Client: Southern California Gas		
Well: Porter 50C	Top Depth: 5.8ft	Date: 17-March-2016
Country: USA	Bottom Depth: 7102ft	Tool Size: 3.5"
Analyst: B. Harbstreit	# Fingers: 56F	Tool Type: Image Caliper
Pipe: 9 5/8”, 43.5lb, L80	.	.

Several joints showed what in our opinion is mechanical deformation / ovality and is not related to corrosion. Joints that show deformation / ovality typically will report higher percentage of DOP (depth of penetration) however, this is the result of the % out of roundness and not of metal loss. A few examples joints: #66, #67, #87 and #167.

Joint #174 showed a circumferential feature approximately 5 feet above the pin end of the joint. Given the smooth appearance and slight ID change it is our opinion that this artifact is possibly inherent from the manufacturing process. Joints # 127 & #128 also show a circumferential artifact about 7 feet from the pin end of the joint but much less pronounced and shallower depth of penetration and again it is our opinion these are probably inherent to the manufacturing process.

Overall the 5 ½” casing surveyed appears to be fair condition from an image caliper standpoint. All joints remained in the class 1 range.

Deformation & Ovality

The terms "deformation & ovality" are used to describe tubulars that are out of round. When encountering issues of this nature during the analysis the evaluation software reports it as “damage” because there is a change from the nominal ID that indicates metal loss. ***The reported magnitude (% Ovality) is based on the percent of measured wall loss relative to the wall thickness.*** It is our opinion, that when encountering this type of damage there is most often no actual metal loss as is reported during the analysis by the software. The software looks for changes from nominal ID, thus ovality or "egg shaped" casing results in a change from nominal ID (in both the minimum and maximum) and forces the reporting as such. It is our opinion that even though there is usually no metal loss associated with this type of damage it should be left in the report to serve as an identifier to the operator, that there could be an issue with the pipe and should be monitored.

Note: ***(below is just a precautionary statement to the operator and cannot be proved or disproved by the data set obtained by this service as it outside the scope of said service).*** A feature of this type is form a mechanical mechanism and not corrosion based in our opinion. One exception is when this type of feature occurs at the coupling. Occurring at the coupling could pose an issue for the operator in the form of a leaking tubular connection

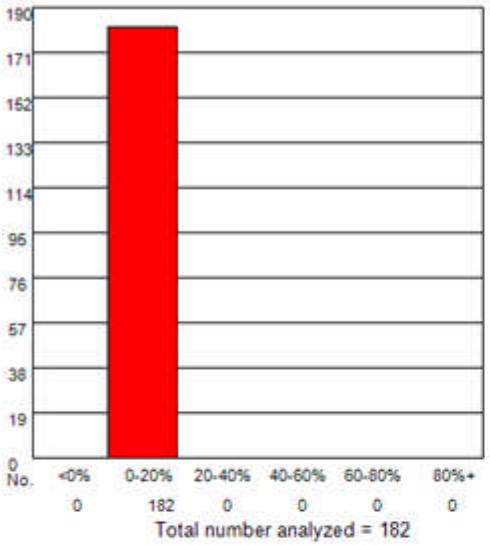
DISCLAIMER:
These results were generated semi-automatically, using EPIDOTE - MIPS analysis software. The data was acquired using HotWell casing inspection tools. HotWell accepts no responsibility for the accuracy of the results that are presented.

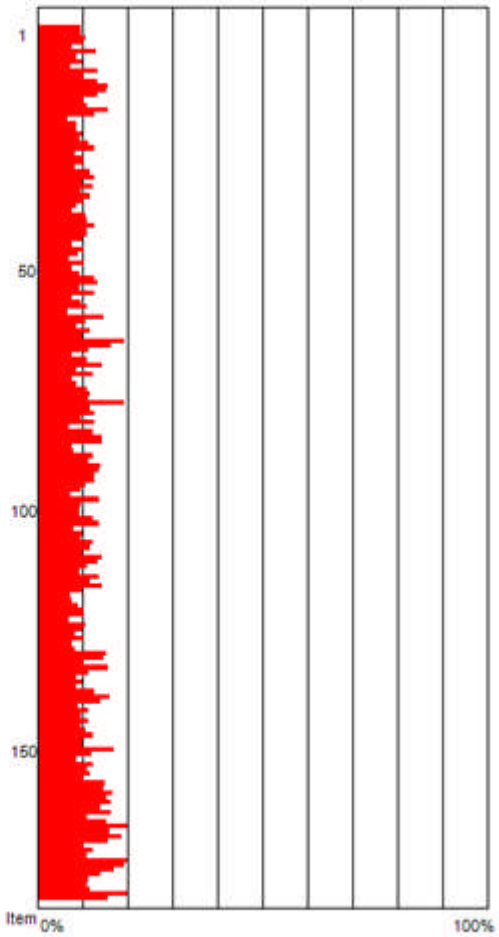
All interpretations are opinions, based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs,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

Client: Southern California Gas
Well: Porter 50C
Date: 17-March-2016
Analyst: B. Harbstreit
Pipe: 9.625", 43.5lb

Top Depth: 5.8ft
Bottom Depth: 7102ft
Fingers: 56F
.

Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.





Maximum Penetration

Client: Southern California Gas
Well: Porter 50C
Date: 17-March-2016
Analyst: B. Harbstreit
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Top Depth: 5.8ft
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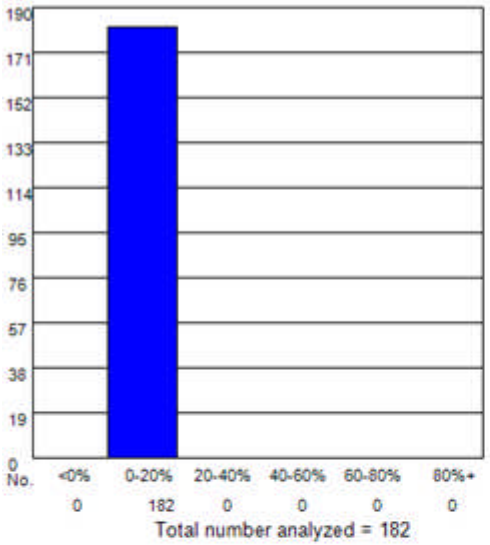

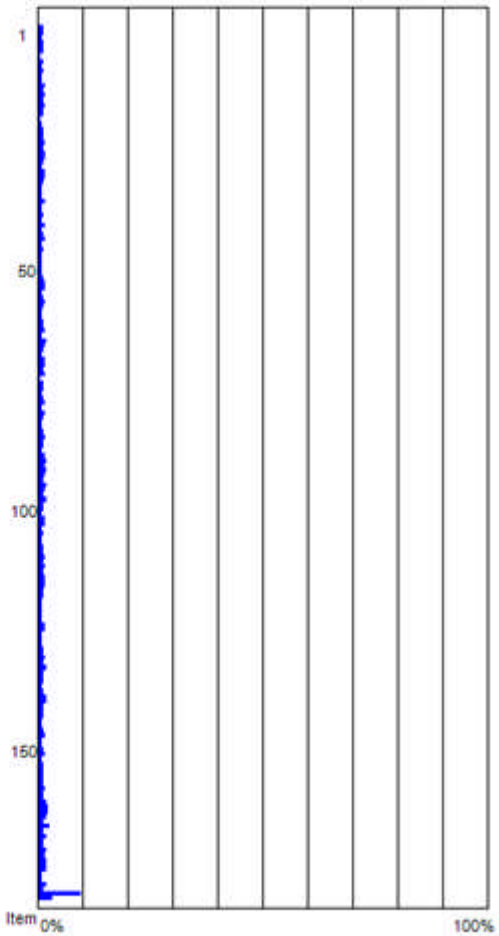

Maximum Projection - Based On Wall Thickness

Client: Southern California Gas		Field: Aliso Canyon
Well: Porter 50C	Top Depth: 5.8ft	Country: USA
Date: 17-March-2016	Bottom Depth: 7102ft	Tool Size: 3.5"
Analyst: B. Harbstreit	# Fingers: 56F	Tool Type: Image Caliper
Pipe: 9.625", 43.5lb	.	.

Penetration Tally Min Wall

Extended Joint Body Penetration - MIPS JointAnalysisX v2.48 - Joint statistics based on joint Median ID; Graded on Max Pen %

Less than 0	From 0 to 20	From 20 to 40	From 40 to 60	From 60 to 80	Greater than 80
Null	Class I	Class II	Class III	Class IV	Class V

Pipe grading based on Max Percentage Penetration

Client: Southern California Gas
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Analyst: B. Harbstreit
Pipe: 9.625", 43.5lb

Top Depth: 5.8ft
Bottom Depth: 7102ft
Fingers: 56F
.

Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.

Item Number	Top Body	Body Length	NomID At Max Pen	Mean Median Ins	Max Pen Ins	Max Pen %	Max Pen Depth	Max Loss %	Min Wall Ins	Min Diam Ins	Comments
1	6.330	14.677	8.755	8.769	8.850	9.478	20.701	2.520	0.387	8.661	Class I
2	21.708	37.787	8.755	8.764	8.847	9.592	59.027	1.862	0.389	8.676	Class I
3	60.092	38.226	8.755	8.750	8.843	10.626	62.548	2.534	0.391	8.682	Class I
4	98.957	37.573	8.755	8.751	8.841	10.250	125.440	2.577	0.392	8.664	Class I
5	137.141	38.255	8.755	8.740	8.806	7.444	174.856	2.684	0.410	8.658	Class I
6	175.992	37.843	8.755	8.748	8.860	12.742	213.310	3.569	0.383	8.659	Class I
7	214.446	39.433	8.755	8.753	8.827	8.460	242.775	2.024	0.399	8.710	Class I
8	254.504	36.182	8.755	8.771	8.854	9.729	290.515	2.350	0.385	8.688	Class I
9	291.282	39.320	8.755	8.747	8.810	7.160	308.748	2.477	0.407	8.681	Class I
10	331.198	39.149	8.755	8.729	8.848	13.238	369.566	6.826	0.389	8.661	Class I
11	370.972	39.462	8.755	8.750	8.839	10.127	408.687	2.301	0.393	8.692	Class I
12	411.073	39.149	8.755	8.744	8.859	13.011	447.240	2.967	0.383	8.688	Class I
13	450.861	39.263	8.755	8.751	8.888	15.632	489.386	5.250	0.369	8.660	Class I
14	490.792	38.553	8.755	8.770	8.899	15.047	529.288	2.845	0.363	8.694	Class I
15	529.941	38.198	8.755	8.740	8.857	13.198	535.039	4.639	0.384	8.646	Class I
16	568.707	39.419	8.755	8.749	8.838	10.180	571.419	3.237	0.393	8.653	Class I
17	608.751	39.334	8.755	8.750	8.845	10.829	647.361	3.048	0.390	8.648	Class I
18	648.682	38.496	8.755	8.751	8.886	15.401	687.121	2.881	0.370	8.657	Class I
19	687.817	36.735	8.755	8.761	8.869	12.548	718.006	3.981	0.378	8.665	Class I

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Bottom Depth: 7102ft
Fingers: 56F
.

Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.

Item Number	Top Body	Body Length	NomID At Max Pen	Mean Median Ins	Max Pen Ins	Max Pen %	Max Pen Depth	Max Loss %	Min Wall Ins	Min Diam Ins	Comments
20	725.149	39.405	8.755	8.749	8.807	6.582	728.102	1.822	0.409	8.705	Class I
21	765.150	39.476	8.755	8.754	8.829	8.642	767.976	1.645	0.398	8.697	Class I
22	805.208	39.462	8.755	8.750	8.823	8.369	844.556	2.168	0.401	8.674	Class I
23	845.281	39.320	8.755	8.760	8.844	9.707	882.911	3.442	0.391	8.680	Class I
24	885.183	37.502	8.755	8.751	8.830	9.051	891.274	2.492	0.398	8.650	Class I
25	923.281	37.914	8.755	8.759	8.855	11.055	960.670	3.545	0.385	8.656	Class I
26	961.820	39.291	8.755	8.746	8.857	12.663	1000.884	4.956	0.384	8.661	Class I
27	1001.708	39.277	8.755	8.748	8.819	8.111	1024.201	2.966	0.403	8.632	Class I
28	1041.581	38.099	8.755	8.754	8.842	10.104	1079.680	2.846	0.391	8.640	Class I
29	1080.305	39.107	8.755	8.758	8.846	10.143	1091.906	3.390	0.390	8.659	Class I
30	1120.022	39.348	8.755	8.736	8.809	8.181	1151.631	3.035	0.408	8.681	Class I
31	1159.967	37.559	8.755	8.742	8.842	11.361	1162.920	3.298	0.391	8.631	Class I
32	1198.108	39.334	8.755	8.745	8.854	12.429	1208.247	3.276	0.385	8.645	Class I
33	1238.081	39.405	8.755	8.753	8.838	9.780	1273.950	2.393	0.393	8.688	Class I
34	1278.082	39.419	8.755	8.750	8.855	12.046	1296.372	2.659	0.385	8.683	Class I
35	1318.070	39.334	8.755	8.735	8.819	9.429	1356.154	3.251	0.403	8.674	Class I
36	1358.028	39.433	8.755	8.749	8.849	11.429	1367.273	2.912	0.388	8.677	Class I
37	1398.087	39.249	8.755	8.755	8.843	10.117	1415.837	2.457	0.391	8.633	Class I
38	1437.932	39.405	8.755	8.747	8.821	8.457	1468.732	2.578	0.402	8.682	Class I
39	1477.933	39.291	8.755	8.752	8.819	7.638	1516.983	1.688	0.403	8.683	Class I

Client: Southern California Gas
Well: Porter 50C
Date: 17-March-2016
Analyst: B. Harbstreit
Pipe: 9.625", 43.5lb

Top Depth: 5.8ft
Bottom Depth: 7102ft
Fingers: 56F
.

Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.

Item Number	Top Body	Body Length	NomID At Max Pen	Mean Median Ins	Max Pen Ins	Max Pen %	Max Pen Depth	Max Loss %	Min Wall Ins	Min Diam Ins	Comments
40	1517.807	39.348	8.755	8.761	8.853	10.640	1555.082	2.471	0.386	8.661	Class I
41	1557.958	39.045	8.755	8.739	8.835	10.790	1596.716	3.394	0.395	8.670	Class I
42	1597.615	37.541	8.755	8.745	8.854	12.354	1634.602	3.172	0.385	8.623	Class I
43	1635.738	39.405	8.755	8.734	8.831	10.903	1674.603	3.649	0.397	8.659	Class I
44	1675.711	39.419	8.755	8.732	8.828	10.793	1714.945	4.773	0.398	8.655	Class I
45	1715.712	39.220	8.755	8.775	8.858	9.754	1754.365	2.812	0.384	8.661	Class I
46	1755.515	37.999	8.755	8.741	8.808	7.564	1793.358	2.301	0.409	8.676	Class I
47	1794.082	37.541	8.755	8.768	8.855	10.145	1827.509	2.581	0.385	8.681	Class I
48	1832.323	37.672	8.755	8.740	8.817	8.710	1868.888	2.291	0.404	8.682	Class I
49	1870.606	37.630	8.755	8.740	8.801	6.874	1906.390	2.154	0.412	8.682	Class I
50	1908.818	37.999	8.755	8.737	8.828	10.209	1945.809	3.497	0.398	8.674	Class I
51	1947.414	38.312	8.755	8.736	8.802	7.382	1985.569	2.965	0.411	8.671	Class I
52	1986.364	39.305	8.755	8.735	8.818	9.300	2012.379	3.188	0.404	8.660	Class I
53	2026.370	39.143	8.755	8.760	8.867	12.343	2032.386	2.916	0.379	8.667	Class I
54	2066.239	39.462	8.755	8.748	8.865	13.305	2105.104	3.519	0.380	8.631	Class I
55	2106.297	39.462	8.755	8.747	8.827	9.095	2143.302	2.517	0.399	8.663	Class I
56	2146.341	39.306	8.755	8.746	8.856	12.501	2178.093	3.130	0.385	8.684	Class I
57	2186.243	39.405	8.755	8.748	8.813	7.449	2193.017	2.376	0.406	8.672	Class I
58	2226.231	39.291	8.755	8.752	8.836	9.591	2243.654	2.584	0.394	8.648	Class I
59	2266.161	39.277	8.755	8.745	8.841	10.957	2304.387	2.836	0.392	8.663	Class I

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Fingers: 56F
.

Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.

Item Number	Top Body	Body Length	NomID At Max Pen	Mean Median Ins	Max Pen Ins	Max Pen %	Max Pen Depth	Max Loss %	Min Wall Ins	Min Diam Ins	Comments
60	2306.035	39.320	8.755	8.747	8.803	6.370	2345.241	2.413	0.411	8.692	Class I
61	2345.965	38.468	8.755	8.728	8.858	14.478	2383.155	4.676	0.384	8.664	Class I
62	2385.029	39.433	8.755	8.762	8.852	10.401	2423.227	3.028	0.386	8.668	Class I
63	2425.073	36.508	8.755	8.736	8.812	8.573	2448.120	3.429	0.406	8.643	Class I
64	2462.149	38.207	8.755	8.745	8.845	11.376	2464.606	3.817	0.390	8.643	Class I
65	2501.056	39.023	8.755	8.739	8.827	9.910	2539.057	3.011	0.399	8.673	Class I
66	2540.716	39.091	8.755	8.741	8.911	19.201	2558.440	5.452	0.357	8.587	Class I
67	2580.507	38.779	8.755	8.754	8.894	16.120	2589.438	4.088	0.365	8.640	Class I
68	2619.883	38.042	8.755	8.740	8.838	11.115	2641.282	3.789	0.393	8.641	Class I
69	2658.676	39.143	8.755	8.753	8.817	7.370	2697.387	2.216	0.404	8.681	Class I
70	2698.519	37.719	8.755	8.779	8.871	10.832	2733.739	2.729	0.377	8.661	Class I
71	2736.834	37.119	8.755	8.741	8.868	14.329	2753.065	4.455	0.378	8.623	Class I
72	2774.535	39.916	8.755	8.752	8.827	8.581	2807.848	3.890	0.399	8.670	Class I
73	2815.019	39.306	8.755	8.780	8.883	12.164	2846.203	3.108	0.371	8.677	Class I
74	2855.104	36.542	8.755	8.757	8.823	7.581	2887.397	2.592	0.401	8.706	Class I
75	2892.514	39.343	8.755	8.777	8.850	8.558	2931.857	3.919	0.387	8.692	Class I
76	2932.425	39.291	8.755	8.772	8.864	10.761	2971.219	2.900	0.380	8.670	Class I
77	2972.327	36.437	8.755	8.773	8.871	11.466	3008.253	3.116	0.377	8.709	Class I
78	3009.375	38.965	8.755	8.809	8.901	11.280	3047.999	3.136	0.362	8.715	Class I
79	3048.936	38.738	8.755	8.784	8.945	19.152	3068.688	4.476	0.340	8.681	Class I

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Field: Aliso Canyon
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Tool Size: 3.5"
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Item Number	Top Body	Body Length	NomID At Max Pen	Mean Median Ins	Max Pen Ins	Max Pen %	Max Pen Depth	Max Loss %	Min Wall Ins	Min Diam Ins	Comments
80	3088.332	37.850	8.755	8.803	8.896	11.347	3121.228	2.137	0.365	8.739	Class I
81	3126.983	38.109	8.755	8.780	8.885	12.390	3164.396	2.694	0.370	8.659	Class I
82	3165.674	39.433	8.755	8.786	8.867	9.658	3199.896	1.665	0.379	8.692	Class I
83	3205.690	39.419	8.755	8.755	8.865	12.599	3244.896	2.123	0.380	8.689	Class I
84	3245.691	39.306	8.755	8.759	8.819	6.910	3279.146	1.658	0.403	8.703	Class I
85	3285.607	39.362	8.755	8.739	8.845	12.000	3303.641	3.085	0.390	8.650	Class I
86	3325.566	38.155	8.755	8.745	8.869	14.139	3345.162	3.914	0.378	8.635	Class I
87	3364.361	39.235	8.755	8.736	8.862	14.149	3392.874	4.364	0.381	8.657	Class I
88	3404.206	39.320	8.755	8.756	8.820	7.393	3406.819	2.281	0.403	8.677	Class I
89	3444.165	37.744	8.755	8.742	8.812	7.902	3481.667	2.913	0.406	8.674	Class I
90	3482.561	38.127	8.755	8.744	8.852	12.307	3511.885	3.755	0.386	8.639	Class I
91	3521.285	39.306	8.755	8.762	8.859	11.232	3545.865	2.971	0.383	8.632	Class I
92	3561.158	37.800	8.755	8.760	8.878	13.672	3593.946	3.616	0.373	8.633	Class I
93	3599.569	38.241	8.755	8.746	8.864	13.407	3636.120	4.624	0.380	8.613	Class I
94	3638.378	38.255	8.755	8.748	8.859	12.648	3643.291	3.752	0.383	8.628	Class I
95	3677.201	39.348	8.755	8.747	8.856	12.369	3691.088	2.822	0.385	8.666	Class I
96	3717.117	38.212	8.755	8.750	8.842	10.530	3725.282	3.581	0.391	8.633	Class I
97	3755.926	37.176	8.755	8.733	8.819	9.655	3777.155	3.408	0.403	8.624	Class I
98	3793.669	39.291	8.755	8.744	8.808	7.234	3832.350	2.329	0.409	8.667	Class I
99	3833.670	38.523	8.755	8.751	8.868	13.428	3863.306	3.777	0.378	8.623	Class I

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Field: Aliso Canyon
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Tool Size: 3.5"
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Item Number	Top Body	Body Length	NomID At Max Pen	Mean Median Ins	Max Pen Ins	Max Pen %	Max Pen Depth	Max Loss %	Min Wall Ins	Min Diam Ins	Comments
100	3872.993	37.954	8.755	8.726	8.812	9.596	3875.532	3.684	0.406	8.639	Class I
101	3911.543	38.127	8.755	8.740	8.820	9.041	3924.025	3.136	0.403	8.655	Class I
102	3950.387	38.989	8.755	8.750	8.832	9.332	3989.345	2.080	0.397	8.687	Class I
103	3990.176	39.199	8.755	8.726	8.836	12.202	4024.391	4.459	0.394	8.607	Class I
104	4030.014	39.405	8.755	8.770	8.885	13.456	4061.623	2.389	0.370	8.653	Class I
105	4070.001	37.417	8.755	8.735	8.805	7.840	4106.523	3.094	0.410	8.676	Class I
106	4108.057	38.127	8.755	8.754	8.841	9.967	4125.722	3.415	0.392	8.669	Class I
107	4146.781	39.249	8.755	8.719	8.805	9.477	4185.674	4.207	0.410	8.656	Class I
108	4186.626	39.320	8.755	8.732	8.840	12.089	4225.406	4.014	0.392	8.674	Class I
109	4226.514	39.235	8.755	8.726	8.828	11.338	4265.109	3.686	0.398	8.649	Class I
110	4266.316	37.758	8.755	8.745	8.832	9.903	4302.881	2.748	0.397	8.648	Class I
111	4304.670	39.206	8.755	8.718	8.847	14.193	4327.476	5.738	0.389	8.615	Class I
112	4344.536	39.093	8.755	8.740	8.857	13.193	4383.523	3.350	0.384	8.644	Class I
113	4384.429	38.471	8.755	8.768	8.861	10.893	4421.920	1.959	0.382	8.653	Class I
114	4423.469	39.144	8.755	8.739	8.820	9.180	4462.489	2.827	0.403	8.655	Class I
115	4463.414	37.288	8.755	8.755	8.872	13.494	4493.516	2.900	0.377	8.658	Class I
116	4501.284	39.263	8.755	8.747	8.847	11.348	4517.060	2.986	0.389	8.641	Class I
117	4541.143	39.263	8.755	8.740	8.866	14.270	4578.787	3.694	0.379	8.628	Class I
118	4581.002	37.871	8.755	8.738	8.825	9.803	4583.076	3.114	0.400	8.665	Class I
119	4619.456	39.433	8.755	8.750	8.811	7.015	4657.569	1.866	0.407	8.673	Class I

Client: Southern California Gas
Well: Porter 50C
Date: 17-March-2016
Analyst: B. Harbstreit
Pipe: 9.625", 43.5lb

Top Depth: 5.8ft
Bottom Depth: 7102ft
Fingers: 56F
.

Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.

Item Number	Top Body	Body Length	NomID At Max Pen	Mean Median Ins	Max Pen Ins	Max Pen %	Max Pen Depth	Max Loss %	Min Wall Ins	Min Diam Ins	Comments
120	4659.457	39.334	8.755	8.739	8.805	7.415	4684.222	2.444	0.410	8.675	Class I
121	4699.374	39.170	8.755	8.742	8.819	8.699	4736.620	2.401	0.403	8.670	Class I
122	4739.344	38.513	8.755	8.732	8.823	10.224	4777.431	2.769	0.401	8.678	Class I
123	4778.425	37.019	8.755	8.728	8.820	10.248	4809.864	3.706	0.403	8.661	Class I
124	4816.027	39.287	8.755	8.731	8.793	6.947	4832.769	3.214	0.416	8.682	Class I
125	4856.113	39.050	8.755	8.745	8.836	10.363	4894.070	2.982	0.394	8.635	Class I
126	4895.788	37.829	8.755	8.732	8.821	9.968	4932.211	3.861	0.402	8.623	Class I
127	4934.213	39.334	8.755	8.733	8.806	8.197	4966.575	5.172	0.410	8.674	Class I
128	4974.144	37.119	8.755	8.723	8.815	10.197	4994.364	4.762	0.405	8.674	Class I
129	5011.873	39.348	8.755	8.745	8.810	7.386	5043.042	2.514	0.407	8.682	Class I
130	5051.846	39.093	8.755	8.727	8.799	8.018	5077.619	3.510	0.413	8.652	Class I
131	5091.521	39.235	8.755	8.718	8.856	15.192	5130.244	5.549	0.385	8.642	Class I
132	5131.352	39.348	8.755	8.732	8.862	14.538	5170.700	4.345	0.381	8.620	Class I
133	5171.296	37.587	8.755	8.732	8.824	10.287	5208.671	3.290	0.400	8.640	Class I
134	5209.480	39.249	8.755	8.727	8.866	15.509	5246.542	6.080	0.379	8.589	Class I
135	5249.297	39.220	8.755	8.728	8.829	11.259	5287.296	4.403	0.398	8.626	Class I
136	5289.085	39.320	8.755	8.733	8.809	8.559	5315.412	3.161	0.408	8.653	Class I
137	5328.987	39.277	8.755	8.735	8.823	9.930	5364.204	3.774	0.401	8.637	Class I
138	5368.847	37.034	8.755	8.737	8.812	8.469	5395.230	2.767	0.406	8.670	Class I
139	5406.505	37.602	8.755	8.738	8.848	12.358	5442.431	3.802	0.389	8.645	Class I

Client: Southern California Gas
Well: Porter 50C
Date: 17-March-2016
Analyst: B. Harbstreit
Pipe: 9.625", 43.5lb

Top Depth: 5.8ft
Bottom Depth: 7102ft
Fingers: 56F
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Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.

Item Number	Top Body	Body Length	NomID At Max Pen	Mean Median Ins	Max Pen Ins	Max Pen %	Max Pen Depth	Max Loss %	Min Wall Ins	Min Diam Ins	Comments
140	5444.689	37.744	8.755	8.738	8.878	15.748	5455.651	5.236	0.373	8.600	Class I
141	5483.072	39.320	8.755	8.737	8.859	13.744	5521.866	4.369	0.383	8.606	Class I
142	5522.974	39.306	8.755	8.739	8.817	8.763	5562.023	2.625	0.404	8.665	Class I
143	5562.861	39.178	8.755	8.734	8.834	11.219	5593.065	3.430	0.396	8.653	Class I
144	5602.621	37.800	8.755	8.733	8.816	9.352	5640.138	3.321	0.405	8.659	Class I
145	5641.018	36.721	8.755	8.722	8.823	11.139	5677.441	4.191	0.401	8.659	Class I
146	5678.350	39.291	8.755	8.735	8.821	9.626	5712.529	3.520	0.402	8.659	Class I
147	5718.252	39.235	8.755	8.739	8.832	10.448	5748.200	3.038	0.397	8.652	Class I
148	5758.083	37.744	8.755	8.739	8.846	12.059	5786.923	3.203	0.390	8.650	Class I
149	5796.451	39.291	8.755	8.725	8.815	9.993	5833.513	3.868	0.405	8.658	Class I
150	5836.353	39.249	8.755	8.721	8.810	9.889	5856.163	4.074	0.407	8.647	Class I
151	5876.184	39.362	8.755	8.722	8.873	16.748	5905.167	5.966	0.376	8.616	Class I
152	5916.129	39.277	8.755	8.738	8.843	11.882	5954.753	3.595	0.391	8.624	Class I
153	5956.003	39.107	8.755	8.742	8.816	8.403	5990.509	2.630	0.405	8.675	Class I
154	5995.734	39.291	8.755	8.729	8.839	12.316	6028.593	4.274	0.393	8.645	Class I
155	6035.622	38.581	8.755	8.717	8.816	10.863	6051.739	5.025	0.405	8.635	Class I
156	6074.800	38.070	8.755	8.726	8.828	11.374	6111.194	4.247	0.398	8.625	Class I
157	6113.466	39.249	8.755	8.731	8.822	10.130	6136.584	3.460	0.402	8.646	Class I
158	6153.340	39.277	8.755	8.718	8.853	14.907	6160.156	5.379	0.386	8.634	Class I
159	6193.214	39.306	8.755	8.734	8.864	14.562	6224.837	4.508	0.380	8.640	Class I

Client: Southern California Gas
Well: Porter 50C
Date: 17-March-2016
Analyst: B. Harbstreit
Pipe: 9.625", 43.5lb

Top Depth: 5.8ft
Bottom Depth: 7102ft
Fingers: 56F
.

Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.

Item Number	Top Body	Body Length	NomID At Max Pen	Mean Median Ins	Max Pen Ins	Max Pen %	Max Pen Depth	Max Loss %	Min Wall Ins	Min Diam Ins	Comments
160	6233.158	39.164	8.755	8.754	8.899	16.651	6271.668	3.454	0.363	8.648	Class I
161	6272.918	39.433	8.755	8.713	8.850	15.010	6312.352	6.312	0.387	8.643	Class I
162	6312.934	39.263	8.755	8.742	8.884	16.120	6315.944	4.363	0.371	8.580	Class I
163	6352.793	37.701	8.755	8.739	8.861	13.759	6362.662	3.813	0.382	8.581	Class I
164	6391.062	39.419	8.755	8.771	8.909	16.124	6408.443	3.161	0.358	8.597	Class I
165	6431.078	39.291	8.755	8.731	8.829	10.986	6469.418	3.884	0.398	8.595	Class I
166	6470.966	38.070	8.755	8.744	8.877	15.088	6475.325	3.879	0.374	8.670	Class I
167	6509.632	36.693	8.755	8.729	8.905	19.682	6530.549	6.555	0.360	8.537	Class I
168	6546.921	37.999	8.755	8.742	8.882	15.814	6583.032	4.270	0.372	8.664	Class I
169	6585.545	38.084	8.755	8.739	8.904	18.591	6590.473	5.027	0.360	8.602	Class I
170	6624.212	39.362	8.755	8.732	8.871	15.603	6633.215	4.425	0.377	8.645	Class I
171	6664.157	37.247	8.755	8.730	8.821	10.135	6700.850	3.436	0.402	8.663	Class I
172	6702.028	39.263	8.755	8.741	8.848	12.087	6739.374	4.200	0.389	8.623	Class I
173	6741.944	39.178	8.755	8.739	8.836	10.973	6752.268	3.411	0.394	8.633	Class I
174	6781.789	36.892	8.755	8.762	8.934	19.943	6817.715	10.516	0.345	8.633	Class I
175	6819.292	39.334	8.755	8.743	8.912	19.165	6849.438	4.526	0.357	8.614	Class I
176	6859.265	38.681	8.755	8.756	8.903	16.870	6862.687	3.875	0.361	8.630	Class I
177	6898.542	38.454	8.755	8.764	8.883	13.809	6935.448	3.169	0.371	8.693	Class I
178	6937.792	38.989	8.755	8.754	8.853	11.328	6940.432	2.405	0.386	8.689	Class I
179	6977.581	39.147	8.755	8.751	8.847	10.958	6981.512	3.123	0.389	8.606	Class I

Client: Southern California Gas
Well: Porter 50C
Date: 17-March-2016
Analyst: B. Harbstreit
Pipe: 9.625", 43.5lb

Top Depth: 5.8ft
Bottom Depth: 7102ft
Fingers: 56F
.

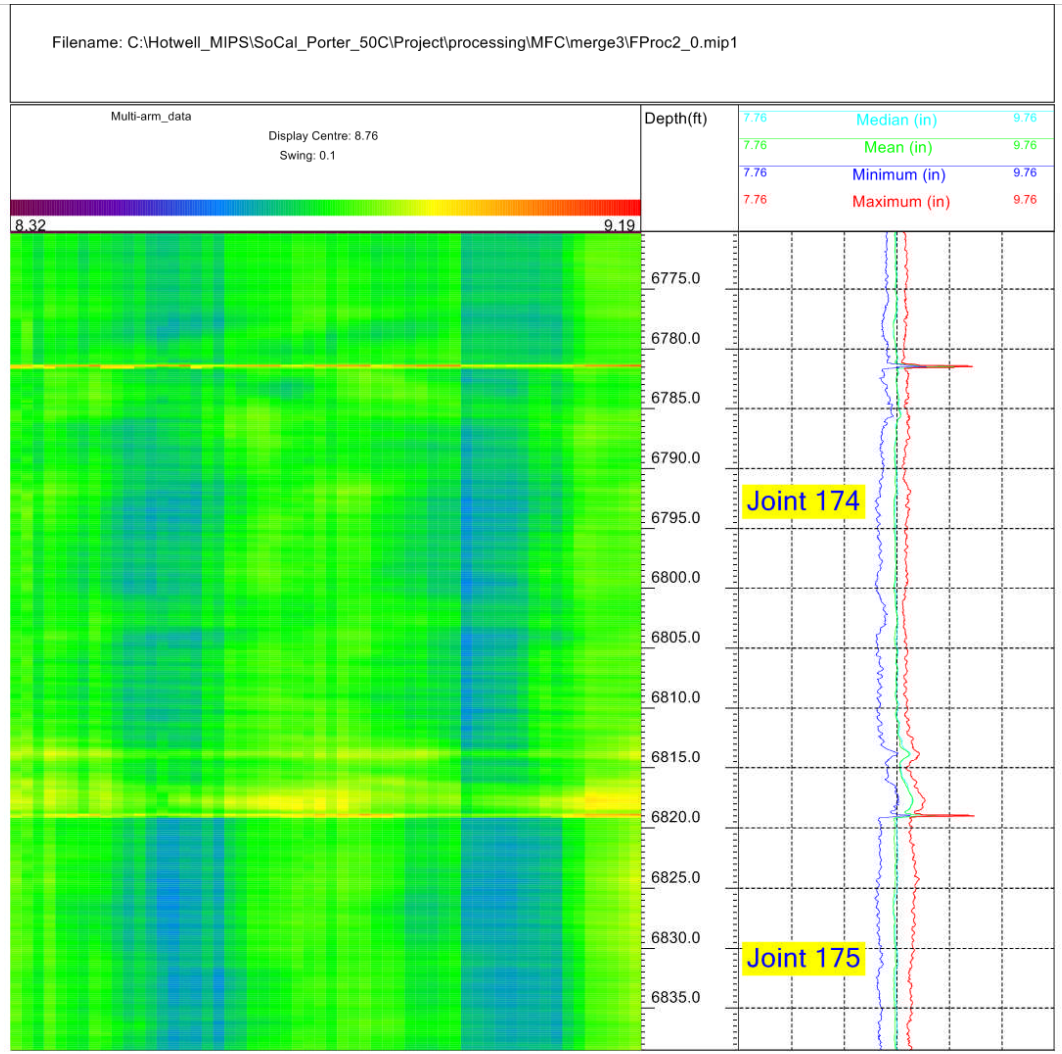
Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.

Item Number	Top Body	Body Length	NomID At Max Pen	Mean Median Ins	Max Pen Ins	Max Pen %	Max Pen Depth	Max Loss %	Min Wall Ins	Min Diam Ins	Comments
180	7017.325	39.220	8.755	8.733	8.836	11.578	7019.370	3.990	0.394	8.660	Class I
181	7057.156	39.164	8.755	8.749	8.924	19.983	7082.830	4.930	0.351	8.258	Class I
182	7096.840	4.140	8.755	8.746	8.881	15.340	7099.742	3.622	0.372	8.600	Class I

Client: Southern California Gas
Well: Porter 50C
Date: 17-March-2016
Analyst: B. Harbstreit
Pipe: 9.625", 43.5lb

Top Depth: 5.8ft
Bottom Depth: 7102ft
Fingers: 56F
.

Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.

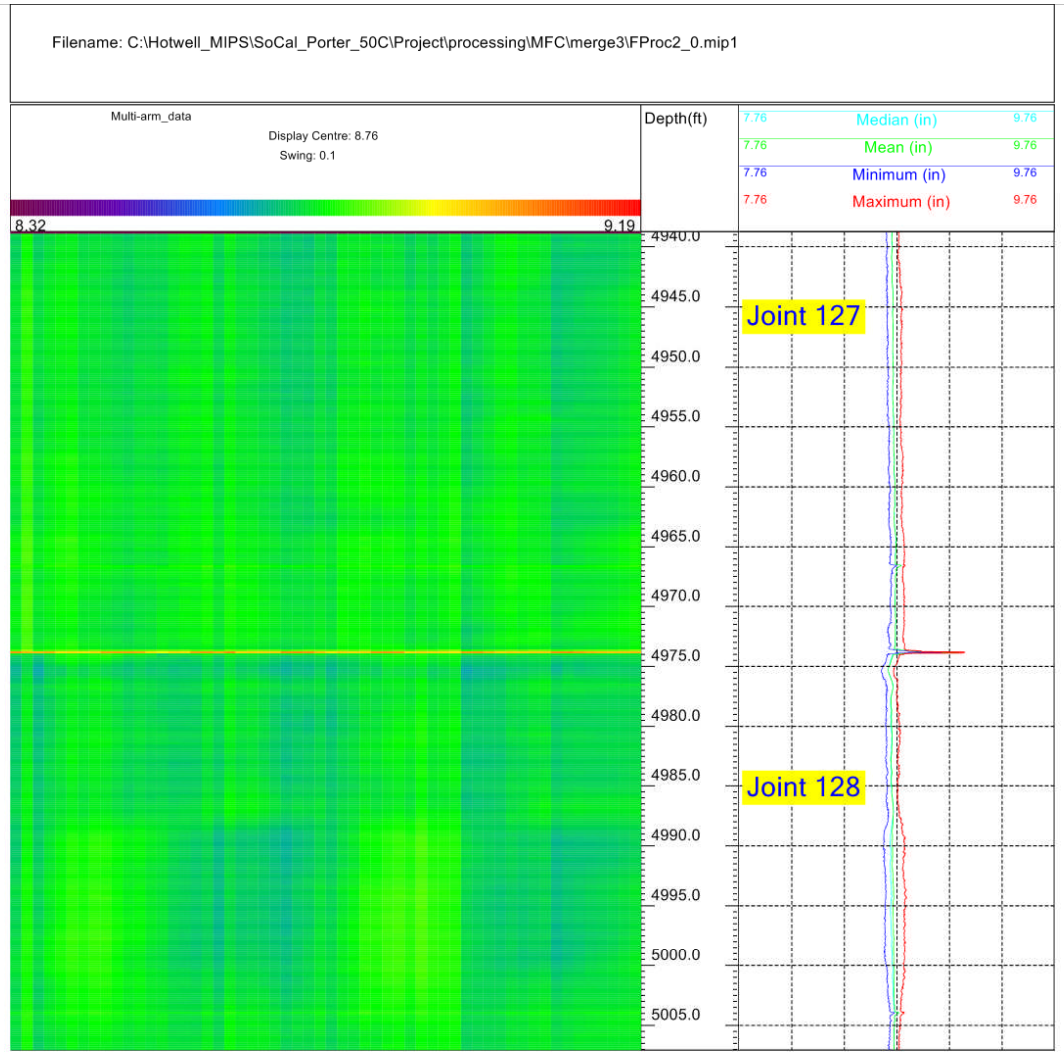


Probable Mechanical / Manufacturing Artifact

Client: Southern California Gas
Well: Porter 50C
Date: 17-March-2016
Analyst: B. Harbstreit
Pipe: 9.625", 43.5lb

Top Depth: 5.8ft
Bottom Depth: 7102ft
Fingers: 56F
.

Field: Aliso Canyon
Country: USA
Tool Size: 3.5"
Tool Type: Image Caliper
.



Shallow Internal Circumferential Anomaly - Probable Mechanical or Manufacturing Artifact at 4967ft and 5004ft

Client: Southern California Gas		
Well: Porter 50C	Top Depth: 5.8ft	Date: 17-March-2016
Country: USA	Bottom Depth: 7102ft	Tool Size: 3.5"
Analyst: B. Harbstreit	# Fingers: 56F	Tool Type: Image Caliper
Pipe: 9 5/8", 43.5lb, L80	.	.

Definition of terms in MIPS Pipe analysis report

Pipe dimensions

Item (no.) In 'pipe-by-pipe' analysis this represents the sequential pipe section number, selected during pipe end detection and editing, and indexed from the bottom up.
Top Body (ft/m) Processed measured depth in m/ft of top of the pipe section.
Bottom Body (ft/m) Processed measured depth in m/ft of bottom of the pipe section.
Body Length (ft/m) Length in m/ft of the pipe section.

Maximum penetration

Maximum penetration [Max.Pen] (ins or mm) Twice radius in inches or mm at maximum penetration of the pipe wall in the pipe section. (Expressed as a diameter - twice radius - for comparison with Nominal and Drift Ids).
Maximum penetration % [Max.Pen (%)] Maximum penetration of the wall in the pipe section, expressed as a percentage relative to the difference between Nominal ID and OD at the maximum penetration point.
Maximum penetration depth [Max.Pen depth] Depth in m/ft of the maximum wall penetration in the pipe section.

Wall Loss

Maximum loss % [Max.Loss (%)] The maximum value of metal loss in the pipe, expressed as the percentage areal loss of wall relative to the outer diameter and nominal diameters. For each sampled depth in the pipe the loss is calculated as:
Percentage wall loss = $(100/n)\ \Sigma\ (Si_2\text{-}ID_2)/(OD_2\text{-}ID_2)$, where n is the number of caliper arms, Si is twice the radius measured by caliper arm i, ID is the Nominal ID of the pipe.

Minimum diametric restriction [Min Diam. (ins or mm)]

Smallest diameter in inches or mm of the pipe section measured on opposing arms. Min Diam = Min(Arm [x] radius*2 + Arm [x+Narms/2] radius*2)/2

Minimum diametric restriction % [Min Diam. (%)]

Smallest diameter in the pipe section measured on opposing arms as a %age of Nominal ID. Min Diam % = 100 * Min(Arm [x] radius*2 + Arm [x+Narms/2] radius*2)/(2* NomID)

Restrictions

Minimum radial restriction [Min Res (ins or mm)] Smallest arm reading in inches or mm in the pipe section, (expressed as twice radius for comparison with Nominal and Drift Ids).
Maximum projection [Max Proj (ins or mm)]. Largest projection into the well bore from the pipe wall in ins or mm based on Nominal IR.
Maximum projection % [Max Proj (%)]. Largest projection into the well bore from the pipe wall as a %age of Nominal IR.