MULTIFINGER IMAGING TOOL CALIPER 9 5/8" CASING

tiger

Company	Southern California Gas Company
Well	Fernando Fee 38A
Field	Aliso Canyon
County	Los Angeles
State	California

Company: Southern California Gas Company
Well: Fernando Fee 38A
Field: Aliso Canyon
County: Los Angeles State: California
Location: API #:
Other Services

		Elevation	
Permanent Datum	Ground Level	Elevation	K.B.
Log Measured From	32' Above Ground Level		D.F.
Drilling Measured From	K.B.		G.L.

Date	May 4, 2016
Run Number	1
Depth Driller	7565'
Depth Logger	7038'
Bottom Logged Interval	7033'
Top Log Interval	Surface
Open Hole Size	n/a
Type Fluid	Lease Water
Density / Viscosity	n/a
Max. Recorded Temp.	n/a
Estimated Cement Top	n/a
Time Well Ready	0700
Time Logger on Bottom	0800
Equipment Number	Wireline Unit 9
Location	Signal Hill, CA
Recorded By	Jorge Vergara
Witnessed By	Jeff Sandoval

Borehole Record

Run Number	Bit	From	To

Tubing Record

Size	Weight	From	To

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	13 3/8"	54.5#	Surface	864'
Prot. String				
Production String	9 5/8"	47#	Surface	7558'
Liner	4 1/2"	11.6#	7029'	7354'

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

This log is not correlated all depth measurements are based on Tiger Cased Hole Services depth measuring ec

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			1 4375CHD Titan Cable Head 1 7/16	1.00	1.44	10.00
			XTU-001 (10007797) Sondex Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			Sondex-6arm Sondex 2 3/8" Six Arm Roller Centralizer	3.00	2.38	25.00
MIT	5.72		MIT-029 (10011798) Sondex Multifinger Imaging Tool (UW 60F)	5.00	4.00	90.00
			Sondex-6arm Sondex 2 3/8" Six Arm Roller Centralizer	3.00	2.38	25.00
TSTAMP	0.00					
ITEMPX	0.00		BUL-006 (10007786) Sondex Bullnose Terminator	0.22	1.69	1.20
HVOLTX	0.00					

Dataset: fernando fee 38a mit.db: field/well/run1/pass4
Total Length: 13.80 ft
Total Weight: 157.70 lb
O.D. 4.00 in

tiger

PIPE TALLY SUMMARY

Company: The Gas Company
Well: Fernando Fee 38A
Field: Aliso Canyon
County: Los Angeles State: California

Joint number, Depth, Length

1	21.0	12.1	31	1390.5	47.3	61	2792.9	47.5
2	33.1	47.4	32	1437.8	43.9	62	2840.4	44.8
3	80.6	47.4	33	1481.7	46.3	63	2885.2	47.5
4	128.0	46.6	34	1528.0	47.6	64	2932.6	47.6
5	174.6	47.5	35	1575.6	45.6	65	2980.2	47.5
6	222.1	47.1	36	1621.2	46.4	66	3027.8	46.0
7	269.2	46.6	37	1667.6	46.1	67	3073.8	47.0
8	315.9	47.2	38	1713.7	46.5	68	3120.8	45.8
9	363.0	46.5	39	1760.2	47.5	69	3166.6	44.1
10	409.6	47.5	40	1807.7	47.5	70	3210.8	46.4
11	457.1	47.6	41	1855.2	47.6	71	3257.2	46.3
12	504.7	47.5	42	1902.9	47.1	72	3303.4	47.1
13	552.2	46.1	43	1950.0	46.6	73	3350.5	46.8
14	598.3	47.0	44	1996.6	46.7	74	3397.3	47.4
15	645.3	47.2	45	2043.3	47.5	75	3444.7	47.4
16	692.5	47.0	46	2090.9	47.4	76	3492.2	46.8
17	739.5	46.7	47	2138.3	46.4	77	3539.0	47.7
18	786.2	47.0	48	2184.6	47.5	78	3586.6	45.8
19	833.2	44.8	49	2232.1	44.3	79	3632.5	47.0
20	878.0	47.7	50	2276.4	47.3	80	3679.5	47.5
21	925.7	46.0	51	2323.7	47.3	81	3727.0	45.1
22	971.7	47.5	52	2371.0	46.5	82	3772.1	47.4
23	1019.2	46.7	53	2417.5	47.0	83	3819.5	47.5
24	1065.9	46.6	54	2464.5	46.2	84	3867.0	46.5
25	1112.5	46.5	55	2510.6	47.5	85	3913.4	47.4
26	1158.9	47.5	56	2558.1	47.5	86	3960.8	46.6
27	1206.4	47.3	57	2605.6	46.7	87	4007.4	46.3
28	1253.7	46.5	58	2652.3	46.1	88	4053.7	47.5
29	1300.2	43.8	59	2698.4	47.4	89	4101.1	46.9
30	1344.0	46.5	60	2745.8	47.1	90	4148.0	47.5

Sheet: 1 of 2 Log Date: 5/4/2016

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PIPE TALLY SUMMARY

Company: The Gas Company
Well: Fernando Fee 38A
Field: Aliso Canyon
County: Los Angeles State: California

Joint number, Depth, Length

91	4195.5	46.2	121	5596.4	47.4	151	6985.8	20.2
92	4241.7	46.6	122	5643.8	47.3	152	7006.0	27.0
93	4288.4	47.4	123	5691.1	47.4	153	7033.0	0.0
94	4335.8	47.5	124	5738.6	47.3			
95	4383.3	47.1	125	5785.9	44.8			
96	4430.4	47.3	126	5830.7	45.3			
97	4477.6	47.5	127	5876.0	47.1			
98	4525.1	47.5	128	5923.1	47.4			
99	4572.6	46.5	129	5970.5	44.5			
100	4619.1	47.4	130	6015.0	46.5			
101	4666.5	47.0	131	6061.4	44.4			
102	4713.5	46.2	132	6105.8	45.8			
103	4759.7	46.4	133	6151.6	45.4			
104	4806.1	46.2	134	6196.9	47.3			
105	4852.3	47.5	135	6244.3	47.3			
106	4899.7	47.5	136	6291.6	46.7			
107	4947.2	47.4	137	6338.3	47.4			
108	4994.6	47.1	138	6385.7	46.7			
109	5041.7	46.7	139	6432.3	45.5			
110	5088.4	47.5	140	6477.9	45.9			
111	5135.8	45.6	141	6523.8	47.4			
112	5181.4	46.0	142	6571.1	45.5			
113	5227.5	46.2	143	6616.7	44.4			
114	5273.6	45.5	144	6661.1	44.2			
115	5319.2	43.9	145	6705.3	47.3			
116	5363.1	45.7	146	6752.6	45.6			
117	5408.8	47.5	147	6798.2	47.3			
118	5456.3	47.4	148	6845.5	46.6			
119	5503.7	47.4	149	6892.0	46.5			
120	5551.1	45.4	150	6938.6	47.2			

Sheet: 2 of 2 Log Date: 5/4/2016

Calibration Report

Database File: fernando fee 38a mit.db
Dataset Pathname: pass4
Dataset Creation: Wed May 04 08:24:26 2016 by Log 7.0 B1

Multi-finger Imaging Tool Calibration Report

Serial Number: 10011798
Number of Fingers: 60
Tool Model: 029

Inclinometer Calibration Report

Performed: Fri Apr 15 16:43:59 2016
Calibration Angle: 45

	Inc X	Inc Y
Vertical:	1958	1989
Finger 1 up:	1772	2250
Finger 46 up:	1719	1782
Finger 31 up:	2165	1741
Finger 16 up:	2253	2147

Sensitivity ratio: 1.05857
X-axis angle: 234.002
Deviation const.: 331.514

Finger Calibration Report

Performed: Wed May 04 07:07:44 2016

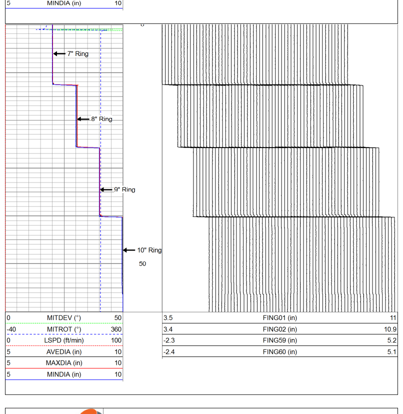
Ring size: (in)	7	Sens	8	Sens	9	Sens	10	Sens	11
Finger 01:	1565	236.0	1801	248.0	2049	254.0	2303	265.0	2568
Finger 02:	1543	241.0	1784	261.0	2045	267.0	2312	279.0	2591
Finger 03:	1572	227.0	1799	248.0	2047	252.0	2299	268.0	2567
Finger 04:	1592	211.0	1803	232.0	2035	235.0	2270	250.0	2520
Finger 05:	1546	230.0	1776	259.0	2035	264.0	2299	286.0	2585
Finger 06:	1548	219.0	1767	249.0	2016	253.0	2269	275.0	2544
Finger 07:	1544	224.0	1768	257.0	2025	261.0	2286	288.0	2574
Finger 08:	1535	220.0	1755	258.0	2013	260.0	2273	288.0	2561
Finger 09:	1542	218.0	1760	255.0	2015	259.0	2274	289.0	2563
Finger 10:	1513	219.0	1732	256.0	1988	262.0	2250	294.0	2544
Finger 11:	1481	244.0	1725	285.0	2010	290.0	2300	319.0	2619
Finger 12:	1509	220.0	1729	261.0	1990	257.0	2247	307.0	2554
Finger 13:	1473	237.0	1710	284.0	1994	276.0	2270	332.0	2602
Finger 14:	1531	212.0	1743	251.0	1994	238.0	2232	307.0	2539
Finger 15:	1470	237.0	1707	282.0	1989	263.0	2252	333.0	2585
Finger 16:	1485	229.0	1714	271.0	1985	253.0	2238	335.0	2573
Finger 17:	1528	217.0	1745	253.0	1998	227.0	2225	316.0	2541
Finger 18:	1465	241.0	1706	269.0	1975	248.0	2223	339.0	2562
Finger 19:	1502	223.0	1725	252.0	1977	232.0	2209	312.0	2521
Finger 20:	1531	217.0	1748	245.0	1993	219.0	2212	294.0	2506
Finger 21:	1510	228.0	1738	254.0	1992	240.0	2232	303.0	2535
Finger 22:	1530	219.0	1749	244.0	1993	229.0	2222	285.0	2507
Finger 23:	1544	222.0	1766	242.0	2008	235.0	2243	278.0	2521
Finger 24:	1550	225.0	1775	240.0	2015	233.0	2248	272.0	2520
Finger 25:	1513	235.0	1748	250.0	1998	248.0	2246	274.0	2520
Finger 26:	1513	249.0	1762	260.0	2022	267.0	2289	272.0	2561
Finger 27:	1532	247.0	1779	254.0	2033	260.0	2293	259.0	2552
Finger 28:	1550	240.0	1790	245.0	2035	249.0	2284	250.0	2534
Finger 29:	1512	263.0	1775	265.0	2040	268.0	2308	264.0	2572
Finger 30:	1532	257.0	1789	257.0	2046	262.0	2308	258.0	2566
Finger 31:	1506	265.0	1771	264.0	2035	266.0	2301	258.0	2559
Finger 32:	1558	248.0	1806	238.0	2044	247.0	2291	232.0	2523
Finger 33:	1528	265.0	1793	254.0	2047	259.0	2306	241.0	2547
Finger 34:	1489	297.0	1786	284.0	2070	291.0	2361	267.0	2628
Finger 35:	1567	263.0	1830	251.0	2081	252.0	2333	231.0	2564
Finger 36:	1524	280.0	1804	262.0	2066	265.0	2331	239.0	2570
Finger 37:	1549	271.0	1820	252.0	2072	254.0	2326	229.0	2555
Finger 38:	1563	271.0	1834	255.0	2089	260.0	2349	233.0	2582
Finger 39:	1520	301.0	1821	277.0	2098	279.0	2377	245.0	2622
Finger 40:	1549	275.0	1824	256.0	2080	260.0	2340	231.0	2571
Finger 41:	1543	292.0	1835	268.0	2103	272.0	2375	239.0	2614
Finger 42:	1571	281.0	1852	256.0	2108	260.0	2368	229.0	2597
Finger 43:	1611	251.0	1862	235.0	2097	243.0	2340	218.0	2558
Finger 44:	1582	273.0	1855	246.0	2101	250.0	2351	220.0	2571
Finger 45:	1515	315.0	1830	291.0	2121	290.0	2411	246.0	2657
Finger 46:	1517	317.0	1834	293.0	2127	295.0	2422	253.0	2675
Finger 47:	1572	277.0	1849	255.0	2104	257.0	2361	228.0	2589
Finger 48:	1580	274.0	1854	250.0	2104	253.0	2357	224.0	2581
Finger 49:	1586	277.0	1863	258.0	2121	261.0	2382	233.0	2615
Finger 50:	1586	268.0	1854	255.0	2109	259.0	2368	232.0	2600
Finger 51:	1569	270.0	1839	261.0	2100	259.0	2359	240.0	2599
Finger 52:	1584	267.0	1851	253.0	2104	256.0	2360	236.0	2596
Finger 53:	1614	249.0	1863	243.0	2106	245.0	2351	229.0	2580
Finger 54:	1591	261.0	1852	252.0	2104	258.0	2362	241.0	2603
Finger 55:	1591	254.0	1845	250.0	2095	255.0	2350	242.0	2592
Finger 56:	1571	255.0	1826	258.0	2084	264.0	2348	257.0	2605
Finger 57:	1575	250.0	1825	252.0	2077	258.0	2335	256.0	2591
Finger 58:	1547	265.0	1812	272.0	2084	277.0	2361	270.0	2631
Finger 59:	1583	240.0	1823	248.0	2071	254.0	2325	256.0	2581
Finger 60:	1556	244.0	1800	256.0	2056	264.0	2320	268.0	2588

tiger

Surface Calibration Check

Database File: fernando fee 38a mit.db
Dataset Pathname: pass2
Presentation Format: 958
Dataset Creation: Wed May 04 07:15:48 2016 by Log 7.0 B1
Charted by: Time scaled 360°/hour

Min	Curve	Max	Min	Curve	Max
0	MITDEV (°)	50	3.5	FING01 (in)	11
-40	MITROT (°)	360	3.4	FING02 (in)	10.9
0	LSPD (ft/min)	100	-2.3	FING59 (in)	5.2
5	AVEDIA (in)	10	-2.4	FING60 (in)	5.1
5	MAXDIA (in)	10			
5	MINDIA (in)	10			



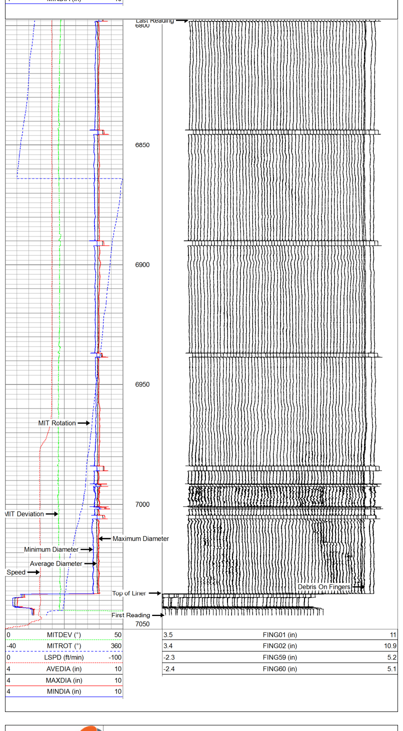
Min	Curve	Max	Min	Curve	Max
0	MITDEV (°)	50	3.5	FING01 (in)	11
-40	MITROT (°)	360	3.4	FING02 (in)	10.9
0	LSPD (ft/min)	100	-2.3	FING59 (in)	5.2
5	AVEDIA (in)	10	-2.4	FING60 (in)	5.1
5	MAXDIA (in)	10			
5	MINDIA (in)	10			

tiger

First Pass

Database File: fernando fee 38a mit.db
Dataset Pathname: pass3
Presentation Format: 958
Dataset Creation: Wed May 04 08:10:47 2016 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

Min	Curve	Max	Min	Curve	Max
0	MITDEV (°)	50	3.5	FING01 (in)	11
-40	MITROT (°)	360	3.4	FING02 (in)	10.9
0	LSPD (ft/min)	-100	-2.3	FING59 (in)	5.2
4	AVEDIA (in)	10	-2.4	FING60 (in)	5.1
4	MAXDIA (in)	10			
4	MINDIA (in)	10			



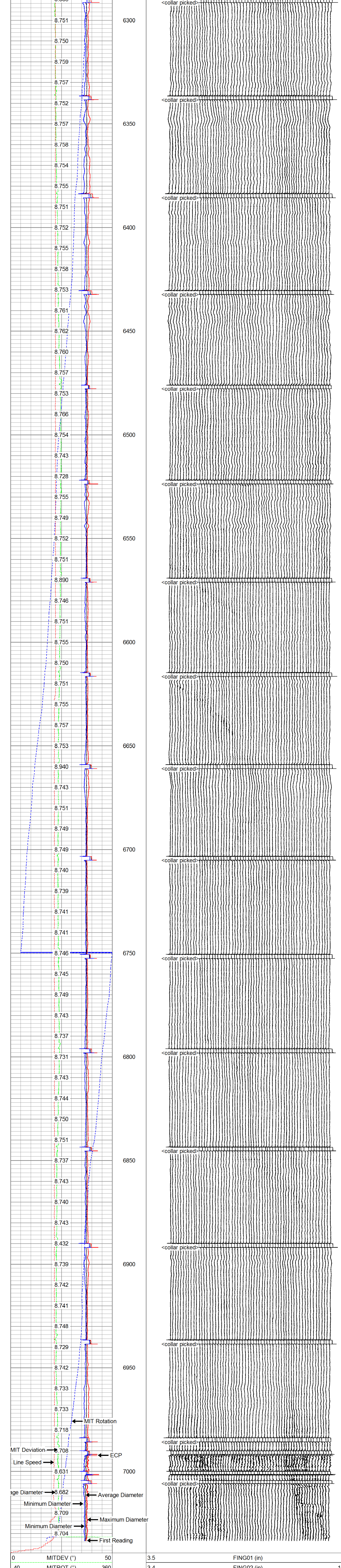
Min	Curve	Max	Min	Curve	Max
0	MITDEV (°)	50	3.5	FING01 (in)	11
-40	MITROT (°)	360	3.4	FING02 (in)	10.9
0	LSPD (ft/min)	-100	-2.3	FING59 (in)	5.2
4	AVEDIA (in)	10	-2.4	FING60 (in)	5.1
4	MAXDIA (in)	10			
4	MINDIA (in)	10			

tiger

Database File: fernando fee 38a mit.db
Dataset Pathname: pass4
Presentation Format: 958
Dataset Creation: Wed May 04 08:24:26 2016 by Log 7.0 B1
Charted by: Depth in Feet scaled 1:240

Min	Curve	Max	Min	Curve	Max
0	MITDEV (°)	50	3.5	FING01 (in)	11
-40	MITROT (°)	360	3.4	FING02 (in)	10.9
0	LSPD (ft/min)	-100	-2.3	FING59 (in)	5.2
5	AVEDIA (in)	10	-2.4	FING60 (in)	5.1
5	MAXDIA (in)	10			
5	MINDIA (in)	10			

AVEDIA (in)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8.748
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8.742
6950
8.733
8.733
MIT Rotation
8.718
MIT Deviation
8.708
ECP
Line Speed
8.631
7000
Average Diameter
8.682
Minimum Diameter
8.709
Maximum Diameter
Minimum Diameter
8.704
First Reading
<collar picked>
0 MITDEV (°) 50
-40 MITROT (°) 360
0 LSPD (ft/min) -100
5 AVEDIA (in) 10
5 MAXDIA (in) 10
5 MINDIA (in) 10
AVEDIA (in)
3.5 FING01 (in) 11
3.4 FING02 (in) 10.9
-2.3 FING59 (in) 5.2
-2.4 FING60 (in) 5.1