

APPROVAL SLIP

FINAL WELL HISTORY REPORTS

PROJECT NO.: 9211-E9-1-2

WELL NAME : EXCO ET AL CAMERON I-16

ENGINEERING BRANCH

R. LANDRY :

P. GUENARD:

RES. EVALUATION BRANCH

D.R. SMITH:

W.J. WARD:

87/01/21 **W. J. WARD**

ENV. PROTECTION BRANCH

K. SATO:

VESSEL PERFORMANCE DATA

PHYSICAL ENVIRON. DATA

oke

ADDITIONAL INFORMATION - P. SIMARD

Letter sent

Information rec'd

Report OK to Microfilm

RPS 87/61/64

Microfilming rec'd

NOTE

Each Branch is requested to return reports to Engineering Br/Information Coord. Section after review.

THANK YOU.

WELL HISTORY REPORT - COMMENTS SHEET

PROJECT NO.: 9211-EG-1-1

WELL NAME : Exco et al Cameron I-16

ENGINEERING BRANCH:

Rene Guindard 87-05-11

RESOURCE EVALUATION BRANCH:

*Seen by
B. Ward*

ENVIRONMENTAL PROTECTION BRANCH:

No requirements from PED. Am 26/02/87
No requirements from BED J.G.C. 87/02/27

The following well statistics apply:

Rig Release Date: _____

Classification of Well: _____

If "Del.", show discovery well: _____

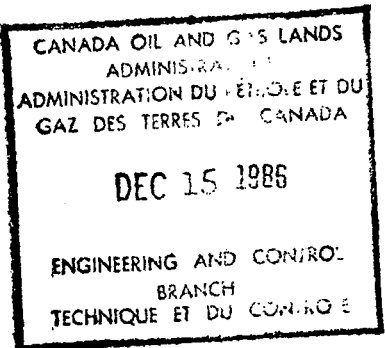
for: Engineering Branch

Verified:

for: Resource Evaluation Branch

*J. K. Sato for EPB
87-03-09*

OTTAWA
9211-E9-1-1
OTTAWA COPY



FINAL WELL HISTORY REPORT

EXCO ET AL CAMERON I - 16

60°05'42.57" N
117°32'01.81" W

EXCO ENERGY LTD, the operator of this well, went out of business without completing a Well History Report. This report was compiled by the Canada Oil and Gas Lands Administration, Yellowknife Office, based on available information and reports.

prepared: December 1986.

**MICROFILMED
SUR MICROFILM:**

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INTRODUCTION

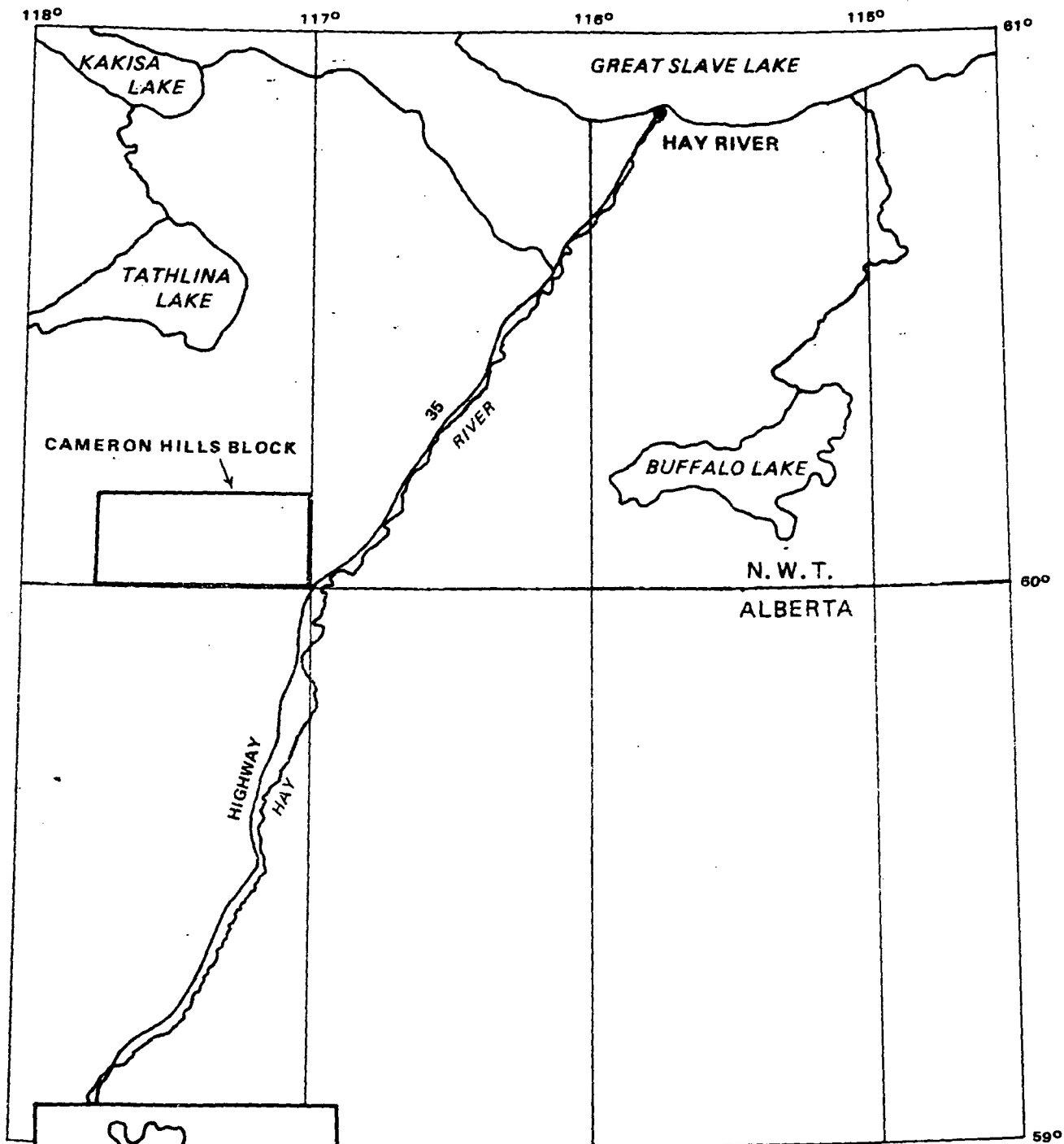
This well was drilled in the Cameron Hills area by Exco Energy Ltd. on a farm-in agreement with Dome Petroleum Ltd (on behalf of Hudson Bay Oil and Gas Company Ltd and Paramount Resources Ltd.)

The objective of the well was to determine the hydrocarbon potential of the Keg River (primary), Slave Point and Bistcho-Sulphur Point (secondary) formations.

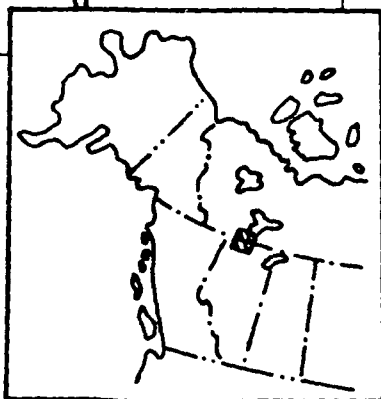
Winterhawk Petroleum Consulting Services Ltd acted as agents for the operator and the well was drilled with Arno Industries Ltd rig #1.

The well was spudded on 8⁵~~6~~-01-21 and drilled to a measured total depth of 1490 mKB with no major problems on 8⁵~~6~~-02-10. The well was logged and five open hole drill stem tests were conducted. Based on the results of the DST program it was decided to run a production casing string and to suspend the well. The rig was released on 8⁵~~6~~-02-16.

?

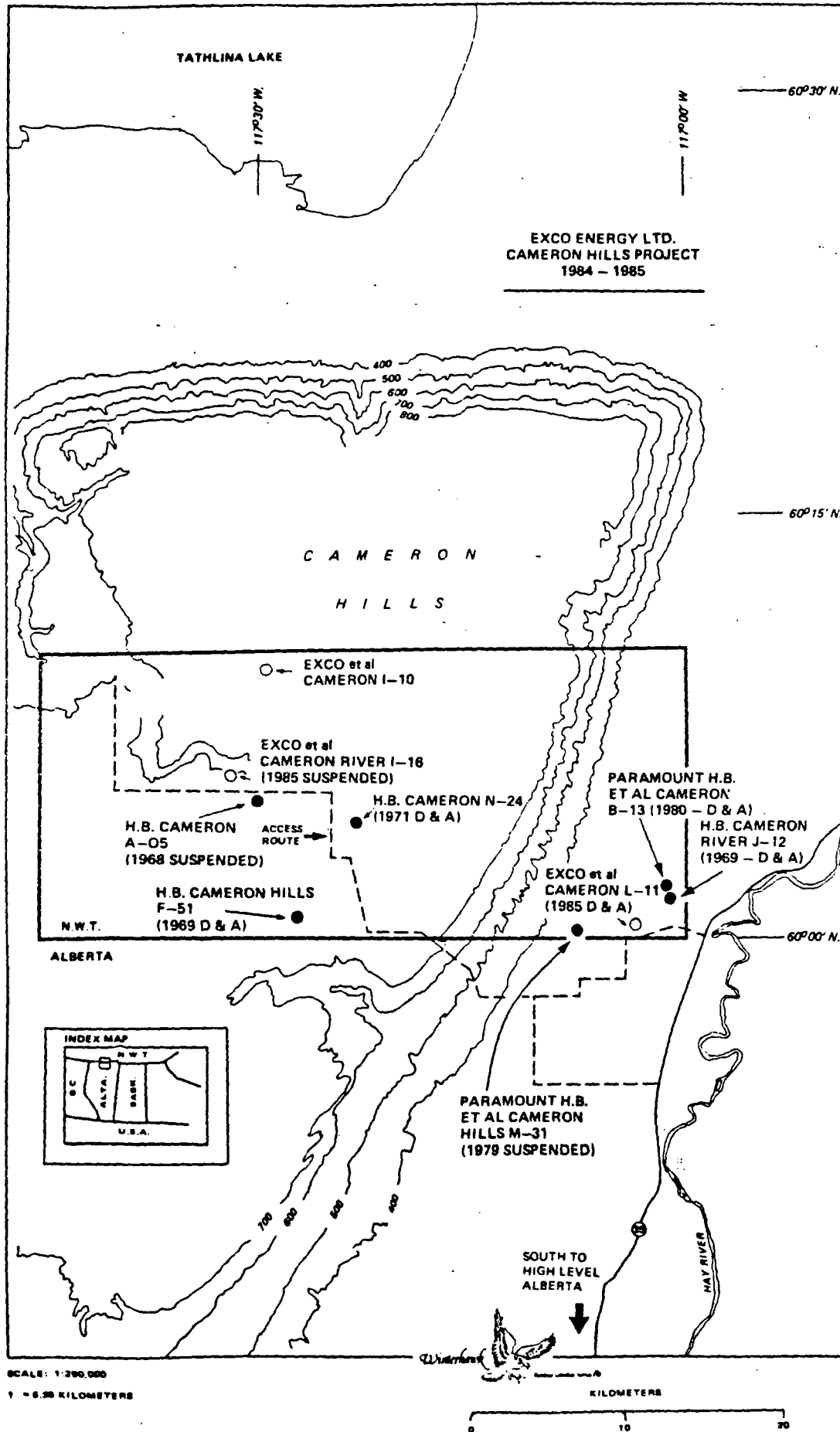


0 10 20
MILES



EXCO ENERGY LTD.
1984 - 1985 CAMERON HILLS PROJECT





General Data

Well Name - Exco et al Cameron I - 16

Well Location - Grid Area - 60-10-117-30
Unit - I
Section - 16
Coordinates - 60°05'42.57" N
117°32'01.81" W

Unique Well Identifier . 3001166010117300

Lessor - Dome Petroleum Ltd on behalf of Hudson's
Bay Oil and Gas Company Ltd. and Paramount
Resources Ltd.

Operator - Exco Energy Ltd
6th Floor, 700-4th Avenue S.W.
Calgary, Alberta
T2P 3J4

Contractor - Arnco Industries Ltd
2181 - 41st Avenue N.E.
Calgary, Alberta
T2E 6P2

Drilling Unit - Arnco Rig #1
- double, diesel mechanical

Position Keeping - not applicable to this well

Support Craft - not applicable to this well

Drilling Unit
Performance - not applicable to this well

Difficulties and
Delays - The only delays encountered on this well were:-
- 2½ hrs. waiting for casing
- 1 hr waiting for tester

Summary of Drilling Operations

Elevations - GL 731.4m
 KB 735.4m

Total Depth - 1490 m KB
 - 139.7 mm casing not drilled out.
 float collar depth @ 1476.37 m KB

Spud Date - 1985-01-21 @ 06:00 hrs

Drilling Completed - 1985-02-10 @ 09:00 hrs

Rig Release - 1985-02-16 @ 06:00 hrs

Well Status - cased and suspended gas well

Hole Sizes and Depths - 444 mm to 63.1m KB
 311 mm to 377.5m KB
 216 mm to 1490m KB

Casing and Cementing Record-

-339.7mm - 81.1 kg/m, K-55, ST + C couplings
 8 rd threads, 5 joints, set at 63m KB on 1985-01-02
 - cemented with 10.1 tonnes₃ class "G" + 3% CaCl₂
 - slurry density 1895 kg/m³
 - cemented to surface

244.4mm - 53.4 kg/m, K-55, ST + C couplings, 8 rd. threads,
 33 joints, set at 376m KB on 1985-01-26
 - cemented with 21.5 tonnes₃ class "G" + 2% CaCl₂
 slurry density 1895 kg/m³
 - no cement returns were observed at surface so an
 additional 7 tonnes class "G" + 2% CaCl₂ (1895 kg/m³)
 was pumped down the annulus.

139.7mm - 20.8 kg/m, K-55, LT + C couplings, 8 rd. threads,
 119 joints, set at 1490m KB on 1985-02-13
 - cemented with 20.5 tonnes₃ class "G" + .75% CFT-2,
 slurry density 1895 kg/m³
 - estimated top of cement at 1000m.

Side-tracked
Hole - not applicable to this well.

Drilling Fluid - The 444mm hole was drilled from surface to 63.1m KB
 with a fresh water gel system.
 The remainder of the well was drilled with an extended
 fresh water gel system.
 This was a normally pressured well so mud density was
 maintained at a minimum by the addition of water and

the use of solids control equipment. Viscosity and gel strengths were increased and water loss was controlled below 600m in order to reduce fill on bottom and improve hole conditions.

Average Mud Properties -

<u>hole size</u>	<u>density</u>	<u>viscosity</u>	<u>water loss</u>	<u>ph</u>
444mm	1100 kg/m ³	45	not recorded	
311mm	1080-1130 kg/m ³	43-48	"	9.5
216mm	1080-1150 kg/m ³	40-60	5.5-17.0	8.5-11.5

- Partial returns were lost between 85-90m. A total of 20m³ was lost to the formation. Gel and sawdust were added to raise the viscosity and seal off the thief zone.

Fishing
Operations - not applicable to this well

Well Kicks - not applicable to this well

Formation

Leak off

- Tests
- depth - 377m
 - mud density - 1050 kg/m³
 - applied pressure - 3000 kPa with no breakdown
 - EMD - 1861 kg/m³

Abandonment

Plugs - not applicable to this well

- This well was cased and suspended. The 139.7mm casing was never drilled out and it has never been perforated. The float collar depth is 1476.37m KB.

TIME DISTRIBUTION

	<u>Operation</u>	<u>Hours</u>
1.	Drilling	319.50
2.	Tripping	63.25
3.	Rig Service	12.25
4.	Deviation Survey	10.25
5.	Ream and Condition Hole	15.25
6.	Mix and Condition Mud	1.00
7.	Circulating	10.25
8.	Rig Repair	1.00
9.	Run Casing and Cement	60.25
10.	Fishing	-
11.	Logging	7.75
12.	Coring	-
13.	Formation Testing	80.25
14.	Waiting on	3.50
15.	Nipple Up and Test BOP's	20.50
16.	Drilling out	6.00
17.	Lost Circulation	-
18.	Lay Down Drill Pipe and BOP's	7.00
19.	Plug and Abandon	-
20.	Rig Up - Tear Out	12.00
		630 hrs.

DEVIATION RECORD

DEVIATION RECORD

DEPTH (m)	DEVIATION
31	
50	7/8
62	1
98	7/8
126	1/8
164	0
192	3/4
221	1
249	1
294	3/4
377	3/4
441	0
428	1/2
563	1/8
669	1/4
744	1/2
819	1/2
902	1/2
959	1/4
1025	3/4
1098	3/4
1192	1/4
1230	1/4
1320	7/8
1490	1/2
	3/4

GEOLOGICAL REPORT

EXCO et al CAMERON 1 - 16

60°05' 42.57"N, 117°32' 01.81"W

PREPARED FOR

EXCO ENERGY LTD.

FEBRUARY, 1985

H. Steghaus

H. Steghaus, Ph.D., P. Geol.

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PERTINENT DATA

WELL NAME:	EXCO et al CAMERON 1 - 16		
LOCATION:	60°05' 42.57"N, -117°32' 01.81"W		
ELEVATIONS:	Ground:	731.4 m	K.B.: 735.4 m
TOTAL DEPTH:	Driller	1490 m	Logger: 1489.7 m
WELL TYPE:	Exploratory		
STATUS:	Cased gas well		
OPERATOR:	EXCO ENERGY LTD.		
CONTRACTOR:	ARNCO DRILLING LTD., RIG # 1		
SPUD DATE:	January 21, 1985		
RIG RELEASED:	February 16, 1985		
DITCH SAMPLES:	Company:	380-1490 m	Government: 380 - 1490 m
CORED INTERVALS:	None		
D.S.T.:	5		
LOG RECORD:	Computalog,	DIL:	376.0 - 1489.0 m
		CD-CNL	376.0 - 1488.3 m
CASING RECORD:	244.5 mm,	Surface -	377.2 m
	139.7 mm,	Surface -	1489.85 m

GEOLOGICAL MARKERS

<u>MARKER</u>	<u>PROGNOSIS</u> <u>m</u>	<u>SAMPLE</u> <u>m</u>	<u>LOG</u> <u>m</u>	<u>SUBSEA</u> <u>m</u>	<u>THICKNESS</u> <u>m</u>
Wabamum	505	510	- 504.4	+231.0	49.6
Winterburn	535		554.0	+181.4	239.0
Twin Falls	786		793.0	- 57.6	154.4
Hay River	943		947.4	-212.0	288.6
Beaverhill Lake		1240	1236.0	-500.6	31.5
Muskwa		1270	1267.5	-532.1	18.8
Slave Point	1287	1290	1286.3	-550.9	54.7
Watt Mountain	1333	1340	1341.0	-605.6	6.0
Bistcho	1349	1350	1347.0	-611.6	13.4
Sulphur Point		1365	1360.4	-625.0	29.6
Muskeg	1360	1390	1385.0	-654.6	52.0
Keg River	1437	1445	1442.0	-706.6	30.2
Predevonian	1462	1475	1472.2	-736.8	

SAMPLE DESCRIPTION

1220 - 1225 m	Shale, gray, slightly greenish, part slightly calcareous and micromicaceous, slightly pyritic
1225 - 1230 m	Shale, dark gray to gray, part calcareous, part slightly micromicaceous, slightly pyritic; stringers of limestone, gray to buff, microcrystalline, part silty
1230 - 1235 m	Shale, dark gray to gray, part calcareous, part micropyritics, one tentaculites; stringers of siltstone, gray to buff, slightly micropyritic
	BEAVERHILL LAKE 1240 m
1235 - 1240 m	Shale, black, slightly calcareous, part micromicaceous; stringers of limestone, gray, microcrystalline, part argillaceous, few brachiopod fragments
1240 - 1245 m	Shale, black to dark brown, calcareous, micropyritic
1245 - 1250 m	Shale, gray calcareous, part silty; stringers of limestone, buff, microcrystalline; shale as above
1250 - 1255 m	Shale, greenish gray to gray, calcareous, part micromicaceous; stringers of siltstone, buff, calcareous
1255 - 1260 m	Shale, gray to dark gray, part slightly greenish and calcareous; stringers of siltstone as above
1260 - 1265 m	Shale, greenish gray, calcareous, part micropyritic; stringers of siltstone as above
	MUSKWA 1270 m
1265 - 1270 m	Shale, black, part white speckled (stylolina), calcareous, part micropyritic, few fish remains
1270 - 1275 m	Shale, black to black brown, part white speckled, calcareous; shale, gray, calcareous, part micropyritic; limestone, buff to gray and argillaceous, few brachiopod fragments; trace pyrite

1275 - 1285 m

Shale, greenish gray, calcareous, some pieces silty; limestone, buff to light gray and argillaceous, crypto - to microcrystalline, trace vuggy porosity with coarse calcite lining, some brachiopod fragments and ostracods; trace pyrite

SLAVE POINT 1290 m

1285 - 1290 m

Limestone, tan to buff and light gray, argillaceous, pyritic, few brachiopod fragments; shale gray and calcareous, grading to marlstone

1290 - 1295 m

Limestone, brown to cream, cryptocrystalline, part argillaceous, slightly pyritic

1295 - 1300 m

Limestone, brown to cream and buff, crypto - to microcrystalline, few pieces mottled and fragmental, one very small calcite druse with faint condensate staining; stringers of shale, black, pyritic

1300 - 1305 m

Limestone, cream to brown, some pieces mottled and fragmental, cryptocrystalline, trace poor pin-point and vuggy porosity, some condensate staining.

1305 - 1310 m

Limestone, tan to cream, few pieces brown, crypto - to microcrystalline, poor vuggy and pin-point porosity, selective condensate staining

1310 - 1315 m

Limestone, brown to tan, cryptocrystalline, trace very poor pin-point porosity, some condensate staining

1315 - 1320 m

Limestone, cream to brown, crypto - to microcrystalline, some pieces pelletoidal, few stylolites, trace vuggy porosity with residual oil, little condensate staining, few brachiopod fragments

FORT VERMILION 1325 m

1320 - 1325 m

Anhydrite, cream to brown, cryptocrystalline; slightly pyritic, limestone, brown, cryptocrystalline, and anhydritic

1325 - 1330 m

Anhydrite, tan to cream, crypto - to microcrystalline, one piece medium, limestone, brown, cryptocrystalline, part fragmental, part anhydritic

1330 - 1335 m

Anhydrite, buff to tan, microcrystalline

WATT MOUNTAIN 1340 m

- 1335 - 1340 m Dolomite, brown to light gray, microcrystalline; stringers of shale, light gray, calcareous, few brachiopod fragments, trace shale, green, waxy, micropyrritic, calcareous
- 1340 - 1345 m Shale, green, waxy pyritic, calcareous, few crinoid ossicles; stringers of limestone, brown to tan, micro - to cryptocrystalline, some brachiopod fragments

BISTCHO 1350 m

- 1345 - 1350 m Limestone, cream to brown, cryptocrystalline, part fragmental, some pieces pelletoidal, pyritic; little shale as above
- 1350 - 1355 m Limestone, tan to cream, cryptocrystalline, little coarse vug fill, few pieces fragmental, spotty very poor pin-point porosity, trace condensate staining.
- 1355 - 1360 m Limestone, cream to brown, crypto - to microcrystalline, part pelletoidal, trace very poor porosity (leached pellets), trace condensate staining, few stylolites

SULPHUR POINT 1365 m

- 1360 - 1365 m Dolomite, brown to tan, micro to very finely crystalline, some vug fill, little condensate staining; largely shale cavings
- 1365 - 1375 m As above; some poor vuggy porosity, selective condensate staining.
- 1375 - 1380 m Dolomite, tan to brown, micro to finely crystalline, trace vuggy porosity and condensate staining
- 1380 - 1385 m Dolomite, brown to tan, micro to very finely crystalline, little very poor intercrystalline and vuggy porosity, spotty condensate staining

MUSKEG 1390 m

- 1385 - 1390 m Anhydrite, cream, cryptocrystalline

- 1390 - 1395 m Dolomite, light brown to tan, microcrystalline some very poor intercrystalline porosity and spotty condensate staining, anhydrite, cream to buff and tan, crypto - to microcrystalline
- 1395 - 1400 m Anhydrite, cream to tan, crypto - to microcrystalline, stringers of dolomite, brown to tan; very finely to microcrystalline
- 1400 - 1410 m Anhydrite, tan to buff and white, crypto - to microcrystalline
- 1410 - 1415 m Anhydrite, cream, cryptocrystalline
- 1415 - 1425 m Anhydrite as above; dolomite, brown, microcrystalline, very poor intercrystalline and pin-point porosity, spotty condensate stain
- 1425 - 1430 m Dolomite, tan to brown, very finely to microcrystalline, trace very poor intercrystalline porosity and condensate stain; anhydrite, cream to tan, crypto - to microcrystalline
- 1430 - 1435 m Anhydrite, cream to tan; cryptocrystalline; little dolomite as above
- 1435 - 1440 m Anhydrite as above
- KEG RIVER 1445 m
- 1440 - 1445 m Anhydrite, cream to tan, crypto - to microcrystalline; dolomite, tan to dark brown, micro - to very finely crystalline, trace vuggy porosity; trace pyrite
- 1445 - 1450 m Dolomite, brown, very finely crystalline, poor to fair intercrystalline porosity, fair light oil staining
- 1450 - 1455 m Dolomite, brown to dark brown, very finely to microcrystalline, trace coarse vug lining, some fair to good intercrystalline and vuggy porosity, some fair to good light oil staining
- 1455 - 1460 m Dolomite, dark brown to tan, very finely to microcrystalline, some medium crystalline vug lining; some pieces finely pyritic, probably some vuggy porosity

1460 - 1465 m

Dolomite, dark brown to buff, microcrystalline,
some fine crystalline vug fill, some vuggy porosity

1465 - 1470 m

Dolomite, dark brown to tan, micro - to very finely
crystalline, vug fill and lining common, probably
poor to fair vuggy porosity

1470 - 1475 m

PREDEVONIAN 1475 m

Dolomite, dark brown to tan, micro - to finely
crystalline, part argillaceous, few stylolites,
probably few amphipora; quartzite, white to clear

1475 - 1480 m

Quartzite, white to buff, few pieces micropyrritic;
shale, green waxy and pyritic, probably fracture fill

1480 - 1490 m

Quartzite, white to buff

D.S.T. SUMMARY

Test #1:

1295 - 1320 m; Slave Point

15/60/60/120

PF: Strong air blow; gas to surface in 9 mins. at 9128 m³/d
 VO: Gas to surface immediately; leveling at 8537 m³/d

Recovery: 36 m Ammonia and inhibitor water
 79 m gasified drilling mud

IHP:	14326 kPa	FHP:	14239 kPa
PFP:	971 kPa		
IFP:	883 kPa	FFP:	794 kPa
ISIP:	11165 kPa	FSIP:	11165 kPa

Test #2:

1435 - 1454 m; Keg River

15/60/60/120

PF: Strong air blow; gas to surface in 2 mins. at 44355 m³/d
 VO: Gas to surface immediately; fluid after 18 mins., fine mist throughout
 Recovery: 50 m slightly gas cut saltwater; some inhibitor and condensate cut

IHP:	16725 kPa	FHP:	16555 kPa
PFP:	4271 kPa		
IFP:	3585 kPa	FFP:	4614 kPa
ISIP:	10597 kPa	FSIP:	10257 kPa

Test #3:

1435 - 1454 m; Muskeg

15/60/30/60

PF: Very weak air blow; dead in 3.5 mins..
 VO: Few initial air bubbles
 Recovery: Combined with D.S.T. #4

IHP:	16555 kPa	FHP:	16384 kPa
PFP:	512 kPa		
IFP:	683 kPa	FFP:	341 kPa
ISIP:	341 kPa	FSIP:	341 kPa

Test #4:

1390 - 1396 m; Muskeg

15/30/30/60

PF: Few initial air bubbles
 VO: Very weak air blow for 2 mins; occasional air bubbles for 10 mins..
 Recovery: 20 m gasified mud; top of column inhibitor and ammonia cut

IHP:	16555 kPa	FHP:	16384 kPa
PFP:	512 kPa		
IFP:	512 kPa	FFP:	512 kPa
ISIP:	683 kPa	FSIP:	512 kPa

D.S.T. SUMMARY

Test #5:

1360 - 1376 m; Sulphur Point
15/60/60/120

PF: Strong air blow; gas to surface in 6.5 mins..

VO: Gas to surface immediately; increasing to 1250 kPa (12.7 mm surface choke); dropped to 220 kPa; 7983 m³d

Recovery: 20 m ammonia and inhibitor water; 85 m gas cut mud

IHP:	15764 kPa	FHP:	15597 kPa
PFP:	1177 kPa		
IFP:	673 kPa	FFP:	841 kPa
ISIP:	9438 kPa	FSIP:	9267 kPa

BIT RECORD

BLAIN, BINNIE ENGINEERING (1976) LTD.

Petroleum Consultants

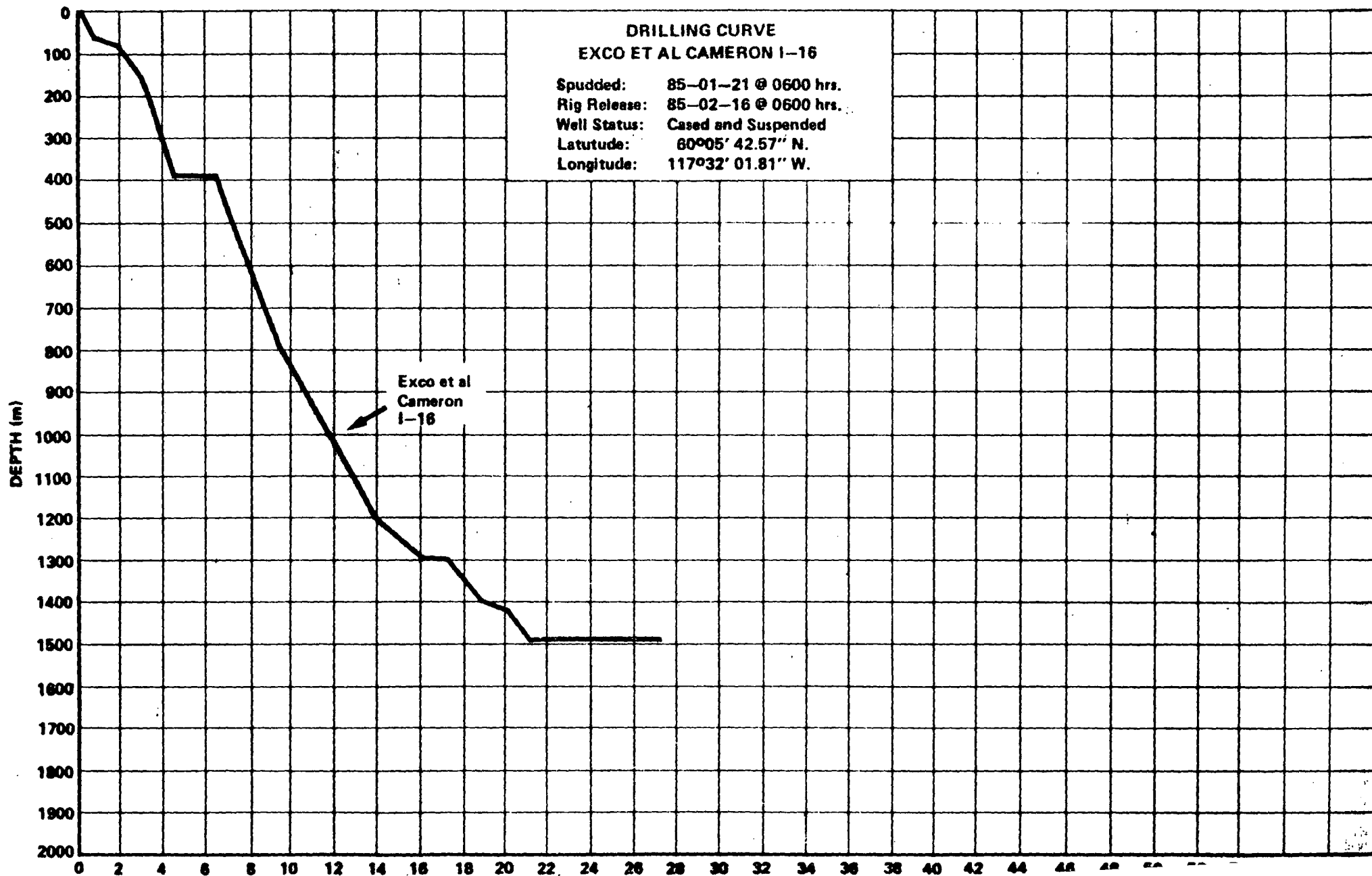
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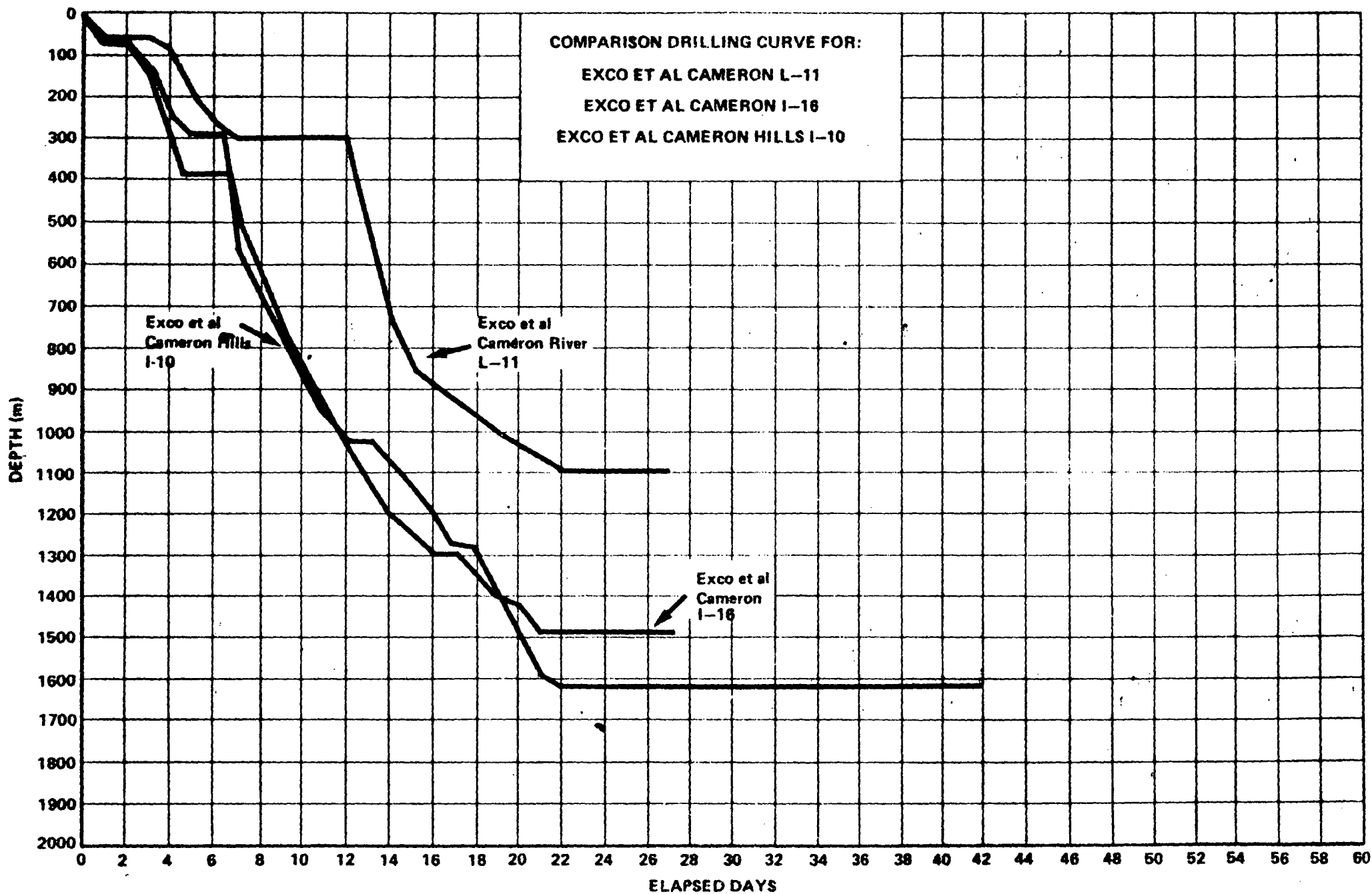
BIT RECORD

WELL NAME Exco et al Cameron LOCATION I-16
 Contractor ARNCO #1 Rig No. ONE Field CAMERON HILLS
 Spud Date 85/01/21 T.D. Date 85/02/10 Rig Release Date _____

BIT NO.	SIZE mm	MAKE & TYPE	DEPTH OUT	METRES DRLD	ROT. HOURS	TOTAL HOURS	WEIGHT ON BIT - daN	BIT RPM	JETS - mm			PUMP PRESS kPa or MPa	PUMP OUT - PUT m3/min	DULL COND.		
									1	2	3			T	B	G
1A	311.2	Smith FDT	50	50	8.25	8.25	3/5000	60/100	11.9	11.9	12.7	2500	1.26	6	6	I
2A	444.5	SEC S33J	63	13	1.25	9.50	3/5000	60/120	12.7	12.7	12.7	2500	1.26	6	4	I
1B	311.2	Smith FDT	154	91	11.25	20.75	6/7,000	80/100	11.1	11.1	11.1	3000	1.26	6	6	I
2B	"	Smith DSJ	155	1	3	23.75	2/4,000	40/60	11.1	11.1	11.1	3000	1.26	4	2	I
3B	311.2	SEC S33J	365	210	15.75	39.50	5/7,000	60/80	11.1	11.1	11.1	3000	1.26	6	2	I
4B	311.2	Smith FDT	377	12	1	40.5	5/7,000	80	11.1	11.1	11.1	6000	1.26	4	3	I
1	215.9	Smith FDT	602	225	23.5	23.5/64	8/10,000	90	11.1	11.1	11.1	6000	1.26	5	3	1
2	215.9	REED HP13J	819	217	38.75	62.25/102.75	11/14,000	90	11.1	11.1	11.1	6000	1.15	6	3	I
3	215.9	Smith F-2	1230	411	99.25	161.5/202	14,000	70	11.1	11.1	11.1	7000	1.15	4	4	I
4	"	W. T33	1320	90	33	191.5/235	14,000	70	11.9	11.9	10.3	7000	1.12	2	2	I
4RR	215.9	T33	1430	110	51.25	245.75/286.25	14,000	60/70	"	"	"	7000	1.12	5	7	0
5	215.9	REED FP63	1490	60	33.25	279/319.5	14,000	60	11.1	11.1	11.1	7000	1.11	5	5	0

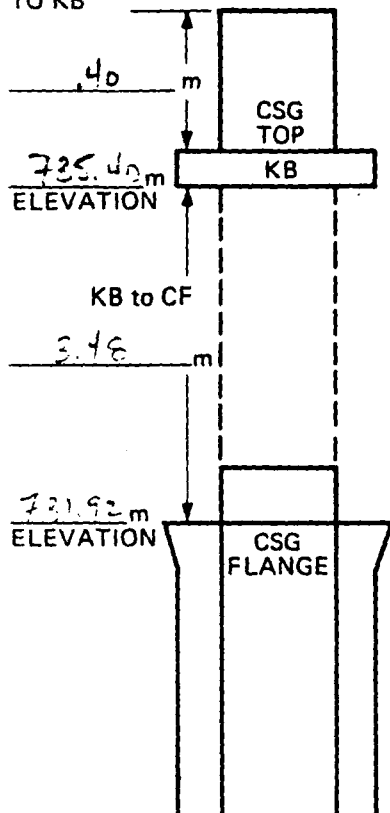
REMARKS _____





CASING SUMMARY

WELL Exco et al CAMERON LOCATION I-16 DATE JAN 22/85
 CONDUCTOR: _____
 SURFACE PRODUCER SIZE 339.7 mm KB 735.40 m KB to CF 3.48 m
 New/Used _____ Inspected By: Darry Lodder Drifted To: _____ API diam. _____

CSG TOP
TO KB

NO.

DESCRIPTION

MEASURED
LENGTH

KB DEPTH

1	Guide SHOE	.56	62.45
1	339.7 csg	12.80	49.65
1	FLOAT collar	.49	49.16
4	339.7 csg	49.56	4.40
	Scratchers		
3	Centralizers 2 13.00 26.01 50.98		

Total String

63.41

minus KB to Csg Top (STICK UP)

.40

Landed Depth KB

63.01

Hole Depth KB

63.10

Distance Csg Landed Off Bottom

.09

Cut-off
Jt. Length

4.28

Cementing Company HALLIBURTONWash - Type. H₂OVolume 1.5 m³Cement Type - Lead Slurry 3.6 m³ PLASS "6" (10.1 ± "6")Additives 3% CaO₁₂

Cement Type - Tail Slurry _____

Additives _____

Cement Type - Above Stage Collar _____

Additives _____

Displacement Rate: Max. 1.0 Avg. 75 (m³/min)Calculated Cement Top(s) surface KB _____ KBReturns: Mud _____ m³ Cement 2.5 m³String Wt. in a mud wt. of: _____ kg/m³ = _____ daNWt. set on Slips: n/a daNRemarks: Bump plug w/ 2500 KpaAverage slurry wt 1890Displace w/ 4.08 m³ H₂OEngineer: KR221

CASING SUMMARY

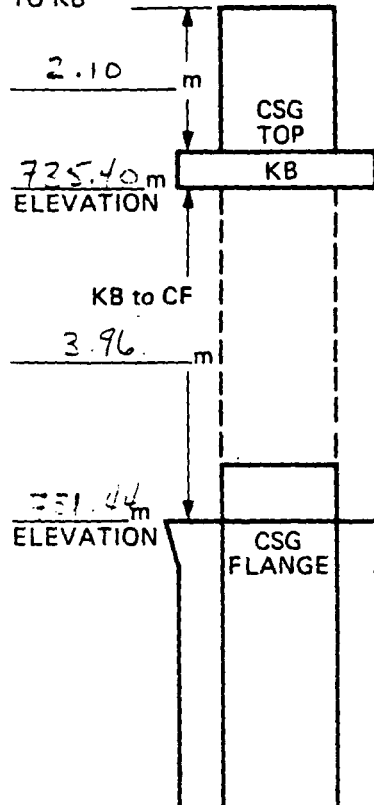
WELL Exco et al CAMERON LOCATION I-16 DATE JAN 26/85SURFACE/PROD LINES SIZE 244.5 mm KB 735.40 m KB to CF 3.96 m

New/Used

Inspected By: _____

Drifted To: _____

API diam. _____

CSG TOP
TO KB

NO.

DESCRIPTION

MEASURED
LENGTH

KB DEPTH

1	BAKER SHOE	.51	367.72
1	244.5 csg	11.12	365.60
1	BAKER FLOAT	.50	365.10
32	244.5 csg	367.20	+2.10
	Scratchers		
3	Centralizers 1112		

Total String

379.32

minus KB to Csg Top (STICK UP)

2.10

Landed Depth KB

377.23

Hole Depth KB

377.30

Distance Csg Landed Off Bottom

.07

Cut-off
Jt. Length

3.96

Cementing Company HALLIBURTONWash - Type. H₂OVolume 15 m³Cement Type - Lead Slurry 215 Tonnes Class "G" (16.34 m³)Additives 2% CaCl₂Cement Type - Tail Slurry N/AAdditives N/ACement Type - Above Stage Collar N/AAdditives N/ADisplacement Rate: Max. _____ Avg. .95 (m³/min)Calculated Cement Top(s) surface KB _____ KBReturns: Mud _____ m³ Cement None m³String Wt. in a mud wt. of: 1180 kg/m³ = _____ daNWt. set on Slips: N/A daN

Remarks: Cement thru 25m³ pipedown annulus
Mix + Pump 5.32 m³ 17 tonnes 1 Class "G" w/ 2% CaCl₂
0.5 m³ Cement returns

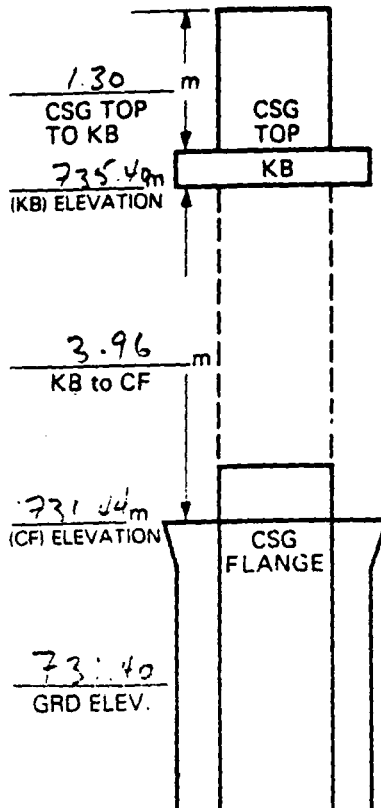
Engineer: J. KERRY

CASING SUMMARY

WELL Esco et al Cameron LOCATION I-16 DATE 25/02/15

~~PROD/LIFT~~ 139.7 mm KB 735.40 m KB to CF 3.91 m

New/Used _____ Inspected By: [Signature] Drifted To: _____ API diam. _____



NO.	DESCRIPTION	MEASURED LENGTH	KB DEPTH
1	SHOE	.45	1489.40
1	139.7 csg	12.59	1476.81
1	FLCAT	.44	1476.37
118	Csg	1477.67	+1.30
20	STOP RINGS		
20	Scratchers		
19	Centralizers		
Total String		1491.15	
minus KB to Csg Top (STICK UP)		1.30	Cut-off Jt. Length
Landed Depth KB		1489.85	
Hole Depth KB		1490.00	5.25
Distance Csg Landed Off Bottom		.15	

Cementing Company HALLIBURTON

Wash - Type: SAPP WATER Volume 1.5 m3

Cement Type - Lead Slurry CLASS "G" Volume: 15.5 m3

Additives .75% CFR-2 Volume: _____

Cement Type - Tail Slurry _____ Volume: _____

Additives _____ Volume: _____

Cement Type - Above Stage Collar _____ Volume: _____

Additives _____ Volume: _____

Displacement Rate: Max. .9 m3/m Avg. .9 m3 (m3/min)

Calculated Cement Top(s) 1000 m KB _____ KB

Returns: Mud _____ m3 Cement No m3

String Wt. in a mud wt. of: 1110 kg/m3 = 30,000 daN

Wt. set on Slips: 5,000 daN

Remarks: Bump plug w' 3000 KPa over float off float held. LIFT BOP & SET SLIPS

Rough out csg

Engineer: [Signature]

2

EXCO ET AL

ERON RIVER I-16

MUD ADD

VES

[illegible]

A. WELL DATA

FIELD DRILL STEM TEST REPORT

DATE 85-02-06Well Exco et al CameronLocation I-16DST No. one Interval 1295 - 1320m Formation Slave PointLast Casing: Size 244.5mm Depth 377m Open Hole: Size 215.9mm Depth 1320mHole Troubles None Reported Caliper at Packer(s) 216 mmMud: Wt. 1125 kg/m³ Vis 42 sec/l W.L. 84 cc % Oil 0 ppm Cl 520

B. TEST STRING DATA

Testing Company Quinn Testers Ltd. Type of Test DBHType and Number of Packers Conventional CZ, Size 200mmDP Size 101 mm Wt 23.6 Kg/m Length 12846DC Size 158 mm Wt 135 Kg/m Kg/m I.D. 60mm Length 151.8Tail Pipe Size 158mm Wt 135 Kg/m Kg/m Length 18.79 m Perfs mT.D. String 1320m Recorder Depth 1288.4m 1290m Water Cushion 80 L water inhibitor 12.7
1297, 1298.8 BH Choke Packer Depth(s) 1295.18m Weight on Packer(s) 11,000 daNOther Equipment

C. TEST RESULTS

Times: PF 15 min ISI 60 min Flow 60mm SI Flow FSI 120Pressures: 1 PF 971 KPa IH 14,326 KPa ISI 11,165 KPa IF 883 KPaTEMP 49 °C FH 14,239 KPa FSI 11,165 KPa FF 794 KPa

Flow Descriptions:

Prewflow: Strong Airblow GTS in 9 min Lazy 5' flame increasing Press
100 KPa on 191 mm chokeValve Open Flow: GTS immediately STAB after 35 min @ 90 KPa w/191 mm choke.
8537 m³/dayRecoveries: 115 m fluid36 m of ammonia and inhibitor water79 m of gasified mud

D. SAMPLE DETAILS:

Samples taken @ 111m, 55m, 0.5m above tool

E. REMARKS:

Close valve in remote head @ 12 min into Vo to tighten aleaking union in chiksansNote: Data reported on this form are field readings taken
at the time of test, and are subject to correction.Derry Lodder
ENGINEER

QUINN TESTERS LTD.

CALGARY, ALBERTA

TEST DATA

PHONE 290-1

CUSTOMER EXCO ENERGY LTD. DATE 85-02-06 TEST NO. ONE
 LOCATION EXCO ET AL CAMERON I-16 FORMATION SLAVE POINT
 TEST INTERVAL 1295 TO 1320 T.D. 1320 TEST TYPE DBH
 CUSTOMER REP. Mr. DERRY LODDER TESTER BOB GIBENNUS

INS Rec./No. <u>20296</u> 12 Hr. <u>23959</u> 1288.170 Metres	INS Rec./No. <u>19858</u> 24 Hr. <u>26890</u> 1289.999 Metres	OUT Rec./No. <u>14251</u> 12 Hr. <u>35163</u> 1297.287 Metres	OUT Rec./No. <u>15367</u> 24 Hr. <u>36542</u> 1298.811 Metres	Rec./No. _____ Hr. _____ Metre _____
---	---	---	---	--

PERCENTAGE OF POROSITY _____ METRES OF NET PAY _____ No. of Reports Required _____

D.P. Size, mm 102 Wght. kg/m 23.6 D.C.I.D. mm 60 D.C. Above Tool, m 151.81
 Main Hole, mm 215 Rat Hole, mm _____ Rat Hole Depth, m _____
 Mud Wght. kg/m³ 1125 Viscosity, s/L 42 Water Loss cm³ 8.4
 Bottom Choke, mm 12.7 Rubber Size, mm 200 Anchor Size, mm 120 & 158
 Amount and Type of Cushion 80 LITRES INHIBITOR AND WATER

Preflow <u>15</u> Mins.	1st Shut-In <u>60</u> Mins.	Field Readings	
1st Flow <u>60</u> Mins.	2nd Shut-In <u>120</u> Mins.	Recorder No. <u>14251</u>	FF <u>794</u> kPa
2nd Flow _____ Mins.	3rd Shut-In _____ Mins.	I H <u>14326</u> kPa	2nd SI <u>11165</u> kPa
Bottom Hole Temperature °C <u>49</u>		I P F <u>971</u> kPa	I F _____ kPa
K B <u>735.40</u> Gr. <u>731.40</u>		F P F <u>971</u> kPa	F F _____ kPa
Started in @ <u>0700</u>		1st SI <u>11165</u> kPa	3rd SI _____ kPa
Out of Hole @ <u>2000</u>		I F <u>883</u> kPa	F H <u>14239</u> kPa

C. RECOVERY Measured with FLOOR MANIFOLD WITH 6" CHOKE NIPPLE
 Gas Samples, # 3964 # 7106 To CHEMEX, HIGH LEVEL

Mins	kPa	Temp	Orifice	m ³ /day	Mins	kPa	Temp	Orifice	m ³ /day
	100	-15	19.1	9128					
5	100	-8	19.1	9128					
10	95	-5	19.1	8818					
15	140	-4	19.1	11335					
20	110	-3	19.1	9692					
25	105	-2	19.1	9430					
30	93	-2	19.1	8706					
35	90	-2	19.1	8537					
40	90	-2	19.1	8537					
45	90	-2	19.1	8537					
50	90	-2	19.1	8537					
55	90	-2	19.1	8537					
60	90	-2	19.1	8537					

TOTAL FLUID RECOVERY: 115 Metres Sampler # 1501 # 1546 TOTAL MUD LOSS 0 M
 Sampled @ 111m : 55m : 0.5m : _____ Above Tool
36 Metres of AMMONIA AND INHIBITOR WATER
79 Metres of GASIFIED DRILLING MUD
 _____ Metres of _____
 _____ Metres of _____

REMARKS: Misrun _____ : Ok X : Tool Opened @ 1055 Hrs.

NEXT PAGE.....

P.O. Sub	.305
D.P./Blank	.305
Recorder	
Shut-In	1.580
Sampler	1.000
Sampler	1.000
Hydraulic	1.665
Jars	1.760
Recorder	1.829
Recorder	1.524
Turnp Rec.	
By-Pass	
Safety Jt.	.600
Packer	2.000
Packer	1.370 1295.188
Packer	.270
Perfs	1.524
By-Pass	
Recorder	1.524
Recorder	1.524
X Over	.305
X/D.C.	18.790
X Over	.305
Packer	
Packer	
Packer	
Perfs	
Recorder	
X Over	
D.P./D.C.	
X Over	
Perfs	
Bullnose	.570 1320.000

Total Interval 24.812 m
 Total Tail Pipe 24.812 m
 Tool Makeup Time 1.50 Hr

EXCO ET AL CAMERON
I-16

DST #1

REMARKS:

PREFLOW: STRONG AIR BLOW WITH GAS TO SURFACE IN 9 MINUTES.

VALVE OPEN: GAS TO SURFACE IMMEDIATELY.

CLOSED VALVE IN REMOTE HEAD AT 12 MINUTES TO TIGHTEN A LEAKING
UNION IN CHIC-SANS, THEREFORE GAS READING AT 15 MINUTES MAY BE
FALSE.

RECORDER #15367 - CLOCK STOPPED AT 7 MINUTES INTO VALVE OPEN AND
STARTED AGAIN WHEN PACKERS PULLED LOOSE.

AVERAGE PERMEABILITY IS INDICATED WITHIN THE INTERVAL TESTED.

QUINN TESTERS LTD.

WELL NAME - EXCO ET AL CAMERON
 WELL LOCATION - I-16
 FORMATION TESTED - SLAVE POINT
 TYPE OF TEST - DUAL BOTTOM HOLE

DST NO. -
 REC NO. - 1425
 INTERVAL - 1295.0
 TO - 1320.0

CALCULATION RESULTS BASED ON GAS RECOVERY AND SECOND SHUT-IN EXTRAPOLATION.

CALCULATION RESULTS (METRIC UNITS)

FIRST SHUT-IN EXTRAPOLATION

EXTRAPOLATED RESERVOIR PRESSURE.....	11281.6 kPa-ABS.
EXTRAPOLATED RESERVOIR PRESSURE.....	11182.3 kPa-GAUGE
SLOPE OF EXTRAPOLATED LINE.....	9187831.0 kPa ² /CYCL
DEVIATION OF EXTRAPOLATED LINE.....	42542.4 kPa ²
NUMBER OF POINTS ENTERED.....	15
NUMBER OF POINTS USED IN EXTRAPOLATION.....	6

SECOND SHUT-IN EXTRAPOLATION

EXTRAPOLATED RESERVOIR PRESSURE.....	11316.1 kPa-ABS.
EXTRAPOLATED RESERVOIR PRESSURE.....	11216.8 kPa-GAUGE
SLOPE OF EXTRAPOLATED LINE.....	5280710.0 kPa ² /CYCLE
DEVIATION OF EXTRAPOLATED LINE.....	64185.7 kPa ²
NUMBER OF POINTS ENTERED.....	29
NUMBER OF POINTS USED IN EXTRAPOLATION.....	11
PRESSURE DIFFERENCE (SI#2 - SI#1).....	34.6 kPa-ABS.

NN TESTERS LTD.

ET AL CAMERON

I-16

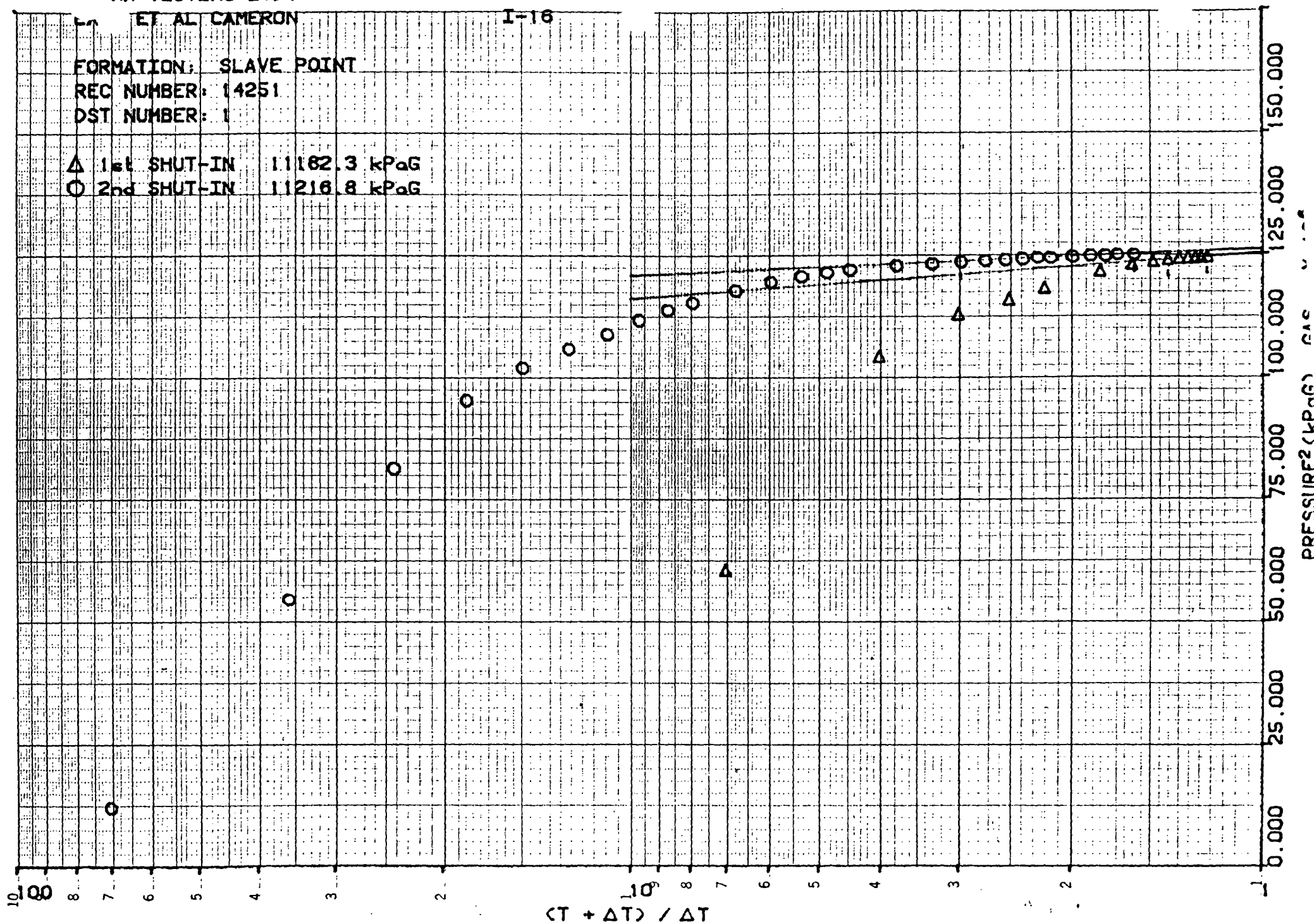
FORMATION: SLAVE POINT

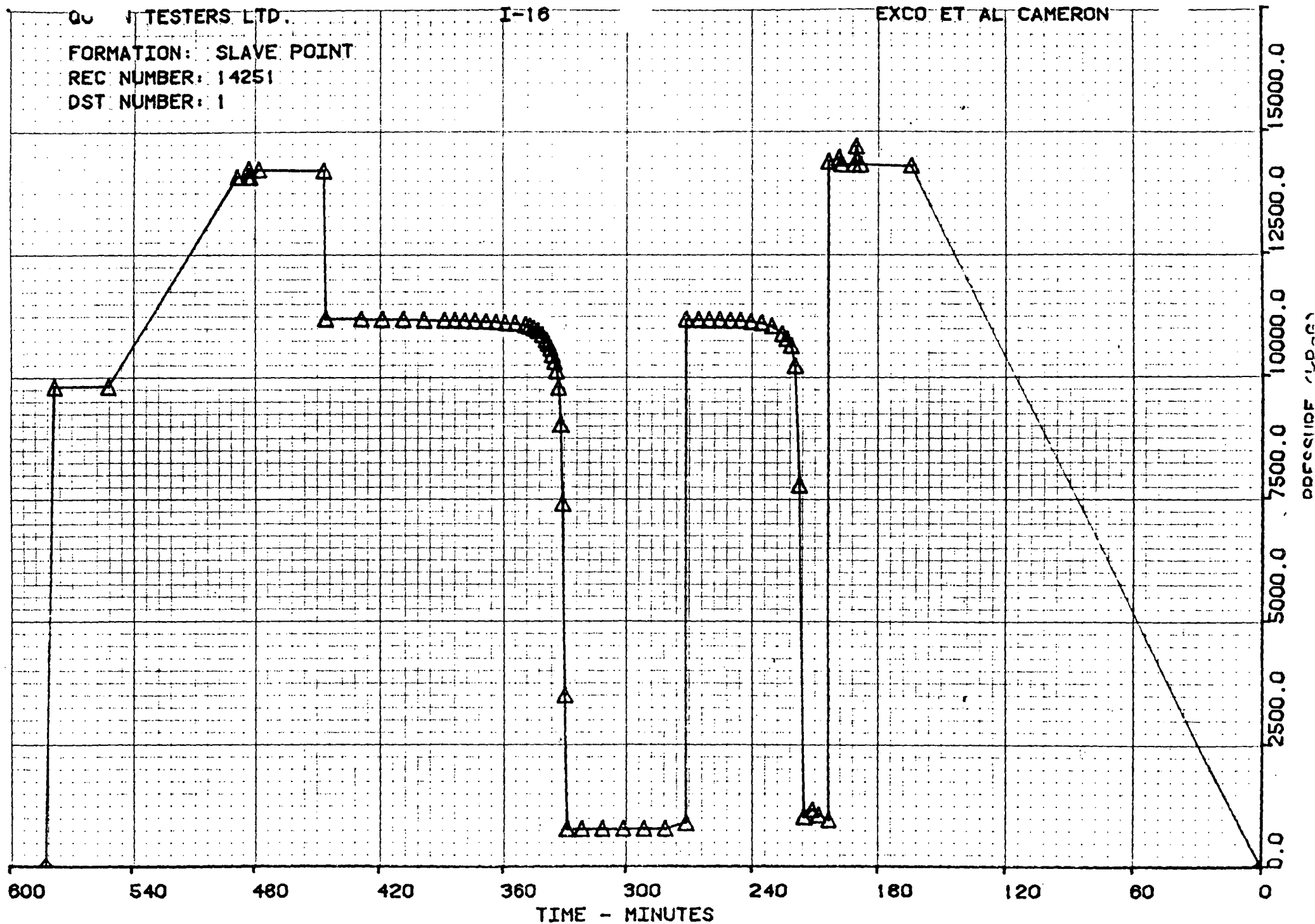
REC NUMBER: 14251

DST NUMBER: 1

△ 1st SHUT-IN 11182.3 kPaG

○ 2nd SHUT-IN 11216.8 kPaG





46 0700

IN 2 KEUFFEL & ESSER CO. MADE IN U.S.A.

QUINN TESTERS LTD.
W. NAME - EXCO ET AL CAMERON
WELL LOCATION - I-16
FORMATION TESTED - SLAVE POINT
TYPE OF TEST - DUAL BOTTOM HOLE

DST NO. -
REC NO. - 1425
INTERVAL - 1295.0
TO - 1320.0

PRESSURE LISTING

COMMENTS	TIME MIN.	PRESSURE PSIG	PRESSURE kPaG	T+DELTA T/ DELTA T
RUNNING IN HOLE	0.0	0.0	0.0	
	164.0	2068.9	14264.8	
	188.0	2072.8	14291.2	
	190.0	2125.0	14651.1	
INITIAL HYDROSTATIC PRESSURE	191.0	2071.5	14282.4	
	197.0	2072.8	14291.2	
	198.0	2090.6	14414.1	
	203.0	2080.4	14343.8	
FIRST FLOW - INITIAL PRESSURE	0.0	137.0	944.5	
	5.0	152.3	1050.4	
FINAL FLOW PRESSURE	8.0	167.7	1156.3	
FIRST SHUT-IN PERIOD	12.0	145.9	1006.2	
	0.0	145.9	1006.2	
	2.0	1126.5	7767.3	7.00
	4.0	1479.6	10201.7	4.00
	6.0	1539.3	10613.3	3.00
	8.0	1559.7	10753.4	2.50
	10.0	1574.9	10858.5	2.20
	15.0	1597.8	11016.1	1.80
	20.0	1606.7	11077.6	1.60
	25.0	1610.5	11103.9	1.48
	30.0	1613.0	11121.5	1.40
	35.0	1614.3	11130.2	1.34
	40.0	1615.6	11139.0	1.30
FIRST SHUT-IN PRESSURE	45.0	1615.6	11139.0	1.27
	50.0	1616.2	11143.4	1.24
	56.0	1616.9	11147.8	1.21
SECOND FLOW - INITIAL PRESSURE	0.0	128.0	882.7	
	10.0	111.4	767.9	
	20.0	111.4	767.9	
	30.0	111.4	767.9	
VAL FLOW PRESSURE	40.0	111.4	767.9	
	50.0	111.4	767.9	
SECOND SHUT-IN PERIOD	57.0	111.4	767.9	
	0.0	111.4	767.9	
	1.0	505.7	3486.5	70.00
	2.0	1070.7	7381.9	35.50

QUINN TESTERS LTD.

WELL NAME - EXCO ET AL CAMERON
WELL LOCATION - I-16
FORMATION TESTED - SLAVE POINT
TYPE OF TEST - DUAL BOTTOM HOLE

DST NO. -
REC NO. - 1421
INTERVAL - 1295.
TO - 1320.

PRESSURE LISTING

COMMENTS	TIME MIN.	PRESSURE PSIG	PRESSURE kPaG	T+DELTA T/ DELTA T
	3.0	1306.9	9010.8	24.00
	4.0	1414.9	9755.1	18.25
	5.0	1463.1	10087.9	14.80
	6.0	1491.1	10280.5	12.50
	7.0	1511.4	10420.7	10.86
	8.0	1531.7	10560.8	9.63
	9.0	1545.7	10657.1	8.67
	10.0	1555.8	10727.2	7.90
	12.0	1572.4	10841.0	6.75
	14.0	1583.8	10919.8	5.93
	16.0	1591.4	10972.4	5.31
	18.0	1596.5	11007.4	4.83
	20.0	1600.3	11033.7	4.45
	25.0	1605.4	11068.8	3.76
	30.0	1607.9	11086.3	3.30
	35.0	1610.5	11103.9	2.97
	40.0	1611.8	11112.7	2.72
	45.0	1613.0	11121.5	2.53
	50.0	1614.3	11130.2	2.38
	55.0	1615.6	11139.0	2.25
	60.0	1615.6	11139.0	2.15
	70.0	1616.9	11147.8	1.99
	80.0	1618.1	11156.6	1.86
	90.0	1618.1	11156.6	1.77
	100.0	1619.4	11165.4	1.69
SECOND SHUT-IN PRESSURE	117.0	1619.4	11165.4	1.59
PULLED LOOSE	0.0	1619.4	11165.4	
	1.0	2056.2	14177.0	
FINAL HYDROSTATIC PRESSURE	32.0	2060.0	14203.4	
	36.0	2037.1	14045.3	
	37.0	2061.3	14212.1	
	37.5	2037.1	14045.3	
	43.0	2037.1	14045.3	
	106.0	1418.7	9781.4	
	132.0	1418.7	9781.4	
CHART ENDS	137.0	0.0	0.0	

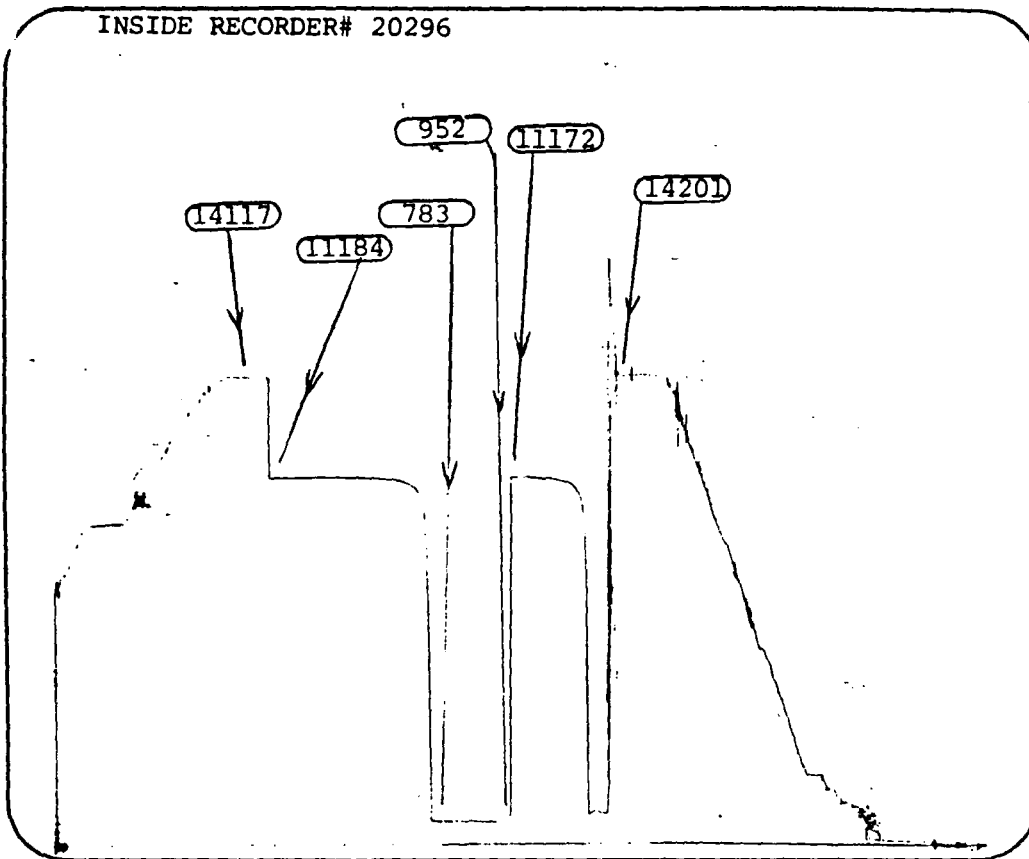
QUINN TESTERS LTD.

CALGARY, ALBERTA

TEST CHARTS

PHONE 290-1

INSIDE RECORDER# 20296

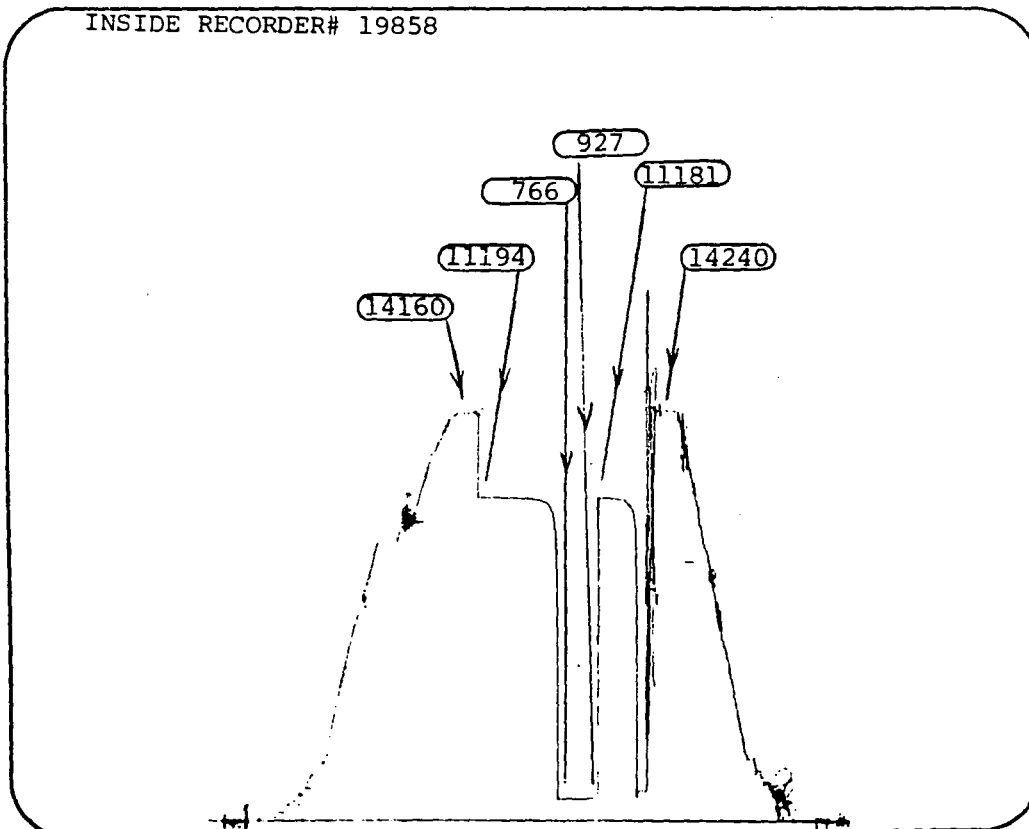


INITIAL HYDR.	14 201
IN. PREFLOW	976
F. PREFLOW	964
1st SHUT-IN	11 172
1st IN. FLOW	952
1st F. FLOW	783
2nd SHUT-IN	11 184
2nd IN. FLOW	
2nd F. FLOW	
3rd SHUT-IN	
3rd IN. FLOW	
3rd F. FLOW	
4th SHUT-IN	
FINAL HYDR.	14 117

EXCO ET AL CAMERON I-16

DST 1

INSIDE RECORDER# 19858



INITIAL HYDR.	14 240
IN. PREFLOW	1 041
F. PREFLOW	994
1st SHUT-IN	11 181
1st IN. FLOW	927
1st F. FLOW	766
2nd SHUT-IN	11 194
2nd IN. FLOW	
2nd F. FLOW	
3rd SHUT-IN	
3rd IN. FLOW	
3rd F. FLOW	
4th SHUT-IN	
FINAL HYDR.	14 160

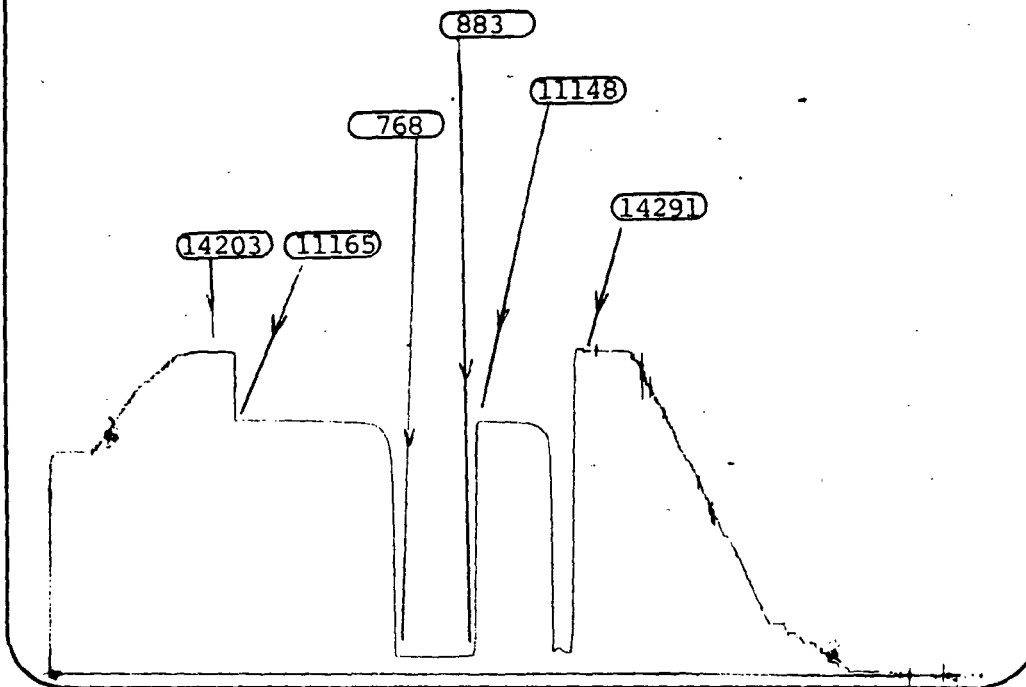
QUINN TESTERS LTD.

CALGARY, ALBERTA

TEST CHARTS

PHONE 290-1

OUTSIDE RECORDER# 14251



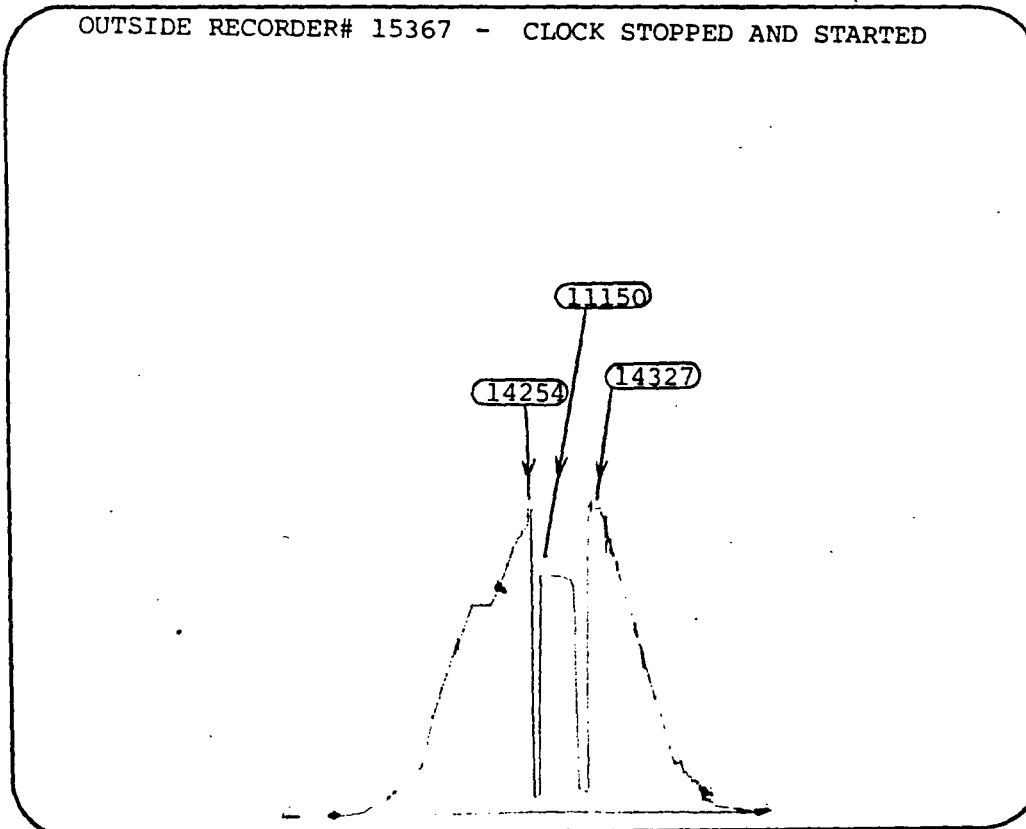
INITIAL HYDR.	14 291
IN. PREFLOW	945
F. PREFLOW	1 006
1st SHUT-IN	11 148
1st IN. FLOW	883
1st F. FLOW	768
2nd SHUT-IN	11 165
2nd IN. FLOW	
2nd F. FLOW	
3rd SHUT-IN	
3rd IN. FLOW	
3rd F. FLOW	
4th SHUT-IN	
FINAL HYDR.	14 203

EXCO ET AL CAMERON

I-16

DST 1

OUTSIDE RECORDER# 15367 - CLOCK STOPPED AND STARTED



INITIAL HYDR.	14 327
IN. PREFLOW	988
F. PREFLOW	1 061
1st SHUT-IN	11 150
1st IN. FLOW	860
1st F. FLOW	805
2nd SHUT-IN	
2nd IN. FLOW	
2nd F. FLOW	
3rd SHUT-IN	
3rd IN. FLOW	
3rd F. FLOW	
4th SHUT-IN	
FINAL HYDR.	14 254

FLUID RECOVERY AND DOWNHOLE SAMPLER

ANALYSIS

FOR DST #1

SLAVE POINT 1295m-1320m

EDMONTON, ALBERTA

GAS ANALYSIS

LABORATORY NUMBER

84-2393-1

CONTAINER IDENTITY

TOOL #1546

LICENCE NO.

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS METERS

735.40 731.4

FIELD OF AREA

POOL OR ZONE

NAME OF SAMPLER

COMPANY

CAMERON

SLAVE POINT

QUINN TESTER'S

TEST RECOVERY

36M OF AMMONIA AND INHIBITOR WATER 79M GASIFIED DRILLING MUD

TEST TYPE NO
DST 1

MULTIPLE RECOVERY

TEST INTERVAL FROM

1295 m

TO

1320 m

PERFORATIONS FROM

m

TO

m

SAMPLING POINT

DOWNHOLE SAMPLER

AMT & TYPE OF CUSHION

MUD RESISTIVITY

@25

TYPE OF PRODUCTION

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER m³/d

OIL m³/d

GAS 10-

GAUGE PRESSURE - KPa

SEPARATOR

794

TREATER

AS RECEIVED

790

SEPARATOR

49

TREATER

AS RECEIVED

23

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

Y M D H M

85-02-06

Y M D

85-02-12

Y M D

85-02-14

G.S.

COMP	MOL FRACTION AIR FREE AS REC'D	MOL FRACTION AIR FREE ACID GAS FREE	LIQUID VOLUME ml m ³ AIR FREE AS REC'D
H ₂	0.0001	0.0001	
He	0.0008	0.0008	
N ₂	0.0194	0.0197	
CO ₂	0.0140	0.0000	
H ₂ S	TRACE	0.0000	
C ₁	0.9361	0.9495	
C ₂	0.0148	0.0150	
C ₃	0.0068	0.0069	24.88
iC ₄	0.0010	0.0010	4.35
nC ₄	0.0020	0.0020	8.38
iC ₅	0.0008	0.0008	3.89
nC ₅	0.0008	0.0008	3.85
C ₆	0.0012	0.0012	6.45
C ₊	0.0022	0.0022	13.21
C ₇			
C ₁₀			
TOTAL	1.0000	1.0000	65.01

GROSS HEATING VALUE

MJ m³ @ 15 °C AND 101 325 KPa

(MOISTURE AND ACID GAS FREE)

MEASURED

CALCULATED

38.872

DEW POINT

VAPOUR PRESS PENTANES PLUS

49.55

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED

MEASURED

CALCULATED

0.606

MOISTURE AND ACID GAS FREE

MEASURED

CALCULATED

0.593

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED

ACID GAS FREE

dPc

4642.1

dTc

196.4

dPc

4603.3

dTc

194.9

REMARKS

TOOL HAD AN OPENING PRESSURE OF 900 KPA
TOOL CONTAINED 25,016 CC GAS
H2S ON TOOL = 5 PPM

CONTAINER IDENTITY
TOOL #1501EDMONTON, ALBERTA
WATER ANALYSISLABORATORY NUMBER
84-2393-2LICENCE NO.
1

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.CPANUMBER
1

WELL NAME

EXCO ETAL CAMERON I-16ELEVATIONS
METERS**735.40 731.4**

FIELD OR AREA

CAMERON

POOL OR ZONE

SLAVE POINT

NAME OF SAMPLER

COMPANY

QUINN TESTERS

TEST RECOVERY

36M OF AMMONIA AND INHIBITOR WATER, 79M GASIFIED DRILLING MUDTEST TYPE NO.
DST 1
MULTIPLE RECOVERY ☐

SAMPLING POINT

DOWNHOLE SAMPLER

AMT & TYPE OF CUSHION

MUD RESISTIVITY

@2

TYPE OF PRODUCTION -

PUMPING ☐FLOWING ☐GAS LIFT ☐SWAB ☐

PRODUCTION RATES

WATER

m³/d

OIL

m³/d

GAS

m³/d

GAUGE PRESSURE - KPa

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

Y M D H:M

Y M D

Y M D

D.D & M.V.

85-02-06**85-02-12****85-02-14**

ION	C g. m ⁻³	MASS FRACTION	C mol. m ⁻³
Na	2940		127.8
K	116		3.0
Ca	34		<1
Mg	17		<1
Ba			
Sr			
Fe	3.5		<1

ION	C g. m ⁻³	MASS FRACTION	C mol. m ⁻³
Cl	2200		62.0
Br			
I			
HCO ₃	2196		36.0
SO ₄	1500		15.6
CO ₃	240		4.0
OH	<1		<1
H ₂ S	PRESENT		

TOTAL SOLIDS C/g. m³

BY EVAPORATION

@ 110 °C

BY EVAPORATION,

@ 180 °C

ATIGNITION

8003

CALCULATED

8130

RELATIVE DENSITY

1.006 @ 21 °C

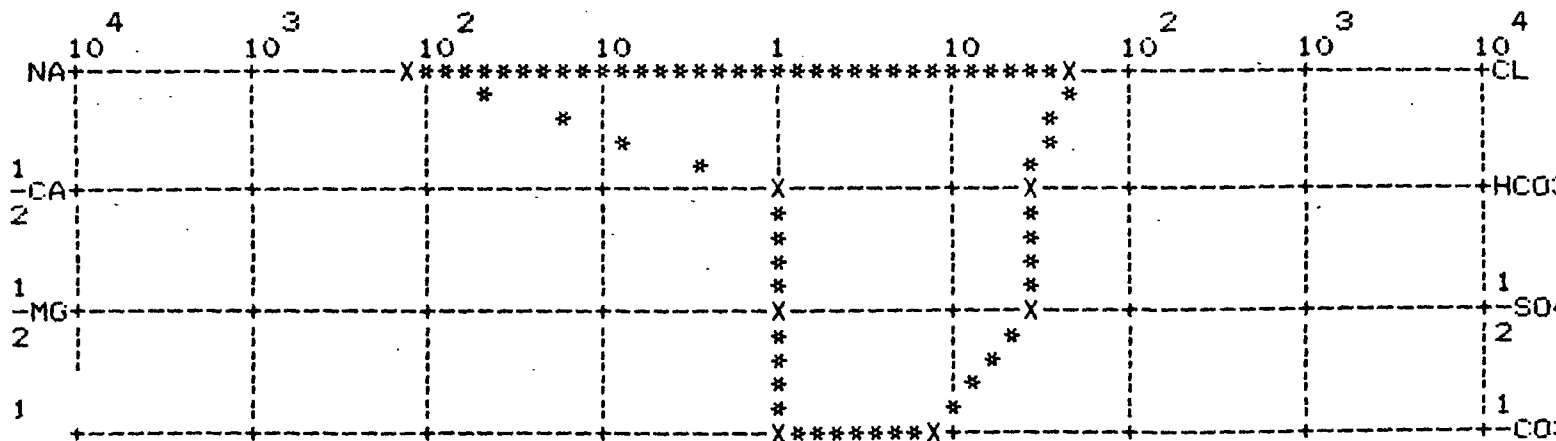
REFRACTIVE INDEX

1.335 @ 25 °C

OBSERVED PH

9.0 @ 21 °C

RESISTIVITY Ω m

.70 @ 25 °CLOGARITHMIC PATTERN C/mol. m⁻³

REMARKS

TOOL #1501 HAD AN OPENING PRESSURE OF 900 KPA
 TOOL CONTAINED 24.789 CC OF GAS
 50 CC OF MUDDY WATER

CONTAINER IDENTITY
PLASTIC

PRECEDENCE NO.
[]

CPA NUMBER
[]

FIELD OR AREA
CAMERON

EDMONTON, ALBERTA
WATER ANALYSIS

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

WELL NAME

EXCO ETAL CAMERON I-16

LABORATORY NUMBER
84-2393-3

ELEVATIONS METERS
735.40 731.4

POOL OR ZONE

SLAVE POINT

NAME OF SAMPLER

COMPANY

QUINN TESTERS

TEST RECOVERY

36M AMMONIA AND INHIBITOR WATER, 79M GASIFIED DRILLING MUD

SAMPLING POINT

56M ABOVE TOOL

AMT & TYPE OF CUSHION

MUD RESISTIVITY

@25

TEST TYPE

NO

DST

1

MULTIPLE RECOVERY

TEST INTERVAL

FROM

1295

m

TO

1320

m

PERFORATIONS

FROM

[]

m

TO

[]

m

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER

m³/d

OIL

m³/d

GAS

m³/d

GAUGE PRESSURE - KPa

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

85-02-06

85-02-12

85-02-13

D.D & M.V.

ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³
Na	2150		93.5
K	62		1.6
Ca	10		<1
Mg	4.1		<1
Ba			
Sr			
Fe	16		<1

ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³
Cl	600		16.9
Br			
I			
HCO ₃	2782		45.6
SO ₄	750		7.8
CO ₃	557		9.3
OH	<1		<1
H ₂ S	PRESENT		

TOTAL SOLIDS C/g m⁻³

BY EVAPORATION

@ 110 °C

BY EVAPORATION

@ 180 °C

AT IGNITION

5200

CALCULATED

5517

RELATIVE DENSITY

1.004 @ 21 °C

REFRACTIVE INDEX

1.334 @ 25 °C

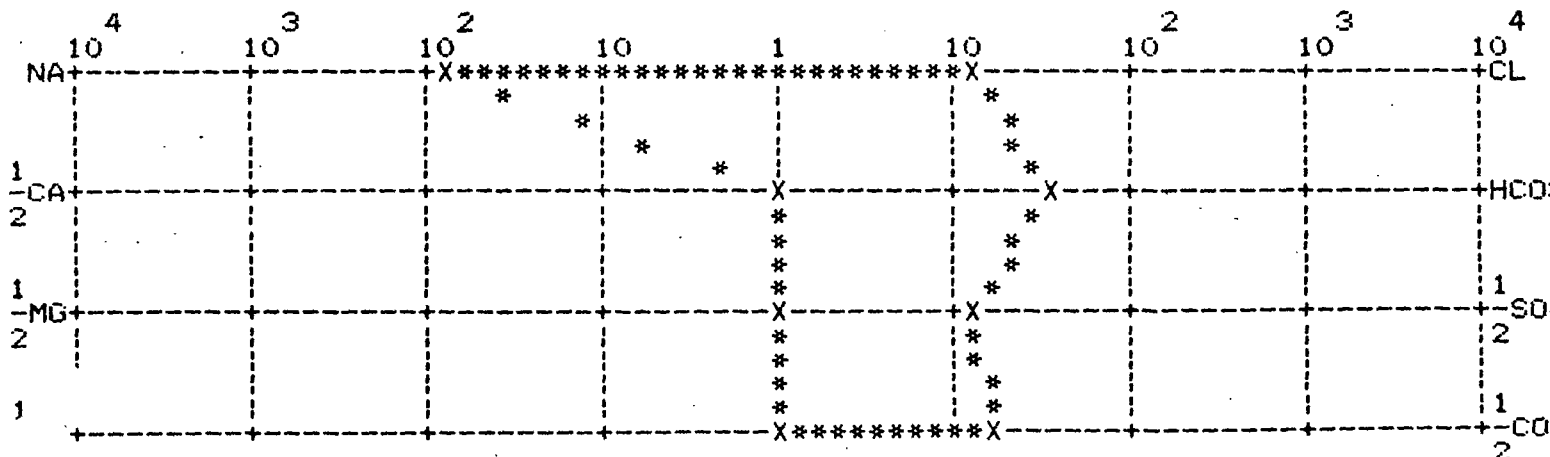
OBSERVED PH

9.3 @ 21 °C

RESISTIVITY Ω m

1.01 @ 25 °C

LOGARITHMIC PATTERN C/mol m⁻³



REMARKS

CONTAINER IDENTITY
PLASTIC

EDMONTON, ALBERTA
WATER ANALYSIS

LABORATORY NUMBER
84-2393-4

LICENCE NO

OPERATOR NAME AND ADDRESS

CPA NUMBER

EXCO ENERGY LTD.

FIELD OR AREA
CAMERON

POOL OR ZONE
SLAVE POINT

NAME OF SAMPLER

ELEVATIONS METERS
KB **735.40** 731
COMPANY
QUINN TESTER

TEST TYPE NO
DST 1

MULTIPLE RECOVERY ☐

TEST INTERVAL FROM
1295 m

TO
1320 m

PERFORATIONS FROM
 m

TO
 m

TEST RECOVERY
36M OF AMMONIA AND INHIBITOR WATER, 79M GASIFIED DRILLING MUD

SAMPLING POINT
111M ABOVE TOOL

AMT & TYPE OF CUSHION

MUD RESISTIVITY
@2

TYPE OF PRODUCTION
PUMPING ☐ FLOWING ☐ GAS LIFT ☐ SWAB ☐

PRODUCTION RATES
WATER m³/d OIL m³/d GAS m³/d

GAUGE PRESSURE - KPa
SEPARATOR TREATER AS RECEIVED

TEMPERATURES °C
SEPARATOR TREATER AS RECEIVED

DATE SAMPLED Y M D H:M **85-02-06** DATE RECEIVED Y M D **85-02-12** DATE REPORTED Y M D **85-02-12** ANALYST **D.D & M.V**

ION	C g m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Na	2130		92.6
K	92		2.4
Ca	78		1.9
Mg	8.1		<1
Ba			
Sr			
Fe	39		<1

ION	C g m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Cl	400		11.3
Br			
I			
HCO ₃	3728		61.1
SO ₄	750		7.8
CO ₃	614		10.2
OH	<1		<1
H ₂ S	PRESENT		

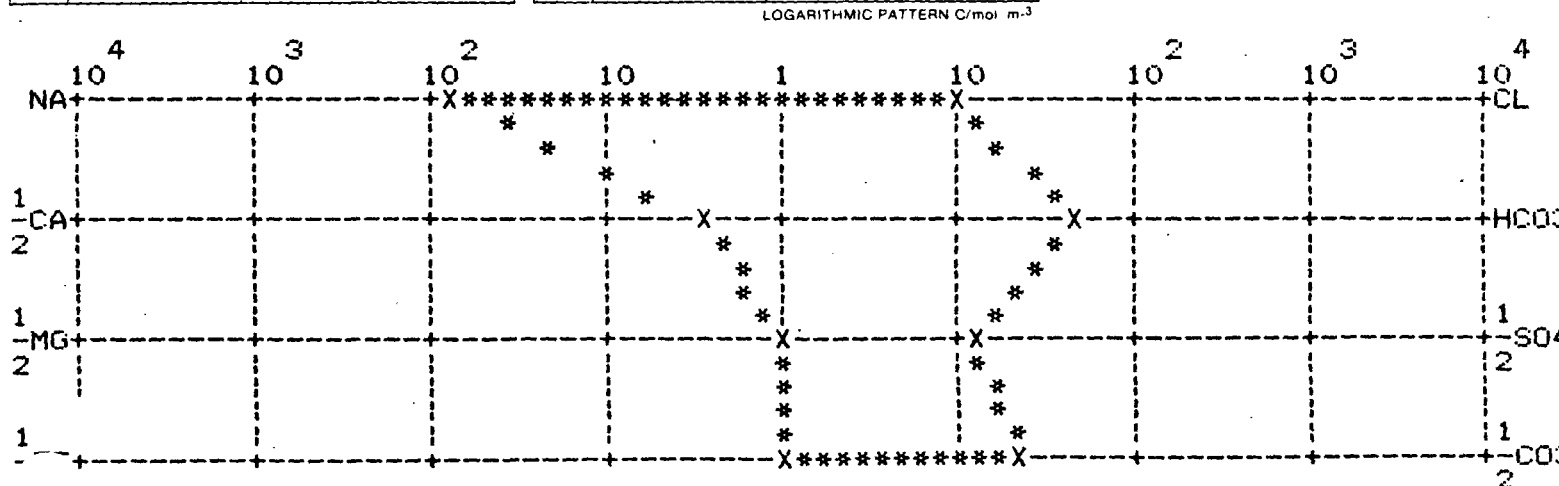
TOTAL SOLIDS C/g m.³

BY EVAPORATION @ 110 °C **5846** BY EVAPORATION @ 180 °C **5945**

AT IGNITION **5846** CALCULATED **5945**

RELATIVE DENSITY @ 21 °C **1.004** REFRACTIVE INDEX @ 25 °C **1.334**

OBSERVED PH **9.3 @ 21 °C** RESISTIVITY Ω m **.98 @ 25 °C**



REMARKS

CALGARY, ALBERTA

CHEMEX LABS (ALBERTA) LTD.

GRANDE PRAIRIE, ALB

EDMONTON, ALBERTA

WATER ANALYSIS

CONTAINER IDENTITY
PLASTIC

LABORATORY NUMBER
84-2393-5

LICENCE NO

EXCO ENERGY LTD.

OPERATOR NAME AND ADDRESS

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS METERS
KB **735.40** **731.**

FIELD OR AREA
CAMERON

POOL OR ZONE

SLAVE POINT

NAME OF SAMPLER

COMPANY

QUINN TESTOR

TEST RECOVERY

36M OF AMMONIA AND INHIBITOR WATER, 79M GASIFIED DRILLING MUD

TEST TYPE NO
DST 1

MULTIPLE RECOVERY ☐

TEST INTERVAL FROM
1295 m

TO
1320 m

PERFORATIONS FROM
 m

TO
 m

SAMPLING POINT **TOP OF TOOL** AMT & TYPE OF CUSHION MUD RESISTIVITY

TYPE OF PRODUCTION

PUMPING ☐

FLOWING ☐

GAS LIFT ☐

SWAB ☐

PRODUCTION RATES

WATER m³/d

OIL m³/d

GAS m³/d

GAUGE PRESSURE - KPa

TEMPERATURES °C

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

Y M D H:M

Y M D

Y M D

85-02-06

85-02-12

85-02-13

D.D & M.V.

ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³
Na	2180		94.8
K	68		1.7
Ca	18		<1
Mg	4.7		<1
Ba			
Sr			
Fe	49		<1

ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³
Cl	800		22.5
Br			
I			
HCO ₃	2411		39.5
SO ₄	750		7.8
CO ₃	412		6.9
GH	<1		<1
H ₂ S	PRESENT		

TOTAL SOLIDS C/g m⁻³

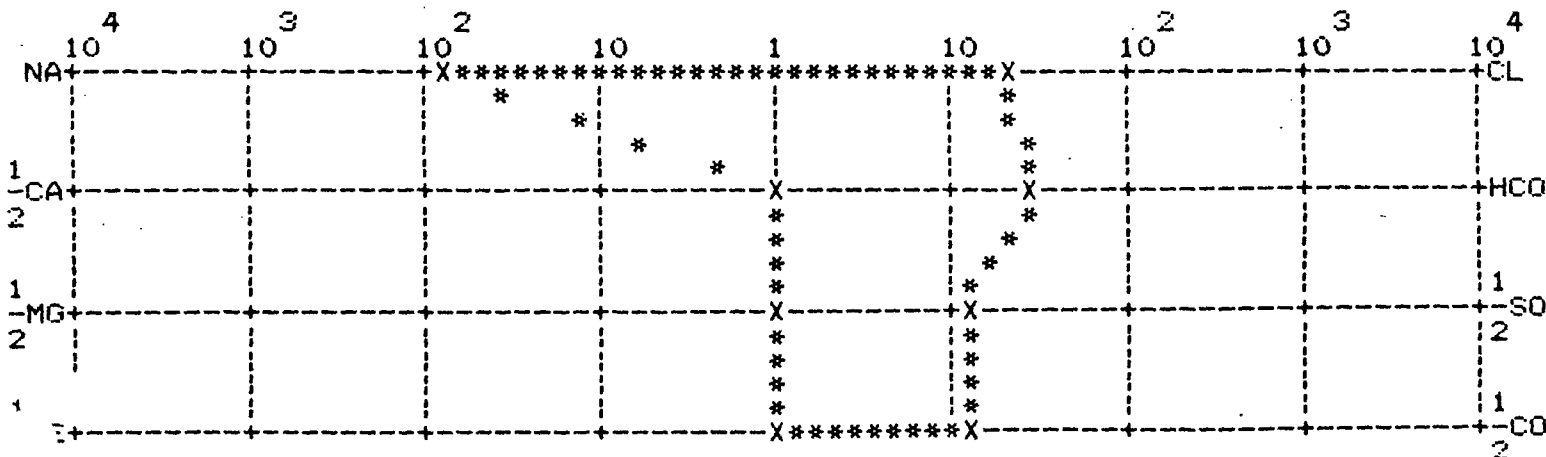
BY EVAPORATION @ 110 °C BY EVAPORATION @ 180 °C

ATIGNITION **5377** CALCULATED **5467**

RELATIVE DENSITY 1.004 @ 21 °C REFRACTIVE INDEX 1.334 @ 25 °C

OBSERVED PH 9.5 @ 21 °C RESISTIVITY Ω m 1.00 @ 25 °C

LOGARITHMIC PATTERN C/mol m⁻³



REMARKS

CONTAINER IDENTITY
PLASTIC

EDMONTON, ALBERTA
WATER ANALYSIS

LABORATORY NUMBER
84-2393-6

LICENCE NO.
[]

OPERATOR NAME AND ADDRESS
EXCO ENERGY LTD.

CPA NUMBER
[]

WELL NAME
EXCO ETAL CAMERON I-16

ELEVATIONS METERS
KB **735.40** 731.1

FIELD OR AREA
CAMERON

POOL OR ZONE
SLAVE POINT

NAME OF SAMPLER
[]

COMPANY
QUINN TESTERS

TEST TYPE NO
DST 1

MULTIPLE RECOVERY []

TEST INTERVAL FROM
1295 m

TO
1320 m

PERFORATIONS FROM
[] m

TO
[] m

TEST RECOVERY
36M OF AMMONIA AND INHIBITOR WATER, 79M GASIFIED DRILLING MUD

SAMPLING POINT
MUD TANK

AMT & TYPE OF CUSHION []

MUD RESISTIVITY [] @ 25°C

TYPE OF PRODUCTION

PUMPING [] FLOWING [] GAS LIFT [] SWAB []

PRODUCTION RATES

WATER [] m³/d OIL [] m³/d GAS [] m³/d

GAUGE PRESSURE - KPa

SEPARATOR [] TREATER [] AS RECEIVED []

DATE SAMPLED Y M D H:M **85-02-06**

DATE RECEIVED Y M D **85-02-12**

DATE REPORTED Y M D **85-02-13**

TEMPERATURES °C

SEPARATOR [] TREATER [] AS RECEIVED []

ANALYST **D.D. & M.V.**

ION	C g. m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Na	2120		92.2
K	67		1.7
Ca	9		<1
Mg	2.3		<1
Ba			
Sr			
Fe	49		<1

ION	C g. m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Cl	300		8.5
Br			
I			
HCO ₃	644		10.6
SO ₄	250		2.6
CO ₃	1747		29.1
OH	<1		<1
H ₂ S	ABSENT		

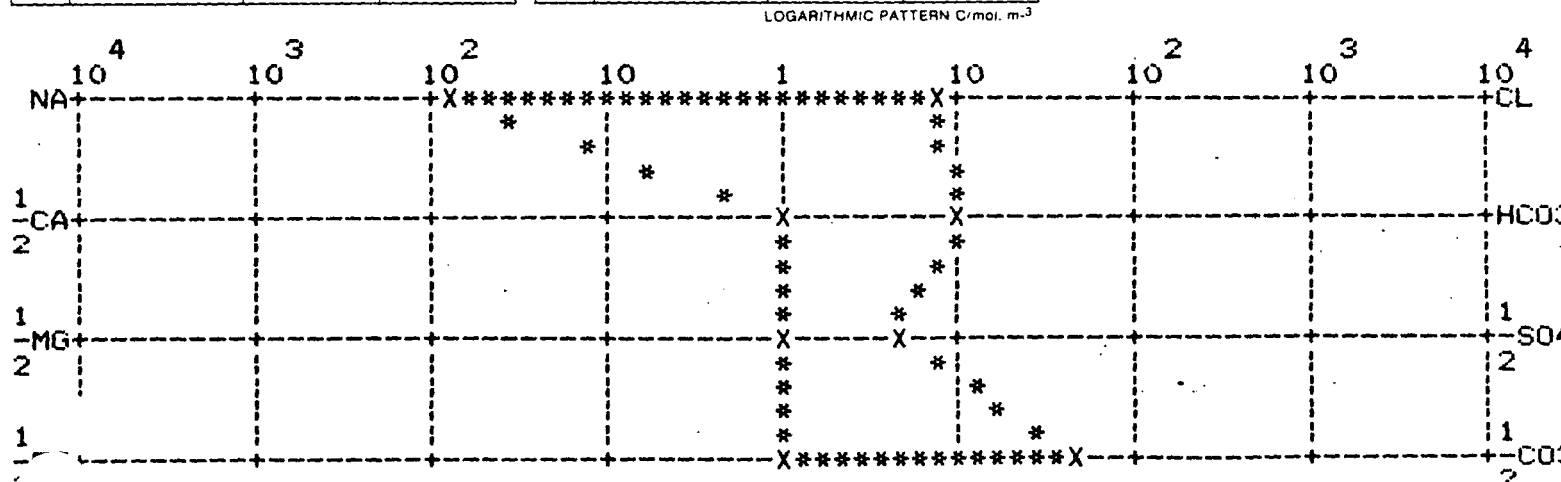
TOTAL SOLIDS C/g m.⁻³

BY EVAPORATION @ 110°C [] @ 180°C []

AT IGNITION **4911** CALCULATED **4861**

RELATIVE DENSITY **1.003 @ 21°C** REFRACTIVE INDEX **1.333 @ 25°C**

OBSERVED PH **11 @ 21°C** RESISTIVITY Ω m **1.10 @ 25°C**



REMARKS

A. WELL DATA

FIELD DRILL STEM TEST REPORT

DATE 85-02-12

Well: Exco et al Cameron

Location I-16

DST No. 2 Interval 1435m - 1454m Formation Keg River

Last Casing: Size 244.5mm Depth 377m Open Hole: Size 215.9mm Depth 1490m

Hole Troubles: none Caliper at Packer(s) 216mm

Mud: Wt. 1150Kg/m³ Vis 66 sec/l W.L. 7.5 % Oil 0 ppm Cl 825

B. TEST STRING DATA

Testing Company Lynes United Services Ltd Type of Test Straddle

Type and Number of Packers Infloated (2) Straddle Size 194mm

DP Size 101 mm Wt 23.6 kg/m Length 1260.84m

DC Size 158mm Wt 135 kg/m I.D. 62mm Length 161.12m

Tail Pipe Size Wt Length Perfs m

T.D. String 1459 Recorder Depth 1437m Water Cushion BH Choke 25.4mm

Packer Depth(s) 1454m 1435m Weight on Packer(s) 10 daN under string wt.

Other Equipment

C. TEST RESULTS

Times: PF 15 ISI 60 Flow SI Flow 60 FSI 120

Pressures: IPF 4271 KPa IH 16725 KPa ISI 10597 KPa IF 3585 KPa

TEMP 50 °C FH 16555 KPa FSI 10257 KPa FF 4614 KPa

Flow Descriptions:

Prewflow: SAB GTS in 2 min

650 KPa 44355 m³/d

Valve Open Flow: GTS immediately fluid started 18 min into VO fine mist then out

Recoveries: 50 m slightly gas cut salt water some inhibitor and condensate cut

D. SAMPLE DETAILS:

Fluid samples to Chemex; Btm hole samples to Chemex

E. REMARKS:

H2S readings while pulling DST before ammonia was 2000 ppm.

Note: Data reported on this form are field readings taken at the time of test, and are subject to correction.

ENGINEER Derry Lodder

EXCO ET AL CAMERON I-16
400/ 60.054 / 117.320 /00
DST#02
1435.00m to 1454.00m
KEG RIVER

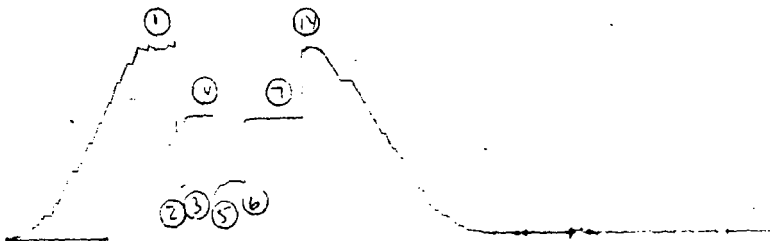
DEPTH: 1437.00m

RECORDER # 021669

PRESSURE
kPa

- 1) Initial Hydro : 16469.
- 2) 1st Flow Start: 4185.
- 3) 1st Flow End : 4511.
- 4) END 1st Shutin: 10563.
- 5) 2nd Flow Start: 3636.
- 6) 2nd Flow End : 4648.
- 7) END 2nd Shutin: 10257.
- 14) Final Hydro. : 16384.

TEST TIMES (MIN)
1st FLOW : 15.0
SHUTIN: 60.0
2nd FLOW : 60.0
SHUTIN: 120.0



RECOVERY DATA

GAS TO SURFACE AT A FINAL FLOW RATE OF 99 404.00 M3/D INCREASING TO AND STABILIZING AT 121 150.00 M3/D. TOTAL FLUID RECOVERY CONSISTED OF 50.00 M OF SLIGHTLY GAS CUT BLACKISH SALT WATER WITH SOME INHIBITOR AND CONDENSATE.

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 initial shut-in stabilized in 30 minutes at 10 563.00 kPa and the final shut-in stabilized in 100 minutes at 10 257.00 kPa, therefore no extrapolations were performed.

TABLE OF CONTENTS

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

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

Well name : EXCO ET AL CAMERON I-16
Location : 400/ 60.054 / 117.320 /00
In' val : 1435.00m to 1454.00m
Test Date : 85/02/12
Test Type : INFLATE STRADDLE
Formation : KEG RIVER

K.B.Elevation : 735.48m
Grd.Elevation : 731.40m
TD @ test Date: 1490.00m
Ticket Number : 69509
Unit Number : M-5

Started in hole at : 0530 hrs
Tool opened at : 1140 hrs
Reverse circulated?: NO
Contractor & Rig No: ARNCO #1
Lynes#1 : 1 of 1 on the same trip.

Operator: EXCO ENERGY LTD.
6TH FLR.
700 - 4TH AVE. S.W.
CALGARY ALBERTA
T2P3J4

Company Rep : LODDER D
Testers : MCLEOD G

5 REPORTS(S) TO: DRILLING DEPARTMENT
Company:

BLOW DESCRIPTION

Strong air blow with gas to surface in 2 minutes on preflow.
Gas to surface immediately on final flow. Small amounts of fluid to surface
18 minutes into flow.

TOTAL LIQUID RECOVERY : 50.00m

Sample Salinity :152000.0g/m3

For DST# 2 through DST# 2
6 Fluid Samples
Sent to: CHEMEX HIGH
LEVEL
Btm. Hole Sampler #: 191,104
Sent to: CHEMEX
LEVEL

50.00m SLIGHTLY GAS CUT BLACKISH SALT WATER WITH SOME INHIBITOR AND
CONDENSATE.

GAS MEASUREMENTS Device: FLOOR MANIFOLD

Bomb#: 6559,6988
Sent to: CHEMEX HIGH
LEVEL

Gas Measurements Continued on Next Page

EXCO ET AL CAMERON I-16
1435.00m To 1454.00m

FLOW #	TIME MIN	CHOKE mm	READING kPa	CUBIC METRES/D
1	10.	19.05	450.	32288.0
1	15.	19.05	650.	44355.0
2	1.	19.05	1550.	99404.0
2	5.	19.05	1750.	111807.0
2	10.	19.05	1800.	114917.0
2	15.	19.05	1800.	114917.0
2	20.	19.05	1800.	114917.0
2	25.	19.05	1800.	114917.0
2	30.	19.05	1900.	121150.0
2	35.	19.05	1900.	121150.0
2	40.	19.05	1900.	121150.0
2	45.	19.05	1900.	121150.0
2	50.	19.05	1900.	121150.0
2	55.	19.05	1900.	121150.0
2	60.	19.05	1900.	121150.0

TOOL SEQUENCE

RECORDER SUMMARY

SUB	LENGTH (m)
PUMP OUT SUB	.33
CROSS OVER SUB	.30
INSIDE RECORDER	1.38
HYDRAULIC TOOL	1.50
BTM HOLE SAMPLER	.10
BTM HOLE SAMPLER	1.03
HYDRAULIC JARS	2.22
INSIDE RECORDER	1.38
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	2.02
SPACING	5.48
CROSS OVER SUB	.30
DRILL COLLARS	9.28
CROSS OVER SUB	.30
PACKER STICK UP	.50
BTM INFLATE PACKER	1.90
BELLY SPRING	2.00

1) NUMBER : 012994	
TYPE : K-3	
LOCATION: OUTSIDE	
RANGE: 41400.00kPa	
DEPTH : 1437.00m	
2) NUMBER : 017838	ABOVE INTERVAL
TYPE : K-3	RECORDER.
LOCATION: INSIDE	
RANGE: 41400.00kPa	
DEPTH : 1430.00m	
3) NUMBER : 021352	ABOVE HYDRAULIC
TYPE : K-3	TOOL RECORDER.
LOCATION: INSIDE	
RANGE: 23000.00kPa	
DEPTH : 1421.00m	
4) NUMBER : 021669	
TYPE : K-3	
LOCATION: OUTSIDE	
RANGE: 40700.00kPa	
DEPTH : 1437.00m	
5) NUMBER : 021729	TEMPERATURE
TYPE : K-3T	RECORDER.
LOCATION: OUTSIDE	
RANGE : 8C to 105C	
DEPTH : 1437.00m	

***** TOOL TOTAL 37.01

DRILL COLLARS

ID= 62.0mm: 161.12
ID= :

DRILL PIPE

OD=112.0mm: 1260.84
OD= :

COLLAR-PIPE TOTAL 1421.96

STICK UP ABOVE TABLE : 2.00
TOOL ABOVE INTERVAL : 15.04
TOTAL INTERVAL : 19.00
BOTTOM CHOKE SIZE: 25.40 mm

MUD AND HOLE DATA

Calipered Hole Size @ Test Depth: 216.00mm	Water Loss : 7.5cc/s
Hole Condition at Test Time : FAIR	Filter Cake: 5.0 mm
Hole Conditioned Prior to Test? : NO	
Mud Weight : 1150.0 kg/m3	Main Hole Size: 216.00mm
Mud Type : GEL CHEMICAL	
Viscosity : 66.0s/l	Temperature @1437.00m = 57.0C

Location: 400/ 60.054 / 117.320 /00
Test Type: INFLATE STRADDLE
Location: KEG RIVER

Recorder Number: 021669
Recorder Depth: 1437.00 m
Subsea Depth: -701.52 m

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P kPa	PRESSURE (T+dt)/dt kPa	ABSCISSA	PRESSURE SQUARED kPa ² /10 ⁶
1	INITIAL HYDROSTATIC			16469		
2	START OF 1st FLOW	0.0		4185		
	1st SHUTIN PERIOD	0.0		4511		
		2.0	5814	10325	8.5000	106.6056
		4.0	5899	10410	4.7500	108.3681
		6.0	5950	10461	3.5000	109.4325
		8.0	5984	10495	2.8750	110.1450
		10.0	6001	10512	2.5000	110.5022
		12.0	6018	10529	2.2500	110.8598
		14.0	6018	10529	2.0714	110.8598
		16.0	6035	10546	1.9375	111.2181
		18.0	6035	10546	1.8333	111.2181
		20.0	6035	10546	1.7500	111.2181
		25.0	6035	10546	1.6000	111.2181
		30.0	6052	10563	1.5000	111.5770
		35.0	6052	10563	1.4286	111.5770
		40.0	6052	10563	1.3750	111.5770
		45.0	6052	10563	1.3333	111.5770
		50.0	6052	10563	1.3000	111.5770
		55.0	6052	10563	1.2727	111.5770
		60.0	6052	10563	1.2500	111.5770
4	END OF 1st SHUTIN			3636		
5	START OF 2nd FLOW	0.0		4648		
	2nd SHUTIN PERIOD	0.0				
		2.0	5370	10018	38.5000	100.3603
		4.0	5438	10086	19.7500	101.7274
		6.0	5472	10120	13.5000	102.4144
		8.0	5506	10154	10.3750	103.1037
		10.0	5523	10171	8.5000	103.4493
		12.0	5541	10189	7.2500	103.8157
		14.0	5541	10189	6.3571	103.8157

* VALUES USED FOR EXTRAPOLATIONS

Location: 400/ 60.054 / 117.320 /00
Test Type: INFLATE STRADDLE
Location: KEG RIVER

Recorder Number: 021669
Recorder Depth: 1437.00 m
Subsea Depth: -701.52 m

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P kPa	PRESSURE (T+dt)/dt kPa	PRESSURE SQUARED
				ABSCISSA	$\text{kPa} \cdot 10^{-6}$
		16.0	5541	10189	5.6875
		18.0	5558	10206	5.1667
		20.0	5558	10206	4.7500
		25.0	5558	10206	4.0000
		30.0	5558	10206	3.5000
		35.0	5558	10206	3.1429
		40.0	5575	10223	2.8750
		45.0	5575	10223	2.6667
		50.0	5575	10223	2.5000
		55.0	5575	10223	2.3636
		60.0	5592	10240	2.2500
		65.0	5592	10240	2.1538
		70.0	5592	10240	2.0714
		75.0	5592	10240	2.0000
		80.0	5592	10240	1.9375
		85.0	5592	10240	1.8824
		90.0	5592	10240	1.8333
		95.0	5592	10240	1.7895
		100.0	5609	10257	1.7500
		105.0	5609	10257	1.7143
		110.0	5609	10257	1.6818
		115.0	5609	10257	1.6522
		120.0	5609	10257	1.6250
7	END OF 2nd SHUTIN				
14	FINAL HYDROSTATIC				

16384

* VALUES USED FOR EXTRAPOLATIONS

DS1702
EXCO ET AL CAMERON I-16
1435.00 m to 1454.00 m

P. 50

Location: 400/ 60.054 / 117.320 /00
Test Type: INFLATE STRADDLE
Portion: KEG RIVER

Recorder Number: 021669
Recorder Depth: 1437.00 m
Subsea Depth: -701.52 m

1st SHUT-IN
HORNER EXTRAPOLATION
HORNER SLOPE

.00 kPa
.00000 (kPa**2/10**6)/CYCLE

2nd SHUT-IN
HORNER EXTRAPOLATION
HORNER SLOPE

.00 kPa
.00000 (kPa**2/10**6)/CYCLE

WELL NAME: EXCO ET AL CAMERON I-16

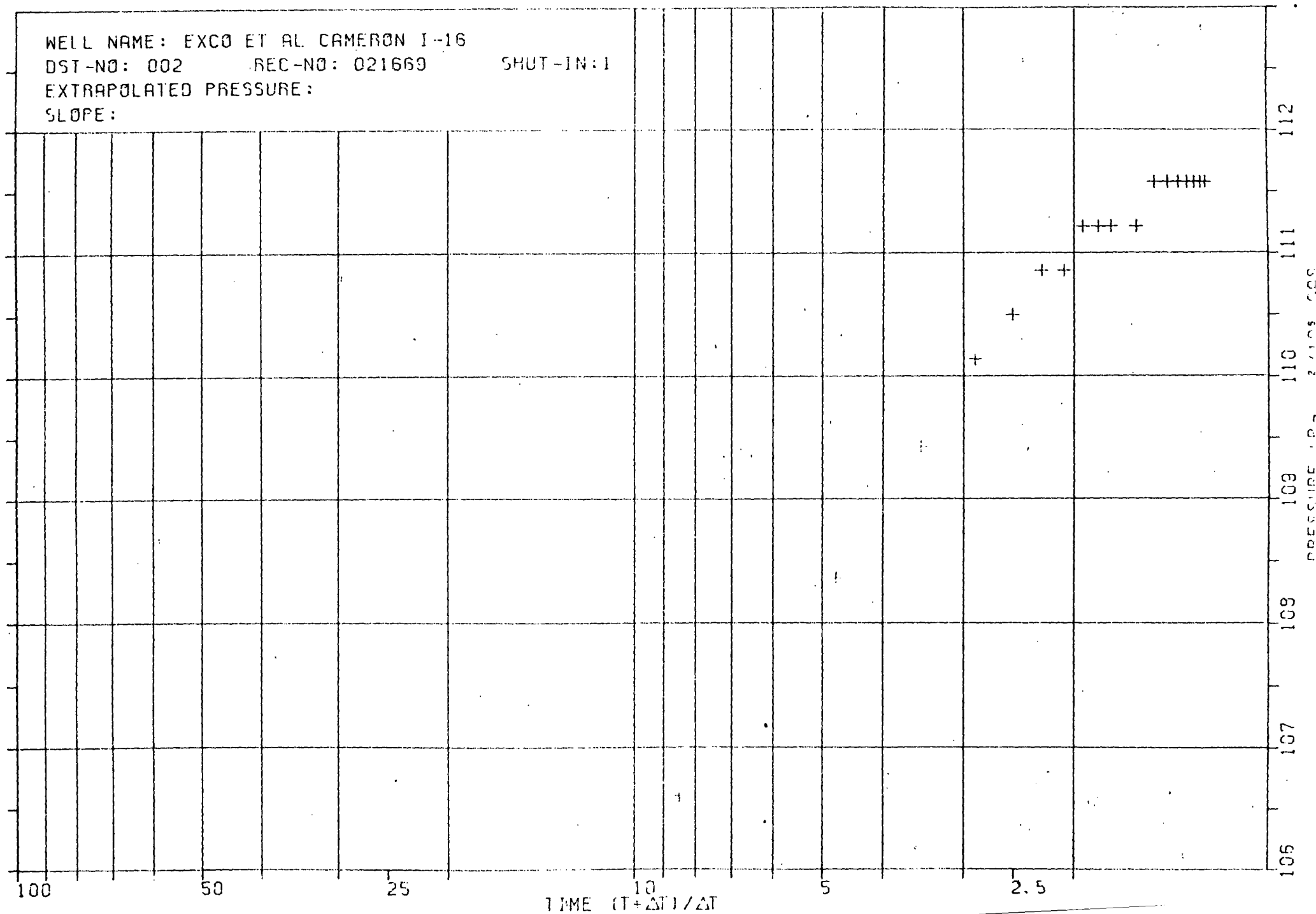
DST-NO: 002

REC-NO: 021669

SHUT-IN: 1

EXTRAPOLATED PRESSURE:

SLOPE:



WELL NAME: EXCO ET AL CAMERON I-16

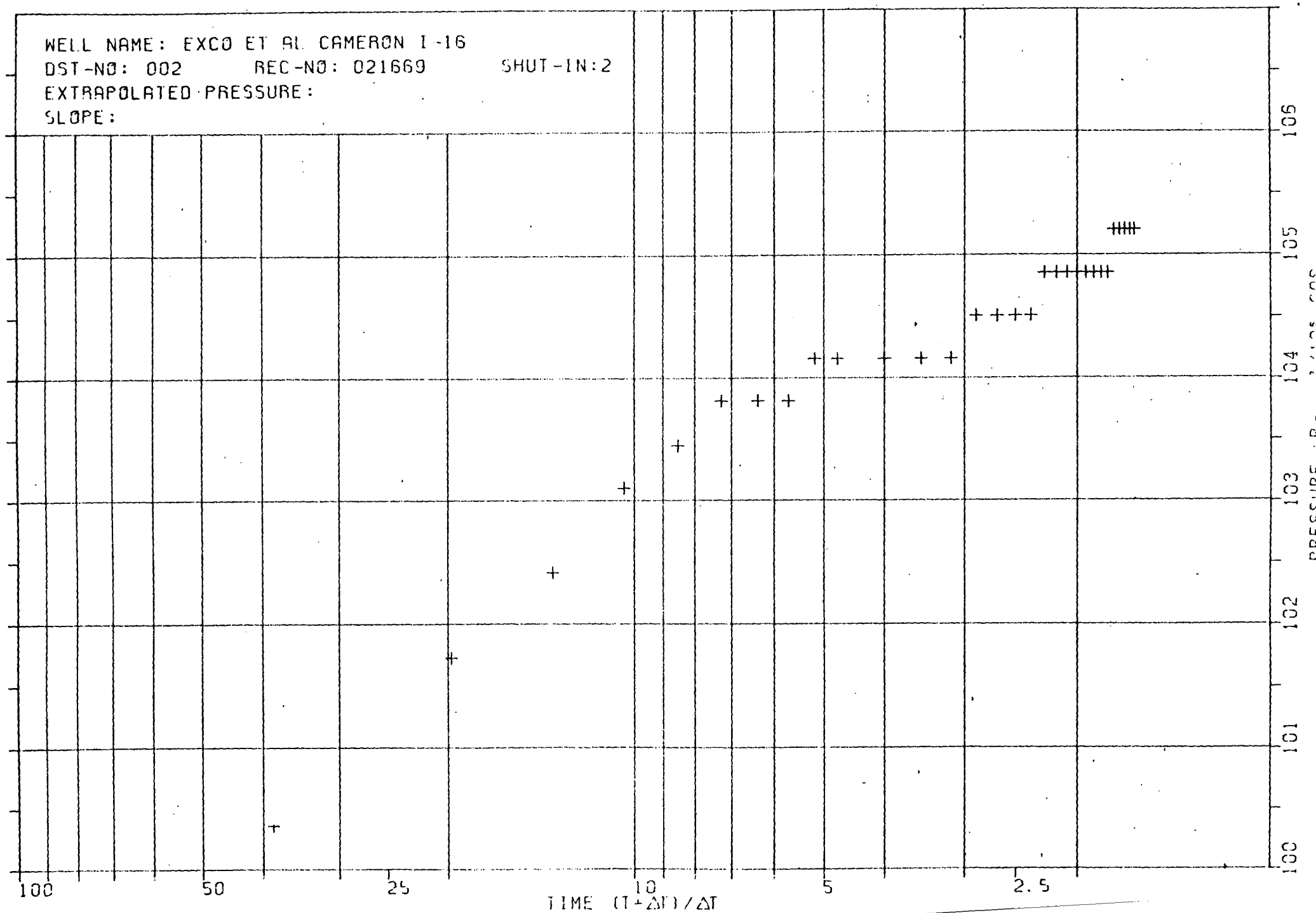
DST-NO: 002

REC-NO: 021669

SHUT-IN: 2

EXTRAPOLATED PRESSURE:

SLOPE:



EX. ET AL CAMERON I-16
60.054 / 117.320

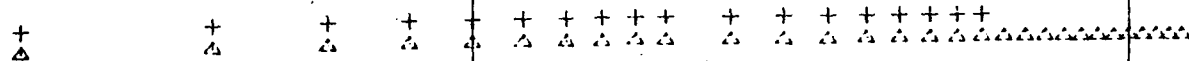
RL 021669
DST#002

SHUTIN * 1 +
2 Δ

10000

1000

DELTA kPa.



10

DELTA MINUTES

100

DST#02
EXCO ET AL CAMERON I-16
1435.00m to 1454.00m

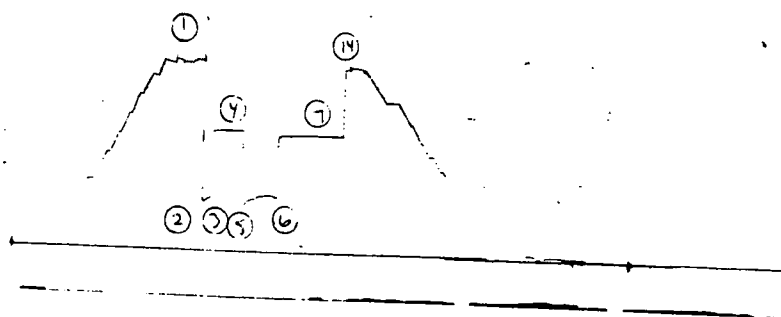
PRESSURE RECORDER NUMBER : 012994

PTH : 1437.00m
TYPE : K-3

LOCATION : OUTSIDE
CAPACITY : 41400.00 kPa

PRESSURE
kPa

- 1) Initial Hydro : 16578.
- 2) 1st Flow Start: 4249.
- 3) 1st Flow End : 4574.
- 4) END 1st Shutin: 10601.
- 5) 2nd Flow Start: 3720.
- 6) 2nd Flow End : 4659.
- 7) END 2nd Shutin: 10359.
- 14) Final Hydro. : 16460.



TEST TIMES (MIN)
1st FLOW : 15.0
SHUTIN: 60.0
2nd FLOW : 60.0
SHUTIN: 120.0

RESSURE RECORDER NUMBER : 017838

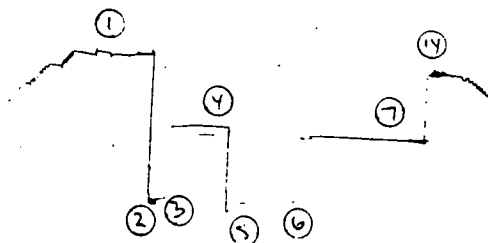
DEPTH : 1430.00m
TYPE : K-3

LOCATION : INSIDE
CAPACITY : 41400.00 kPa

PRESSURE
kPa

- 1) Initial Hydro : 16300.
- 2) 1st Flow Start: 3380.
- 3) 1st Flow End : 3916.
- 4) END 1st Shutin: 10524.
- 5) 2nd Flow Start: 2993.
- 6) 2nd Flow End : 4217.
- 7) END 2nd Shutin: 10206.
- 14) Final Hydro. : 16049.

Above Interval



ABOVE INTERVAL
RECORDER.

PRESSURE RECORDER NUMBER : 021352

PTH : 1421.00m
TYPE : K-3

LOCATION : INSIDE
CAPACITY : 23000.00 kPa

PRESSURE
kPa

- 1) Initial Hydro :
- 2) 1st Flow Start: 66.
- 3) 1st Flow End : 3381.
- 4) END 1st Shutin:
- 5) 2nd Flow Start: 551.
- 6) 2nd Flow End : 3733.
- 7) END 2nd Shutin: 513.
- 14) Final Hydro. :

Above Hydraulic Tool

ABOVE HYDRAULIC
TOOL RECORDER.

TEST TIMES (MIN)

- | | |
|------------|-------|
| 1st FLOW : | 15.0 |
| SHUTIN: | 60.0 |
| 2nd FLOW : | 60.0 |
| SHUTIN: | 120.0 |

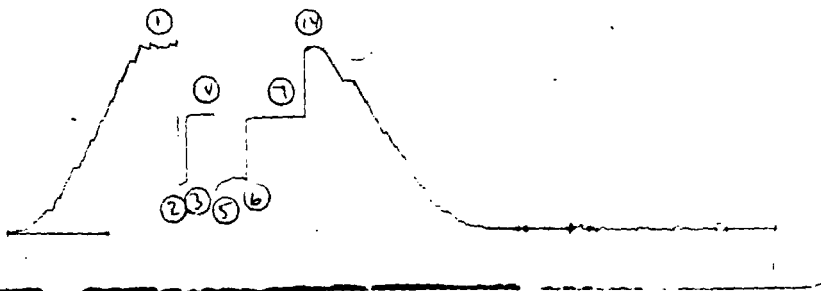
PRESSURE RECORDER NUMBER : 021669

DEPTH : 1437.00m
TYPE : K-3

LOCATION : OUTSIDE
CAPACITY : 40700.00 kPa

PRESSURE
kPa

- 1) Initial Hydro : 16469.
- 2) 1st Flow Start: 4185.
- 3) 1st Flow End : 4511.
- 4) END 1st Shutin: 10563.
- 5) 2nd Flow Start: 3636.
- 6) 2nd Flow End : 4648.
- 7) END 2nd Shutin: 10257.
- 14) Final Hydro. : 16384.



DST#02
EXCO ET AL CAMERON I-16
1435.00m to 1454.00m

TEMPERATURE RECORDER NUMBER : 021729

DEPTH : 1437.00m
TYPE : K-3T

LOCATION : OUTSIDE
RANGE : 105.00C

TEMPERATURE
RECORDER.

***** TEMPERATURE AT RECORDER DEPTH = 57.0 C

Temperature

②
1

FLUID RECOVERY, DOWNHOLE SAMPLER AND GAS ANALYSIS

FOR

DST # 2

KEG RIVER 1435m- 1454m

CALGARY, ALBERTA


CHEMEX LABS (ALBERTA) LTD.

GRANDE PRAIRIE, ALBERTA

CONTAINER IDENTITY

TOOL #191

EDMONTON, ALBERTA

WATER ANALYSIS

LABORATORY NUMBER

84-2434-1

LICENCE NO.

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS METERS

735.48 731.4

FIELD OR AREA

POOL OR ZONE

NAME OF SAMPLER

COMPANY

CAMERON

KEG RIVER

LYNES UNITED

TEST RECOVERY

50 M. BLACKISH SALT WATER SOME INHIBITOR AND CONDENSATE

TEST TYPE NO.

QST 2

MULTIPLE RECOVERY

SAMPLING POINT

DOWNHOLE SAMPLER

AMT & TYPE OF CUSHION

MUD RESISTIVITY

@25°

TEST INTERVAL

FROM

1435 m

TO

1454 m

PERFORATIONS

FROM

m

TO

m

TYPE OF PRODUCTION

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER m³/dOIL m³/dGAS 10³ m³/d

GAUGE PRESSURE - KPa

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

Y M D H M

Y M D

Y M D

85-02-12

85-02-18

85-02-25

D.D. & M.V.

ION	C g m ⁻³	MASS FRACTION	C mol. m ⁻³
Na	2050		89.1
K	10		<1
Ca	328		8.2
Mg	21		<1
Ba			
Sr			
Fe	.3		<1

ION	C g m ⁻³	MASS FRACTION	C mol. m ⁻³
Cl	1000		28.2
Br			
I			
HCO ₃	224		3.7
SO ₄	3500		36.5
CO ₃	<1		<1
OH	<1		<1
H ₂ S	ABSENT		

TOTAL SOLIDS C/g. m⁻³

BY EVAPORATION

@ 110 °C

BY EVAPORATION

@ 180 °C

AT IGNITION

7612

CALCULATED

7019

RELATIVE DENSITY

1.005 @ 21 °C

REFRACTIVE INDEX

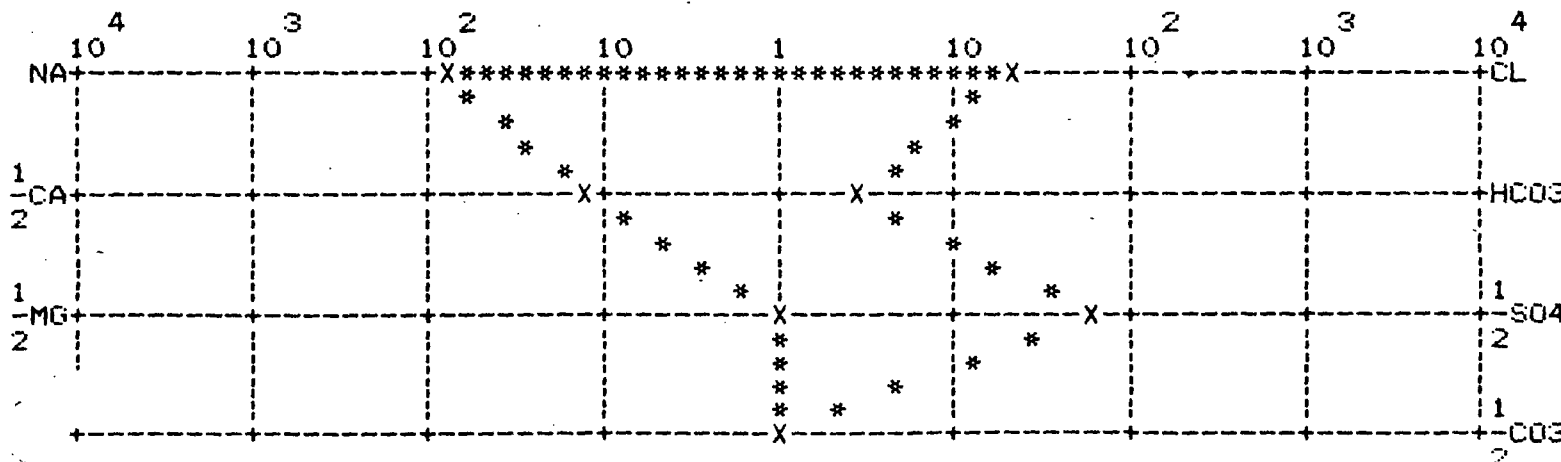
1.334 @ 25 °C

OBSERVED PH

7.8 @ 21 °C

RESISTIVITY Ωm

1.1 @ 25 °C

LOGARITHMIC PATTERN C/mol. m⁻³

REMARKS

TOOL HAD AN OPENING PRESSURE OF 0 KPA.
TOOL CONTAINED 100 ML. OF WATER

CALGARY, ALBERTA

CHEMEX LABS (ALBERTA) LTD.

GRANDE PRAIRIE, ALB

CONTAINER IDENTITY
PLASTIC

EDMONTON, ALBERTA
WATER ANALYSIS

LABORATORY NUMBER
84-2434-2

AGENCY NO.
EXCO ENERGY LTD.

OPERATOR NAME AND ADDRESS

CPA NUMBER

WELL NAME
EXCO ETAL CAMERON I-16

ELEVATIONS METERS
KB **735.48** **731.4**

FIELD OR AREA
CAMERON

POOL OR ZONE
KEG RIVER

NAME OF SAMPLER

COMPANY
LYNES UNITED

TEST TYPE NO.
DST 2

MULTIPLE RECOVERY ☐

TEST INTERVAL FROM
1435 m

TO
1454 m

PERFORATIONS FROM
m

TO
m

TEST RECOVERY
50M. SLIGHTLY GAS CUT BLACKISH SALT WATER SOME INHIB. & CONDEN.

SAMPLING POINT
BOTTOM OF FLUID

AMT & TYPE OF CUSHION

MUD RESISTIVITY @ 25

TYPE OF PRODUCTION
PUMPING ☐ FLOWING ☐ GAS LIFT ☐ SWAB ☐

PRODUCTION RATES
WATER m³/d OIL m³/d GAS 10

GAUGE PRESSURE - KPa
SEPARATOR TREATER AS RECEIVED

TEMPERATURES °C
SEPARATOR TREATER AS RECEIVED

DATE SAMPLED DATE RECEIVED DATE REPORTED ANALYST
Y M D H:M Y M D Y M D **D.D. & M.V.**

ION	C g m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Na	38000		1652.2
K	820		21.0
Ca	13700		342.5
Mg	4100		170.8
Ba			
Sr			
Fe	47		<1

ION	C g m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Cl	100000		2816.9
Br			
I			
HCO ₃	205		3.4
SO ₄	1438		15.0
CO ₃	<1		<1
OH	<1		<1
H ₂ S	ABSENT		

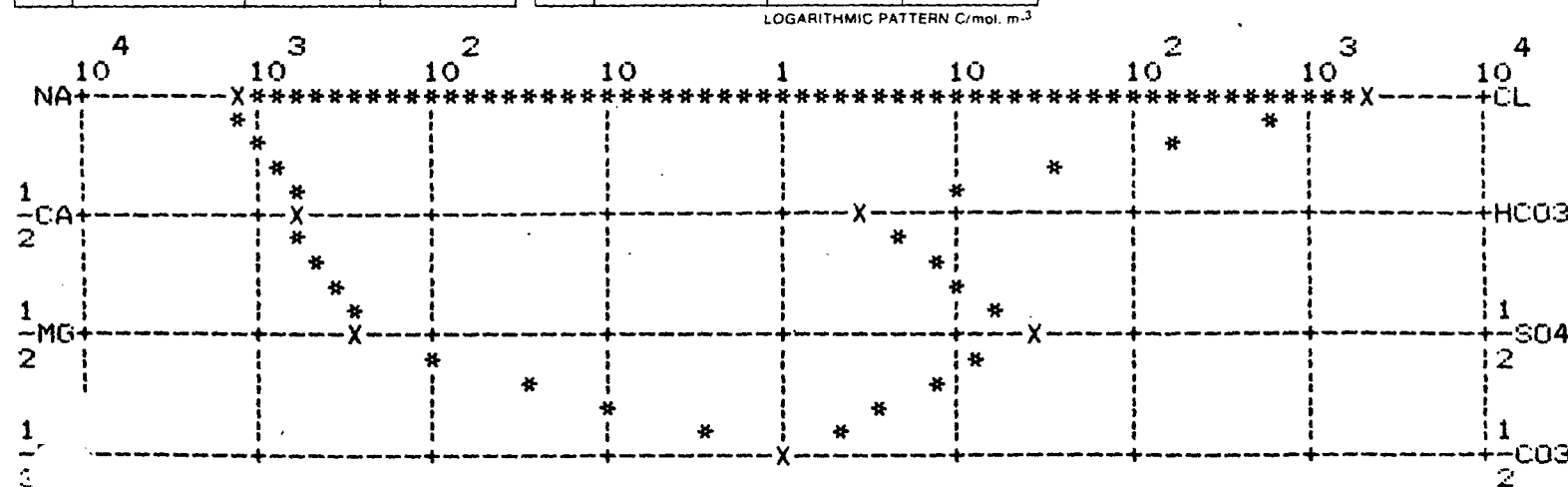
TOTAL SOLIDS C/g m.⁻³

BY EVAPORATION @ 110 °C BY EVAPORATION @ 180 °C

AT IGNITION **155116** CALCULATED **158206**

RELATIVE DENSITY **1.129 @ 21 °C** REFRACTIVE INDEX **1.361 @ 25 °C**

OBSERVED PH **6.1 @ 21 °C** RESISTIVITY Ω m **.052 @ 25 °C**



REMARKS

EDMONTON, ALBERTA

WATER ANALYSIS

CONTAINER IDENTITY
PLASTIC

LABORATORY NUMBER
84-2434-3

LICENCE NO.

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS METERS
KB **735.48** **731.4**

FIELD OR AREA
CAMERON

POOL OR ZONE

KEG RIVER

NAME OF SAMPLER

COMPANY

LYNES UNITED

TEST RECOVERY

50M. SLIGHTLY GAS CUT BLACKISH SALT H2O SOME INHIB. & CONDEN.

TEST TYPE NO
DST 2

MULTIPLE RECOVERY ☐

TEST INTERVAL FROM
1435 m

TO
1454 m

PERFORATIONS FROM
 m

TO
 m

SAMPLING POINT **MIDDLE OF FLUID** AMT & TYPE OF CUSHION MUD RESISTIVITY **@2**

TYPE OF PRODUCTION -
PUMPING ☐ FLOWING ☐ GAS LIFT ☐ SWAB ☐

PRODUCTION RATES
WATER m³/d OIL m³/d GAS m³/d

GAUGE PRESSURE - KPa
SEPARATOR TREATER AS RECEIVED

TEMPERATURES °C
SEPARATOR TREATER AS RECEIVED

DATE SAMPLED DATE RECEIVED DATE REPORTED ANALYST
Y M D H.M Y M D Y M D **D.D. & M.V.**

ION	C g. m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Na	37600		1634.8
K	760		19.5
Ca	13600		340.0
Mg	3900		162.5
Ba			
Sr			
Fe	53		<1

ION	C g. m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Cl	99000		2788.7
Br			
I			
HCO ₃	200		3.3
SO ₄	1500		15.6
CO ₃	<1		<1
OH	<1		<1
H ₂ S	ABSENT		

TOTAL SOLIDS C/g. m.⁻³

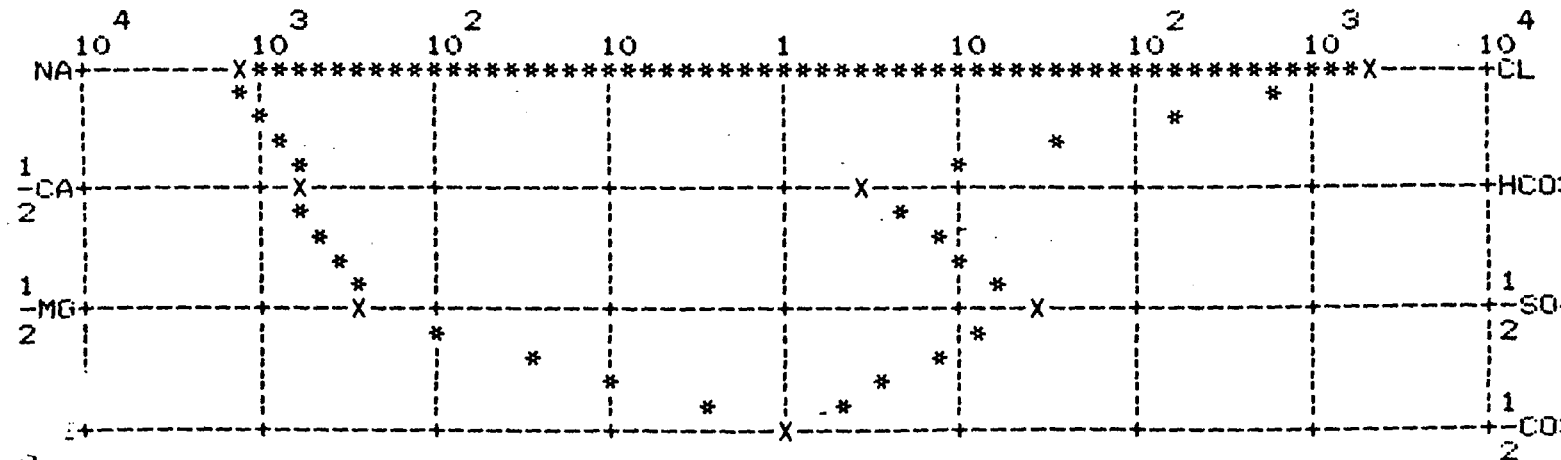
BY EVAPORATION @ 110 °C BY EVAPORATION @ 180 °C

AT IGNITION **153113** CALCULATED **156511**

RELATIVE DENSITY @ 21 °C **1.128** REFRACTIVE INDEX @ 25 °C **1.361**

OBSERVED PH **6.2** @ 21 °C RESISTIVITY Ω.m **.054** @ 25 °C

LOGARITHMIC PATTERN C/mol. m.⁻³



REMARKS

CALGARY, ALBERTA

CHEMEX LABS (ALBERTA) LTD.

GRANDE PRAIRIE, ALBERTA

CONTAINER IDENTITY
ELASTICEDMONTON, ALBERTA
WATER ANALYSISLABORATORY NUMBER
84-2434-4CENCE NO.
EXCO ENERGY LTD.

OPERATOR NAME AND ADDRESS

CPA NUMBER
EXCO ETAL CAMERON I-16

WELL NAME

ELEVATIONS
METERS
KB **735.48** **731.4**FIELD OR AREA
CAMERONPOOL OR ZONE
KEG RIVER

NAME OF SAMPLER

COMPANY
LYNES UNITED

TEST TYPE NO
DST 2

MULTIPLE RECOVERY ☐

TEST INTERVAL FROM
1435 m

TO
1454 m

PERFORATIONS FROM
1435 m

TO
1454 m

TEST RECOVERY
50M SLIGHTLY GAS CUT BLACKISH SALT WATER SAME INHIB. & CONDEN.

SAMPLING POINT
TOP OF FLUID

AMT & TYPE OF CUSHION

MUD RESISTIVITY @ 25°

TYPE OF PRODUCTION -
PUMPING ☐ FLOWING ☐ GAS LIFT ☐ SWAB ☐

PRODUCTION RATES
WATER m³/d OIL m³/d GAS 10³ m³/d

GAUGE PRESSURE - KPa
SEPARATOR TREATER AS RECEIVED

TEMPERATURES °C
SEPARATOR TREATER AS RECEIVED

DATE SAMPLED DATE RECEIVED DATE REPORTED ANALYST
Y M D H M Y M D Y M D
85-02-12 85-02-18 85-02-25 D.D & M.V.

ION	C g. m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Na	32200		1400.0
K	580		14.9
Ca	4400		110.0
Mg	1900		79.2
Ba			
Sr			
Fe	1.9		<1

ION	C g. m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Cl	65000		1831.0
Br			
I			
HCO ₃	200		3.3
SO ₄	2625		27.3
CO ₃	<1		<1
OH	<1		<1
H ₂ S	ABSENT		

TOTAL SOLIDS C/g m⁻³

BY EVAPORATION @ 110° C BY EVAPORATION @ 180° C

AT IGNITION CALCULATED

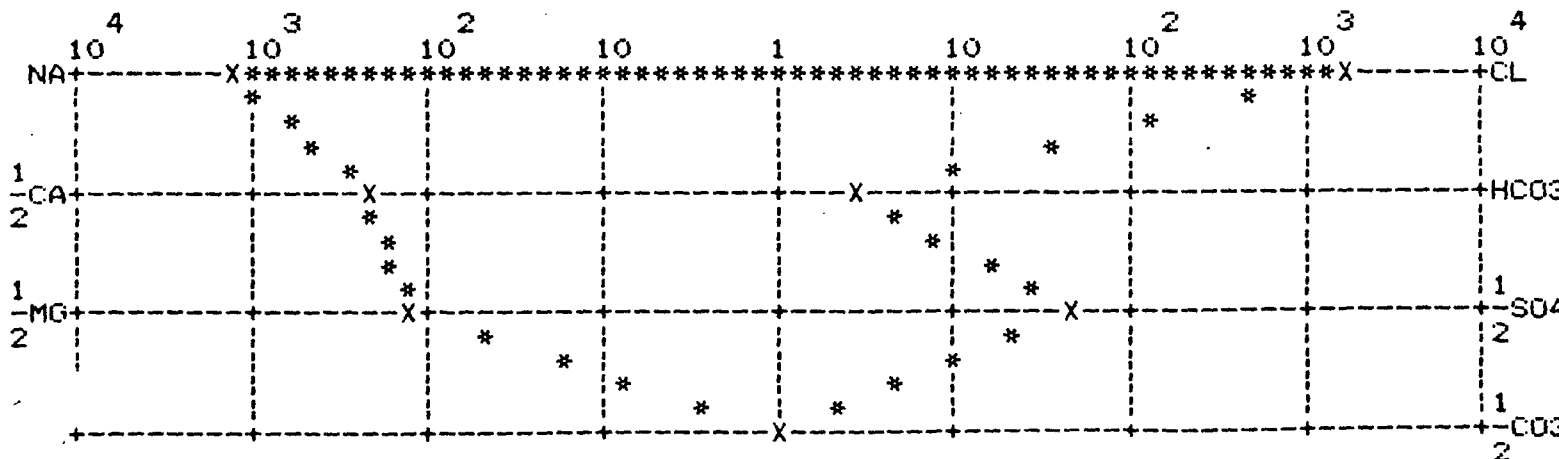
100127 106805

RELATIVE DENSITY REFRACTIVE INDEX

1.024 @ 21° C 1.350 @ 25° C

OBSERVED PH RESISTIVITY Ω m

6.9 @ 21° C .07 @ 25° C

LOGARITHMIC PATTERN C/mol. m.⁻³

REMARKS

CALGARY, ALBERTA


CHEMEX LABS (ALBERTA) LTD.

GRANDE PRAIRIE, ALBERTA

CONTAINER IDENTITY

EDMONTON, ALBERTA

LABORATORY NUMBER

GAS ANALYSIS

84-2434-5

LICENCE NO.

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

ELEVATIONS
METERS

EXCO ETAL CAMERON I-16

735.48 731.4

FIELD OF AREA

POOL OR ZONE

NAME OF SAMPLER

COMPANY

CAMERON

KEG RIVER

LYNES UNITED

TEST RECOVERY

TEST TYPE

NO

DST 2

MULTIPLE RECOVERY

TEST INTERVAL
FROM

1435 m

TO

1454 m

PERFORATIONS
FROM

m

TO

m

SAMPLING POINT

VALVE OPEN

AMT & TYPE OF CUSHION

MUD RESISTIVITY

@25'

TYPE OF PRODUCTION

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER

m³/d

OIL

m³/d

GAS

10⁴

GAUGE PRESSURE - KPa

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

Y M D H M

Y M D

Y M D

85-02-12

85-02-18

85-02-21

D.H.

GROSS HEATING VALUE

MJ. m⁻³ @ 15 °C AND 101 325 KPa

(MOISTURE AND ACID GAS FREE)

MEASURED

CALCULATED

42.183

DEW POINT

VAPOUR PRESS
PENTANES PLUS

79.22

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED

MEASURED

CALCULATED

0.662

MOISTURE AND ACID GAS FREE

MEASURED

CALCULATED

0.662

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED

ACID GAS FREE

pPc

pTc

pPc

pTc

4562.3

205.1

4562.3

205.1

REMARKS

COMP	MOL FRACTION AIR FREE AS REC'D	MOL FRACTION AIR FREE ACID GAS FREE	LIQUID VOLUME ml. m ⁻³ AIR FREE AS REC'D
H ₂	0.0002	0.0002	
H ₆	0.0011	0.0011	
N ₂	0.0311	0.0311	
CO ₂	TRACE	0.0000	
H ₂ S	0.0000	0.0000	
C ₁	0.8780	0.8780	
C ₂	0.0360	0.0360	
C ₃	0.0238	0.0238	87.06
iC ₄	0.0049	0.0049	21.30
nC ₄	0.0105	0.0105	43.99
iC ₅	0.0039	0.0039	18.97
nC ₅	0.0043	0.0043	20.70
C ₆	0.0035	0.0035	18.82
C ₊	0.0027	0.0027	16.22
C ₁₀			
TOTAL	1.0000	1.0000	227.06

EXCO ENERGY LTD.
c/o FORWARD RESOURCES LTD.
12th FLOOR,
840 - 7th AVE. S.W.
CALGARY, ALTA
T2P 3J4

PROJECT 84-2434-6
DATE: 85-02-21

EXCO ET AL CAMERON I-16

KB: 735.48M

GRD: 731.40M

FORMATION: KEG RIVER

DST #2

INTERVAL: 1435 - 1454M

SAMPLED BY: LYNES UNITED

1414-1420

TOOL #104 HAD AN OPENING PRESSURE OF 0 KPA.

TOOL CONTAINED 200 ML. OF WATER.

A. WELL DATA

FIELD DRILL STEM TEST REPORT

DATE 85-02-13

Well Exco et al Cameron Location I-16
DST No. 3 Interval 1414m - 1420m Formation Muskeg
Last Casing: Size 244.5mm Depth 377m Open Hole: Size 215.9mm Depth 1490m
Hole Troubles none Caliper at Packer(s) 216mm
Mud: Wt. 1150 Kg/m Vis 66 sec/l W.L. 7.5 cc % Oil 0 ppm Cl 825

B. TEST STRING DATA

Testing Company Lynes United Services Ltd Type of Test Straddle
Type and Number of Packers Inflate (2) Straddle Size 194mm
DP Size 101 mm Wt 23.6 Kg/m Length 1233.4 m
DC Size 158mm Wt 135 Kg/m I.D. 62mm Length 170.40m
Tail Pipe Size Wt Length Perfs m
T.D. String 1418.85 Recorder Depth Water Cushion BH Choke 25.4
Packer Depth(s) 1414m & 1420m Weight on Packer(s) 10 daN under string wt.
Other Equipment

C. TEST RESULTS

Times: PF 15 ISI 60 Flow SI Flow 30 FSI 60
Pressures: 1 PF 512 KPa IH 16555 KPa ISI 68.3 KPa IF 341 KPa
TEMP 46 °C FH 16 384 KPa FSI 341 KPa FF 341 KPa

Flow Descriptions:

Preflow: very weak air blow dead in 3½ minValve Open Flow: Few initial air bubbles then dead.Recoveries: Fluid recovery combined with recovery from DST #4

D. SAMPLE DETAILS:

Fluid samples sent to Chemex

E. REMARKS:

Unseat Packers pull up .24 in. to reseal pkrs for DST #4

Note: Data reported on this form are field readings taken
at the time of test, and are subject to correction.

Derry Lodder

ENGINEER

EXCO ET AL CAMERON I-16
 400/ 60.054 / 117.320 /00
 DST#03
 1414.00m to 1420.00m
 MUSKEG

DEPTH: 1416.00m

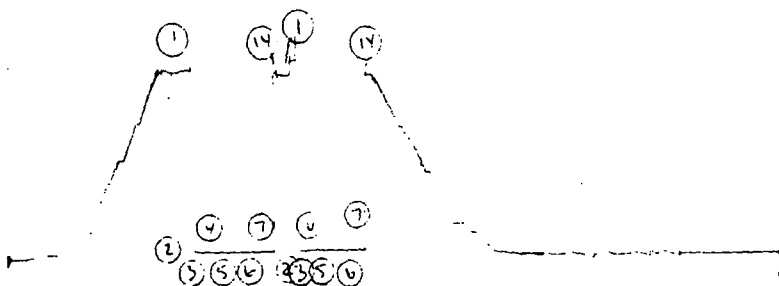
RECORDER # 021669

PRESSURE
kPa

1) Initial Hydro : 16606.
 2) 1st Flow Start: 597.
 3) 1st Flow End : 580.
 4) END 1st Shutin: 495.
 5) 2nd Flow Start: 495.
 6) 2nd Flow End : 495.
 7) END 2nd Shutin: 512.
 14) Final Hydro. : 16350.

TEST TIMES (MIN)

1st FLOW : 15.0
 SHUTIN: 60.0
 2nd FLOW : 30.0
 SHUTIN: 60.0



RECOVERY DATA

NO GAS TO SURFACE. TOTAL FLUID RECOVERY FOR DST #3 & #4 CONSISTS OF 0.00 METERS OF SLIGHTLY GAS CUT INHIBITOR AND AMMONIA CUT WATERY DRILLING MUD.

REMARKS AND TEST SUMMARY

This is the first of two tests run on the same trip in the hole. Test results indicate a mechanically successful test. Bottom hole pressures and the shape of the shut-in curves suggest VIRTUALLY NO PERMEABILITY within the interval tested.

TABLE OF CONTENTS

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

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

Well name : EXCO ET AL CAMERON I-16
Location : 400/ 60.054 / 117.320 /00
Interval : 1414.00m to 1420.00m
T : Date : 85/02/13
Test Type : INFLATE STRADDLE
Formation : MUSKEG

K.B.Elevation : 735.48m
Grd.Elevation : 731.40m
TD @ test Date: 1490.00m
Ticket Number : 69510
Unit Number : M-5

Started in hole at : 0430 hrs
Tool opened at : 0834 hrs
Reverse circulated?: NO
Contractor & Rig No: ARNCO #1
Lynes#2 : 1 of 2 on the same trip.

Operator: EXCO ENERGY LTD.
6TH FLR.
700 - 4TH AVE. S.W.
CALGARY ALBERTA
T2P3J4

Company Rep : LODDER D
Testers : MCLEOD G

5 REPORTS(S) TO: DRILLING DEPARTMENT
Company:

BLOW DESCRIPTION

Very weak air blow decreasing to nil in 3 minutes on preflow.
Slight air blow decreasing to nil immediately on final flow.

TOTAL LIQUID RECOVERY : 20.00m

For DST# 3 through DST# 4
4 Fluid Samples
Sent to: CHEMEX HIGH
LEVEL

20.00m SLIGHTLY GAS CUT INHIBITOR AND AMMONIA CUT WATERY DRILLING MUD.

GAS MEASUREMENTS

No Gas Measurements

TOOL SEQUENCE

RECORDER SUMMARY

SUB	LENGTH (m)
PUMP OUT SUB	.33
CROSS OVER SUB	.30
INSIDE RECORDER	1.38
HYDRAULIC TOOL	1.50
BTM HOLE SAMPLER	.10
BTM HOLE SAMPLER	1.03
HYDRAULIC JARS	2.22
INSIDE RECORDER	1.38
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	2.02
SPACING	2.36
PACKER STICK UP	.50
BTM INFLATE PACKER	1.90
BELLY SPRING	2.00

1) NUMBER : 012994	
TYPE : K-3	
LOCATION: OUTSIDE	
RANGE: 41400.00kPa	
DEPTH : 1416.00m	
2) NUMBER : 017838	ABOVE INTERVAL
TYPE : K-3	RECORDER.
LOCATION: INSIDE	
RANGE: 41400.00kPa	
DEPTH : 1410.00m	
3) NUMBER : 021352	ABOVE HYDRAULIC
TYPE : K-3	TOOL RECORDER.
LOCATION: INSIDE	
RANGE: 23000.00kPa	
DEPTH : 1400.00m	
4) NUMBER : 021669	
TYPE : K-3	
LOCATION: OUTSIDE	
RANGE: 40700.00kPa	
DEPTH : 1416.00m	
5) NUMBER : 021729	TEMPERATURE
TYPE : K-3T	RECORDER.
LOCATION: OUTSIDE	
RANGE : 8C to 105C	
DEPTH : 1416.00m	

***** TOOL TOTAL 24.01

DRILL COLLARS

ID= 52.0mm: 170.40
ID= :

DRILL PIPE

OD=102.0mm: 1233.41
OD= :

COLLAR-PIPE TOTAL 1403.81

STICK UP ABOVE TABLE : 4.85
TOOL ABOVE INTERVAL : 15.04
TOTAL INTERVAL : 6.00
BOTTOM CHOKE SIZE: 25.40 mm

MUD AND HOLE DATA

Calipered Hole Size @ Test Depth: 216.00mm	Water Loss : 7.5cc/s
Hole Condition at Test Time : FAIR	Filter Cake: 5.0 mm
Hole Conditioned Prior to Test? : NO	
Mud Weight : 1150.0 kg/m3	Main Hole Size: 216.00mm
Mud Type : GEL CHEMICAL	
Viscosity : 66.0s/l	Temperature @1416.00m = 45.0C

DSI#03
EXCO ET AL CAMERON I-16
1414.00m to 1420.00m

TEMPERATURE RECORDER NUMBER : 021729

EPTH : 1416.00m
TYPE : K-3T

LOCATION : OUTSIDE
RANGE : 105.00C

TEMPERATURE
RECORDER.

***** TEMPERATURE AT RECORDER DEPTH = 45.0 C

Temperature

DSI#3 - DSI#4



PRESSURE RECORDER NUMBER : 012994

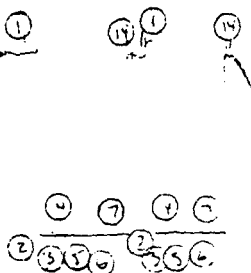
DEPTH : 1416.00m
TYPE : K-3

LOCATION : OUTSIDE
CAPACITY : 41400.00 kPa

PRESSURE
kPa

- 1) Initial Hydro : 16612.
- 2) 1st Flow Start: 586.
- 3) 1st Flow End : 534.
- 4) END 1st Shutin: 517.
- 5) 2nd Flow Start: 500.
- 6) 2nd Flow End : 534.
- 7) END 2nd Shutin: 569.
- 14) Final Hydro. : 16375.

Dst#3 Dst#4



TEST TIMES (MIN)

- | | |
|------------|------|
| 1st FLOW : | 15.0 |
| SHUTIN: | 60.0 |
| 2nd FLOW : | 30.0 |
| SHUTIN: | 60.0 |

PRESSURE RECORDER NUMBER : 017838

DEPTH : 1410.00m
TYPE : K-3

LOCATION : INSIDE
CAPACITY : 41400.00 kPa

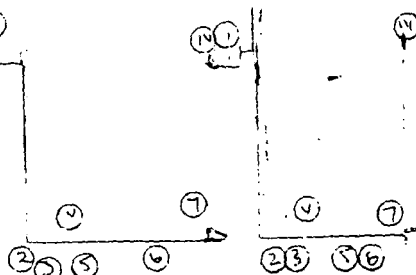
PRESSURE
kPa

- 1) Initial Hydro : 16568.
- 2) 1st Flow Start: 555.
- 3) 1st Flow End : 521.
- 4) END 1st Shutin: 471.
- 5) 2nd Flow Start: 454.
- 6) 2nd Flow End : 454.
- 7) END 2nd Shutin: 454.
- 14) Final Hydro. : 16300.

Above Interval

Dst#3

Dst#4



ABOVE INTERVAL
RECORDER.

DST#03
EXCO ET AL CAMERON I-16
1414.00m to 1420.00m

PRESSURE RECORDER NUMBER : 021352

DEPTH : 1400.00m
TYPE : K-3

LOCATION : INSIDE
CAPACITY : 23000.00 kPa

PRESSURE
kPa

- 1) Initial Hydro :
- 2) 1st Flow Start: 57.
- 3) 1st Flow End : 133.
- 4) END 1st Shutin:
- 5) 2nd Flow Start: 190.
- 6) 2nd Flow End : 209.
- 7) END 2nd Shutin: 247.
- 14) Final Hydro. :

Above Hydraulic Tool

Dist #3

Dist #4

2 3 4 5 6 7

ABOVE HYDRAULIC
TOOL RECORDER.

TEST TIMES (MIN)
1st FLOW : 15.0
SHUTIN: 60.0
2nd FLOW : 30.0
SHUTIN: 60.0

PRESSURE RECORDER NUMBER : 021669

DEPTH : 1416.00m
TYPE : K-3

LOCATION : OUTSIDE
CAPACITY : 40700.00 kPa

PRESSURE
kPa

- 1) Initial Hydro : 16606.
- 2) 1st Flow Start: 597.
- 3) 1st Flow End : 580.
- 4) END 1st Shutin: 495.
- 5) 2nd Flow Start: 495.
- 6) 2nd Flow End : 495.
- 7) END 2nd Shutin: 512.
- 14) Final Hydro. : 16350.

1 14 14
2 4 7 6 7
3 5 6 3 5 6

A. WELL DATA

FIELD DRILL STEM TEST REPORT

DATE 85-02-13

Well: Exco et al Cameron

Location I-16

DST No. 4 Interval 1390m - 1396m Formation Muskeg

Last Casing: Size 244.5mm Depth 377m Open Hole: Size 215.9mm Depth 1490m

Hole Troubles: none Caliper at Packer(s) 216mm

Mud: Wt. 1150 Kg/m Vis 66 sec/1 W.L. 7.5cc % Oil 0 ppm Cl 825

B. TEST STRING DATA

Testing Company Lynes United Services Ltd. Type of Test Straddle

Type and Number of Packers Inflated (2) Straddle Size 194mm

DP Size 101 mm Wt 23.6 Kg/m Length 1215.07m

DC Size 158mm Wt 135 Kg/m I.D. 62mm Length 170.40m

Tail Pipe Size Wt Length Perfs m

T.D. String 1400.51m Recorder Depth 1393m Water Cushion BH Choke 25.4mm

Packer Depth(s) 1390m & 1396m Weight on Packer(s) 10 daN under string wt.

Other Equipment

C. TEST RESULTS

Times: PF 15 ISI 30 Flow SI Flow 30 FSI 60

Pressures: PF 512 KPa IH 16555 KPa ISI 683 KPa IF 512 KPa

TEMP 46 °C FH 16384 KPa FSI 512 KPa FF 512 KPa

Flow Descriptions:

Preflow: Few air bubbles than dead

Valve Open Flow: very weak air blow for 2 min occasional air blow
for 10 min 4 hour deadRecoveries: 20 m. of gasified drlg. mud top cut with inhibitor and
ammonia

D. SAMPLE DETAILS:

Fluid samples sent to Chemex; Btm hole sampler sent to Chemex

E. REMARKS:

Fluid recovered from DST #3 and DST #4

Note: Data reported on this form are field readings taken
at the time of test, and are subject to correction.

ENGINEER Derry Lodder

EXCO ET AL CAMERON I-16
400/ 60.054 / 117.320 /00
DST#04
1390.00m to 1396.00m
MUSKEG

TEST DATE: 85/02/13

DEPTH: 1393.00m

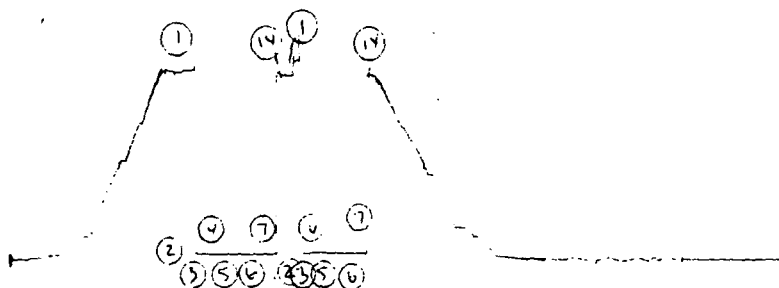
RECORDER # 021669

PRESSURE
kPa

- 1) Initial Hydro : 16077.
- 2) 1st Flow Start: 649.
- 3) 1st Flow End : 580.
- 4) END 1st Shutin: 683.
- 5) 2nd Flow Start: 631.
- 6) 2nd Flow End : 597.
- 7) END 2nd Shutin: 563.
- 14) Final Hydro. : 16077.

TEST TIMES (MIN)

- 1stFLOW : 15.0
SHUTIN: 30.0
2ndFLOW : 30.0
SHUTIN: 60.0



RECOVERY DATA

NO GAS TO SURFACE. TOTAL FLUID RECOVERY FOR DST #3 & #4 CONSISTS OF
.00 METERS OF SLIGHTLY GAS CUT INHIBITOR AND AMMONIA CUT WATERY
DRILLING MUD.

REMARKS AND TEST SUMMARY

This is the second of two tests run on the same trip in the hole. Test results indicate a mechanically successful test. Bottom hole pressures and the shape of the shut-in curves suggest VIRTUALLY NO PERMEABILITY within the interval tested.

TABLE OF CONTENTS

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

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

Well name : EXCO ET AL CAMERON I-16
Location : 400/ 60.054 / 117.320 /00
Interval : 1390.00m to 1396.00m
Test Date : 85/02/13
Test Type : INFLATE STRADDLE
Formation : MUSKEG

K.B.Elevation : 735.48m
Grd.Elevation : 731.40m
TD @ test Date: 1490.00m
Ticket Number : 69511
Unit Number : M-5

Started in hole at :
Tool opened at : 1210 hrs
Reverse circulated?: NO
Contractor & Rig No: ARNCO #1
Lynes#3 : 2 of 2 on the same trip.

Operator: EXCO ENERGY LTD.
6TH FLR.
700 - 4TH AVE. S.W.
CALGARY ALBERTA
T2P3J4

Company Rep : LODDER D
Testers : MCLEOD G

5 REPORTS(S) TO: DRILLING DEPARTMENT
Company:

BLOW DESCRIPTION

Few bubbles decreasing to nil on preflow.
Very weak air blow for 2 minutes, decreasing slightly for 10 minutes, then
decreasing to nil on final flow.

TOTAL LIQUID RECOVERY : 20.00m

For DST# 3 through DST# 4
4 Fluid Samples
Sent to: CHEMEX HIGH
LEVEL
Btm. Hole Sampler #: 239,184
Sent to: CHEMEX HIGH
LEVEL

20.00m SLIGHTLY GAS CUT INHIBITOR AND AMMONIA CUT WATERY DRILLING MUD.

GAS MEASUREMENTS

No Gas Measurements

TOOL SEQUENCE

RECORDER SUMMARY

SUB	LENGTH (m)
PUMP OUT SUB	.33
CROSS OVER SUB	.30
INSIDE RECORDER	1.38
HYDRAULIC TOOL	1.50
BTM HOLE SAMPLER	.10
BTM HOLE SAMPLER	1.03
HYDRAULIC JARS	2.22
INSIDE RECORDER	1.38
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	2.02
SPACING	2.36
PACKER STICK UP	.50
BTM INFLATE PACKER	1.90
BELLY SPRING	2.00

- 1) NUMBER : 012994
TYPE : K-3
LOCATION: OUTSIDE
RANGE: 41400.00kPa
DEPTH : 1393.00m
- 2) NUMBER : 017838 ABOVE INTERVAL
TYPE : K-3 RECORDER.
LOCATION: INSIDE
RANGE: 41400.00kPa
DEPTH : 1385.00m
- 3) NUMBER : 021352 ABOVE HYDRAULIC
TYPE : K-3 TOOL RECORDER.
LOCATION: INSIDE
RANGE: 23000.00kPa
DEPTH : 1375.00m
- 4) NUMBER : 021669
TYPE : K-3
LOCATION: OUTSIDE
RANGE: 40700.00kPa
DEPTH : 1393.00m
- 5) NUMBER : 021729 TEMPERATURE
TYPE : K-3T RECORDER.
LOCATION: OUTSIDE
RANGE : 8C to 105C
DEPTH : 1393.00m

***** TOOL TOTAL 24.01
DRILL COLLARS

ID= 52.0mm: 170.40
ID= :

DRILL PIPE

OD=102.0mm: 1215.07
OD= :

COLLAR-PIPE TOTAL 1385.47

STICK UP ABOVE TABLE : 10.51
TOOL ABOVE INTERVAL : 15.04
TOTAL INTERVAL : 6.00
BOTTOM CHOKE SIZE: 25.40 mm

MUD AND HOLE DATA

Calipered Hole Size @ Test Depth: 216.00mm	Water Loss : 7.5cc/s
Hole Condition at Test Time : FAIR	Filter Cake: 5.0 mm
Hole Conditioned Prior to Test? : YES	
Mud Weight : 1150.0 kg/m3	Main Hole Size: 216.00mm
Mud Type : GEL CHEMICAL	
V iscosity : 66.0s/l	Temperature @1393.00m = 50.0C

EXCO ET AL CAMERON I-16
1390.00m to 1396.00m

TEMPERATURE RECORDER NUMBER : 021729

DEPTH : 1393.00m
TYPE : K-3T

LOCATION : OUTSIDE
RANGE : 105.00C

TEMPERATURE
RECORDER.

***** TEMPERATURE AT RECORDER DEPTH = 50.0 C

Temperature

--- Dst#3 - Dst#4V



PRESSURE RECORDER NUMBER : 012994

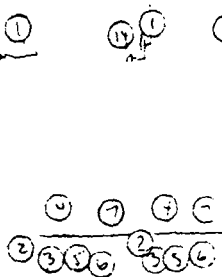
DEPTH : 1393.00m
TYPE : K-3

LOCATION : OUTSIDE
CAPACITY : 41400.00 kPa

PRESSURE
kPa

- 1) Initial Hydro : 16088.
- 2) 1st Flow Start: 655.
- 3) 1st Flow End : 603.
- 4) END 1st Shutin: 741.
- 5) 2nd Flow Start: 638.
- 6) 2nd Flow End : 621.
- 7) END 2nd Shutin: 603.
- 14) Final Hydro. : 16088.

Dst#3 Dst#4



TEST TIMES (MIN)

- | | |
|------------|------|
| 1st FLOW : | 15.0 |
| SHUTIN: | 30.0 |
| 2nd FLOW : | 30.0 |
| SHUTIN: | 60.0 |

PRESSURE RECORDER NUMBER : 017838

DEPTH : 1385.00m
TYPE : K-3

LOCATION : INSIDE
CAPACITY : 41400.00 kPa

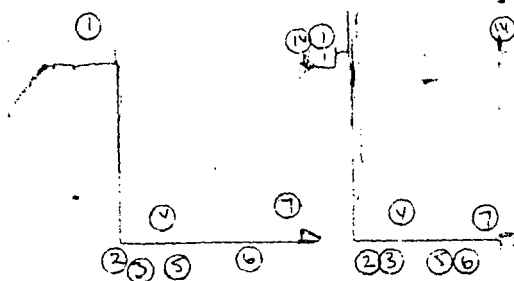
PRESSURE
kPa

- 1) Initial Hydro : 15965.
- 2) 1st Flow Start: 589.
- 3) 1st Flow End : 555.
- 4) END 1st Shutin: 572.
- 5) 2nd Flow Start: 538.
- 6) 2nd Flow End : 555.
- 7) END 2nd Shutin: 538.
- 14) Final Hydro. : 15965.

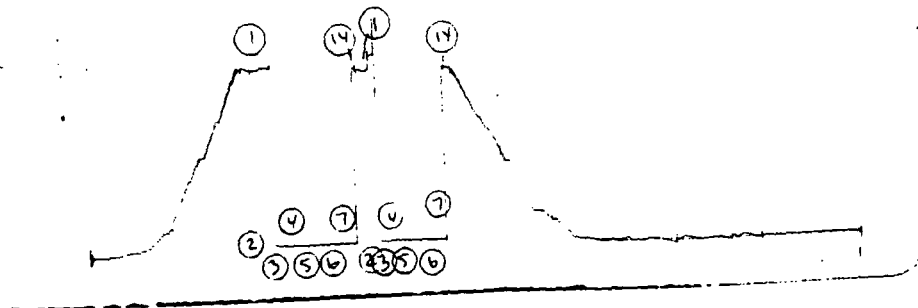
Above Interval

Dst#3

Dst#4



ABOVE INTERVAL
RECORDER.



FLUID RECOVERY AND DOWNHOLE SAMPLER ANALYSIS

For DST #3/#4

MUSKEG 1414m - 1420m (#3)

1390m - 1396m (#4)

CONTAINER IDENTITY

EDMONTON, ALBERTA

LABORATORY NUMBER

GAS ANALYSIS

84-2434-7

LICENCE NO

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS

735.48 731

FIELD OF AREA

POOL OR ZONE

NAME OF SAMPLER

COMPANY

CAMERON

MUSKEG

LYNES UNITE.

TEST RECOVERY

TEST TYPE

NO

DST

3/4

MULTIPLE RECOVERY

TEST INTERVAL
FROM

1414

m

TO

1420

m

PERFORATIONS
FROM

TO

m

SAMPLING POINT

DOWNHOLE SAMPLER

AMT & TYPE OF CUSHION

MUD RESISTIVITY

TYPE OF PRODUCTION

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER

m³/d

OIL

m³/d

GAS

GAUGE PRESSURE - KPa

TEMPERATURES °C

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

Y M D H M

Y M D

Y M D

D.H.

85-02-13

85-02-18

85-02-21

D.H.

COMP	MOL FRACTION AIR FREE AS REC'D	MOL FRACTION AIR FREE ACID GAS FREE	LIQUID VOLUME (ml m ³) AIR FREE AS REC'D
H ₂	0.0011	0.0011	
He	0.0011	0.0011	
N ₂	0.0821	0.0821	
CO ₂	TRACE	0.0000	
H ₂ S	0.0000	0.0000	
C ₁	0.8560	0.8560	
C ₂	0.0341	0.0341	
C ₃	0.0160	0.0160	58.53
iC ₄	0.0025	0.0025	10.87
nC ₄	0.0040	0.0040	16.76
iC ₅	0.0009	0.0009	4.38
nC ₅	0.0008	0.0008	3.85
C ₆	0.0006	0.0006	3.23
C ₇₊	0.0008	0.0008	4.81
---C ₈			
C ₉			
C ₁₀			
TOTAL	1.0000	1.0000	102.43

GROSS HEATING VALUE

MJ m⁻³ @ 15 °C AND 101.325 KPa

(MOISTURE AND ACID GAS FREE)

MEASURED

CALCULATED

37.480

DEW POINT

VAPOUR PRESS
PENTANES PLUS

76.19

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED

MEASURED

CALCULATED

0.635

MOISTURE AND ACID GAS FREE

MEASURED

CALCULATED

0.635

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED

ACID GAS FREE

pPc

pTc

pPc

pTc

4522.0

194.5

4522.0

194.5

REMARKS

TOOL HAD AN OPENING PRESSURE OF 120 KPA.
TOOL CONTAINED GAS AND 1950 ML. OF MUD
*** 20M. WATERY DRILL. MUD, SLIGHTLY GAS CUT, ALSO CUT
AND CUT WITH INHIBITOR AND AMMONIA.

CONTAINER IDENTITY

TOOL #234

EDMONTON, ALBERTA
WATER ANALYSIS

LABORATORY NUMBER

84-2434-8

LICENCE NO

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

KB

ELEVATIONS
METERS

735.48

731

FIELD OR AREA

POOL OR ZONE

NAME OF SAMPLER

COMPANY

CAMERON

MUSKEG

LYNES UNITE

TEST RECOVERY

20M. W.DRILL. MUD, SLIGHT GAS CUT & CUT WITH INHIB & AMMONIA

TEST TYPE

NO

DST

3/4

MULTIPLE RECOVERY

SAMPLING POINT

AMT & TYPE OF CUSHION

MUD RESISTIVITY

DOWNHOLE SAMPLER

TYPE OF PRODUCTION

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER m³/dOIL m³/d

GAS

GAUGE PRESSURE - KPa

TEMPERATURES °C

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

Y M D H M

Y M D

Y M D

85-02-13

85-02-18

85-02-27

D.D.

ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³	ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³
Na				Cl			
				Br			
Ca				I			
Mg				HCO ₃			
Ba				SO ₄			
Sr				CO ₃			
Fe				OH			
				H ₂ S			

LOGARITHMIC PATTERN C/mol m⁻³TOTAL SOLIDS C/g m⁻³

BY EVAPORATION

@ 110 °C

BY EVAPORATION

AT IGNITION

CALCULATED

RELATIVE DENSITY

@ °C

REFRACTIVE INDEX

OBSERVED PH

@ °C

RESISTIVITY Ω m

REMARKS

TOOL HAD AN OPENING PRESSURE OF 120 KPA.
TOOL CONTAINED GAS AND 1950 ML. OF MUD
MUD PRESSED AND NO WATER EXTRACTED

EDMONTON, ALBERTA
WATER ANALYSIS

CONTAINER IDENTITY
PLASTIC

LABORATORY NUMBER
84-2434-9

LICENCE NO.

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS METERS
KB **735.48** **731.**

FIELD OR AREA
CAMERON

POOL OR ZONE

MUSKEG

NAME OF SAMPLER

COMPANY

LYNES UNITED

TEST RECOVERY

TEST TYPE DST	NO. 3/4
MULTIPLE RECOVERY ☐	
TEST INTERVAL FROM 1414 m	
TO 1420 m	
PERFORATIONS FROM m	
TO m	

SAMPLING POINT **BOTTOM OF FLUID** AMT & TYPE OF CUSHION MUD RESISTIVITY **@**

TYPE OF PRODUCTION
PUMPING ☐ FLOWING ☐ GAS LIFT ☐ SWAB ☐

PRODUCTION RATES
WATER m³/d OIL m³/d GAS

GAUGE PRESSURE - KPa
SEPARATOR TREATER AS RECEIVED

TEMPERATURES °C
SEPARATOR TREATER AS RECEIVED

DATE SAMPLED DATE RECEIVED DATE REPORTED
Y M D H:M Y M D Y M D
85-02-13 **85-02-18** **85-02-27**

ANALYST
D.D.

ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³
Na			
Ca			
Mg			
Ba			
Sr			
Fe			

ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³
Cl			
Br			
I			
HCO ₃			
SO ₄			
CO ₃			
OH			
H ₂ S			

LOGARITHMIC PATTERN C, mol m⁻³

TOTAL SOLIDS C g m ⁻³	
BY EVAPORATION @ 110 °C	BY EVAPORATION @ 180
AT IGNITION 	CALCULATED
RELATIVE DENSITY @ °C	REFRACTIVE INDEX @ 25
OBSERVED PH @ °C	RESISTIVITY Ω m @ 25

REMARKS

MUD PRESSED AND NO WATER OBTAINED

CALGARY, ALBERTA

CHEMEX LABS (ALBERTA) LTD.

GRANDE PRAIRIE, ALB

 EDMONTON, ALBERTA
WATER ANALYSIS

CONTAINER IDENTITY

ELASTIC

LABORATORY NUMBER

84-2434-10

LICENCE NO

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS
METERS

735.40 731.

FIELD OR AREA

CAMERON

POOL OR ZONE

MUSKEG

NAME OF SAMPLER

COMPANY

LYNES UNITED

TEST RECOVERY

TEST TYPE

NO

DST 3/4

MULTIPLE RECOVERY

TEST INTERVAL
FROM

1414 m

TO

1420 m

PERFORATIONS
FROM

m

TO

m

SAMPLING POINT

TOP OF FLUID

AMT & TYPE OF CUSHION

MUD RESISTIVITY

TYPE OF PRODUCTION

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER m³/dOIL m³/d

GAS

GAUGE PRESSURE - KPa

TEMPERATURES °C

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

85-02-13

85-02-18

85-02-25

D.D. * M.V.

ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³	ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³
Na	9200		400.0	Cl	12000		338.0
	1960		50.3	Br			
Ca	390		9.8	I			
Mg	33		1.4	HCO ₃	*		*
Ba				SO ₄	7500		78.1
Sr				CO ₃	*		*
Fe	.9		<1	OH	*		*
				H ₂ S	ABSENT		

TOTAL SOLIDS C/g m⁻³

BY EVAPORATION

@ 110 °C

BY EVAPORATION

@ 110 °C

AT IGNITION

33167

CALCULATED

31084

RELATIVE DENSITY

1.023 @ 21 °C

REFRACTIVE INDEX

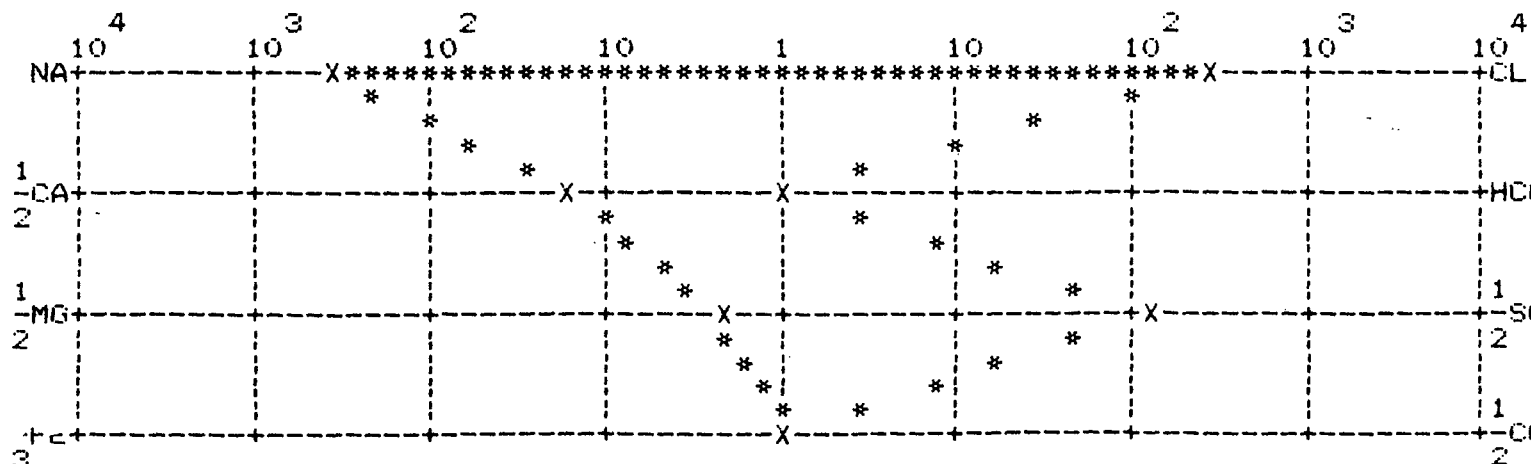
1.337 @ 21 °C

OBSERVED PH

9.7 @ 21 °C

RESISTIVITY Ω m

.2 @ 21 °C

LOGARITHMIC PATTERN C/mol m⁻³

* INTERFERENCES PREVENT AN ALKALINITY TITRATION

REMARKS

EXCO ENERGY LTD.
c/o FORWARD RESOURCES LTD.
12th FLOOR,
840 - 7th AVE. S.W.
CALGARY, ALTA
T2P 3J4

PROJECT 84-2434-11
DATE: 85-02-21

EXCO ET AL CAMERON I-16

KB: 735.48M

GRD: 731.40M

FORMATION: MUSKEG

DST #3/4

INTERVAL: 1414 - 1420M

SAMPLED BY: LYNES UNITED

RECOVERY: 20M WATERY DRILLING MUD, SLIGHTLY GAS CUT, ALSO CUT
WITH INHIBITOR AND AMMONIA.

TOOL #184 HAD AN OPENING PRESSURE OF 170 KPA.

TOOL CONTAINED 1342 CC. OF GAS AND 2200 ML. OF MUD.

A. WELL DATA

FIELD DRILL STEM TEST REPORT

DATE 85-02-14Well: Exco et al CameronLocation I-16DST No. 5 Interval 1360m - 1376m Formation Sulphur PointLast Casing: Size 244.5mm Depth 377m Open Hole: Size 215.9mm Depth 1490mHole Troubles: none Caliper at Packer(s) 216mmMud: Wt. 1150 Kg/m Vis 66 sec/l W.L. 7.5 cc % Oil 0 ppm Cl 82.5

B. TEST STRING DATA

Testing Company Lynes United Services Ltd. Type of Test StraddleType and Number of Packers (2) Inflate Straddle Size 194 mmDP Size 101mm Wt 23.6 Kg/m Length 1186.09mDC Size 153mm Wt 135 Kg/m I.D. 62mm Length 161.12m

Tail Pipe Size _____ Wt _____ Length _____ Perfs _____ m

T.D. String 1378.25m Recorder Depth 1355m Water Cushion 0 BH Choke 25.4mmPacker Depth(s) 1360m & 1376m Weight on Packer(s) 10,000 daN under STR WTOther Equipment 12.7 mm surface choke

C. TEST RESULTS

Times: PF 15 ISI 60 Flow _____ SI _____ Flow 60 FSI 120Pressures: 1 PF 1177 KPa IH 15764 KPa ISI 9438 KPa IF 673 KPaTEMP 46 °C FH 15597 KPa FSI 9267 KPa FF 841 KPa

Flow Descriptions:

Prewflow: strong airblow G.T.S. 6½ min.Valve Open Flow: GTS immediately Pres. increased to 1250 KPa (12.7mm surface choke)Dropped to 220 KPa 7988 m³/DRecoveries: 105 m fluid - 20 m ammonia and inhibitor water
- 85 m watery gas cut mud salinity 26,000

D. SAMPLE DETAILS:

Fluid samples sent to Chemex; Btm. hole sampler sent to Chemex; Bomb sent Chemex

E. REMARKS:

Surface equipment apparently started to freeze off resulting in VO press.

increase then sudden drop when coming free.

Note: Data reported on this form are field readings taken at the time of test, and are subject to correction.

ENGINEER Derry Lodder

EXCO ET AL CAMERON I-16
400/ 60.054 / 117.320 /00
DST#05
1360.00m to 1376.00m
SULPHUR POINT

TEST DATE: 85/02/14

DEPTH: 1363.00m

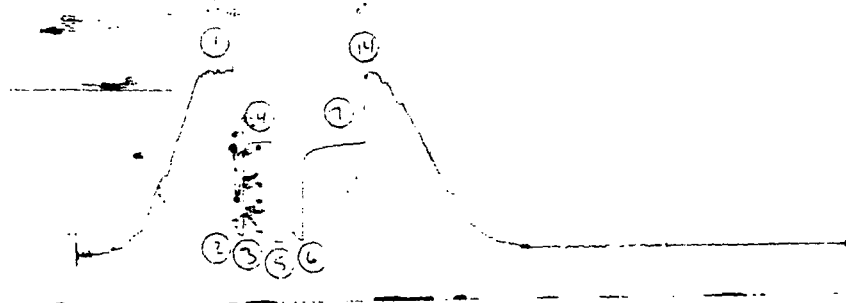
RECORDER # 021669

PRESSURE
kPa

- 1) Initial Hydro : 15752.
- 2) 1st Flow Start: 1604.
- 3) 1st Flow End : 1468.
- 4) END 1st Shutin: 9659.
- 5) 2nd Flow Start: 922.
- 6) 2nd Flow End : 973.
- 7) END 2nd Shutin: 9369.
- 14) Final Hydro. : 15650.

TEST TIMES (MIN)

- 1stFLOW : 15.0
SHUTIN: 60.0
2ndFLOW : 65.0
SHUTIN: 120.0



RECOVERY DATA

GAS TO SURFACE WITH AN OPENING RATE OF 6 949.00 M3/D FLUCTUATING AND
CLING AT 7 983.00 M3/D. TOTAL FLUID RECOVERY WAS 105.00 METERS CONSISTING
OF 20.00 M OF INHIBITOR - AMMONIA & WATER AND 85.00 M OF GAS CUT WATERY
DRILLING MUD.

REMARKS AND TEST SUMMARY

Test results indicate a mechanically successful test. Bottom hole pressures
and the shape of the shut-in curves suggest AVERAGE PERMEABILITY within the
interval tested.

The gas rate started dropping 45 minutes into the final flow. The surface
equipment was checked and found to be functioning properly.

TABLE OF CONTENTS

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

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

Well name : EXCO ET AL CAMERON I-16
Location : 400/ 60.054 / 117.320 /00
Interval : 1360.00m to 1376.00m
T Date : 85/02/14
Test Type : INFLATE STRADDLE
Formation : SULPHUR POINT

K.B.Elevation : 735.48m
Grd.Elevation : 731.40m
TD @ test Date: 1490.00m
Ticket Number : 69512
Unit Number : M-5

Started in hole at : 0930 hrs
Tool opened at : 0225 hrs
Reverse circulated?: NO
Contractor & Rig No: ARNCO #1
Lynes#4 : 1 of 1 on the same trip.

Operator: EXCO ENERGY LTD.

6TH FLR.
700 - 4TH AVE. S.W.
CALGARY ALBERTA
T2P3J4

Company Rep : LODDER D
Testers : MCLEOD G

5 REPORTS(S) TO: DRILLING DEPARTMENT
Company:

BLOW DESCRIPTION

Strong air blow with gas to surface in 6.5 minutes on preflow - too small to measure.

Gas to surface immediately on final flow.

TOTAL LIQUID RECOVERY : 105.00m

For DST# 5 through DST# 5

4 Fluid Samples

Sent to: CHEMEX HIGH
LEVEL

Sample Salinity :26000.0g/m3

Btm. Hole Sampler #: 204,75

Sent to: CHEMEX HIGH
LEVEL

20.00m INHIBITOR, AMMONIA, AND WATER.

85.00m GAS CUT WATERY DRILLING MUD.

GAS MEASUREMENTS Device: FLOOR MANIFOLD

Bomb#: 6241,1700
Sent to: CHEMEX HIGH
LEVEL

Gas Measurements Continued on Next Page

EXCO ET AL CAMERON I-16
1360.00m To 1376.00m

FLOW #	TIME MIN	CHOKE mm	READING kPa	CUBIC METRES/D
2	1.	12.70	180.	6949.0
2	5.	12.70	190.	7207.0
2	10.	12.70	220.	7983.0
2	15.	12.70	300.	10052.0
2	20.	12.70	440.	13944.0
2	25.	12.70	620.	18372.0
2	30.	12.70	1000.	28337.0
2	35.	12.70	1170.	32826.0
2	40.	12.70	1250.	34945.0
2	45.	12.70	620.	18372.0
2	50.	12.70	450.	13944.0
2	55.	12.70	220.	7983.0
2	60.	12.70	220.	7983.0
2	65.	12.70	220.	7983.0

TOOL SEQUENCE

RECORDER SUMMARY

SUB	LENGTH (m)
PUMP OUT SUB	.33
CROSS OVER SUB	.30
INSIDE RECORDER	1.38
HYDRAULIC TOOL	1.50
BTM HOLE SAMPLER	.10
BTM HOLE SAMPLER	1.03
HYDRAULIC JARS	2.22
INSIDE RECORDER	1.38
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	2.02
SPACING	2.48
CROSS OVER SUB	.30
DRILL COLLARS	9.28
CROSS OVER SUB	.30
PACKER STICK UP	.50
BTM INFLATE PACKER	1.90
BELLY SPRING	2.00

1) NUMBER : 012994	
TYPE : K-3	
LOCATION: OUTSIDE	
RANGE: 41400.00kPa	
DEPTH : 1363.00m	
2) NUMBER : 017838	ABOVE INTERVAL
TYPE : K-3	RECORDER.
LOCATION: INSIDE	
RANGE: 41400.00kPa	
DEPTH : 1355.00m	
3) NUMBER : 021352	ABOVE HYDRAULIC
TYPE : K-3	TOOL RECORDER.
LOCATION: INSIDE	
RANGE: 23000.00kPa	
DEPTH : 1345.00m	
4) NUMBER : 021669	
TYPE : K-3	
LOCATION: OUTSIDE	
RANGE: 40700.00kPa	
DEPTH : 1363.00m	
5) NUMBER : 021729	TEMPERATURE
TYPE : K-3T	RECORDER.
LOCATION: OUTSIDE	
RANGE : 8C to 105C	
DEPTH : 1363.00m	

***** TOOL TOTAL 34.01

DRILL COLLARS

ID= 52.0mm: 161.12
ID= :

DRILL PIPE

OD=102.0mm: 1186.09
OD= :

COLLAR-PIPE TOTAL 1347.21-

STICK UP ABOVE TABLE : 2.25
TOOL ABOVE INTERVAL : 15.04
TOTAL INTERVAL : 16.00
BOTTOM CHOKE SIZE: 25.40 mm

MUD AND HOLE DATA

Calipered Hole Size @ Test Depth: 216.00mm	Water Loss : 7.5cc/s
Hole Condition at Test Time : FAIR	Filter Cake: 5.0 mm
Hole Conditioned Prior to Test? : NO	
Mud Weight : 1150.0 kg/m3	Main Hole Size: 216.00mm
Mud Type : GEL CHEMICAL	
V iscosity : 66.0s/l	Temperature @1363.00m = 47.0C

Location: 400/ 60.054 / 117.320 /00
Test Type: INFLATE STRADDLE
Formation: SULPHUR POINT

Recorder Number: 021669
Recorder Depth: 1363.00 m
Subsea Depth: -627.52 m

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P kPa	PRESSURE(T+dt)/dt kPa	ABSCISSA	PRESSURE SQUARED kPa ² /10 ⁶
1	INITIAL HYDROSTATIC			15752		
2	START OF 1st FLOW	0.0		1604		
	1st SHUTIN PERIOD	0.0		1468		
		2.0	4792	6260	8.5000	39.1876
		4.0	6195	7663	4.7500	58.7216
		6.0	7389	8857	3.5000	78.4465
		8.0	7679	9147	2.8750	83.6676
		10.0	7850	9318	2.5000	86.8251
		12.0	7901	9369	2.2500	87.7782
		14.0	7970	9438	2.0714	89.0759
		16.0	7987	9455	1.9375	89.3970
		18.0	8021	9489	1.8333	90.0411
		20.0	8038	9506	1.7500	90.3640
		25.0	8089	9557	1.6000*	91.3363
		30.0	8106	9574	1.5000*	91.6615
		35.0	8123	9591	1.4286*	91.9873
		40.0	8140	9608	1.3750*	92.3137
		45.0	8143	9611	1.3333*	92.3713
		50.0	8157	9625	1.3000*	92.6406
		55.0	8174	9642	1.2727*	92.9682
4	END OF 1st SHUTIN	60.0	8191	9659	1.2500*	93.2963
5	START OF 2nd FLOW	0.0		922		
	2nd SHUTIN PERIOD	0.0		973		
		2.0	4687	5660	41.0000	32.0356
		4.0	6348	7321	21.0000	53.5970
		6.0	6946	7919	14.3333	62.7106
		8.0	7168	8141	11.0000	66.2759
		10.0	7372	8345	9.0000	69.6390
		12.0	7441	8414	7.6667	70.7954
		14.0	7560	8533	6.7143	72.8121

* VALUES USED FOR EXTRAPOLATIONS

SRCC ET AL CAMERON 1-16
1360.00 m to 1376.00 m

Location: 400/ 60.054 / 117.320 /00
Test Type: INFLATE STRADDLE
Formation: SULPHUR POINT

Recorder Number: 021669
Recorder Depth: 1363.00 m
Subsea Depth: -627.52 m

TIME-PRESSURE LISTING

CHART LABEL	COMMENTS	TIME MIN.	DELTA P kPa	PRESSURE(T+dt)/dt kPa	ABSCISSA	PRESSURE SQUARED kPa ² /10 ⁶
		16.0	7594	8567	6.0000	73.3935
		18.0	7662	8635	5.4444	74.5632
		20.0	7714	8687	5.0000	75.4640
		25.0	7833	8806	4.2000	77.5456
		30.0	7884	8857	3.6667	78.4465
		35.0	7953	8926	3.2857	79.6735
		40.0	8021	8994	3.0000	80.8920
		45.0	8072	9045	2.7778	81.8120
		50.0	8106	9079	2.6000	82.4283
		55.0	8140	9113	2.4545	83.0468
		60.0	8157	9130	2.3333	83.3569
		65.0	8192	9165	2.2308	83.9972
		70.0	8226	9199	2.1429	84.6216
		75.0	8243	9216	2.0667	84.9347
		80.0	8277	9250	2.0000*	85.5625
		85.0	8294	9267	1.9412*	85.8773
		90.0	8311	9284	1.8889*	86.1927
		95.0	8328	9301	1.8421*	86.5086
		100.0	8336	9309	1.8000*	86.6575
		105.0	8345	9318	1.7619*	86.8251
		110.0	8362	9335	1.7273*	87.1422
		115.0	8379	9352	1.6957*	87.4599
7	END OF 2nd SHUTIN	120.0	8396	9369	1.6667*	87.7782
14	FINAL HYDROSTATIC			15650		

* VALUES USED FOR EXTRAPOLATIONS

EXCO ET AL CAMERON I-16
1360.00 m to 1376.00 m

Location: 400/ 60.054 / 117.320 /00
Test Type: INFLATE STRADDLE
Formation: SULPHUR POINT

Recorder Number: 021669
Recorder Depth: 1363.00 m
Subsea Depth: -627.52 m

1st SHUT-IN

HORNER EXTRAPOLATION 9732.27 kPa
HORNER SLOPE 17.20186 (kPa**2/10**6)/CYCLE

2nd SHUT-IN

HORNER EXTRAPOLATION 9671.13 kPa
HORNER SLOPE 26.62160 (kPa**2/10**6)/CYCLE

WELL NAME: EXCO ET AL CAMERON 1-16

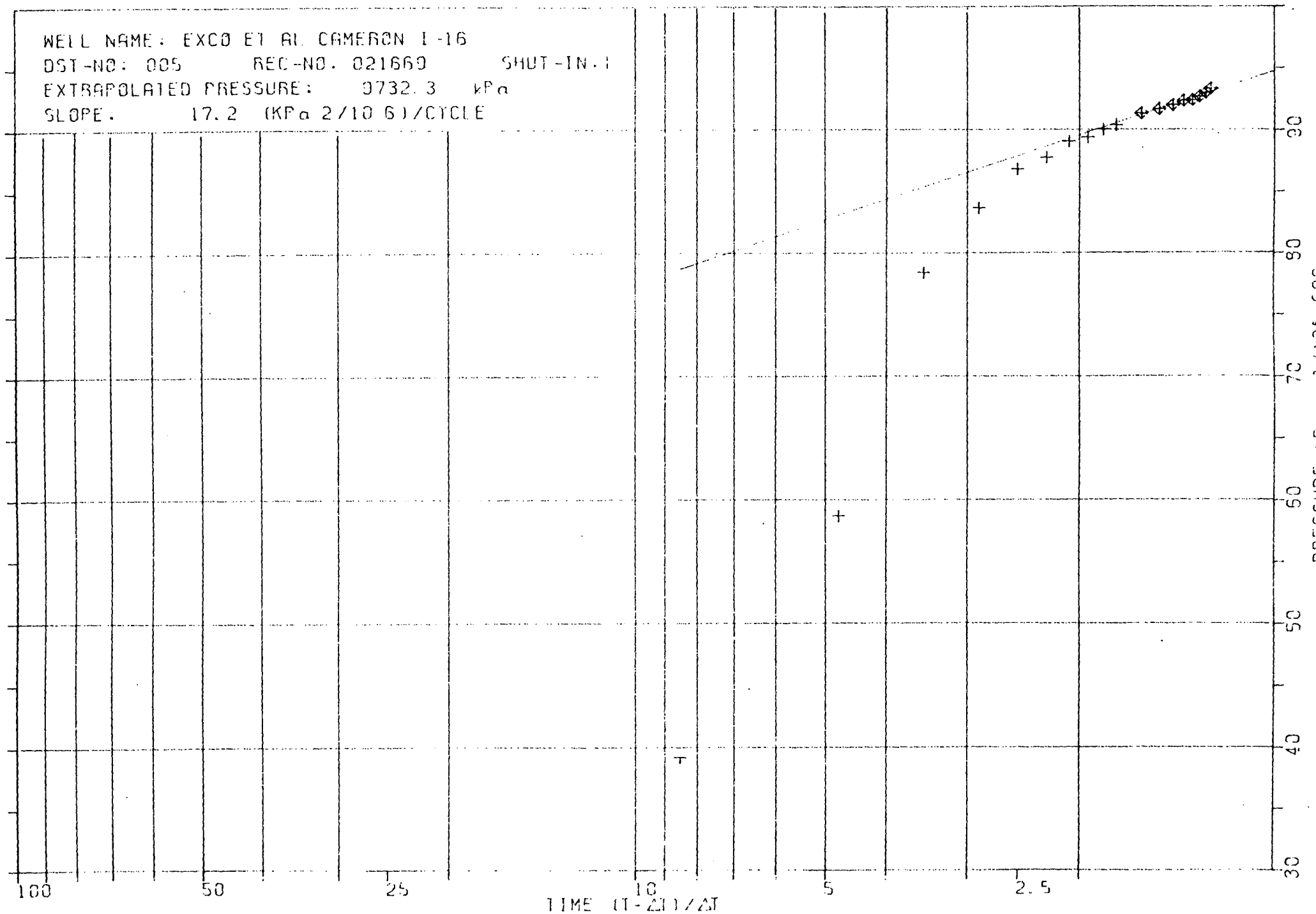
DST-NO: 005

REC-NO. 021669

SHUT-IN. 1

EXTRAPOLATED PRESSURE: 9732.3 kPa

SLOPE: 17.2 (kPa 2/10 6)/CYCLE

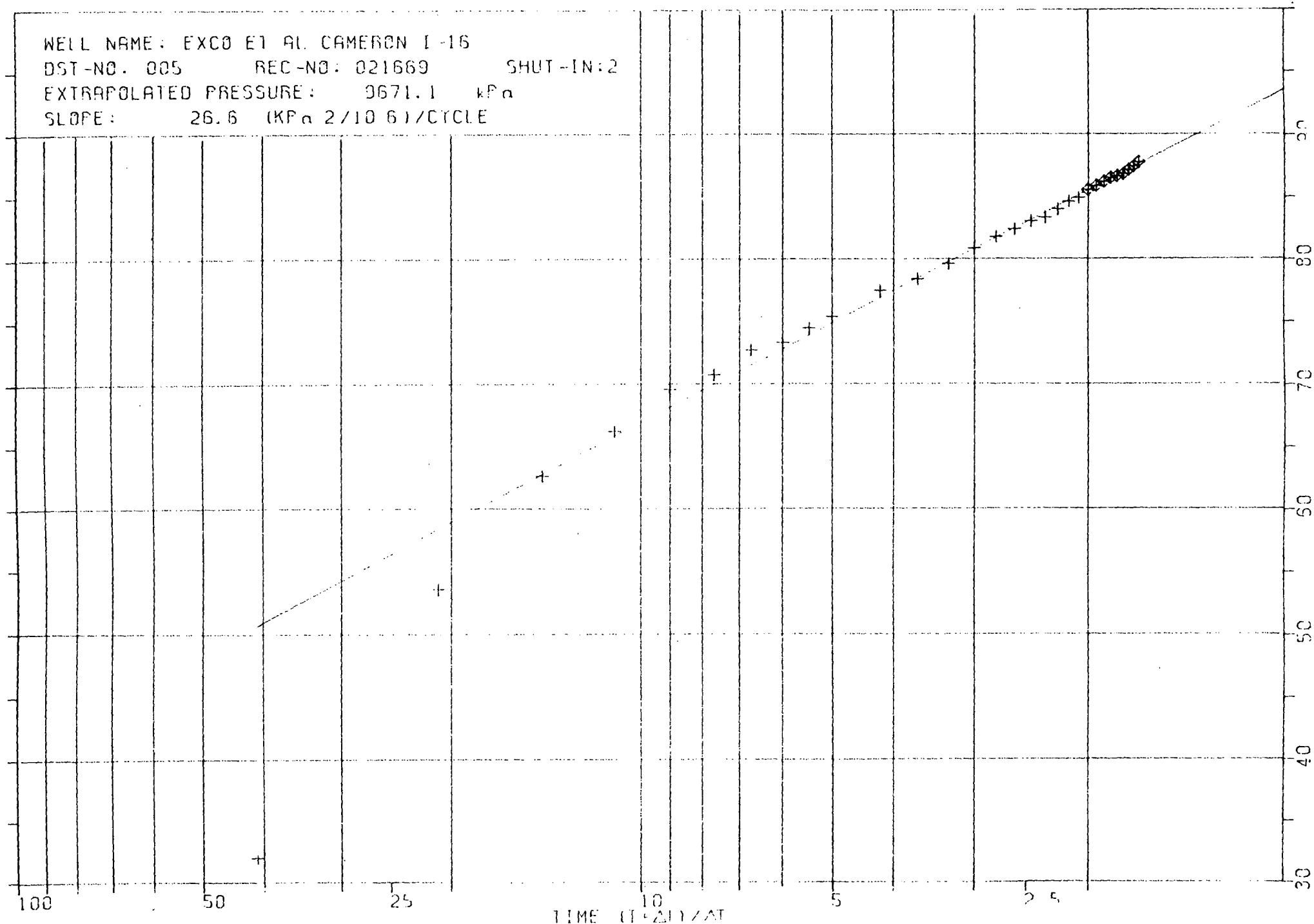


WELL NAME: EXCO ET AL. CAMERON I-16

DST-NO. 005 REC-NO: 021669 SHUT-IN: 2

EXTRAPOLATED PRESSURE: 9671.1 kPa

SLOPE: 26.6 (kPa 2/10 6)/CYCLE



EXCO E1 AL CAMERON 1-16
60.054 / 117.320

REC#021660
DST#005

SHUTIN # 1 +
2 Δ

10000

1000

DELTA kPa.

4

10

DELTA MINUTES

100

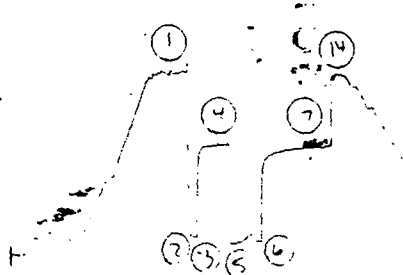
PRESSURE RECORDER NUMBER : 012994

DEPTH : 1363.00m
TYPE : K-3

LOCATION : OUTSIDE
CAPACITY : 41400.00 kPa

PRESSURE
kPa

- 1) Initial Hydro : 15801.
- 2) 1st Flow Start: 1603.
- 3) 1st Flow End : 1482.
- 4) END 1st Shutin: 9605.
- 5) 2nd Flow Start: 862.
- 6) 2nd Flow End : 983.
- 7) END 2nd Shutin: 9330.
- 14) Final Hydro. : 15716.



TEST TIMES (MIN)

1st FLOW : 15.0
SHUTIN: 60.0
2nd FLOW : 65.0
SHUTIN: 120.0

PRESSURE RECORDER NUMBER : 017838

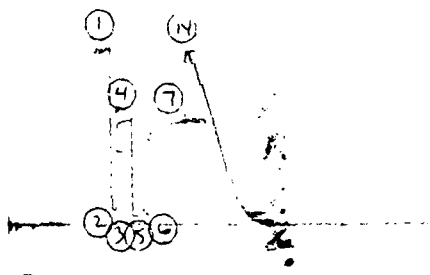
DEPTH : 1355.00m
TYPE : K-3

LOCATION : INSIDE
CAPACITY : 41400.00 kPa

PRESSURE
kPa

- 1) Initial Hydro : 15664.
- 2) 1st Flow Start: 1564.
- 3) 1st Flow End : 1463.
- 4) END 1st Shutin: 9557.
- 5) 2nd Flow Start: 891.
- 6) 2nd Flow End : 992.
- 7) END 2nd Shutin: 9301.
- 14) Final Hydro. : 15614.

Above Interval



ABOVE INTERVAL
RECORDER.

PRESSURE RECORDER NUMBER : 021352

DEPTH : 1345.00m
TYPE : K-3

LOCATION : INSIDE
CAPACITY : 23000.00 kPa

PRESSURE
kPa

- 1) Initial Hydro :
- 2) 1st Flow Start: 152.
- 3) 1st Flow End : 560.
- 4) END 1st Shutin:
- 5) 2nd Flow Start: 712.
- 6) 2nd Flow End : 1007.
- 7) END 2nd Shutin: 1026.
- 14) Final Hydro. :

Above Hydraulic Tool

ABOVE HYDRAULIC
TOOL RECORDER.

TEST TIMES (MIN)

- 1st FLOW : 15.0
SHUTIN: 60.0
2nd FLOW : 65.0
SHUTIN: 120.0

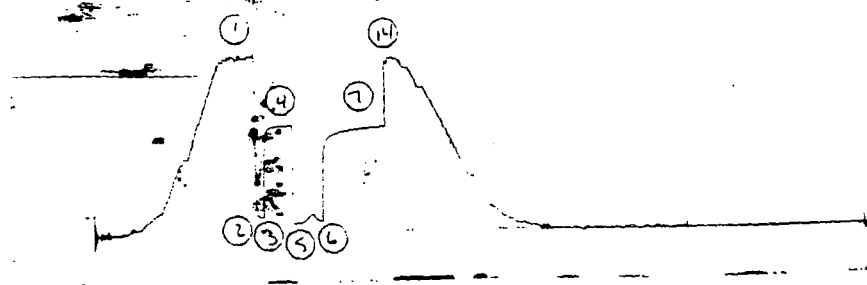
PRESSURE RECORDER NUMBER : 021669

DEPTH : 1363.00m
TYPE : K-3

LOCATION : OUTSIDE
CAPACITY : 40700.00 kPa

PRESSURE
kPa

- 1) Initial Hydro : 15752.
- 2) 1st Flow Start: 1604.
- 3) 1st Flow End : 1468.
- 4) END 1st Shutin: 9659.
- 5) 2nd Flow Start: 922.
- 6) 2nd Flow End : 973.
- 7) END 2nd Shutin: 9369.
- 14) Final Hydro. : 15650.



DST#05
EXCO ET AL CAMERON I-16
1360.00m to 1376.00m

TEMPERATURE RECORDER NUMBER : 021729

DEPTH : 1363.00m
TYPE : K-3T

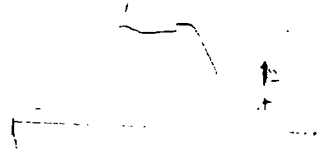
LOCATION : OUTSIDE
RANGE : 105.00C

TEMPERATURE
RECORDER.

***** TEMPERATURE AT RECORDER DEPTH = 47.0 C

Temperature

(5)



FLUID RECOVERY & DOWNHOLE SAMPLER ANALYSIS FOR

DST @5

SULPHUR POINT 1360m - 1376m

CALGARY, ALBERTA


CHEMEX LABS (ALBERTA) LTD.

GRANDE PRAIRIE, ALBERTA

EDMONTON, ALBERTA

GAS ANALYSIS

LABORATORY NUMBER

CONTAINER IDENTITY
TOOL #75**84-2434-12**

LICENCE NO.

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16ELEVATIONS
METERS**735.48 731.**

FIELD OF AREA

POOL OR ZONE

NAME OF SAMPLER

COMPANY

CAMERON**SULPHUR POINT****LYNES UNITED**

TEST RECOVERY

20M INHIBITOR, AMMONIA, WATER, 85M GAS CUT W. DRILLING MUD

TEST TYPE

NO

DST 5

MULTIPLE RECOVERY

SAMPLING POINT

AMT & TYPE OF CUSHION

MUD RESISTIVITY

DOWNHOLE SAMPLER

TYPE OF PRODUCTION

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER m³/dOIL m³/dGAS

GAUGE PRESSURE - KPa

TEMPERATURES °C

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

85-02-14**85-02-20****85-02-21****D.H.**

COMP	MOL FRACTION AIR FREE AS REC'D	MOL FRACTION ACID GAS FREE AS REC'D	LIQUID VOLUME ml m ³ AIR FREE AS REC'D
H ₂	0.0010	0.0010	
He	0.0007	0.0007	
N ₂	0.0458	0.0480	
CO ₂	0.0465	0.0000	
H ₂ S	0.0000	0.0000	
C ₁	0.8811	0.9244	
C ₂	0.0128	0.0134	
C ₃	0.0063	0.0066	23.05
iC ₄	0.0009	0.0009	3.91
nC ₄	0.0021	0.0022	8.80
iC ₅	0.0007	0.0007	3.40
nC ₅	0.0007	0.0007	3.37
C ₆	0.0007	0.0007	3.76
C ₇	0.0007	0.0007	4.20
C ₈			
C ₉			
C ₁₀			
TOTAL	1.0000	1.0000	50.49

GROSS HEATING VALUE

MJ m⁻³ @ 15 °C AND 101.325 KPa

(MOISTURE AND ACID GAS FREE)

MEASURED

CALCULATED

DEW POINT

VAPOUR PRESS
PENTANES PLUS**37.342****71.54**

RELATIVE DENSITY

MOISTURE FREE AS SAMPLED

MOISTURE AND ACID GAS FREE

MEASURED

CALCULATED

MEASURED

CALCULATED

0.640**0.597**

PSEUDO CRITICAL PROPERTIES (CALCULATED)

AS SAMPLED

ACID GAS FREE

pPc

pTc

cPc

dTc

4698.9**197.2****4568.6****191.9**

REMARKS

TOOL HAD AN OPENING PRESSURE OF 150 KPA.
TOOL CONTAINED 13,995 CC OF GAS AND 325 ML. OF
WATER

CALGARY, ALBERTA

CHEMEX LABS (ALBERTA) LTD.

GRANDE PRAIRIE, AL

EDMONTON, ALBERTA

WATER ANALYSIS

CONTAINER IDENTITY

TOOL #75

LABORATORY NUMBER

84-2434-13

LICENCE NO

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS
METERS

735.48 731

FIELD OR AREA

CAMERON

POOL OR ZONE

SULPHUR POINT

NAME OF SAMPLER

COMPANY

LYNES UNITEI

TEST RECOVERY

20M INHIBITOR, AMMONIA, WATER; 85M GAS CUT WATERY DRILLING MUI

TEST TYPE NO

DST 5

MULTIPLE RECOVERY

SAMPLING POINT

DOWNHOLE SAMPLER

AMT & TYPE OF CUSHION

MUD RESISTIVITY

TEST INTERVAL
FROM

1360 m

TO

1376 m

PERFORATIONS
FROM

m

TO

m

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER m³/dOIL m³/d

GAS

GAUGE PRESSURE - KPa

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

85-02-14

DATE RECEIVED

85-02-18

DATE REPORTED

85-02-21

TEMPERATURES °C

SEPARATOR

TREATER

AS RECEIVED

ANALYST

D.D. & M.V.

ION	C g m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Na	10100		439.1
	118		3.0
Ca	400		10.0
Mg	190		7.9
Ba			
Sr			
Fe	46		<1

ION	C g m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Cl	5600		157.7
Br			
I			
HCO ₃	2157		35.4
SO ₄	13375		139.3
CO ₃	<1		<1
OH	<1		<1
H ₂ S	ABSENT		

TOTAL SOLIDS C/g m.⁻³

BY EVAPORATION

@ 110 °C

BY EVAPORATION

@ 18

ATIGNITION

30400

CALCULATED

30890

RELATIVE DENSITY

1.023 @ 21 °C

REFRACTIVE INDEX

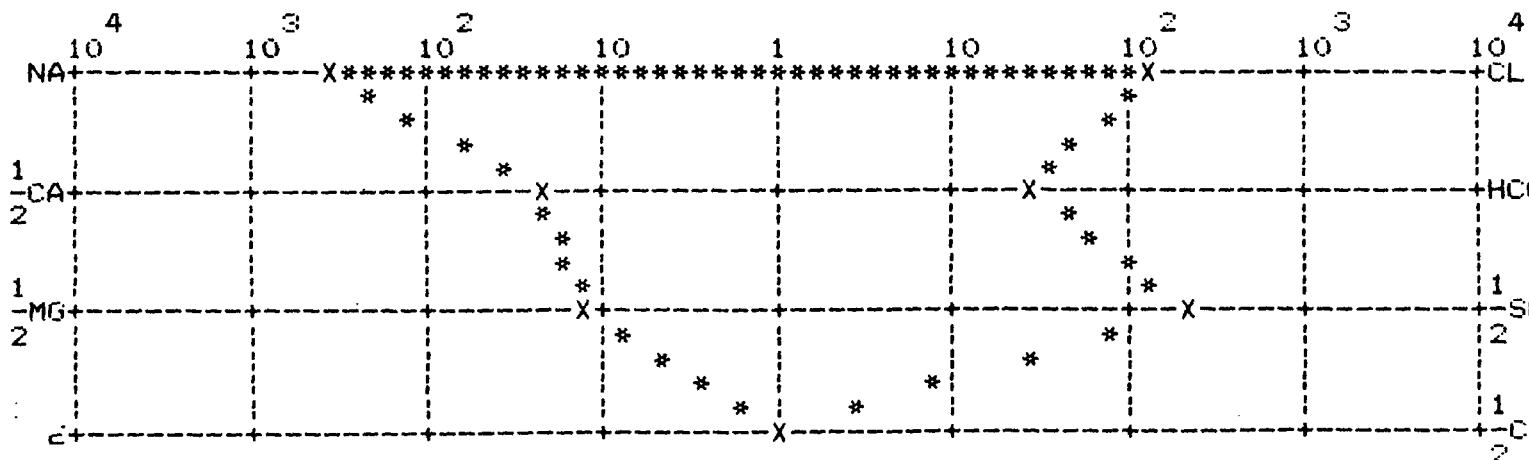
1.337 @ 21 °C

OBSERVED PH

8.0 @ 21 °C

RESISTIVITY Ω m

.2 @ 21 °C

LOGARITHMIC PATTERN C/mol. m.⁻³

REMARKS

EDMONTON, ALBERTA
WATER ANALYSIS

CONTAINER IDENTITY
PLASTIC

LABORATORY NUMBER
84-2434-14

LICENCE NO

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS METERS
KB **735.48** 731

FIELD OR AREA
CAMERON

POOL OR ZONE

SULPHUR POINT

NAME OF SAMPLER

COMPANY

LYNES UNITEL

TEST RECOVERY

TEST TYPE NO
DST 5

MULTIPLE RECOVERY ☐

TEST INTERVAL FROM
1360 m
TO
1376 m

PERFORATIONS FROM
 m
TO
 m

SAMPLING POINT
BOTTOM OF FLUID

AMT & TYPE OF CUSHION

MUD RESISTIVITY

TYPE OF PRODUCTION
PUMPING ☐ FLOWING ☐ GAS LIFT ☐ SWAB ☐

PRODUCTION RATES
WATER m³/d OIL m³/d GAS

GAUGE PRESSURE - KPa
SEPARATOR TREATER AS RECEIVED

TEMPERATURES °C
SEPARATOR TREATER AS RECEIVED

DATE SAMPLED DATE RECEIVED DATE REPORTED ANALYST
Y M D H M Y M D Y M D **D.D. & M.V.**

85-02-14 85-02-18 85-02-25

ION	C g m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Na	14300		621.7
-	97		2.5
Ca	300		7.5
Mg	130		5.4
Ba			
Sr			
Fe	2.4		<1

ION	C g m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Cl	4200		118.3
Br			
I			
HCO ₃	2176		35.7
SO ₄	21875		227.9
CO ₃	10		<1
OH	<1		<1
H ₂ S	ABSENT		

TOTAL SOLIDS C.g. m.⁻³

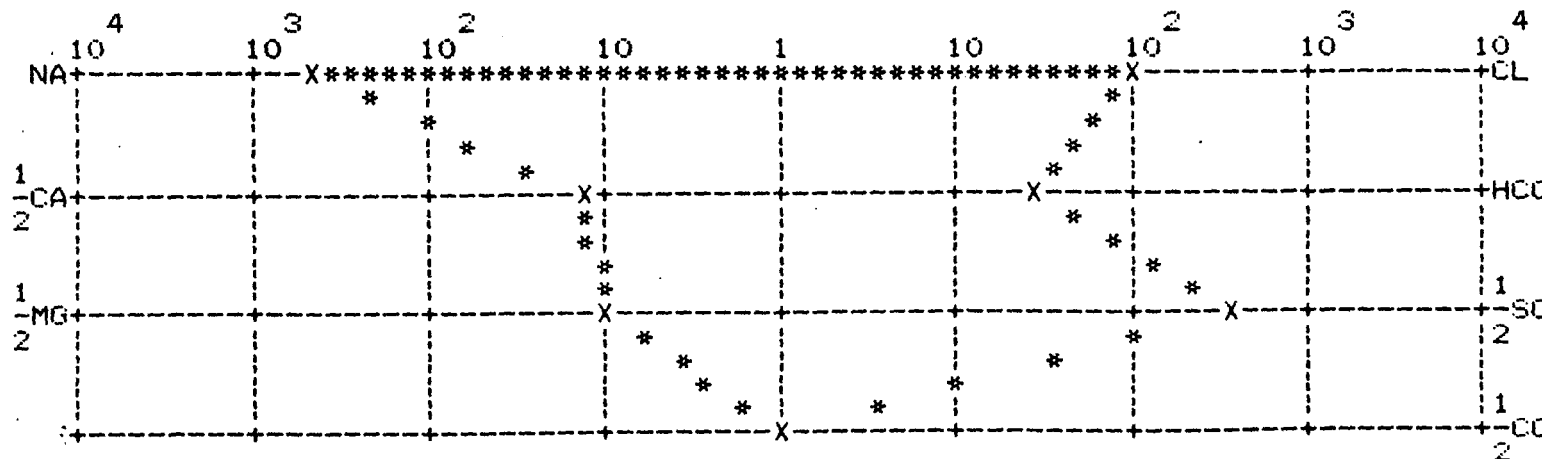
BY EVAPORATION @ 110 °C @ 180

ATIGNITION **39177** CALCULATED **41985**

RELATIVE DENSITY **1.031 @ 21 °C** REFRACTIVE INDEX **1.338 @ 25**

OBSERVED PH **8.3 @ 21 °C** RESISTIVITY Ω m **.155 @ 25**

LOGARITHMIC PATTERN C/mol. m.⁻³



REMARKS

CONTAINER IDENTITY

PLASTIC

 EDMONTON, ALBERTA
WATER ANALYSIS

LABORATORY NUMBER

84-2434-15

LICENCE NO

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS METERS

735.48 731.

FIELD OR AREA

CAMERON

POOL OR ZONE

SULPHUR POINT

NAME OF SAMPLER

COMPANY

LYNES UNIT

TEST RECOVERY

TEST TYPE

NO

DST

5

MULTIPLE RECOVERY

TEST INTERVAL

FROM

1360

m

TO

1376

m

PERFORATIONS

FROM

m

TO

m

SAMPLING POINT

MIDDLE OF FLUID

AMT & TYPE OF CUSHION

MUD RESISTIVITY

TYPE OF PRODUCTION

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER

m³/d

OIL

m³/d

GAS

GAUGE PRESSURE - KPa

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

Y M D H:M

Y M D

Y M D

85-02-14

85-02-18

85-02-25

D.D. & M.V.

ION	C g. m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Na	8400		365.2
...	70		1.8
Ca	1.7		<1
Mg	8.5		<1
Ba			
Sr			
Fe	1.0		<1

ION	C g. m. ⁻³	MASS FRACTION	C mol. m. ⁻³
Cl	400		11.3
Br			
I			
HCO ₃	3504		57.4
SO ₄	14375		149.7
CO ₃	605		10.1
OH	<1		<1
H ₂ S	ABSENT		

TOTAL SOLIDS C g. m.⁻³

BY EVAPORATION

@ 110 °C

BY EVAPORATION

@ 110 °C

AT IGNITION

25044

CALCULATED

25585

RELATIVE DENSITY

1.019 @ 21 °C

REFRACTIVE INDEX

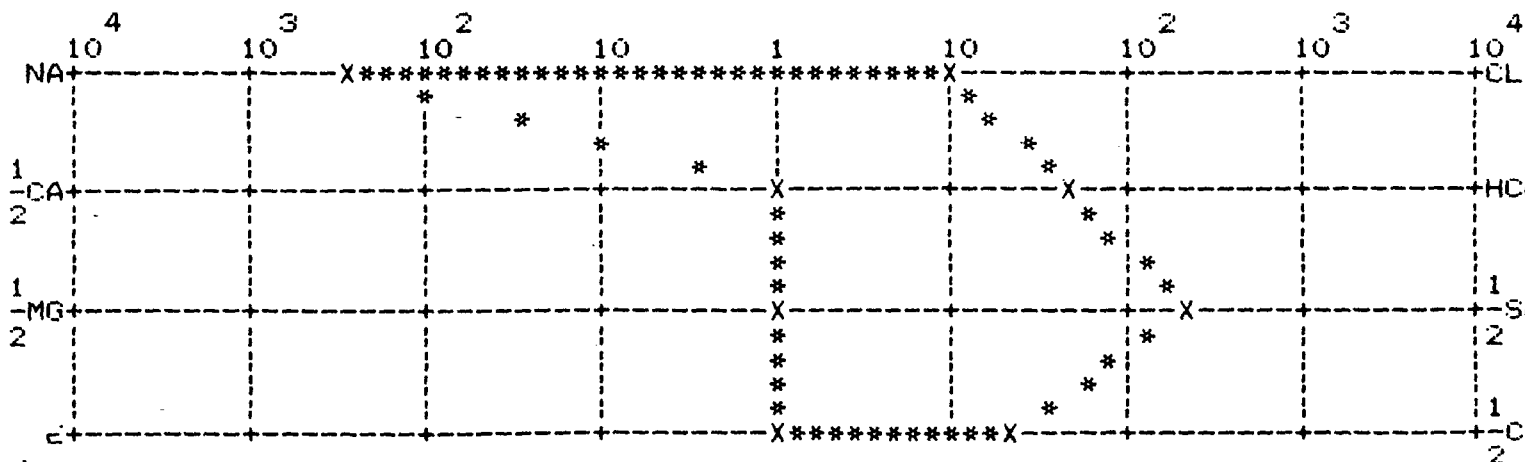
1.336

OBSERVED PH

8.9 @ 21 °C

RESISTIVITY Ω m

.27

LOGARITHMIC PATTERN C. mol. m.⁻³

REMARKS

EDMONTON, ALBERTA

WATER ANALYSIS

CONTAINER IDENTITY

PLASTIC

LABORATORY NUMBER

84-2434-16

LICENCE NO.

OPERATOR NAME AND ADDRESS

EXCO ENERGY LTD.

CPA NUMBER

WELL NAME

EXCO ETAL CAMERON I-16

ELEVATIONS METERS

735.48 731

FIELD OR AREA

POOL OR ZONE

NAME OF SAMPLER

COMPANY

CAMERON

SULPHUR POINT

LYNES UNITE

TEST RECOVERY

TEST TYPE

NO

DST

5

MULTIPLE RECOVERY

TEST INTERVAL

FROM

1360

m

TO

1376

m

PERFORATIONS

FROM

m

TO

m

SAMPLING POINT

TOP OF FLUID

AMT & TYPE OF CUSHION

MUD RESISTIVITY

TYPE OF PRODUCTION

PUMPING

FLOWING

GAS LIFT

SWAB

PRODUCTION RATES

WATER

m³/d

OIL

m³/d

GAS

GAUGE PRESSURE - KPa

SEPARATOR

TREATER

AS RECEIVED

SEPARATOR

TREATER

AS RECEIVED

DATE SAMPLED

DATE RECEIVED

DATE REPORTED

ANALYST

85-02-14

85-02-18

85-02-25

D.D & M.V.

ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³
Na	2460		107.0
K	22		<1
Ca	2		<1
Mg	.8		<1
Ba			
Sr			
Fe	1.5		<1

ION	C g m ⁻³	MASS FRACTION	C mol m ⁻³
Cl	300		8.5
Br			
I			
HCO ₃	<1		<1
SO ₄	275		2.9
CO ₃	2500		41.7
OH	500		29.4
H ₂ S	ABSENT		

TOTAL SOLIDS C/g m⁻³

BY EVAPORATION

@ 110 °C

BY EVAPORATION

@ 180 °C

ATIGNITION

7041

CALCULATED

6061

RELATIVE DENSITY

1.004 @ 21 °C

REFRACTIVE INDEX

1.334 @ 25 °C

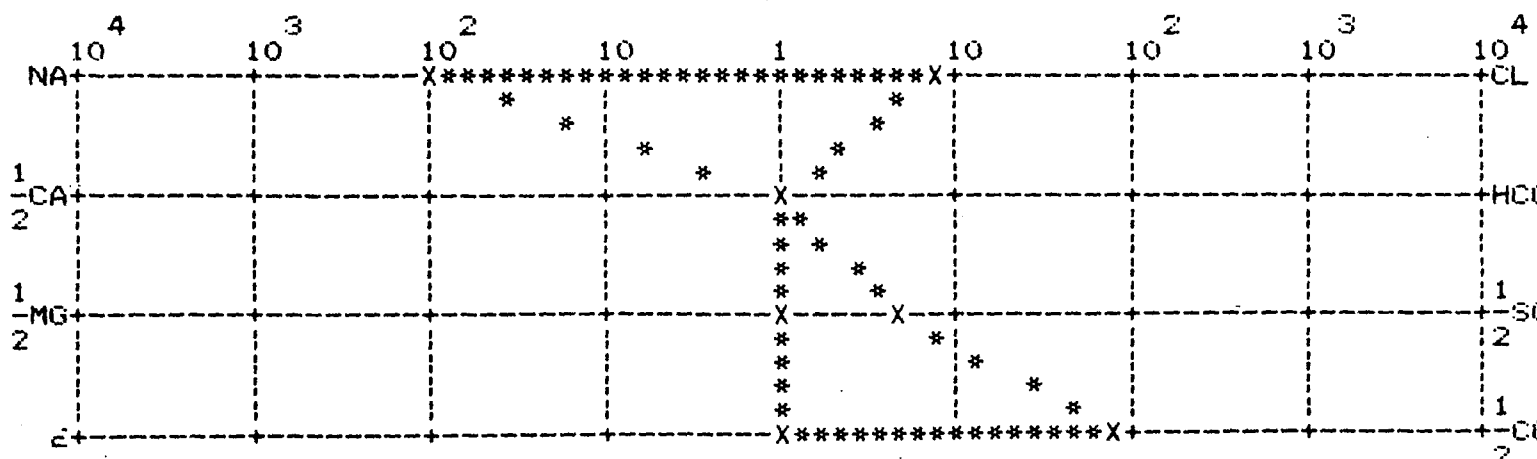
OBSERVED PH

11.3 @ 21 °C

RESISTIVITY Ω m

.9 @ 25 °C

LOGARITHMIC PATTERN C: mol m⁻³



REMARKS