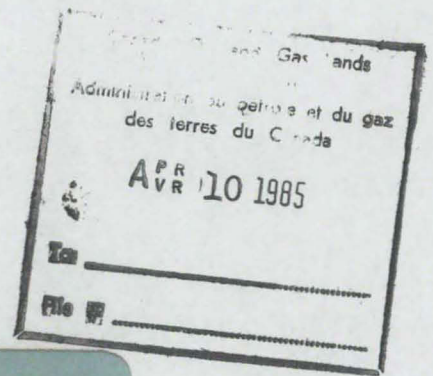


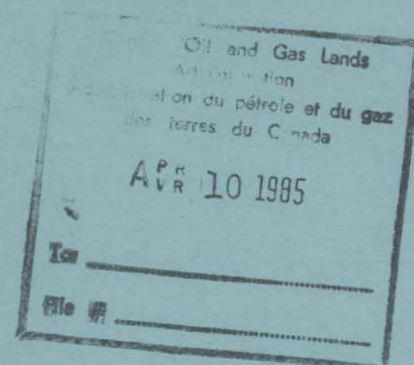


PETRO CANADA INC.
TWEED LAKE M-47
TWEED LAKE
85FEB18 - 85FEB20

MICROF
SUR MICE

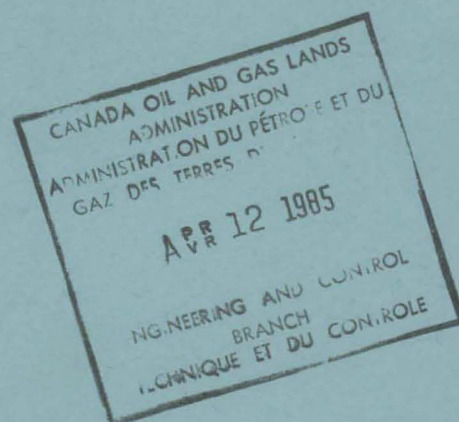


OTIS ENGINEERING CO. LTD.



PETRO CANADA INC.
TWEED LAKE M-47
TWEED LAKE
85FEB18 - 85FEB20

**MICROFILMED
SUR MICROFILM:**



TEST OBJECTIVE: Perform a D.S.T. of 8 Hours through test equipment on the formation Mt. Clark (Lower) in the Tweed Lake Area for the well (Tweed Lake M-47). Monitor surface tubing, tubing temperatures, and gas flow rates. Methanol was injected to stop hydrating problems in the flow line and choke. Hydrates were indicated by the increasing well head pressure with decreasing flow rates. A small amount of water was produced and dumped into a barrel. Measurement of barrel indicated 13.4 inches. This amount of water is approximately .083 M3. High pressure gas samples were taken and sent to Core Lab in Calgary for analysis.

The following cummulatives were produced through the separator only:

Gas:	16,896.9 M3
Water:	.083 M3
Oil / Condensate:	0.00 M3

Later 170 Meters of drill string was recovered with 71 Degree API condensate in it.



OTIS ENGINEERING CO. LTD.

PRESSURE CONTROL SERVICE EQUIPMENT
PRODUCTION TESTING

TELEPHONE 403 - 275-1300 - TLX 038-22642
7211 - 8th STREET N.E., CALGARY, ALBERTA T2E 8A2
MAILING ADDRESS:
BOX 3037, STN. B, CALGARY, ALBERTA T2M 4L6 •

March 26, 1985

Petro Canada Ltd.
150 - 5th Ave. S.W.
Calgary, Alberta

Attention: Ron Boocock

Re: Tweed Lake M-47 Well Test Report

Dear Mr. Boocock;

As you requested I have provided the information required on the following items: 1) Well test report conversion factors, 2) Average flow rate flowing through the separator, 3) Absence of surface recovery of condensate found in the bottom of the test string.

1) Well Test Report Conversion Factors

These are the factors used in all Otis well test reports, standard and ODAS:

1 psi = 6.894757 Kpa
1 Bbl = 0.1589873 M³
1 MSCFD = 28.32784881 M³
1/64 Inch = 0.3969 mm

2) Average Flow Rate

@ 1.75" orifice - 21:52 - 22:55 Hrs. Feb. 19/85
- Separator cumulative gas = 3777.75 M³
(133.358 MSCF)

@ 1.50" orifice - 22:55 - 03:04 Hrs. Feb. 19-20/85
- Separator cumulative gas = 13,119.11 M³
(463.117 MSCF)

- Average separator rate = 77,985.51 M³/D
(2.753 MMSCF/D)

...../2

3) Absence of Condensate in Separator After Recovering Condensate in Tool String

Usually this is the result of gas flow rate being insufficient to overcome the friction factors inherent in continuous removal of liquids from the wellbore. Here at Otis we base our minimum clean-up flow rate calculations on the work done by Turner, Hubbard and Dukler, found in JPT, November 1969. The calculations, using Tweed M-47 fluid data, is as follows:

$$Q_g \text{ (MMSCF/D)} = \frac{3.06 P V_g A}{T_z}$$

$$V_g \text{ (water)} = \frac{5.62 (67 - 0.0039 P/Z)^{0.25}}{(0.0039 P/Z)^{0.5}}, \text{ ft/sec.}$$

$$V_g \text{ (condensate)} = \frac{4.02 (43.6 - 0.0039 P/Z)^{0.25}}{(0.0039 P/Z)^{0.5}}, \text{ ft/sec.}$$

Where: A = flow area of conduit, ft²

P = wellhead pressure, Psia

Q_g = minimum gas flow rate required, MMSCF/D

T = wellhead temperature, °R

Z = gas deviation-factor evaluated at wellhead conditions.

Naturally, various assumptions were made in deriving the equations for simplification. Among them are gas gravity = 0.698, condensate gravity = 71° API, fluid properties remain constant throughout the test string and friction factors of the flow conduit are equal throughout the string and the same as standard API tubing. Using the equations above I ran through a number of cases involving the flowing data from the Tweed Lake M-47 well test to see if the flow rates were sufficiently high enough to remove liquids. The results are on the attached computer print out. What they show is that the actual flow rates were slightly higher than the minimum required. No average internal flow I.D. was given so a 3.826" I.D. for 4.5" drill pipe was used in the calculations. A higher average flow I.D. than was used would necessitate a larger minimum flow rate for cleanup. Likewise using drill pipe with a larger friction factor than was used by Turner et al in coming up with their simplified equations would necessitate a larger minimum flow rate.

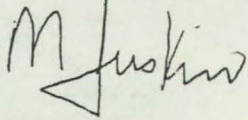
So it is entirely possible the flow rates achieved were just too small and prevented liquids from being lifted to surface even though the sample runs shown here indicate some liquid should have been lifted to surface during the early part of the test.

It must be emphasized that the work done by Turnal et al is based on the average observations of field data from a series of wells. For most wells the theory can work quite well but in some cases a significant amount of error could be involved. The only way one could ensure that the least amount of error was involved in the calculation for minimum gas flowrate would be to use a wellbore simulator. This method allows one to study multiphase flow behavior with a minimum amount of assumptions being made.

If you have any further questions please do not hesitate to contact me.

Yours truly,

OTIS ENGINEERING CO. LTD.

A handwritten signature in dark ink, appearing to read "Mark Juskiw". The signature is stylized, with a large, looped "M" and a cursive "Juskiw".

Mark Juskiw
Field Engineer

MJ:jpf



CALCULATION FOR MINIMUM FLOW RATE TO REMOVE LIQUIDS FROM WELLBORE

REF: TURNER, HUBBARD, DUKLER - JPT NOV., 1969

SURFACE FLOWING PRESSURE	= 515 PSIA
SURFACE FLOWING TEMPERATURE	= 19 DEG F
SURFACE GAS GRAVITY	= .698
Z-FACTOR AT SURFACE	= .85
AVERAGE TUBING I.D.	= 3.826 INCHES
ASSUMED CONDENSATE GRAVITY	= 71.0 DEG API

MINIMUM GAS RATE TO REMOVE LIQUID = 2.04786253058 MMSCF/DAY

SURFACE FLOWING PRESSURE	= 540 PSIA
SURFACE FLOWING TEMPERATURE	= 19 DEG F
SURFACE GAS GRAVITY	= .698
Z-FACTOR AT SURFACE	= .845
AVERAGE TUBING I.D.	= 3.826 INCHES
ASSUMED CONDENSATE GRAVITY	= 71.0 DEG API

MINIMUM GAS RATE TO REMOVE LIQUID = 2.10152241872 MMSCF/DAY

SURFACE FLOWING PRESSURE	= 560 PSIA
SURFACE FLOWING TEMPERATURE	= 23 DEG F
SURFACE GAS GRAVITY	= .698
Z-FACTOR AT SURFACE	= .835
AVERAGE TUBING I.D.	= 3.826 INCHES
ASSUMED CONDENSATE GRAVITY	= 71.0 DEG API

MINIMUM GAS RATE TO REMOVE LIQUID = 2.13343106173 MMSCF/DAY

SURFACE FLOWING PRESSURE	= 615 PSIA
SURFACE FLOWING TEMPERATURE	= 23 DEG F
SURFACE GAS GRAVITY	= .698
Z-FACTOR AT SURFACE	= .82
AVERAGE TUBING I.D.	= 3.826 INCHES
ASSUMED CONDENSATE GRAVITY	= 71.0 DEG API

MINIMUM GAS RATE TO REMOVE LIQUID = 2.25183016418 MMSCF/DAY



CALCULATION FOR MINIMUM FLOW RATE TO REMOVE LIQUIDS FROM WELLBORE

REF: TURNER, HUBBARD, DUKLER - JPT NOV., 1969

SURFACE FLOWING PRESSURE	= 650 PSIA
SURFACE FLOWING TEMPERATURE	= 23 DEG F
SURFACE GAS GRAVITY	= .698
Z-FACTOR AT SURFACE	= .81
AVERAGE TUBING I.D.	= 3.826 INCHES
ASSUMED CONDENSATE GRAVITY	= 71.0 DEG API

MINIMUM GAS RATE TO REMOVE LIQUID = 2.32633135298 MMSCF/DAY

SURFACE FLOWING PRESSURE	= 690 PSIA
SURFACE FLOWING TEMPERATURE	= 23 DEG F
SURFACE GAS GRAVITY	= .698
Z-FACTOR AT SURFACE	= .8
AVERAGE TUBING I.D.	= 3.826 INCHES
ASSUMED CONDENSATE GRAVITY	= 71.0 DEG API

MINIMUM GAS RATE TO REMOVE LIQUID = 2.40828031955 MMSCF/DAY

SURFACE FLOWING PRESSURE	= 725 PSIA
SURFACE FLOWING TEMPERATURE	= 23 DEG F
SURFACE GAS GRAVITY	= .698
Z-FACTOR AT SURFACE	= .79
AVERAGE TUBING I.D.	= 3.826 INCHES
ASSUMED CONDENSATE GRAVITY	= 71.0 DEG API

MINIMUM GAS RATE TO REMOVE LIQUID = 2.48084849555 MMSCF/DAY

SURFACE FLOWING PRESSURE	= 760 PSIA
SURFACE FLOWING TEMPERATURE	= 23 DEG F
SURFACE GAS GRAVITY	= .698
Z-FACTOR AT SURFACE	= .78
AVERAGE TUBING I.D.	= 3.826 INCHES
ASSUMED CONDENSATE GRAVITY	= 71.0 DEG API

MINIMUM GAS RATE TO REMOVE LIQUID = 2.5527211292 MMSCF/DAY



SEQUENCE OF OPERATIONS

OEC-872-B

TEST NUMBER

ONE

RIG NAME

ATCO # 76

PAGE OF

1

2

CUSTOMER

PETRO CANADA INC.

WELL NAME OR NUMBER

TWEED LAKE M-47

FIELD

TWEED LAKE

AREA

CUSTOMER REPRESENTED BY

TIM GORMAN

OTIS TEST SUPERVISOR

ED SWETMAN

DATE	TIME	OPERATIONS	
1			1
85FEB18	1300	ARRIVE ON LOCATION	
2			2
85FEB19	1726	TOOL OPEN FOR PRE FLOW D.S.T. #4	
3			3
	1731	CLOSED TOOL FOR INITIAL SHUT-IN	
4			4
	1952	DOWN HOLE SHUT-IN PRESS. = 12,757 kPA / OPEN TOOL FOR FINAL FLOW	
5			5
	1953	GAS TO SURFACE / RIG FLOWS WELL TO PIT	
6			6
	2152	SWITCH RIG MANIFOLD TO FLOW THROUGH TEST EQUIPMENT	
7			7
		LYNES 2 IN. CHOKE OPEN / CONTROL FLOW THROUGH 1 IN. HEATER CHOKE	
8			8
	2230	SET CHOKE AT 38/64 / WITH A 1.75 ORIFICE PLATE	
9			9
	2245	INJECT METHANOL DOWN TUBING	
10			10
	2255	CHANGE ORIFICE PLATE TO 1.5 IN.	
11			11
	2345	METER FROZE / BLOW DOWN LINES	
12			12
	2400	H.P. GAS SAMPLE TAKEN # 6230	
13			13
85FEB20	0138	ROCK CHOKE / SUSPECT HYDRATES IN FLOW LINE OR AT CHOKE	
14			14
	0152	ZERO METER AND ROCK CHOKE	
15			15
	0200	H.P. GAS SAMPLE TAKEN # 6206	
16			16
	0208	PUT STEAM ON CHOKE / SUSPECT HYDRATES	
17			17
	0212	ZERO METER AND ROCK CHOKE	
18			18
	0253	ZERO METER AND ROCK CHOKE	
19			19
	0255	H.P. GAS SAMPLE TAKEN # 1435	



SEQUENCE OF OPERATIONS

OEC-872-B

TEST NUMBER

ONE

RIG NAME

ATCO # 76

PAGE OF

2

2

CUSTOMER

PETRO CANADA INC.

WELL NAME OR NUMBER

TWEED LAKE M-47

FIELD

TWEED LAKE

AREA

CUSTOMER REPRESENTED BY

TIM GORMAN

OTIS TEST SUPERVISOR

ED SWETMAN

DATE	TIME	OPERATIONS	
1			1
85FEB20	0256	RIG CREW SHUT-IN WELL / END OF TEST	
2			2
	1854	RELEASED PACKER / REVERSE CIRCULATE	
3			3
	1854	EQUIPMENT	
4			4
		P.T. #3 = SWEET SERVICE 2 PHASE VERTICLE 1440 PSI W/P	
5			5
		9 MMCFD- 250 BPD TOTAL LIQUID C/W 3 IN. METER RUN	
6			6
		C/W 2 IN. SCH 80 FLOW LINE / 2 IN. SCH 40 FLARE LINE / 1 IN. PROD.	
7			7
		1 MILLION BTU HEATER AUXILIARY HEATER 3000 PSI W.P. C/W 1 IN. THORN	
8			8
		HILL CRAVER CHOKE	
9			9
10			10
11			11
12			12
13			13
14			14
15			15
16			16
17			17
18			18
19			19



TEST RESULTS

OEC-865-1-B

TEST NUMBER	WELL NAME OR NUMBER	AREA	RATE/BUILD-UP NUMBER	DATE (DAY MO YR)	PAGE	OF
1	TWEED LAKE M-47	---	1	19FEB85	1	2

CUSTOMER	OIL GRAVITY @ 60° F (° API)	GAS SPECIFIC GRAVITY (AIR = 1)	INTERVAL TESTED ()	STANDARD CONDITIONS
PETRO CANADA INC.	0.0	0.0000	4006-4055 Ft	14.65 PRESS. psi 60 TEMP F

DAY	FLOW OR SHUT-IN TIME	WELL HEAD PRESSURE	WELL HEAD TEMP.	CHOKE SIZE	SEPARATOR PRESSURE	BOTTOM HOLE PRESSURE @	BOTTOM HOLE TEMP. @	CORRECTED GAS FLOW RATE Q _g	CORRECTED OIL FLOW RATE Q _o	WATER FLOW RATE	☒ mscf GOR bbl	WOR (bbl)	WGR (bbl)
TIME (24 HR CLOCK)	(HOURS)	psig	F	64th	psig	Ft	psig	Ft	F	mscf/d	bbl/d	bbl/d	mmscf
1 19											☐ mmscf	bbl	mmscf
1953	0.0	0	0	0.0									
2 19													
2152	2.0	0	0	0.0									
3 19													
2152	0.0	0	0	0.0									
4 19													
2230	.6	500	23	38.0	440			3023.43	0.00	0.00	0.000	0.00	0.00
5 19													
2245	.9	525	23	38.0	440			3085.83	0.00	0.00	0.000	0.00	0.00
6 19													
2255	1.0	525	23	38.0									
7 19													
2300	1.1	508	23	38.0	420			2835.98	0.00	0.00	0.000	0.00	0.00
8 19													
2315	1.4	513	23	38.0	435			2807.12	0.00	0.00	0.000	0.00	0.00
9 19													
2330	1.6	500	23	38.0	435			2850.76	0.00	0.00	0.000	0.00	0.00
10 19													
2345	1.9	503	23	38.0	435			2836.29	0.00	0.00	0.000	0.00	0.00
11 19													
2400	2.1	548	19	38.0	480			2779.31	0.00	0.00	0.000	0.00	0.00
12 20													
0030	2.6	545	19	38.0	480			2770.45	0.00	0.00	0.000	0.00	0.00
13 20													
0100	3.1	549	19	38.0	475			2697.62	0.00	0.00	0.000	0.00	0.00
14 20													
0130	3.6	603	19	38.0	470			2659.04	0.00	0.00	0.000	0.00	0.00
15 20													
0138	3.8	603	19	38.0									
16 20													
0152	4.0	603	19	38.0									

TOTAL WELL EFFLUENTS PRODUCED

FLOW TIME		FLOW TIME		NUMBER	FLOW TIME/END		NUMBER
FROM	TO	FOR RATE			FOR TEST UP TO		OF
GAS ():	OIL ():	WATER ():			GAS ():	OIL ():	WATER ():



TEST RESULTS

OEC-865-1-B

TEST NUMBER	WELL NAME OR NUMBER	AREA	RATE/BUILD-UP NUMBER	DATE (DAY MO YR)	PAGE	OF
1	TWEED LAKE M-47	---	1	20FEB85	2	2

CUSTOMER	OIL GRAVITY @ 60° F (° API)	GAS SPECIFIC GRAVITY (AIR = 1)	INTERVAL TESTED ()	STANDARD CONDITIONS
PETRO CANADA INC.	0.0	.6980	4006-4055 Ft	14.65 PRESS. psi 60 TEMP F

DAY	FLOW OR SHUT-IN TIME	WELL HEAD PRESSURE	WELL HEAD TEMP.	CHOKE SIZE	SEPARATOR PRESSURE	BOTTOM HOLE PRESSURE @	BOTTOM HOLE TEMP. @	CORRECTED GAS FLOW RATE Q _g	CORRECTED OIL FLOW RATE Q _o	WATER FLOW RATE	GOR	WOR	WGR
TIME (24 HR CLOCK)	(HOURS)	psig	F	64th	psig	Ft psig	Ft F	mscf/d	bbl/d	bbl/d	mmscf	bbl	mmscf
1 20													
0200	4.1	675	19	38.0									
2 20													
0208	4.3	675	19	38.0									
3 20													
0220	4.5	675	19	38.0									
4 20													
0230	4.6	740	19	38.0	460			2573.82	0.00	0.00	0.000	0.00	0.00
5 20													
0300	5.1	742	19	38.0	470			2594.11	0.00	0.00	0.000	0.00	0.00
6 20													
0301	5.1	0	0	0.0									
7 20													
0303	5.2	0	0	0.0									
8 20													
0304	5.2	0	0	0.0									
9													
10													
11													
12													
13													
14													
15													
16													

TOTAL WELL EFFLUENTS PRODUCED

FLOW TIME	FLOW TIME	NUMBER	FLOW TIME/END	NUMBER
FROM	TO	FOR RATE	FOR TEST UP TO	OF
GAS ():	OIL ():	WATER ():	GAS ():	OIL ():
				WATER ():

Test Results
—Metric



TEST RESULTS

OEC-865-1-B

TEST NUMBER	WELL NAME OR NUMBER	AREA	RATE/BUILD-UP NUMBER	DATE (DAY MO YR)	PAGE	OF
1	TWEED LAKE M-47	---	1	19FEB85	1	2

CUSTOMER	OIL GRAVITY @60° F (° API)	GAS SPECIFIC GRAVITY (AIR = 1)	INTERVAL TESTED ()	STANDARD CONDITIONS
PETRO CANADA INC.	0.0	0.0000	1221-1236	M 101.01 PRESS. kPa 16 TEMP C

DAY	FLOW OR SHUT-IN TIME	WELL HEAD PRESSURE	WELL HEAD TEMP.	CHOKE SIZE	SEPARATOR PRESSURE	BOTTOM HOLE PRESSURE @	BOTTOM HOLE TEMP. @	CORRECTED GAS FLOW RATE	CORRECTED OIL FLOW RATE	WATER FLOW RATE	☒ M3 GOR M3	WOR	WGR	
TIME (24 HR CLOCK)	(HOURS)	kPag	C	mm	kPag	M kPag	M C	M3/d	M3/d	M3/d	☐ M3 GOR M3	(M3/M3)	(M3/M3)	
1 19														1
1953	0.0	0	0	0.0										
2 19														2
2152	2.0	0	0	0.0										
3 19														3
2152	0.0	0	0	0.0										
4 19														4
2230	.6	3447	-5	15.1	3034			85647	0.00	0.00	0.000	0.00	0.00	
5 19														5
2245	.9	3620	-5	15.1	3034			87415	0.00	0.00	0.000	0.00	0.00	
6 19														6
2255	1.0	3620	-5	15.1										
7 19														7
2300	1.1	3503	-5	15.1	2896			80337	0.00	0.00	0.000	0.00	0.00	
8 19														8
2315	1.4	3537	-5	15.1	2999			79520	0.00	0.00	0.000	0.00	0.00	
9 19														9
2330	1.6	3447	-5	15.1	2999			80756	0.00	0.00	0.000	0.00	0.00	
10 19														10
2345	1.9	3468	-5	15.1	2999			80346	0.00	0.00	0.000	0.00	0.00	
11 19														11
2400	2.1	3778	-7	15.1	3309			78732	0.00	0.00	0.000	0.00	0.00	
12 20														12
0030	2.6	3758	-7	15.1	3309			78481	0.00	0.00	0.000	0.00	0.00	
13 20														13
0100	3.1	3785	-7	15.1	3275			76418	0.00	0.00	0.000	0.00	0.00	
14 20														14
0130	3.6	4158	-7	15.1	3241			75325	0.00	0.00	0.000	0.00	0.00	
15 20														15
0138	3.8	4158	-7	15.1										
16 20														16
0152	4.0	4158	-7	15.1										

TOTAL WELL EFFLUENTS PRODUCED

FLOW TIME	FLOW TIME	NUMBER	FLOW TIME/END	NUMBER
FROM	TO	FOR RATE	FOR TEST UP TO	OF
GAS ():	OIL ():	WATER ():	GAS ():	OIL ():
				WATER ():



TEST RESULTS

OEC-865-1-B

TEST NUMBER	WELL NAME OR NUMBER	AREA	RATE/BUILD-UP NUMBER	DATE (DAY MO YR)	PAGE	OF
1	TWEED LAKE M-47	-	1	20FEB85	2	2

CUSTOMER	OIL GRAVITY @60°F (°API)	GAS SPECIFIC GRAVITY (AIR = 1)	INTERVAL TESTED ()	STANDARD CONDITIONS
PETRO CANADA INC.	0.0	.6980	1221-1236	M 101.01 PRESS.kPa 16 TEMP C

DAY	FLOW OR SHUT-IN TIME	WELL HEAD PRESSURE	WELL HEAD TEMP.	CHOKE SIZE	SEPARATOR PRESSURE	BOTTOM HOLE PRESSURE @	BOTTOM HOLE TEMP. @	CORRECTED GAS FLOW RATE	CORRECTED OIL FLOW RATE	WATER FLOW RATE	☒ M3 GOR M3	WOR	WGR
TIME (24 HR CLOCK)	(HOURS)	kPag	C	mm	kPag	M kPag	M C	M3/d	M3/d	M3/d	☐ M3 GOR M3	(M3/M3)	(M3/M3)
1 20													
0200	4.1	4654	-7	15.1									
2 20													
0208	4.3	4654	-7	15.1									
3 20													
0220	4.5	4654	-7	15.1									
4 20													
0230	4.6	5102	-7	15.1	3172			72911	0.00	0.00	0.000	0.00	0.00
5 20													
0300	5.1	5116	-7	15.1	3241			73486	0.00	0.00	0.000	0.00	0.00
6 20													
0301	5.1	0	0	0.0									
7 20													
0303	5.2	0	0	0.0									
8 20													
0304	5.2	0	0	0.0									
9													
10													
11													
12													
13													
14													
15													
16													

TOTAL WELL EFFLUENTS PRODUCED

FLOW TIME	FLOW TIME	NUMBER	FLOW TIME/END	NUMBER
FROM	TO	FOR RATE	FOR TEST UP TO	OF
GAS ():	OIL ():	WATER ():	GAS ():	OIL ():
				WATER ():



FIELD READINGS

Single Stage Unit

OEC — 905-1

TEST NO.	RATE NO.	WELL NAME OR NUMBER	INTERVAL TESTED (FT.)	DATE(DAY MO. YR.)	PAGE	OF
1	1	TWEED LAKE M-47	4006-4055	19FEB85	1	2

CUSTOMER	FIELD	FORMATION	COND./OIL METER SIZE	METER/DIFF. RANGE
PETRO CANADA INC.	TWEED LAKE	MT. CLARK (LOWER)	(INS)	(BBLs) (INS. H ₂ O)

TEST UNIT DESCRIPTION (#, SIZE, ETC.)	GAS PRODUCED TO	GAS MEASURED WITH	GAS METER RUN SIZE	DIFF. RANGE (INS. H ₂ O)	STATIC PRESSURE TAKEN
P.T. #3	PIPELINE ☐ FLARE ☒	4" ☐ 2" CRITICAL FLOW PROVER ☐	3.068(INS)	0-200	UPSTREAM ☐ DOWNSTREAM ☒

TIME		WELLHEAD DATA			FLOW CONTROL		GAS METERING					OIL OR CONDENSATE METERING					WATER METERING										
DAY	FLOW OR SHUT IN DURATION	TUBING PRESSURE	TEMP.	CASING PRESSURE	MANIFOLD CHOKE SIZE	HEATER CHOKE SIZE	ORIFICE SIZE	STATIC PRESSURE	DIFF. PRESS.	TEMP.	GAS GRAVITY (AIR=1)	# TANK OR METER READING	COND. METER ORIFICE SIZE (INS)	#1 OIL TEMP.	WEATHERING FACTOR	OIL GRAVITY @60°F (°API)	#1 TANK OR METER READING	SALINITY									
24 HR. CLOCK	(HOURS)	(PSIG)	(°F)	(PSIG)	(64th INCH)	(64th INCH)	(INS)	(PSIG)	(INS H ₂ O)	(°F)	% H ₂ S	#2 TANK OR METER READING (INS OR BBLs)	COND. METER DIFF. PRESS. (INS H ₂ O)	#2 OIL TEMP.	W _t	BSW (%)	#2 TANK OR METER READING (INS OR BBLs)										
1 19	GAS TO SURFACE / RIG FLOWING WELL TO PIT																		0.000	0.00		0	0.000	0.00	0.00	0.00	0.00
1953	0.0	0	0	0	0	0	0.000	0	0	0	0.000	0.00		0	0.000	0.0	0.00	0.0									
2 19	SWITCH RIG MANIFOLD TO FLOW WELL THRU EQUIP.																		0.000	0.00		0	0.000	0.00	0.00	0.00	0.0
2152	2.0	0	0	0	0	0	0.000	0	0	0	0.000	0.00		0	0.000	0.0	0.00	0.0									
3 19	OPENING GAUGE = 0																		0.000	0.00		0	0.000	0.00	0.00	0.00	0.0
2152	0.0	0	0	0	0	0	0.000	0	0	0	0.000	0.00		0	0.000	0.0	0.00	0.0									
4 19																			.698	0.00		0	0.000	0.00	0.00	0.00	0.0
2230	.6	500	23	0	0	38	1.750	440	56	113	0.000	0.00		0	0.000	0.0	0.00	0.0									
5 19	INJECT METHANOL DOWN TUBING																		.698	0.00		0	0.000	0.00	0.00	0.00	0.0
2245	.9	525	23	0	0	38	1.750	440	56	95	0.000	0.00		0	0.000	0.0	0.00	0.0									
6 19	CHANGE ORIFICE PLATE TO 1.50 INCHES																		0.000	0.00		0	0.000	0.00	0.00	0.00	0.0
2255	1.0	525	23	0	0	38	0.000	0	0	0	0.000	0.00		0	0.000	0.0	0.00	0.0									
7 19																			.698	0.00		0	0.000	0.00	0.00	0.00	0.0
2300	1.1	508	23	0	0	38	1.500	420	96	88	0.000	0.00		0	0.000	0.0	0.00	0.0									
8 19																			.698	0.00		0	0.000	0.00	0.00	0.00	0.0
2315	1.4	513	23	0	0	38	1.500	435	96	113	0.000	0.00		0	0.000	0.0	0.00	0.0									
9 19																			.698	0.00		0	0.000	0.00	0.00	0.00	0.0
2330	1.6	500	23	0	0	38	1.500	435	99	113	0.000	0.00		0	0.000	0.0	0.00	0.0									
10 19	METER FROZE / BLOW DOWN DOWN LINES																		.698	0.00		0	0.000	0.00	0.00	0.00	0.0
2345	1.9	503	23	0	0	38	1.500	435	98	113	0.000	0.00		0	0.000	0.0	0.00	0.0									
11 19	H.P. GAS SAMPLES TAKEN #6230																		.698	0.00		0	0.000	0.00	0.00	0.00	0.0
2400	2.1	548	19	0	0	38	1.500	480	84	108	0.000	0.00		0	0.000	0.0	0.00	0.0									
12 20	DUMP WATER FROM SEP. INTO BAR. / 13.4in = .083 M3																		.698	0.00		0	0.000	0.00	0.00	0.00	0.0
0030	2.6	545	19	0	0	38	1.500	480	80	90	0.000	0.00		0	0.000	0.0	0.00	0.0									
13 20																			.698	0.00		0	0.000	0.00	0.00	0.00	0.0
0100	3.1	549	19	0	0	38	1.500	475	78	97	0.000	0.00		0	0.000	0.0	0.00	0.0									
14 20																			.698	0.00		0	0.000	0.00	0.00	0.00	0.0
0130	3.6	603	19	0	0	38	1.500	470	77	99	0.000	0.00		0	0.000	0.0	0.00	0.0									
15 20	ROCK CHOKE / SUSPECT FREEZING IN FLOW LINE																		0.000	0.00		0	0.000	0.00	0.00	0.00	0.0
0138	3.8	603	19	0	0	38	0.000	0	0	0	0.000	0.00		0	0.000	0.0	0.00	0.0									
16 20	ZERO METER AND ROCK CHOKE																		0.000	0.00		0	0.000	0.00	0.00	0.00	0.0
0152	4.0	603	19	0	0	38	0.000	0	0	0	0.000	0.00		0	0.000	0.0	0.00	0.0									
17 20	H.P. GAS SAMPLES TAKEN #6206																		.698	0.00		0	0.000	0.00	0.00	0.00	0.0
0200	4.1	675	19	0	0	38	0.000	460	74	106	0.000	0.00		0	0.000	0.0	0.00	0.0									

FIELD READINGS

Single Stage Unit

OEC — 905-1

TEST NO.	RATE NO.	WELL NAME OR NUMBER	INTERVAL TESTED (FT.)	DATE(DAY MO. YR.)	PAGE	OF
1	1	TWEED LAKE M-47	4006-4055	20 FEB 85	2	2

CUSTOMER	FIELD	FORMATION	COND./OIL METER SIZE	METER/DIFF. RANGE
PETRO CANADA INC.	TWEED LAKE	MT. CLARK (LOWER)	 (INS)	(BBLs).....(INS H ₂ O)

TEST UNIT DESCRIPTION (#, SIZE, ETC.)	GAS PRODUCED TO		GAS MEASURED WITH		GAS METER RUN SIZE	DIFF. RANGE (INS. H ₂ O)	STATIC PRESSURE TAKEN	
P.T. #3	PIPELINE	☒ FLARE	4"	☐ 2" CRITICAL FLOW PROVER	3.068 (INS)	0-200	☐ UPSTREAM	☒ DOWNSTREAM

[illegible]

