

ESSO RESOURCES CANADA LIMITED
WELL COMPLETIONS & WORKOVERS

9251-2-21-J1-225

D.L.S.								
SS	LOC EX	LSD	SEC	TWP	RGE	E W	M	W EX
1								0

B.C. CENTIZONE						
SS	LOC EX	U	UNIT	B	N.T.S.	W EX
2						0

N.W.T. GRID									
SS	LOC EX	U	SEC	LAT	MIN	LONG	MIN	W	EX
3									

Well Name ESSO NORMAN WELLS C-34-1X				Field NORMAN WELLS				Date Prep. 87 05 12		
Contract Rig				Rig Supervisor				Charge No. 9N001		

Pool NORMAN WELLS	Zone KEE SCRAP	FTD 465	PBD + 448	TVD FTD	KB ELEV. 68.7	KB to Csg Flg. 5.22
Present Status DRILLED AND CASED	m ³ /d Oil	m ³ /d H ₂ O	Gas	WOR	GOR	KB to Dognut
Objective COMPLETE AS A PUMPING OILWELL						

REQUEST TO	A WELL	REQUEST NO.
Well Name & Location		
PROBLEM		
DISCUSSION		
- TYPE 1 WELL WITH A MAXIMUM DEVIATION OF 38° - DEVIATION ACROSS THE PERFORATED INTERVAL OF THE KEE SCARP IS 4° - 10° - CORRELATE LOG AND PERF DEPTHS TO THE COMPUTALOG CNL-DT, RUN #1 DATED 87 04 24 - SINGLE STAGE ACID JOB USING 1.1 SP. GR. BALL SEALERS AND 24% HCL - FINAL PRODUCTION STRING IS 73 mm EUE, 9.67 kg/m - PUMP AND RODS ARE TO BE INSTALLED AS DIRECTED BY PRODUCTION OPERATIONS		
EST. COST	COMPLETION ESTIMATE = 123 k\$	AFE ESTIMATE - 155 k\$
EST. W.O. INCREASE	REVISED = 123 k\$	
PERCENT IMPERIAL		
PRESENT VALUE		
RATE %		
PAYOUT		

PREPARED BY *Don Reitsma* SUBMITTED BY _____
D.G. REITSMA Area Engineer

APPROVAL RECOMMENDED BY _____ APPROVED BY *Don Reitsma for H.A.L.*
Production Engineer SUPERINTENDENT - OPERATIONS

PROGRAM & DAILY OPERATIONS REPORT

DATE | YR | MTH | DAY

WELL NAME: Esso Norman Wells C-34-1X

8/ 05 12

OBJECTIVE: Complete as a Conventional Oilwell

AUTHOR: D.G. Reitsma

PROGRAM

DAILY OPERATIONS REPORT

Note: A. All measurements refer to K.B.

Measured Depth.

B. The tubing hanger must be

landed and secured when there

is tubing in the well, and

when pressure operations are

to be conducted (unless a

packer is used).

87-05-17

1. Move on service rig complete with pump tank, hydraulic BOP equipment, and boiler, if required.

Moved Rig + Equipment from
E-32-1x

2. Check the well for pressure, and record, if any. Bleed off any pressure.

Nil

3. Rig up, as per ERCL specifications.

Rigged up to Esso Specs

4. Remove the Xmas tree and install the following BOP equipment:

Removed the capping assembly
Checked the primary seals and
installed the secondary seals and
tubing bowl. Pumped the seals
full of plastic as the casing

Note: Tighten casing flange bolts
before installing BOP.

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14 MPa and record results. Record	
PBD. Circulate the hole clean and	
displace the well to clean salt	
water. Current BHP estimate is 5500	
kPa datum (450 SS). Kill fluid	
gradient required is 12.2 kPa/m of a	
density of 1245 kg/m ³ to balance	
pressure.	
7. P.O.H. Break out bit and scraper.	<i>Pulled out the bit + scraper</i>
8. Run and tally the logging,	<i>As programed</i>
perforating and stimulation string	
for the casing size and weight as	
noted on the program cover sheet:	
o Guiberson RBP VI bridge plug c/w	
ball catcher and 73mm EUE	
connections (right hand set and	
release).	
o Guiberson retrieving head with	
smooth bevelled shoe (min. I.D. =	
60.3 mm) and 73 mm EUE connections.	
o 2 joints 73 mm EUE tubing.	

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o Guiberson Uni Cementer VI Packer	
c/w 73 mm EUE connections (left	
hand set and right hand release).	
o + 2.4 m, 73 mm EUE PUP joint.	
o 73 mm EUE tubing to surface.	
9. Position bridge plug in blank	
section of pipe at + 445 m.	<i>Set the Bridge plug at 446.1m</i>
Pressure test bridge plug to 14.0	<i>Unlatched pulled 10, ts</i>
MPa.	
10. Position the tubing shoe at + 350 m.	<i>Positioned the tubing shoe at</i>
	<i>353.494m</i>
11. Rig up Computalog cased hole	<i>Rigged up Computalog</i>
electric wireline unit, complete	<i>Ran a GRN collar log</i>
with full lubricator, pack-off, and	
50.8mm pump in connection (if	
maximum deviation is over 65 °).	
Pressure test to / MPa. Run a cased	
hole GRN correlation log from PBD to	
20 m above the top of the Kee Scarp	
unless otherwise directed.	
Correlated to the log as noted on	
the program cover sheet.	

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Note: Record difference between
tubing tally and log depth.

.1 m³ deeper with tubing measurement
than the line measurement

12. Rig up lubricator as in Step #11.

Perforate as directed on perf
interval sheet attached. Referenced
to the log noted on the program
cover sheet. Use a 54 mm hollow
carrier tubing gun, armed at shot
density as specified on perf
interval sheet. Intervals
stimulated with ball sealers will be
shot at 4 SPM 0° phasing, and
magnetically decentralized with
button magnets both top and bottom.

Perforated as programmed
Made 10 runs to perforate the
Interval
Rigged out Computalog
Shut the well in for the night

Note: Shift perf. depths to avoid
collars if depth shift is 0.5
m or less for ball jobs.

Do not exceed total gun length
of 5.0 meters in Type 2 or 3
wells if running through the

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DAILY OPERATIONS REPORT

tubing.	
Record any difference between	
log and tally depths.	
13. Rig out and release Computalog	✓
wireline unit.	
14. Acid treatment preparation	<i>As programed</i>
a) Ensure Dowell pumper relief	
valve is set @ 23 MPa.	
b) Prepare acid volume and	
concentration as per Schedule	
"A" with the following additives:	
- Corrosion inhibitor A-200 @	
0.2%	
- Anti-sludge W-35 @ 0.8%	
- Surfactant F-15 @ 0.2%.	
c) Roll acid tank before the	
treatment, and after heating	
acid to + 0 °C (to prevent	
damaging chlc san seals) to	

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PROGRAM
DAILY OPERATIONS REPORT

ensure chemicals are mixed and

uniform acid density take acid

sample from tank suction and

record S.G. and observe for

chemical/acid separation after

20 minutes. Obtain and record

specific gravity. Refer to

attachment on the use of the

Baume Hydrometer.

Note: Obtain sample from top of

tank at completion of job

and repeat test. Report

S.G. and phase separation

observations.

d) Drop a couple of ball sealers in

the acid sample and determine

whether balls float or sink,

quickly or slowly.

e) Install ball catcher and check

valve at the rig tank.

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15. Rig up Dowell pumper to ERCL specs, complete with positive displacement ball injector. Test the ball injector prior to hooking up to the treatment line. Hook up injection manifold so that the tubing can be bled back to the rig tank through the ball catcher. Install a tubing swivel for setting the packer.

87-05-18 Tubing + casing
 Ran in with tubing position the packer at 417.976m. Tubing shoe at 437.798m. Rigged up Dowell. Filled the hole. Pressure tested the lines. Spotted 24% HCl acid at the tubing shoe. Washed 1m³ of acid passed the perfs. Set the packer squeezed 1m³ of 24% acid

16. Refer to Schedule "A" for acid and ball sealer volumes and packer, bridge plug position.

Max rate .4m³/min at 7.8mpa
 I.S.I.P. 7mpa After 12min 2.2mpa
 Bled the well off

17. If treatment balls off, hold 14-18 MPa for at least 10 minutes to ensure no further breakdown is possible. Depressure tubing to rig tank to let the balls drop. If only a small volume of acid remains (2-3m³), attempt to squeeze it at 0.1 - 0.3 m³/minute before starting to flush. If it is impossible to squeeze, flush the

Unset the packer moved the tubing shoe up to 344m set the packer. Hooked up Dowell to do a ball job. Did the Ball job as programed. Max. rate .95m³/min at 10mpa. Ball off stop dropping balls at #77. I.S.I.P 5.5mpa after 15mins 3.5mpa

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acid in Dowell's line to the rig	
tank with water. Depressure tubing	
and let the balls fall.	
<u>Note:</u> Let acid spent for one hour	<i>left well shut in for 10 mins</i>
after displacing overflush.	
18. If no ball off occurs, let tubing	
depressure and allow balls to drop	
before overflushing. Rig out	<i>Flowed well back recovered</i>
Dowell, check ball injector for	<i>53m³ in 7 hrs 100% oil at 50m³</i>
number of balls gone.	<i>Shut the well in for the night</i>
	<i>87-05-19 2500 Kpa Tubing</i>
19. Flow back well a minimum of 2X input	<i>Ø Kpa casing</i>
fluid to recover spent acid. Record	
the final water cut.	
20. Kill the well. Pull the bridge plug	
and packer out of the hole. Record	
number of balls recovered and number	
of balls marked.	
21. Make up and run the production	
string and pump and rods as directed	

DATE	YR	MTH	DAY
10/10/71	71	10	10

8/ 05 12

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DAILY OPERATIONS REPORT

Operations.

23. Reduce the pressure to 2 MPa and stroke the pump to repressure the tubing to 7 MPa. Release the tubing pressure slowly.

24. Rig out service rig. Notify the
well is ready for production.

C-34-12

4 SPM

<u>Run #1</u>	431.0 - 432.0 436.0 - 437.0	1.0 ML 4.0 MB 1.0 ML	10' x 10'	8 shots
<u>Run #2</u>	426.5 - 428.0	1.5 ML	6'	6 shots
<u>Run #3</u>	420.0 - 422.0	2.0 ML	10'	8 shots
<u>Run #4</u>	412.5 - 414.0	1.5 ML	10'	6 shots
<u>Run #5</u>	404.0 - 405.0 407.5 - 408.5	1.0 ML 2.5 MB 1.0 ML	10' x 6'	8 shots
<u>Run #6</u>	399.0 - 400.0	1.0 ML	6'	4 shots
<u>Run #7</u>	390.5 - 391.5	1.0 ML	6'	4 shots
<u>Run #8</u>	383.75 385.25 383.5 - 385.0	1.5 ML	6'	6 shots
<u>Run #9</u>	378.0 - 380.0	2.0 ML	10'	8 shots
<u>Run #10</u>	372.0 - 374.0	2.0 ML	10'	8 shots

TOTAL RUNS - 10

TOTAL SHOTS - 66

COLLARS C-34-1X

Tubing bottom 452.4 COLLAR
LOG

358.9

370.6

383.5

395.1

408.1

421.95

434.3

DB TD. 442.65 with ban

PERFORATING REPORTS

WELL NAME: ESSO NORMAN WELLS 1-74-12

PERFORATING COMPANY: COMPUTALOG GERRHART LTD

GUN TYPE: R.F.H.S.C. SIZE: 50.8 mm SHOT TYPE: DML 6.9mm

SHOT DENSITY: 4 SPM PHASING: ZERO DECENTRALIZER(S): TOP & BOTTOM

REMARKS: Decentralized top & bottom with button magnets

TOTAL RUNS - 10 TOTAL SHOTS - 66

DATE	INTERVAL NO.	RUN NO.	PERFORATED INTERVAL	SHOTS FIRED	COMMENTS
17 MAY 87	1	1	431.0 - 432.0 436.0 - 437.0	8	CCL to T.S. .9m R.C. 434.3
"	"	2	426.5 - 428.0	6	CCL to T.S. .75m P.C. 424.3
"	"	3	420.0 - 422.0	8	CCL to T.S. 1.5m R.C. 421.95
"	"	4	412.5 - 414.0	6	CCL to T.S. 2.0m R.C. 421.95
"	"	5	404.0 - 405.0 407.5 - 408.5	8	CCL to T.S. 1.2m R.C. 408.1
"	"	6	399.0 - 400.0	4	CCL to T.S. 1.25m R.C. 408.1
"	"	7	390.5 - 391.5	4	CCL to T.S. 1.25m R.C. 395.1
"	"	8	383.75 - 385.25	6	CCL to T.S. .75m R.C. 383.5
"	"	9	378.0 - 380.0	8	CCL to T.S. 1.5m R.C. 383.5
"	"	10	372.0 - 374.0	8	CCL to T.S. 1.5m R.C. 370.6
					CCL to T.S. R.C.
					CCL to T.S. R.C.
					CCL to T.S. R.C.
					CCL to T.S. R.C.
					CCL to T.S. R.C.
					CCL to T.S. R.C.
					CCL to T.S. R.C.
					CCL to T.S. R.C.
					CCL to T.S. R.C.

ORIGINAL COMPLETION PERFORATION INTERVALS FOR

ESSO NORMAN WELLS C-34-1X

Selected by : F.M. Doyle-Read
L.W. West
D.G. Reitsma

Correlation Log: Computalog Gearhart Openhole
Neutron Log, dated April 1987

372.0 - 374.0		2.0 m
378.0 - 380.0		2.0 m
383.5 - 385.0	383.75 - 383.25	1.5 m
390.5 - 391.5		1.0 m
399.0 - 400.0		1.0 m
404.0 - 405.0		1.0 m
407.5 - 408.5		1.0 m
412.5 - 414.0		1.5 m
420.0 - 422.0		2.0 m
426.5 - 428.0		1.5 m
431.0 - 432.0		1.0 m
436.0 - 437.0		1.0 m

Total Gross Meters Perforated = 65.0 m
Total Net Meters Perforated = 16.5 m

ESSO NORMAN WELLS C-34-1X

SCHEDULE A

BALL SEALER ACID TREATMENT

Acid Strength = $\frac{24}{25} \%$
Total Acid = $\frac{24}{25} \text{ m}^3$

Step #1 Land the UNI VI Bridge Plug @ + 445 m and test. Land the tubing shoe + 2 m below the bottom perforation.

Step #2 Circulate 0.5 m^3 acid down the tubing and backwash out.

Step #3 Wash 0.5 m^3 of acid across the entire perforated interval at a rate of $0.16 \text{ m}^3/\text{minute}$ holding 6 MPa backpressure.

Step #4 Set the packer at + 417 m and squeeze 1.0 m^3 of acid to the lower interval(s) not exceeding 18 MPa. Let acid spend for 10 minutes. Note casing pressure.

Step #5 Release the packer, overflush down the casing with 1.5 m^3 of kill fluid. Position the tubing shoe at + 350 m.

Step #6 Ball Sealer Treatment Schedule

<u>Cum. Acid (m³)</u>	<u>Balls/m³</u>	<u>Cum. Balls</u>
<u>1</u>	<u>4</u>	<u>4</u>
<u>6</u>	<u>4</u>	<u>24</u>
<u>7</u>	<u>3</u>	<u>27</u>
<u>10</u>	<u>3</u>	<u>36</u>
<u>15</u>	<u>3</u>	<u>51</u>
<u>20</u>	<u>3</u>	<u>66</u> *
<u>21</u>	<u>5</u>	<u>71</u>
<u>23</u>	<u>5</u>	<u>81</u>

* Number of balls = number of perfs

Notes: Optimum Pump Rate of $0.9 \text{ m}^3/\text{minute}$
Assumed number of perforations = 68
Displacement to top perf for ball job = 1.43 m^3



CUSTOMER NAME AND ADDRESS Esso Resources Canada Ltd.		TREATMENT INVOICE NUMBER 0805-6456		DATE May 18, 1987	
P.O. Box 2480, Stn. M		DS DISTRICT EAB		DS OUTPOST NNT	
Calgary, Alta T2P 3M9		DS SUPERVISOR D Thompson		CUSTOMER REPRESENTATIVE B Bloor	
		TYPE SERVICE Acid		SERVICE NAME Ball Sealers	
SERVICE INSTRUCTIONS, REMARKS, MATERIALS Acidize with 25 m³ 24% HCL containing		WELL NAME Esso Norman Wells Q-34-1 x			
.2% A200, .2% F75 + .8% W35. Dropping		LOCATION Norman Wells		PROVINCE N.W.T.	
4 1.1 Sp. Gr. balls for 6.0 m³ acid; 3 balls/		FORMATION Kee Scarp		RIG NAME Esso 15	
m³ for next 14.0 m³ acid + 5/m³ for final		TYPE OF WELL		AGE OF WELL	
3.0 m³. 2.0 m³ wash + squeeze.		OIL ☒ GAS ☐ INJ/ DISP. ☐ OTHER ☐		NEW ☒ REWORK ☐	
		PACKER TYPE Uni VI		PACKER DEPTH 445 m	
		FLOAT/STG. TYPE		FLOAT/STG. DEPTH	
TOTAL FLUID INJECTED		AVG. PRESSURE		CEMENT TEMPERATURE	
OIL —	WATER —	7.6 MPa		—	
ACID	CEMENT	MAX. INJ. PRESSURE		WATER TEMPERATURE	
25 m³	—	11.5 MPa		—	
OTHER (SPECIFY)		FINAL INJ. PRESSURE		SLURRY TEMPERATURE	
—		7.8 MPa		—	
AVG. INJECTION RATE		INST. SHUT IN PRESSURE		RETURNS TEMPERATURE	
.3 m³/min		7.0 MPa		—	
MAX. INJECTION RATE		WIPER PLUG PRESSURED TO		AVG. SLURRY DENSITY	
.4 m³/min		—		FILL —	
Wash + squeeze ↑		TAIL-IN —		ARRIVE LOCATION	
				LEAVE LOCATION	
				PERFORATED INTERVALS	
				TOP BOTTOM	
				NO OF HOLES	
				68	

TIME	PRESSURE TBG.	CSG.	INJ. RATE	VOLUME STAGE	CUMM.	CHART REF.	SERVICE LOG DETAIL	PAGE	OF
	MPa	MPa	m ³ /min	m ³	m ³			1	4
0750							Pretreat Safety Meeting		
							Specific Gravity of blend - 1.125		
							Temp. of blend - 16°C		
							Balls floated in blend.		
							No acid/chemical separation after 20 min.		
						1			
	.1	.1	.3	.3	.3	1	Circulate well.		
	19.6					2	Pressure test DS lines		
						3	Start pump HCL holding back press.		
	1.2	.7	.35	1.5	1.8	4	HCL @ tbq shoe. Decrease rate for wash over lower intervals		
		.1				5	Holding to much backpressure. Open annulus		
	0.8	0.8	.1	.5	2.3	6	Finish HCL + start H ₂ O		
	1.2	1.0	.1	.5	2.8	7	Finish H ₂ O. Close annulus + set packer		



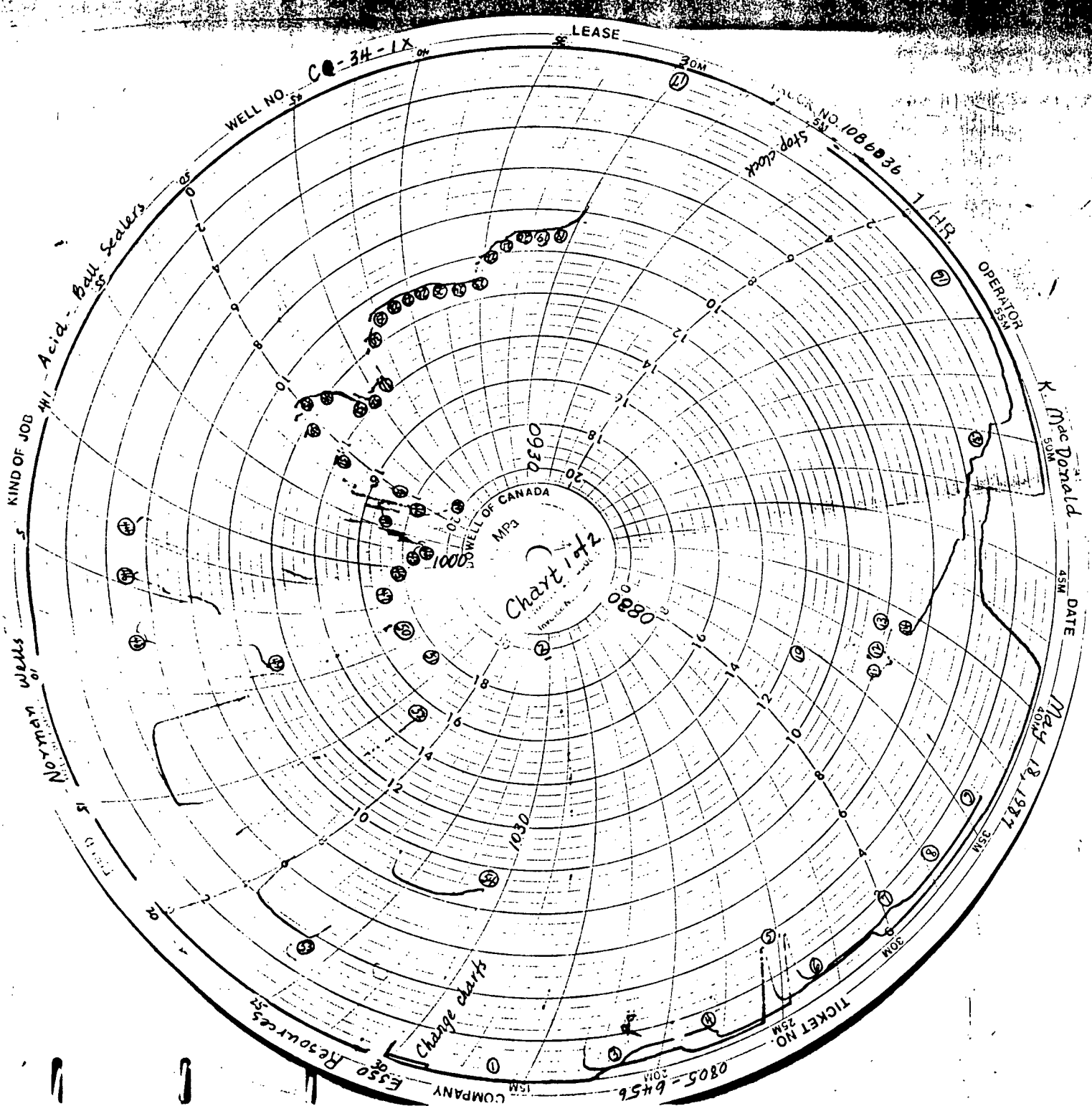
TREATMENT NUMBER		WELL NAME		LOCATION		DATE	PAGE	OF
0805-6456		Q-34-1X		Norman Wells		May 18, 1987	2	4
TIME	PRESSURE		INJ. RATE	VOLUME		CHART REF.	SERVICE LOG DETAIL	
	TBG.	CSG.		STAGE	CUMM.			
	MPa	MPa	m ³ /min	m ³	m ³			
						8	Wait 10 mins. Wash complete.	
						9	Start squeeze with H ₂ O	
	11.5	0.3				10	Formation breakdown.	
	7.7	0.2	.2			11	Rate - .2 m ³ /min @ 7.7 MPa	
	7.8	0.2	.4			12	" .4 " " 7.8 "	
	7.8	.02	.4	1.0	3.8	13	Finish squeeze.	
						14	LSIP - 7.0 MPa	
						15	After 10 mins - tbq @ 2.3 MPa	
							" " " csg " 3.0 MPa	
							No csg pressure during squeeze.	
							Pressure on csg 3 mins after	
							squeeze - 3.7 MPa	
						16	Prepare for ball job.	
0930						17	Start pump HCl dropping 4 balls/m ³	
	9.7	0	.95	1.0	1.0	18	Ball # 4 Rate - .95 m ³ /min @ 9.7 MPa	
	10.0	0	.95	1.0	2.0	19	" 8 " .95 " " 10.0 "	
	10.0	0	.96	1.0	3.0	20	" 12 " .96 " " 10.0 "	
	10.5	0	.97	1.0	4.0	21	" 16 " .97 " " 10.5 "	
	10.9	0	.96	1.0	5.0	22	" 20 " .96 " " 10.9 "	
	11.1	0	.9	1.0	6.0	23	" 24 " .9 " " 11.1 "	
							Start drop 3 balls/m ³	
	11.1	0	.9	1.0	7.0	24	Ball # 27 Rate .9 m ³ /min @ 11.1 MPa	
	10.8	0	.91	1.0	8.0	25	" 30 " .91 " " 10.8 "	
	10.6	0	.91	1.0	9.0	26	" 33 " .91 " " 10.6 "	
	10.6	0	.91	1.0	10.0	27	" 36 " .91 " " 10.6 "	
	10.6	0	.91	1.0	11.0	28	" 39 " .91 " " 10.6 "	
	10.7	0	.91	1.0	12.0	29	" 42 " .91 " " 10.7 "	
	11.5	0	.87	1.0	13.0	30	" 45 " .87 " " 11.5 "	
	13.5	0	.8	1.0	14.0	31	" 48 " .8 " " 13.5 "	
	13.6	0	.77	1.0	15.0	32	" 51 " .77 " " 13.6 "	
	13.3	0	.79	1.0	16.0	33	" 54 " .79 " " 13.3 "	
	12.0	0	.87	1.0	17.0	34	" 57 " .87 " " 12.0 "	
	10.3	0	.91	1.0	18.0	35	" 60 " .91 " " 10.3 "	
	12.2	0	.88	1.0	19.0	36	" 63 " .88 " " 12.2 "	
	14.0	0	.83	1.0	20.0	37	" 66 " .83 " " 14.0 "	



TREATMENT NUMBER		WELL NAME			LOCATION		DATE	PAGE	OF
0805-6456		Q-34-1X			Norman Wells		May 18, 1987	3	4
TIME	PRESSURE		INJ. RATE	VOLUME		CHART REF.	SERVICE LOG DETAIL		
	TBG.	CSG.		STAGE	CUMM.				
	MPa	MPa	m ³ /min	m ³	m ³				
							Start drop 5 balls / m ³		
	16.9	0	.64	.6	20.6	38	Ball # 69 Rate - .64 m ³ /min @ 16.9 MPa		
	19.5	0	.46	.4	21.0	39	" 71 " .46 " " 19.5 "		
	18.0	0	.33	.4	21.4	40	" 73 " .33 " " 18.0 "		
	17.0	0	.26	.6	22.0	41	" 76 " .26 " " 17.0 "		
	18.9	0	.12	.2	22.2	42	" 77 " .12 " " 18.9 "		
							Stop dropping balls		
	18.8	0	.12	.1	22.3	43	Stop pump. Allow balls to drop.		
						44	Continue pump HCL		
	17.5	0	0			45	Stop pump - ball off		
						46	Attempt pump remaining HCL		
	17.0	0	0			47	Ball off - stop pump		
						48	Attempt pump remaining HCL		
	11.0	0	.2	.7	23.0	49	Finish HCL + start H ₂ O overflush		
	17.2	0				50	Stop pump - ball off		
	17.5	0	0			51	Repeat chart ref # 50		
	15.0	0	0			52	" " " "		
						53	Continue pump overflush		
	8.9	0	.15	1.5	24.5	54	All balls + HCL out of tbq. Stop pump		
						55	Continue overflush.		
	4.6	0	.21			56	Rate - .21 m ³ /min @ 4.6 MPa		
	8.5	0	.4			57	" - .4 " " 8.5 MPa		
1040	9.0	0	.4	3.7	28.2	58	Finish overflush		
						59	ISIP - 5.5 MPa		
						60	After 15 mins - tbq @ 3.6 MPa Csg @ 0 MPa		
						61	Bled off + rig out.		
							SUMMARY OF BALL JOB -		
							Max inj rate - .97 m ³ /min		
							Aver inj rate - .76 m ³ /min		
							Aver inj press - 14.2 MPa		
							Max inj press - 19.5 MPa		
							Final inj press - 9.0 MPa		
							ISIP - 5.7 MPa		
							After overflush ISIP - 5.5 MPa		

[illegible]

DATE: <u>May 18/87</u>						WELL NAME AND LOCATION: <u>C-34-1X</u>													
BALL #	TIME	VOLUME	RATE	TBG. PRESS.	CSG. PRESS.		BALL #	TIME	VOLUME	RATE	TBG. PRESS.	CSG. PRESS.		BALL #	TIME	VOLUME	RATE	TBG. PRESS.	CSG. PRESS.
1		.25					41		11.66					81		23.0			
2		.5					42		12.0	.91	10.6			82					
3		.75					43		12.33					83					
4		1.0		8.7	-		44		12.66					84					
5		1.25					45		13.0	.87	11.5			85					
6		1.5	.95	9			46		13.33					86					
7		1.75					47		13.66					87					
8		2.0	.95	9			48		14.0	.79	13.4			88					
9		2.25					49		14.33					89					
10		2.5					50		14.66					90					
11		2.75					51		15.0	.77	13.5			91					
12		3.0	.95	9			52		15.33					92					
13		3.25					53		15.66					93					
14		3.5					54		16.0	.78	13.4			94					
15		3.75					55		16.33					95					
16		4.0	.95	9.5			56		16.66					96					
17		4.25					57		17.0	.86	12			97					
18		4.5					58		17.33					98					
19		4.75					59		17.66					99					
20		5.0	.95	10			60		18.0	.9	11.5			100					
21		5.25					61		18.33					101					
22		5.5					62		18.66					102					
23		5.75					63		19.0	.87	11.5			103					
24		6.0	.9	11			64		19.33					104					
25		6.33					65		19.66					105					
26		6.66					66		20.0	.8	14			106		15	.87		
27		7.0	.9	11			67		20.2					107					
28		7.33					68		20.4					108					
29		7.66					69		20.6					109					
30		8.0	.91	11			70		20.8					110					
31		8.33					71		21.0	.6	16			111					
32		8.66					72		21.2					112					
33		9.0	.91	10.6			73		21.4					113					
34		9.33					74		21.6					114					
35		9.66					75		21.8	.26	17			115					
36		10.0	.91	10.6			76		22.0	.25	17.4			116					
37		10.33					77		22.2					117					
38		10.66					78		22.4	.11	18			118					
39		11.0	.91	10.5			79		22.6					119					
40		11.33					80		22.8					120					



WELL NO. C-34-1X

LEASE

STOP CLOCK

TICKET NO. 0805-6456

1 HR

OPERATOR

K. MacDonald

DATE

May 18, 1987

KIND OF JOB

4H1 Acid Ball Sealers

10 min work

Chart 1 of 2

SHELL OF CANADA

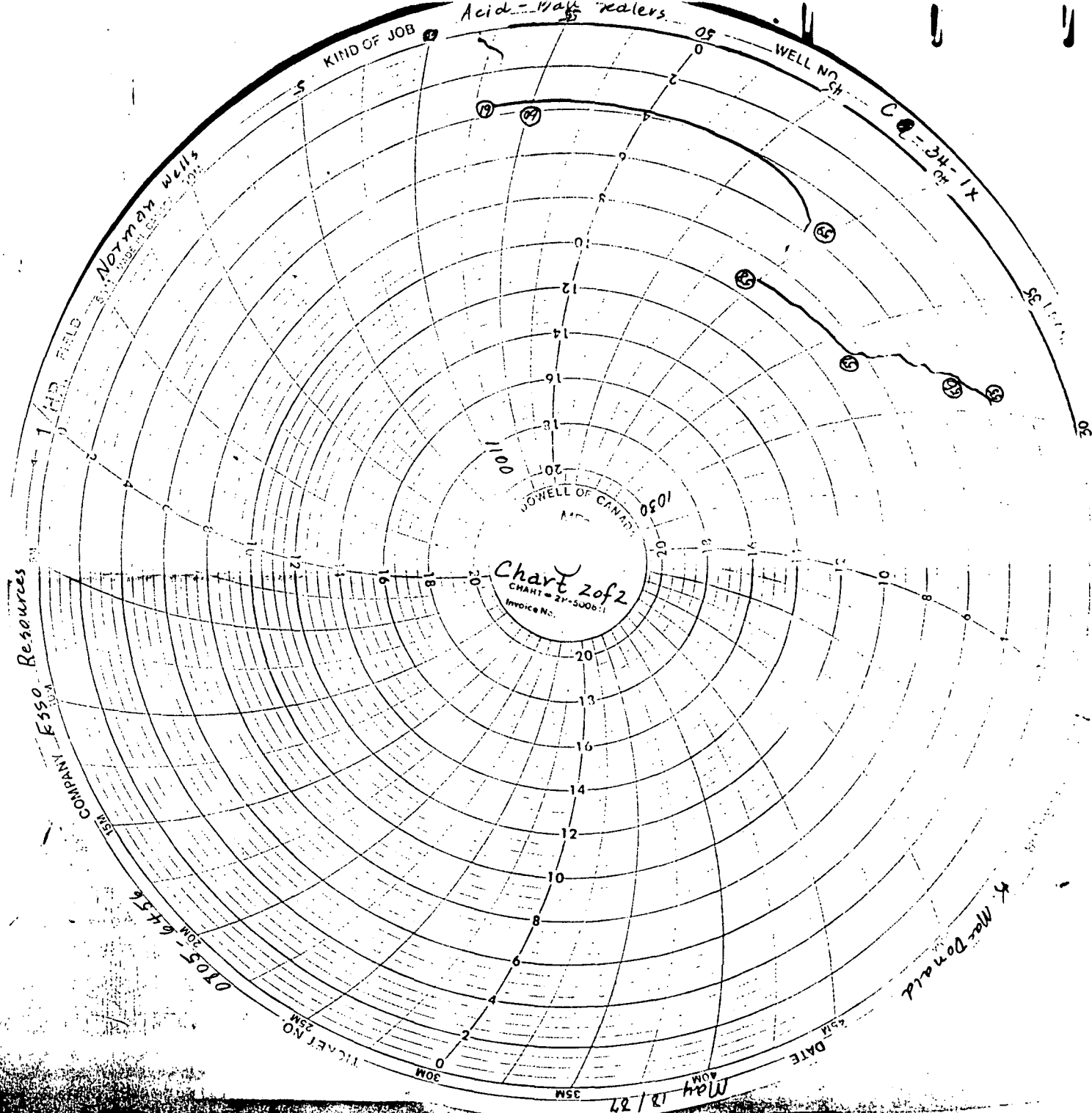
0930

Change charts

ESSO Resources

COMPANY

0805-6456



100-100-6036

4. MacDonald

May 18/87

0105-6456

TUBING				(DATE RUN)			YR.	MO.	DAY
							87	05	19
TYPE	SIZE	GRADE	WEIGHT	RANGE		THREADS			
EUE	73mm	J-55	9.67 kg/m	2		8			
NO. JTS	ITEM			METRES		SET DEPTH			
1	73mm pup			3.84		435.571			
1	73mm perforated pup			1.84					
1	API pump seating nipple			.33		433.401			
46	73mm tubing			428.621					
Rods run in this order									
1	pump c/w 2' pony rod								
7	sinker bars (16' polish rods)								
2	Scraper rods								
12	Scraper rods with rollers								
7	Scraper rods								
9	Scraper rods with rollers								
18	Scraper rods								
2	4' Scraper pony rods								
1	Polish rod 22' x 1 1/4"								
K.B. (o) TO DOGNUT						4.78			
LANDED AT (TOTAL FT.)						439.411			

OPEN HOLE (SIZE mm) OR PERF'D INTERVAL				
FROM	TO	S/m	FROM	TO

CASING				
SIZE	GRADE	WEIGHT	SET AT KB	CEMENT
244.5	H-40	48.7	164.7	10.8
177.8	S00-95	47.6	462.5	9.0T

LINER					
SIZE	GRADE	WEIGHT	SET AT KB	TOP	CEMENT

GAS LIFT

MANDREL NO. (Top To Bottom)	MAKE	SIZE	DEPTH K.B.
1			
2			
3			

GAS VALVE (Top To Bottom)	MAKE	ORIFICE SIZE	PRESSURE SETTING
1			
2			
3			

	STUFFING BOX	BOP	POLISHED RODS	FLOW TEE
SIZE	1 1/4" x 73mm	73mm	1 1/4" x 22'	
MAKE	Hercules	Ratigan		

Hercules

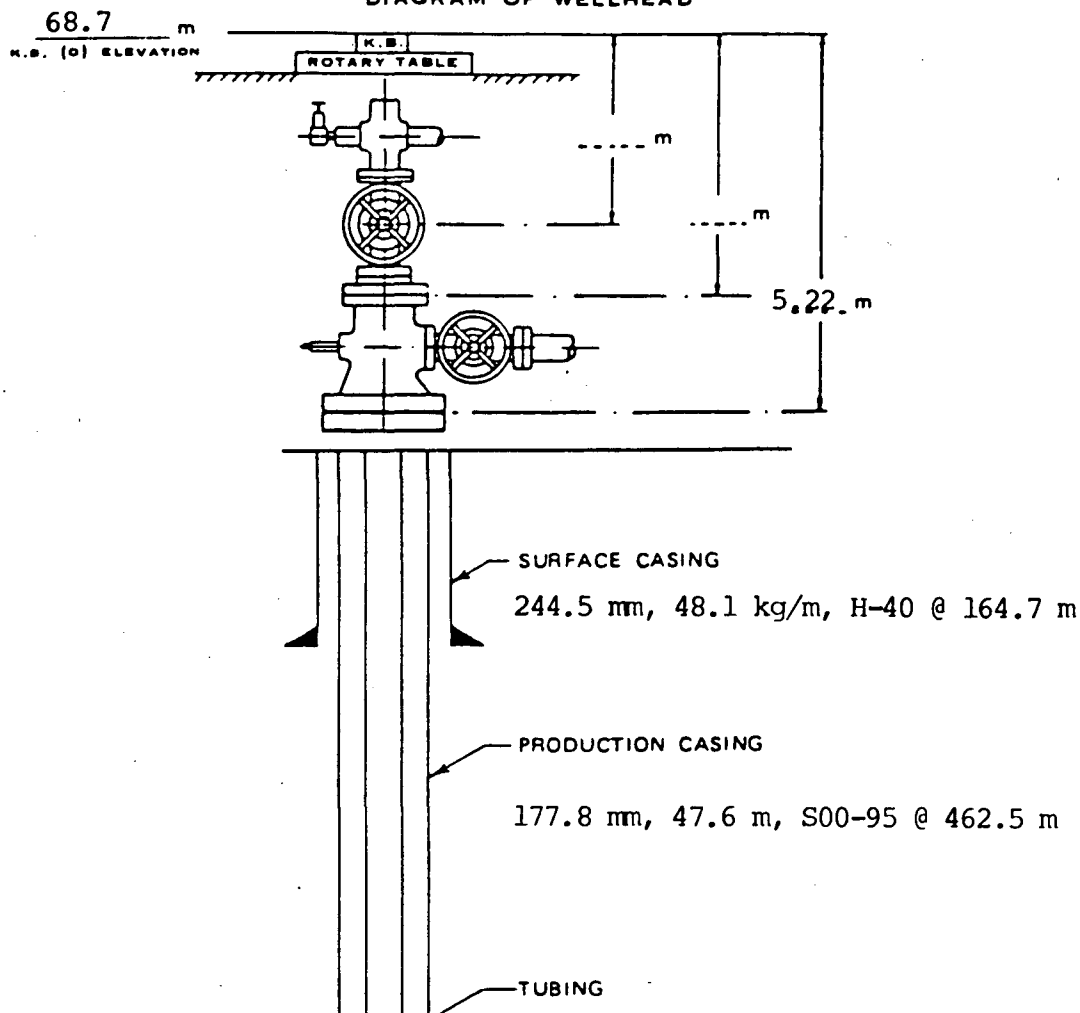
SUCKER RODS					
NUMBER	PLAIN (m)	SCRAPERED (m)	SIZE	MAKE	TYPE OF SCRAPERS
7-	Polish rods	for sinker	1 1/4"	Stelco	
48		Huber	3/4"		
19	Roller couplings w/ 3/4 connections				PUMP SEATING DEPTH
2	4' Huber scrapers				433m m K.B.

PLUNGER PUMP	
Company No.	Type
JUE-571	RWBC
Size mm inches.	
2 1/2" x 2" x 12'	

Well Name

ESSO NORMAN WELLS C-34-1X

DIAGRAM OF WELLHEAD



Energy Products

Continental Emsco Distribution Division

PUMP NO. LTVE-571ASSEMBLY DATE 02-26-87CUSTOMER Esso Resources Can. ORDER NO. 17C6910220LEASE CHARGE # 13-225-24 WELL NO. NORMAN AREA WELLSSTORE EDMONTON COS 1287788 JOB 571TYPE PUMP RWBC SIZE 2.5 x 2 x RWBC x 12 x 2PLUNGER TYPE DURALLOY BARREL TYPE DURA HPLUNGER SIZE 2" LENGTH 2 FT MAX. STROKE 102"SINGLE VALVE ENDURALL DBL. VALVE X XSUCKER ROD PIN SIZE 3/4" GAS ANCHOR 1 1/4" x 6" NPT

CE-3008-A

PIPE TALLY

Well Name & Location										DATE		YR.	MT	DAY
Esso Norman Wells C-34-121										87		05	19	
Contract Rig				Measured By				Checked By						
Esso Rig # 15				Crew				Rig Manager						
Nominal Pipe Size		Weight	Kg/m	Grade	Range	Threads per inch	Type of pipe	Long Short Collar	Manufacturer					
73		9.67		J-55	2	8								
NO.	LENGTH		NO.	LENGTH		NO.	LENGTH		NO.	LENGTH		NO.	LENGTH	
	m	mm		m	mm		m	mm		m	mm		m	mm
1	9	442	21	9	461	41	9	051	61			81		
2	9	415	22	9	572	42	9	714	62			82		
3	9	164	23	9	285	43	9	226	63			83		
4	9	278	24	9	210	44	8	881	64			84		
5	9	179	25	9	129	45	9	124	65			85		
6	9	269	26	9	571	46	9	225	66			86		
7	9	529	27	9	071	47			67			87		
8	9	379	28	9	445	48			68			88		
9	9	168	29	9	241	49			69			89		
10	9	314	30	9	625	50			70			90		
TOTAL 1-10	93	137	TOTAL 21-30	93	610	TOTAL 41-50	55	221	TOTAL 61-70			TOTAL 81-90		
11	9	615	31	9	531	51			71			91		
12	9	091	32	9	431	52			72			92		
13	9	781	33	9	355	53			73			93		
14	9	251	34	9	161	54			74			94		
15	9	285	35	9	010	55			75			95		
16	9	304	36	9	209	56			76			96		
17	9	525	37	9	462	57			77			97		
18	9	506	38	9	305	58			78			98		
19	9	245	39	9	236	59			79			99		
20	9	033	40	9	317	60			80			100		
TOTAL 11-20	93	636	TOTAL 31-40	93	017	TOTAL 51-60			TOTAL 71-80			TOTAL 91-100		
TOTAL 1-20			TOTAL 21-40			TOTAL 41-60			TOTAL 61-80			TOTAL 81-100		
TOTAL 1-20			TOTAL 1-60			GRAND TOTAL 1-100			CAUTION: If the bottom ten joint are not run in sequence shown. Indicate actual sequence. FLOAT COLLAR _____ m FLOAT SHOE _____ m _____ m _____ m					
TOTAL 21-40			TOTAL 61-80			GRAND TOTAL 101 to								
TOTAL 41-60			TOTAL 81-100			GRAND TOTAL to								
TOTAL 1-60			TOTAL 1-100			GRAND TOTAL 1 to 46	428	621						

SEND
TO

B. Blum

FROM

G. Miller

DEPT. OF ORIGINATOR

DATE

87-05-19

311921

SUBJECT

C341 rod setup

RE:

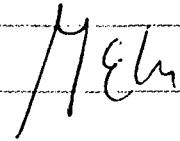
I looked through the deviation profile of this well. These are my conclusions:

Degrees in excess of 7 deg. are between these sections:
170 - 240 mKB and 290 - 387 mKB. Install rod roller couplings between rods of standard length.

The most vertical section to install the pump is between 390m - 443 mKB (9.6° - 3.3°). Install at lowest point, to leave room for sinker bar.

REPLY

Sinker should ideally be placed from 387mKB - PSN.

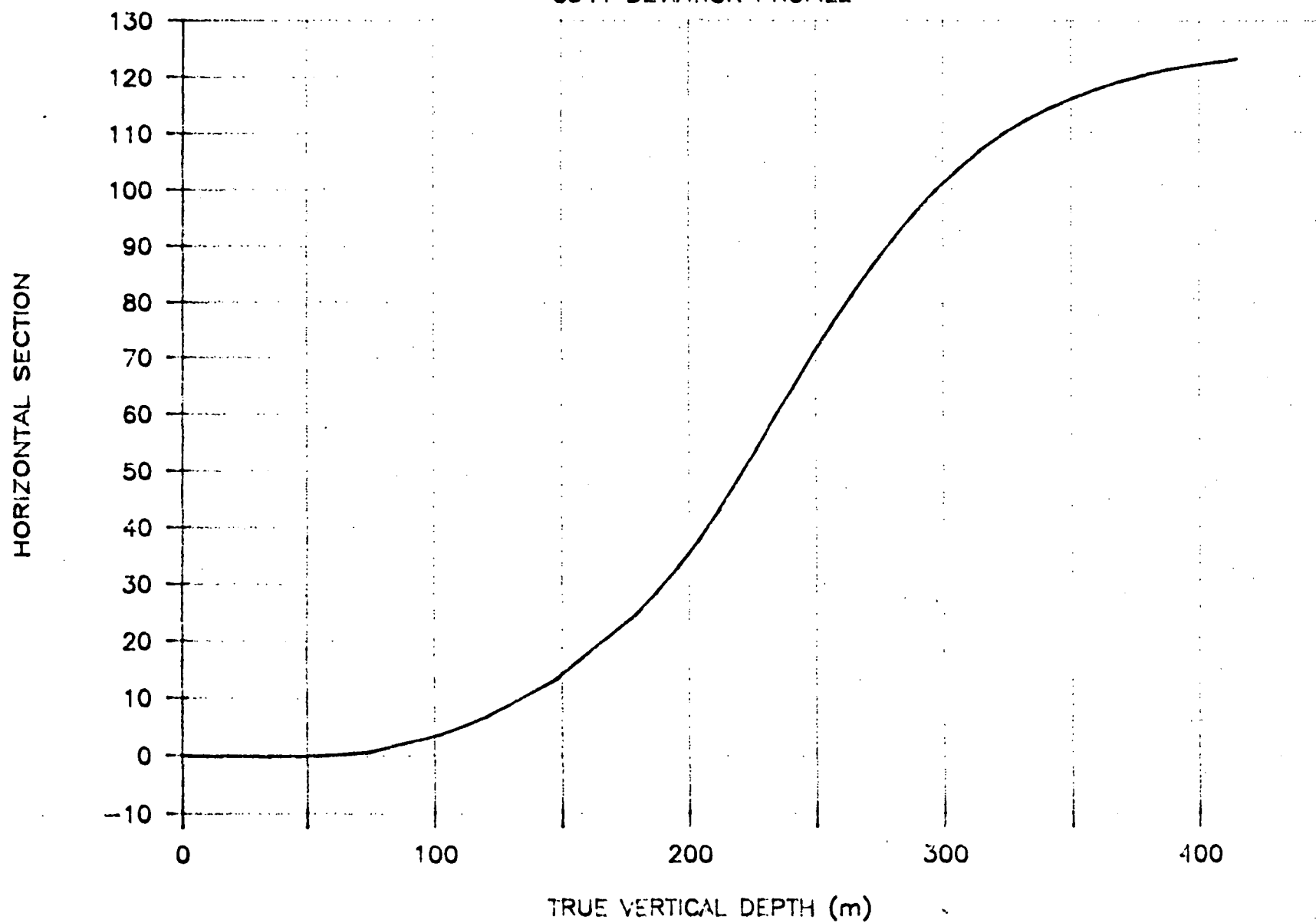


SIGNATURE

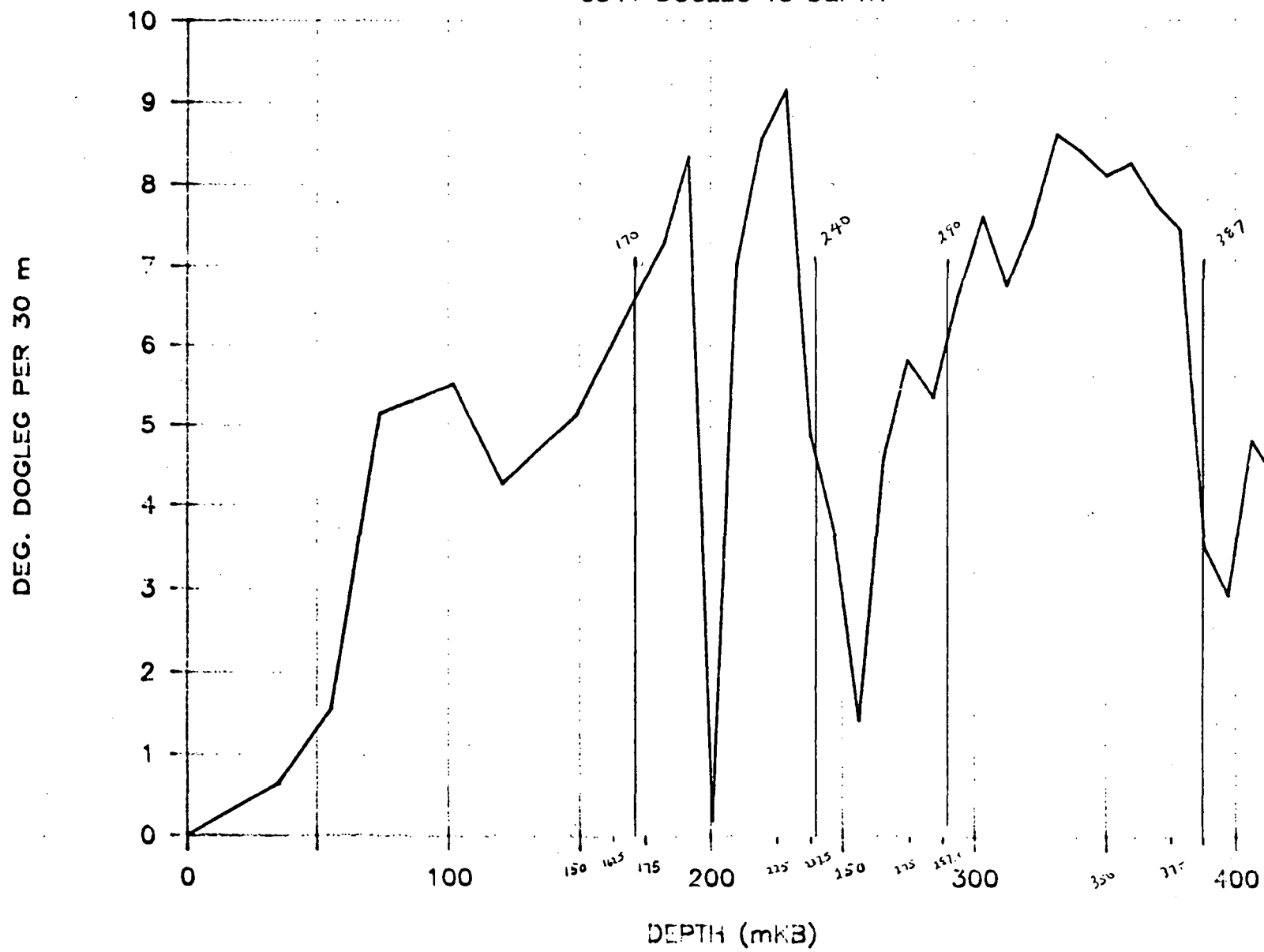
DEPARTMENT

DATE OF REPLY

C341 DEVIATION PROFILE



C341 DOGLEG VS DEPTH



C341 DEVIATION PROFILE

MEASURED DEPTH	TV DEPTH	DL/30 m	HORIZONTAL SECTION		DEGREES	LATIT	DEPAR
0	0	0	0			0	0
35	35	0.64	-0.14	90.2	-0.2	0.11	-0.1
55.2	55.2	1.56	-0.12	89.9	0.1		
73.6	73.59	5.14	0.54	87.9	2.1		
101.53	101.32	5.51	3.49	83.9	6.1		
120.2	119.69	4.26	6.71	80.1	9.9		
148.53	147.22	5.13	13.32	76.5	13.5		
182.15	178.82	7.29	24.72	70.2	19.8		
191.29	187.09	8.35	28.6	64.9	25.1		
200.5	195.24	0.19	32.9	62.2	27.8		
209.7	203.2	7.03	37.53	59.8	30.2		
219	211.02	8.54	42.54	57.4	32.6		
228.54	218.8	9.15	48.05	54.7	35.3		
237.81	226.18	4.88	53.66	52.8	37.2		
246.89	233.36	3.66	59.22	52.2	37.8		
256.16	240.68	1.43	64.9	52.2	37.8		
265.46	248.09	4.58	70.51	52.9	37.1		
274.74	255.63	5.81	75.92	54.3	35.7		
284.3	263.56	5.35	81.26	56.0	34.0		
293.61	271.45	6.59	86.2	57.9	32.1		
303.05	279.61	7.61	90.93	59.9	30.1		
312.24	287.71	6.75	95.25	61.9	28.1		
321.89	296.38	7.54	99.45	64.2	25.8		
331.18	304.9	8.61	103.13	66.6	23.4		
340.47	313.58	8.4	106.43	69.2	20.8		
350.13	322.75	8.11	109.44	71.8	18.2		
359.4	331.67	8.26	111.94	74.3	15.7		
369.16	341.16	7.76	114.18	76.7	13.3		
378.4	350.28	7.45	115.95	79.0	11.0		
387.67	359.37	3.51	117.48	80.4	9.6		
396.95	368.54	2.94	118.88	81.3	8.7		
406.21	377.71	4.81	120.09	82.5	7.5		
415.86	387.3	4.3	121.12	83.9	6.1		
425.49	396.89	4.61	121.91	85.3	4.7		
434.73	406.11	2.62	122.5	86.3	3.7		
443	414.36	0.88	122.97	86.7	3.3		