

40-44 VERY POOR SAMPLE
MUDSTONE/CLAY: as above, coarse sand cavings.

45-50 POOR SAMPLE, cement, coarse sand grains, wood from lost circulation material.
MUDSTONE: silty, sandy.

50-55 POOR SAMPLE, cement coarse sand grains, wood from lost circulation material.
MUDSTONE: silty, sandy.

55-60 VERY POOR SAMPLE
MUDSTONE: as above.

60-65 MUDSTONE: brown, silty, slightly sandy, trace carbonaceous specks.

65-70 SANDSTONE: fine-medium-coarse grained, locally pebbles, only loose grains, unconsolidated, clear quartz, orange stained quartz, black chert, dark argillite, mica, very fine sandstone grains, granitic grains, dark brown carbonaceous shale grains, brown and grey microcrystalline limestone, trace pyrite, subrounded, subangular, angular, good porosity, no stain or cut.

70-75 SANDSTONE: medium to very course grained, with pebbles, quartz very common rusty grains, granitic grains, mica, dark argillite, minor limestone, trace pyrite, rare sandstone grains with cut.

75-80 SANDSTONE: generally as above, loose grains, no cement recovered spotty cut from brown stained sandstone grains, very fine grained and siltstone, calcareous.
SHALE: 5%, medium grey, very silty, micromicaceous, slight carbonaceous specks.

80-85 SANDSTONE: as above, unconsolidated, medium to very coarse grained, with pebbles, clear quartz, rusty granitic grains, dark chert and argillite, mica, 1-2% brown oil stained grains, very fine grained sandstone, calcareous and siliceous, siltstone in part.
SHALE: medium grey, minor amounts.

85-90 SANDSTONE: medium to very coarse grained, minor with clear silica cement, rare grains of sandstone as above with cut.

90-95 SANDSTONE: coarse to very coarse grained, with pebbles, quartz, granitic grains, increasing grey and butt limestone, argillite, mica, rare very fine sandstone grains with oil stain and cut.
SHALE: 15-20%, medium grey, silty to very silty, micromicaceous, trace carbonaceous, locally pyritic.

95-100 SANDSTONE: generally as above, increasing microcrystalline limestone and microcrystalline to very fine crystalline dolomite grains, trace oil stained very fine sandstone grains with good cut.
SHALE: as above.

100-105 SHALE: medium grey, slightly silty, with silty beds, slightly micromicaceous, trace coal flakes, locally very fine disseminated pyrite. Pebbles of quartz, limestone, granite and dolomite are all cavings probably.

105-110 SHALE: slightly silty, with few silty beds, pyrite blebs.
Sandstone grains as above are probably all cavings, loose fine to coarse grains, clear quartz, rusty quartz, black argillite and chert, no cement recovered, no stain or cut.

110-115 SHALE: as above.

115-120 SHALE: medium grey, slightly silty, with silty beds, small pyrite blebs, slightly bentonitic, non-calcareous. Loose sandstone grains are probably all cavings, no stain or cut.

120-125 SHALE: as above, sandstone cavings.

125-130 SHALE: slightly silty, slight carbonaceous specks, trace pyrite, trace bentonitic, being brown, microcrystalline dolomite nodules or laminae. Sandstone cavings, loose grains, trace oil stained, brown, very fine sandstone with cut.

130-135 SHALE: very slightly silty, trace carbonaceous specks, increasing pyrite blebs. Loose sandstone cavings.

135-140 SHALE: medium grey, slightly silty, carbonaceous specks, trace coal flakes, pyrite blebs and disseminated pyrite in part, mica flakes.

140-145 SHALE: as above.

145-150 SHALE: slight decrease in silt, being 5% brown, microcrystalline dolomite nodules or laminae, argillaceous.

150-155 SHALE: as above, with 15% brown, sideritic dolomite nodules/concretions or laminae.

155-160 SHALE: medium grey, slightly silty, slight carbonaceous specks locally pyrite blebs, minor sideritic dolomite nodules.

160-165 SHALE: as above.

165-170 SHALE: as above, trace bentonitic, trace micromicaceous, only slightly silty.

170-175 SHALE: as above. Increasing loose sand grains, probably all cavings, medium to very coarse grained, quartz, limestone, dolomite, granitic grains.

175-180 QUESTIONABLE SAMPLE
SHALE: 50%, as above.
SANDSTONE: probably all cavings? medium to coarse grained, occasional very coarse grains, clear quartz, rusty grains, dark chert, brown limestone, loose grains, subangular, subrounded and rounded, moderate sorting, no stain or cut.

180-185 SHALE: medium grey, slightly silty, very slightly bentonitic. Abundant cavings of loose sandstone grains.

185-190 SHALE: as above. Abundant sandstone grains as above, trace grains with cut.

190-195 SHALE: medium grey, slightly silty, trace micromicaceous, carbonaceous specks, minor pyrite, decreasing bentonitic. Sandstone grains cavings.

195-200 SHALE: as above. Decreasing sandstone grains.

200-205 SHALE: increasing silty beds, trace sandy, increasing carbonaceous specks, pyritic laminae and blebs locally, few brown sideritic dolomite nodules.

205-210 SHALE: silty beds, trace sandy.

210-215 SHALE: as above. Abundant loose sand cavings.

215-220 SHALE: increasing silty beds, trace sandy, slightly micromicaceous, trace carbonaceous, trace pyrite.

220-225 SHALE: as above.

225-230 SHALE: medium to dark grey, slightly silty with silty beds, trace micromicaceous and carbonaceous specked, locally pyritic.

230-234 SHALE: as above.

T.D. for SURFACE CASING 234m

234-240 SHALE: medium grey, very slightly silty, trace pyritic, trace carbonaceous, subplaty, firm.

240-245 SHALE: as above, platy, subplaty, with brown, cryptocrystalline sideritic dolomite nodules.

245-250 SHALE: medium grey, very slightly silty, slightly bentonitic, trace pyritic.

250-255 SHALE: becoming slightly darker, increase carbonaceous specks, increasing pyrite, slightly silty, with 5% brown, cryptocrystalline, sideritic dolomite nodules, slightly argillaceous, pyrite blebs.

255-260 SHALE: generally as above, decreasing dolomite nodules.

260-265 SHALE: medium grey, slight increase in silt, trace glauconite, pyrite blebs and disseminated pyrite, with brown, sideritic dolomite nodules.

265-270 SHALE: medium grey, silty beds throughout, rare floating rounded quartz sand grains, increasing disseminated pyrite, slightly glauconitic, trace laminae very glauconitic shale.

270-275 SHALE: silty, pyritic beds throughout, with glauconitic grains, trace rounded very fine and fine quartz grains, few sandy laminae, trace very fine grained sandstone, argillaceous, silty, pyritic, glauconitic, trace dolomitic, tight, no stain or cut.

275-280 SHALE: silty, disseminated pyrite throughout, with very silty beds, slightly sandy, pyrite blebs and disseminated, glauconite, grading to siltstone, trace sandstone laminae, very fine grained, argillaceous, silty, pyritic, glauconitic, tight.

280-285 SHALE: slightly darker, silty, disseminated pyrite.
SILTSTONE: laminae, argillaceous, very pyritic, trace glauconite, sandy laminae, slightly micromicaceous and carbonaceous specked, with trace very fine grained sandstone as above. Trace brown dolomite nodules.

285-290 SHALE: silty, pyritic, grading to siltstone.
SILTSTONE: increasing thin beds, very argillaceous, grading to very silty shale, disseminated pyrite and blebs, trace glauconite, part slightly sandy, trace sandstone laminae.

290-295 SHALE: silty, pyritic, with very silty laminae, very pyritic locally, trace floating fine to medium sand grains.
SANDSTONE: 5%, light grey, very fine grained, silty, argillaceous with cleaner laminae, carbonaceous specks, predominantly quartz, trace mica, trace pyrite, trace glauconite, slightly calcareous, tight, no stain or cut.
SILTSTONE: laminae in shale, minor amounts, argillaceous, slightly sandy.

ARCTIC RED SANDSTONE 294m (-219m)

295-300 SANDSTONE: very light brownish, predominantly very fine to barely fine grained, quartz, floating medium to coarse grains, slightly dolomitic and siliceous, glauconite grains common, trace argillaceous, subangular, poor sorting, tight, very slight dead stain, no cut, trace bitumen,
SANDSTONE: white, very light, part loose grains, fine to medium grained, with coarse to very coarse grains, rare pebbles, quartz, decreasing glauconite to trace, very clean, siliceous, trace dolomitic, minor patchy kaolin, trace carbonaceous/bitumen infill with pyrite, subangular to angular, well sorted, only poor porosity, loose grains suggest possibly better porosity locally, trace dead stain, barely visible fluorescence, trace very slow, weak cut.
SHALE: slightly silty, very slightly sandy, trace glauconite, pyrite, increasing carbonaceous specked.

300-305 SANDSTONE: decreasing abundance, white, clear, fine to medium grained, quartz, trace glauconite, very clean, patchy slight disseminated pyrite, rare kaolin, slightly siliceous, very slight dead stain specks, poor porosity, patchy 4-8%, no cut, trace black bitumen coating grains and filling porosity, subangular, well sorted.
SANDSTONE: light brownish, very fine to fine grained, with medium grains, quartz, glauconite, slight patchy argillaceous, light brown microcrystalline clay, trace carbonaceous, trace mica, slightly siliceous, tight, slight dead stain, part with very weak slow cut.
SHALE: medium to dark grey, slightly darker, silty, trace sandy, trace micromicaceous, carbonaceous specked, pyrite blebs.

GILMORE LAKE SANDSTONE 302m (-227m)

305-310 SANDSTONE: brown, very fine to fine grained, argillaceous, silty, quartz, trace glauconite, trace mica, carbonaceous locally, tight, dead stain, no fluorescence or cut.
SANDSTONE: 15%, clear, white, loose grains in part, fine to medium grained, very clean, quartz, slightly siliceous, patchy kaolin, minor dark brown, dead oil stain, poor porosity, 4-6%, patchy 6-8%, rare chips with 10% porosity, no cut or fluorescence. Coal flakes locally in sandstones. Trace grey chert pebbles and very coarse quartz grains suggest thin conglomerate band.
SHALE: 40%, increasing abundance, medium grey, brownish grey, slightly silty, increasing carbonaceous laminae.
COAL: 5%.

GILMORE LAKE COAL & SHALE 308m (-233m)

310-315 SHALE: medium brownish grey, silty, carbonaceous partings, trace sandy.
SANDSTONE: brownish grey, very fine grained, with fine grains, quartz, trace glauconite, coal flakes, coal laminae, argillaceous, silty, siliceous, trace dolomitic, brown microcrystalline clays, tight, slight dead stain, barely visible cut. Grading to siltstone in part.
SANDSTONE: 25%, thin bed, white, clear, fine to medium grained, few loose grains, trace very coarse quartz, very clean, quartz, siliceous, 4-8% porosity, slight dead stain specks, no cut.
COAL: 5%.

315-320 SHALE: brownish grey, silty, sandy, carbonaceous flakes, coal partings.
SANDSTONE: 30%, part clear, white, fine grained with medium grains, very clean, quartz, trace glauconite, slightly siliceous, minor carbonaceous patches and coal laminae, tight to poor porosity, slight dead stain, no cut. Also part brownish, finer, very fine to fine grained, silty, patchy argillaceous, carbonaceous, tight, slight dead stain, barely visible cut.
COAL: 30%.

320-325 SANDSTONE: light brownish, light grey, very fine grained and very fine to fine grained, floating medium grains, silty, quartz, carbonaceous specked, coal flakes, only slightly argillaceous, slightly siliceous, dead stain specks, no cut. Also loose medium-coarse-very coarse quartz grains with few pebbles, well rounded frosted grains, trace siliceous, patchy white kaolin, fair porosity, slight dead stain, no cut.
SHALE: 25-30%, as above.
COAL: 5%.

325-330 SHALE: medium grey, platy, slightly micromicaceous, trace silty, trace brown dolomite nodules. Also brownish shale as above, carbonaceous, silty beds.
SANDSTONE: very fine grained, silty, argillaceous, carbonaceous, coal laminae, Also loose medium to coarse quartz grains, with few very coarse grains, well rounded, slightly siliceous, slightly kaolinitic, coal flakes, poor to fair porosity, slight dead stain specks, no cut, this may all be cavings from the bed above.

IMPERIAL SHALE 324m (-249m)

330-335 SHALE: medium grey, micromicaceous, slightly dolomitic, platy, with 10% brown, microcrystalline dolomite laminae or nodules. Sandstone and coal cavings.

335-340 SHALE: medium grey, part trace silty, slightly dolomitic, slight carbonaceous specks, 10-15% brown, microcrystalline dolomite nodules or laminae.
SILTSTONE: thin beds, brownish grey, argillaceous, carbonaceous specked.

340-345 SHALE: medium grey, micro-carbonaceous specked, trace silty. With brown, microcrystalline dolomite nodules and laminae, 10-15%, part rusty reddish brown stained ironstone.
SANDSTONE: 5%, grey, very fine to fine grained, quartz, carbonaceous, coal flakes, tight, no stain or cut, probably all cavings. Also loose coarse to very coarse quartz cavings.

345-350 SHALE: medium grey, slight carbonaceous specks, part trace silty, platy, decreasing brown dolomite. Sandstone as above, probably all cavings.

350-355 SHALE: predominantly trace silty, part silty and carbonaceous specked, decreasing brown dolomite nodules.

355-360 SHALE: as above, part silty with carbonaceous specks, slightly micromicaceous, trace pyrite, subplaty.

360-365 SHALE: as above.

TOTAL DEPTH 365m

APPENDIX 4

CORE ANALYSIS

AGAT Laboratories
Core Services Division

SIDEWALL CORE ANALYSIS REPORT

CHEVRON EAST HUME RIVER I-20
65-59 / 38-15

Prepared for:

CHEVRON CANADA RESOURCES LIMITED

RC2767
April 1990

3801-21st Street NE
Calgary, Alberta
T2E 6T5
Tel. 291-2428

4954-89th Street
Edmonton, Alberta
T6E 5K1
Tel. 465-0265

9625-115th Street
Grande Prairie
T0J 0J0
Tel. 362-5422

W/O No: RC2767
Date: 09-04-90

COMPANY: CHEVRON CANADA RESOURCES
WELL: CHEVRON EAST HUME RIVER I-20
LOCATION: 65-59/38-15
FORMATION:
DRILLING FLUID:

AGAT LABORATORIES

FINAL CORE ANALYSIS DATA

Sample	Interval (m) Top	Base	Rep Thick (m)	Sample Length (m)	Gas Permeability Kmax (mD)	K90 (mD)	Vertical (mD)	Porosity	Density (kg/m3) Bulk	Grain	Residual Saturation Oil	Water	Remarks
SP001	299.50	-	-	-	71.2 *	-	-	.132	2260	2600	-	-	ss;frac;sidewall Core 1
SP002	300.25	-	-	-	15.3	-	-	.115	2340	2640	-	-	ss;sidewall Core 2
SP003	302.00	-	-	-	62.8 *	-	-	.128	2250	2580	-	-	ss;frac;sidewall Core 3
SP004	305.00	-	-	-	10.4	-	-	.142	2250	2620	-	-	ss;sidewall Core 4

* - Affected by fracture or crack as mentioned in remarks

AGAT LABORATORIES CORE SERVICES

SAMPLE HANDLING AND ANALYSIS INFORMATION

Company: CHEVRON CANADA RESOURCES
Well: CHEVRON EAST HUME RIVER I-20
Location: 65-59/38-15
Field:

Coring Equipment:
Coring Fluid:
Core Diameter:
Total Cored:
Total Recovered:

Job Number: RC2767
Date: April 9, 1990

HANDLING

Cleaning Solvent:	Toluene
Extraction:	Vapor Phase
Cleaning Time:	48 Hours
Drying Equipment:	Convectional Oven
Drying Time:	8 Hours at 108°C

ANALYSIS

Grain volume measured by Boyle's Law using helium
Bulk volume measured by Archimedes principle using Hg on non-cylindrical samples
Permeability measured on 25 mm diameter drilled plugs

REMARKS

Four sidewall cores analyzed for porosity and permeability

CHEVRON EAST HUME RIVER I-20

SIDEWALL CORES

CORE #	DEPTH	SIZE	
1	299.5m	0.5cm	SANDSTONE: very light grey, fine to barely medium grained, predominantly clear quartz, few glauconite grains, trace dark argillite/shale grains, slightly siliceous, non-calcareous, non-dolomitic, subangular, well sorted, very slight brown, dead stain, porosity 15%, no cut or fluorescence. Small tight fracture may be induced.
2	300.25m	3.5cm	SANDSTONE: very light grey, fine grained, some barely medium grains, quartz, glauconite grains, trace soft, dark brown and black argillite/shale, minor light grey grains, slightly siliceous, trace kaolin, subangular, well sorted, very slight dead stain, 15% porosity, no cut or fluorescence.
3	302m	0.5cm	SANDSTONE: light grey, fine to barely medium grained, quartz, slightly glauconitic, minor dark grains, spotty very light brown kaolin, subangular to subrounded, well sorted, slight brown dead stain, 12-15% porosity, no cut or fluorescence. One tight fracture may be induced.
4	305m	0.75cm	SANDSTONE: very light grey, fine to barely medium grained, trace floating coarse grains, quartz, glauconite grains, minor dark grains, trace mica, subangular to subrounded, well sorted, intergranular specks and one very fine streak probably along a fracture of soft dark brown bitumen?, may be carbonaceous, slight dead stain, 8-10% porosity, no cut or fluorescence.

APPENDIX 5

TESTING RESULTS

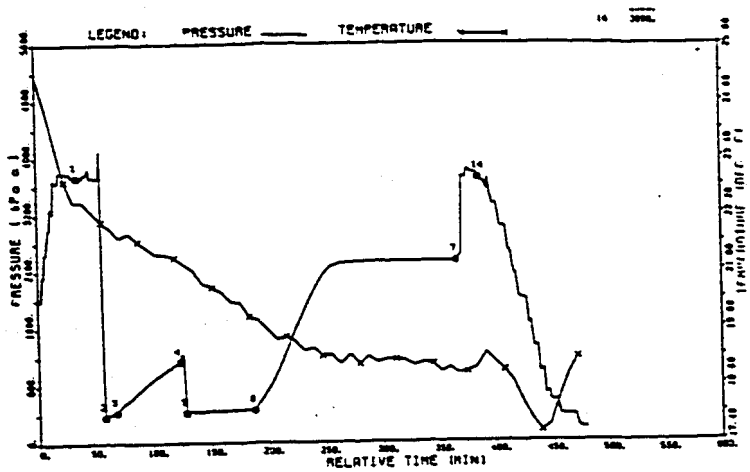
REF#:C-76-999-00888-66

TEST DATE: 90/03/20

CHEVRON EAST HUME RIVER I-20
400/ 65.594 / 129.172 /00
DST#01
297.00m to 301.96m
ARCTIC RED SANDSTONE

DEPTH: 300.00m

RECORDER # 001767



	PRESSURE kPa(a)
1) Initial Hydro :	3724.
2) 1st Flow Start:	362.
3) 1st Flow End :	422.
4) END 1st Shutin:	1129.
5) 2nd Flow Start:	414.
6) 2nd Flow End :	448.
7) END 2nd Shutin:	2526.
14) Final Hydro. :	3698.

TEST TIMES (MIN)	
1st FLOW :	10.0
SHUTIN:	56.0
2nd FLOW :	59.0
SHUTIN:	178.0

RECOVERY DATA

TOTAL FLUID RECOVERY CONSISTED OF 9 METERS OF GASIFIED DRILLING FLUID.
THIS TEST WAS RUN UNDER CLOSED CHAMBER CONDITIONS WITH THE EVALUATORS.

REMARKS AND TEST SUMMARY

Test results indicate a mechanically successful test. Bottom hole pressures and the shape of the shut-in curves suggest LOW PERMEABILITY within the interval tested. The results also suggest formation damage. Minor plugging during the flows. This did not affect the test results. The initial shut-in was not extrapolated due to insufficient curve development and the final shut-in was not extrapolated as it stabilized.

TABLE OF CONTENTS

PAGE 1	PAGE 2	PAGE 3	PAGE 4
General Data	Tool Sequence	PRESSURE -TIME	Plot Summary
Blow Description	Recorder Summary	LISTING	Reservoir Calculations
Liquid Recovery	Mud and Hole Data		-Parameters used
Gas Measurements			-Results

********** RECORDER PAGES & FIGURES **********

BAKER OIL TOOLS CANADA
DST#01 REPORT

Well name : CHEVRON EAST HUME RIVER I-20
Location : 400/ 65.594 / 129.172 /00
Interval : 297.00m to 301.96m
Test Date : 90/03/20
Test Type : INFLATE STRADDLE
Formation : ARCTIC RED SANDSTONE

K.B.Elevation : 75.12m
Grd.Elevation : 68.96m
TD @ test Date: 365.00m
Ticket Number : 81212
Unit Number :

Started in hole at : 1815 hrs
Tool opened at : 1940 hrs
Reverse circulated?: NO
Contractor & Rig No: SHEHTAH #1E
Baker#1 : 1 of 1 on the same trip.

Operator: CHEVRON CANADA RESOURCES LIMITED
14TH FLOOR
500 - 5TH AVE. S.W.
CALGARY, ALBERTA
T2P0L7

Company Rep : ANDERSON K
Testers : FORBES G

5 REPORTS(S) TO: BRIAN GLOVER
Company:

BLOW DESCRIPTION

Closed Chamber with the Evaluators.

TOTAL LIQUID RECOVERY : 9.00m

For DST# 1 through DST# 1

3 Fluid Samples
Sent to: GEO TECH

Btm. Hole Sampler #: 186
Sent to: GEO TECH

9.00m GASIFIED DRILLING FLUID.

GAS MEASUREMENTS

No Gas Measurements

TOOL SEQUENCE

SUB	LENGTH (m)
PUMP OUT SUB	.40
CROSS OVER SUB	.30
INSIDE RECORDER	1.38
CHOKE SUB	.31
HYDRAULIC TOOL	1.50
BTM HOLE SAMPLER	1.03
INSIDE RECORDER	1.38
HYDRAULIC JARS	2.22
SAFETY JOINT	.65
INFLATE PUMP	2.28
SCREEN	1.16
TOP INFLATE PACKER	1.78
PACKER STICK DOWN	.82
PORTED COMB SUB	.30
OUTSIDE RECORDER	2.06
SPACING	1.28
PACKER STICK UP	.50
BTM INFLATE PACKER	1.90
INSIDE RECORDER	2.68
BELLY SPRING	2.00
******** TOOL TOTAL	25.93
DRILL COLLARS ID= 75.0mm:	167.34
ID= :	
DRILL PIPE OD=114.3mm:	121.46
OD= :	
COLLAR-PIPE TOTAL	288.80

STICK UP ABOVE TABLE : 6.19
TOOL ABOVE INTERVAL : 14.39
TOTAL INTERVAL : 4.96
BOTTOM CHOKE SIZE: 12.70 mm

RECORDER SUMMARY

1) NUMBER : 001767 ELECTRONIC GAUGE.
TYPE : DMRB
LOCATION: OUTSIDE
RANGE: 34500.00kPa(a)
DEPTH : 300.00m

2) NUMBER : 001785 ELECTRONIC GAUGE.
TYPE : DMRB
LOCATION: OUTSIDE
RANGE: 68900.00kPa(a)
DEPTH : 300.00m

3) NUMBER : 014156
TYPE : K-3
LOCATION: OUTSIDE
RANGE: 13700.00kPa
DEPTH : 300.00m

4) NUMBER : 021150 ABOVE HYDRAULIC
TYPE : K-3 TOOL.
LOCATION: INSIDE
RANGE: 20500.00kPa
DEPTH : 284.00m

5) NUMBER : 021162 ABOVE INTERVAL.
TYPE : K-3
LOCATION: INSIDE
RANGE: 21900.00kPa
DEPTH : 289.00m

6) NUMBER : 021347 BELOW INTERVAL.
TYPE : K-3
LOCATION: INSIDE
CAPACITY: 22000.00kPa
DEPTH : 307.00m

MUD AND HOLE DATA

Calipered Hole Size @ Test Depth: 220.00mm Water Loss : 7.0cc/s
Hole Condition at Test Time : GOOD Filter Cake: 1.5 mm
Hole Conditioned Prior to Test? : YES
Mud Weight : 1250.0 kg/m3 Main Hole Size: 216.00mm
Mud Type : GEL CHEMICAL
Viscosity : 100.0s/l Temperature @300.00m = 19.1C

DST#01
CHEVRON EAST HUME RIVER I-20
297.00 m to 301.96 m

Location: 400/ 65.594 / 129.172 /00
Test Type: INFLATE STRADDLE
Formation: ARCTIC RED SANDSTONE

Recorder Number: 001767
Recorder Depth: 300.00 m
Subsea Depth: -224.88 m

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P kPa	PRESSURE kPa(a)	(T+dt)/dt ABSCISSA	PRESSURE SQUARED kPa(a)^2/10^6
1	INITIAL HYDROSTATIC			3724		
2	START OF 1st FLOW	0.0		362		
		1.0		379		
		2.0		388		
		3.0		388		
		4.0		397		
		5.0		405		
		7.0		405		
		8.0		414		
		9.0		414		
3	END OF 1st FLOW	10.0		422		
	1st SHUTIN PERIOD	0.0		422		
		2.0	43	466	6.0000	.2167
		5.0	104	526	3.0000	.2766
		7.0	129	552	2.4286	.3044
		9.0	155	578	2.1111	.3336
		11.0	181	603	1.9091	.3641
		14.0	224	647	1.7143	.4181
		16.0	250	672	1.6250	.4521
		18.0	285	707	1.5556	.4997
		21.0	319	741	1.4762	.5497
		23.0	345	767	1.4348	.5886
		25.0	371	793	1.4000	.6290
		27.0	397	819	1.3704	.6708
		30.0	431	853	1.3333	.7283
		32.0	457	879	1.3125	.7732
		34.0	483	905	1.2941	.8194
		37.0	517	940	1.2703	.8830
		39.0	535	957	1.2564	.9157
		41.0	552	974	1.2439	.9489
		43.0	578	1000	1.2326	1.0000
		46.0	612	1035	1.2174	1.0702

* VALUES USED FOR EXTRAPOLATIONS

DST#01
CHEVRON EAST HUME RIVER I-20
297.00 m to 301.96 m

Location: 400/ 65.594 / 129.172 /00
Test Type: INFLATE STRADDLE
Formation: ARCTIC RED SANDSTONE

Recorder Number: 001767
Recorder Depth: 300.00 m
Subsea Depth: -224.88 m

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P kPa	PRESSURE kPa(a)	(T+dt)/dt ABSCISSA	PRESSURE SQUARED kPa(a)^2/10^6
		48.0	629	1052	1.2083	1.1061
		50.0	655	1078	1.2000	1.1612
		53.0	681	1103	1.1887	1.2175
		55.0	698	1121	1.1818	1.2560
4	END OF 1st SHUTIN	56.0	707	1129	1.1786	1.2753
5	START OF 2nd FLOW	0.0		414		
		2.0		422		
		4.0		440		
		6.0		422		
		9.0		440		
		11.0		448		
		13.0		440		
		16.0		440		
		18.0		448		
		20.0		448		
		22.0		440		
		25.0		422		
		27.0		448		
		29.0		431		
		32.0		448		
		34.0		431		
		36.0		448		
		38.0		440		
		41.0		457		
		43.0		457		
		45.0		440		
		48.0		457		
		50.0		457		
		52.0		466		
		54.0		457		
		57.0		466		
6	END OF 2nd FLOW	59.0		448		
	2nd SHUTIN PERIOD	0.0		448		

* VALUES USED FOR EXTRAPOLATIONS

DST#01
CHEVRON EAST HUME RIVER I-20
297.00 m to 301.96 m

Location: 400/ 65.594 / 129.172 /00
Test Type: INFLATE STRADDLE
Formation: ARCTIC RED SANDSTONE

Recorder Number: 001767
Recorder Depth: 300.00 m
Subsea Depth: -224.88 m

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P kPa	PRESSURE kPa(a)	(T+dt)/dt ABSCISSA	PRESSURE SQUARED kPa(a)^2/10^6
		3.0	78	526	24.0000	.2766
		7.0	164	612	10.8571	.3747
		10.0	250	698	7.9000	.4876
		14.0	353	802	5.9286	.6427
		17.0	440	888	5.0588	.7884
		21.0	569	1017	4.2857	1.0347
		24.0	672	1121	3.8750	1.2560
		27.0	785	1233	3.5556	1.5198
		31.0	931	1379	3.2258	1.9025
		34.0	1043	1491	3.0294	2.2243
		38.0	1198	1647	2.8158	2.7113
		41.0	1310	1759	2.6829	3.0927
		45.0	1457	1905	2.5333	3.6298
		48.0	1560	2009	2.4375	4.0345
		51.0	1655	2103	2.3529	4.4243
		55.0	1767	2216	2.2545	4.9084
		58.0	1853	2302	2.1897	5.2978
		62.0	1931	2379	2.1129	5.6611
		65.0	1983	2431	2.0615	5.9098
		69.0	2026	2474	2.0000	6.1212
		72.0	2043	2491	1.9583	6.2071
		75.0	2060	2509	1.9200	6.2931
		79.0	2060	2509	1.8734	6.2931
		82.0	2069	2517	1.8415	6.3363
		86.0	2069	2517	1.8023	6.3363
		89.0	2069	2517	1.7753	6.3363
		93.0	2078	2526	1.7419	6.3802
		96.0	2078	2526	1.7188	6.3802
		99.0	2078	2526	1.6970	6.3802
		103.0	2078	2526	1.6699	6.3802
		106.0	2078	2526	1.6509	6.3802
		110.0	2078	2526	1.6273	6.3802
		113.0	2078	2526	1.6106	6.3802
		117.0	2078	2526	1.5897	6.3802
		120.0	2078	2526	1.5750	6.3802
		123.0	2078	2526	1.5610	6.3802

* VALUES USED FOR EXTRAPOLATIONS

DST#01
CHEVRON EAST HUME RIVER I-20
297.00 m to 301.96 m

Location: 400/ 65.594 / 129.172 /00
Test Type: INFLATE STRADDLE
Formation: ARCTIC RED SANDSTONE

Recorder Number: 001767
Recorder Depth: 300.00 m
Subsea Depth: -224.88 m

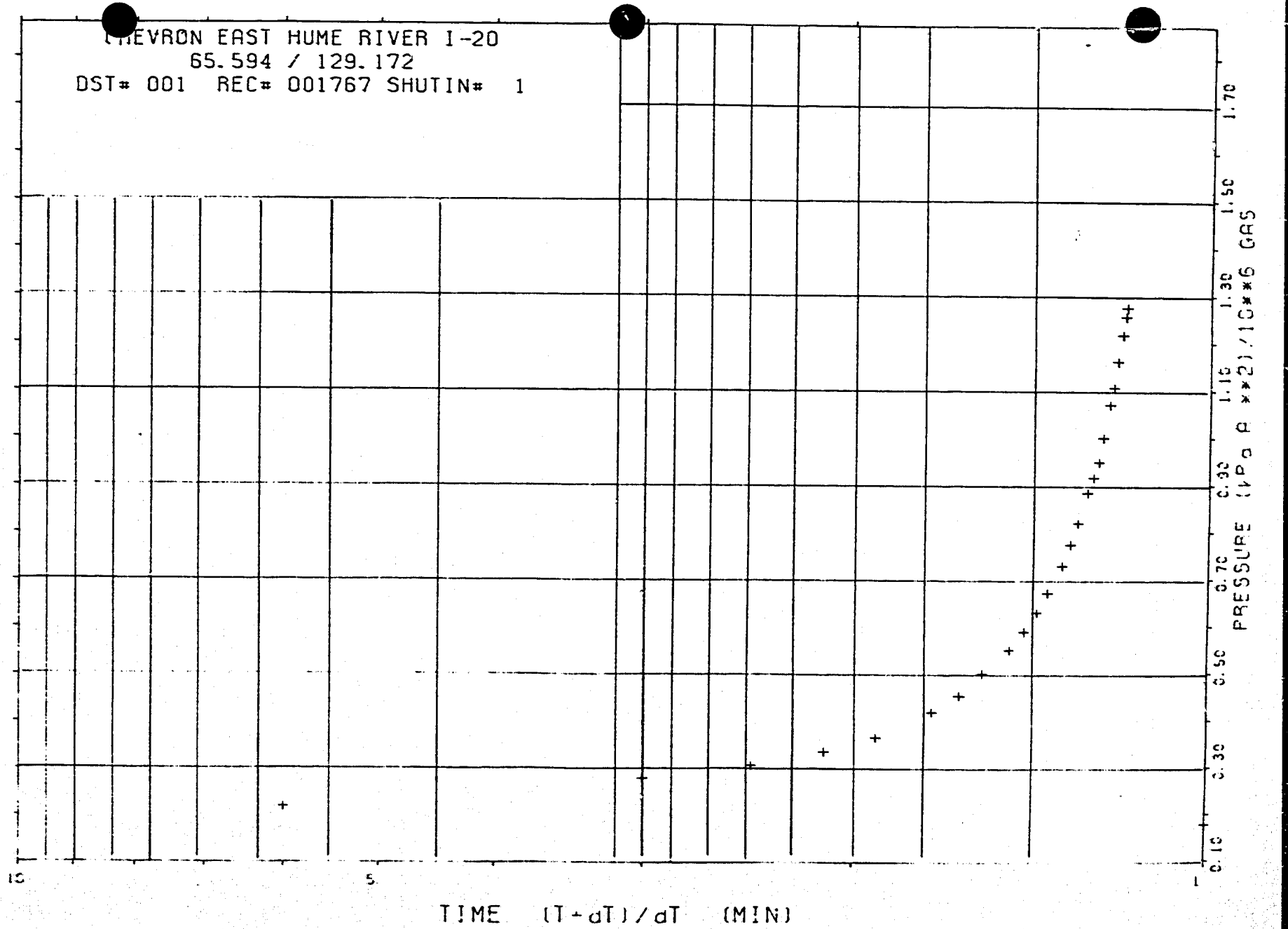
TIME-PRESSURE LISTING

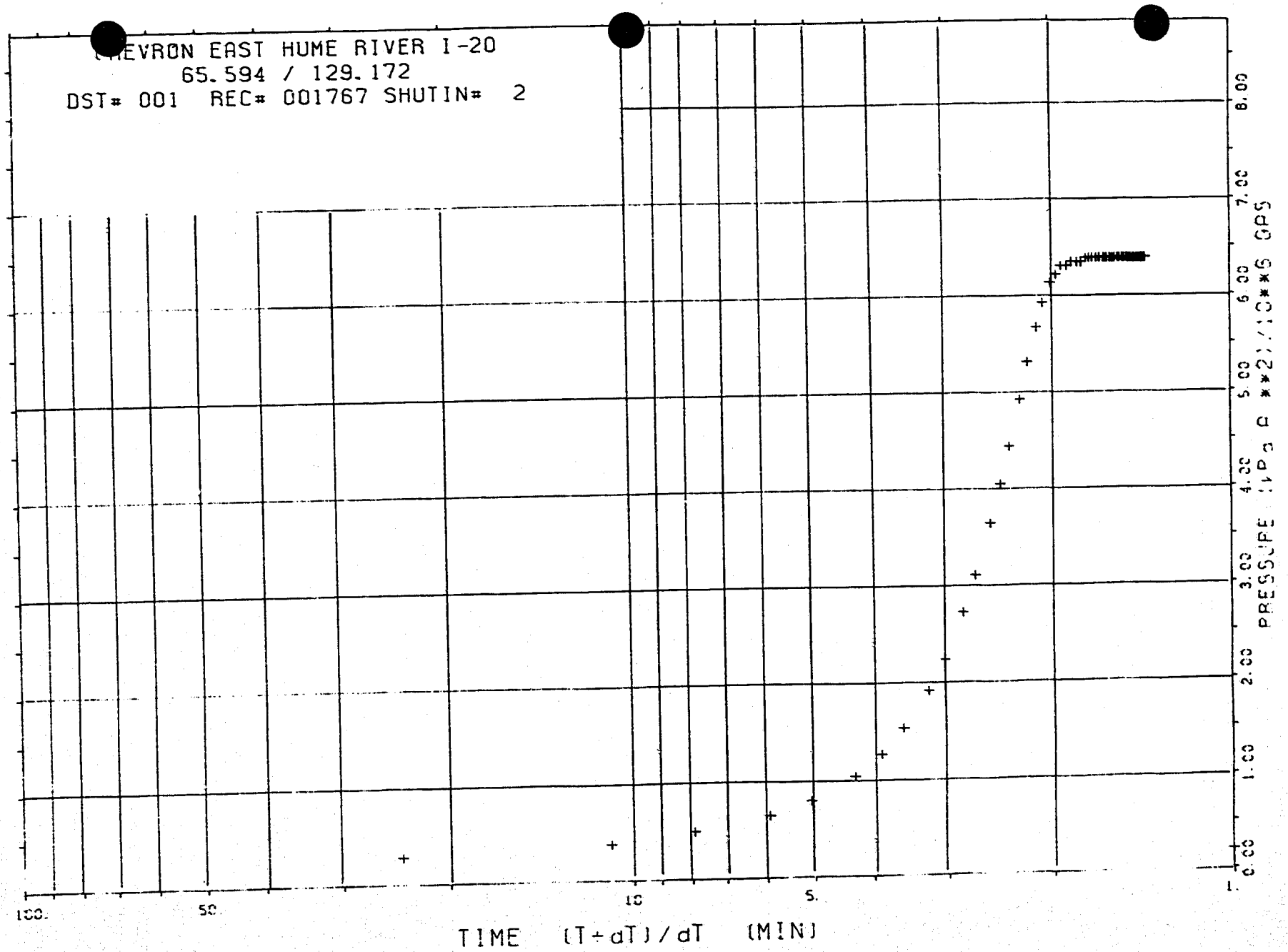
CHART LABEL	COMMENTS	TIME MIN.	DELTA P kPa	PRESSURE kPa(a)	(T+dt)/dt ABSCISSA	PRESSURE SQUARED kPa(a)^2/10^6
		127.0	2078	2526	1.5433	6.3802
		130.0	2078	2526	1.5308	6.3802
		134.0	2078	2526	1.5149	6.3802
		137.0	2078	2526	1.5036	6.3802
		141.0	2078	2526	1.4894	6.3802
		144.0	2078	2526	1.4792	6.3802
		147.0	2078	2526	1.4694	6.3802
		151.0	2078	2526	1.4570	6.3802
		154.0	2078	2526	1.4481	6.3802
		158.0	2078	2526	1.4367	6.3802
		161.0	2078	2526	1.4286	6.3802
		165.0	2078	2526	1.4182	6.3802
		168.0	2078	2526	1.4107	6.3802
		171.0	2078	2526	1.4035	6.3802
		175.0	2078	2526	1.3943	6.3802
7	END OF 2nd SHUTIN	178.0	2078	2526	1.3876	6.3802
	FINAL HYDROSTATIC			3698		

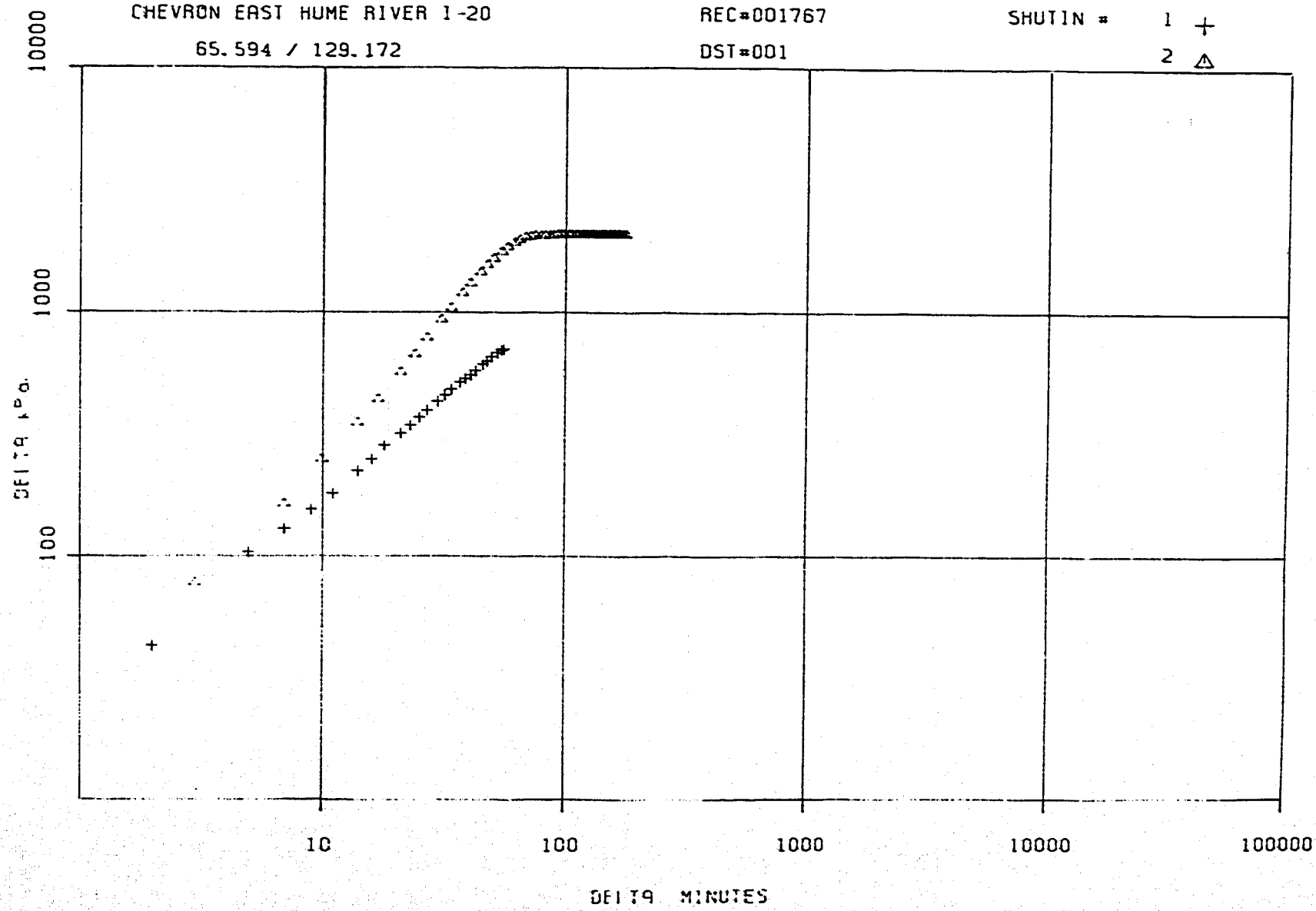
* VALUES USED FOR EXTRAPOLATIONS

1st SHUT-IN
HORNER EXTRAPOLATION .00 kPa(a)
HORNER SLOPE .00000 (kPa(a)**2/10**6)/CYCLE

2nd SHUT-IN
HORNER EXTRAPOLATION .00 kPa(a)
HORNER SLOPE .00000 (kPa(a)**2/10**6)/CYCLE


CHEVRON EAST HUME RIVER I-20
65.594 / 129.172
DST# 001 REC# 001767 SHUTIN# 1
PRESSURE (MPa ** 2) / 10 ** 6 GAS
1.70
1.50
1.30
1.10
0.90
0.70
0.50
0.30
0.10
15
5
1
TIME (T+dT) / dT (MIN)

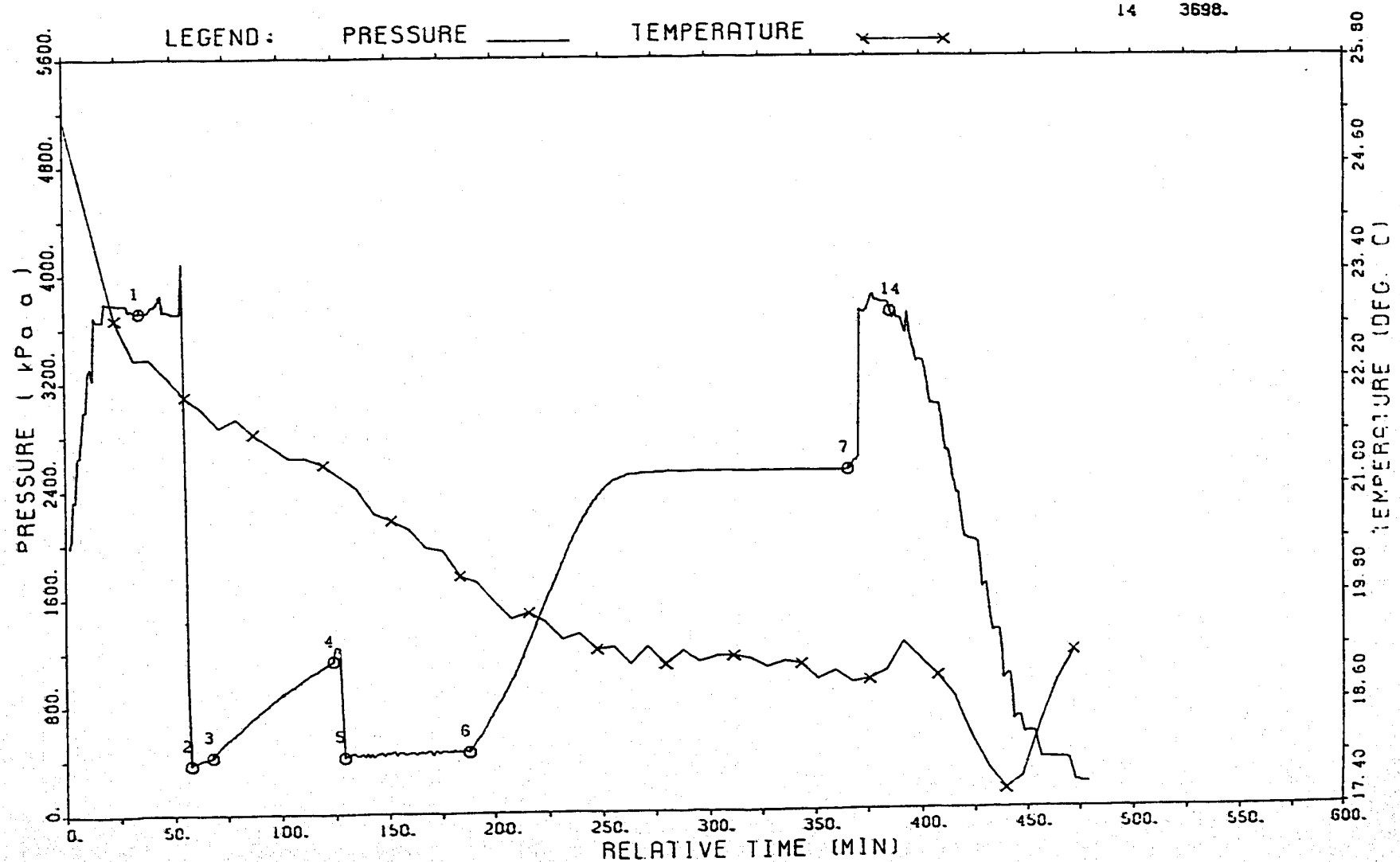

CHEVRON EAST HUME RIVER I-20
65.594 / 129.172
DST# 001 REC# 001767 SHUTIN# 2
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
100.
50.
10
5.
1.
TIME (T+dT)/dT (MIN)


CHEVRON EAST HUME RIVER I-20
65.594 / 129.172
REC=001767
DST=001
SHUTIN = 1
2
10000
1000
100
10
100
1000
10000
100000
DELTA MINUTES

CHEVRON EAST HUME RIVER I-20
65.594/129.172 DST #1
ELECTRONIC GAUGE #1767

LEGEND: ⊙

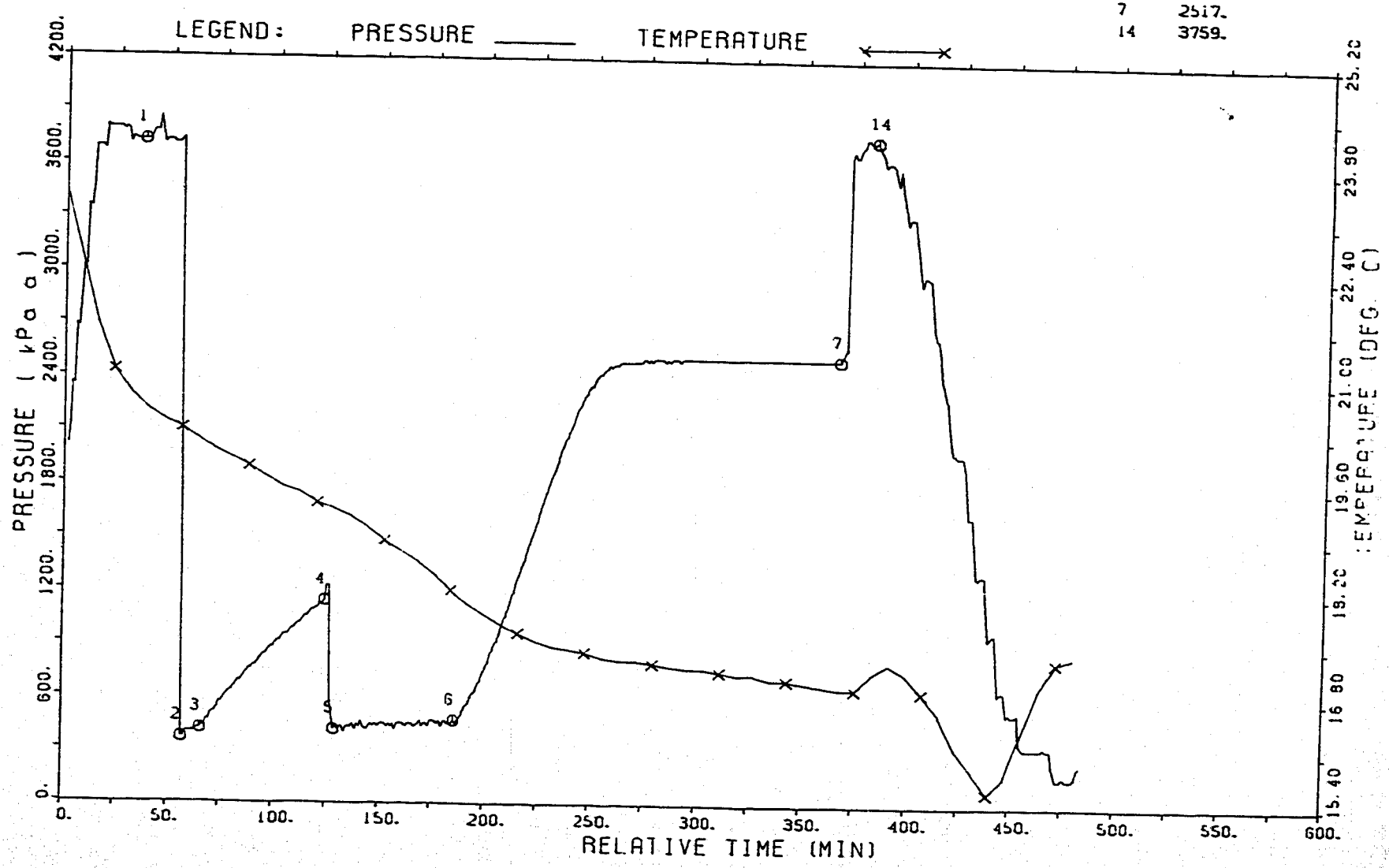
1	=	3724.	kPa(a)
2		362.	
3		422.	
4		1129.	
5		414.	
6		448.	
7		2526.	
14		3698.	



CHEVRON EAST HUME RIVER I-20
65.594/129.172 DST #1
ELECTRONIC GAUGE #1785

LEGEND: PRESSURE ——— TEMPERATURE ←→

LEGEND: ⊙ 1 = 3724. kPa(a)
2 362.
3 414.
4 1139.
5 414.
6 466.
7 2517.
14 3759.



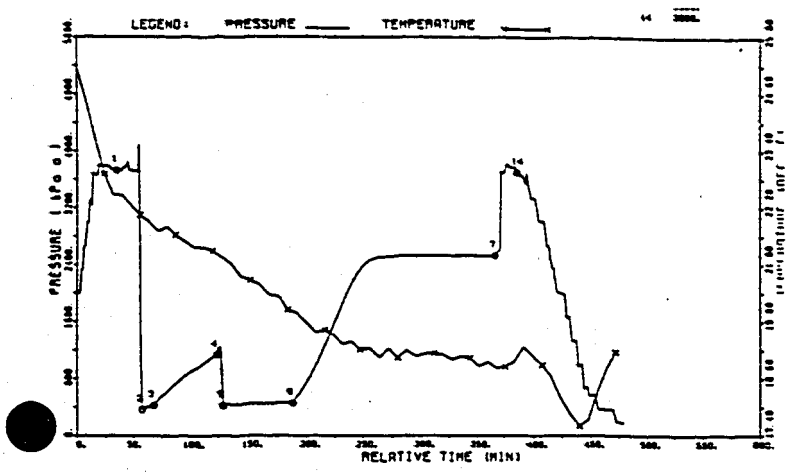
DST#01
CHEVRON EAST HUME RIVER I-20
297.00m to 301.96m

PRESSURE RECORDER NUMBER : 001767

DEPTH : 300.00m LOCATION : OUTSIDE
TYPE : DMRB CAPACITY : 34500.00kPa(a)

***** TEMPERATURE AT RECORDER DEPTH = 19.1 C

	PRESSURE kPa(a)
1) Initial Hydro :	3724.
2) 1st Flow Start:	362.
3) 1st Flow End :	422.
4) END 1st Shutin:	1129.
5) 2nd Flow Start:	414.
6) 2nd Flow End :	448.
7) END 2nd Shutin:	2526.
14) Final Hydro. :	3698.



ELECTRONIC GAUGE.

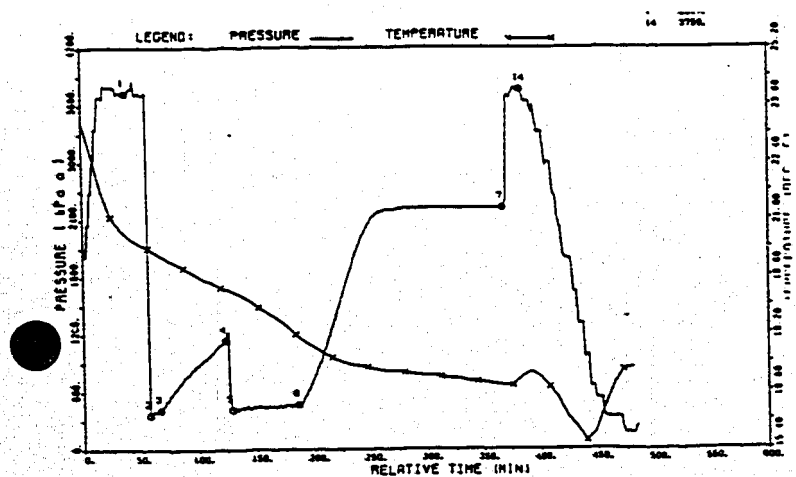
TEST TIMES(MIN)
1st FLOW : 10.0
SHUTIN: 56.0
2nd FLOW : 59.0
SHUTIN: 178.0

PRESSURE RECORDER NUMBER : 001785

DEPTH : 300.00m LOCATION : OUTSIDE
TYPE : DMRB CAPACITY : 68900.00kPa(a)

***** TEMPERATURE AT RECORDER DEPTH = 17.1 C

	PRESSURE kPa(a)
1) Initial Hydro :	3724.
2) 1st Flow Start:	362.
3) 1st Flow End :	414.
4) END 1st Shutin:	1138.
5) 2nd Flow Start:	414.
6) 2nd Flow End :	466.
7) END 2nd Shutin:	2517.
14) Final Hydro. :	3759.



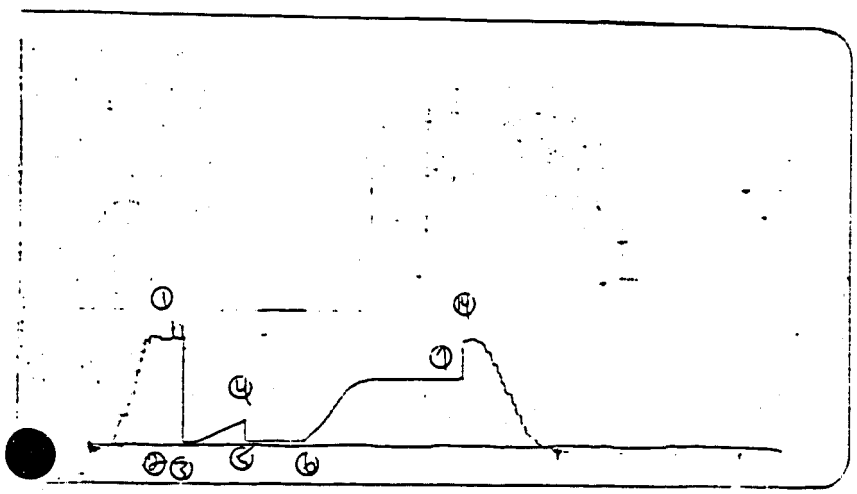
ELECTRONIC GAUGE.

DST#01
CHEVRON EAST HUME RIVER I-20
297.00m to 301.96m

PRESSURE RECORDER NUMBER : 014156

DEPTH : 300.00m
TYPE : K-3
LOCATION : OUTSIDE
CAPACITY : 13700.00 kPa

	PRESSURE kPa
1) Initial Hydro :	3604.
2) 1st Flow Start:	342.
3) 1st Flow End :	308.
4) END 1st Shutin:	955.
5) 2nd Flow Start:	355.
6) 2nd Flow End :	344.
7) END 2nd Shutin:	2330.
14) Final Hydro. :	3570.



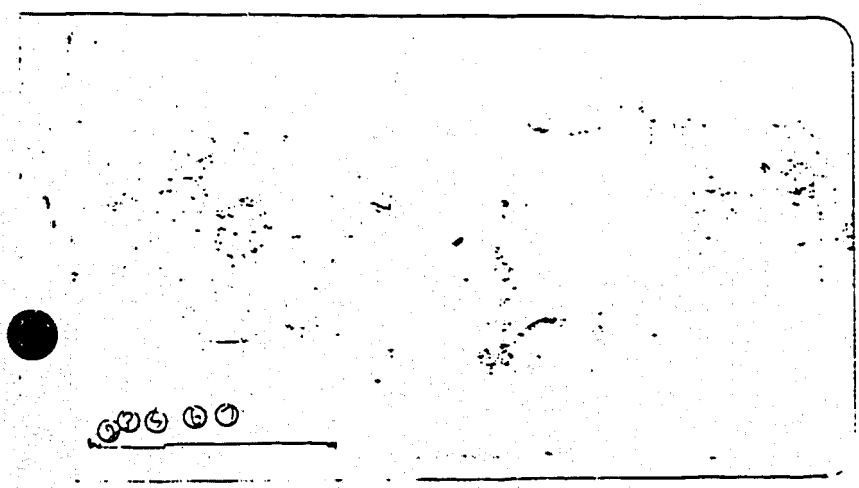
TEST TIMES (MIN)

1st FLOW :	10.0
SHUTIN:	56.0
2nd FLOW :	59.0
SHUTIN:	178.0

PRESSURE RECORDER NUMBER : 021150

DEPTH : 284.00m
TYPE : K-3
LOCATION : INSIDE
CAPACITY : 20500.00 kPa

	PRESSURE kPa
1) Initial Hydro :	
2) 1st Flow Start:	9.
3) 1st Flow End :	31.
4) END 1st Shutin:	
5) 2nd Flow Start:	41.
6) 2nd Flow End :	154.
7) END 2nd Shutin:	154.
14) Final Hydro. :	



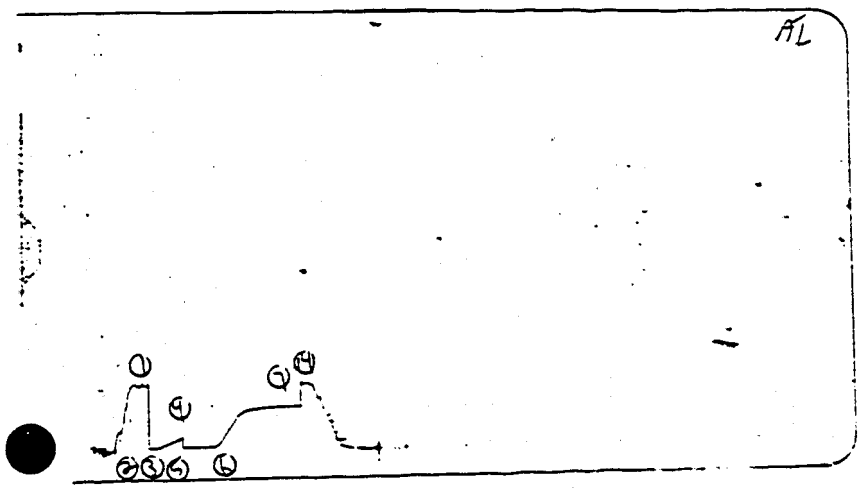
ABOVE HYDRAULIC TOOL.

DST#01
CHEVRON EAST HUME RIVER I-20
297.00m to 301.96m

PRESSURE RECORDER NUMBER : 021162

DEPTH : 289.00m
TYPE : K-3
LOCATION : INSIDE
CAPACITY : 21900.00 kPa

	PRESSURE kPa
1) Initial Hydro :	3487.
2) 1st Flow Start:	226.
3) 1st Flow End :	238.
4) END 1st Shutin:	772.
5) 2nd Flow Start:	252.
6) 2nd Flow End :	260.
7) END 2nd Shutin:	2241.
14) Final Hydro. :	3455.



ABOVE INTERVAL.

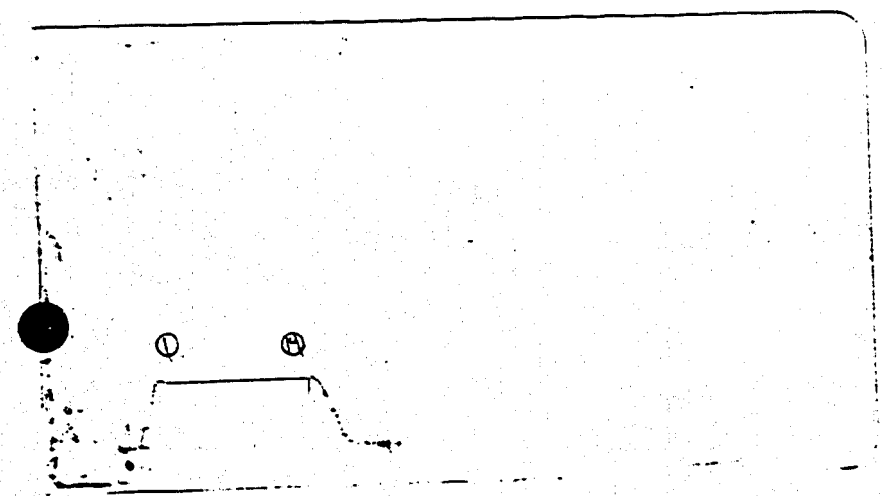
TEST TIMES (MIN)

1st FLOW :	10.0
SHUTIN:	56.0
2nd FLOW :	59.0
SHUTIN:	178.0

PRESSURE RECORDER NUMBER : 021347

DEPTH : 307.00m
TYPE : K-3
LOCATION : INSIDE
CAPACITY : 22000.00 kPa

	PRESSURE kPa
1) Initial Hydro :	3632.
14) Final Hydro. :	3611.



BELOW INTERVAL.

CLOSED CHAMBER TESTING
DST FLUID ANALYSIS
HORNER ANALYSIS
PH: 433-3443

THE EVALUATORS

CHEVRON EAST HUME RIVER

I-20

DST #1

FORMATION: ARCTIC RED SAND

INTERVAL: 297-302

REPORT FOR: Brian Glover
PREPARED BY: Greg Zinter

TEST DATE:
3/21/90

WELL DATA		MUD INFORMATION		ON SITE PERSONNEL	
HOLE (mm)	216	MUD TYPE	Gel/Kelzan	COMPANY REPRESENTATIVE	K Anderson/B Meyers
TD (m)	365	WEIGHT (Kg/m3)	1250	EVALUATOR	Greg Zinter
GE (m)	68.96	VISCOSITY (SEC)	100	TESTING COMPANY	Baker
KB (m)	75.12	WATER LOSS (cc)	7.0	TESTER	Garnett Forbes
FORMATION TEMP (DEG C)	22	FILTRATE pH	9.5	DRILLING CONTRACTOR	Shetah 1
FORMATION POROSITY (%)	15	FILTRATE SALINITY(ppm Cl⁻)	250		
		CUSHION TYPE	none		
		CUSHION AMOUNT			
		CUSHION SALINITY(ppm Cl⁻)			

CHEVRON EAST HUME RIVER

I-20 DST #1

TEST TIMES: 10-60-60-180

CLOSED CHAMBER PRESSURES:

PF:	-2.6 to -.6 kPa
ISI:	no pressure increase
FF:	-.8 to 24.1 kPa
FSI:	no pressure increase

PIPE RECOVERY:

9 m Gassified Drilling Fluid
Filtrate Salinity: 250 ppm Cl^-
Maximum Recovery Salinity: 250 ppm Cl^-

CLOSED CHAMBER MASS BALANCE:

		PF	FF
Average Gas Rates (scm/d)		0	7.0
GLR (scm/m^3)	n/a	70	
Average Liquid Rates (m^3/d)		5.2	.1

CHART PRESSURES: (k3 #14156 outside)

IH	3,439 kPa
PF	58 kPa
	87 kPa
ISI	754 kPa
FF	110 kPa
	110 kPa
FSI	2,128 kPa
FH	3,417 kPa

COMMENTS:

Formation cleaned up during test.

CLOSED CHAMBER REPORT

PRETEST:

The test times were initially planned to be 10-60-60-180. The times were to be adjusted during the test to maximize test results.

The goals of the test were:

1. Obtain an accurate flowrate
2. Obtain a formation fluid sample (if possible)
3. Prevent the well from killing itself

PREFLOW/INITIAL SHUTIN:

There was no pressure response when the valve opened for the preflow period. The pressure was double checked with the bubble bucket which showed a pressure of approximately 2 kPa. A quick inspection of the pressure hoses revealed a blocked line. This was promptly cleared and by the start of the initial shutin the pressure was reaching the instruments. No data was lost in this case.

The pressure increased from -2.6 to -.6 kPa during the 10 minute PF. The negative pressure is not significant. The absolute value of the change in pressure is the important information.

The closed chamber mass balance resulted in the following rates:

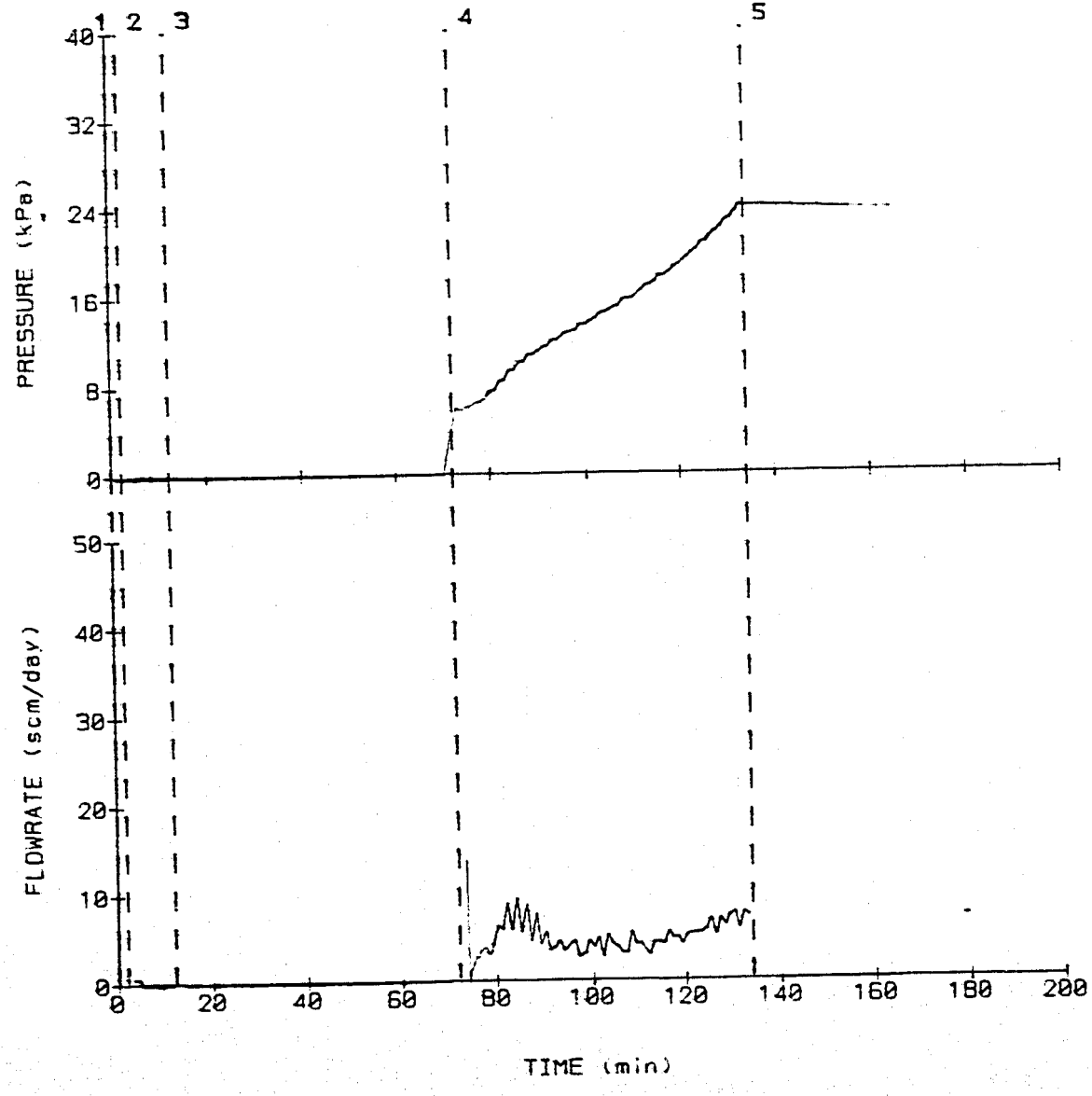
Average Gas Rate	Not Measurable
Average Liquid Rate	5.2 m^3/day

FINAL FLOW/FINAL SHUTIN:

A gas huff on valve open confirmed the production of gas. The pressure increased to 24.1 kPa during the 60 minute final flow period. There was no further increase in pressure during the 180 minute final shutin.

The closed chamber mass balance resulted in the following rates:

Average Gas Rate	7.0 scm/day
Average Liquid Rate	.1 m^3/day
GLR	70 scm/m^3



SURFACE PRESSURE
and FLOWRATE vs
ELAPSED TEST TIME
for a
GAS [illegible]

[illegible]EVRON CANADA
Well Name:
Chevron E Hume River
Location: I-28
Formation: Arctic Red
Interval (m): 297-382
DST #1 Date: 03/23/90

1 Pretest
2 Preflow
3 Initial Shutin
4 Final Flow
5 Final Shutin

THE EVALUATORS

PIPE RECOVERY

A total of 9 m (.04 m^3) of fluid was recovered. The effective rathole volume was .115 m^3.

The pipe recovery was made up of 9 m of gassified drilling fluid. A specific ion analysis of the pipe recovery as done on location by the mud man. The salinity (250 ppm Cl^-) and the nitrate content (80 ppm NO_3) of the pipe recovery was the same as the mud filtrate sample taken before the test began.

PRESSURE TRANSIENT ANALYSIS

A Horner analysis was performed on the FF/FSI data. This analysis assumes that the shutin data was still building at a rate that was less than the resolution of the pressure recorded and digitizer. Although gas was assumed to be the predominant flow, a formation gas saturation of 60% was assumed. The input parameters are listed below:

Horner Slope:	6 kPa/cycle
P*:	2,129 kPa
P(wf):	110 kPa
Gas Flow Rate:	7 scm/d
Formation Volume Factor:	.043
System Compressibility:	300 x 10-6/kPa
Viscosity of gas @ est res cond:	.0103 cp
Porosity	15%
Pay Thickness	1.5 m
Hole Diameter	216 mm

The following values were calculated:

Transmissibility:	118 md.m/cp
Mobility:	78 md/cp
Permeability:	.8 md
Radius of Investigation:	4.5 m

DOWNHOLE CHART SUMMARY

Chevron E Hume River | I-20 | DST #1

Formation: Arctic Red | Interval: 297-302

DOWNHOLE PRESSURES (kPa)

IH	3439
IPF	58
FPF	87
ISI	754
IFF	110
FF	110
FSI	2128
FH	3417

Rec. type k3 | # 14156 | Test Times 10-60-60-180

HORNER DATA

ISI

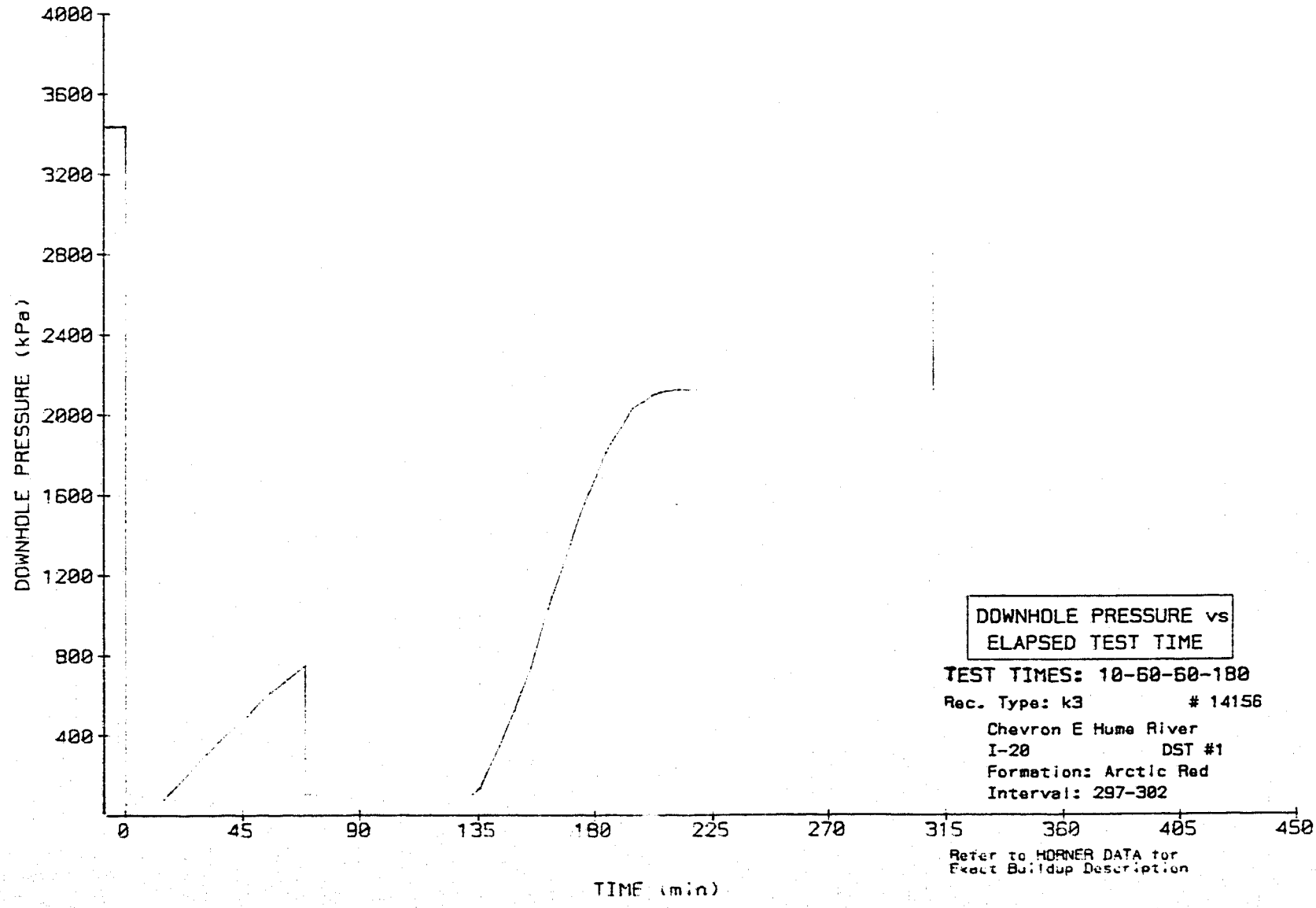
tp= 10 min q= 0 m3/d

P(kPa)	dt(min)	dt+tp/dt
88	0.0	0.00
312	16.5	1.61
503	32.0	1.31
620	40.8	1.24
671	46.0	1.22
755	54.0	1.19

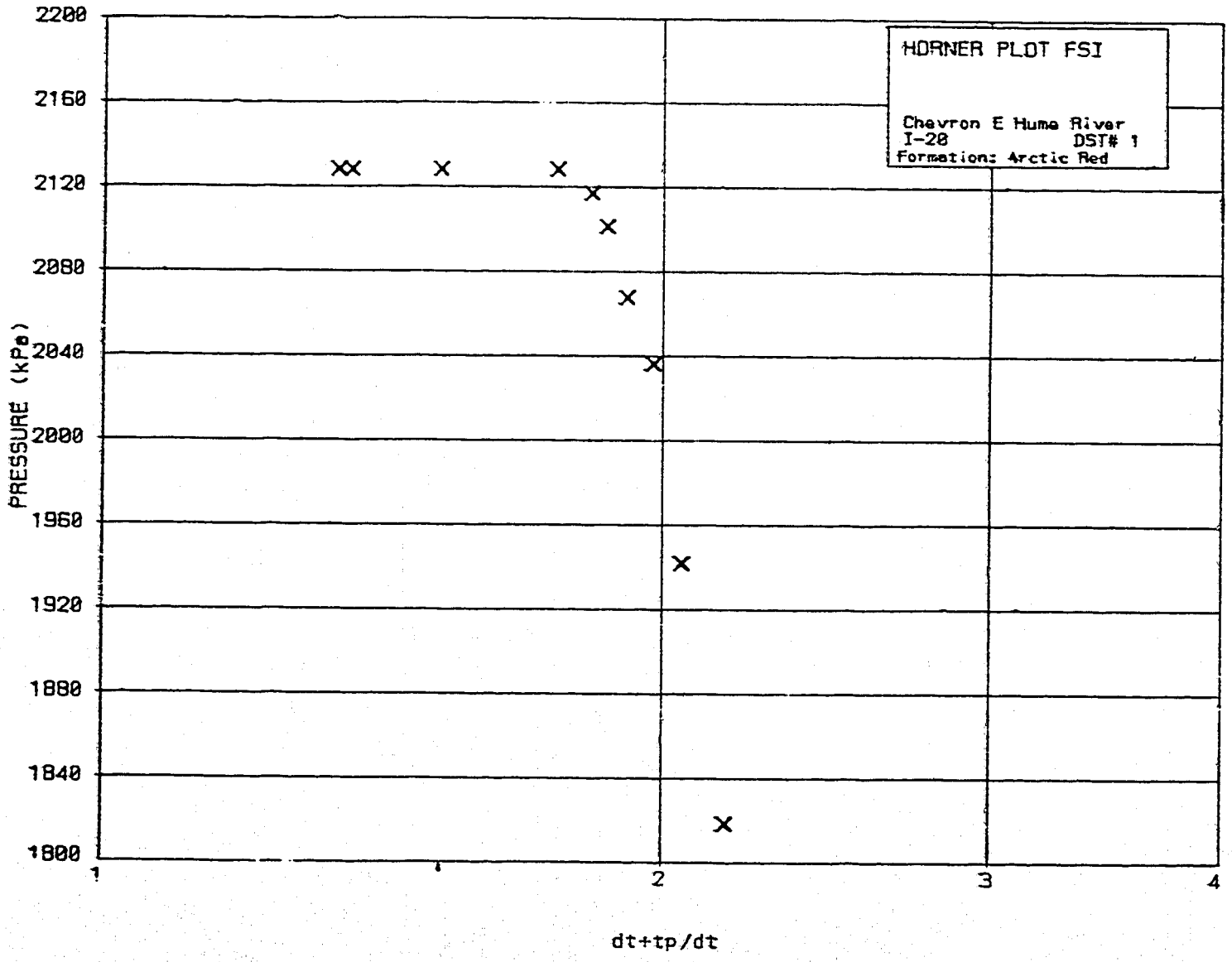
FSI

tp= 60 min q= 7 m3/d

P(kPa)	dt(min)	dt+tp/dt
110	0.0	0.00
139	2.7	23.50
353	10.2	6.88
530	16.2	4.70
748	22.4	3.68
1040	29.5	3.03
1361	37.8	2.59
1565	43.3	2.39
1819	51.6	2.16
1942	57.2	2.05
2036	61.4	1.98
2068	65.7	1.91
2102	69.2	1.87
2117	72.2	1.83
2128	79.5	1.75
2128	115.7	1.52
2128	166.5	1.36
2128	177.3	1.34



THE EVALUATORS



THE EVALUATORS

RESERVOIR ANALYSIS

A kick was encountered at approximately this depth during the drilling operation. To deal with the kick, the mud weight was increased from 1,190 kg/m^3 to 1,250 kg/m^3. The formation was exposed to this mud for about 24 hours prior to the test. Additionally, the formation was exposed to, 1,190 kg/m^3 mud for 24 hours before the kick. In both cases, the formation is underbalanced compared to the hydrostatic pressures. It is unlikely that the kick came from this zone.

The pipe recovery volume of .04 m^3 was much less than the effective rathole volume (.15 m^3). There was not enough pipe recovery produced to displace the rathole mud. There was no change in salinity or nitrate content in the pipe recovery to indicate connate water production. The pipe recovery shows no quantifiable evidence of filtrate invasion or formation water production.

The pipe recovery chart indicated that almost all of the fluid produced during this test was produced in the preflow. This suggests that the source of this fluid may be temporary, like invaded filtrate. It is also possible that the 9 m of drilling fluid may have been displaced into the pipe by gas production. A gas bubble then may have kept the recovery from draining out of the pipe. Such a small recovery illustrates the lower limit of recording test results.

80 minutes after the start of the FSI, the pressure stabilized at 2,128 kPa. This resulted in a horizontal Horner slope (i.e. slope = 0). If the resolution of the pressure recorder and the digitizer is estimated to be about 2 kPa, it is possible that the FSI curve was still building during the straight line portion of the curve and it was not detected by the measuring devices used. The data from the electronic recorder may help answer this question.

If filtrate invasion was minimal there are 2 ways to interpret the test results:

1. The FSI did express static reservoir pressure and the true Horner slope was zero. In this case Horner analysis is invalid. The static reservoir pressure was 2,128 kPa and formation characteristics are clearly demonstrated by this test.

2. The pressure was building slightly and the Horner slope was small. Assuming a Horner slope of 6, mobility was calculated at 78 md/cp. The skin calculation is invalid for this scenario. P* is 2,129 kPa. If the total fluid production was filtrate, this test drained the reservoir .034 m away from the wellbore. With a radius of investigation of 4.5 m, this test saw past the invaded zone. This also would be a good measure of formation characteristics.

It is also possible that filtrate invaded the formation deeper than the radius of investigation. If the fluid saturations after the invasion were still below the irreducable levels then no fluid would be produced back. In this event the test would not have measured past the invaded filtrate and true formation properties would not be measured.

The test results are ambiguous. Further investigation is recommended. The resistivity log may help to quantify filtrate invasion.

TEST STRING INFORMATION

CLOSED CHAMBER:

No.	COMPONENT NAME	ID (MM)	OD (MM)	LENGTH (M)	VOLUME (M3)
1	Chicksans	38		12	0.0136
2	Drillpipe	86		9.3	0.0540
3	Heavyweight	73		121.46	0.5084
4	Drill Collars	73		158.04	0.6615
5	Tools Above	25		3.89	0.0019

RATHOLE:

1	Tools Below	25	127	10.5	0.00515
2	Interval Tool	25	127	.82	0.00040
3	Perf	25	127	.3	0.00015
4	Interval Tools	25	127	3.84	0.00000

TOTAL CLOSED CHAMBER VOLUME: 1.24 M3

TOTAL RATHOLE VOLUME: 0.125 M3

THE INITIAL PARAMETERS ARE:

AVERAGE DRILLING FLUID TEMPERATURE: *30 C*
ATMOSPHERIC PRESSURE: *101 kPA*
N1: *1.18 scm*

MINIMUM SURFACE PRESSURE WHEN RATHOLE VOLUME HAS BEEN PRODUCED THROUGH SHUTIN TOOL: *11.29 kPA*

MAXIMUM UNRECORDABLE FLOWRATE = *0.2 scm/day*

Pretest

TIME min	SURFACE PRESSURE kPa	dP/dt kPa/min	GAS FLOWRATE scm/day	CUMMULATIVE PRODUCTION scm
1.00	0.00	0.00		
1.50	0.00	0.00		

Preflow

TIME min	SURFACE PRESSURE kPa	dP/dt kPa/min	GAS FLOWRATE scm/day	CUMMULATIVE PRODUCTION scm
2.00	-0.06	-0.13	-2.11	-0.00
2.50	-0.06	0.00	0.00	-0.00
3.00	0.00	0.13	2.11	0.00
4.00	0.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	0.00
5.00	-0.13	-0.25	-4.22	-0.00
5.50	-0.56	-0.88	-14.77	-0.01
6.00	-2.38	-3.63	-61.17	-0.03
6.50	-2.44	-0.13	-2.11	-0.03
7.00	-2.50	-0.13	-2.11	-0.03
7.50	-2.50	0.00	0.00	-0.03
8.00	-2.56	-0.13	-2.11	-0.03
8.50	-2.56	0.00	0.00	-0.03
9.00	-2.63	-0.13	-2.11	-0.03
9.50	-2.63	0.00	0.00	-0.03
10.00	-2.63	0.00	0.00	-0.03
10.50	-2.69	-0.13	-2.11	-0.03
11.00	-2.69	0.00	0.00	-0.03
11.50	-2.69	0.00	0.00	-0.03

Initial Shutin

TIME min	SURFACE PRESSURE kPa	dP/dt kPa/min	BREAKOUT GAS FLOWRATE scm/day	CUMMULATIVE PRODUCTION scm
12.00	-2.69	0.00	0.00	-0.03
13.00	-2.75	-0.06	-1.05	-0.03
13.50	-2.81	-0.13	-2.11	-0.03
14.00	-2.81	0.00	0.00	-0.03
14.50	-2.81	0.00	0.00	-0.03
15.00	-2.81	0.00	0.00	-0.03
15.50	-2.88	-0.13	-2.11	-0.03
16.00	-2.88	0.00	0.00	-0.03
17.00	-2.44	0.44	7.38	-0.03
20.02	-0.63	0.60	10.14	-0.01
20.50	-0.63	0.00	0.00	-0.01
21.00	-0.63	0.00	0.00	-0.01
22.00	-0.63	0.00	0.00	-0.01
24.00	-0.63	0.00	0.00	-0.01
26.00	-0.63	0.00	0.00	-0.01
28.00	-0.63	0.00	0.00	-0.01
30.00	-0.69	-0.03	-0.53	-0.01
32.00	-0.69	0.00	0.00	-0.01
34.00	-0.69	0.00	0.00	-0.01
36.00	-0.75	-0.03	-0.53	-0.01
38.00	-0.69	0.03	0.53	-0.01
40.00	-0.75	-0.03	-0.53	-0.01
42.00	-0.69	0.03	0.53	-0.01
44.00	-0.75	-0.03	-0.53	-0.01
46.00	-2.44	-0.84	-14.24	-0.03
48.00	-2.44	0.00	0.00	-0.03
50.00	-2.38	0.03	0.53	-0.03
60.00	-0.81	0.16	2.64	-0.01
70.00	-0.94	-0.01	-0.21	-0.01

Final Flow

TIME min	SURFACE PRESSURE kPa	dP/dt kPa/min	GAS FLOWRATE scm/day	CUMMULATIVE PRODUCTION scm
72.75	6.00	2.52	42.58	0.07
73.00	5.94	-0.25	-4.22	0.07
73.50	5.94	0.00	0.00	0.07
74.00	5.88	-0.13	-2.11	0.07
74.50	6.00	0.25	4.22	0.07
75.00	6.06	0.13	2.11	0.07
75.50	6.13	0.13	2.11	0.07
76.00	6.25	0.25	4.22	0.07
76.50	6.38	0.25	4.22	0.07
77.50	6.56	0.19	3.17	0.08
78.00	6.63	0.13	2.11	0.08
78.50	6.75	0.25	4.22	0.08
78.75	6.81	0.25	4.22	0.08
79.00	6.88	0.25	4.22	0.08
80.00	7.50	0.63	10.55	0.09
81.00	7.69	0.19	3.17	0.09
82.00	8.44	0.75	12.66	0.10
83.00	8.56	0.13	2.11	0.10
84.00	9.38	0.81	13.72	0.11
85.00	9.44	0.06	1.06	0.11
86.00	10.13	0.69	11.61	0.12
87.00	10.19	0.06	1.06	0.12
88.00	10.81	0.63	10.55	0.13
89.00	10.88	0.06	1.06	0.13
90.00	11.19	0.31	5.28	0.13
91.00	11.44	0.25	4.22	0.13
92.00	11.56	0.13	2.11	0.14
93.00	12.00	0.44	7.39	0.14
94.00	12.06	0.06	1.06	0.14
96.00	12.69	0.31	5.28	0.15
97.00	12.81	0.13	2.11	0.15
98.00	12.94	0.13	2.11	0.15
99.00	13.50	0.56	9.50	0.16
100.00	13.50	0.00	0.00	0.16
101.00	13.81	0.31	5.28	0.16
102.00	14.00	0.19	3.17	0.16
103.00	14.44	0.44	7.39	0.17
104.00	14.56	0.13	2.11	0.17
105.00	14.69	0.13	2.11	0.17
106.00	15.00	0.31	5.28	0.18
107.00	15.13	0.13	2.11	0.18

TIME min	SURFACE PRESSURE kPa	dP/dt kPa/min	GAS FLOWRATE scm/day	CUMMULATIVE PRODUCTION scm
108.00	15.69	0.56	9.50	0.18
109.00	15.75	0.06	1.06	0.18
110.00	15.88	0.13	2.11	0.19
112.00	16.56	0.34	5.81	0.19
113.00	16.88	0.31	5.28	0.20
114.00	17.00	0.13	2.11	0.20
115.00	17.31	0.31	5.28	0.20
116.00	17.88	0.56	9.50	0.21
117.00	17.88	0.00	0.00	0.21
118.00	18.19	0.31	5.28	0.21
119.00	18.63	0.44	7.39	0.22
120.00	18.81	0.19	3.17	0.22
122.00	19.50	0.34	5.81	0.23
123.00	19.94	0.44	7.39	0.23
124.00	20.19	0.25	4.22	0.24
125.00	20.75	0.56	9.51	0.24
126.00	20.88	0.13	2.11	0.24
127.00	21.44	0.56	9.51	0.25
128.00	21.88	0.44	7.39	0.26
129.00	22.19	0.31	5.28	0.26
130.00	22.81	0.63	10.56	0.27
131.00	22.94	0.13	2.11	0.27
132.00	23.56	0.63	10.56	0.28
133.00	24.13	0.56	9.51	0.28

Final Shutin

TIME min	SURFACE PRESSURE kPa	dP/dt kPa/min	BREAKOUT GAS FLOWRATE scm/day	CUMMULATIVE PRODUCTION scm
134.00	24.06	-0.06	-1.06	0.28
135.00	24.06	0.00	0.00	0.28
138.00	24.06	0.00	0.00	0.28
141.00	24.00	-0.02	-0.35	0.28
144.00	24.00	0.00	0.00	0.28
147.00	23.94	-0.02	-0.35	0.28
150.00	23.94	0.00	0.00	0.28
153.00	23.88	-0.02	-0.35	0.28
156.00	23.81	-0.02	-0.35	0.28
159.00	23.81	0.00	0.00	0.28
162.00	23.75	-0.02	-0.35	0.28

REF#:C-76-999-00888-66

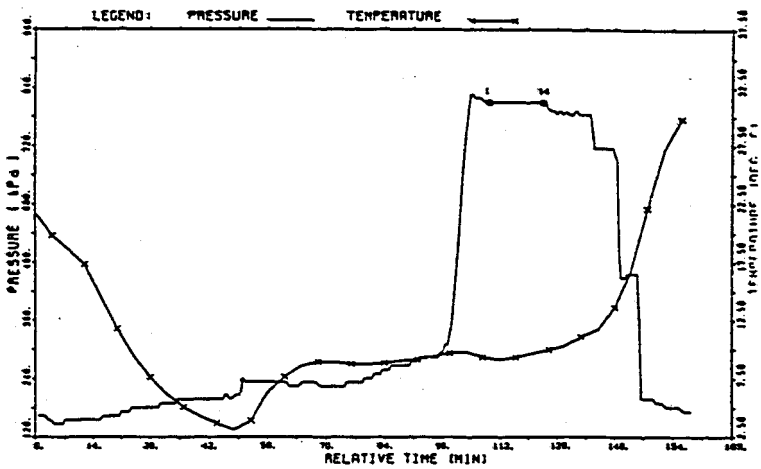
TEST DATE: 90/03/23

CHEVRON EAST HUME RIVER I-20
400/ 65.594 / 129.172 /00
DST#02
58.00m to 133.00m
SURFACE SAND

DEPTH: 63.00m

RECORDER # 001767

	PRESSURE kPa(a)
1) Initial Hydro :	810.
14) Final Hydro. :	810.



RECOVERY DATA

TOTAL FLUID RECOVERY CONSISTED OF 40.00 M OF FLUID WATER FROM CASING. NO GAS TO SURFACE.

REMARKS AND TEST SUMMARY

Misrun - lost the packer seat during the preflow.

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General Data	Tool Sequence	PRESSURE	Plot Summary
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Liquid Recovery	Mud and Hole Data	LISTING	-Parameters used
Measurements			-Results

********** RECORDER PAGES & FIGURES **********

BAKER OIL TOOLS CANADA
DST#02 REPORT

Well name : CHEVRON EAST HUME RIVER I-20
Location : 400/ 65.594 / 129.172 /00
Interval : 58.00m to 133.00m
Test Date : 90/03/23
Test Type : DUAL CONVENTIONAL BOTTOM HOLE
Formation : SURFACE SAND

K.B.Elevation : 75.12m
Grd.Elevation : 68.96m
TD @ test Date: 133.00m
Ticket Number : 81213
Unit Number :

Started in hole at : 0100 hrs
Tool opened at : 0133 hrs
Reverse circulated?: NO
Contractor & Rig No: SHEHTAH #1E
Baker#2 : 1 of 1 on the same trip.

Operator: CHEVRON CANADA RESOURCES LIMITED
14TH FLOOR
500 - 5TH AVE. S.W.
CALGARY, ALBERTA
T2P0L7

Company Rep : ANDERSON K
Testers : FORBES G

5 REPORTS(S) TO: BRIAN GLOVER
Company:

BLOW DESCRIPTION

PREFLOW: Very weak air blow decreasing throughout. No gas to surface.

TOTAL LIQUID RECOVERY : 40.00m

For DST# 2 through DST# 2

40.00m MUDDY WATER FROM CASING.

GAS MEASUREMENTS

No Gas Measurements

DST#02
CHEVRON EAST HUME RIVER I-20
58.00m to 133.00m

TOOL SEQUENCE

SUB	LENGTH (m)
CROSS OVER SUB	.30
SHUT-IN TOOL	2.58
BTM HOLE SAMPLER	1.03
HYDRAULIC TOOL	1.50
INSIDE RECORDER	1.69
CROSS OVER SUB	.30
CONV. PACKER	1.24
PACKER STICK DOWN	1.04
CROSS OVER SUB	.30
PERFORATIONS	1.53
SPACING	2.38
OUTSIDE RECORDER	2.06
CROSS OVER SUB	.30
DRILL PIPE	65.18
CROSS OVER SUB	.49
BIT SUB	.87
CROSS OVER SUB	.30
BULL NOSE	.55

RECORDER SUMMARY

1) NUMBER : 001767 ELECTRONIC GAUGE.
TYPE : DMRB
LOCATION: OUTSIDE
RANGE: 34500.00kPa(a)
DEPTH : 63.00m

2) NUMBER : 001785 ELECTRONIC GAUGE.
TYPE : DMRB
LOCATION: INSIDE
RANGE: 68900.00kPa(a)
DEPTH : 56.00m

3) NUMBER : 014156 ABOVE INTERVAL.
TYPE : K-3
LOCATION: OUTSIDE
RANGE: 13700.00kPa
DEPTH : 63.00m

******** TOOL TOTAL	83.64
DRILL COLLARS	
ID= 75.0mm:	45.72
ID= :	
DRILL PIPE	
OD=114.3mm:	9.24
OD= :	
COLLAR-PIPE TOTAL	54.96

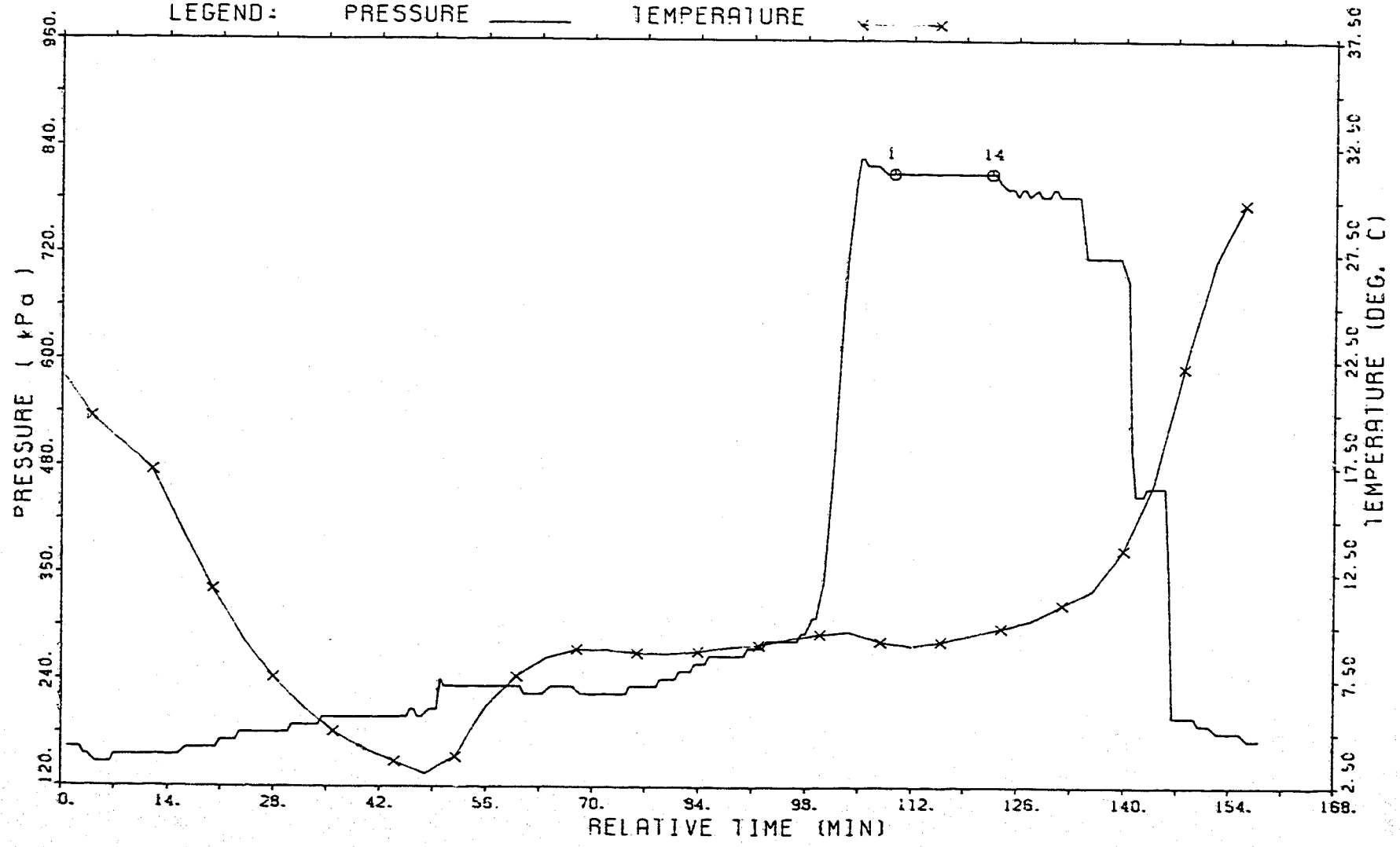
STICK UP ABOVE TABLE : 5.60
TOOL ABOVE INTERVAL : 8.64
TOTAL INTERVAL : 75.00
BOTTOM CHOKE SIZE: 12.70 mm

MUD AND HOLE DATA

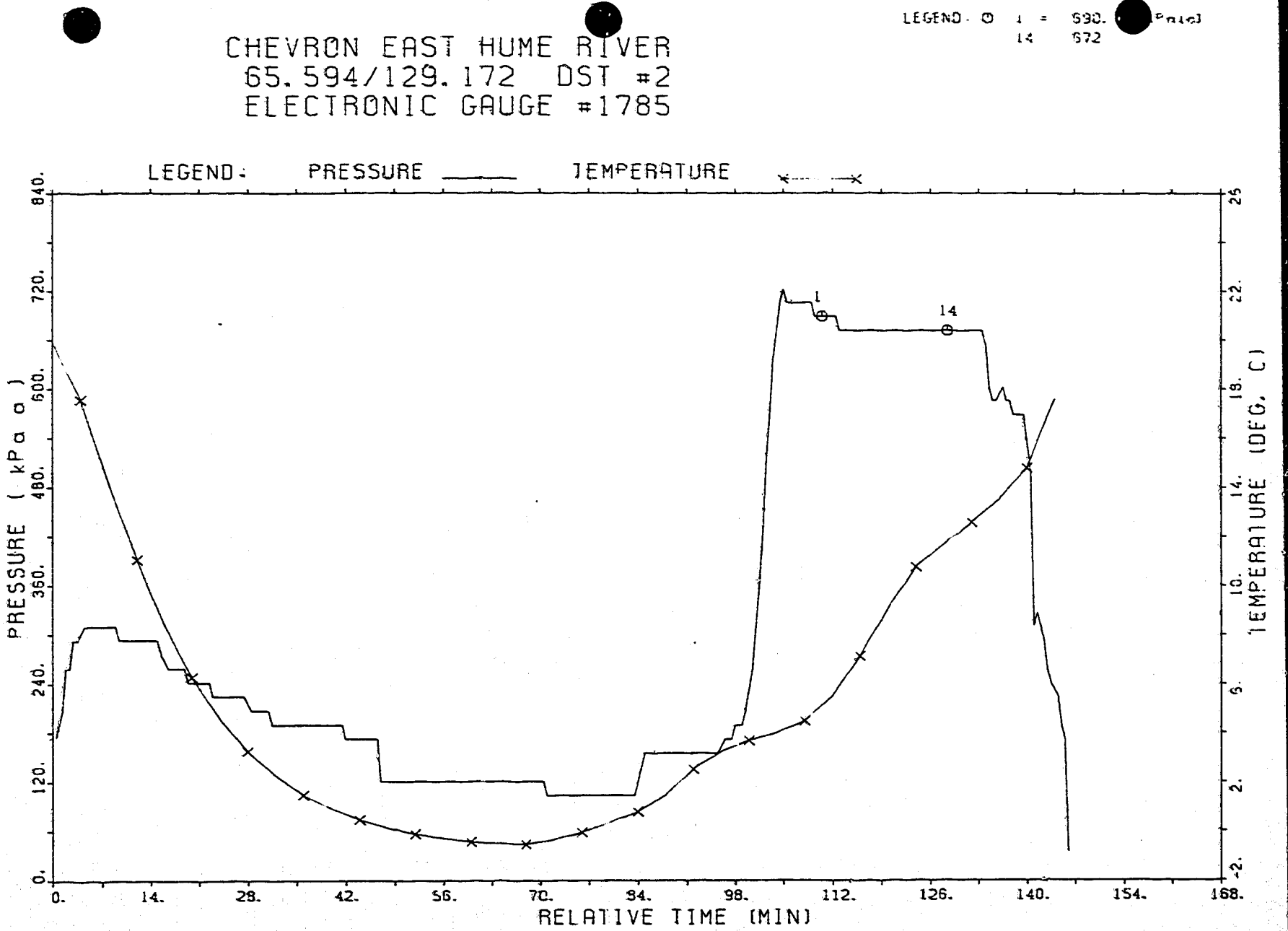
Calipered Hole Size @ Test Depth: 220.00mm Water Loss :
Hole Condition at Test Time : EXCELLENT Filter Cake:
Hole Conditioned Prior to Test? : YES
Mud Weight : 1000.0 kg/m3 Main Hole Size: 216.00mm
Mud Type : WATER
Viscosity : Temperature @63.00m = 9.6C

CHEVRON EAST HUME RIVER
65.594/129.172 DST #2
ELECTRONIC GAUGE #1767

LEGEND: ⊕ 1 = SIG. kPa
14 SIG.



CHEVRON EAST HUME RIVER
65.594/129.172 DST #2
ELECTRONIC GAUGE #1785



DST#02
CHEVRON EAST HUME RIVER I-20
58.00m to 133.00m

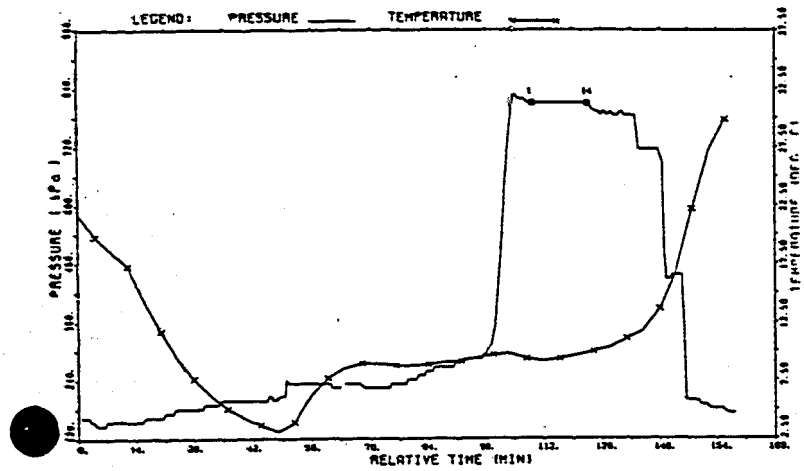
PRESSURE RECORDER NUMBER : 001767

DEPTH : 63.00m LOCATION : OUTSIDE
TYPE : DMRB CAPACITY : 34500.00kPa(a)

PRESSURE
kPa(a)

***** TEMPERATURE AT RECORDER DEPTH = 9.6 C

1)Initial Hydro : 810.
14)Final Hydro. : 810.



ELECTRONIC GAUGE.

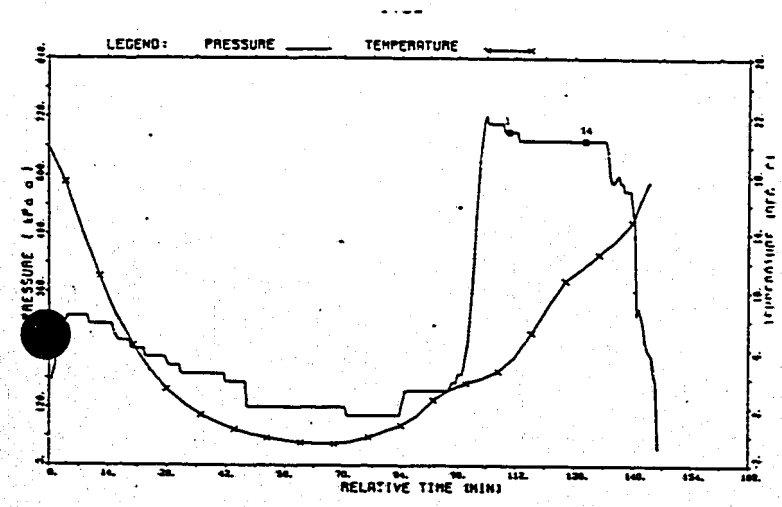
PRESSURE RECORDER NUMBER : 001785

DEPTH : 56.00m LOCATION : INSIDE
TYPE : DMRB CAPACITY : 68900.00kPa(a)

PRESSURE
kPa(a)

***** TEMPERATURE AT RECORDER DEPTH = 4.5 C

1)Initial Hydro : 690.
14)Final Hydro. : 672.



ELECTRONIC GAUGE.

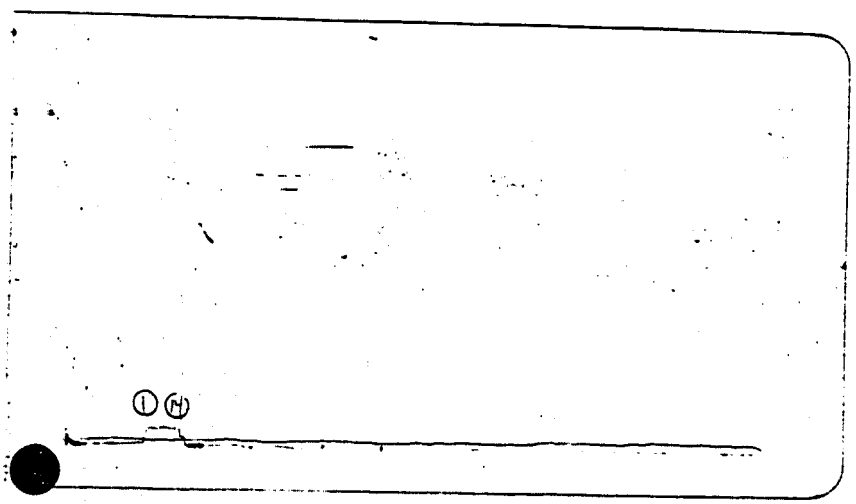
DST#02
CHEVRON EAST HUME RIVER I-20
58.00m to 133.00m

PRESSURE RECORDER NUMBER : 014156

DEPTH : 63.00m
TYPE : K-3

LOCATION : OUTSIDE
CAPACITY : 13700.00 kPa

	PRESSURE kPa
1) Initial Hydro :	561.
14) Final Hydro. :	536.



REF#:C-76-999-00888-66

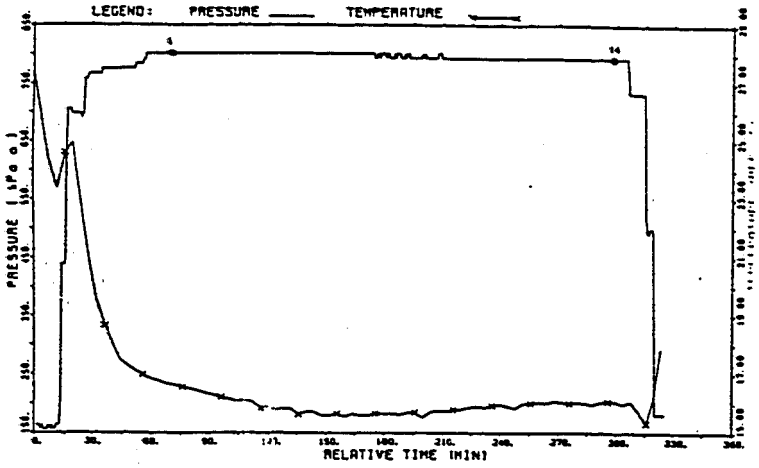
TEST DATE: 90/03/23

CHEVRON EAST HUME RIVER I-20
400/ 65.594 / 129.172 /00
DST#03
58.00m to 133.00m
SURFACE SAND

DEPTH: 63.00m

RECORDER # 001767

	PRESSURE kPa(a)
1)Initial Hydro :	802.
14)Final Hydro. :	793.



RECOVERY DATA

TOTAL FLUID RECOVERY CONSISTED OF 47.00 M OF MUDDY WATER FROM CASING. NO GAS TO SURFACE.

REMARKS AND TEST SUMMARY

Misrun - lost no mud on the flows, but the charts indicate the pipe was full when the tool was opened.

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Liquid Recovery	Mud and Hole Data		-Parameters used
Gas Measurements			-Results

********** RECORDER PAGES & FIGURES **********

BAKER OIL TOOLS CANADA
DST#03 REPORT

Well name : CHEVRON EAST HUME RIVER I-20
Location : 400/ 65.594 / 129.172 /00
Interval : 58.00m to 133.00m
Test Date : 90/03/23
Test Type : DUAL CONVENTIONAL BOTTOM HOLE
Formation : SURFACE SAND

K.B.Elevation : 75.12m
Grd.Elevation : 68.96m
TD @ test Date: 133.00m
Ticket Number : 81214
Unit Number :

Started in hole at : 0300 hrs
Tool opened at : 0337 hrs
Reverse circulated?: NO
Contractor & Rig No: SHEHTAH #1E
Baker#3 : 1 of 1 on the same trip.

Operator: CHEVRON CANADA RESOURCES LIMITED
14TH FLOOR
500 - 5TH AVE. S.W.
CALGARY, ALBERTA
T2P0L7

Company Rep : ANDERSON K
Testers : FORBES G

5 REPORTS(S) TO: BRIAN GLOVER
Company:

BLOW DESCRIPTION

PREFLOW: Strong air blow immediately decreasing to nil in 2 minutes. No gas to surface.
FINAL FLOW: Strong air blow immediately, decreasing to nil in 90 seconds. No gas to surface.

TOTAL LIQUID RECOVERY : 47.00m

For DST# 3 through DST# 3
3 Fluid Samples
Sent to: GEO TECH

Btm. Hole Sampler #: NO #
Sent to: RERAN

47.00m MUDDY WATER FROM CASING.

GAS MEASUREMENTS

No Gas Measurements

DST#03
CHEVRON EAST HUME RIVER I-20
58.00m to 133.00m

TOOL SEQUENCE

SUB	LENGTH (m)
CROSS OVER SUB	.30
SHUT-IN TOOL	2.58
BTM HOLE SAMPLER	1.03
HYDRAULIC TOOL	1.50
INSIDE RECORDER	1.69
CROSS OVER SUB	.30
CONV. PACKER	1.24
PACKER STICK DOWN	1.04
CROSS OVER SUB	.30
PERFORATIONS	1.53
SPACING	2.38
OUTSIDE RECORDER	2.06
CROSS OVER SUB	.30
DRILL PIPE	65.18
CROSS OVER SUB	.49
BIT SUB	.87
CROSS OVER SUB	.30
BULL NOSE	.55

RECORDER SUMMARY

1) NUMBER : 001767 ELECTRONIC GAUGE.
TYPE : DMRB
LOCATION: OUTSIDE
RANGE: 34500.00kPa(a)
DEPTH : 63.00m

2) NUMBER : 001785 ELECTRONIC GAUGE.
TYPE : DMRB
LOCATION: INSIDE
RANGE: 68900.00kPa(a)
DEPTH : 56.00m

******** TOOL TOTAL	83.64
DRILL COLLARS	
ID= 75.0mm:	45.72
ID= :	
DRILL PIPE	
OD=114.3mm:	9.24
OD= :	
COLLAR-PIPE TOTAL	54.96
STICK UP ABOVE TABLE :	5.60
TOOL ABOVE INTERVAL :	8.64
TOTAL INTERVAL :	75.00

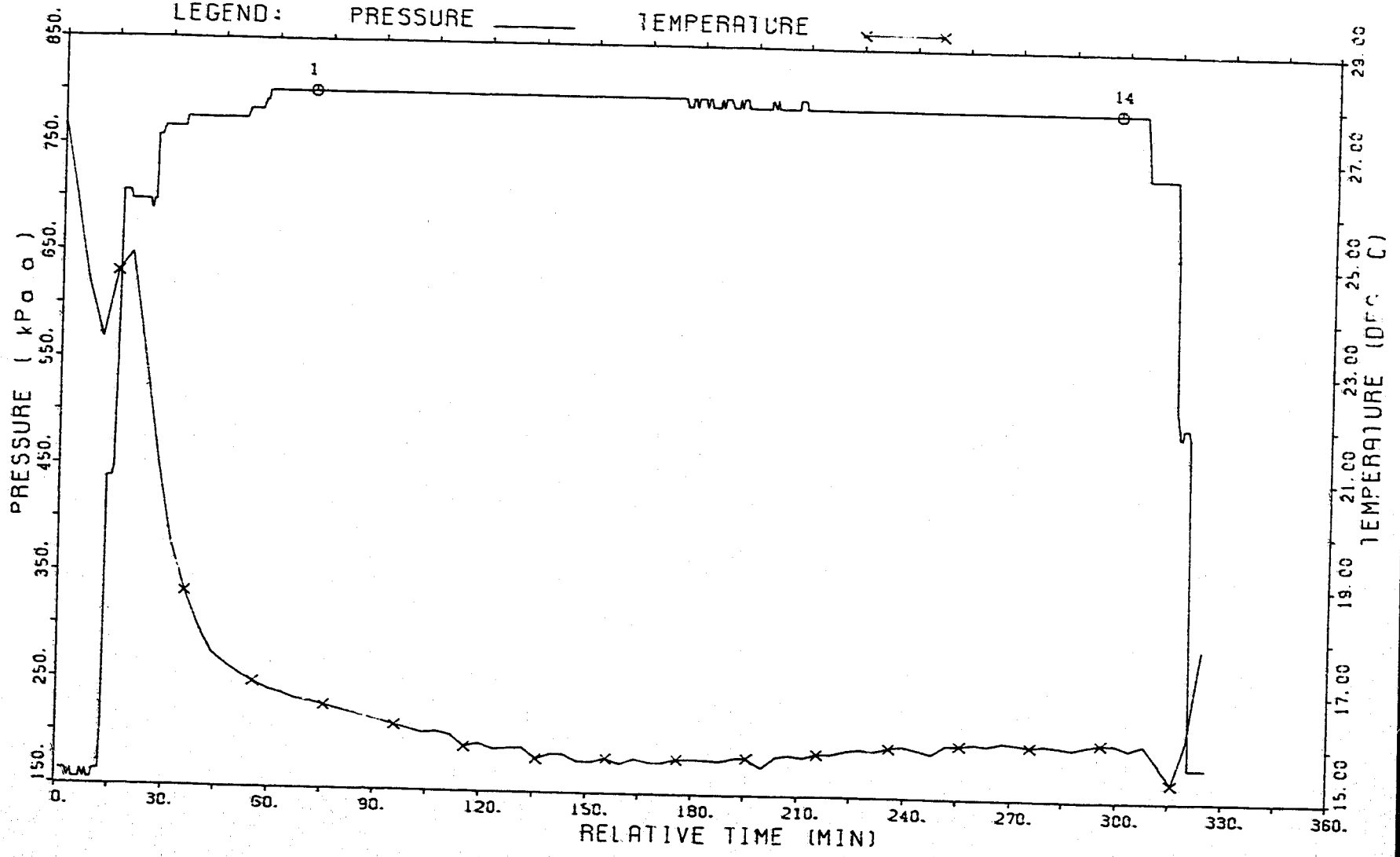
BOTTOM CHOKE SIZE: 12.70 mm

MUD AND HOLE DATA

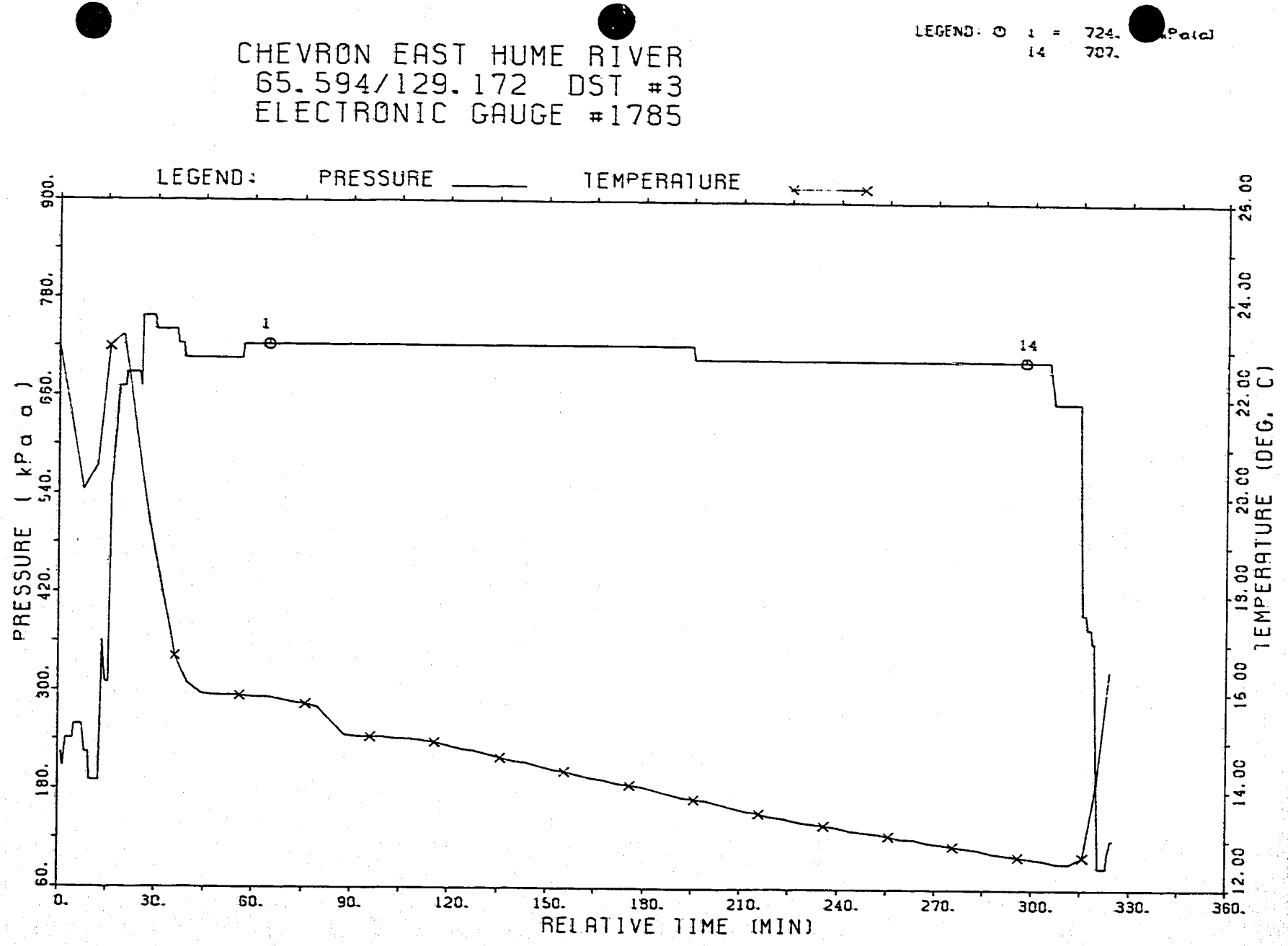
Calipered Hole Size @ Test Depth: 220.00mm Water Loss :
Hole Condition at Test Time : EXCELLENT Filter Cake:
Hole Conditioned Prior to Test? : NO
Mud Weight : Main Hole Size: 216.00mm
Mud Type : WATER
Viscosity : Temperature @63.00m = 15.7C

CHEVRON EAST HUME RIVER
65.594/129.172 DST #3
ELECTRONIC GAUGE #1767

LEGEND: PRESSURE ——— TEMPERATURE ←——→



CHEVRON EAST HUME RIVER
65.594/129.172 DST #3
ELECTRONIC GAUGE #1785



DST#03
CHEVRON EAST HUME RIVER I-20
58.00m to 133.00m

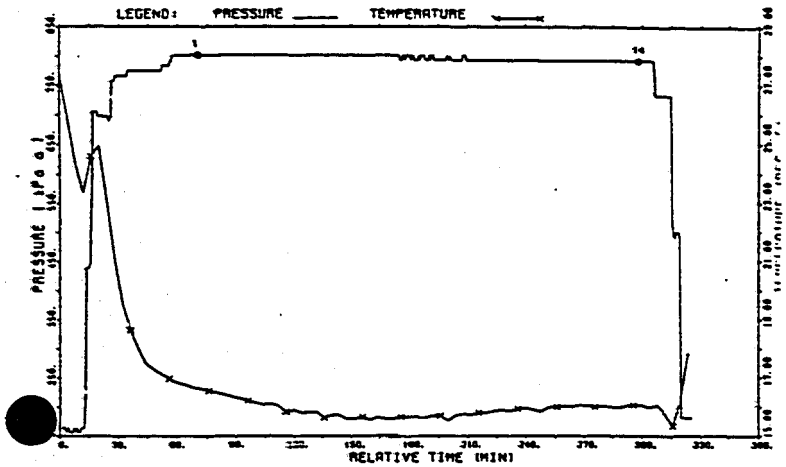
PRESSURE RECORDER NUMBER : 001767

DEPTH : 63.00m LOCATION : OUTSIDE
TYPE : DMRB CAPACITY : 34500.00kPa(a)

PRESSURE
kPa(a)

***** TEMPERATURE AT RECORDER DEPTH = 15.7 C

1) Initial Hydro : 802.
14) Final Hydro. : 793.



ELECTRONIC GAUGE.

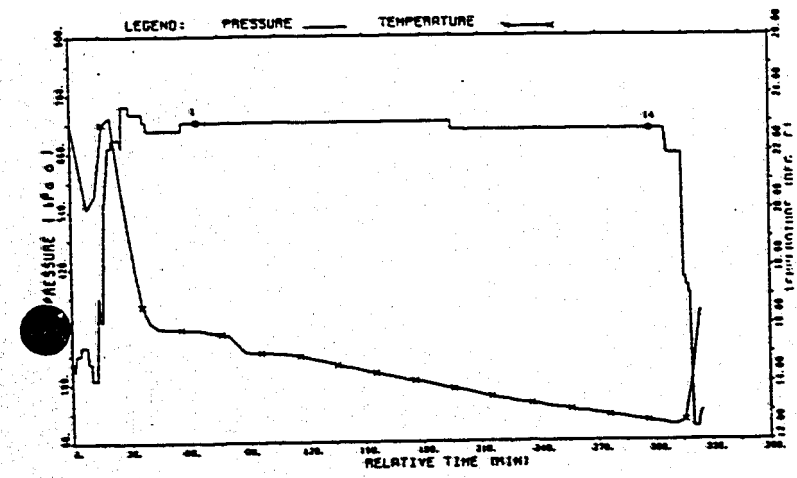
PRESSURE RECORDER NUMBER : 001785

DEPTH : 56.00m LOCATION : INSIDE
TYPE : DMRB CAPACITY : 68900.00kPa(a)

PRESSURE
kPa(a)

***** TEMPERATURE AT RECORDER DEPTH = 14.4 C

1) Initial Hydro : 724.
14) Final Hydro. : 707.



ELECTRONIC GAUGE.

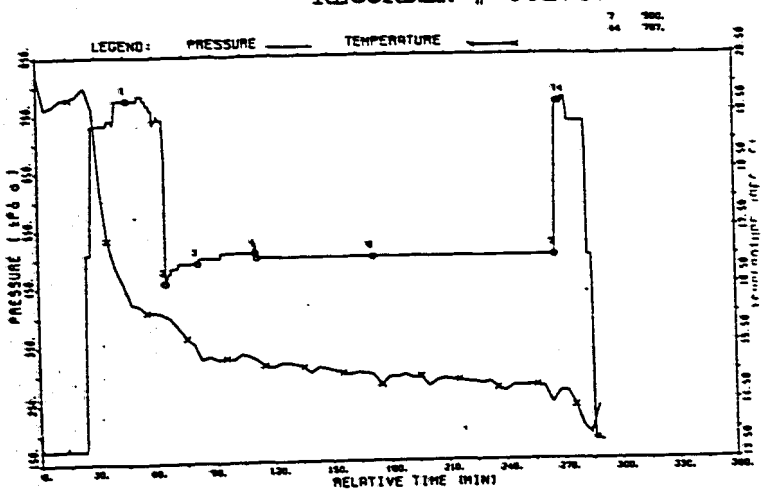
REF#:C-76-999-00888-66

TEST DATE: 90/03/23

CHEVRON EAST HUME RIVER I-20
400/ 65.594 / 129.172 /00
DST#04
58.00m to 132.50m
SURFACE SAND

DEPTH: 61.00m

RECORDER # 001767



	PRESSURE kPa(a)
1) Initial Hydro :	776.
2) 1st Flow Start:	457.
3) 1st Flow End :	491.
4) END 1st Shutin:	509.
5) 2nd Flow Start:	500.
6) 2nd Flow End :	500.
7) END 2nd Shutin:	500.
14) Final Hydro. :	767.

TEST TIMES (MIN)	
1stFLOW :	16.0
SHUTIN:	29.5
2ndFLOW :	60.0
SHUTIN:	93.0

RECOVERY DATA

TOTAL FLUID RECOVERY CONSISTED OF 15.00 M OF MUDDY WATER. NO GAS TO SURFACE.

REMARKS AND TEST SUMMARY

Test results indicate a mechanically successful test. Bottom hole pressures and the shape of the shut-in curves suggest HIGH PERMEABILITY within the interval tested. The fluid recovery equalized with the formation pressure during the preflow.

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General Data	Tool Sequence	PRESSURE -TIME	Plot Summary
Blow Description	Recorder Summary	LISTING	Reservoir Calculations
Liquid Recovery	Mud and Hole Data		-Parameters used
Gas Measurements			-Results

********** RECORDER PAGES & FIGURES **********

BAKER OIL TOOLS CANADA
DST#04 REPORT

Well name : CHEVRON EAST HUME RIVER I-20
Location : 400/ 65.594 / 129.172 /00
Interval : 58.00m to 132.50m
Test Date : 90/03/23
Test Type : INFLATE BOTTOM HOLE
Formation : SURFACE SAND

K.B.Elevation : 75.12m
Grd.Elevation : 68.96m
TD @ test Date: 133.00m
Ticket Number : 81215
Unit Number :

Started in hole at : 1030 hrs
Tool opened at : 1103 hrs
Reverse circulated?: NO
Contractor & Rig No: SHEHTAH #1E
Baker#4 : 1 of 1 on the same trip.

Operator: CHEVRON CANADA RESOURCES LIMITED
14TH FLOOR
500 - 5TH AVE. S.W.
CALGARY, ALBERTA
T2P0L7

Company Rep : ANDERSON K
Testers : FORBES G

5 REPORTS(S) TO: BRIAN GLOVER
Company:

BLOW DESCRIPTION

PREFLOW: Strong air blow immediately decreasing to nil in 4 minutes. No gas to surface.
FINAL FLOW: Very weak air blow decreasing to nil in 3 minutes. No gas to surface.

TOTAL LIQUID RECOVERY : 15.00m

For DST# 4 through DST# 4

3 Fluid Samples
Sent to: GEO TECH

Btm. Hole Sampler #: NO #
Sent to: GEO TECH

15.00m MUDDY WATER.

GAS MEASUREMENTS

No Gas Measurements

DST#04
CHEVRON EAST HUME RIVER I-20
58.00m to 132.50m

TOOL SEQUENCE

SUB	LENGTH (m)
CROSS OVER SUB	.30
HYDRAULIC TOOL	1.50
BTM HOLE SAMPLER	1.03
SPACING	.31
INSIDE RECORDER	1.38
INFLATE PUMP	2.28
SCREEN	1.16
TOP INFLATE PACKER	1.78
PACKER STICK DOWN	.82
PORTED COMB SUB	.30
OUTSIDE RECORDER	2.06
BLANK SPACING	.31
SPACING	2.37
CROSS OVER SUB	.30
DRILL PIPE	65.18
CROSS OVER SUB	.49
BIT SUB	.37
CROSS OVER SUB	.30
BELLY SPRING	2.00

RECORDER SUMMARY

1) NUMBER : 001767 ELECTRONIC GAUGE.
TYPE : DMRB
LOCATION: OUTSIDE
RANGE: 68900.00kPa(a)
DEPTH : 61.00m

2) NUMBER : 001785 ABOVE INTERVAL.
TYPE : DMRB
LOCATION: INSIDE
RANGE: 68900.00kPa(a)
DEPTH : 52.00m

******** TOOL TOTAL	84.24
DRILL COLLARS	
ID= 75.0mm:	45.72
ID= :	
DRILL PIPE	
OD=114.3mm:	9.24
OD= :	
COLLAR-PIPE TOTAL	54.96

STICK UP ABOVE TABLE : 6.70
TOOL ABOVE INTERVAL : 9.74
TOTAL INTERVAL : 74.50
BOTTOM CHOKE SIZE: 12.70 mm

MUD AND HOLE DATA

Calipered Hole Size @ Test Depth: 339.00mm Water Loss :
Hole Condition at Test Time : EXCELLENT Filter Cake:
Hole Conditioned Prior to Test? : NO
Mud Weight : Main Hole Size: 216.00mm
Mud Type : WATER
Viscosity : Temperature @61.00m = 15.0C

DST#04
CHEVRON EAST HUME RIVER I-20
58.00m to 132.50m

TOOL SEQUENCE

SUB	LENGTH (m)
CROSS OVER SUB	.30
HYDRAULIC TOOL	1.50
BTM HOLE SAMPLER	1.03
SPACING	.31
INSIDE RECORDER	1.38
INFLATE PUMP	2.28
SCREEN	1.16
TOP INFLATE PACKER	1.78
PACKER STICK DOWN	.82
PORTED COMB SUB	.30
OUTSIDE RECORDER	2.06
BLANK SPACING	.31
SPACING	2.37
CROSS OVER SUB	.30
DRILL PIPE	65.18
CROSS OVER SUB	.49
BIT SUB	.37
CROSS OVER SUB	.30
BELLY SPRING	2.00

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LOCATION: INSIDE
RANGE: 68900.00kPa(a)
DEPTH : 52.00m

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DRILL COLLARS	
ID= 75.0mm:	45.72
ID= :	
DRILL PIPE	
OD=114.3mm:	9.24
OD= :	
COLLAR-PIPE TOTAL	54.96

STICK UP ABOVE TABLE : 6.70
TOOL ABOVE INTERVAL : 9.74
TOTAL INTERVAL : 74.50
BOTTOM CHOKE SIZE: 12.70 mm

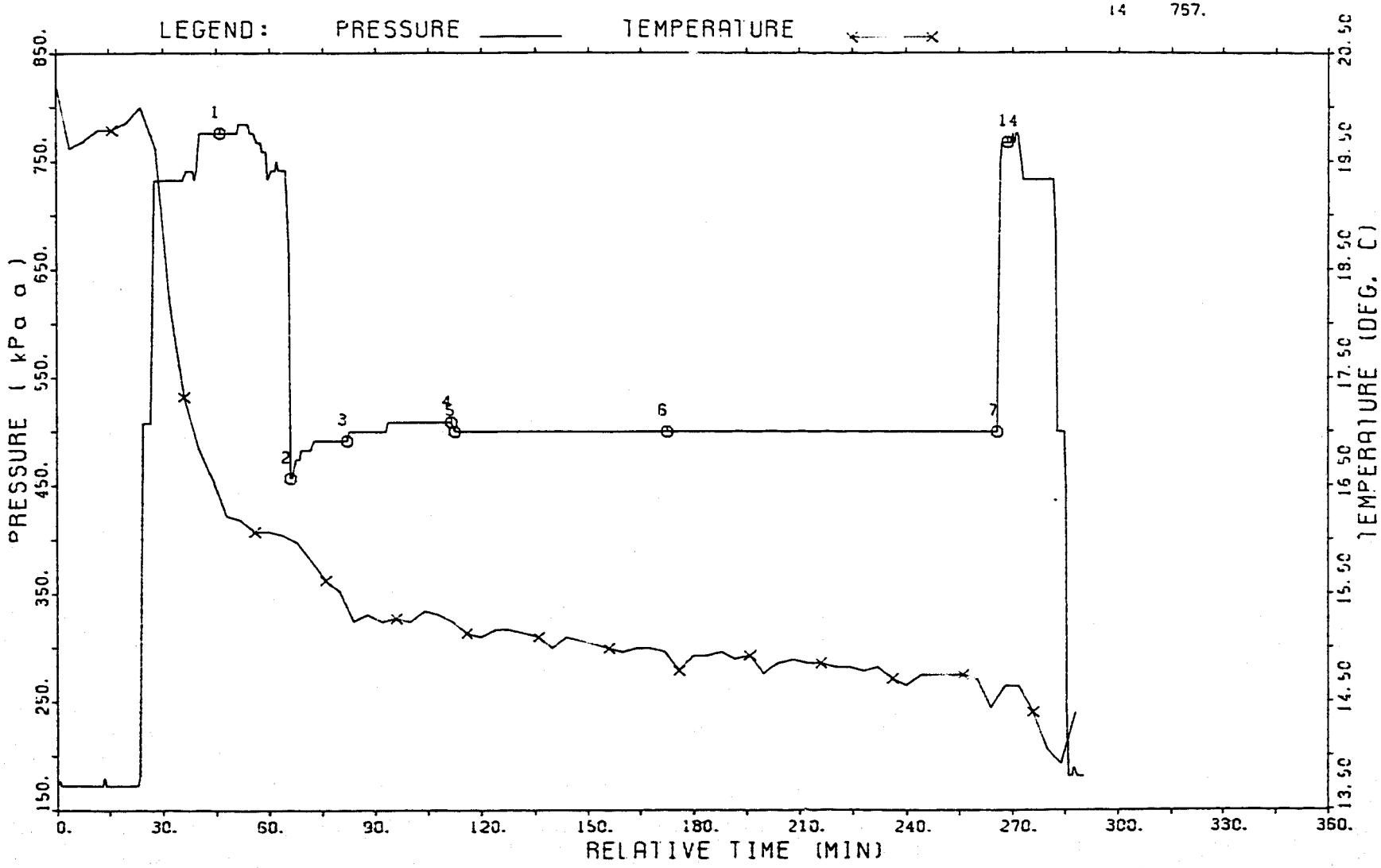
MUD AND HOLE DATA

Calipered Hole Size @ Test Depth: 339.00mm Water Loss :
Hole Condition at Test Time : EXCELLENT Filter Cake:
Hole Conditioned Prior to Test? : NO
Mud Weight : Main Hole Size: 216.00mm
Mud Type : WATER
Viscosity : Temperature @61.00m = 15.0C

CHEVRON EAST HUME RIVER
65..594/129.172 DST #4
ELECTRONIC GAUGE #1767

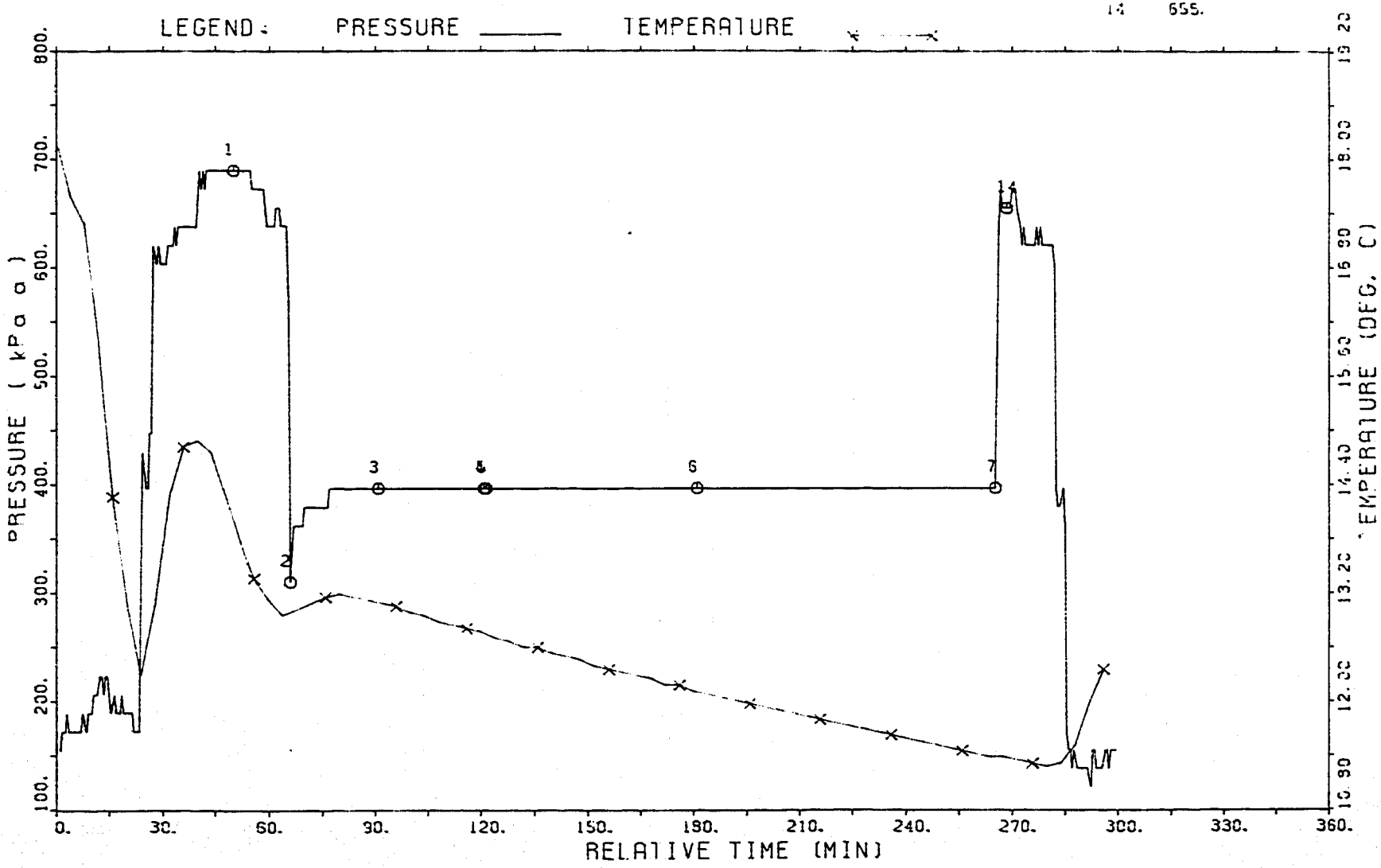
LEGEND: ⊙

1	=	775. Pa(g)
2		457.
3		481.
4		503.
5		500.
6		500.
7		500.
14		757.



CHEVRON EAST HUME RIVER
65.594/129.172 DST #4
ELECTRONIC GAUGE #1785

LEGEND: ○ 1 = 680. (kPa(a))
2 = 310.
3 = 397.
4 = 397.
5 = 397.
6 = 397.
7 = 397.
14 = 655.



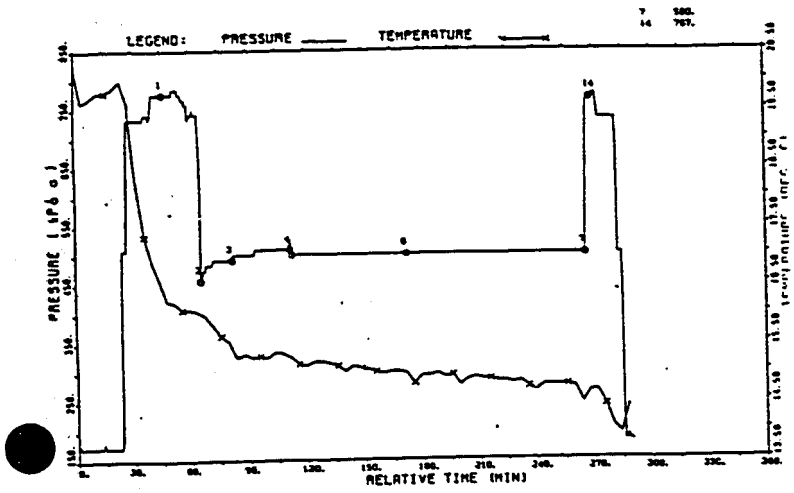
DST#04
CHEVRON EAST HUME RIVER I-20
58.00m to 132.50m

PRESSURE RECORDER NUMBER : 001767

DEPTH : 61.00m LOCATION : OUTSIDE
TYPE : DMRB CAPACITY : 68900.00kPa(a)

***** TEMPERATURE AT RECORDER DEPTH = 15.0 C

	PRESSURE kPa(a)
1)Initial Hydro :	776.
2)1st Flow Start:	457.
3)1st Flow End :	491.
4)END 1st Shutin:	509.
5)2nd Flow Start:	500.
6)2nd Flow End :	500.
7)END 2nd Shutin:	500.
14)Final Hydro. :	767.



ELECTRONIC GAUGE.

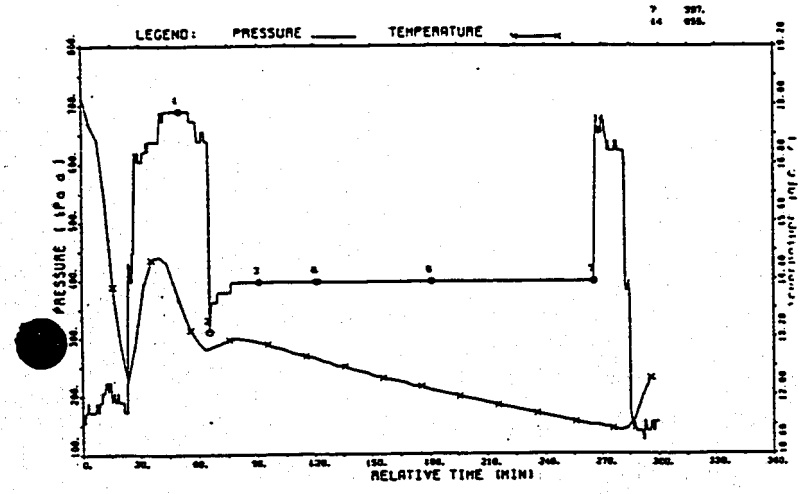
TEST TIMES(MIN)
1st FLOW : 16.0
SHUTIN: 29.5
2nd FLOW : 60.0
SHUTIN: 93.0

PRESSURE RECORDER NUMBER : 001785

DEPTH : 52.00m LOCATION : INSIDE
TYPE : DMRB CAPACITY : 68900.00kPa(a)

***** TEMPERATURE AT RECORDER DEPTH = 12.7 C

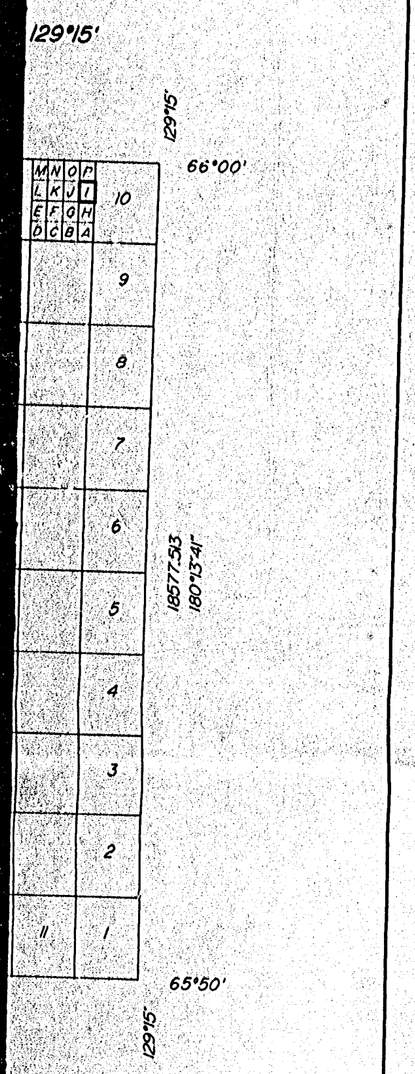
	PRESSURE kPa(a)
1)Initial Hydro :	690.
2)1st Flow Start:	310.
3)1st Flow End :	397.
4)END 1st Shutin:	397.
5)2nd Flow Start:	397.
6)2nd Flow End :	397.
7)END 2nd Shutin:	397.
14)Final Hydro. :	655.



ABOVE INTERVAL.

APPENDIX 6

LOCALITY MAP



PLAN AND FIELD NOTES OF SURVEY OF

PROPOSED EXPLORATORY WELL CHEVRON HUME RIVER IN UNIT I, SECTION 20 GRID AREA 66°00', 129°15'

NORTHWEST TERRITORIES

CANADA OIL AND GAS REGULATIONS

LEGEND

UTM coordinates are computed for Zone 09, central meridian 129° W.

Bearings were derived (adjusted) by GPS observations and are referred to meridian 129°W.

Distances are expressed in metres and decimals thereof and have been check measured.

Distances shown in traverse are measured distances reduced to the horizontal at general ground level.

For the computation of coordinates measured distances have been reduced to the UTM plane by multiplying them by an average combined scale factor of 0.999575

Distances shown on grid area subdivisions are UTM plane.

Authorized control monuments found shown thus . . . . . ●

Monuments placed shown thus (C.L.S. 77). . . . . ○

Monuments found shown thus (C.L.S. 77). . . . . ●

Traverse lines shown thus ——————————

Wooden Hub placed shown thus . . . . . □

Elevations were derived from GPS data. Average elevation is 70m. Survey was completed prior to drilling; therefore well as drilled may not necessarily agree with proposed location.

AFFIDAVIT

I, Akbar Karsan, of the City of Edmonton, Alberta, Canada Lands Surveyor, make oath and say that I have in my own proper person, according to the law and the instructions of the Surveyor General of Canada Lands, faithfully and correctly executed the survey shown by this plan and field notes, and that the said plan and field notes are correct and true to the best of my knowledge and belief.
SO HELP ME GOD.

Sworn before me at the City of Edmonton in the Province of Alberta this 27th day of February, 1990.

A. Gibennus
A Commisioner for Oaths in and for the Province of Alberta.
Robert A. Gibennus
25/03/1991

Akbar Karsan
Canada Lands Surveyor

THIS SURVEY WAS EXECUTED DURING THE PERIOD FEBRUARY 24 TO FEBRUARY 26, 1990, BY AKBAR KARSAN, C.L.S.

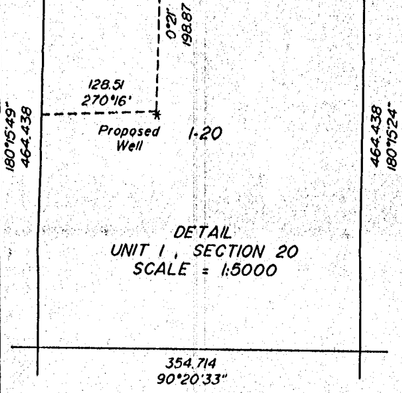
CHEVRON CANADA RESOURCES LIMITED.

per

STAR TECH LAND SURVEYS LTD.
212, 7618–103rd Street Edmonton
Phone: 432–9331
Job No. S900005A
Dwg No. S900005A

(NAD 1927)	
GEOID ELLIPSOID SEPERATION (M)	ORTHOMETRIC HEIGHT (M)
6.68	75.17
6.69	75.02

SC045966 212-F-3



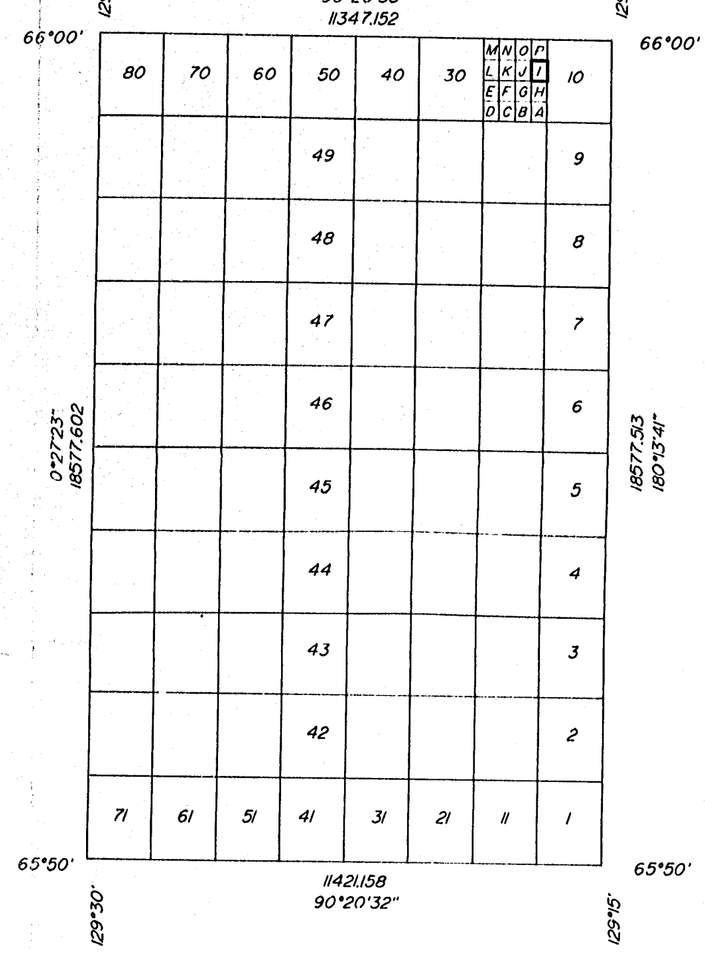


TABLE OF GEOGRAPHIC AND U.T.M. COORDINATES ZONE 9 CM 129°W (NAD 1927)

STATION	NORTH LATITUDE	WEST LONGITUDE	NORTHING (M)	EASTING (M)	SPHEROID HEIGHT (M)	GEOID ELLIPSOID SEPERATION (M)	ORTHOMETRIC HEIGHT (M)
FIXED CONTROL MONUMENTS							
N-10-1	65°59'56.08333"	129°16'05.76460"	7 319 624.9448	487 823.2379	81.85	6.68	75.17
N-10-2	65°59'59.62819"	129°15'52.51149"	7 319 733.9929	487 990.8008	81.71	6.69	75.02
NEW MONUMENTS							
1-20-1	65°59'36.858"	129°17'16.998"	7 319 033.670	486 922.363			
GRID AREA							
N.E.	66°00'	129°15	7 319 742.789	488 652.905			
S.E.	65°50	129°15'	7 301 165.423	488 578.902			
N.W.	66°00'	129°30	7 319 810.635	477 305.955			
S.W.	65°50	129°30	7 301 233.623	477 157.948			
1-20 N.E.			7 319 286.835	487 232.456			
1-20 S.E			7 318 822.401	487 230.375			
1-20 N.W.			7 319 288.955	486 877.804			
1-20 S.W			7 318 824.521	486 875.668			
PROPOSED WELL LOCATION							
*	65°59'38.668"	129°17'10.434"	7 319 089.317	487 005.397			

PL

PROPOSE
CHE
IN U
GRID
NOR
CANAD

LEGEND

UTM coordinates are compute

Bearings were derived (adjust
are referred to meridian 129°

Distances are expressed in m

Distances shown in traverse
horizontal at general ground l

For the computation of coord
reduced to the UTM plane by
scale factor of 0.999575

Distances shown on grid area

Authorized control monuments

Monuments placed shown thus

Monuments found shown thus

Traverse lines shown thus

Wooden Hub placed shown th

Elevations were derived from

Survey was completed prior t
not necessarily agree with pro

AFFIDAVIT

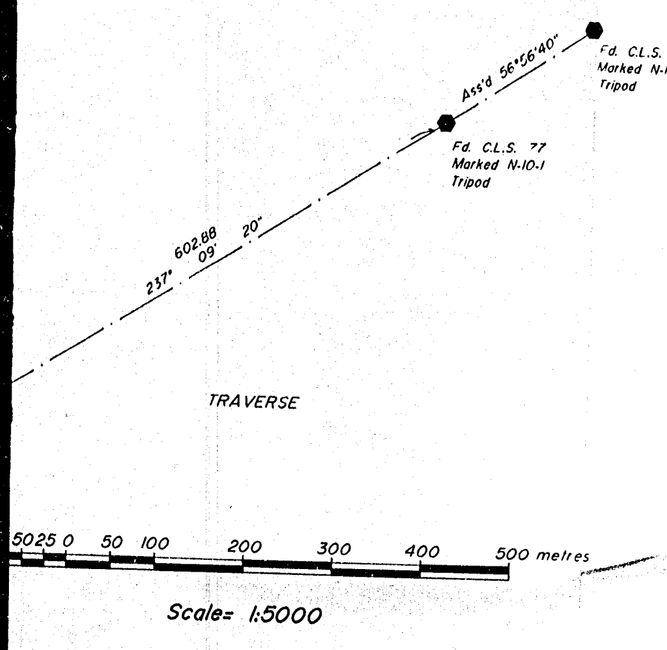
I, Akbar Karsan, of the C
make oath and say that I hav
instructions of the Surveyor G
executed the survey shown by
field notes are correct and tr
SO HELP ME GOD.

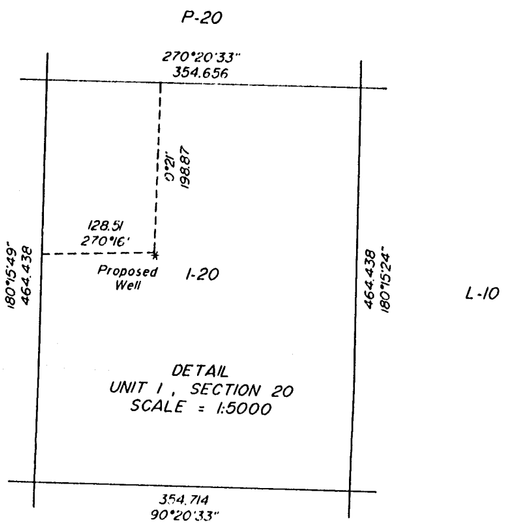
Sworn before me at the City
in the Province of Alberta this
of February, 1990.

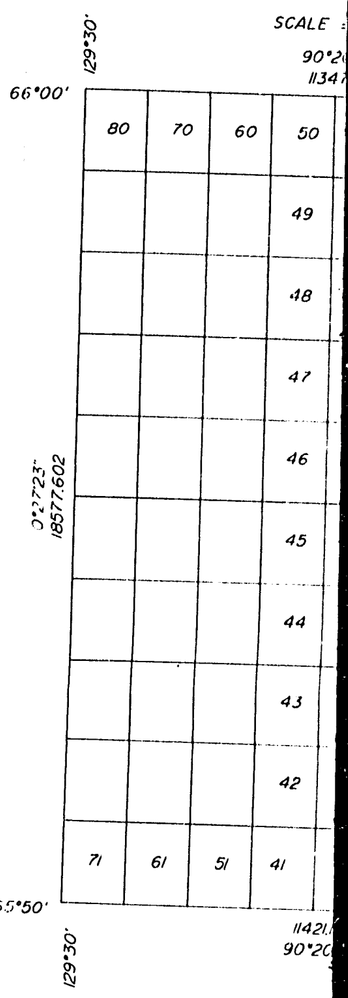
A Commisioner for Oaths in a
the Province of Alberta.
Robert A. Gibennus
25/03/1991

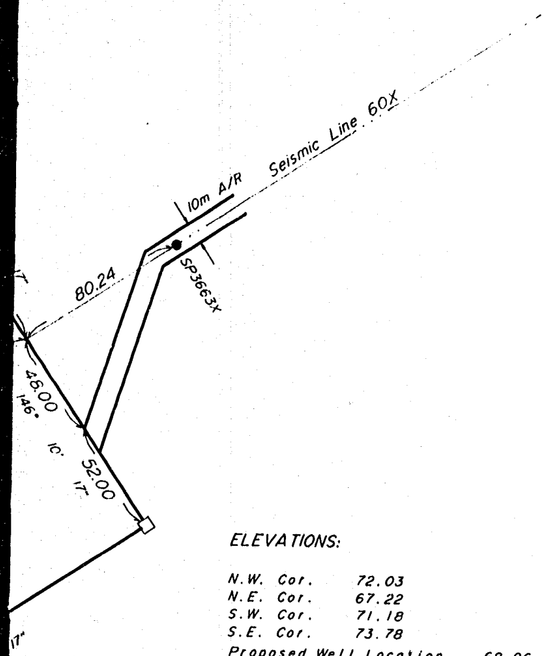
THIS SURVEY WAS EX
FEBRUARY 24 TO FEB

CHEVRON CANAD









ELEVATIONS:

N.W. Cor.	72.03
N.E. Cor.	67.22
S.W. Cor.	71.18
S.E. Cor.	73.78
Proposed Well Location	68.96

AREA IN WELL SITE = 4.00 ha. 9.88 Ac.

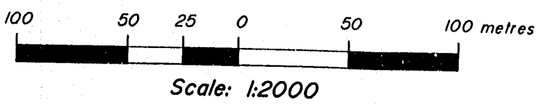


TABLE OF GEOGRAPHIC AND U.T.M. COORDINATES ZONE 9 C					
STATION	NORTH LATITUDE	WEST LONGITUDE	NORTHING (M)	EASTING (M)	S H
FIXED CONTROL MONUMENTS					
N-10-1	65°59'56.08333"	129°16'05.76460"	7 319 624.9448	487 823.2379	
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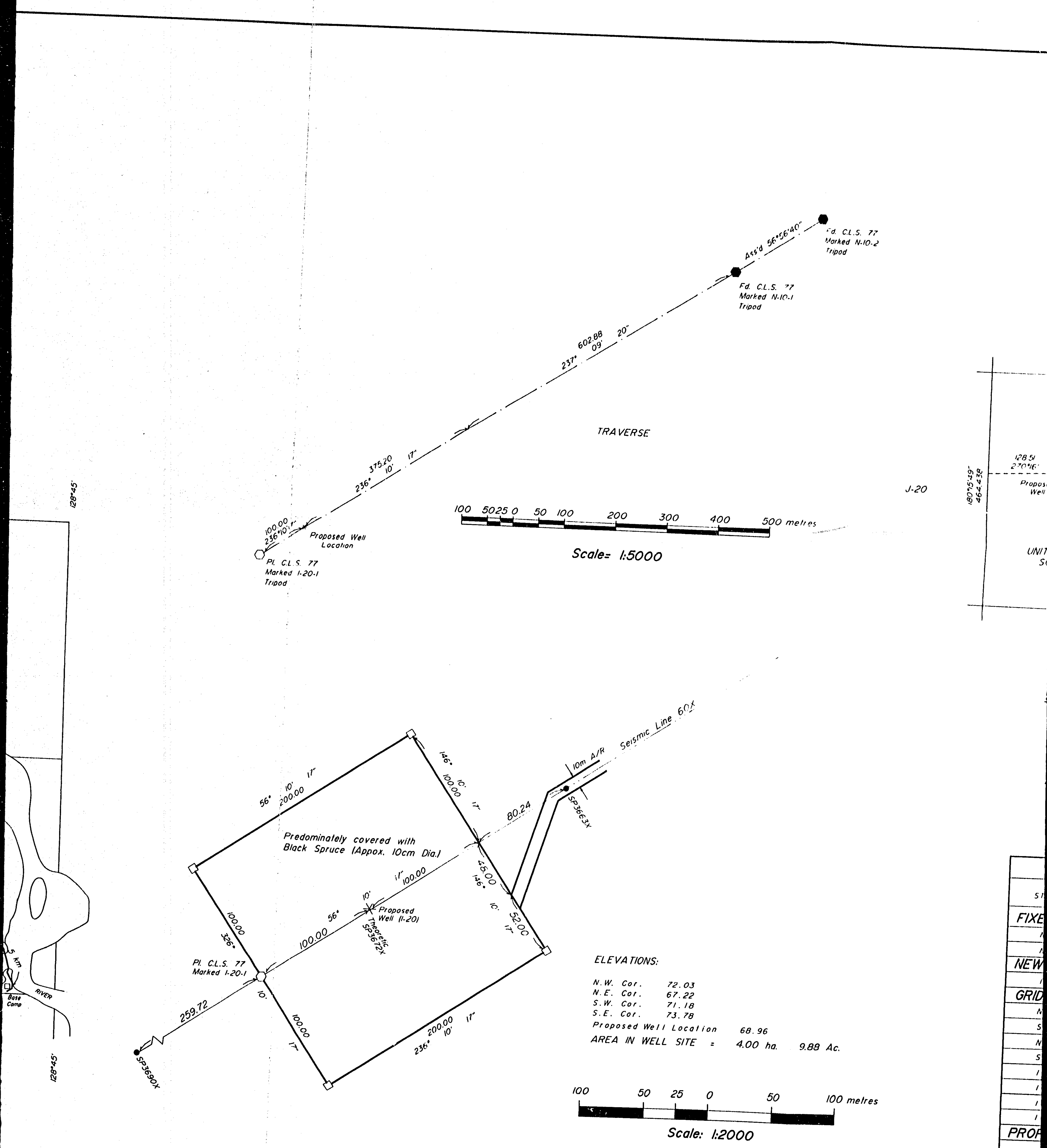
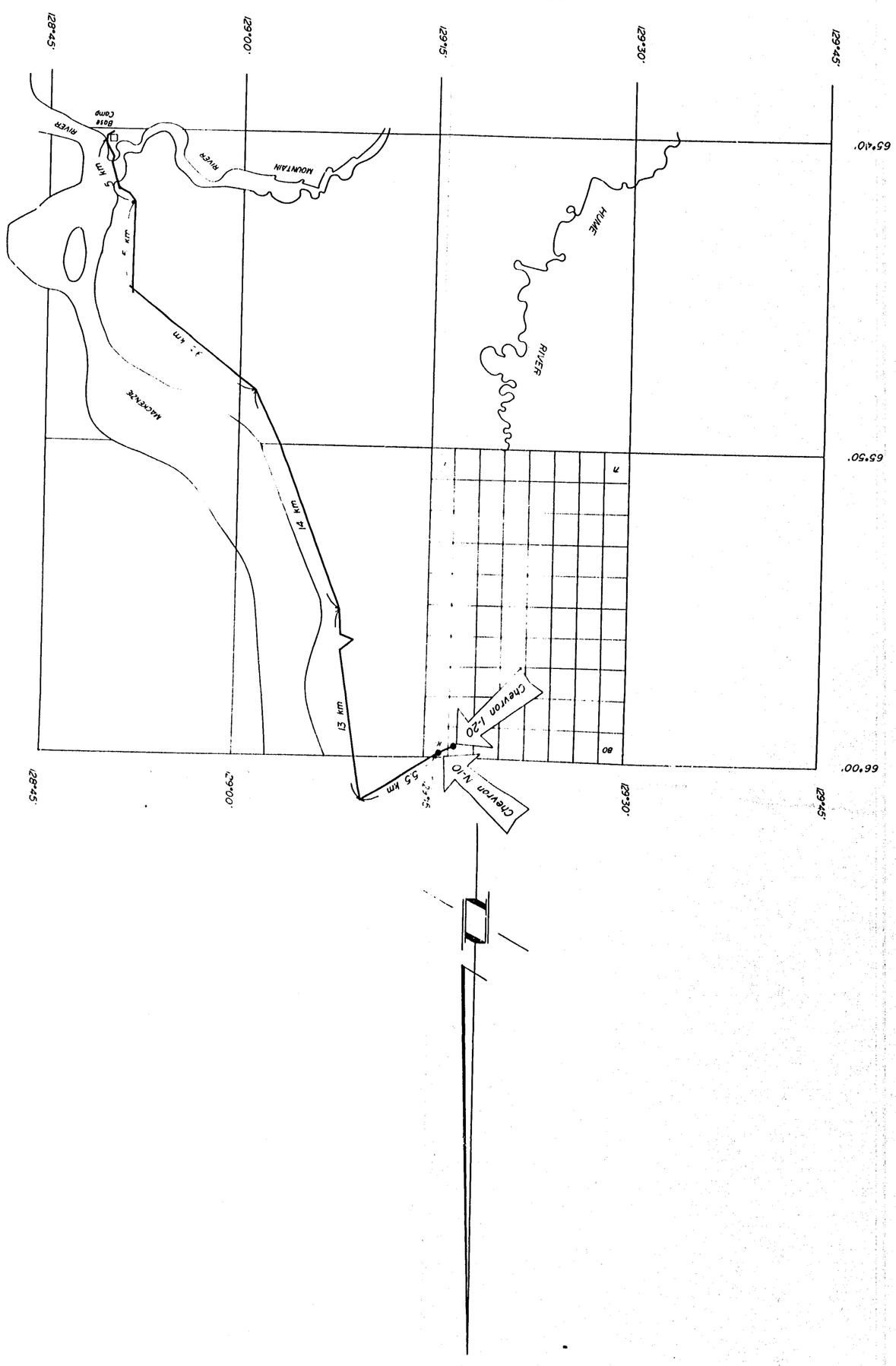
NEW MONUMENTS					
I-20-1	65°59'36.858"	129°17'16.998"	7 319 033.670	486 922 363	
GRID AREA					
N.E.	66°00'	129°15	7 319 742.783	488 652.905	
S.E.	65°50	129°15'	7 301 165.423	488 578.902	
N.W.	66°00'	129°30	7 319 810.635	477 305.955	
S.W.	65°50	129°30	7 301 233.623	477 157.948	
I-20 N.E.			7 319 286.835	487 232.456	
I-20 S.E			7 318 822.401	487 230.375	
I-20 N.W.			7 319 288.955	486 877.804	
I-20 S.W			7 318 824.521	486 875.668	
PROPOSED WELL LOCATION					
*	65°59'38.668"	129°17'10.434"	7 319 089.317	487 005.397	



Fd. C.L.S. 77
Marked N-10-2
Tripod
Ass'd 56°56'40"
Fd. C.L.S. 77
Marked N-10-1
Tripod
237° 09' 20"
602.88
TRAVERSE
236° 10' 17"
375.20
100.00
236°10'
Proposed Well
Location
Pl. C.L.S. 77
Marked 1-20-1
Tripod
100 50 25 0 50 100 200 300 400 500 metres
Scale= 1:5000
J-20
Seismic Line 60X
10m A/R
SP3663X
80.24
56° 10' 17"
200.00
146° 10' 17"
100.00
Predominately covered with
Black Spruce (Appox. 10cm Dia.)
46.00
146°
10'
17"
52.00
100.00
10'
56°
100.00
Proposed
Well (1-20)
Theoretic
SP3672X
326°
100.00
Pl. C.L.S. 77
Marked 1-20-1
259.72
SP3690X
100.00
17"
236° 10' 17"
200.00
ELEVATIONS:
N.W. Cor. 72.03
N.E. Cor. 67.22
S.W. Cor. 71.18
S.E. Cor. 73.78
Proposed Well Location 68.96
AREA IN WELL SITE = 4.00 ha. 9.88 Ac.
100 50 25 0 50 100 metres
Scale: 1:2000
128°45'
RIVER
5 km
Base
Camp

ROUTE MAP
1:200,000



SP3690X

128°45'

129°00'

129°15'

129°30'

129°45'

66°00'

65°50'

65°40'

MACKENZIE RIVER

Base Camp

5 km

8 km

11 km

14 km

13 km

5.5 km

Chevron N-10

Chevron I-20

RIVER

HUME

MOUNTAIN RIVER

ROUTE MAP
1:200,000

APPENDIX 7

DRILLING FLUID REPORT

Chevron East Hume River I-20
65 D 55' 33.91"N
129 D 41' 39.43"W
Well Recap

M-I Drilling Fluids Canada, Inc.

Chevron East Hume River I–20

65 D 55' 33.91"N

129 D 41' 39.43"W

Spud Date:	March 12, 1990
Rig Release Date:	March 21, 1990
Total Days:	10
Total Depth:	365 m

Sales Representative:	Mark Ralph
Field Representative:	Tim Aldridge

TABLE OF CONTENTS

1. Recap by Interval

2. Graphics Section
   a. Days vs. Depth
   b. Mud Costs - Weekly/Total
   c. PV/YP vs. Depth

3. Summary of Daily Mud Checks

CONDUCTOR HOLE SECTION:

Interval:	0 - 44 m
Mud Type:	Gel / Slurry
Hole Size:	660 mm
Casing Size:	508 mm
Total Days:	2

Comments: Lost circulation at 6, 9 and 17 metres. Spotted LCM and Sawdust pills over thief zone. Regained partial circulation then zero returns. Cemented off thief zone. Drilled out cement and dumped cement cut mud. Drilled to 44 metres and lost circulation. Mixed three LCM and Sawdust pills. Regained circulation. Ran and cemented conductor pipe.

Material Usage:

Product	Units
Caustic Soda	6
Bentonite (100 lb)	94
Bentonite (40 kg)	154
Natural Gel	36
Bicarb of Soda	8
Sawdust	2
Milfibre	70

SURFACE HOLE SECTION:

Interval:	44 - 233 m
Mud Type:	Gel Kelzan
Hole Size:	445 mm
Casing Size:	339 mm
Total Days:	4

Comments: Loose sand plugged drill pipe. Rapid solids build up.

One shale shaker on rig worked very well but was limited in screen size by volume pumped and particle size. Blinded screens often.

Material Usage:

Product	Units
Caustic Soda	7
Natural Gel	185
Kelzan XC	8
Peltex	5

MAIN HOLE SECTION:

Interval:	233 - 365 m
Mud Type:	Gel Kelzan
Hole Size:	311 mm
Total Days:	4

Comments: Well kicked at 365 metres during a trip for multi shot survey.

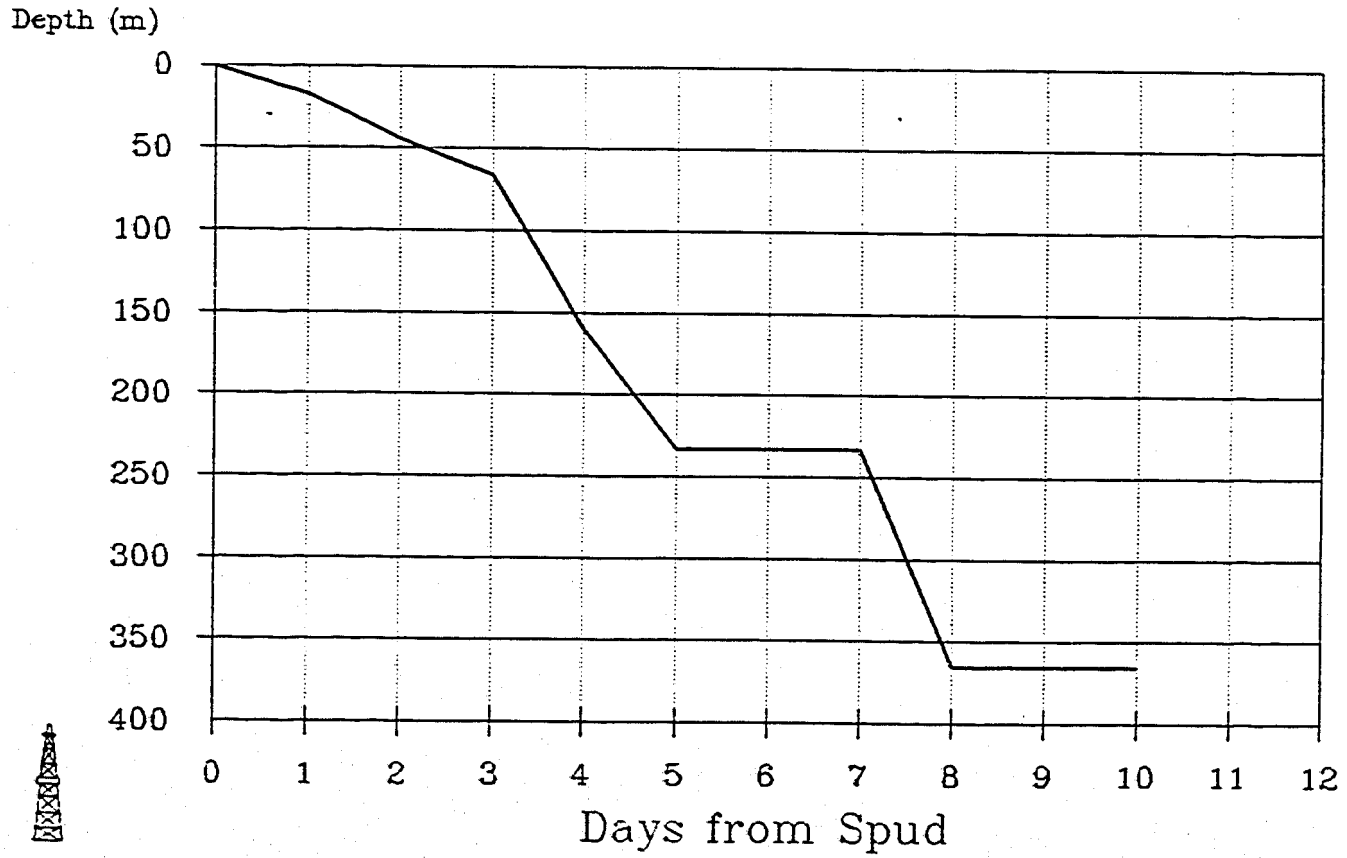
Increased density with Barite to 1250 kg/m^3 and shut off solids equipment.

Material Usage:

Product	Units
Caustic Soda	4
Bentonite	45
Natural Gel	57
Bicarb	3
Milfibre	25
Kelzan XC	3
Nitrate	2
Peltex	6

Days vs. Depth

Chevron East Hume River I-20

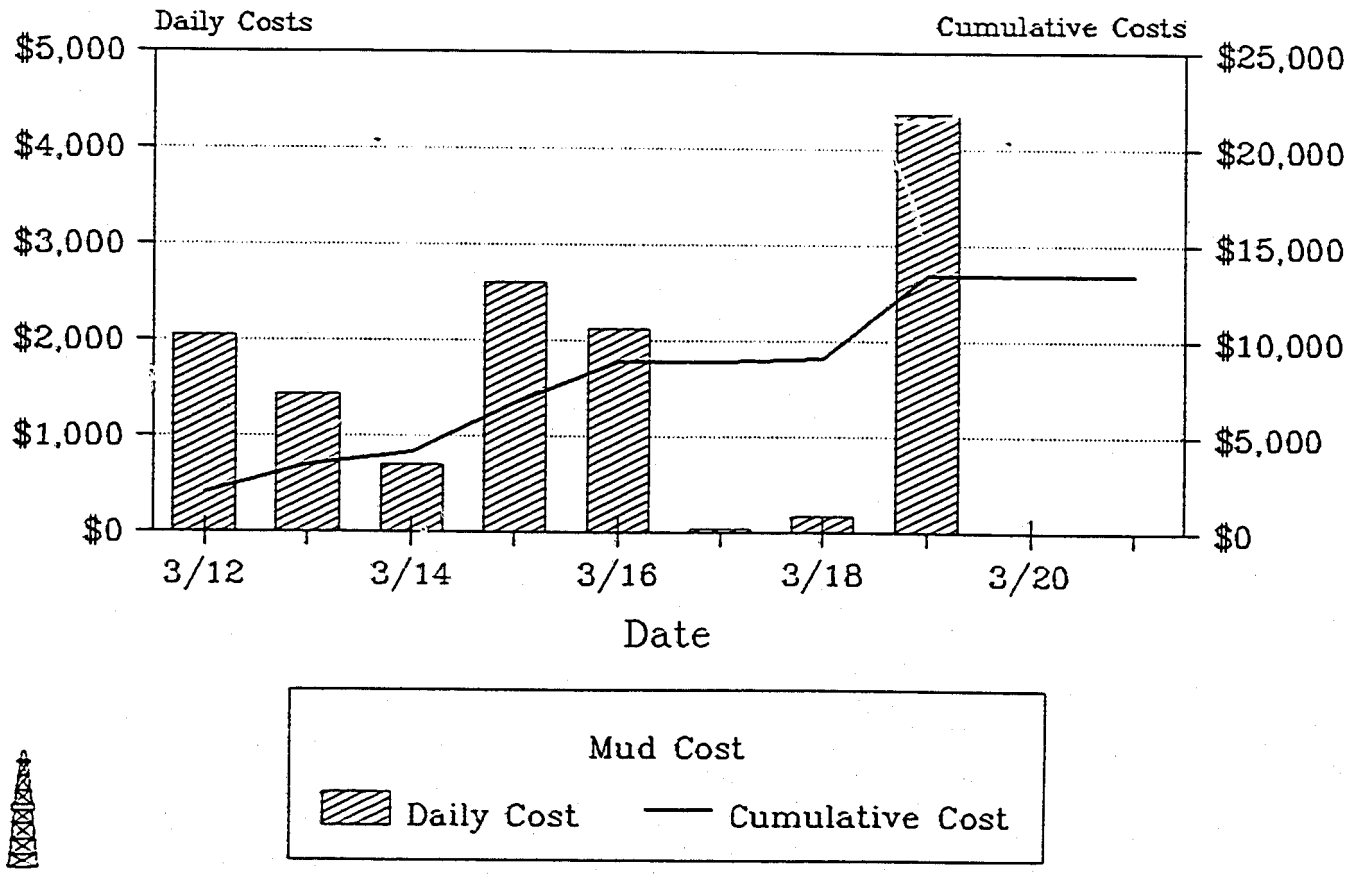


M – I Drilling Fluids Canada, Inc.

X Data	Days from Spud
0	0
17	1
44	2
66	3
160	4
233	5
233	6
233	7
365	8
365	9
365	10

Mud Costs – Daily/Total

Chevron East Hume River I–20

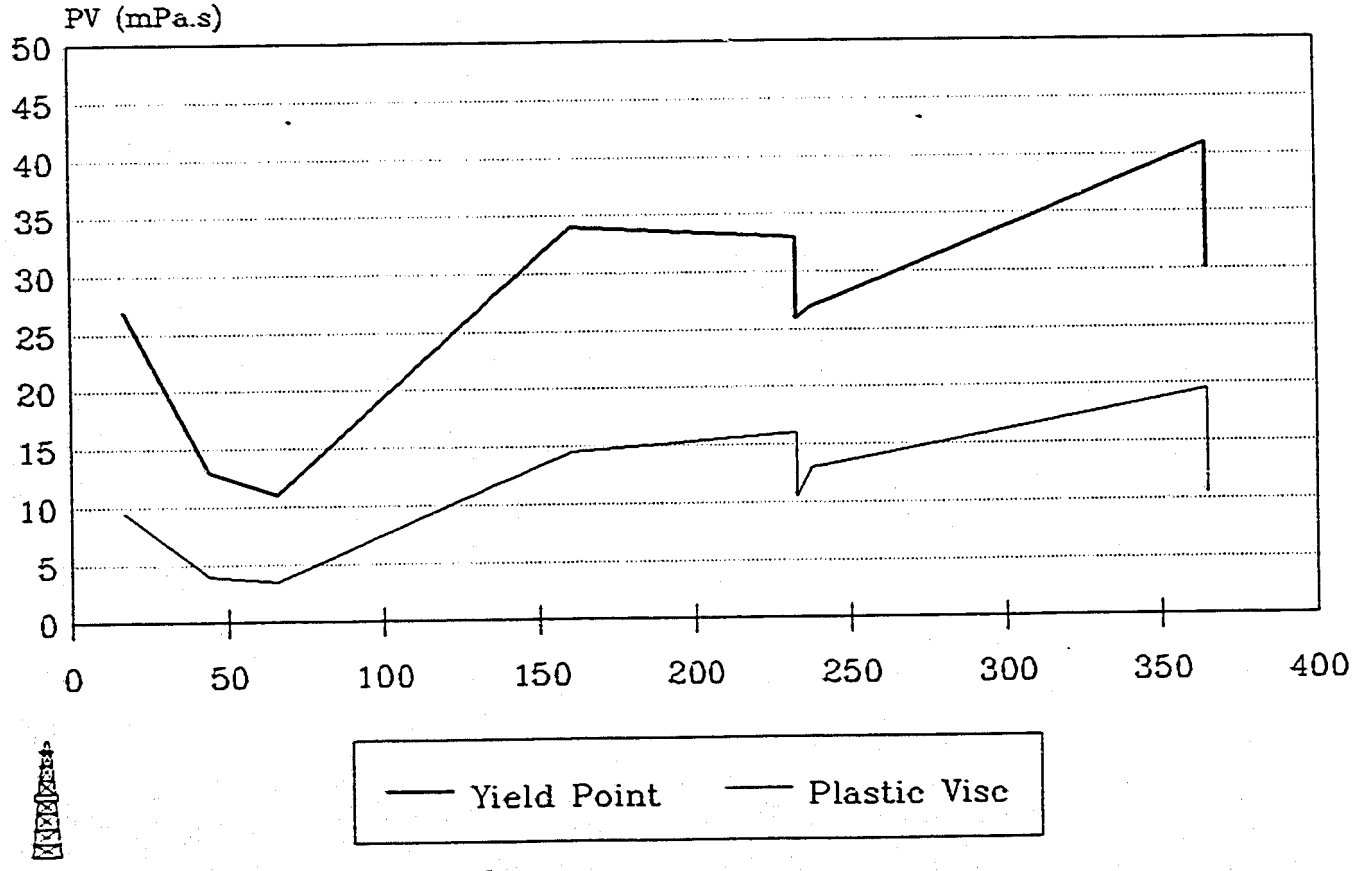


M– I Drilling Fluids Canada, Inc.

X Data	Daily Cost	Cumulative Cos
3/12	2043	2043
3/13	1428	3471
3/14	694	4165
3/15	2607	6772
3/16	2124	8896
3/17	32	8928
3/18	164	9092
3/19	4364	13456
3/20	0	13456
3/21	0	13456

PV/YP vs. Depth

Chevron East Hume River I-20



M – I Drilling Fluids Canada, Inc.

X Data	Yield Point	Plastic Visc
	27	9.5
44	13	4
66	11	3.5
160	34	14.5
233	33	16
233	26	10.5
238	27	13
365	41	19.5
365	30	10.5
365	33	11

M-I Drilling Fluids
Magcobar/IMCO A Dresser/Halliburton Company

WEEKLY SUMMARY

WELL NAME CHEVRON EAST HOME RIVER
LEGAL I-20
MUD TYPE GEL - KELZAN MUD ENGINEER TIM ALDRIDGE CONTRACTOR SHEHTAH #6 PAGE 1 OF

1990 DATE	DEPTH m	MUD DENSITY kg/m³	FUN VIS sec/L	FANN READINGS θ 600	FANN READINGS θ 300	P.V. mPa·s	Y.P. Pa	GEL STRENGTH Pa 10 sec	GEL STRENGTH Pa 10 min	FLUID LOSS cm³/30 min Std. API	FLUID LOSS cm³/30 min HTHP	FILT CAKE mm	EXC. SULF. mg/L	pH	ALKALINITY Pf	ALKALINITY Mf	CHLORIDES mg/L	Ca mg/L	CO₃ mg/L	HCO₃ mg/L	K+ ion mg/L	POLYMER kg/m³	MBT kg/m³	VOLUME FRACTION OIL	VOLUME FRACTION SOLIDS	VOLUME FRACTION SAND	LGS %	REMARKS	ESTIMATED DAILY COST $	ESTIMATED ACCUM. COST $
MAR 11 DAYS FROM SPUD				RIG UP TO SPUD																										
MAR 12	17	1075	60	73	46	27	9.5	2	4	12.0	-	-	-	9.5	.3	.7	150	0	-	-	-	-	54	0	.048	1/8			2043.	2043.
	SPUD WELL @ 07:30 - DRILL 660 MM HOLE - LOST RETURNS @ 6M, 9M, 17M; MIX SWEPT LCM ACLS APPROX 90 KG/M³ CONC.																													
	PARTIAL RETURNS THEN O - CEMENT OFF THICK ZONE - WOC.																													
MAR 13	44	1160	53	34	21	13	4	3.5	12	14.8	-	-	-	9.0	.1	.2	150	0	-	-	-	-	50	0	.102	1/4			1438	
	DRILL OUT CEMENT PLUG - PRETREAT W/ LIGNOSOL - DUMP CEMENT OUT MUD - DRILL 660 MM HOLE TO 44M - LOST CIRC.																													
1	MIX LCM PILL & SPOT NO RETURNS - WIPER TRIP - SPOT SECOND PILL - SPOT THIRD PILL - CIRC RESTORED. RUN & CEMENT P.A.G.																												3471.	
MAR 14	66	1166	43	29	18	11	3.5	2.5	12	14.0	-	-	-	9.0	.3	.3	200	0	-	-	-	-	49	0	.106	.1	-	-	694	
	NIPPLE UP DIVERTER & PRESS TEST - RIH & DISPLACE TO WATER - TEST DRILL OUT WITH WATER - SYSTEM CONTAM																													
2	WITH CEMENT - REVAMP SYSTEM - DRILLING 444.5MM HOLE - SCREENS BLINDING - MUDE LOSSES.																												4165.	
MAR 15	160	1140	80	97	63	34	14.5	4	12	8.0	-	-	-	9.5	.2	.3	200	0	4	6	-	-	57	0	.089	3/4	.591	432	2607.	
	DRILL 444.5MM HOLE - HOIST FOR SURVEY BBL - DP PLUGGED - TRIP OUT - PLUGGED ASMN TRIP OUT - RIH																													
3	CIRC & RAISE RHEOLOGY STAGE IN 20M INCREMENTS CIRC & CONDITION DRILL 444.5MM HOLE																												6771.	
MAR 16	233	1130	80	98	65	33	16	5	10	7.8	-	-	-	9.5	.1	.3	200	0	4	6	-	-	57	0	.083	1/4	.546	313	8124.	
	DRILL 444.5MM HOLE TO 220M - TRIP OUT - LAY DOWN DC - PICK UP MOTEL - DRILL TO 233M - WIPER TRIP																													
4	TIGHT - RIH CIRC & CONDITION - TRIP OUT TO RUN 339.4MM CSG.																												8896.	
MAR 17	233	1120	65	78	47	26	10.5	3.5	8.0	9.0	-	-	-	9.5	.2	.4	258	0	-	-	-	-	49	0	.071	1/4	-	-	32.	
	RUN LOGS & CEMENT 339.4MM SURFACE CSG. CALCULATE LAST 2 JOINTS IN.																												8970.75	
5																														

CALGARY OFFICE

M-I Drilling Fluids
Magcobar/IMCO A Dresser/Halliburton Company

AL

WEEKLY SUMMARY

WELL NAME CHEVRON EAST HUME RIVER

LEGAL I-20

MUD TYPE GEL - KELZAN   MUD ENGINEER TIM ALDRIDGE   CONTRACTOR SHEHTAH 1E   PAGE 2 OF ___

DATE	DEPTH m	MUD DENSITY Kg/m³	FUN VIS s/L	FANN READINGS θ 600	FANN READINGS θ 300	P.V. mPa.s	Y.P. Pa	GEL STRENGTH Pa 10 sec	GEL STRENGTH Pa 10 min	FLUID LOSS cm³/30 min Std. API	FLUID LOSS cm³/30 min HTHP	FILT CAKE mm	EXC. SULF. mg/L	pH	ALKALINITY Pf	ALKALINITY Mf	CHLORIDES mg/L	Ca mg/L	CO_3 mg/L	HCO_3 mg/L	K+ ion mg/L	POLYMER kg/m³	MBT kg/m³	VOLUME FRACTION OIL	VOLUME FRACTION SOLIDS	VOLUME FRACTION SAND	D/B ratio		ESTIMATED DAILY COST $	ESTIMATED ACCUM. COST $
MAR 18	238	1115	68	80	53	27	13	4.5	12	8.0	-	2	-	9.0	.1	.2	250	0	-	-	-	-	57	0	.07	1/8			16[illegible].-	
DAYS FROM SPUD	WAKE UP - PRESS TEST - DRILL OUT WITH WATER - DISPLACE TO MUD - P.I.T. -																													
	TRIP OUT FOR 215.9 BIT.																												9092.-	
MAR 19	365	1250	100	121	80	41	19.5	10	20	7.0	-	2	-	9.5	.2	.4	250	0	-	-	-	-	61	0	.16	1/4			4364	
	DRILL TO 365M - TRIP OUT FOR DIRECTIONAL SURVEY - WELL KICKING - SHUT IN, CIRC & WT UP																													
	TO 1180 kg/m³ - RIH SINGLES - TAG BOTTOM WT UP TO 1250 kg/m³ TRIP OUT TO LOG.																												13456.-	
MAR 20	365	1240	62	81	51	30	10.5	4	8.5	8.0	-	2	-	9.5	.2	.4	250	0	-	-	-	-	57	0	.15	1/8			-	
	LOG WELL OK - CLEAN OUT TRIP GOOD - PICK UP TOOLS & RIH FOR																													
	DST # 1																												13456.	
MAR 21	365	1220	65	88	55	33	11	5	12	7.8	-	2	-	9.0	.1	.3	250	0	-	-	-	-	49	0	.14	1/4			-	
	DST # 1 - CLEAN OUT TRIP - LOG WELL - RIH - PLUG BACK -																													
	DISPLACE HOLE TO WATER.																												13456.-	
MAR 22																														
MAR 23																														
MAR 24																														

CALGARY OFFICE

APPENDIX 8

DEVIATION SURVEYS

EASTMAN CHRISTENSEN

Canada District

WELL DEFLECTION SURVEY

for

CHEVRON CANADA RESOURCES LIMITED

FORT GOOD HOPE

Slot : HUME RVR I-20
Well : HUME RVR I-20

Survey Reference : S02694_0CH

CHEVRON CANADA RESOURCES LIMITED
FORT GOOD HOPE

Slot : HUME RVR I-20 Date Printed : 25-APR-90
Well : HUME RVR I-20 Our Ref : S02594.3CH
PRHL : 0.00

Measured Depth	Drift Angle	Drift Direction	Course Length	Vertical Depth	Vertical Section	RECTANGULAR COORDINATES		Dogleg Severity
0.00	0.00	0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00
51.00	0.50	45.00	51.00	51.00	0.16	0.16 N	0.16 E	0.29
102.00	0.75	201.00	51.00	102.00	0.00	0.00 N	0.20 E	0.72
153.00	0.85	160.00	51.00	152.99	-0.66	0.66 S	0.20 E	0.33
204.00	0.75	199.00	51.00	203.99	-1.34	1.34 S	0.23 E	0.32
291.00	1.75	194.00	87.00	290.97	-3.16	3.16 S	0.28 W	0.35
355.00	1.50	192.00	64.00	354.94	-4.93	4.93 S	0.69 W	0.12

CALCULATION METHOD : Minimum curvature
SLOT COORDINATES : 0.00 N 0.00 E
BOTTOM HOLE LOCATION : Referenced to SLOT
DISTANCE : 4.98
DIRECTION : 187.99

Report Units : Meters
Accepted by :
Checked by :

SURVEY RUN INFORMATION

SURVEY FILE COMPLETE: 16-MAR-90

APPENDIX 9

WELLSITE ROCK LOG

APPENDIX 10

WELLSITE HYDROCARBON REPORT

DATALOG
TECHNOLOGY INC.

WELLSITE HYDROCARBON REPORT

FOR

CHEVRON CANADA RESOURCES

CHEVRON EAST HUME RIVER I-20

prepared by

SHELDON HARBINSON

and

BILL EDWARDS

7139K 40th STREET S.E., CALGARY, ALBERTA T2C 2H9 TELEPHONE: BUS. (403) 279-5363

ARCTIC RED 45 m to 294 m

Chevron East Hume River I-20 was spudded on March 12, 1990. The conductor barrel was set at 42.77 meters after which logging was commenced on March 14, 1990 at a depth of 45 meters. The entire hole was drilled with a gel-chem mud system.

Logging was started in the Arctic Red formation. The penetration rate was quite high and fairly consistent throughout this formation. The steady penetration rate resulted in a fairly consistent background gas level right through to surface casing point. Surface casing was set at 232.7 meters. The level of background gas was very low for the start of this formation as it remained around 0 to 1 unit until 74 meters. At this point the gas level increased somewhat to range from 10 to 30 units for most of this section while dropping to as low as 4 to 10 units when the formation became slightly more dense. After surface casing was set the gas varied somewhat for the remainder of this section as it ranged from about 3 units to 10 units and then surged to about 30 to 45 units at the base of the formation. The gas in this formation was composed of mostly C1 with only small amounts of C2 present. No shows were noted in this formation.

From about 65 meters to 100 meters the samples revealed abundant coarse grained quartz which was unconsolidated. This porous section did not result in any dramatic gas readings as can be seen on the log. The level of carbon dioxide in this formation was very consistent up to surface casing point as it ranged from about .045 % to .060 %. After casing was set the carbon dioxide level increased to between .100 % and .700 % for about 30 meters. The level decreased at the base of the formation ranging from .010 % to .045 %.

ARCTIC RED SANDSTONE 294 m to 302 m

The penetration rate slowed somewhat upon entering this sandstone section. The level of background gas was somewhat low as well ranging from about 15 units to 30 units. The gas was composed of mainly C1 but with small amounts of C2 through C4 as well. This resulted in a higher oil indicator ratio than the baseline ratio seen in the previous formation. The ratio ranged from .045 to .065 for part of this section. The corresponding samples reveal silty shale and some sandstone with poor intergranular porosity. No shows were seen in this formation. The high mud weight for this hole may somewhat mask the gas brought to the surface, especially the heavier components which are more difficult to liberate.

The carbon dioxide level remained around .060 % for this formation.

GILMORE LAKE SANDSTONE 302 m to 308 m

This sandstone formation drilled somewhat quicker than the previous formation but also resulted in a lower level of background gas which ranged from 10 to 15 units up to the base of the formation at which point the gas level increased. This increase is obvious as the start of the next formation. The gas in this zone was composed of C1 with only small amounts of C2 present. No shows were seen in this formation.

The level of carbon dioxide remained consistent at about .060 %.

GILMORE LAKE SHALE and COAL 308 m to 330 m

The penetration rate in this section was fairly erratic due to the presence of coal throughout the shale. The level of background gas increased somewhat upon penetration of this formation. The gas level ranged from about 20 units to 40 units. The gas was composed of mostly C1 with only trace to small levels of C2 present. Two shows were noted in

this formation and they are as follows:

		oil ind.
1. 310.8 m to 313.0 m	202 units over 14 units	.010
2. 316.8 m to 319.6 m	1112 units over 39 units	.010

The above shows can be considered as fair and good respectively. Both shows exhibit good sharp gas increases over background levels while one is somewhat higher and slightly thicker than the other show. Both shows are composed of almost entirely C1 with only trace to small levels of C2 present. These shows are probably the result of drilling through coal seams as seen in the corresponding samples and seen in the composition of the two shows.

The carbon dioxide level was still consistent as it ranged from about .060 % to .070 %.

IMPERIAL 330 m to 365 m (F.T.D.)

The penetration rate was quite consistent through this formation resulting in a somewhat lower but fairly consistent background gas level. The gas level ranged from 20 units to 40 units for the entire section. This gas was composed of mainly C1 with some C2 present. The last few meters that

were drilled revealed the presence of only trace levels of C3 and C4 resulting in a slightly higher oil indicator ratio. This ratio increased to about .038 from the baseline of .010. The entire formation was composed of fairly dense shale resulting in the somewhat decreased background gas levels as compared to the previous formation. No significant gas responses were noted in the Imperial formation.

The carbon dioxide level through this section remained very steady at about .060 %.

APPENDIX 11

WATER ANALYSIS

GEOTECH

CHEVRON EAST HUM: RIVER

I-20

WATER ANALYSIS

Prepared For:

CHEVRON CANADA RESOURCES

File No: 90AS5398

Date: April 02, 1990

GEOTECHnical resources ltd.

4500 - 5th STREET N.E., CALGARY, ALBERTA T2E 7C3 (403) 230-4128
TELEX 03-821172 ENVOY 100: TELEX. GEO FAX: (403) 230-4370

GEOTECH

WATER ANALYSIS

Company Name:	CHEVRON CANADA RESOURCES
Well Name:	CHEVRON EAST HUME RIVER
LSD:	I-20

DST:	3	KB:	75.12
Interval:	58-133	GRD:	68.96
Formation:	Surface		
Sample Location:	Water prior to test		

File No:	90AS5398	Report Date:	March 31, 1990

Salinity = 1.74 ppm

GEOTECH

WATER ANALYSIS

Company Name:	CHEVRON CANADA RESOURCES
Well Name:	CHEVRON EAST HUME RIVER
LSD:	I-20

DST:	4	KB:	75.12
Interval:	58-133	GRD:	68.96
Formation:	Surface		
Sample Location:	Water prior to test		

File No:	90AS5398	Report Date:	March 31, 1990

Salinity = 3.49 ppm

BOTTOM HOLE SAMPLER DEPLETION

GEOTECH

FILE # 90AS5398 DATE: March 28, 1990

COMPANY: CHEVRON CANADA RESOURCES

WELL NAME: CHEVRON EAST HUME RIVER

LSD: I-20 TESTER: BAKER

DST: 4 FORMATION: Surface

INTERVALS: 58 - 133 OPENING PRESSURE: 0 kPa

FLUID BREAKDOWN: WATER:

MUD: 1000 mL

OIL:

TOTAL FLUID RECOVERED: 1000 mL mud.

COMMENTS:

DST: 4 FORMATION: Surface

INTERVALS: 58 - 133 OPENING PRESSURE: 0 kPa

FLUID BREAKDOWN: WATER:

MUD: 950 mL

OIL:

TOTAL FLUID RECOVERED: 950 mL mud.

COMMENTS: Dual samplers.

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(403) 230-4128

WATER ANALYSIS

FILE NUMBER ▶ [illegible]

LABORATORY NUMBER ▶ 5477-M1

CONTAINER IDENTITY
5477F1

OPERATOR'S NAME
CHEVRON CANADA RESOURCES

SAMPLE LOCATION | WELL NAME | ELEVATIONS KB | GRD
EAST HUME RIVER | I-20

FIELD OR AREA | POOL OR ZONE | NAME OF SAMPLER | COMPANY

TEST TYPE NO | TEST RECOVERY
DST 1

SAMPLING POINT | AMT. AND TYPE OF CUSHION | MUD RESISTIVITY Ω/m
TOOL

MULTIPLE RECOVERY TEST INTERVAL
FROM

PUMPING | FLOWING | GAS LIFT | SWAB

TO

WATER m^3/d | OIL m^3/d | GAS $10^3m^3/d$

SEPARATOR | TREATER | RESERVOIR | SAMPLED | RECEIVED

PERFORATIONS
FROM
GAUGE PRESSURE kPa
TEMPERATURE (°C)

TO

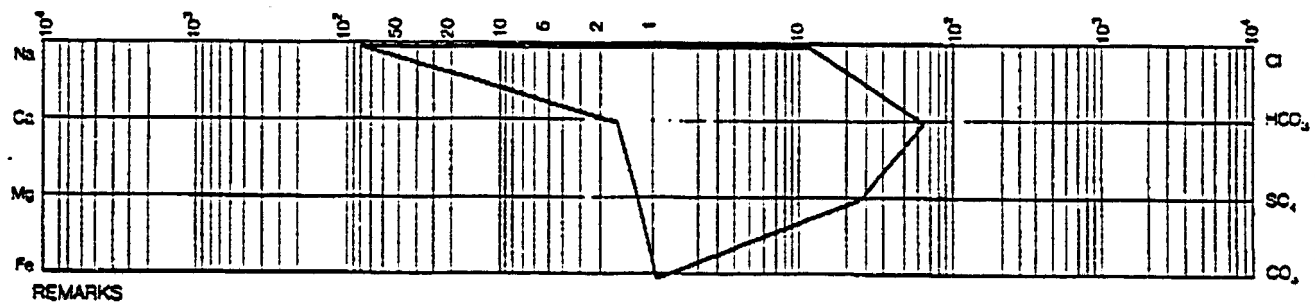
DATE SAMPLED Y M D	H:M	DATE RECEIVED Y M D	DATE ANALYZED Y M D	ANALYST
N/A		24-APR-90	01-MAY-90	GB

SUMMARY DATA

TOTAL HARDNESS AS $CaCO_3$	160	g/m³
TOTAL ALKALINITY	2961	g/m³
SALINITY AS NaCl	596	ppm
SATURATION INDEX	2.45	CaCO3 SCALING TENDENC
STABILITY INDEX	3.9	CaCO3 SCALING TENDENC
CORROSION TENDENCY	0.55	

Scaling calculations done at 30 C

LOGARITHMIC PATTERN MEQ PER LITRE



REMARKS

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(403) 230-4128

WATER ANALYSIS
DETAILED REPORT

OPERATOR'S NAME	CHEVRON CANADA RESOURCES
WELL NAME	EAST HUME RIVER
LOCATION	I-20
SAMPLING POINT	TOOL

FILE NUMBER ▶ 90A35477

LABORATORY NUMBER ▶ 5477-W1

CATIONS

ION	g/m³	MASS FRACTION	MEQ/L
Na	2030	0.28	88.3
K	102	0.01	2.6
Ca	36.4	0.01	1.82
Mg	16.1	0.00	1.32
Ba	< 0.05		
Sr	0.836	0.00	0.019
Fe	0.51	0.00	0.027
Mn			
Al			
Si			
B	0.94		
U			
Th			

ANIONS

ION	g/m³	MASS FRACTION	MEQ/L
Cl	362	0.05	10.2
Br			
I			
F			
HCO_3	3580	0.5	58.7
CO_3	13.2	0.00	0.44
OH	0.00	0.00	0.00
SO_4	1060	0.15	22.1
H_2S			
PO_4			

TOTAL SOLIDS (g/m³)

EVAPORATED AT 110°C — EVAPORATED AT 180°C

AT IGNITION — CALCULATED 7202

SPECIFIC GRAVITY at 15°C — REFRACTIVE INDEX (RI) at 25°C 1.340

OBSERVED pH 8.81 at 25°C — RESISTIVITY (RW) Ω m at 25°C 1.317

REDOX POTENTIAL (Eh) — DISSOLVED O_2

TOTAL METALS

METAL	g/m³
Fe	
Mn	

Cations/Anions: 1.03

DST 1

Interval: to

KB: GRD:

Perfs to

REMARKS

IODIDE NOT AVAILABLE - INSUFFICIENT SAMPLE

GEOTECHnical resources ltd.
4500 - 5th STREET N.E., CALGARY, ALBERTA T2E 7C3
(403) 230-4128

WATER ANALYSIS

FILE NUMBER ▶ [redacted]

LABORATORY NUMBER ▶ 54772

CONTAINER IDENTITY
54772

OPERATOR'S NAME
CHEVRON CANADA RESOURCES

SAMPLE LOCATION | WELL NAME
EAST HUME RIVER | I-20

ELEVATIONS KB | GRD

FIELD OR AREA | POOL OR ZONE | NAME OF SAMPLER | COMPANY

TEST TYPE | NO
DST | 1

TEST RECOVERY

SAMPLING POINT
MUD TANK

AMT. AND TYPE OF CUSHION | MUD RESISTIVITY Ω/m

MULTIPLE RECOVERY
TEST INTERVAL
FROM

PUMPING | FLOWING | GAS LIFT | SWAB

TO

WATER ..... m^3/d OIL ..... m^3/d GAS ..... $10^3m^3/d$

SEPARATOR | TREATER | RESERVOIR | SAMPLED | RECEIVED

PERFORATIONS
FROM

GAUGE PRESSURE K/Pa
TEMPERATURE (°C)

TO

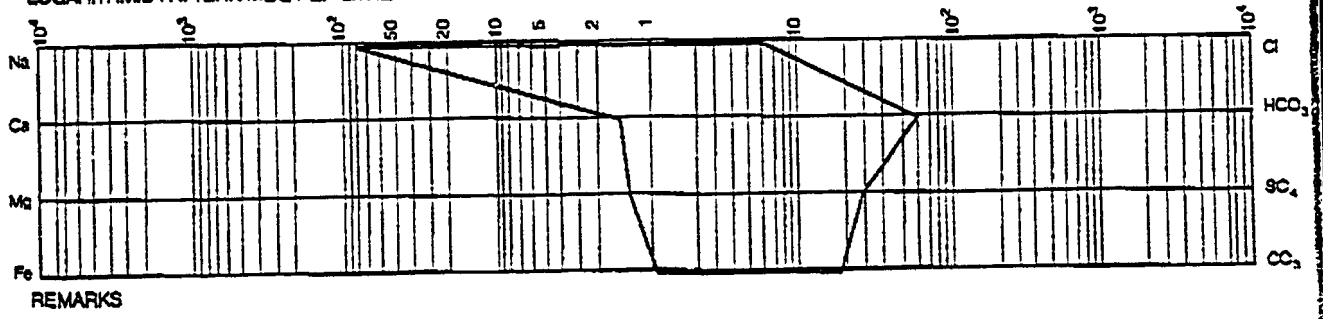
DATE SAMPLED (Y M D)	H:M	DATE RECEIVED (Y M D)	DATE ANALYZED (Y M D)	ANALYST
N/A		24-APR-90	01-MAY-90	GB

SUMMARY DATA

TOTAL HARDNESS AS $CaCO_3$	163	g/m^3
TOTAL ALKALINITY	3461	g/m^3
SALINITY AS NaCl	303	ppm
SATURATION INDEX	2.5	CaCO3 SCALING TENDENC
STABILITY INDEX	3.81	CaCO3 SCALING TENDENC
CORROSION TENDENCY	0.42	

Scaling calculations done at 30 C

LOGARITHMIC PATTERN MEQ PER LITRE



REMARKS

GEOTECH Analytical

GEOTECHnical resources ltd.
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(403) 230-4128

WATER ANALYSIS
DETAILED REPORT

OPERATOR'S NAME	CHEVRON CANADA RESOURCES
WELL NAME	EAST HUME RIVER
LOCATION	I-20
SAMPLING POINT	MUD TANK

FILE NUMBER ▶ 90AS5477

LABORATORY NUMBER ▶ 5477-W2

CATIONS				ANIONS			
ION	g/m³	MASS FRACTION	MEQ/L	ION	g/m³	MASS FRACTION	MEQ/L
Na	2060	0.29	89.6	Cl	184	0.03	5.2
K	24.9	0.00	0.64	Br			
Ca	34	0.00	1.7	I			
Mg	18.2	0.00	1.5	F			
Ba	0.072	0.00	0.001	HCO_3	3220	0.45	52.8
Sr	0.832	0.00	0.019	CO_3	490	0.07	16.3
Fe	0.7	0.00	0.038	OH	0.00	0.00	0.00
Mn				SO_4	1120	0.16	23.3
Al				H_2S			
Si				PO_4			
B	0.211						
U							
Th							

TOTAL SOLIDS (g/m³)

EVAPORATED AT 110°C — EVAPORATED AT 180°C

AT IGNITION — CALCULATED: 7152

SPECIFIC GRAVITY at 15°C — REFRACTIVE INDEX (RI) at 2: 1.340

OBSERVED pH: 8.82 at 25°C — RESISTIVITY (RW) Ω m at 2: 1.430

REDOX POTENTIAL (Eh) — DISSOLVED O_2 g/

Cations/Anions: 0.96

DST 1

Interval: to

KB: GRD:

Perfs to

TOTAL METALS

METAL	g/m³
Fe	
Mn	

REMARKS

IODIDE NOT AVAILABLE - INSUFFICIENT SAMPLE

GEOTECHnical resources ltd.
4500 - 5th STREET N.E., CALGARY, ALBERTA T2E 7C3
(403) 230-4128

WATER ANALYSIS

FILE NUMBER ▶ [redacted]

LABORATORY NUMBER ▶ 5477-W3

CONTAINER IDENTITY
5477F3

OPERATOR'S NAME
CHEVRON CANADA RESOURCES

SAMPLE LOCATION | WELL NAME
EAST HUME RIVER | I-20

FIELD OR AREA | POOL OR ZONE | NAME OF SAMPLER | COMPANY

ELEVATIONS KB | GRD

TEST TYPE NO | TEST RECOVERY

SAMPLING POINT
AFTER DST 1 - TOOL

AMT. AND TYPE OF CUSHION | MUD RESISTIVITY Ω/m

MULTIPLE RECOVERY TEST INTERVAL
FROM | PUMPING | FLOWING | GAS LIFT | SWAB

TO | WATER m³/d | OIL = m³/d | GAS [redacted] 10³m³/d

SEPARATOR | TREATER | RESERVOIR | SAMPLED | RECEIVED

PERFORATIONS
FROM | GAUGE PRESSURE K/Pa
TEMPERATURE (°C)

TO

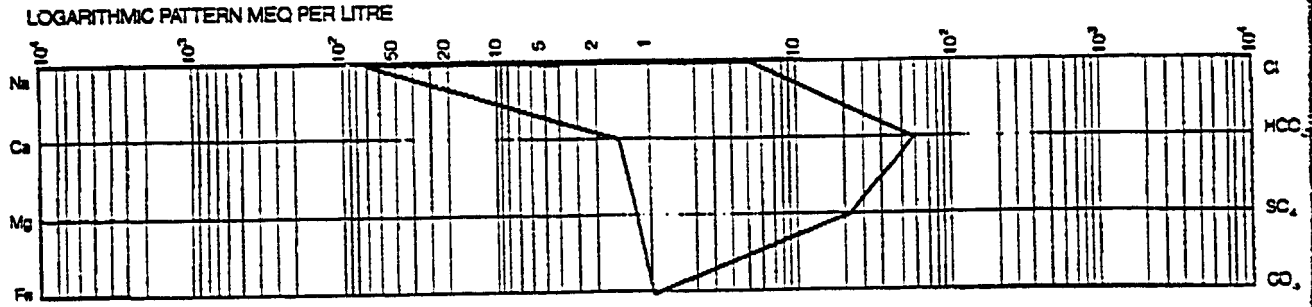
DATE SAMPLED Y M D	H:M	DATE RECEIVED Y M D	DATE ANALYZED Y M D	ANALYST
N/A		24-APR-90	01-MAY-90	GB

SUMMARY DATA

TOTAL HARDNESS AS $CaCO_3$	149	g/m³
TOTAL ALKALINITY	2685	g/m³
SALINITY AS NaCl	263	ppm
SATURATION INDEX	1.99	CaCO3 SCALING TENDENC
STABILITY INDEX	4.44	CaCO3 SCALING TENDENC
CORROSION TENDENCY	0.46	

Scaling calculations done at 30 C

LOGARITHMIC PATTERN MEQ PER LITRE



REMARKS

GEOTECHnical resources ltd.
4500 - 5th STREET N.E., CALGARY, ALBERTA T2E 7C3
(403) 230-4128

WATER ANALYSIS
DETAILED REPORT

OPERATOR'S NAME	CHEVRON CANADA RESOURCES	FILE NUMBER ▶	90AS5477
WELL NAME	EAST HUME RIVER	LABORATORY NUMBER ▶	5477-W3
LOCATION	I-20		
SAMPLING POINT	AFTER DST 1 - TOOL		

CATIONS

ION	g/m³	MASS FRACTION	MEQ/L
Na	1740	0.28	75.7
K	20.7	0.00	0.53
Ca	32.9	0.01	1.64
Mg	15.5	0.00	1.27
Ba	0.075	0.00	0.001
Sr	0.848	0.00	0.019
Fe	0.6	0.00	0.032
Mn			
Al			
Si			
B	0.623		
U			
Th			

ANIONS

ION	g/m³	MASS FRACTION	MEQ/L
Cl	160	0.03	4.5
Br			
I			
F			
HCO_3	3270	0.53	53.6
CO_3	0.00	0.00	0.00
CH	0.00	0.00	0.00
SO_4	960	0.15	20
H_2S			
PO_4			

TOTAL SOLIDS (g/m³)

EVAPORATED AT 110°C	EVAPORATED AT 180°C
AT IGNITION	CALCULATED: 6201

SPECIFIC GRAVITY at 15°C	REFRACTIVE INDEX (Rf) at 25°C
	1.340

OBSERVED pH at 25°C	RESISTIVITY (RW) Ω m at 25°C
8.44	1.668

REDOX POTENTIAL (Eh) | DISSOLVED O_2

TOTAL METALS

METAL	g/m³
Fe	
Mn	

Cations/Anions: 1.01

Interval: to

KB: GRD:

Perfs to

REMARKS

IODIDE NOT AVAILABLE - INSUFFICIENT SAMPLE

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(403) 230-4129

WATER ANALYSIS

FILE NUMBER ▶ 90AS5398

LABORATORY NUMBER ▶ 5398-W3

CONTAINER IDENTITY
5398F6

OPERATOR'S NAME
CHEVRON CANADA RESOURCES

SAMPLE LOCATION | WELL NAME
CHEVRON EAST HUME RIVER I-20

ELEVATIONS KB 75.12 GRD 68.96

FIELD OR AREA | POOL OR ZONE
SURFACE

NAME OF SAMPLER | COMPANY
BAKER

TEST TYPE NO
DST 4

TEST RECOVERY

SAMPLING POINT
TOP OF RECOVERY

AMT. AND TYPE OF CUSHION

MUD RESISTIVITY Ω/m

MULTIPLE RECOVERY TEST INTERVAL
FROM 58
TO 133

PUMPING FLOWING GAS LIFT SWAB

WATER m^3/d OIL m^3/d GAS $10^3m^3/d$

SEPARATOR TREATER RESERVOIR SAMPLED RECEIVED

PERFORATIONS
FROM
TO

GAUGE PRESSURE K/Pa

TEMPERATURE (°C)

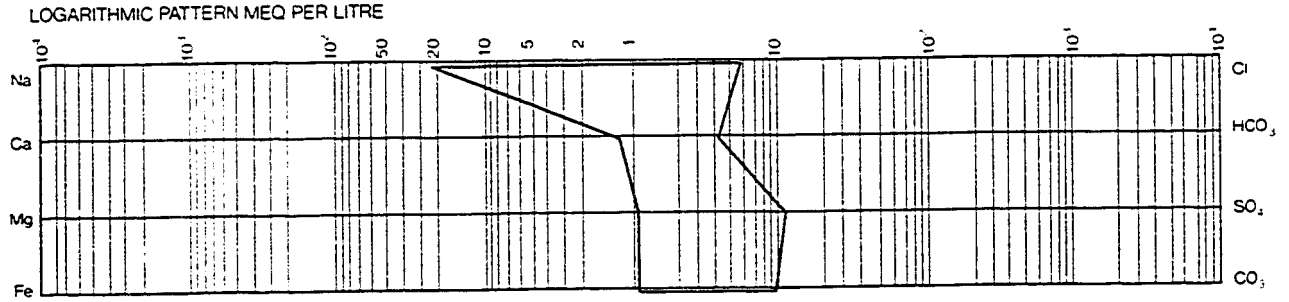
DATE SAMPLED Y M D	H M	DATE RECEIVED Y M D	DATE ANALYZED Y M D	ANALYST
23-MAR-90		29-MAR-90	30-MAR-90	GB

SUMMARY DATA

TOTAL HARDNESS AS $CaCO_3$	77	g/m^3
TOTAL ALKALINITY	592	g/m^3
SALINITY AS NaCl	290	ppm
SATURATION INDEX	2.17	CaCO3 SCALING TENDENCY
STABILITY INDEX	5.01	CaCO3 SCALING TENDENCY
CORROSION TENDENCY	1.25	

Scaling calculations done at 30 C

LOGARITHMIC PATTERN MEQ PER LITRE



REMARKS

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WATER ANALYSIS
DETAILED REPORT

OPERATOR'S NAME	CHEVRON CANADA RESOURCES	FILE NUMBER ▶	90AS5398
WELL NAME	CHEVRON EAST HUME RIVER	LABORATORY NUMBER ▶	5398-W3
LOCATION	I-20		
SAMPLING POINT	TOP OF RECOVERY		

CATIONS

ION	g/m³	MASS FRACTION	MEQ/L
Na	560	0.33	24.4
K	16.2	0.01	0.41
Ca	26.7	0.02	1.33
Mg	1.83	0.00	0.15
Ba	0.105	0.00	0.002
Sr	0.258	0.00	0.006
Fe	0.62	0.00	0.033
Mn			
Al			
Si			
B	0.642		
U			
Th			

ANIONS

ION	g/m³	MASS FRACTION	MEQ/L
Cl	176	0.1	4.9
Br			
I	< 1.0		
F			
HCO_3	213	0.12	3.5
CO_3	251	0.15	8.3
OH	0.00	0.00	0.00
SO_4	470	0.27	9.8
H_2S			
PO_4			

TOTAL SOLIDS (g/m³)

EVAPORATED AT 110°C — EVAPORATED AT 180°C

AT IGNITION — CALCULATED 1715

SPECIFIC GRAVITY at 15°C — REFRACTIVE INDEX (RI) 1.340 at 25°C

OBSERVED pH 9.37 at 25°C — RESISTIVITY (RW) Ω m 4.168 at 25°C

REDOX POTENTIAL (E_h) — DISSOLVED O_2 g/m³

TOTAL METALS

METAL	g/m³
Fe	
Mn	

Cations/Anions: 0.99

DST 4

Interval: 58 to 133

KB: 75.12 GRD: 68.96

Perfs to

REMARKS

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WATER ANALYSIS

FILE NUMBER ▶ 90AS5398

LABORATORY NUMBER ▶ 5398-W4

CONTAINER IDENTITY
5398F7

OPERATOR'S NAME
CHEVRON CANADA RESOURCES

SAMPLE LOCATION | WELL NAME
CHEVRON EAST HUME RIVER I-20

ELEVATIONS KB: 75.12 GRD: 68.96

FIELD OR AREA | POOL OR ZONE
SURFACE

NAME OF SAMPLER | COMPANY
BAKER

TEST TYPE NO
DST 4

TEST RECOVERY

SAMPLING POINT
BOTTOM HOLE SAMPLER

AMT. AND TYPE OF CUSHION

MUD RESISTIVITY Ω/m

MULTIPLE RECOVERY TEST INTERVAL FROM
58
TO
133
PERFORATIONS FROM
TO

PUMPING FLOWING GAS LIFT SWAB

WATER m³/d OIL m³/d GAS 10³m³/d

SEPARATOR TREATER RESERVOIR SAMPLED RECEIVED

GAUGE PRESSURE kPa

TEMPERATURE °C

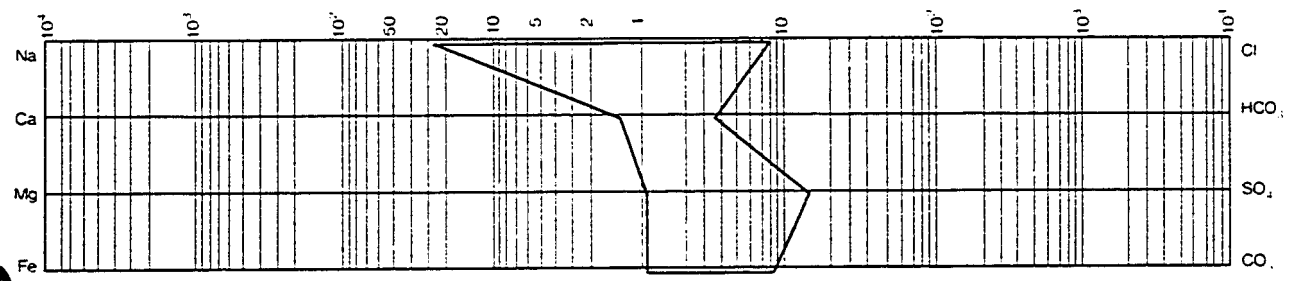
DATE SAMPLED Y M D	H M	DATE RECEIVED Y M D	DATE ANALYZED Y M D	ANALYST
23-MAR-90		29-MAR-90	30-MAR-90	GB

SUMMARY DATA

TOTAL HARDNESS AS $CaCO_3$	85	g/m³
TOTAL ALKALINITY	515	g/m³
SALINITY AS NaCl	409	ppm
SATURATION INDEX	2.16	CaCO3 SCALING TENDENCY
STABILITY INDEX	5.03	CaCO3 SCALING TENDENCY
CORROSION TENDENCY	1.93	

Scaling calculations done at 30 C

LOGARITHMIC PATTERN MEQ PER LITRE



REMARKS

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WATER ANALYSIS
DETAILED REPORT

OPERATOR'S NAME	CHEVRON CANADA RESOURCES
WELL NAME	CHEVRON EAST HUME RIVER
LOCATION	I-20
SAMPLING POINT	BOTTOM HOLE SAMPLER

FILE NUMBER ▶ 90AS5398

LABORATORY NUMBER ▶ 5398-W4

CATIONS				ANIONS			
ION	g/m³	MASS FRACTION	MEQ/L	ION	g/m³	MASS FRACTION	MEQ/L
Na	620	0.32	27	Cl	249	0.13	7
K	26.3	0.01	0.67	Br			
Ca	30	0.02	1.5	I			
Mg	1.94	0.00	0.16	F			
Ba	0.14	0.00	0.002	HCO_3	182	0.09	3
Sr	0.276	0.00	0.006	CO_3	220	0.11	7.3
Fe	0.47	0.00	0.025	OH	0.00	0.00	0.00
Mn				SO_4	612	0.32	12.7
Al				H_2S			
Si				PO_4			
B	0.541						
U							
Th							

TOTAL SOLIDS (g/m³)

EVAPORATED AT 110°C

EVAPORATED AT 180°C

AT IGNITION

CALCULATED 1941

SPECIFIC GRAVITY at 15°C

REFRACTIVE INDEX (R) 1.340 at 25°C

OBSERVED pH 9.37 at 25°C

RESISTIVITY (RW) Ω m 3.847 at 25°C

REDOX POTENTIAL (E~)

DISSOLVED O_2 g/m³

TOTAL METALS

METAL	g/m³
Fe	
Mn	

Cations/Anions: 0.98

DST 4

Interval: 58 to 133

KB: 75.12 GRD: 68.96

Perfs to

REMARKS

IODIDE NOT AVAILABLE - INSUFFICIENT SAMPLE

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WATER ANALYSIS

FILE NUMBER ▶ 90AS5398

LABORATORY NUMBER ▶ 5398-W5

CONTAINER IDENTITY
5398F8

OPERATOR'S NAME
CHEVRON CANADA RESOURCES

SAMPLE LOCATION

WELL NAME
CHEVRON EAST HUME RIVER I-20

FIELD OR AREA

POOL OR ZONE
SURFACE

NAME OF SAMPLER

ELEVATIONS KB 75.12 GRD 68.96

COMPANY
BAKER

TEST TYPE NO
DST 4

TEST RECOVERY

SAMPLING POINT
BOTTOM HOLE SAMPLER 186

AMT. AND TYPE OF CUSHION

MUD RESISTIVITY Ω/m

MULTIPLE RECOVERY TEST INTERVAL
FROM 58
TO 133

PUMPING FLOWING GAS LIFT SWAB

WATER m^3/d OIL m^3/d GAS $10^3m^3/d$

PERFORATIONS
FROM

GAUGE PRESSURE K. Pa SEPARATOR TREATER RESERVOIR SAMPLED RECEIVED

TEMPERATURE (°C)

TO

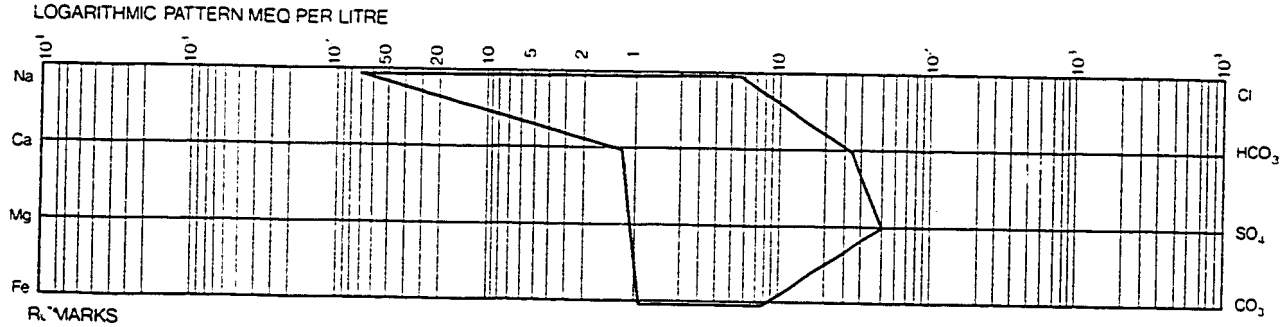
DATE SAMPLED Y M D	H M	DATE RECEIVED Y M D	DATE ANALYZED Y M D	ANALYST
28-MAR-90		29-MAR-90	30-MAR-90	GB

SUMMARY DATA

TOTAL HARDNESS AS $CaCO_3$	127	g/m^3
TOTAL ALKALINITY	1692	g/m^3
SALINITY AS NaCl	281	ppm
SATURATION INDEX	2.07	CaCO3 SCALING TENDENCY
STABILITY INDEX	4.66	CaCO3 SCALING TENDENCY
CORROSION TENDENCY	1.4	

Scaling calculations done at 30 C

LOGARITHMIC PATTERN MEQ PER LITRE



REMARKS

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WATER ANALYSIS
DETAILED REPORT

OPERATOR'S NAME	CHEVRON CANADA RESOURCES
WELL NAME	CHEVRON EAST HUME RIVER
LOCATION	I-20
SAMPLING POINT	BOTTOM HOLE SAMPLER 186

FILE NUMBER ▶	90AS5398
LABORATORY NUMBER ▶	5398-W5

CATIONS

ION	g/m³	MASS FRACTION	MEQ/L
Na	1750	0.3	76.1
K	22.8	0.00	0.58
Ca	26.1	0.00	1.3
Mg	14	0.00	1.15
Ba	0.466	0.00	0.007
Sr	0.694	0.00	0.016
[illegible]	1.28	0.00	0.07
Mn			
Al			
Si			
B	2.58		
U			
Th			

ANIONS

ION	g/m³	MASS FRACTION	MEQ/L
Cl	171	0.03	4.8
Br			
I			
F			
HCO_3	1640	0.28	27
CO_3	205	0.03	6.8
OH	0.00	0.00	0.00
SO_4	2040	0.36	42.5
H_2S			
PO_4			

TOTAL SOLIDS (g/m³)

EVAPORATED AT 110°C

EVAPORATED AT 180°C

AT IGNITION

CALCULATED 5873

SPECIFIC GRAVITY at 15°C

REFRACTIVE INDEX (RI) 1.341 at 25°C

OBSERVED pH 8.82 at 25°C

RESISTIVITY (RW) Ω·m 1.668 at 25°C

REDOX POTENTIAL (Eh)

DISSOLVED O_2 g/m³

TOTAL METALS

METAL	g/m³
Fe	
Mn	

Cations/Anions: 0.98

DST 4

Interval: 58 to 133

KB: 75.12 GRD: 68.96

Perfs to

REMARKS

IODIDE NOT AVAILABLE - INSUFFICIENT SAMPLE

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WATER ANALYSIS
DETAILED REPORT

OPERATOR'S NAME	CHEVRON CANADA RESOURCES	FILE NUMBER ▶	90AS5398
WELL NAME	CHEVRON EAST HUME RIVER	LABORATORY NUMBER ▶	5398-W5
LOCATION	I-20		
SAMPLING POINT	BOTTOM HOLE SAMPLER 186		

CATIONS				ANIONS			
ION	g/m³	MASS FRACTION	MEQ/L	ION	g/m³	MASS FRACTION	MEQ/L
Na	1750	0.3	76.1	Cl	171	0.03	4.8
K	22.8	0.00	0.58	Br			
Ca	26.1	0.00	1.3	I			
Mg	14	0.00	1.15	F			
Ba	0.466	0.00	0.007	HCO_3	1640	0.28	27
Sr	0.694	0.00	0.016	CO_3	205	0.03	6.8
[illegible]	1.28	0.00	0.07	OH	0.00	0.00	0.00
Mn				SO_4	2040	0.36	42.5
Al				H_2S			
Si				PO_4			
B	2.58						
U							
Th							

TOTAL SOLIDS (g/m³)

EVAPORATED AT 110°C	EVAPORATED AT 180°C
AT IGNITION	CALCULATED
	5873

SPECIFIC GRAVITY at 15°C	REFRACTIVE INDEX (R) at 25°C
	1.341

OBSERVED pH at 25°C	RESISTIVITY (RW) Ω m at 25°C
8.82	1.668

REDOX POTENTIAL (Eh)	DISSOLVED O_2 g/m³

TOTAL METALS

METAL	g/m³
Fe	
Mn	

Cations/Anions: 0.98

DST 4

Interval: 58 to 133

KB: 75.12 GRD: 68.96

Perfs to

REMARKS

IODIDE NOT AVAILABLE - INSUFFICIENT SAMPLE

APPENDIX 12

LOGS

D.A. 1414

Canada Oil and Gas Lands Administration / Administration du pétrole et du gaz des terres du Canada

				Well Status	
Nova Scotia	☐	West Coast	☐	Suspended	☐
Newfoundland	☐	Northern	☒	Completed	☐
Gulf of St. Lawrence	☐	Hudson Bay	☐	Abandoned	☒

WELL TERMINATION RECORD

This record is submitted in triplicate in compliance with Section 184 of the Canada Oil and Gas Drilling Regulations.

WELL DATA

Well Name: CHEVRON EAST HUME RIVER I-20 Area: Northwest Territories

Grid Area: 66-50 - 129-15 Field/Pool: Exploratory/Wildcat

Permit or Lease No.: N 89 A 263 Final Coordinates: Lat.: 65° 59' 38.15" N. Long: 129° 17' 16.62" W

Drilling Unit: Shahtah 1E Elevations-RT/KB: 75.1 SF/GL: 69.6

Spud Date: 1990-03-12 Rig Released: 1990-03-24 Total Depth: 365m

CASING AND CEMENTING

O.D.:	Weight:	Grade:	Depth Set:	Cement and Additives:
508.0mm	139.9 kg/m	X-56	43	17.3 tonnes Alaskan Class "G" Permafrost + 6% Gilsonite + .15% Permafrost Retarder
339.7mm	101.2 kg/m	K-55	233	44.9 tonnes Alaskan Class "G" Permafrost + 6% Gilsonite + .15% Permafrost Retarder

PLUGGING PROGRAM

Approval of the following program was obtained by (person) Bill Meyer from (person) Dave Scratch of the Canada Oil and Gas Lands Administration by means of Telephone on March 22 19 90.

Type of Plug:	Interval:	Felt:	Cement and Additives:
Abandonment #1	365m - 200m	No Feel	12t Class "G" Neat + .25% CFR-3
Halliburton	133m	133	
Abandonment #2	133m - 103m	No Feel	3.2t Class "G" Neat + .25% CFR-3
Abandonment #3	48m - 18m	No Feel	3.2t Class "G" Neat + .25% CFR-3
Abandonment #4	10m-surface	Visual	

Lost Circulation/Overpressure Zones: Lost circulation while drilling conductor at 6, 9, 17 and 44m.

Equipment left on Seafloor (Describe): N/A

Provision for Re-entry (Describe and attach sketch): See Attached Sketch.

Cores: Type: Intervals: See Attached

Other Downhole Completion/Suspension Equipment:

CERTIFICATION

I certify on the basis of personal knowledge of operations undertaken at the above named well that the above information is accurate.

Signed: P. Eng. Title: Drilling Manager

Name: W. N. Garman Date: 1990-04-10

ADMINIST. REVIEWED B. BK DATE 90-04-25

Acknowledged by: Engineering Branch

Date: 90-04-26

File: 9211-C4-1-4

Department of Energy, Mines and Resources / Ministère de l'Énergie, des Mines et des Ressources

Department of Indian Affairs and Northern Development / Ministère des Affaires indiennes et du Nord canadien

Canada

Copied to C. Reg.

MK