

PR 84-95

Report No. 4192

EAST MEREENIE 10
PRESSURE BUILD-UP TEST
(15/12/89)

PR 84-95

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JUNE 1990

PREPARED BY:

Qld Operations
AGL Petroleum
AGL House
60 Edward Street
BRISBANE QLD 4000

~~P00570~~

DEPT OF MINES & ENERGY
DO NOT REMOVE



P00570

History

East Mereenie #10 was originally a gas well with a perforation interval from 4618 to 4672 ft KB in the Lower Stairway Sandstone. A four point modified isochronal test was conducted on 11/08/84 to evaluate the gas flow capacity. The test results revealed the absolute open flow potential of the well was 810 Mscfd with a large rate dependent skin. The flow potential can be improved to 6.5 MMscfd if the skin can be removed.

The well was re-perforated on 8/12/89 with an attempt to reduce the skin. However, oil was produced at 40 to 50 bopd during the pre and post perforation flow test. This indicated the skin detected in the previous four point test is likely due to the presence of oil around the wellbore. Another pressure build-up test was conducted to re-assess the formation properties.

Results

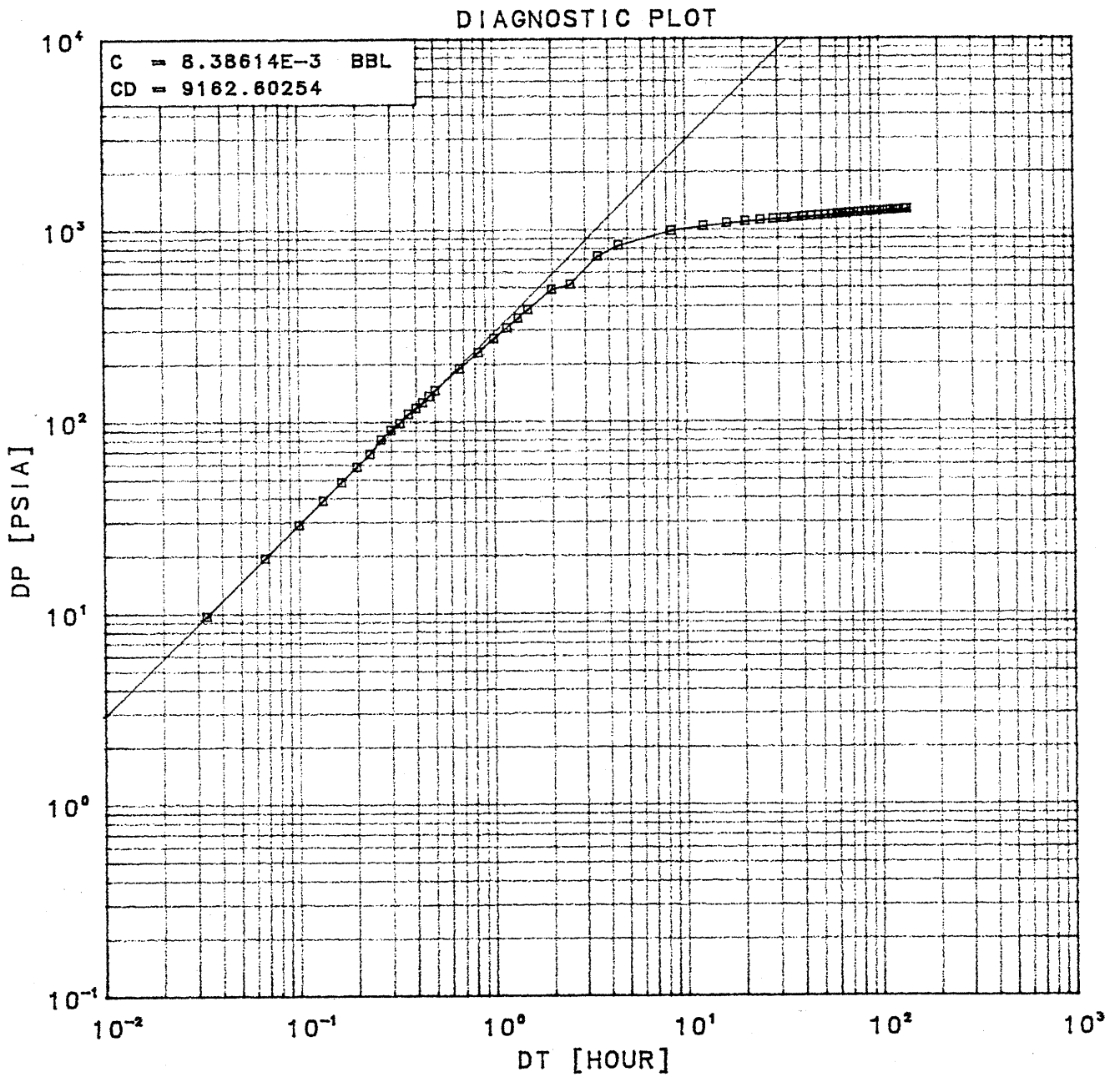
A 138 hour pressure build-up survey on East Mereenie #10 was conducted on 15/12/89. The analysis of the test showed that the Horner straight line region has been fully established during the test. Thus, results from the Horner method and the Gringarten type curve approach are comparable as summarised below:

Oil Rate	:	39.2 bopd
GOR	:	1.1 Mcf/bbl
Effective Oil Permeability	:	2.0 to 2.7 md (*)
Skin Factor	:	0.1 to -1.7

* With an estimated 6 ft net thickness

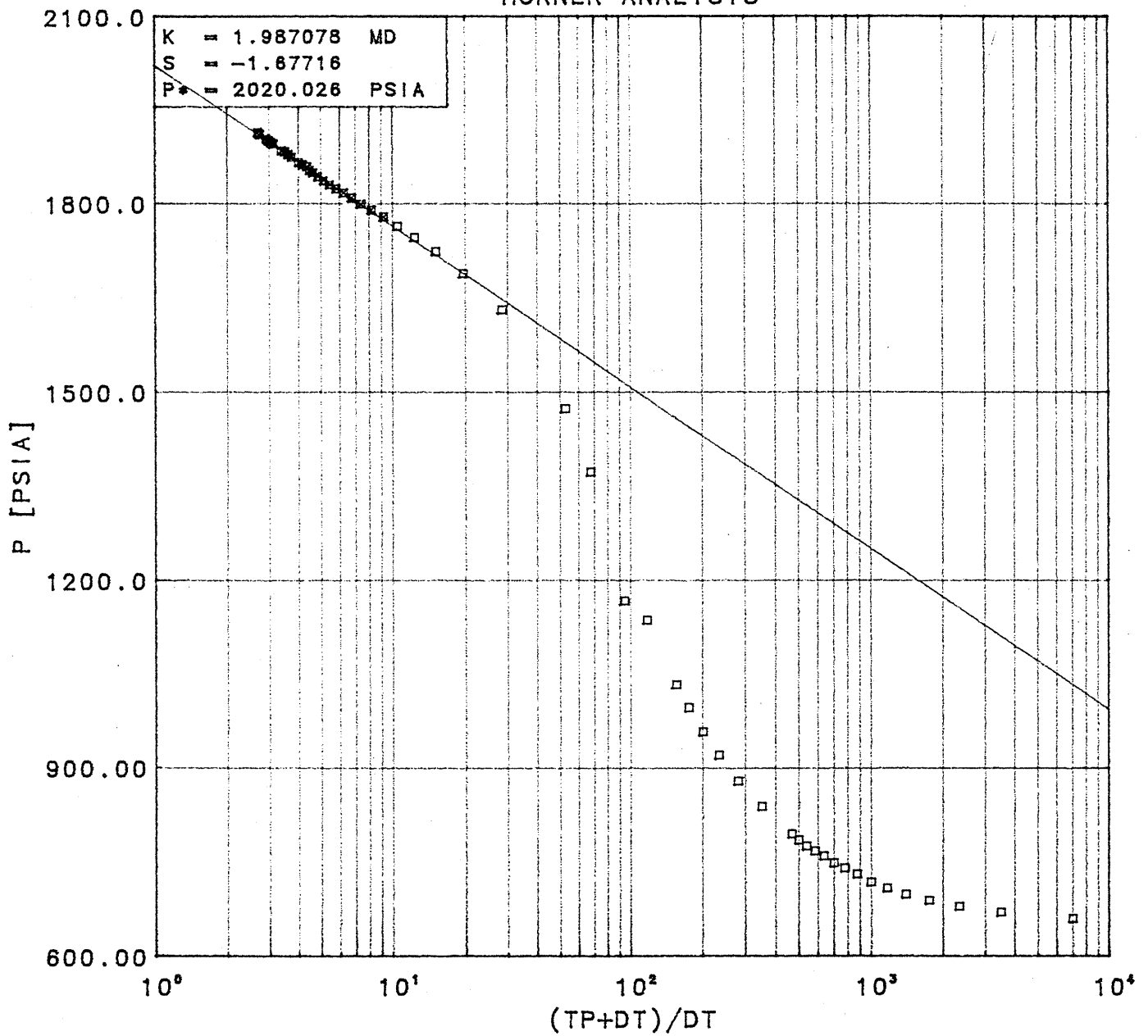
Another evidence of tight formation (low permeability) is from the pressure readings at the end of the test, the bottomhole pressure was still increasing at 1 psi/hr approximately after 138 hours of shut-in. The oil rate cannot expect to be increased through radial frac or re-perforation jobs due to the slight or no formation damage.

AGL PETROLEUM
EM #10
MEREENIE
NT
LOWER STAIRWAYS

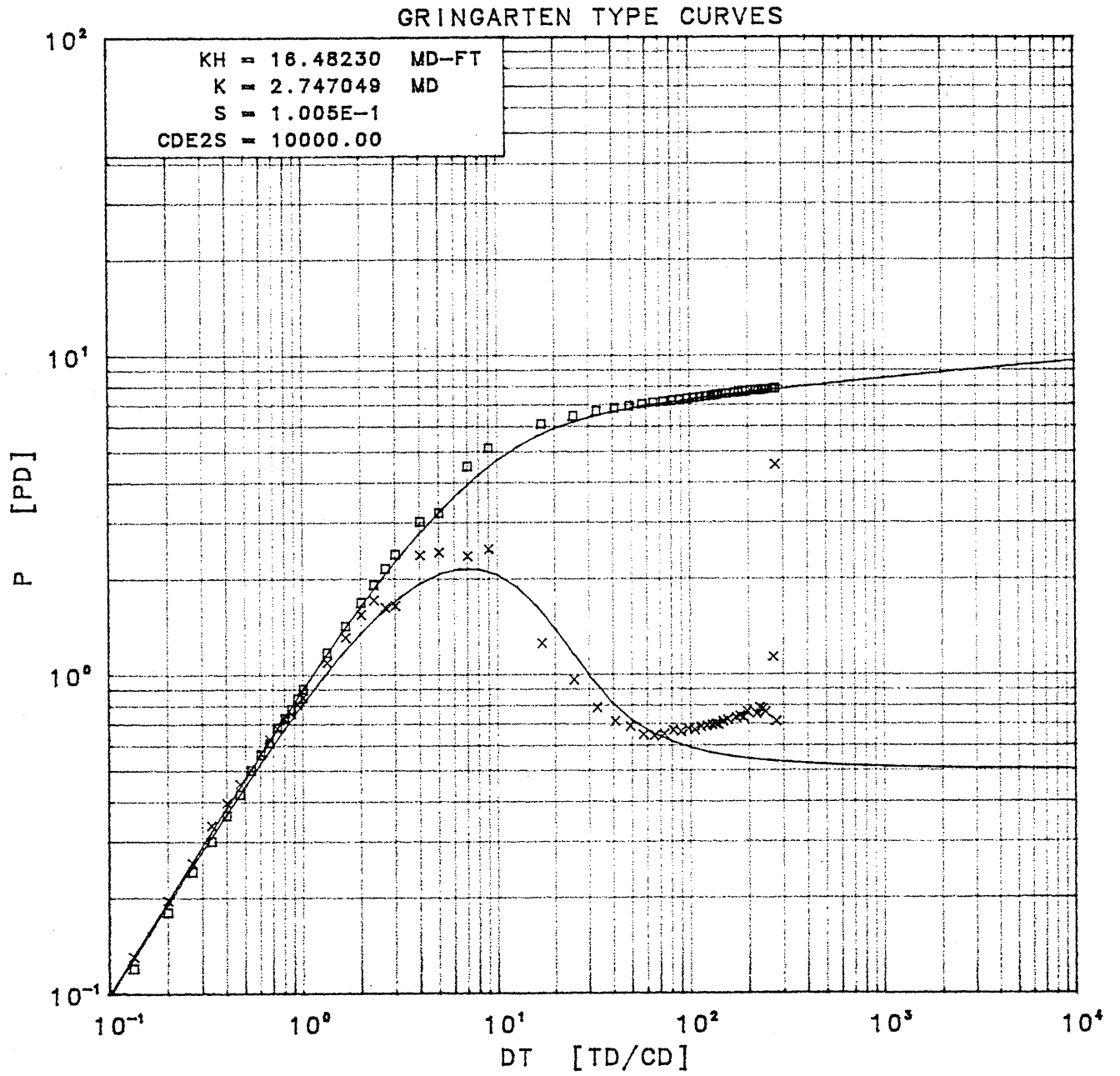


AGL PETROLEUM
EM #10
MEREENIE
NT
LOWER STAIRWAYS

HORNER ANALYSIS



AGL PETROLEUM
EM #10
MEREENIE
NT
LOWER STAIRWAYS



TRANSIENT DATA REPORT

15-JAN-1990

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Company : AGL PETROLEUM
Well Name: EM #10
Formation: LOWER STAIRWAYS

Test Date: 15/12/1989
Test Type: BUS
Well Type: OIL

READING NUMBER	TIME [HOUR]	PRES [PSIA]	P DIFF [PSIA]	DP [PSIA]
1	234.000	649.00	0.00	0.00
2	234.033	658.60	9.60	9.60
3	234.067	668.30	9.70	19.30
4	234.100	677.90	9.60	28.90
5	234.133	687.60	9.70	38.60
6	234.167	697.20	9.60	48.20
7	234.200	706.90	9.70	57.90
8	234.233	716.50	9.60	67.50
9	234.267	729.40	12.90	80.40
10	234.300	739.10	9.70	90.10
11	234.333	747.10	8.00	98.10
12	234.367	758.40	11.30	109.40
13	234.400	766.40	8.00	117.40
14	234.433	774.40	8.00	125.40
15	234.467	784.10	9.70	135.10
16	234.500	793.70	9.60	144.70
17	234.667	837.20	43.50	188.20
18	234.833	877.40	40.20	228.40
19	235.000	919.20	41.80	270.20
20	235.167	956.20	37.00	307.20
21	235.333	994.80	38.60	345.80
22	235.500	1031.70	36.90	382.70
23	236.000	1134.60	102.90	485.60
24	236.500	1165.10	30.50	516.10
25	237.500	1370.70	205.60	721.70
26	238.500	1471.90	101.20	822.90
27	242.500	1629.10	157.20	980.10
28	246.500	1686.90	57.80	1037.90
29	250.500	1722.20	35.30	1073.20
30	254.500	1744.60	22.40	1095.60
31	258.500	1762.30	17.70	1113.30
32	262.500	1776.70	14.40	1127.70
33	266.500	1787.90	11.20	1138.90
34	270.500	1797.50	9.60	1148.50
35	274.500	1807.20	9.70	1158.20
36	278.500	1815.20	8.00	1166.20
37	282.500	1821.60	6.40	1172.60
38	286.500	1828.00	6.40	1179.00
39	290.500	1834.40	6.40	1185.40
40	294.500	1840.80	6.40	1191.80

TRANSIENT DATA REPORT

15-JAN-1990

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Company : AGL PETROLEUM
Well Name: EM #10
Formation: LOWER STAIRWAYS

Test Date: 15/12/1989
Test Type: BUS
Well Type: OIL

READING NUMBER	TIME [HOUR]	PRES [PSIA]	P DIFF [PSIA]	DP [PSIA]
41	298.500	1847.20	6.40	1198.20
42	301.333	1851.00	3.80	1202.00
43	303.500	1856.90	5.90	1207.90
44	307.500	1860.20	3.30	1211.20
45	311.500	1863.30	3.10	1214.30
46	319.500	1872.10	8.80	1223.10
47	323.500	1876.30	4.20	1227.30
48	327.500	1881.10	4.80	1232.10
49	331.500	1882.60	1.50	1233.60
50	343.500	1893.60	11.00	1244.60
51	347.500	1895.50	1.90	1246.50
52	351.500	1898.70	3.20	1249.70
53	355.500	1901.80	3.10	1252.80
54	367.500	1908.00	6.20	1259.00
55	371.500	1910.70	2.70	1261.70
56	371.800	1911.70	1.00	1262.70

Company : AGL PETROLEUM
 Well Name: EM #10
 Formation: LOWER STAIRWAYS

Test Date: 15/12/1989
 Test Type: BUS
 Well Type: OIL

READING NUMBER	TIME [HOUR]	RATE [STB/D]
1	0.000	39.20
2	234.000	0.00

Test Identification

 Company Name..... AGL PETROLEUM
 Well Name..... EM #10
 Field/Location..... MEREENIE
 County/State..... NT
 Test Date..... 15/12/1989
 Test Type..... BUS
 Well Type..... OIL
 Active Well Number.....
 Test Number..... 1
 Test Interval..... 4618-4682
 Formation/Reservoir.... LOWER STAIRWAYS
 Gauge Depth..... 4650
 Type of Gauge..... AMERADA
 Gauge Number..... D-15186/12959
 Calibrated Pres. Range. 3000
 Calibration Date.....

RESERVOIR PROPERTIES

Formation Thickness 6.0000 [FEET]
 Porosity 0.0750 [FRACTION]
 Total Compressibility*1E6 34.6000 [1/PSI]
 Reservoir Temperature 140.0000 [DEG. F]
 Reservoir Pressure [Estimate]..... 2118.0000 [PSIA]

FLUID PROPERTIES

Formation Volume Factor 1.48700 [RB/STB]
 Viscosity 0.32300 [CP]
 Gas Specific Gravity 0.80000 [AIR=1.0]
 Fraction H2S 0.00000 []
 Fraction CO2 0.00000 []
 Fraction N2 0.00000 []

COMPLETION DIMENSIONS

Wellbore Radius 0.2292 [FEET]

Company : AGL PETROLEUM
Field : MEREENIE
Well : EM #10

Test Type: BUILDUP
Test Date: 15/12/1989
Analysis: HORNER

Reservoir flow capacity	= 11.9224701	[MD-FT]
Effective permeability	= 1.98707831	[MD]
Extrapolated pressure	= 2020.02551	[PSIA]
P1hr	= 1411.19287	[PSIA]
Skin factor	= -1.6771609	[]
Delta P skin	= -373.97516	[PSIA]
Radius of investigation	= 524.155457	[FEET]
Slope of MTR line	= -256.77570	[PFN/CYCLE]
Correlation factor	= -9.9896E-1	[]
Start of MTR straight	= 262.500000	[HOUR]
End of MTR straight line	= 371.799988	[HOUR]
Distance to anomaly	= 0.00000000	[FEET]

Remarks:

Company : AGL PETROLEUM
Field: MEREENIE
Well: EM #10

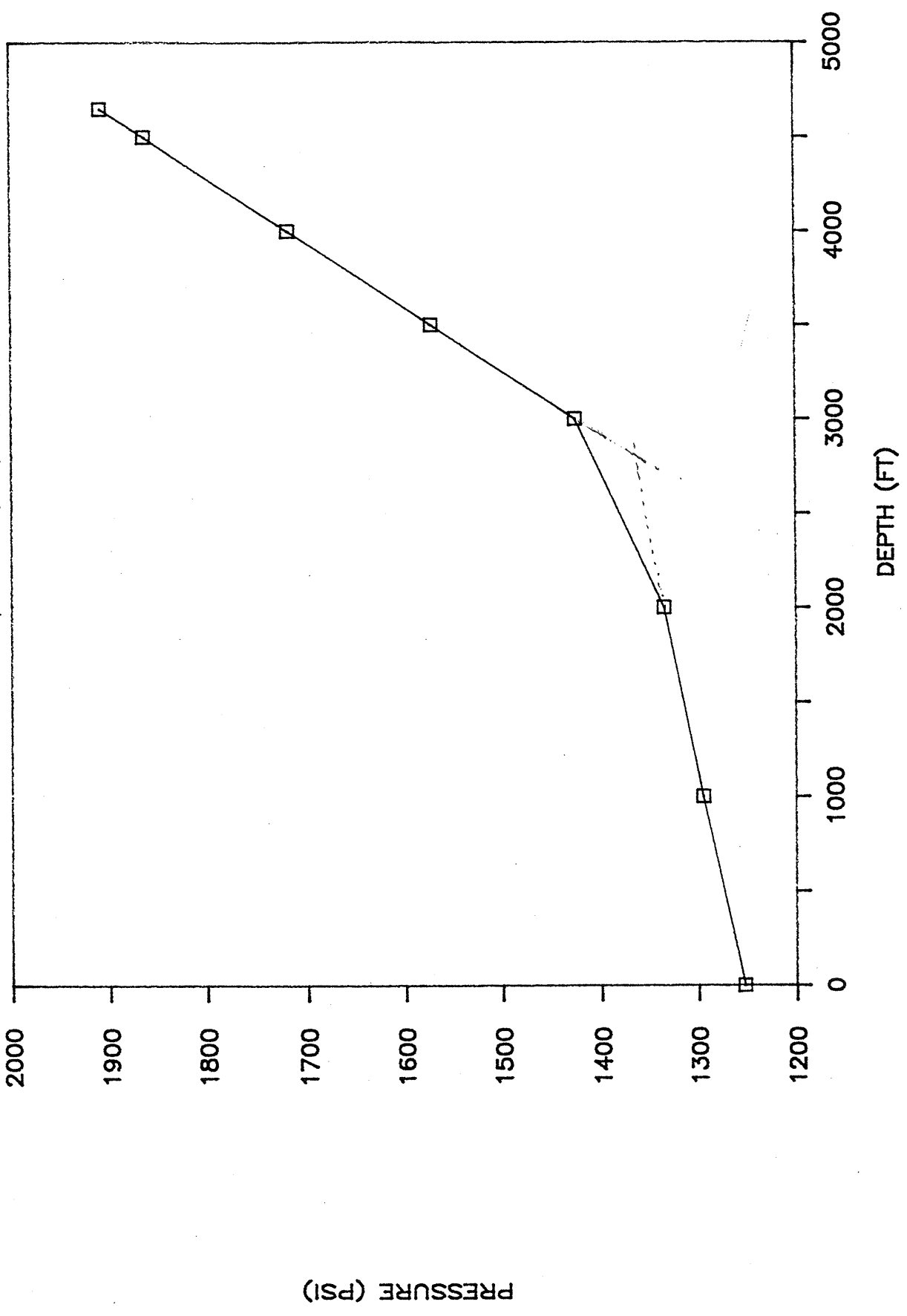
Test Type: BUILDUP
Test Date: 15/12/1989
Analysis: GRINGARTEN

Reservoir flow capacity	=	16.4822960	[MD-FT]
Effective permeability	=	2.74704933	[MD]
Skin factor	=	1.00531E-1	[]
Wellbore storage	=	7.48562E-3	[BBL/PSI]
Dimensionless wellbore storage	=	8178.61670	[]
Pressure match point	=	161.293396	[PSIA]
Time match point	=	4.97133E-1	[HOUR]
Type curve match PD match point	=	1.00000000	[]
Type curve TD/CD match point	=	1.00000000	[]
Type curve parameter CDE2S	=	10000.0000	[]

Remarks:

STATIC GRADIENT SURVEY -- EM 10

(DATE: 21/12/89)



WIRELINE REPORT

CLIENT A.G.L.P. WELL E.M. 10

DATE 15.12.89

PROGRAMME FLOWING GRAD AND FLOW BUILD UP.

PURPOSE OF WORK

REPORT OF WORK PERFORMED

- 0600 ASSIST MEREENIE PERSONNEL AT WORKSHOP.
- FIT SWAB VALVE TO E.M. 10 - WAITING ON INSTRUCTIONS FOR TEST.
- 0730 RIG DOWN WIRELINE FROM E.M. 14 - MOVE TO E.M. 22 RIG UP EQUIPMENT.
- 0900 WAITING FOR DECISION ON E.M. 10
- 1100 RIG UP WIRELINE EQUIPMENT ON E.M. 10.
- 1230 RUN FLOWING GRADIENT SURVEY.
- BOTT STOP @ 4650KB - P.O.O.H. CHARTS O.K.
- 1430 RUN BOTTOM HOLE PRESSURE GAUGES TO 4650KB FOR FLOW BUILD UP SURVEY.
- DETAILS ON BUILD UP SHEETS.
- 1630 S.I.W. AND RECORD SURFACE BUILD UP PRESSURES.
- 1830 SECURE WELL - ADVISE NIGHT SHIFT TO TAKE READINGS.

.....
Operator's Signature

WORKED PERFORMED BY P. STONE OF EXPERTEST

WELL DATA:

Tubing Size FWHP SIWHP

Subsurface S.V./Landing Nipple @ S.S.D. @

'X' Nipple @ 'N'/'XN' Nipple @ Other @

Min. I.D. @ Packer @

Perforated Interval:

CLIENT A.G.L.P. DATE 15/12/89

WELL EAST MEREENIE #10 OPERATOR P. STONE

STATIC GRADIENT SURVEY
 FLOWING
 BOMB No. 1 DATA
 ELEMENT No. 62039 ELEMENT RANGE 3000psi
 RECORDER No D-15186 CLOCK DATA 2395 x .3hr
 ENGAGE STYLUS 1253 DISENGAGE 1420
 PRESSURE LUBRICATOR 1305
 BOMB No. 2 DATA
 ELEMENT No. 57414 ELEMENT RANGE 3000psi
 RECORDER No 12959 CLOCK DATA 2297 x .3hr
 ENGAGE STYLUS 1253 DISENGAGE 1420
 BLEED LUBRICATOR 1413



		BOMB No. 1 DATA					BOMB No. 2 DATA				
DATE	TIME	DEPTH'	DEFLEC-TION	PRESSURE TEMP.	GRADIENT psi/ft	DEPTH'	DEFLEC-TION	PRESSURE TEMP.	GRADIENT psi/ft	REMARKS	
	13:05	0	0.158	256.3			0.164	253.4			
	13:12	1000	0.183	296.6	0.0403		0.190	293.5	0.0401		
	13:19	2000	0.225	364.2	0.0676		0.235	363.0	0.0695		
	13:28	3000	0.266	430.1	0.0659		0.276	426.3	0.0633		
	13:35	3500	0.306	494.5	0.1288		0.318	491.1	0.1296		
	13:42	4000	0.331	534.7	0.0804		0.344	531.3	0.0804		
	13:48	4500	0.352	568.5	0.0676		0.367	566.8	0.0710		
	13:54	4650	0.370	597.5	0.1933		0.385	594.6	0.1853	MID POINT PERFS	
	14:13	0	0.097	158.2			0.100	154.6			

GENERAL REMARKS:



CLIENT A.G.L.P. WELL EAST MEREENIE #10
 OPERATOR P. STONE DATE 15/12/89
 SURVEY FLOW BUILD UP
 TOP BOMB 62039 x 3000psi REC. No. D-15186 CLOCK DATA E14538 x 72hr
 MID BOMB _____ REC. No. _____ CLOCK DATA _____
 BTM BOMB 57414 x 3000psi REC. No. 12959 CLOCK DATA 2671 x 12hr
 ENG. STYLUS 1431 15/12/89 DISENGAGE STYLUS 1048 18/12/89
 DWT IN 182psi DWTOUT 1083psi MBHT 138FO

Date	Time	Cum. Time	Depth	WELL HEAD PSI		TOP		Bot		Remarks
				TUB	CAS	Def.	PSI	Def.	PSI	
15TH	DECEMBER	1989								
	14:36		LUB	182	0	0.105	172.7	0.110	170.1	PRESS LUB
	15:06		RIH			*				RUN IN HOLE
	15:18		4650	224		0.393	634.5	0.424	654.9	HANG AT M.P.P.
	16:30			196		0.402	649.0	0.422	651.8	SHUT WELL IN
	16:32			202		0.408	658.6	0.427	659.5	FOR BUILD UP
	16:34			211		0.414	668.3	0.435	671.9	
	16:36			222		0.420	677.9	0.442	682.7	
	16:38			230		0.426	687.6	0.449	693.5	
	16:40			237		0.432	697.2	0.457	705.8	
	16:42			245		0.438	706.9	0.463	715.1	
	16:44			248		0.444	716.5	0.471	727.5	
	16:46			253		0.452	729.4	0.477	736.8	
	16:48			258		0.458	739.1	0.484	747.6	
	16:50			262		0.463	747.1	0.490	756.8	
	16:52			267		0.470	758.4	0.496	766.1	
	16:54			271		0.475	766.4	0.502	775.4	
	16:56			276		0.480	774.4	0.508	784.7	
	16:58			281		0.486	784.1	0.513	792.4	
	17:00			286		0.492	793.7	0.519	801.6	
	17:10			310		0.519	837.2	0.547	844.9	
	17:20			333		0.544	877.4	0.574	886.6	
	17:30			360		0.570	919.2	0.600	926.8	
	17:40			386		0.593	956.2	0.625	965.4	
	17:50			401		0.617	994.8	0.650	1004.1	
	18:00			427		0.640	1031.7	0.673	1039.6	
	18:30			447		0.704	1134.6	0.740	1143.1	*NOT ACCURATE READINGS



CLIENT ... A.G.L.P. ... WELL ... EAST MEREENIE #10
 OPERATOR ... P. STONE ... DATE ...
 SURVEY ... FLOW BUILD UP ...
 TOP BOMB 62039 x 3000psi ... REC. No. D-15186 ... CLOCK DATA E14538 x 72hr
 MID BOMB ... REC. No. ... CLOCK DATA ...
 BTM BOMB 57414 x 3000psi ... REC. No. 12959 ... CLOCK DATA 2671 x 12hr
 ENG. STYLUS 1431 15/12/89 ... DISENGAGE STYLUS 1048 18/12/89
 DWT IN 182psi ... DWTOUT 1083psi ... MBHT 138P^o

Date	Time	Cum. Time	Depth	WELL HEAD PSI		TOP		Bot		Remarks
				TUB	CAS	Def.	PSI	Def.	PSI	
15TH	DECEMBER 1989									
	19:00		4650	540	0	*0.723	1165.1	0.797	1231.2	
	20:00			640		0.851	1370.7	0.890	1374.8	
	21:00			720		0.914	1471.9	0.958	1479.9	
16TH	DECEMBER 1989									
	01:00			820		1.012	1629.1	1.056	1631.3	
	05:00			858		1.048	1686.9			CLOCK RAN OUT
	09:00			887		1.070	1722.2			
	13:00			913		1.084	1744.6			
	17:00			934		1.095	1762.3			
	21:00			950		1.104	1776.7			
17TH	DECEMBER 1989									
	01:00			965		1.111	1787.9			
	05:00			985		1.117	1797.5			
	09:00			998		1.123	1807.2			
	13:00			1010		1.128	1815.2			
	17:00			1020		1.132	1821.6			
	21:00			1040		1.136	1828.0			
18TH	DECEMBER 1989									
	01:00			1055		1.140	1834.4			
	05:00			1065		1.144	1840.8			
	09:00			1080		1.148	1847.2			
	10:06	PULL	BOMBS	AS ADVISED		BY BRISBANE		& RELOAD &		RE-RUN
	10:06	OFF	BOTTOM	FROM 4650'KB						
	10:17		LUB			0.676	1089.6	0.7	1081.3	
	10:47									DEPRESS LUB
	10:48									DISENGAGE STYLUS



CLIENT A.G.L.P. WELL E.M. #10
 OPERATOR P. POOLE DATE 18.12.89
 SURVEY CONTINUE B.H.P. SURVEY
 TOP BOMB 62039 x 3000psi REC. No. D/15186 CLOCK DATA E. 14538 x 72 HR
 MID BOMB REC. No. CLOCK DATA
 BTM BOMB 57414 x 3000psi REC. No. 12959 CLOCK DATA E19381 x 72HR
 ENG. STYLUS 1100HRS. 18.12.89 DISENGAGE STYLUS 1117 HRS. 21.12.89
 DWT IN 1085psi DWTOUT 1256psi MBHT. 139F

Date	Time	Cum. Time	Depth ' KB	WELLHEAD psi		Mid Def. PSI		Bot Def. PSI		Remarks
				TUB	CAS					
18TH DECEMBER 1989										
	1107		LUB			0.668	1076.7	0.692	1069	PRESS LUB
	1137		R.I.H.							RUN IN HOLE
	1150		4650			1.1472	1846	1.1909	1839.6	HANG DEPTH MID PT PERFS
	1400	0		1095	0	1.1509	1851.9	1.193	1842.9	
	1800	4		1111	"	1.153	1855.2	1.197	1849.1	
	2200	8		1126	"	1.1549	1858.3	1.2	1853.7	
19TH DECEMBER 1989										
	0600	16		1141	"	1.1604	1867.1	1.2053	1861.9	
	1000	20		1145	"	1.163	1871.3	1.208	1866.1	
	1400	24		1157	"	1.166	1876.1	1.2112	1871	
	1800	28		1168	"	1.1682	1879.6	1.2131	1873.9	
20TH DECEMBER 1989										
	0600	40		1200	"	1.1738	1888.6	1.219	1883.1	
	1000	44		1207	"	1.175	1870.5	1.221	1886.2	
	1400	48		1216	"	1.177	1893.7	1.2225	1888.5	
	1800	52		1221	"	1.1789	1896.8	1.2235	1890	
21ST DECEMBER 1989										
	0600	64		1251	"	1.1828	1903	1.2275	1896.2	
	1000	68		1258	"	1.1845	1905.7	1.2291	1898.7	
	1018			POOH	"	1.1848	1906.2			PULL OUT OF HOLE
	1033			LUB	"	0.785	1264.7	0.812	1254.4	ARRIVE @ LUB
	1108			LUB	"					DEPRESS LUB
	B.H.P. SURVEY COMPLETE									
	RETRIEVE CHARTS (GOOD) AND PREPARE TO PERFORM STATIC GRADIENT SURVEY									
	SEE STATIC GRADIENT SURVEY REPORT.									



STATIC GRADIENT SURVEY

CLIENT A.G.I.A. DATE 21.12.89
 WELL MEREENIE, E.M., #10 OPERATOR P. POOLE

		BOMB No. 1 DATA					BOMB No. 2 DATA										
ELEMENT No. 62039		ELEMENT RANGE 3000psi		ELEMENT No. 57414		ELEMENT RANGE 3000psi		RECORDER No. D/15186		CLOCK DATA 2395 x 3 HR		RECORDER No. 12959		CLOCK DATA 2395 x 3 HR		DWT IN	
RECORDER No. D/15186		CLOCK DATA 2297 x 3 HR		ENGAGE STYLUS 1321 HRS		DISENGAGE 1522 HRS		ENGAGE STYLUS 1321 HRS		DISENGAGE 1522 HRS		BLEED LUBRICATOR 1513 HRS		DWT OUT		1257psi	
PRESSURE LUBRICATOR 1331 HRS		PRESSURE LUBRICATOR 1331 HRS		PRESSURE LUBRICATOR 1331 HRS		PRESSURE LUBRICATOR 1331 HRS		PRESSURE LUBRICATOR 1331 HRS		PRESSURE LUBRICATOR 1331 HRS		PRESSURE LUBRICATOR 1331 HRS		PRESSURE LUBRICATOR 1331 HRS		1261 psi	
DATE	TIME	DEPTH' KB	DEFLEC-TION	PRESSURE PSIG	GRADIENT psi/ft	DEPTH' KB	DEFLEC-TION	PRESSURE PSIG	GRADIENT psi/ft	DEPTH' KB	DEFLEC-TION	PRESSURE PSIG	GRADIENT psi/ft	REMARKS			
21ST DECEMBER 1989																	
	1331	LUB	0.777	1252		LUB	.807	1247						PRESSURE LUBRICATOR			
	1342	R.I.H.				R.I.H.								RUN IN HOLE			
	1347	1000	0.803	1294		1000	.833	1287									
	1356	2000	0.828	1334		2000	.860	1329									
	1404	3000	0.885	1425		3000	.920	1421									
	1411	3500	0.976	1571		3500	1.015	1568									
	1418	4000	1.067	1717		4000	1.110	1715									
	1424	4500	1.157	1862		4500	1.202	1857									
	1430	4650	1.185	1907		4650	1.231	1902									
	1445	P.O.O.H.				P.O.O.H.								PULL OUT OF HOLE			
	1503	LUB	0.786	1266		LUB	.816	1261						ARRIVE @ LUBRICATOR			
	1513	LUB				LUB								DEPRESSURE LUBRICATOR			

GENERAL REMARKS: MAX BTM HOLE TEMP 139F